COMMUNICATION GUIDELINE

GEA Omni

Control Panel

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1 COMMUNICATION INTERFACES

The GEA Omni provides a flexible communications interface for integration with supervisory systems not supplied by GEA. The specific addresses of all applicable data points and operating parameters for systems integrator use are shown in the table at the end of this document (Chapter 2, Page 33). Both read and write operations make it possible for a supervisory system to not only monitor the operation of equipment controlled by the GEA Omni, but also provide the ability to remotely control the equipment while the GEA Omni continues to provide independent monitoring of all safety limits, such as pressure and temperature safety limits for protection of the system and its components, like the compressor. If a problem is detected the GEA Omni will cause an independent shutdown of the compressor.

Two types of communication interfaces are available for use within a GEA Omni-based control system: *Ethernet* and *Serial* communications. The follow-ing is a listing of each widely-used, industry standard protocol that is supported by the GEA Omni for supervisory system communications, making the panel directly compatible with the existing system in almost any plant.

The panel also supports multiple communications protocols simultaneously, so one supervisory system can communicate via EtherNet/IP communications with the GEA Omni while another supervisory system is communicating using Modbus TCP commands, both over the same LAN connection and through the GEA Omni's LAN Ethernet port.

Similarly, one supervisory system such as a DCS can communicate with the GEA Omni panel through the RS-485 connection using Modbus RTU serial communications protocol while a Rockwell PLC is communicating using EtherNet/IP communications via the GEA Omni's LAN Ethernet port.

Notice

In order to write parameters to the GEA Omni for a particular device, like a compressor or condenser, a so called viewport parameter must be used to select that particular device before writing the parameter(s).

► See Section 2.2, Page 67 for details on the viewport addresses.
► This function is not supported by Profibus-DP and ProfiNET communication.

However, multiple connections over the RS-485 connection are not possible, and depending on the panel application, the connection might not be available for the customer.

Extended data communication (interfaces)

The GEA Omni is equipped with a serial RS-485 and an Ethernet interface as a standard.

These interfaces support the following protocols:

1. Modbus TCP
2. EtherNet/IP
3. Modbus RTU
4. Allen-Bradley DF1

The following protocols are optional and make use of a Gateway (interface converter).

1. Profibus-DP
2. ProfiNET

The communication interfaces can be used by the customer to read out the following values:

- All analog values (pressures, temperatures, etc.)
- Remaining timers
- Active warning and shutdown messages
- Status messages
- Changed settings

Furthermore, the package can be remotely controlled by transmitting commands over the network.

1.1 Data Protection and IT Security:

The GEA Omni control panel does not guarantee any specific needs or the required level of IT security or data protection for customers. The level of data protection and/or IT security for access, handling and transmission of data remains the sole responsibility of the customer. GEA may provide support and specific security measures or requirements upon the customer's request, after consultation and agreement. The following are general security guidelines that should be followed to minimize data security issues.

- Never connect any device directly to the internet without a firewall or other protection.
- Maintain separate office and production networks. To transfer data between networks, use managed switches or other devices capable of managing VLAN or similar techniques for controlling access.
- When remotely connecting to other devices via the internet, only use secure connections such as VPN or encrypted connections.
- Prohibit any unauthorised access to any device.
- Use a VNC password when remotely viewing the panel via VNC.
- If not required, disable VNC functionality.
- Substitute any default passwords with individual secure passwords.

1.2 Ethernet

Every GEA Omni panel IPC has one 10/100/1000 BaseT Ethernet port (RJ-45 type connector) for connection to a plant Local Area Network (LAN). Each panel has its own user-adjustable IP address, making it possible to connect GEA Omni panels into a highly secure, plant-wide managed communications net-work with multiple types of supervisory systems (PLCs, DCSs, SCADAs, etc.).

Connected to a LAN with proper security and firewall capability, every GEA Omni panel can also be made accessible to/from the “outside world” through a secure Internet connection such as a VPN. GEA does not generally provide the expertise needed for this type of network setup. Each user must obtain this sup-port from their local IT Department or from a reputable and experienced IT and networking service.

Fig.1: Ethernet (LAN) interface for Modbus TCP and EtherNet/IP

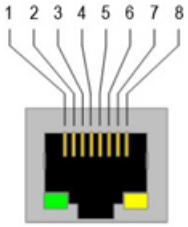

Fig.2: Ethernet pin assignment

Pin	10BaseT, 100BaseTX	1000BaseT
1	TX+	D1+
2	TX-	D1-
3	RX+	D2-
4	-	D3+
5	-	D3-
6	RX-	D2-
7	-	D4+
8	-	D4-

1.2.1 Modbus TCP

Modbus TCP is a common industrial communication protocol, which is used by various manufacturers of control systems. Using this protocol, the GEA Omni can be directly integrated into the Modbus TCP network.

Only the integrated Ethernet port (LAN) provides support for Modbus TCP com-munication.

The GEA Omni acts as a server to communicate with other control devices and as a client to read/write data from other control panels.

The following is a step by step instruction guide on how to connect, poll, and ver-ify valid communications with a GEA Omni panel via Modbus using a third party tool called ModScan32. The software can be downloaded at http://www.win-tech.com/.

After you’ve finished installing ModScan32, you can connect to the GEA Omni device by selecting *Connection* → *Connect* in the menu bar as shown below.

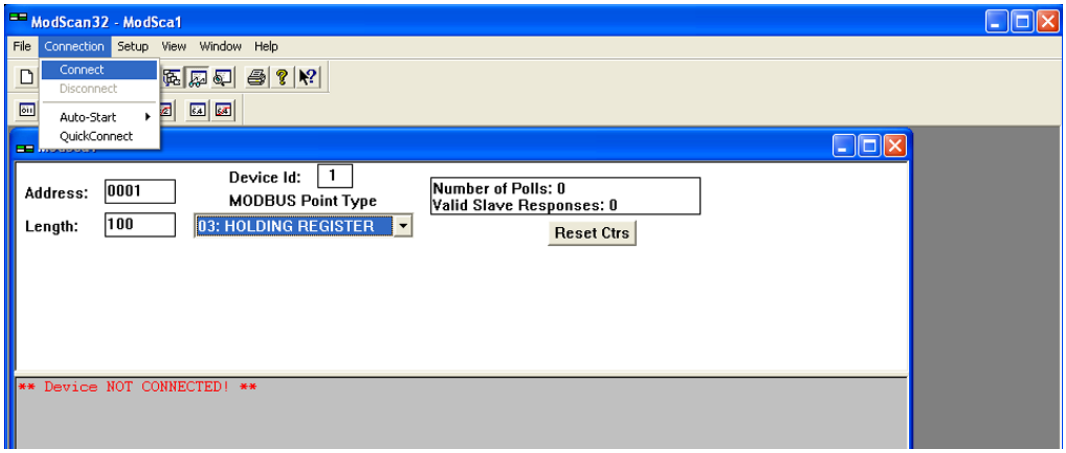

Fig.3: Connecting to the GEA Omni device

Select *Remote Modbus TCP Server* from the *Connect Using* drop down list. Enter the *IP Address* of the GEA Omnipanel that you will be connecting to and the *ServicePort* should be left at the default (502). Click [*OK*] to connect.

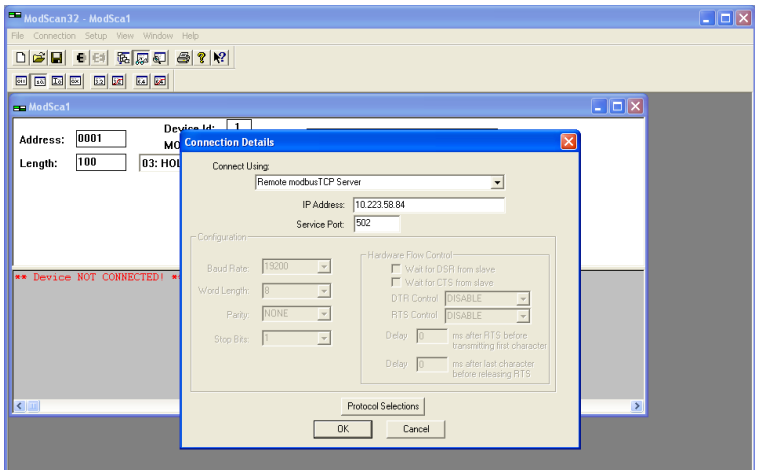

Fig.4: The Connection details window

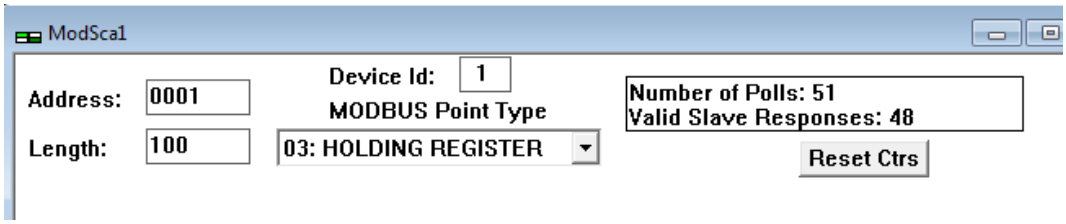

Fig.5: The ModScan32 Interface

The numbers received via communication will be scaled based upon how many decimal points they have. For example, a number with 100x scaling, such as 59.59, will be sent as 5959.

The choice of pressure or temperature units used is user adjustable on the GEA Omni panel. The GEA Omni control panel performs all scaling functions prior to the data being sent over the network based on the units selected in the panel. It is important to note that pressure units which are in a vacuum will be displayed in units that may be different than those expressed as a positive pressure based on the units chosen. The GEA Omni scales and displays all pressures as

“Gauge” Pressure. For example: A pressure expressed in PSI units would be displayed as PSI when the pressure is positive and inHg when the pressure is negative (-14.7 PSIA = -29.9 inHg). The proper nomenclature (PSI or inHg) can be determined by analyzing the sign of the value returned.

A 16 bit number without the sign being used is from 0 to 2^{16} power which is 65636 decimal. When the sign is used, the most significant bit is set and the number goes from a negative -32768 to positive +32767 which splits half of the numbers as positive and the other as negative. The following table shows how the numbers change when the number transitions from positive through 0 to become negative. The ‘$’ symbol below denotes numbers that are entered in hexadecimal.

Actual Number	Binary Signed	Unsigned Number
+32767	$7FFF	32767
+32766	$7FFE	32676
...	...	...
...	...	...
2	$0002	2
1	$0001	1
0	$0000	0
-1	$FFFF	65535
-2	$FFFE	65534
...	...	...
-6	$FFFA	65530
...	...	...
-32765	$8001	32769
-32766	$8000	32768

For example:

For a number expressed as -0.6 = communications would convert it to -6 expressed as a signed number which is ($FFFA) as a signed binary integer. If the number is converted as a 16 bit number (without using the sign) the same $FFFA = 65530 which is incorrect, i.e. all numbers are signed.

1.2.2 EtherNet/IP™

EtherNet/IP is an industrial protocol governed by ODVA. Using this protocol, the GEA Omni can be directly integrated into an EtherNet/IP network. Only the integrated Ethernet port (LAN) provides support for EtherNet/IP communication. The GEA Omni acts as an EtherNet/IP server using the EtherNet/IP interface.

GEA Omni follows the standard Ethernet/IP communication protocol and is capable of communicating with Allen-Bradley PLC(s) via explicit messaging commands (PLC-5, SLC505). The following two examples describe how to communicate with a ControlLogix PLC and a SLC5/05 PLC using Ethernet messaging.

1.2.2.1 Allen-Bradley ControlLogix PLC Ethernet Communication Example

1. Create or open an RSLogix5000 program.
2. Insert an MSG command into the program.

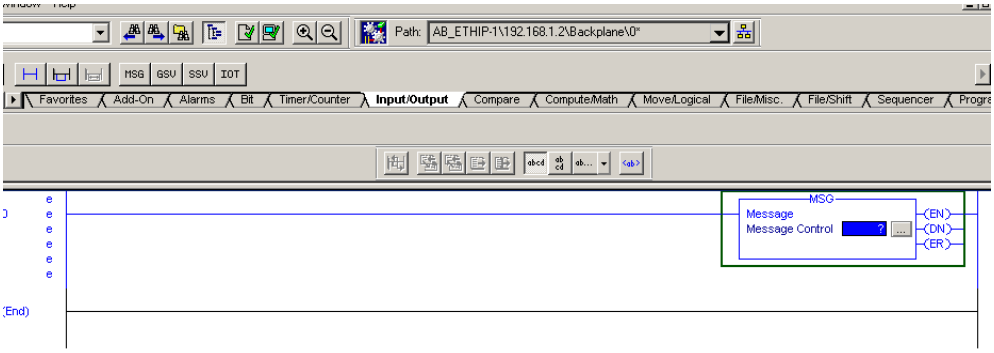

Fig.6: Inserting an MSG Command in RSLogix5000

3. Create a new MSG tag:

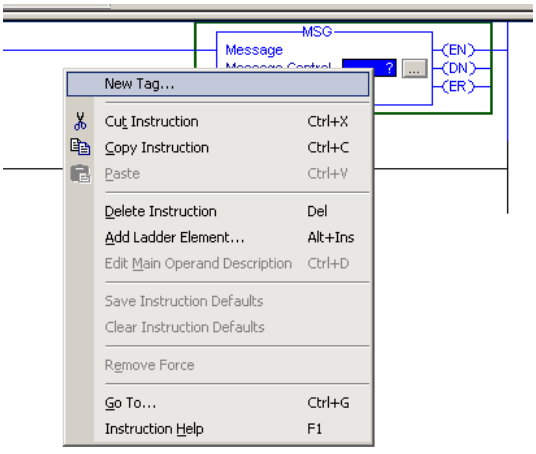

Fig.7: Creating a new MSG tag

a. Right Click the *?* and select *New Tag*.

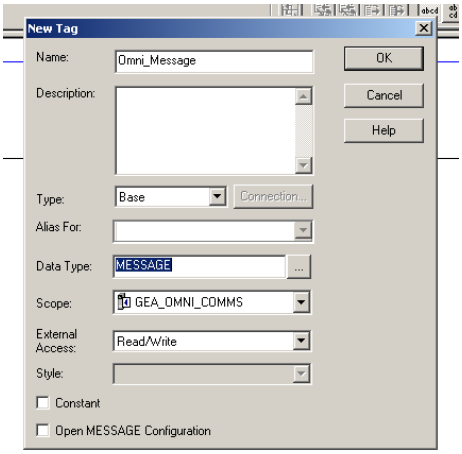

Fig.8: Changing an MSG tag name

b. Name the tag and click *OK*.

4. Click the ellipses on the MSG command to open the message configuration screen.

a. Select *SLC Typed Read* from the message type drop down list

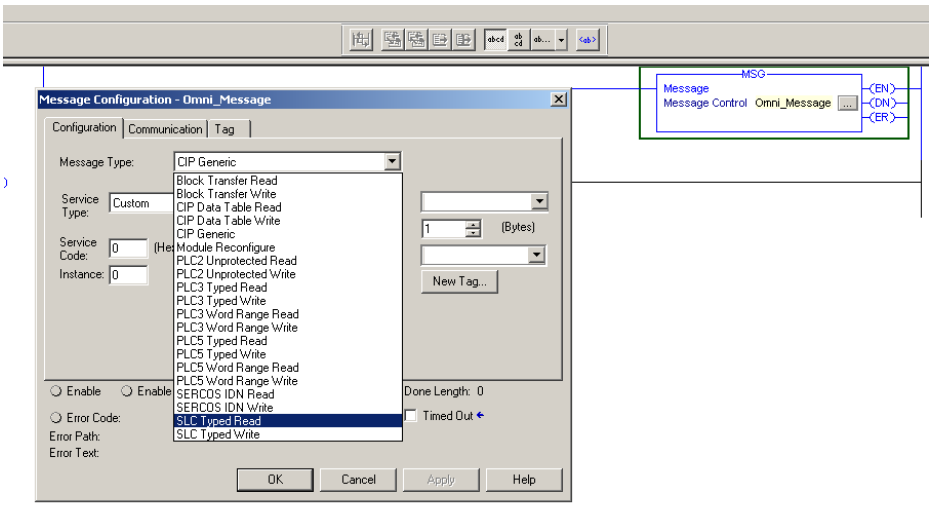

Fig.9: Selecting an MSG type

b. Refer to the GEA Omni I/O addressing table to locate the appropriate N address of the desired data. In this example, N106:3 is the address of the compressor control set point.

c. Set the *Number of Elements* to 1.

d. Click *New Tag…* to create a new tag that will store the data read from the Omni panel. Tags must be of *DINT* type to receive data from the GEA Omni panel.

Notice

If the *Number of Elements* is set to greater than one, the MSG command will read sequential addresses from the GEA Omni panel.

► An array tag will be required to store the received data.

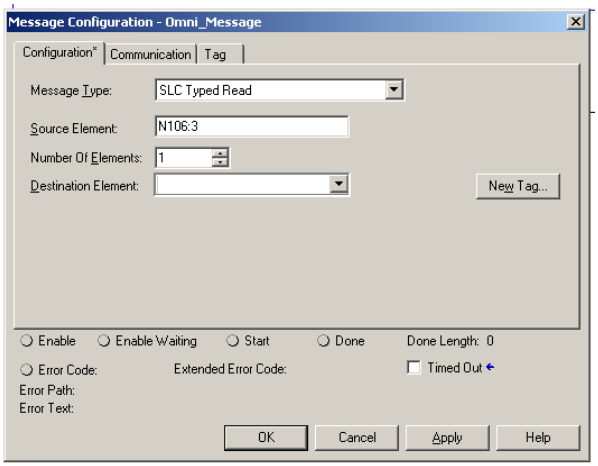

Fig.10: The Message Configuration window

e. Select the *Communication* tab. In the *Path:* field, type [Ethernet module name], 2, [Omni panel IP address].

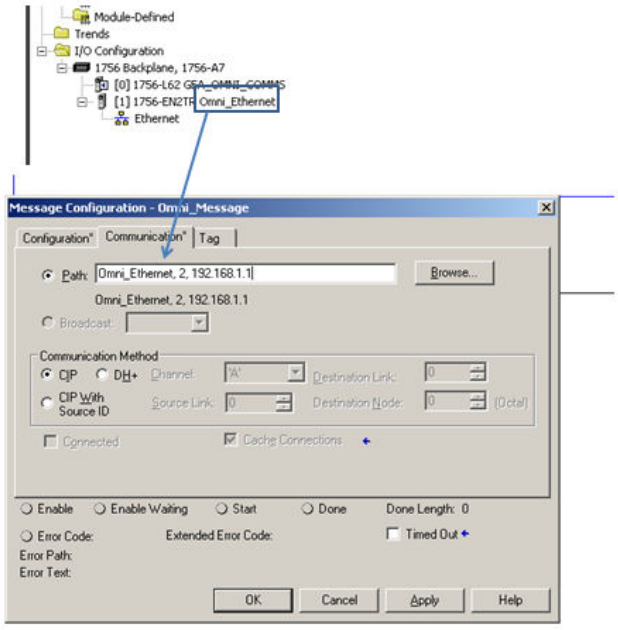

Fig.11: Setting the Communication path

5. Click *OK* and download and run the program. The data received from the GEA Omni panel should be visible in the tag created for the destination element. The data collected below is from a compressor configured to control on Suction Pressure as Temperature with a set point of 12.5°C.

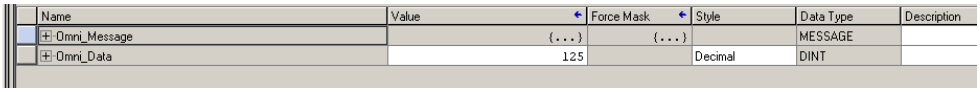

Fig.12: Sample data display

6. To write to a specific address, follow these instructions and select *SLC Typed Write* for the message type.

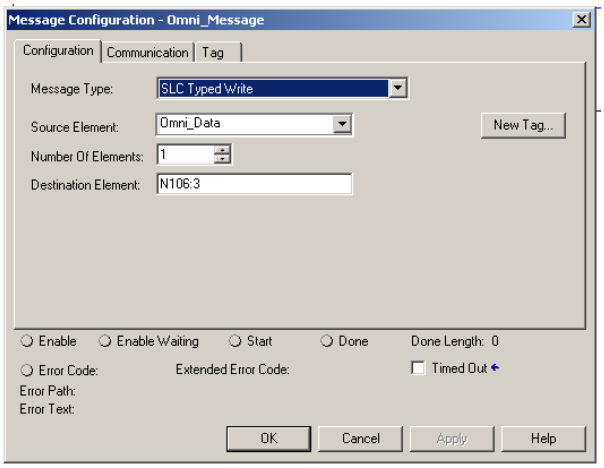

Fig.13: Configuring a message to write to a Modbus Address

1.2.2.2 Allen-Bradley SLC 5/05 PLC Ethernet Communication Example

1. Open RSLogix 500 and create a new project.
2. Add an new MSG instruction to a rung for *Read/Write Message*. Set the following properties:
   - *Type* to *Peer-To-Peer*,
   - *Read/Write* to desired function,
   - *Target Device* to *500CPU*,
   - *Local/Remote* to *Local*,
   - *Control Block* to the desired file number to hold message status data.

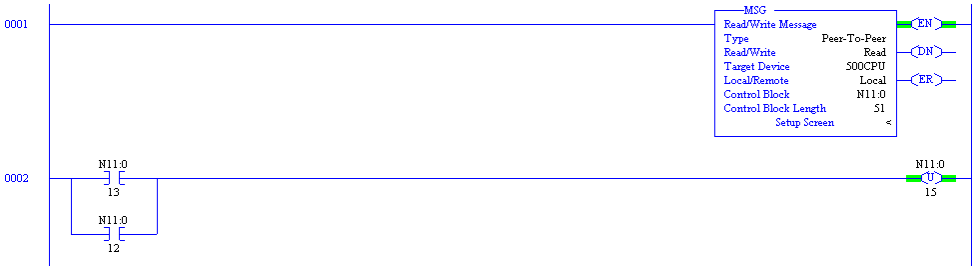

Fig.14: Adding an MSG instruction rung

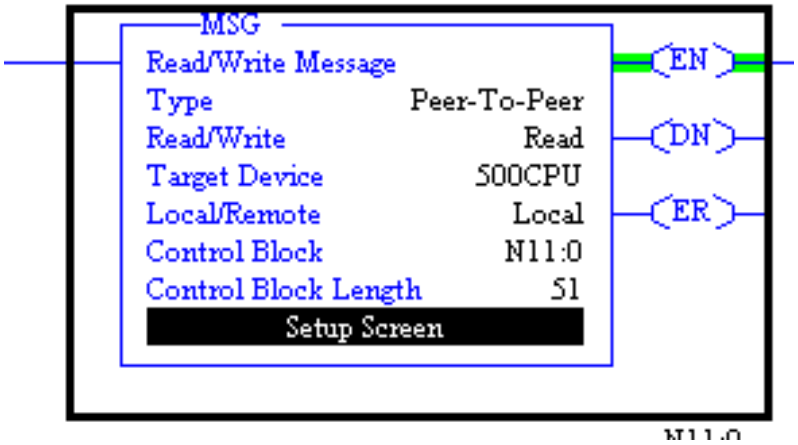

Fig.15: Read/Write message properties

3. Click the *Setup Screen* and set the following:
   - *Data Table Address* to the desired address to store the data in the PLC,
   - *Size in Elements* to the number of data values to read/write,
   - *Channel* to *1*,
   - *Message Timeout* to the desired timeout,
   - *Data Table Address* to the address to read/write in the GEA Omni,
   - *Ethernet (IP) Address* to the IP Address of the GEA Omni,
   - *MultiHop'* to *No*.

The address definitions can be found in in the *Data Addresses* table (Chapter 2, Page 33).

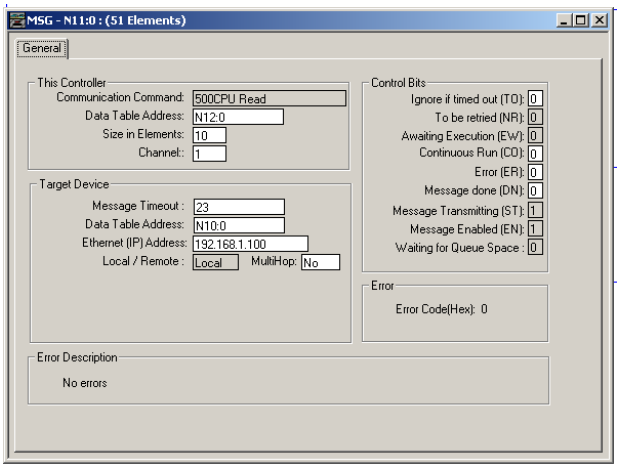

Fig.16: MSG Setup Screen

1.2.2.3 Allen-Bradley FactoryTalk View Ethernet Communication Example

Setup and Configuration of software as tested:	
Allen Bradley Software Factory Talk Studio Me	Revision - 6.10
Allen Bradley RSLinx Classic	Revision - 2.59.01
Desktop Computer IP address	192.168.1.101 (Wired Ethernet port activated)
GEA Omni IP Address	192.168.1.1 • GEA Omni panel is viewed as a SLC 505 product using AB Ethernet format. • Reference the Omni panel Ethernet IP addressing instructions below • Testing per FactoryTalk Studio ME, FactoryTalk Studio SE software may be similar in design in OPC creation using RSLinx Classic • Ethernet Subnet Mask must be similar between GEA Omni panels and workstation

1. Open or create a new FactoryTalk View project.
2. Add an OPC Server to the project
   a. Right Click Project Name.

b. Select *Add New Server → OPC Data Server…*

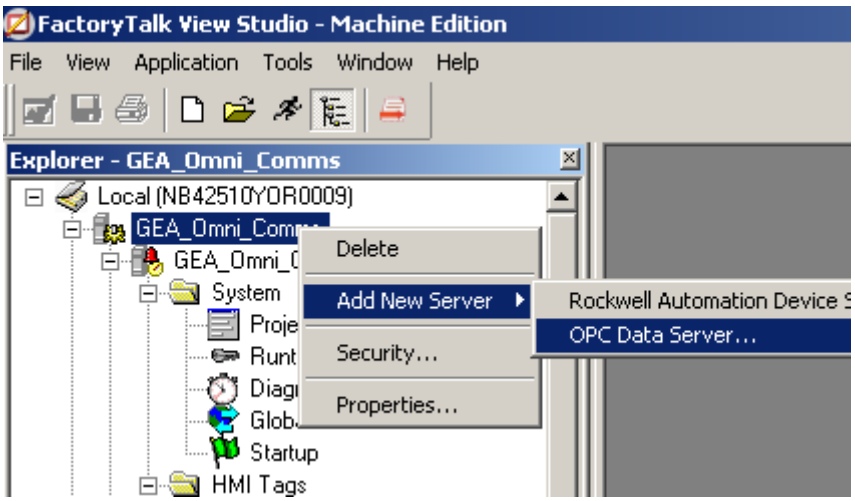

Fig.17: Adding an OPC Server

c. Configure the server with a name and the following settings:

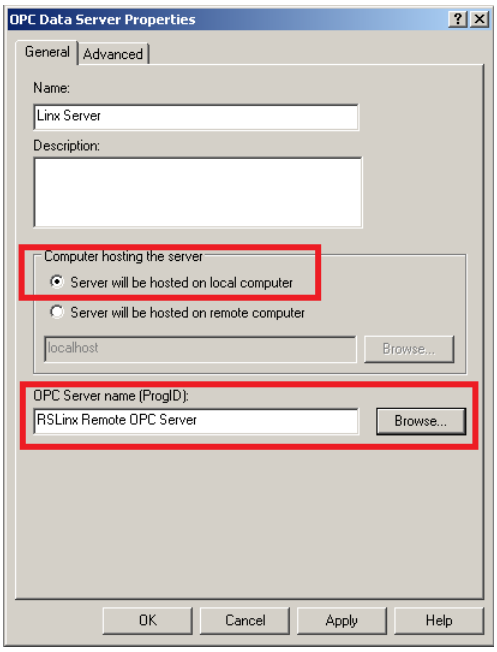

Fig.18: Configuring a Server

d. Click *OK*.

e. Verify the Server has been created in the project explorer.

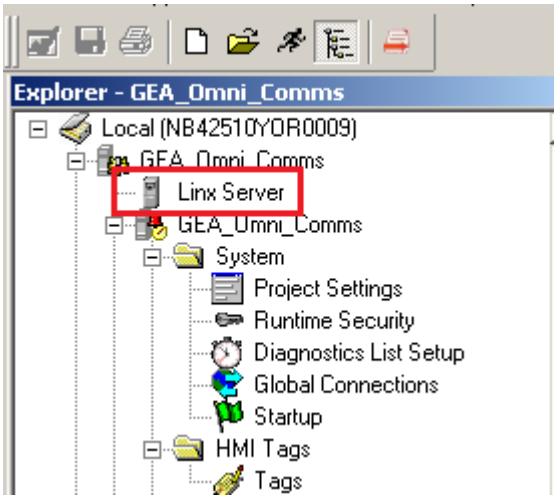

Fig.19: Verifying the server has been created

3. Open RSLinx Classic.
4. Configure a new ethernet driver.
   a. Open the *Communications* drop down list and select *Configure Drivers…*.

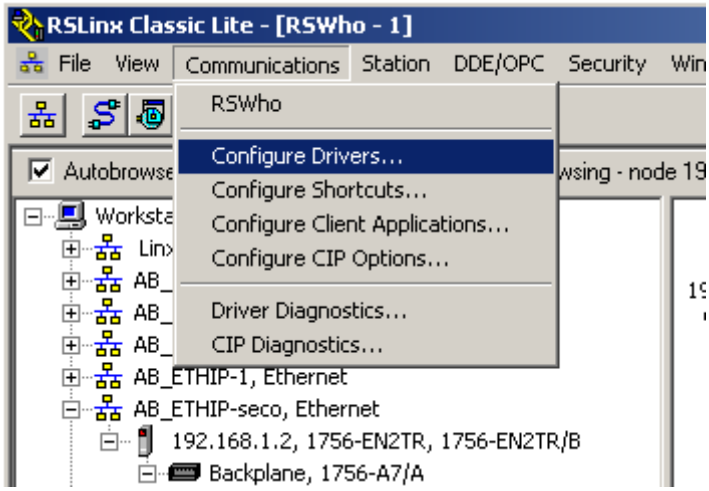

Fig.20: Accessing the Configure Drivers options

b. Select *Ethernet devices* from the pull down menu and select *Add New…*

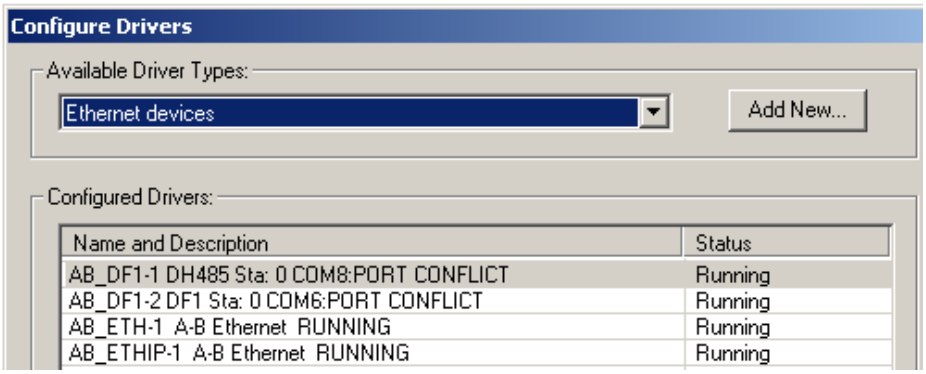

Fig.21: Adding a new Ethernet Device

c. Give the driver a name and click *OK*.

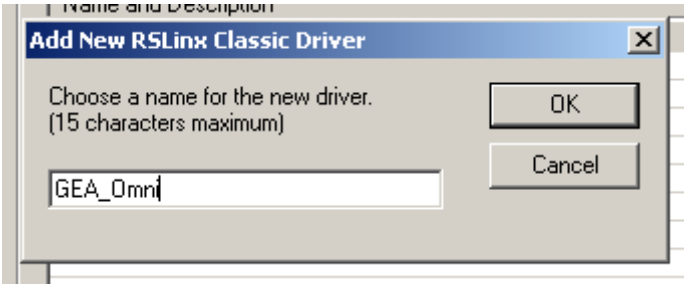

Fig.22: Naming the driver

d. Enter the IP Address of the GEA Omni panel. Click *OK*.

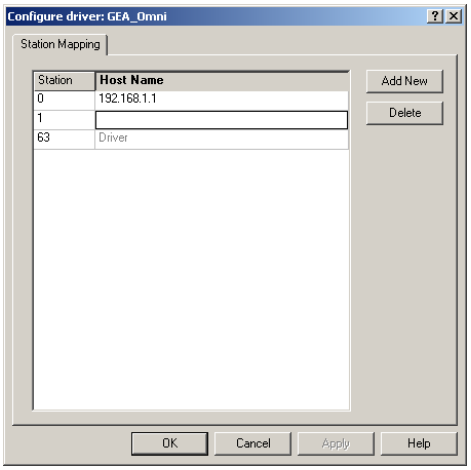

Fig.23: Entering the driver IP address

e. Verify the driver has been created by locating the GEA Omni panel in RSWho.

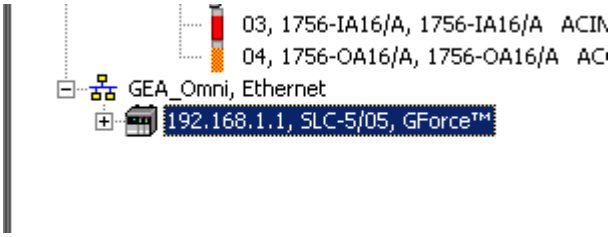

Fig.24: Verifying the driver has been created

5. Create an OPC Topic in RSLinx Classic.

a. In the *DDE/OPC* drop down list, select *Topic Configuration*.

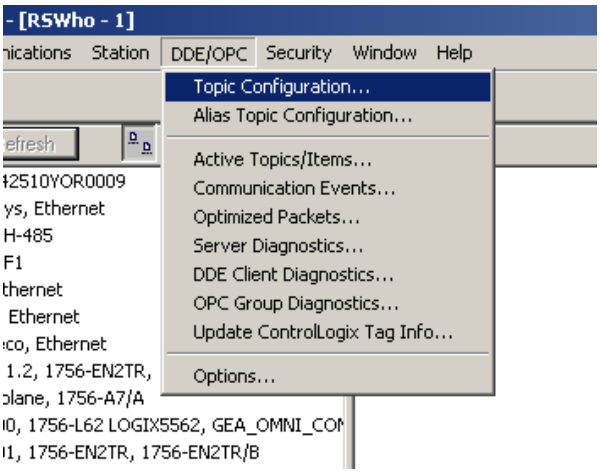

Fig.25: Accessing the 'Topic Configuration' options

b. Select the GEA Omni panel from the Data Source.

c. Click *New*.

d. **Notice**

Name the Topic and click *Yes* when asked to update the topic.

► This name will be used to address the panel in FactoryTalk View.

e. When properly set up, the GEA Omni panel should be highlighted when the topic is selected.

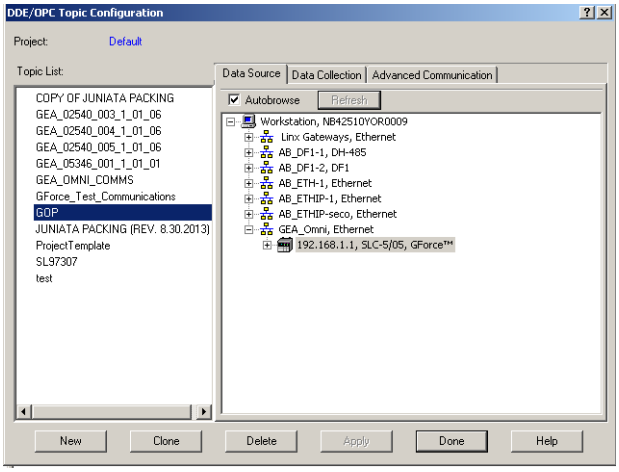

Fig.26: Verifying the topic is properly configured

f. RSLinx/OPC Server setup is complete.

6. Read data from GEA Omni panel from FactoryTalk View.
7. Return to FactoryTalk View.
   a. At this point a working knowledge of FactoryTalk Studio is assumed. For help on creating a FactoryTalk View project, refer to Allen Bradley document viewme-um004_-en-e.
   b. Create a display with a numeric indicator.
   c. Open the *Connections* tab of the *Numeric Display properties* box.
   d. Reference the I/O addressing table for the N address of the desired data. This example is reading N106:3, the control set point of the com-pressor.
   e. In the Tag/Expression field for the Numeric Display Value, enter “{:: [Name of OPC Topic Created Previously]N address of required data}”.

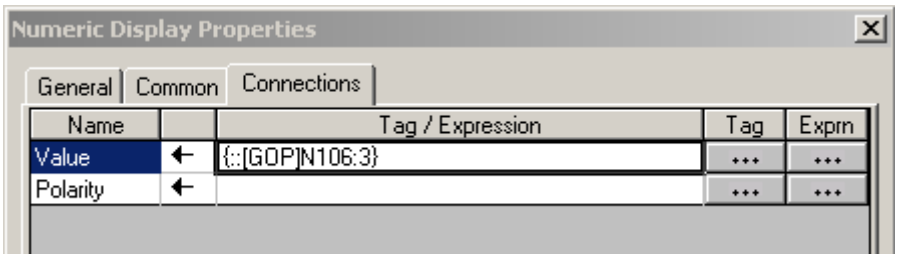

Fig.27: Configuring the FactoryTalk numeric display

f. Close the *Numeric Display Properties* box.

g. Test the connection by pressing the play button in FactoryTalk View Studio.

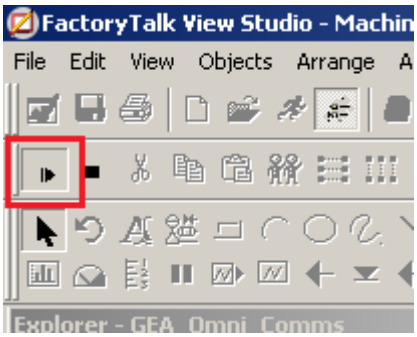

Fig.28: Testing the FactoryTalk connection

The numeric display should display the data read from the GEA Omni panel.

In this example, the data being read is the control set point of a compressor configured to control on Suction Pressure as Temperature with a set point of 3.2 °C.

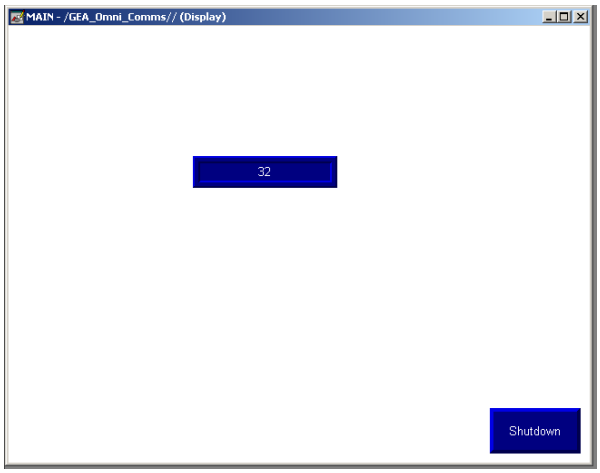

Fig.29: Sample numeric display

1.2.3 ProfiNET

ProfiNET is the successor of Profibus using Ethernet technology instead of serial technology for communication. Using this protocol, the GEA Omni can be integrated into the ProfiNET network via a gateway.

To set up a network with ProfiNET, all users must be connected to each other with a Ethernet cable.

The notes in the "Communication interfaces" (Chapter 1, Page 7) must be noted and observed regarding the connectors and data. A gateway is installed for the ProfiNET link. The gateway behaves like a ProfiNET server (I/O device) at the customer end. An additional feature of the ProfiNET application is the advantage of freely selectable bus addresses, the transmission speed and other ProfiNET settings, which are transferred from the ProfiNET client (controller) to the gateway.

The GSDML file provided by the manufacturer is to be used in the project planning.

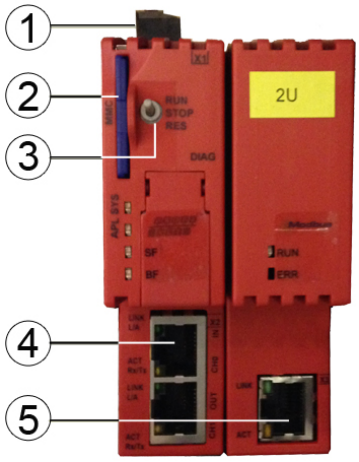

Fig.30: Example of a ProfiNET Gateway

1	Voltage: 24 VDC
2	MMC, SD slot
3	Operating mode (RUN must be active)
4	ProfiNET connection to the customer (female)
5	Connection to the I/O interface of the GEA Omni (see electrical drawings for details)

To connect to the gateway a special ProfiNET connector must be used. This connector is supplied with the gateway if the option ProfiNET communication is chosen.

Notice

Set the "name of station" as follows:

- ► unit 1: **nettap-1-01**
- ► unit 2: **nettap-1-02**
- ► unit 3: **nettap-1-03**
- ► unit ...: **nettap-1-...**

1.3 Serial

There are many supervisory systems in existence that are based only on serial communications and do not have Ethernet communications capability. For these systems, the GEA Omni provides compatibility through an RS-485 connector on the IPC. Modbus RTU and Allen-Bradley DF1 are available through this port for the required communications.

One typical example of an application using the RS-485 connection is the use of this same RS-485 port for direct communications between a GEA Omni panel on a compressor package and the compressor's Benshaw Motor Starter or Frequency converter. This method of connecting to the motor starter, in addition to the normal hard-wired start/stop signals for the compressor and oil pump motors, is superior for monitoring actual motor voltages, currents, and power usage as well as motor speed in variable-speed applications, and for monitoring and managing warnings and shutdowns generated by the starter.

The RS-485 connection may also be used for direct communication between a GEA Omni panel on a reciprocating compressor package and a older version of the Thermomaster for monitoring each individual cylinder head temperature.

Notice

Communicating with a motor starter, frequency converter or older version of the Thermomaster and with a supervisory system at the same time via this RS-485 connection is NOT possible.

► When communicating with a supervisory system, the GEA Omni must always be a Slave.
► However, when communicating with the Benshaw Starter or Thermomas-ter the GEA Omni must be acting as a master, which will cause conflicts on the RS-485 network if used for both at the same time.

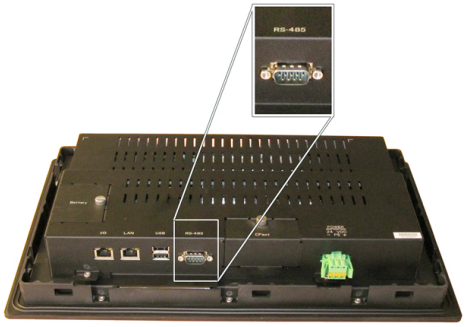

Fig.31: RS-485 interface for Modbus RTU, Allen-Bradley DF1, Benshaw motor starter and Thermomaster.

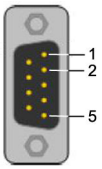

Fig.32: RS-485 pin assignment

1	DATA-, Transmit data negative
2	DATA+, Transmit data positive
5	GND, Ground

Notice

The older version of the Thermomaster consists of a separate device via Modbus RTU to the controller is connected.

► The new version is completely integrated in the I/O Box and does not block the RS-485 connection.

1.3.1 Modbus RTU

Modbus RTU is a widely used protocol. Using this protocol, the GEA Omni can be directly integrated into a Modbus RTU network.

To set up a network with Modbus RTU, all the users must be connected to each other with a bus cable.

Only the integrated port type Type DE9 (D-SUB 9-pin, RS-485) is supported for the Modbus communication.

Data transmission is effected by means of a Modbus RTU connection with the GEA Omni acting as the Modbus RTU server.

Serial communication settings are adjustable via the GEA Omni panel.

GEA Omni, acting as a Modbus RTU server, is only possible when no motor starter or frequency drive communication is used.

1.3.1.1 Motor Starter or Frequency Drive (Benshaw, WEG, Danfoss)

GEA Omni, acting as a Modbus RTU client, can control motor starters or frequency drives via Modbus RTU RS-485 communication.

The control will handle starting, stopping and the variable speed control of the motor, if applicable.

The control can also view and modify internal motor starter parameters.

1.3.1.2 Modbus RTU Communication Example

The following example will demonstrate how interface with the GEA Omni panel via Modbus using a Modbus Master utility such as ModScan, ModPoll, or any other similar program.

1. Configure the GEA Omni Panel for Modbus RTU serial communications.
   a. Choose the *Panel Settings* tab on the left side of the screen.
   b. Choose the *Network* tab on the top of the screen.
   c. Select the desired Modbus network settings.

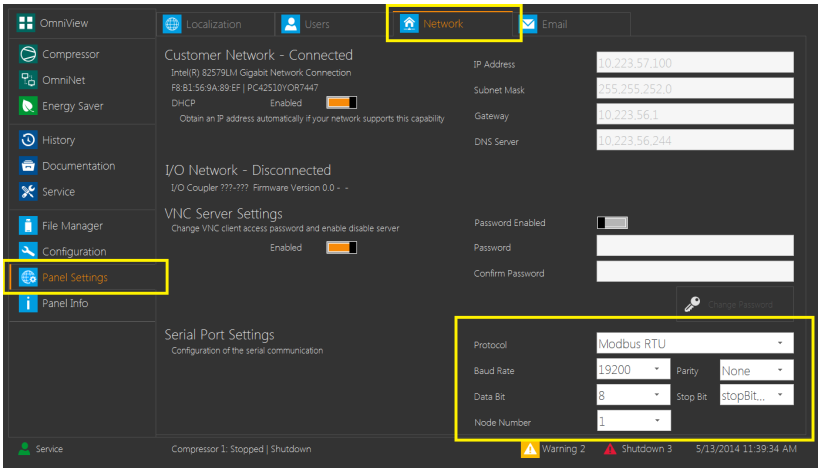

Fig.33: Configuring the GEA Omni for Modbus RTU communication

2. Open the Modbus polling utility (ModScan32 in this example).
3. Set the device ID to match the GEA Omni panel's *Node Number*.

4. Configure the polling utility to read holding registers.

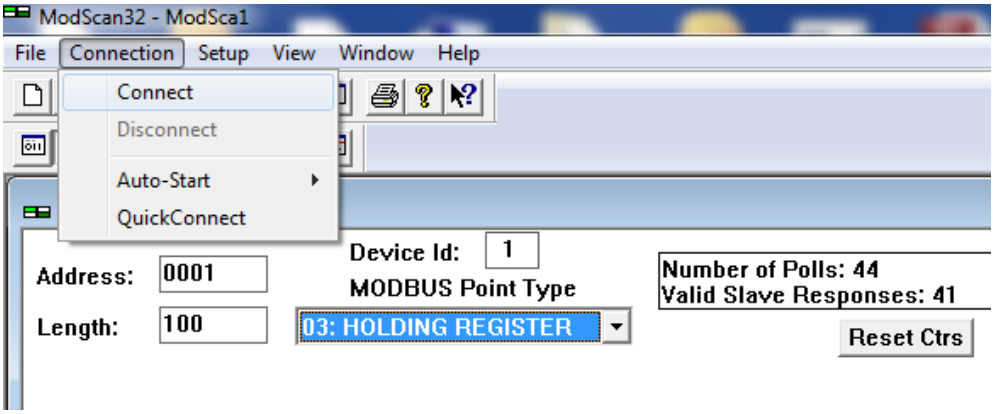

Fig.34: Connecting the Modbus polling utility to the GEA Omni

5. Select *Connection → Connect*.
6. Configure the connection to match the GEA Omni panel's serial network settings and click *OK*.

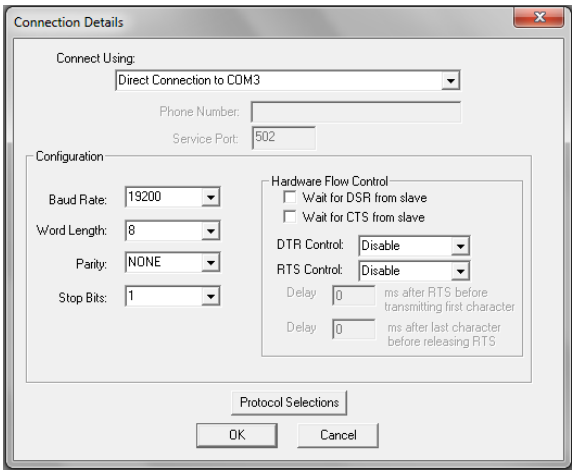

Fig.35: The Connection Details window

7. If successful, the Modbus polling utility should begin to read data from the GEA Omni panel. Registers 40027, 40028, and 40029 are the Hours, Minutes, and Seconds of the panel's internal clock. These can be used to quickly determine a successful connection.

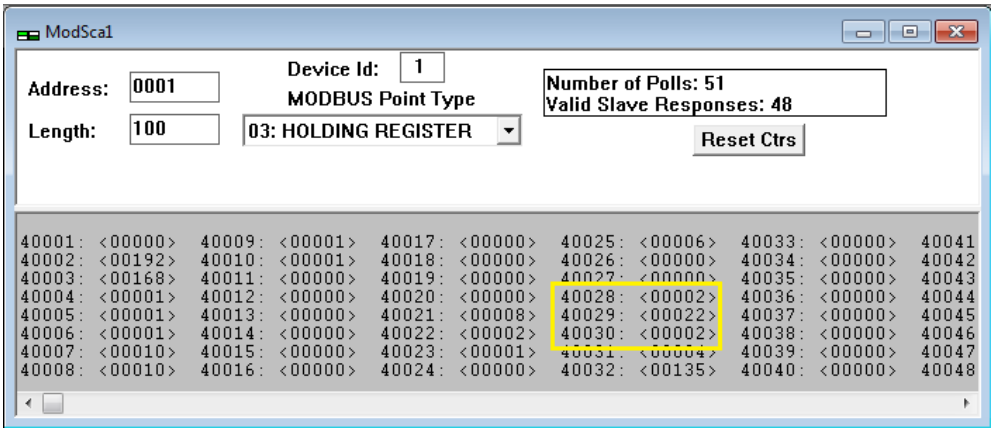

Fig.36: Verifying a successful connection

1.3.2 Allen-Bradley DF1

GEA Omni, acting as an Allen-Bradley DF1 server, is only possible when no Modbus RTU communication is used.

GEA Omni panels can connect as a server on an RS-485, Allen-Bradley DF1 network.

The controlling devices on this network can command the GEA Omni panel to control the connected compressors/systems.

Serial communication settings are adjustable via the GEA Omni panel.

1.3.2.1 Allen-Bradley ControlLogix PLC DF-1 Messaging Communication Example

1. Configure the GEA Omni panel's serial port for DF-1 Communications.
   a. Go to *Panel Settings* → *Network*.

b. Set *Protocol* to *Allen Bradley DF1*. Configure the serial port settings to match your application/network requirements.

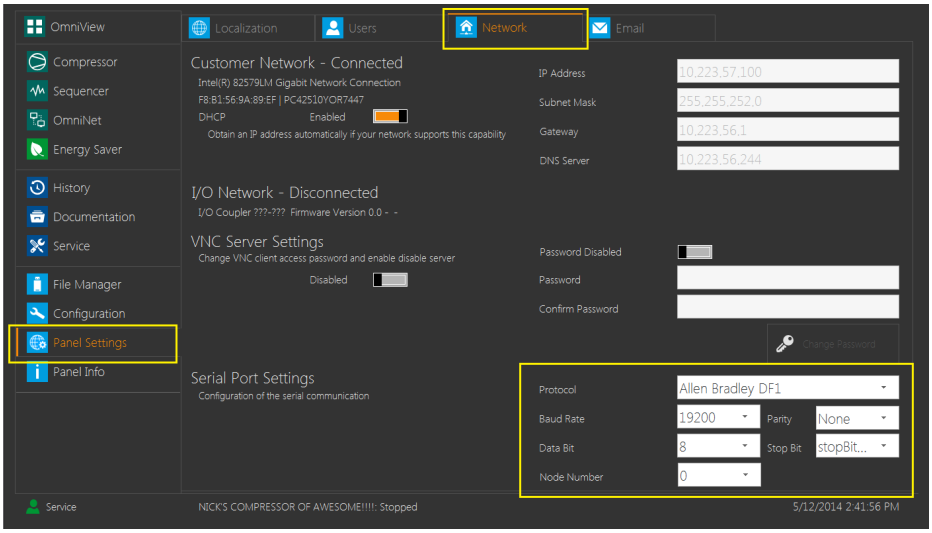

Fig.37: Configuring the GEA Omni for DF-1 communication

2. Open or create an RSLogix5000 program.
3. Open the processor properties window.

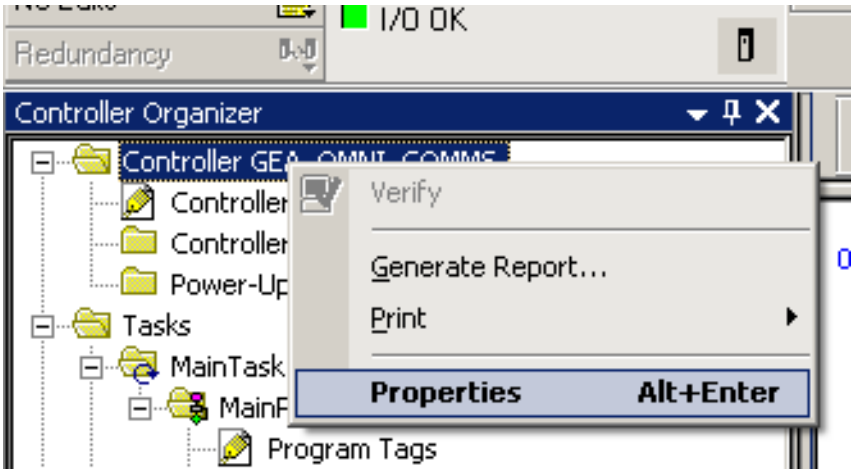

Fig.38: Accessing the processor properties

4. Click the *Serial Port* tab. *Mode* must be set to *System*. Configure the baud rate, data bits, parity, and stop bits to match the GEA Omni panel's configuration. Leave the rest of the options as default.

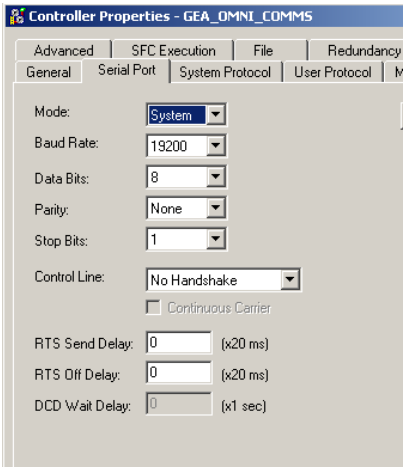

Fig.39: Configuring the 'Serial Port' properties

5. Click the *System Protocol* tab. Protocol must be set to *DF1 Point to Point*. Ensure the GEA Omni panel's *Node Address* and the Processer's *Station Address* are not the same.

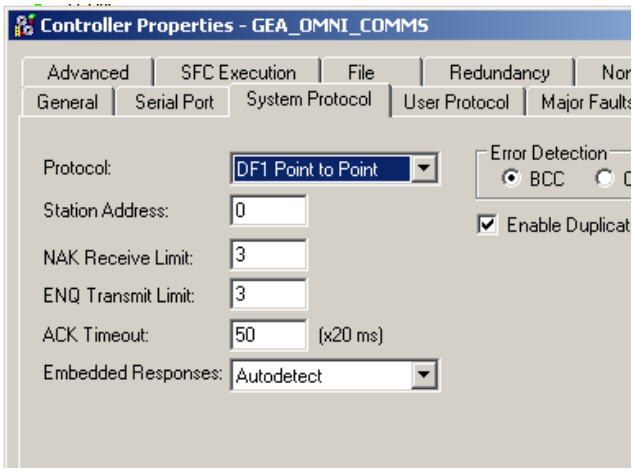

Fig.40: Configuring the 'System Protocol' properties

6. Refer to Ethernet Messaging example (Section 1.2.2.1, Page 12) for inserting a MSG command into the ladder logic.
7. Configure the MSG command as in the Ethernet Messaging example (Section 1.2.2.1, Page 12), with the following exceptions:
   a. The *Source Element* must be of type *INT*.

b. The Path must be configured with the following setting *2, [Omni Panel Node Address]*.

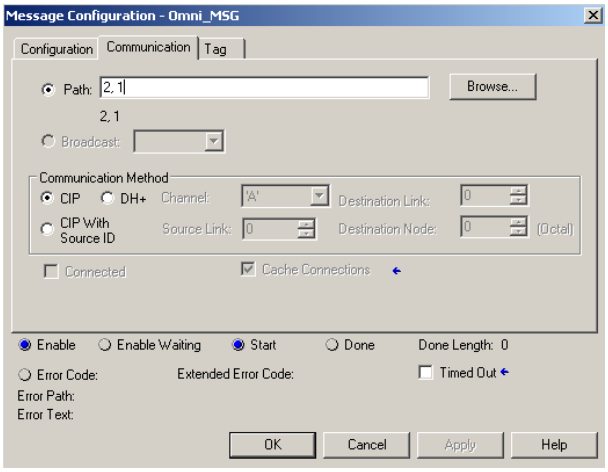

Fig.41: Configuring the communication path for DF-1

8. Follow the rest of the Ethernet Messaging example to download and verify communications.

1.3.3 Profibus DP

Profibus DP is a bus system developed by Siemens. Using this protocol, the GEA Omni can be integrated into the Profibus DP network via a gateway.

To set up a network with Profibus DP, all users must be connected to each other with a bus cable.

The notes in the "Communication interfaces" (Chapter 1, Page 7) must be noted and observed regarding the connectors and data. A gateway is installed for the Profibus DP link. The gateway behaves like a Profibus DP server at the customer end. An additional feature of the Profibus DP application is the advantage of freely selectable bus addresses. The transmission speed and other Profibus DP settings are transferred from the Profibus DP client (supplied by the customer) to the gateway.

The GSD file provided by the manufacturer is to be used in the project planning.

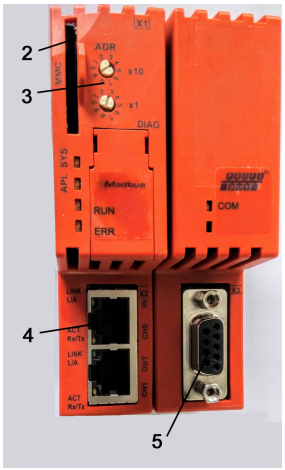

Fig.42: Example of a Profibus DP Gateway

	Example DP address 48
	Voltage: 24 VDC
2	MMC, SD slot
3	Bus address configuration
4	Connection to the I/O interface of the GEA Omni (see electrical drawings for details)
5	Profibus DP connection to the customer (female)

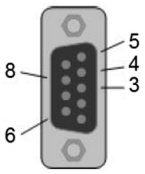

Fig.43: Profibus DP pin assignment

3	Rx/ Tx+ Receive/ Transmit data positive
4	CNTR-P Control signal for repeater (direction control)
5	ISO GND Data ground
6	VP Power supply positive 5V for terminating resistor. Maximum current 100 mA
8	Rx/Tx- Receive/ Transmit data negative
	Metal shield on PE

To connect to the gateway a special Profibus DP connector must be used. This connector is supplied with the gateway if the option Profibus DP communication is chosen.

2 Data Addresses

2.1 Signal Coupling Profibus DP and ProfiNET

The data exchange between the local GEA Omni control devices and the primary control system is performed according to Profibus-DP-Master-Slave-procedure with the GEA Omni control devices acting as the slave's or ProfiNET - Client - Server - procedure in case of ProfiNET.

For the Profibus DP- and ProfiNET-coupling, the following tables show the prescribed data structures of the coupling signals as well as the protocol structure to be used.

The GEA Omni Slave/ Server provides words / Bytes for the Master/ Client can receive words / Bytes from the Master/ Client.

Explanation of the series description in all following tables

Series	is standing for ...	
SP1	Single stage packages	GEA Grasso SP1
	Single stage chiller	GEA BluAstrum GEA BluAir GEA Grasso FX P
SP2	Two stage packages	GEA Grasso SP2
SPduo	DuoPack packages DuoPack chiller Dual Packages	GEA Grasso SPduo GEA Grasso FX P duo
RC1	Single stage packages	GEA Grasso RC1 Packages
	Single stage chiller	GEA Grasso Ingenium compact plus GEA BluGenium GEA Grasso FX GC PP
RC2	Two stage packages	GEA Grasso RC2 Packages
RCduo	DuoPack packages DuoPack chiller Dual Packages	GEA Grasso RCduo Packages GEA Grasso FX GC PP duo

SP: package/ chiller with screw compressor(s)

RC: package/ chiller with reciprocating compressor(s)

Series		GEA Omni to Master/ Client	GEA Omni from Master/ Client
SP1/ RC1	Words	80	8
	Bytes	160	16
SP2/ RC2	Words	120	8
	Bytes	240	16
SPduo/ RCduo	Words	120	8
	Bytes	240	16

SP: package/ chiller with screw compressor(s)

RC: package/ chiller with reciprocating compressor(s)

Profibus DP Protocol structure

Data transmission is carried out by means of a Profibus DP-Master-Slave-con-nection, with the GEA Omni control acting as the slave.

The customer is free to select the slave's address. This address must be set on the Profibus Gateway using a DIL-switch.

The bus settings for communication between the master and slave can also be freely selected.

The maximum communication speed of the Profibus Gateway is 12 Mbit/s.

ProfiNET Protocol structure

Data transmission is carried out by means of a ProfiNET-Client-Server-connection, with the GEA Omni control acting as the server.

The customer is free to select the server IP address. This address is configured and transferred by the client.

Notice

The addresses can be freely selected and are specified with the Profibus DP master or ProfiNET client configuration.

► The table shows a possible configuration.

SP1 - Standard configuration for Profibus DP/ ProfiNET Gateway (Profibus DP/ ProfiNET master/ client side):

Slot	DP ID*	Description	I address	O address
1	175	16 Byte OUT (output consistently)	--	0 ... 15
2	64	32 Byte IN (input consistently)	0 ... 31	--
3	64	32 Byte IN (input consistently)	32 ... 63	--
4	64	32 Byte IN (input consistently)	64 ... 95	--
5	64	32 Byte IN (input consistently)	96 ... 127	--
6	64	32 Byte IN (input consistently)	128 ... 159	--

* for Profibus DP only

SP2 / SPduo - Standard configuration for Profibus DP/ ProfiNET Gateway (Profibus DP/ ProfiNET master/ client side):

Slot	DP ID*	Description	I address	O address
1	175	16 Byte OUT (output consistently)	--	0 ... 15
2	64	32 Byte IN (input consistently)	0 ... 31	--
3	64	32 Byte IN (input consistently)	32 ... 63	--
4	64	32 Byte IN (input consistently)	64 ... 95	--
5	64	32 Byte IN (input consistently)	96 ... 127	--
6	64	32 Byte IN (input consistently)	128 ... 159	--
7	64	32 Byte IN (input consistently)	160 ... 191	--
8	64	32 Byte IN (input consistently)	192 ... 223	--
9	159	16 Byte IN (input consistently)	224 ... 239	--

* for Profibus DP only

Notice

Further information on the Gateway can be found in the manual, which is included with the control documentation.

► Changes within the master/ client configuration will be activated as soon as the Gateway has been switched OFF and ON again!

2.1.1 Data word structure

Profibus data word structure																
Bit No	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Low Byte "n"	.7	.6	.5	.4	.3	.2	.1	.0								
High Byte "n + 1"									.7	.6	.5	.4	.3	.2	.1	.0

2.1.2 Explanation of the "Life bit"

To detect communication failures between master/ client and slave/ server two life bits are sent by the GEA Omni (slave/ server to the master/ client).

The 1st life bit is sent into the **system data word** of "Transmitted Data to Master/ Client". This bit is the inverted life bit, sent by the GEA Omni to the master/ client.

This life bit is synchronised with the communication.

It is blinking only, if the master active returns a 1 to 1 copy of the life bit received from the GEA Omni.

The GEA Omni inverts this bit again and returns it to the master/ client.

As soon as the life bit does not return to the slave/ server (e.g. cable disconnected or master/ client in stop), a communication failure is activated on the slave/ server.

Notice

This procedure is activated only if an operation mode is selected, at which the GEA Omni has to react to signals from the master/ client control.

► Otherwise, the 1st life bit is *not* evaluated by the GEA Omni and an existing communication failture will *not* be displayed!

The 2nd life bit sent into the **system data word** of "Transmitted Data to Master/ Client" consists of a pulsating bit with a slow frequency.

This life bit is **not** synchronised with the communication.

The master/ client, reading data only without returning data to the slave/ server, can evaluate this bit.

2.1.3 Received data from Master/ Client

Please see tables on next pages.

Received data from Master/ Client (1 - 8) - Address offset If no units are transfered to the GEA Omni, default units of GEA Omni will be used.										
Received word		**Modbus Address Offset**	**Range of transmitted data**		**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
1.	**Control word - 16 Single-bits**									
	0 (1.0)	8150.0	Life Bit	1:1 Copy of GEA Omni System-Life-Bit	X			X	X	
		18375.0				X				
		18628.0					X			X
	1 (1.1)	8150.1	Remote On	Remote master/BMS	X			X	X	
		18375.1				X				
		18628.1					X			X
	2 (1.2)	8150.2	Remote Less Capacity	Remote master/BMS	X			X	X	
		18375.2				X				
		18628.2					X			X
	3 (1.3)	8150.3	Remote More Capacity	Remote master/BMS	X			X	X	
		18375.3				X				
		18628.3					X			X
	4 (1.4)	8150.4	Remote Reset	Remote master/BMS	X			X	X	
		18375.4				X				
		18628.4					X			X
	5 (1.5)	8150.5	Remote Switch Over To Second Setpoint	Remote master/BMS	X			X	X	
	6 (1.6)	8150.6	Remote Start Permissive of Compressor	Remote master/BMS	X			X	X	
		18375.6				X				
		18628.6					X			X
	7 (1.7)	8150.7	Remote Emergency Stop	Remote master/BMS	X			X	X	
		18375.7				X				
		18628.7					X			X
	8 (0.0)	8150.8	Remote Compressor Blocked	-	X			X	X	
		18375.8	Remote Compressor Blocked (Compressor 1)			X				

Received data from Master/ Client (1 - 8) - Address offset If no units are transfered to the GEA Omni, default units of GEA Omni will be used.										
Received word		**Modbus Address Offset**	**Range of transmitted data**		**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
		18628.8	Remote Compressor Blocked (Compressor 1)				X			X
	9 (0.1)	18375.9	Remote High Stage Only Mode	-		X				
		18628.9	Remote Compressor Blocked (Compressor 2)				X			X
	10 (0.2)	18628.10	Remote One Of Both Compressors Blocked	-			X			X
	11 (0.3)	8150.11	Energy Limitation	-	X			X	X	
	12 (0.4)		Reserved	-						
	13 (0.5)		Reserved	-						
	14 (0.6)		Reserved	-						
	15 (0.7)		Reserved	-						
2.		8140	Remote Set Point	Value * 10^{-2} (pressure) Value * 10^{-1} (temperature) Value * 10^{0} (percent)	X			X	X	
		18376				X				
		18629					X			X
3.		8139	Remote Control Value	Value * 10^{-2} (pressure) Value * 10^{-1} (temperature)	X			X	X	
		18377				X				
		18630					X			X
4.		23002	Multi Compressor Viewport	Compressor 1 = 1 No view port = 0 (default)				X	X	
5.			Reserved		X			X	X	
6.			Reserved	-						

Received data from Master/ Client (1 - 8) - Address offset If no units are transfered to the GEA Omni, default units of GEA Omni will be used.										
Received word		**Modbus Address Offset**	**Range of transmitted data**		**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
7.		20	Communication Pressure Units	0 = barG 1 = barA 2 = PSIG 3 = PSIA 4 = kPaG 5 = kPaA 6 = kg/cm²G 7 = kg/cm²A 8 = Use Display Units	X	X	X	X	X	X
8.		21	Communication Temperature Units	0 = Celsius 1 = Fahrenheit 2 = Use Display Units	X	X	X	X	X	X

2.1.4 Transmitted data to Master/ Client

Please see tables on the next pages.

Transmitted data to Master/ Client - System word (1) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
1.	**System WORD - 16 Single-bits, incl. "Life bit"**								
	0 (1.0)	23000.0	Time pulse (synchronous) 1. Life bit to control the communication	X	X	X	X	X	X
	1 (1.1)	23001.0	Time pulse (1 Hz, asynchronous) 2. Life bit for monitoring communication - always pulses at 1 Hz	X	X	X	X	X	X
	2 (1.2)		Reserved						
	3 (1.3)		Reserved						
	4 (1.4)		Reserved						
	5 (1.5)		Reserved						
	6 (1.6)		Reserved						
	7 (1.7)		Reserved						
	8 (0.0)		Reserved						
	9 (0.1)		Reserved						
	10 (0.2)		Reserved						
	11 (0.3)		Reserved						
	12 (0.4)		Reserved						
	13 (0.5)		Reserved						
	14 (0.6)		Reserved						
	15 (0.7)		Reserved						

Transmitted data to Master/ Client - Shutdown data words (2 - 9) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
2.	**Shutdown data WORD 1 - 16 Single-bits**								
	0 (1.0)	6722.3	Low Suction Pressure	X		X	X	X	X
			Low Suction Pressure (High Stage only)		X				
	1 (1.1)	6722.2	High Suction Pressure				X	X	X
	2 (1.2)	6724.0	Low Suction Superheat	X		X	X	X	X
			Low Suction Superheat, HP single stage only		X				
	3 (1.3)	6724.1	High Suction Superheat	X		X	X	X	X
			High Suction Superheat, HP single stage only		X				
	4 (1.4)	6722.7	High Discharge Pressure (Compressor 1)	X	X	X	X	X	X
	5 (1.5)	6724.2	Low Discharge Superheat (Compressor 1)	X	X	X	X	X	X
	6 (1.6)	6724.3	High Discharge Superheat (Compressor 1)	X	X	X	X	X	X
	7 (1.7)	6723.0	High Oil Differential Pressure	X	X	X	X	X	X
	8 (0.0)	6723.1	Low Oil Differential Pressure	X	X	X	X	X	X
	9 (0.1)	6723.2	High Oil Filter Differential	X	X	X			
	10 (0.2)	6722.9	High Discharge Temperature (Compressor 1)	X	X	X	X	X	X
	11 (0.3)	6722.14	High Oil Temperature	X	X	X	X	X	X
	12 (0.4)	6722.15	Low Oil Temperature	X	X	X	X	X	X
	13 (0.5)	6722.10	High Oil Separator Temperature	X	X	X	X	X	X
	14 (0.6)	6722.11	Low Oil Separator Temperature	X	X	X	X	X	X
	15 (0.7)	6722.0	High Motor Current (Compressor 1)	X	X	X	X	X	X
3.	**Shutdown data WORD 2 - 16 Single-bits**								
	0 (1.0)	6722.1	Low Motor Current (Compressor 1))	X	X	X	X	X	X
	1 (1.1)	6722.4	High Motor Speed (Compressor 1)	X	X	X	X	X	X
	2 (1.2)	6722.5	Low Motor Speed (Compressor 1)	X	X	X	X	X	X
	3 (1.3)		Reserved						
	4 (1.4)	6724.8	Low Outlet Temperature	X	X	X	X	X	X
	5 (1.5)	6723.14	No Oil Flow Detected	X					

Transmitted data to Master/ Client - Shutdown data words (2 - 9) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	6 (1.6)	6725.2	Low Oil Flow	X					
	7 (1.7)	6722.12	High Oil Seperator Level	X					
	8 (0.0)	6722.13	Low Oil Level	X					
	9 (0.1)		Reserved						
	10 (0.2)	6825.1	Max Liquid Level	X	X	X	X	X	X
	11 (0.3)	7104.8	High Economizer Level	X	X	X	X	X	X
	12 (0.4)	6822.0	Emergency Stop	X	X	X	X	X	X
	13 (0.5)	6822.1	Emergency Stop Over Bus	X	X	X	X	X	X
	14 (0.6)	6723.12	Compressor Motor Protection (Compressor 1)	X	X	X	X	X	X
	15 (0.7)	6723.11	Compressor Illegal Interlock (Compressor 1)	X	X	X	X	X	X
4.	**Shutdown data WORD 3 - 16 Single-bits**								
	0 (1.0)	6724.14	Illegal Compressor Motor Current (Compressor 1)	X	X	X	X	X	X
	1 (1.1)	6724.13	Loss Of Compressor Interlock (Compressor 1)	X	X	X	X	X	X
	2 (1.2)	6723.4	Oil Pump Illegal Interlock (Compressor 1)	X	X	X			
	3 (1.3)		Reserved						
	4 (1.4)	6723.10	Oil Pump Loss of Interlock	X		X			
	5 (1.5)	6723.15	Oil Pump Circulation	X		X			
	6 (1.6)	14866.1	Secondary Refrigerant Feedback Flow	X	X	X	X		X
	7 (1.7)	6823.1	Auxiliary Shutdown	X	X	X	X	X	X
	8 (0.0)	6726.0	Low Auxiliary Safety Pressure	X					
	9 (0.1)	6724.15	Power Reset Abort	X	X	X	X	X	X
	10 (0.2)	6825.2	Gas Leak Detection (For Recips this address is used when only one package is connected to the control.)	X	X	X	(X)	(X)	X
	11 (0.3)	6722.6	Capacity Slide Failed To Unload (Compressor 1)	X	X	X			X
	12 (0.4)	6725.0	Failed To Pump Down	X			X		X
	13 (0.5)	6724.9	Zero Load	X	X	X			
	14 (0.6)	6823.10	Sensor Failure	X	X	X	X	X	X
	15 (0.7)	7091.0	High Vibration Damage	X	X	X	X	X	X

Transmitted data to Master/ Client - Shutdown data words (2 - 9) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
5.	**Shutdown data WORD 4 - 16 Single-bits**								
	0 (1.0)	6822.3	Lost Communication With Gateway	X	X	X	X	X	X
	1 (1.1)	6822.4	Timeout LifeBit Communication With Gateway	X	X	X	X	X	X
	2 (1.2)	6725.3	Discharge Check Valve Failed To Open	X					
	3 (1.3)	6725.4	Discharge Check Valve Failed To Close	X					
	4 (1.4)		Reserved						
	5 (1.5)		Reserved						
	6 (1.6)	6725.7	Loss of Communication Variable Speed Drive (Compressor 1)	X	X	X	X	X	X
	7 (1.7)	6725.6	Loss of Communication Fixed Drive	X	X	X	X	X	X
	8 (0.0)	6726.9	High Motor Phase A Winding Temperature (Compressor 1)	X	X	X	X		X
	9 (0.1)	6726.10	High Motor Phase B Winding Temperature (Compressor 1)	X	X	X	X		X
	10 (0.2)	6726.11	High Motor Phase C Winding Temperature (Compressor 1)	X	X	X	X		X
	11 (0.3)	6726.7	High Motor Drive End Bearing Temperature (Compressor 1)	X	X	X			
	12 (0.4)	6726.8	High Motor Non Drive End Bearing Temperatur (Compressor 1)	X	X	X			
	13 (0.5)		Reserved						
	14 (0.6)	7105.15	Gas Leak Detection Shutdown Multiple Recips (This address is used for multiple packages connected to one control.)				(X)	(X)	
	15 (0.7)	494.0	Global Shutdown Status	X	X	X	X	X	X
6.	**Shutdown data WORD 5 - 16 Single-bits**								
	0 (1.0)	6736.9	High Motor Phase A Winding Temperature (Compressor 2)		X	X			X
	1 (1.1)	6736.10	High Motor Phase B Winding Temperature (Compressor 2)		X	X			X
	2 (1.2)	6736.11	High Motor Phase C Winding Temperature (Compressor 2)		X	X			X
	3 (1.3)	6736.7	High Motor Drive End Bearing Temperature (Compressor 2)		X	X			
	4 (1.4)	6736.8	High Motor Non Drive End Bearing Temperature (Compressor 2)		X	X			
	5 (1.5)		Reserved						
	6 (1.6)		Reserved						
	7 (1.7)		Reserved						
	8 (0.0)		Reserved						

Transmitted data to Master/ Client - Shutdown data words (2 - 9) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	9 (0.1)		Reserved						
	10 (0.2)		Reserved						
	11 (0.3)		Reserved						
	12 (0.4)		Reserved						
	13 (0.5)		Reserved						
	14 (0.6)		Reserved						
	15 (0.7)		Reserved						
7.	**Shutdown data WORD 6 - 16 Single-bits**								
	0 (1.0)	7001.0	Sensor Failure Suction Pressure	X	X	X	X	X	X
			Sensor Failure Suction Pressure High Stage Only	X	X				
	1 (1.1)	7001.1	Sensor Failure Discharge Pressure	X	X	X	X	X	X
	2 (1.2)	7001.2	Sensor Failure Oil Pressure	X	X	X	X	X	X
	3 (1.3)	7001.3	Sensor Failure Oil Filter Pressure	X	X	X			
	4 (1.4)	7001.4	Sensor Failure Discharge Temperature (Compressor 1)	X	X	X	X	X	X
	5 (1.5)	7001.5	Sensor Failure Oil temperature	X	X	X	X	X	X
	6 (1.6)	7001.6	Sensor Failure Capacity Slide Position (Compressor 1)	X	X	X			
	7 (1.7)	7001.7	Sensor Failure Motor Speed (Compressor 1)	X	X	X	X	X	X
	8 (0.0)	7001.8	Sensor Failure Motor Current (Compressor 1)	X	X	X	X	X	X
	9 (0.1)	7001.9	Sensor Failure Secondary Refrigerant Outlet Temperature	X	X	X	X		X
	10 (0.2)	7001.10	Sensor Failure Liquid Feed Level	X	X	X	X		X
	11 (0.3)	7001.11	Sensor Failure Economizer Level	X	X	X			
	12 (0.4)	7001.12	Reserved						
	13 (0.5)	7001.13	Reserved						
	14 (0.6)	7001.14	Reserved						
	15 (0.7)	7001.15	Reserved						
8	**Shutdown data WORD 7 - 16 Single-bits**								
	0 (1.0)	6732.3	Low Suction Pressure (Compressor 2)		X	X			X

Transmitted data to Master/ Client - Shutdown data words (2 - 9) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	1 (1.1)	6734.0	Low Suction Superheat (Compressor 2)		X	X			X
	2 (1.2)	6734.1	High Suction Superheat (Compressor 2)		X	X			X
	3 (1.3)	6732.7	High Discharge Pressure (Compressor 2)		X	X			X
	4 (1.4)	6733.0	High Oil Differential Pressure (Compressor 2)		X	X			X
	5 (1.5)	6732.9	High Discharge Temperature (Compressor 2)		X	X			X
	6 (1.6)	6732.0	High Motor Current (Compressor 2)		X	X			X
	7 (1.7)	6732.1	Low Motor Current (Compressor 2)		X	X			X
	8 (0.0)	6732.4	High Motor Speed (Compressor 2)		X	X			X
	9 (0.1)	6732.5	Low Motor Speed (Compressor 2))		X	X			X
	10 (0.2)		Reserved						
	11 (0.3)	6733.12	Compressor Motor Protection (Compressor 2)		X	X			X
	12 (0.4)	6733.11	Compressor Illegal Interlock (Compressor 2)		X	X			X
	13 (0.5)	6734.14	Illegal Compressor Motor Current (Compressor 2)		X	X			X
	14 (0.6)	6734.13	Loss of Compressor Interlock (Compressor 2)		X	X			X
	15 (0.7)	6833.1	Auxilary Shutdown (Compressor 2)		X	X			X
9									
	0 (1.0)	6732.6	Capacity Slide Failed To Unload (Compressor 2)		X	X			
	1 (1.1)		Reserved						
	2 (1.2)		Reserved						
	3 (1.3)		Reserved						
	4 (1.4)		Reserved						
	5 (1.5)		Reserved						
	6 (1.6)		Reserved						
	7 (1.7)		Reserved						
	8 (0.0)	7002.0	Sensor Failure Suction Pressure (Compressor 2)		X	X			X
	9 (0.1)	7002.1	Sensor Failure Discharge Pressure (Compressor 2)		X	X			X
	10 (0.2)	7002.2	Sensor Failure Oil Pressure (Compressor 2)		X	X			X

Transmitted data to Master/ Client - Shutdown data words (2 - 9) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	11 (0.3)	7002.4	Sensor Failure Discharge Temperature (Compressor 2)		X	X			X
	12 (0.4)	7002.6	Sensor Failure Capacity Slide Position (Compressor 2		X	X			
	13 (0.5)	7002.7	Sensor Failure Motor Speed (Compressor 2)		X	X			X
	14 (0.6)	7002.8	Sensor Failure Motor Current (Compressor 2)		X	X			X
	15 (0.7)		Reserved						

Transmitted data to Master/ Client - Warning data words (10 - 15) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
10.	**Warning data WORD 1 - 16 Single-bits**								
	0 (1.0)	6727.2	High Suction Pressure	X		X	X	X	X
	1 (1.1)	6727.3	Low Suction Pressure	X		X	X	X	X
	2 (1.2)	6727.7	High Discharge Pressure (Compressor 1)	X	X	X	X	X	X
	3 (1.3)	6728.0	High Oil Differential Pressure	X	X	X	X	X	X
	4 (1.4)	6728.1	Low Oil Differential Pressure	X	X	X	X	X	X
	5 (1.5)	6728.2	High Oil Filter Differential	X	X	X			
	6 (1.6)	6727.9	High Discharge Temperature (Compressor 1)	X	X	X	X	X	X
	7 (1.7)	6727.14	High Inlet Oil Temperature	X	X	X	X	X	X
	8 (0.0)	6727.15	Low Inlet Oil Temperature	X	X	X	X	X	X
	9 (0.1)	6727.10	High Oil Separator Temperature	X	X	X	X	X	
	10 (0.2)	6727.11	Low Oil Separator Temperature	X	X	X	X	X	
	11 (0.3)	6729.7	High Outlet Temperature	X	X	X	X	X	X
	12 (0.4)	6729.8	Low Outlet Temperature	X	X	X	X	X	X
	13 (0.5)	6729.5	High Inlet Temperature	X		X	X		X
	14 (0.6)	6729.6	Low Inlet Temperature	X		X	X		X
	15 (0.7)	6727.0	High Motor Current (Compressor 1)	X	X	X	X	X	X
11.	**Warning data WORD 2 - 16 Single-bits**								
	0 (1.0)	6727.4	High Motor Speed (Compressor 1)	X	X	X	X	X	X
	1 (1.1)	6727.5	Low Motor Speed (Compressor 1)	X	X	X	X	X	X
	2 (1.2)	8136.1	Suction Pressure Load Limit (Deprecated Do Not Use)	X	X	X	X	X	X
	3 (1.3)	8136.0	Suction Pressure Force Unload (Deprecated Do Not Use)	X	X	X	X	X	X
	4 (1.4)	8136.3	Discharge Pressure Load Limit (Deprecated Do Not Use)	X	X	X	X	X	X
	5 (1.5)	8136.2	Discharge Pressure Force Unload (Deprecated Do Not Use)	X	X	X	X	X	X
	6 (1.6)	8136.7	Outlet Temperature Load Limit (Deprecated Do Not Use)	X	X	X	X		X
	7 (1.7)	8136.6	Outlet Temperature Force Unload (Deprecated Do Not Use)	X	X	X	X		X
	8 (0.0)	8136.5	Motor Current Load Limit (Deprecated Do Not Use)	X	X	X	X	X	X

Transmitted data to Master/ Client - Warning data words (10 - 15) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	9 (0.1)	8136.4	Motor Current Force Unload (Deprecated Do Not Use)	X	X	X	X	X	X
	10 (0.2)	6727.13	Low Oil Seperator Level	X	X	X			
	11 (0.3)		Reserved						
	12 (0.4)	6727.12	High Oil Seperator Level	X	X	X			
	13 (0.5)	6728.7	Oil Pump 1 Loss Of Interlock Auxiliary	X		X			
	14 (0.6)	6728.8	Oil Pump 2 Loss Of Interlock Auxiliary	X		X			
	15 (0.7)	13203.2	Refrigerant Sensor High Warning	X					
12.	**Warning data WORD 3 - 16 Single-bits**								
	0 (1.0)	7096.2	VTrac High Vibration Damage Warning	X	X	X	X	X	X
	1 (1.1)	7096.1	High Vibration Warning	X	X	X	X	X	X
	2 (1.2)	6730.1	Loss Of Remote Start Signal	X	X	X	X	X	X
	3 (1.3)	7056.0	Condenser Loss of Interlock	X	X	X	X		X
	4 (1.4)	14852.5	Secondary Refrigerant Feedback Pump	X	X	X	X		X
	5 (1.5)	14852.6	Secondary Refrigerant Feedback Flow	X	X	X	X		X
	6 (1.6)	7056.2	Condenser High Discharge Pressure	X		X	X		X
	7 (1.7)	7056.3	Condenser Low Discharge Pressure	X		X	X		X
	8 (0.0)	6828.2	Auxiliary Warning	X					
	9 (0.1)	6828.10	Sensor Failure	X	X	X	X	X	X
	10 (0.2)	6731.9	High Motor Phase A Winding Temperature (Compressor 1)	X	X	X	X	X	X
	11 (0.3)	6731.10	High Motor Phase B Winding Temperature (Compressor 1)	X	X	X	X	X	X
	12 (0.4)	6731.11	High Motor Phase C Winding Temperature (Compressor 1)	X	X	X	X	X	X
	13 (0.5)	6731.7	High Motor Drive End Bearing Temperature (Compressor 1)	X	X	X			
	14 (0.6)	6731.8	High Motor Non Drive End Bearing Temperature (Compressor 1)	X	X	X			
	15 (0.7)	495.0	Global Warning Status	X	X	X	X	X	X
13.	**Warning data WORD 4 - 16 Single-bits**								
	0 (1.0)		Reserved						
	1 (1.1)		Reserved						

Transmitted data to Master/ Client - Warning data words (10 - 15) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	2 (1.2)		Reserved						
	3 (1.3)		Reserved						
	4 (1.4)		Reserved						
	5 (1.5)		Reserved						
	6 (1.6)		Reserved						
	7 (1.7)		Reserved						
	8 (0.0)		Reserved						
	9 (0.1)		Reserved						
	10 (0.2)		Reserved						
	11 (0.3)		Reserved						
	12 (0.4)		Reserved						
	13 (0.5)		Reserved						
	14 (0.6)		Reserved						
	15 (0.7)		Reserved						
14.	**Warning data WORD 5 - 16 Single-bits**								
	0 (1.0)	7006.0	Sensor Failure Suction Temperature	X		X	X	X	X
	1 (1.1)	7006.1	Sensor Failure Oil seperator Temperature	X			X	X	X
	2 (1.2)		Reserved						
	3 (1.3)	7006.3	Sensor Failure Remote Control Value	X	X	X	X	X	X
	4 (1.4)	7006.4	Sensor Failure Remote Set Point	X	X	X	X	X	X
	5 (1.5)	7006.5	Sensor Failure Economizer Pressure	X	X	X			
	6 (1.6)	7006.6	Sensor Failure Economizer Temperature	X	X	X			
	7 (1.7)	7006.7	Sensor Failure Secondary Refrigerant Inlet Temperature	X		X	X		X
	8 (0.0)	7006.8	Sensor Failure Coolant Inlet Temperature	X		X	X		X
	9 (0.1)	7006.9	Sensor Failure Coolant Outlet Temperature	X		X	X		X
	10 (0.2)		Reserved						
	11 (0.3)		Reserved						

Transmitted data to Master/ Client - Warning data words (10 - 15) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	12 (0.4)		Reserved						
	13 (0.5)	7006.13	Sensor Failure Motor Drive End Bearing Temperature	X	X	X			
	14 (0.6)	7006.14	Sensor Failure Motor Non Drive End Bearing Temperature	X	X	X			
	15 (0.7)	7006.15	Reserved						
15.	**Warning data WORD 6 - 16 Single-bits**								
	0 (1.0)	6737.7	High Discharge Pressure (Compressor 2)		X	X			X
	1 (1.1)	6737.9	High Discharge Temperature (Compressor 2)		X	X			X
	2 (1.2)	6737.0	High Motor Current (Compressor 2)		X	X			X
	3 (1.3)	6737.4	High Motor Speed (Compressor 2)		X	X			X
	4 (1.4)	6737.5	Low Motor Speed (Compressor 2)		X	X			X
	5 (1.5)	8186.3	Discharge Pressure Load Limit (Deprecated Do Not Use)		X	X			X
	6 (1.6)	8186.2	Discharge Pressure Force Unload (Deprecated Do Not Use)		X	X			X
	7 (1.7)	8186.5	Motor Current Load Limit (Deprecated Do Not Use)		X	X			X
	8 (0.0)	8186.4	Motor Current Force Unload (Deprecated Do Not Use)		X	X			X
	9 (0.1)	6741.9	High Motor Phase A Winding Temperature (Compressor 2)		X	X			X
	10 (0.2)	6741.10	High Motor Phase B Winding Temperature (Compressor 2)		X	X			X
	11 (0.3)	6741.11	High Motor Phase C Winding Temperature (Compressor 2)		X	X			X
	12 (0.4)	6741.7	High Motor Drive End Bearing Temperature (Compressor 2)		X	X			
	13 (0.5)	6741.8	High Motor Non Drive End Bearing Temperature (Compressor 2)		X	X			
	14 (0.6)	7007.13	Sensor Failure Motor Drive End Bearing Temperature (Compressor 2)		X	X			
	15 (0.7)	7007.14	Sensor Failure Motor Non Drive End Bearing Temperature (Compressor 2)		X	X			

Transmitted data to Master/ Client - Status words (16 - 20) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
16.	**Status WORD 1 - 16 Single-bits**								
	0 (1.0)	8699.0	Compressor In Stop Mode (Compressor 1)	X	X	X	X	X	X
	1 (1.1)	8700.0	Compressor In Manual Start Mode Output (Compressor 1)	X	X	X	X	X	X
	2 (1.2)	8701.0	Compressor in Remote Mode Output (Compressor 1)	X	X	X	X	X	X
	3 (1.3)	8708.0	Compressor Capacity Control Mode Auto Output (Compressor 1)	X	X	X	X	X	X
	4 (1.4)	8706.0	Compressor Capacity Control Mode Manual Output (Compressor 1)	X	X	X	X	X	X
	5 (1.5)	8625.0	Capacity Slide Load Output (Compressor 1)	X	X	X	X	X	X
	6 (1.6)	8626.0	Capacity Slide Unload Output (Compressor 1)	X	X	X	X	X	X
	7 (1.7)	8709.0	Compressor Capacity Control Mode External Output (Compressor 1)	X	X	X	X	X	X
	8 (0.0)	8703.0	Compressor In Starting State Output (Compressor 1)	X	X	X	X	X	X
	9 (0.1)	8704.0	Compressor In Running State Output (Compressor 1)	X	X	X	X	X	X
	10 (0.2)	8705.0	Compressor In Stopping State Output (Compressor 1)	X	X	X	X	X	X
	11 (0.3)	8702.0	Compressor In Stopped State Output (Compressor 1)	X	X	X	X	X	X
	12 (0.4)		Reserved						
	13 (0.5)	8618.0	Compressor Warning Active (Low Active Compressor 1)	X	X	X	X	X	X
	14 (0.6)	8617.0	Compressor Shutdown Active (Low Active Compressor 1)	X	X	X	X	X	X
	15 (0.7)		Reserved						
17.	**Status WORD 2 - 16 Single-bits**								
	0 (1.0)	8699.1	Compressor In Stop Mode Output (Compressor 2)		X	X			X
	1 (1.1)	8700.1	Compressor In Manual Start Mode Output (Compressor 2)		X	X			X
	2 (1.2)	8701.1	Compressor In Remote Mode Output (Compressor 2)		X	X			X
	3 (1.3)	8708.1	Compressor Capacity Control Mode Auto Output (Compressor 2)		X	X			X
	4 (1.4)	8706.1	Compressor Capacity Control Mode Manual Output (Compressor 2)		X	X			X
	5 (1.5)	8625.1	Capacity Slide Load Output (Compressor 2)		X	X			X
	6 (1.6)	8626.1	Capacity Slide Unload Output (Compressor 2)		X	X			X
	7 (1.7)	8709.1	Compressor Capacity Control Mode External Output (Compressor 2)		X	X			X
	8 (0.0)	8703.1	Compressor In Starting State Output (Compressor 2)		X	X			X

Transmitted data to Master/ Client - Status words (16 - 20) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	9 (0.1)	8704.1	Compressor In Running State Output (Compressor 2)		X	X			X
	10 (0.2)	8705.1	Compressor In Stopping State Output (Compressor 2)		X	X			X
	11 (0.3)	8702.1	Compressor In Stopped State Output (Compressor 2)		X	X			X
	12 (0.4)		Reserved						
	13 (0.5)	8618.1	Compressor Warning Active (Low Active Compressor 2)		X	X			X
	14 (0.6)	8617.1	Compressor Shutdown Active (Low Active Compressor 2)		X	X			X
	15 (0.7)		Reserved						
18.	**Status WORD 3 - 16 Single-bits**								
	0 (1.0)	17823.0	Internal Sequencer In Stop Mode Output (Package)		X	X			X
	1 (1.1)	17809.0	Internal Sequencer In Manual Start Mode Output (Package)		X	X			X
	2 (1.2)	17810.0	Internal Sequencer In Remote Mode Output (Package)		X	X			X
	3 (1.3)	17817.0	Internal Sequencer Capacity Control Mode Auto Output (Package)		X	X			X
	4 (1.4)	17815.0	Internal Sequencer Capacity Control Mode Manual Output (Package)		X	X			X
	5 (1.5)	17821.0	Internal Sequencer Capacity Load Output (Package)		X	X			X
	6 (1.6)	17822.0	Internal Sequencer Capacity Unload Output (Package)		X	X			X
	7 (1.7)	17818.0	Internal Sequencer Capacity Control Mode External Output (Package)		X	X			X
	8 (0.0)	17811.0	Internal Sequencer In Stopped State Output (Package)		X	X			X
	9 (0.1)	17813.0	Internal Sequencer In Running State Output (Package)		X	X			X
	10 (0.2)		Reserved						
	11 (0.3)		Reserved						
	12 (0.4)	17853.0	Two Stage HP Only Mode Active Output (Package)		X				
	13 (0.5)		Rerserved						
	14 (0.6)		Rerserved						
	15 (0.7)		Rerserved						
19.	**Status WORD 4 - 16 Single-bits**								
	0 (1.0)	8136.0	Suction Pressure Force Unload (Compressor 1)	X	X	X	X	X	X
	1 (1.1)	8136.1	Suction Pressure Load Limitation (Compressor 1)	X	X	X	X	X	X

Transmitted data to Master/ Client - Status words (16 - 20) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	2 (1.2)	8136.2	Discharge Pressure Force Unload (Compressor 1)	X	X	X	X	X	X
	3 (1.3)	8136.3	Discharge Pressure Load Limitation (Compressor 1)	X	X	X	X	X	X
	4 (1.4)	8136.4	Motor Current Force Unload (Compressor 1)	X	X	X	X	X	X
	5 (1.5)	8136.5	Motor Current Load Limitation (Compressor 1)	X	X	X	X	X	X
	6 (1.6)	8136.6	Outlet Temperature Force Unload (Compressor 1)	X	X	X	X	X	X
	7 (1.7)	8136.7	Outlet Temperature Load Limitation (Compressor 1)	X	X	X	X	X	X
	8 (0.0)	8136.8	Vi Force Unload (Compressor 1)	X	X	X			
	9 (0.1)	8186.0	Suction Pressure Force Unload (Compressor 2)		X	X			X
	10 (0.2)	8186.1	Suction Pressure Load Limitation (Compressor 2)		X	X			X
	11 (0.3)	8186.2	Discharge Pressure Force Unload (Compressor 2)		X	X			X
	12 (0.4)	8186.3	Discharge Pressure Load Limitation (Compressor 2)		X	X			X
	13 (0.5)	8186.4	Motor Current Force Unload (Compressor 2)		X	X			X
	14 (0.6)	8186.5	Motor Current Load Limitation (Compressor 2)		X	X			X
	15 (0.7)	8186.6	Outlet Temperature Force Unload (Compressor 2)		X	X			X
20.	**Status WORD 5 - 16 Single-bits**								
	0 (1.0)	8186.7	Outlet Temperature Load Limitation (Compressor 2)		X	X			X
	1 (1.1)	8186.8	Vi Force Unload (Compressor 2)		X	X			
	2 (1.2)		Reserved						
	3 (1.3)		Reserved						
	4 (1.4)		Reserved						
	5 (1.5)		Reserved						
	6 (1.6)		Reserved						
	7 (1.7)		Reserved						
	8 (0.0)		Reserved						
	9 (0.1)		Reserved						
	10 (0.2)		Reserved						
	11 (0.3)		Reserved						

Transmitted data to Master/ Client - Status words (16 - 20) - Address offset									
Transmitted word		**Modbus Address Offset**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	12 (0.4)		Reserved						
	13 (0.5)		Reserved						
	14 (0.6)		Reserved						
	15 (0.7)		Reserved						

Transmitted data to Master/ Client - Digital input words (21 - 24) - Address offset										
Transmitted word		**Modbus Address Offset**	**I/O Definition**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
21.	**Digital inputs WORD 1 - 16 Single-bits**									
	0 (1.0)	25000.0	1:1DI-1	see circuit diagram	X	X	X	X	X	X
	1 (1.1)	25000.1	1:1DI-2	see circuit diagram	X	X	X	X	X	X
	2 (1.2)	25000.2	1:1DI-3	see circuit diagram	X	X	X	X	X	X
	3 (1.3)	25000.3	1:1DI-4	see circuit diagram	X	X	X	X	X	X
	4 (1.4)	25000.4	1:1DI-5	see circuit diagram	X	X	X	X	X	X
	5 (1.5)	25000.5	1:1DI-6	see circuit diagram	X	X	X	X	X	X
	6 (1.6)	25000.6	1:1DI-7	see circuit diagram	X	X	X	X	X	X
	7 (1.7)	25000.7	1:1DI-8	see circuit diagram	X	X	X	X	X	X
	8 (0.0)	25000.8	1:2DI-1	see circuit diagram	X	X	X	X	X	X
	9 (0.1)	25000.9	1:2DI-2	see circuit diagram	X	X	X	X	X	X
	10 (0.2)	25000.10	1:2DI-3	see circuit diagram	X	X	X	X	X	X
	11 (0.3)	25000.11	1:2DI-4	see circuit diagram	X	X	X	X	X	X
	12 (0.4)	25000.12	1:2DI-5	see circuit diagram	X	X	X	X	X	X
	13 (0.5)	25000.13	1:2DI-6	see circuit diagram	X	X	X	X	X	X
	14 (0.6)	25000.14	1:2DI-7	see circuit diagram	X	X	X	X	X	X
	15 (0.7)	25000.15	1:2DI-8	see circuit diagram	X	X	X	X	X	X
22.	**Digital inputs WORD 2 - 16 Single-bits**									
	0 (1.0)	25001.0	1:3DI-1	see circuit diagram	X	X	X	X		X
	1 (1.1)	25001.1	1:3DI-2	see circuit diagram	X	X	X	X		X
	2 (1.2)	25001.2	1:3DI-3	see circuit diagram	X	X	X	X		X
	3 (1.3)	25001.3	1:3DI-4	see circuit diagram	X	X	X	X		X
	4 (1.4)	25001.4	1:3DI-5	see circuit diagram	X	X	X	X		X
	5 (1.5)	25001.5	1:3DI-6	see circuit diagram	X	X	X	X		X
	6 (1.6)	25001.6	1:3DI-7	see circuit diagram	X	X	X	X		X
	7 (1.7)	25001.7	1:3DI-8	see circuit diagram	X	X	X	X		X
	8 (0.0)	25001.8	1:4DI-1	see circuit diagram	X	X	X	X		X

Transmitted data to Master/ Client - Digital input words (21 - 24) - Address offset											
Transmitted word		**Modbus Address Offset**	**I/O Definition**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	9 (0.1)	25001.9	1:4DI-2	see circuit diagram	X	X	X	X		X
	10 (0.2)	25001.10	1:4DI-3	see circuit diagram	X	X	X	X		X
	11 (0.3)	25001.11	1:4DI-4	see circuit diagram	X	X	X	X		X
	12 (0.4)	25001.12	1:4DI-5	see circuit diagram	X	X	X	X		X
	13 (0.5)	25001.13	1:4DI-6	see circuit diagram	X	X	X	X		X
	14 (0.6)	25001.14	1:4DI-7	see circuit diagram	X	X	X	X		X
	15 (0.7)	25001.15	1:4DI-8	see circuit diagram	X	X	X	X		X
23.	**Digital inputs WORD 3 - 16 Single-bits**									
	0 (1.0)	25100.0	2:1DI-1	see circuit diagram		X	X			X
	1 (1.1)	25100.1	2:1DI-2	see circuit diagram		X	X			X
	2 (1.2)	25100.2	2:1DI-3	see circuit diagram		X	X			X
	3 (1.3)	25100.3	2:1DI-4	see circuit diagram		X	X			X
	4 (1.4)	25100.4	2:1DI-5	see circuit diagram		X	X			X
	5 (1.5)	25100.5	2:1DI-6	see circuit diagram		X	X			X
	6 (1.6)	25100.6	2:1DI-7	see circuit diagram		X	X			X
	7 (1.7)	25100.7	2:1DI-8	see circuit diagram		X	X			X
	8 (0.0)	25100.8	2:2DI-1	see circuit diagram		X	X			X
	9 (0.1)	25100.9	2:2DI-2	see circuit diagram		X	X			X
	10 (0.2)	25100.10	2:2DI-3	see circuit diagram		X	X			X
	11 (0.3)	25100.11	2:2DI-4	see circuit diagram		X	X			X
	12 (0.4)	25100.12	2:2DI-5	see circuit diagram		X	X			X
	13 (0.5)	25100.13	2:2DI-6	see circuit diagram		X	X			X
	14 (0.6)	25100.14	2:2DI-7	see circuit diagram		X	X			X
	15 (0.7)	25100.15	2:2DI-8	see circuit diagram		X	X			X
24.	**Digital inputs WORD 4 - 16 Single-bits**									
	0 (1.0)	25101.0	2:3DI-1	see circuit diagram		X	X			X
	1 (1.1)	25101.1	2:3DI-2	see circuit diagram		X	X			X

Transmitted data to Master/ Client - Digital input words (21 - 24) - Address offset											
Transmitted word		**Modbus Address Offset**	**I/O Definition**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	2 (1.2)	25101.2	2:3DI-3	see circuit diagram		X	X			X
	3 (1.3)	25101.3	2:3DI-4	see circuit diagram		X	X			X
	4 (1.4)	25101.4	2:3DI-5	see circuit diagram		X	X			X
	5 (1.5)	25101.5	2:3DI-6	see circuit diagram		X	X			X
	6 (1.6)	25101.6	2:3DI-7	see circuit diagram		X	X			X
	7 (1.7)	25101.7	2:3DI-8	see circuit diagram		X	X			X
	8 (0.0)	25101.8	2:4DI-1	see circuit diagram		X	X			X
	9 (0.1)	25101.9	2:4DI-2	see circuit diagram		X	X			X
	10 (0.2)	25101.10	2:4DI-3	see circuit diagram		X	X			X
	11 (0.3)	25101.11	2:4DI-4	see circuit diagram		X	X			X
	12 (0.4)	25101.12	2:4DI-5	see circuit diagram		X	X			X
	13 (0.5)	25101.13	2:4DI-6	see circuit diagram		X	X			X
	14 (0.6)	25101.14	2:4DI-7	see circuit diagram		X	X			X
	15 (0.7)	25101.15	2:4DI-8	see circuit diagram		X	X			X

Transmitted data to Master/ Client - Digital output words (25 - 28) - Address offset											
Transmitted word		**Modbus Address Offset**	**I/O Definition**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
25.	**Digital outputs WORD 1 - 16 Single-bits**									
	0 (1.0)	25010.0	1:1DO-1	see circuit diagram	X	X	X	X	X	X
	1 (1.1)	25010.1	1:1DO-2	see circuit diagram	X	X	X	X	X	X
	2 (1.2)	25010.2	1:1DO-3	see circuit diagram	X	X	X	X	X	X
	3 (1.3)	25010.3	1:1DO-4	see circuit diagram	X	X	X	X	X	X
	4 (1.4)	25010.4	1:1DO-5	see circuit diagram	X	X	X	X	X	X
	5 (1.5)	25010.5	1:1DO-6	see circuit diagram	X	X	X	X	X	X
	6 (1.6)	25010.6	1:1DO-7	see circuit diagram	X	X	X	X	X	X
	7 (1.7)	25010.7	1:1DO-8	see circuit diagram	X	X	X	X	X	X
	8 (0.0)	25010.8	1:2DO-1	see circuit diagram	X	X	X	X	X	X
	9 (0.1)	25010.9	1:2DO-2	see circuit diagram	X	X	X	X	X	X
	10 (0.2)	25010.10	1:2DO-3	see circuit diagram	X	X	X	X	X	X
	11 (0.3)	25010.11	1:2DO-4	see circuit diagram	X	X	X	X	X	X
	12 (0.4)	25010.12	1:2DO-5	see circuit diagram	X	X	X	X	X	X
	13 (0.5)	25010.13	1:2DO-6	see circuit diagram	X	X	X	X	X	X
	14 (0.6)	25010.14	1:2DO-7	see circuit diagram	X	X	X	X	X	X
	15 (0.7)	25010.15	1:2DO-8	see circuit diagram	X	X	X	X	X	X
26	**Digital outputs WORD 2 - 16 Single-bits**									
	0 (1.0)	25011.0	1:3DO-1	see circuit diagram	X	X	X	X		X
	1 (1.1)	25011.1	1:3DO-2	see circuit diagram	X	X	X	X		X
	2 (1.2)	25011.2	1:3DO-3	see circuit diagram	X	X	X	X		X
	3 (1.3)	25011.3	1:3DO-4	see circuit diagram	X	X	X	X		X
	4 (1.4)	25011.4	1:3DO-5	see circuit diagram	X	X	X	X		X
	5 (1.5)	25011.5	1:3DO-6	see circuit diagram	X	X	X	X		X
	6 (1.6)	25011.6	1:3DO-7	see circuit diagram	X	X	X	X		X
	7 (1.7)	25011.7	1:3DO-8	see circuit diagram	X	X	X	X		X
	8 (0.0)	25011.8	1:4DO-1	see circuit diagram	X	X	X	X		X

Transmitted data to Master/ Client - Digital output words (25 - 28) - Address offset											
Transmitted word		**Modbus Address Offset**	**I/O Definition**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	9 (0.1)	25011.9	1:4DO-2	see circuit diagram	X	X	X	X		X
	10 (0.2)	25011.10	1:4DO-3	see circuit diagram	X	X	X	X		X
	11 (0.3)	25011.11	1:4DO-4	see circuit diagram	X	X	X	X		X
	12 (0.4)	25011.12	1:4DO-5	see circuit diagram	X	X	X	X		X
	13 (0.5)	25011.13	1:4DO-6	see circuit diagram	X	X	X	X		X
	14 (0.6)	25011.14	1:4DO-7	see circuit diagram	X	X	X	X		X
	15 (0.7)	25011.15	1:4DO-8	see circuit diagram	X	X	X	X		X
27.	**Digital outputs WORD 3 - 16 Single-bits**									
	0 (1.0)	25110.0	2:1DO-1	see circuit diagram		X	X			X
	1 (1.1)	25110.1	2:1DO-2	see circuit diagram		X	X			X
	2 (1.2)	25110.2	2:1DO-3	see circuit diagram		X	X			X
	3 (1.3)	25110.3	2:1DO-4	see circuit diagram		X	X			X
	4 (1.4)	25110.4	2:1DO-5	see circuit diagram		X	X			X
	5 (1.5)	25110.5	2:1DO-6	see circuit diagram		X	X			X
	6 (1.6)	25110.6	2:1DO-7	see circuit diagram		X	X			X
	7 (1.7)	25110.7	2:1DO-8	see circuit diagram		X	X			X
	8 (0.0)	25110.8	2:2DO-1	see circuit diagram		X	X			X
	9 (0.1)	25110.9	2:2DO-2	see circuit diagram		X	X			X
	10 (0.2)	25110.10	2:2DO-3	see circuit diagram		X	X			X
	11 (0.3)	25110.11	2:2DO-4	see circuit diagram		X	X			X
	12 (0.4)	25110.12	2:2DO-5	see circuit diagram		X	X			X
	13 (0.5)	25110.13	2:2DO-6	see circuit diagram		X	X			X
	14 (0.6)	25110.14	2:2DO-7	see circuit diagram		X	X			X
	15 (0.7)	25110.15	2:2DO-8	see circuit diagram		X	X			X
28.	**Digital outputs WORD 4 - 16 Single-bits**									
	0 (1.0)	25111.0	2:3DO-1	see circuit diagram		X	X			X
	1 (1.1)	25111.1	2:3DO-2	see circuit diagram		X	X			X

Transmitted data to Master/ Client - Digital output words (25 - 28) - Address offset											
Transmitted word		**Modbus Address Offset**	**I/O Definition**	**Signal description / Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
	2 (1.2)	25111.2	2:3DO-3	see circuit diagram		X	X			X
	3 (1.3)	25111.3	2:3DO-4	see circuit diagram		X	X			X
	4 (1.4)	25111.4	2:3DO-5	see circuit diagram		X	X			X
	5 (1.5)	25111.5	2:3DO-6	see circuit diagram		X	X			X
	6 (1.6)	25111.6	2:3DO-7	see circuit diagram		X	X			X
	7 (1.7)	25111.7	2:3DO-8	see circuit diagram		X	X			X
	8 (0.0)	25111.8	2:4DO-1	see circuit diagram		X	X			X
	9 (0.1)	25111.9	2:4DO-2	see circuit diagram		X	X			X
	10 (0.2)	25111.10	2:4DO-3	see circuit diagram		X	X			X
	11 (0.3)	25111.11	2:4DO-4	see circuit diagram		X	X			X
	12 (0.4)	25111.12	2:4DO-5	see circuit diagram		X	X			X
	13 (0.5)	25111.13	2:4DO-6	see circuit diagram		X	X			X
	14 (0.6)	25111.14	2:4DO-7	see circuit diagram		X	X			X
	15 (0.7)	25111.15	2:4DO-8	see circuit diagram		X	X			X

Transmitted data to Master/ Client - words (29 - 80) - Address offset									
Transmitted word	**Modbus Address Offset**	**Signal description**	**Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
29	8101	Compressr Start Mode	1 = Start 2 = Remote Else = Stop	X			X	X	
	18351				X				
	18601					X			X
30	8137	Active Set Point	* 10^{-1} (Temperature) * 10^{-2} (Pressure) * 10^{0} (Percent)	X			X	X	
	18379				X				
	18631					X			X
31	8139	Active Control Value	* 10^{-1} (Temperature) * 10^{-2} (Pressure) * 10^{0} (Percent)	X			X	X	
	18380				X				
	18632					X			X
32	8138	Active Control Signal	0 = Suction pressure 1 = Suction pressure as temperature 2 = Inlet temperature 3 = Outlet temperature 4 = Discharge pressure 5 = Discharge pressure as temperature 6 = Remote capacity 7 = Remote temperature 8 = Remote pressure 9 = Ammonia storage tank pressure 10 = Condenser outlet temperature 11 = Condenser inlet temperature	X			X	X	
	18381				X				X
	18633					X			
33	8801	Suction Pressure (Compressor 1)	* 10^{-2}	X		X	X	X	X
		Suction Pressure High Stage Only (Compressor 1)			X				
34	8821	Discharge pressure (Compressor 1)	* 10^{-2}	X	X	X	X	X	X
35	8831	Oil Pressure (Compressor 1)	* 10^{-2}	X	X	X			
36	8851	Oil Filter Pressure (Compressor 1)	* 10^{-2}	X	X	X			
	8891	Crankcase Pressure (Compressor 1)					X	X	X
37	8861	Oil Filter Inlet Pressure (Compressor 1)	* 10^{-2}	X		X			

Transmitted data to Master/ Client - words (29 - 80) - Address offset									
Trans-mitted word	**Modbus Address Offset**	**Signal description**	**Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
38	8951	Suction Temperature (Compressor 1)	* 10^{-1}	X		X	X	X	X
		Suction Temperature High Stage Only			X				
	9031	Intermediate Temperature HP						X	
39	8961	Discharge Temperature (Compressor 1)	* 10^{-1}	X	X	X	X	X	X
40	8981	Oil Temperature (Compressor 1)	* 10^{-1}	X	X	X	X	X	X
41	8971	Oil Separator Temperature (Compressor 1)	* 10^{-1}	X			X	X	X
42	9061	Capacity Slide Position (Compressor 1)	* 10^{0}	X	X	X			
	9231	Current Capacity Step (Compressor 1)					X	X	X
43	9131	Secondary Slide Position (Compressor 1)	* 10^{0}	X	X	X			
44	9281	Motor Speed (Compressor 1)	* 10^{0}	X	X	X	X	X	X
45	9251	Motor Current (Compressor 1)	* 10^{-1}	X	X	X	X	X	X
46	9564	Remote Control Value (Compressor 1)	* 10^{-1}	X	X	X	X	X	X
47	9111	Remote Set Point (Compressor 1)	* 10^{-2}	X	X	X	X	X	X
48	8921	Economizer Pressure (Compressor 1)	* 10^{-2}	X	X	X		X	
49	9051	Economizer Temperatur	* 10^{-1}	X	X	X		X	
50	9241	Current Capacity (Compressor 1)	* 10^{0}	X		X	X	X	X
51	9372	Saturated Suction Temperatur (Compressor 1)	* 10^{-1}	X		X	X	X	X
		Saturated Suction Temperatur High Stage Only			X				
52	9382	Saturated Discharge Temperature (Compressor 1)	* 10^{-1}	X	X	X	X	X	X
53	8134	Accumulated Runtime KHours (Compressor 1)	* 10^{0} kh	X	X	X	X	X	X
54	8135	Accumulated Runtime Hours (Compressor 1)	* 10^{-1} h	X	X	X	X	X	X
55	18382	Set Point Intermediate High Stage			X				
56	23002	Multi Compressor Viewport	"0" default, no view port used "1" View port for compressor 1 active				X	X	

Transmitted data to Master/ Client - words (29 - 80) - Address offset									
Trans-mitted word	**Modbus Address Offset**	**Signal description**	**Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
57	8121	Clear Motor Start Timers (Compressor 1)	Reading this value will return the High Timer between Motor Start to Start, Motor Stop to Start And Oil Drain.	X		X	X	X	X
	18359	Clear Motor Start Timers High Stage			X				
58	9001	Secondary Refrigerant Inlet Temperature	* 10^{-1}	X	X	X	X		X
59	9011	Secondary Refrigerant Outlet Temperature	* 10^{-1}	X	X	X	X		X
60	17111	Liquid Feed Level	* 10^{-1}	X	X	X	X		X
61	21280	Economizer Level	* 10^{0}	X	X	X			
62	12871	Coolant Inlet Temperature	* 10^{-1}	X	X	X	X		X
63	12875	Coolant Outlet Temperature	* 10^{-1}	X	X	X	X		X
64	26354	Oil Still Oil Return Release Temperature	* 10^{-1}				X	X	X
65		Customer Value							
66	21020	Motor Phase A Winding Temperature (Compressor 1)	* 10^{-1}	X	X	X	X		X
67	21030	Motor Phase B Winding Temperature (Compressor 1)	* 10^{-1}	X	X	X	X		X
68	21040	Motor Phase C Winding Temperature (Compressor 1)	* 10^{-1}	X	X	X	X		X
69	21000	Motor Drive End Bearing Temperature (Compressor 1)	* 10^{-1}	X	X	X			
70	21010	Motor Non Drive End Bearing Temperature (Compressor 1)	* 10^{-1}	X	X	X			
71	21021	Motor Phase A Winding Temperature (Compressor 2)	* 10^{-1}		X	X			X
72	21031	Motor Phase B Winding Temperature (Compressor 2)	* 10^{-1}		X	X			X
73	21041	Motor Phase C Winding Temperature (Compressor 2)	* 10^{-1}		X	X			X
74	21001	Motor Drive End Bearing Temperature (Compressor 2)	* 10^{-1}		X	X			
75	21011	Motor Non Drive End Bearing Temperature (Compressor 2)	* 10^{-1}		X	X			
76		Custom Value							
77		Custom Value							
78		Custom Value							
79		Custom Value							

Transmitted data to Master/ Client - words (29 - 80) - Address offset									
Trans-mitted word	**Modbus Address Offset**	**Signal description**	**Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
80		Custom Value							
81	8802	Suction Pressure (Compressor 2)	* 10^{-2}		X	X			X
82	8822	Discharge Pressure (Compressor 2)	* 10^{-2}			X			X
		Intermediate Pressure	* 10^{-2}		X			X	
83	8832	Oil Pressure (Compressor 2)	* 10^{-2}			X			X
	9463	Oil Supply LP (Compressor 2)	* 10^{-2}		X				
84	8852	Pressure after oil filter 2	* 10^{-2}			X			
	8892	Crankcase Pressure 2 (Compressor 2)	* 10^{-2}						X
85	8862	Oil Filter Inlet Pressure (Compressor 2)	* 10^{-2}			X			
86	8952	Suction Temperature (Compressor 2)	* 10^{-1}		X				X
87	8962	Discharge Temperature (Compressor 2)	* 10^{-1}			X			X
		Intermediate temperature (Compressor 2)	* 10^{-1}		X			X	
88	8982	Oil Temperature (Compressor 2)	* 10^{-1}			X			X
89	8972	Oil Separator Temperature (Compressor 2)	* 10^{-1}						
90	9062	Capacity Slide Position (Compressor 2)	* 10^{0}		X	X			
	9232	Current Capacity Step (Compressor 2)	* 10^{0}						X
91	9132	Secondary Slide Position (Compressor 2)	* 10^{0}		X	X			
92	9282	Motor Speed (Compressor 2)	* 10^{0}		X	X			X
93	9252	Motor Current (Compressor 2)	* 10^{-1}		X	X			X
94	8922	Economizer Pressure	* 10^{-2}			X			
95	9052	Economizer Temperature	* 10^{-1}			X			
96	9242	Current Capacity (Compressor 2)	* 10^{-0}		X	X			X
97	9373	Saturated Suction Temperature (Compressor 2)	* 10^{-1}		X	X			X
98	9383	Saturated Discharge Temperature (Compressor 2)	* 10^{-1}		X	X			X
	9392	Saturated Intermediate Temperature	* 10^{-1}					X	
99	8184	Accumulated Runtime KHours (Compressor 2)	* 10^{0} kh		X	X			X

Transmitted data to Master/ Client - words (29 - 80) - Address offset									
Trans-mitted word	**Modbus Address Offset**	**Signal description**	**Range of the transmitted data**	**SP1**	**SP2**	**SPduo**	**RC1**	**RC2**	**RCduo**
100	8185	Accumulated Runtime Hours (Compressor 2)	* 10^{-1} h		X	X			X
101	18364	Clear Motor Start Timers Low Stage	Reading this value will return the High Timer between Motor Start to Start, Motor Stop to Start And Oil Drain.		X				
	8171	Clear Motor Start Timers (Compressor 2)				X			X
102	8911	Intermediate Pressure Intercooler	* 10^{-2}						
103	9041	Intermediate Temperature Intercooler	* 10^{-1}						
104		Custom Value							
105		Custom Value							
106		Custom Value							
107		Custom Value							
108		Custom Value							
109		Custom Value							
110		Custom Value							
111		Custom Value							
112		Custom Value							
113		Custom Value							
114		Custom Value							
115		Custom Value							
116		Custom Value							
117		Custom Value							
118		Custom Value							
119		Custom Value							
120		Custom Value							

2.2 Standard Address Spreadsheet

Please see next pages for the Standard Address Spreadsheet.

2.2.1 Panel Information

AB	Modbus	Description	R/W	Format	Scale
N10:0	400001	Panel IP Address First Octet	R		X1
N10:1	400002	Panel IP Address Second Octet	R		X1
N10:2	400003	Panel IP Address Third Octet	R		X1
N10:3	400004	Panel IP Address Fourth Octet	R		X1
N10:4	400005	Unit ID	R		X1
N10:5	400006	Program Revision	R		X.XX.XX
N10:6	400007	Configuration Revision	R		X100
N10:7	400008	Refrigerant	R	0 = R22 1 = R717 2 = R134a 3 = R12 4 = R290 5 = R404a 6 = R507 7 = R1270 8 = R23 9 = R744 10 = R600a 11 = R170 12 = Gas 13 = R410a 14 = R723 15 = R1150 16 = R407C 17 = R449A 18 = R422D	X1
N10:8	400009	Number Of Compressors	R		X1
N10:9	400010	Condenser Enabled	R	0 = False 1 = True	X1
N10:10	400011	Evaporator Control Enabled	R	0 = False 1 = True	X1
N10:11	400012	Pump Package Control Enabled	R	0 = False 1 = True	X1
N10:19	400020	Communication Pressure Units	R/W	0 = barG 1 = barA 2 = PSIG 3 = PSIA 4 = kPaG 5 = kPaA 6 = kg/cm²G 7 = kg/cm²A 8 = Use Display Units	X1
N10:20	400021	Communications Temperature Units	R/W	0 = Celsius 1 = Fahrenheit 2 = Use Display Units	X1

AB	Modbus	Description	R/W	Format	Scale
N10:21	400022	Pressure Units	R	0 = barG 1 = barA 2 = PSIG 3 = PSIA 4 = kPaG 5 = kPaA 6 = MPaG 7 = MPaA 8 = kg/cm²G 9 = kg/cm²A 10 = Inches Of Water	X1
N10:22	400023	Temperature Units	R	0 = Celsius 1 = Fahrenheit	X1
N10:23	400024	Language	R	0 = Bulgarian 1 = Chinese 2 = Croatian 3 = Danish 4 = German 5 = English UK 6 = English US 7 = Estonian 8 = Finnish 9 = French 10 = Greek 11 = Italian 12 = Japanese 13 = Latvian 14 = Lithuanian 15 = Hindi 16 = Dutch 17 = Norwegian 18 = Polish 19 = Portuguese 20 = Portuguese Brazilian 21 = Romanian 22 = Russian 23 = Serbian 24 = Swedish 25 = Slovenian 26 = Slovak 27 = Spanish 28 = Spanish Latin America 29 = Czech 30 = Turkish 31 = Hungarian 32 = Arabic 33 = Korean 34 = Hebrew	X1
N10:24	400025	Theme	R	0 = Indoor/Dark 1 = Outdoor/Light	X1
N10:25	400026	Historical Interval	R	10 = 10 Seconds 60 = 1 Minute 120 = 2 Minutes 300 = 5 Minutes 600 = 10 Minutes	X1
N10:26	400027	Real Time Clock Hours	R/W	24 Hr Format	X1
N10:27	400028	RTC Minutes	R/W		X1

AB	Modbus	Description	R/W	Format	Scale
N10:28	400029	RTC Seconds	R/W		X1
N10:29	400030	RTC Day of Week	R	0 = Sunday 1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday	X1
N10:30	400031	RTC Year	R/W	Gregorian Calendar	X1
N10:31	400032	RTC Month	R/W		X1
N10:32	400033	RTC Day	R/W		X1

AB	Modbus	Descrition	R/W	Format	Scale
N10:33	400034	Selected Tab	W	0 = Omniview 1 = OmniData 100 = Compressor Overview 101 = Compressor SPDuo Detail Screen 101 = Compressor SPDuo Detail Screen 102 = Compressor 1 Detail Screen 103 = Compressor 1 Classic Screen 104 = Compressor 1 Motor Starter 105 = Compressor 1 VTrac 106 = Compressor 2 Detail Screen 107 = Compressor 2 Classic Screen 108 = Compressor 2 Motor Starter 109 = Compressor 2 VTrac 110 = Compressor 3 Detail Screen 111 = Compressor 3 Classic Screen 112 = Compressor 3 Motor Starter 113 = Compressor 3 VTrac 114 = Compressor 4 Detail Screen 115 = Compressor 4 Classic Screen 116 = Compressor 4 Motor Starter 117 = Compressor 4 VTrac 118 = Compressor 5 Detail Screen 119 = Compressor 5 Classic Screen 120 = Compressor 5 Motor Starter 121 = Compressor 5 VTrac 122 = Compressor 6 Detail Screen 123 = Compressor 6 Classic Screen 124 = Compressor 6 Motor Starter 125 = Compressor 6 VTrac 126 = Compressor 7 Detail Screen 127 = Compressor 7 Classic Screen 128 = Compressor 7 Motor Starter 129 = Compressor 7 VTrac 130 = Compressor 8 Detail Screen 131 = Compressor 8 Classic Screen 132 = Compressor 8 Motor Starter 133 = Compressor 8 VTrac 134 = Compressor 9 Detail Screen 135 = Compressor 9 Classic Screen 136 = Compressor 9 Motor Starter 137 = Compressor 9 VTrac 138 = Compressor 10 Detail Screen 139 = Compressor 10 Classic Screen 140 = Compressor 10 Motor Starter 141 = Compressor 10 VTrac 200 = Oil Still 1 Detail Screen 201 = Oil Still 2 Detail Screen 202 = Oil Still 3 Detail Screen 203 = Oil Still 4 Detail Screen 300 = Evaporator Overview 301 = Evaporator 1 Detail Screen 302 = Evaporator 2 Detail Screen 303 = Evaporator 3 Detail Screen 304 = Evaporator 4 Detail Screen 305 = Evaporator 5 Detail Screen 306 = Evaporator 6 Detail Screen 307 = Evaporator 7 Detail Screen 308 = Evaporator 8 Detail Screen 309 = Evaporator 9 Detail Screen 310 = Evaporator 10 Detail Screen	X1

AB	Modbus	Description	R/W	Format	Scale
				311 = Evaporator 11 Detail Screen 312 = Evaporator 12 Detail Screen 313 = Evaporator 13 Detail Screen 314 = Evaporator 14 Detail Screen 315 = Evaporator 15 Detail Screen 316 = Evaporator 16 Detail Screen 317 = Evaporator 17 Detail Screen 318 = Evaporator 18 Detail Screen 319 = Evaporator 19 Detail Screen 320 = Evaporator 20 Detail Screen 321 = Evaporator 21 Detail Screen 322 = Evaporator 22 Detail Screen 323 = Evaporator 23 Detail Screen 324 = Evaporator 24 Detail Screen 325 = Evaporator 25 Detail Screen 326 = Evaporator 26 Detail Screen 327 = Evaporator 27 Detail Screen 328 = Evaporator 28 Detail Screen 329 = Evaporator 29 Detail Screen 330 = Evaporator 30 Detail Screen 331 = Evaporator 31 Detail Screen 332 = Evaporator 32 Detail Screen 333 = Evaporator 33 Detail Screen 334 = Evaporator 34 Detail Screen 335 = Evaporator 35 Detail Screen 336 = Evaporator 36 Detail Screen 337 = Evaporator 37 Detail Screen 338 = Evaporator 38 Detail Screen 339 = Evaporator 39 Detail Screen 340 = Evaporator 40 Detail Screen 341 = Evaporator 41 Detail Screen 342 = Evaporator 42 Detail Screen 343 = Evaporator 43 Detail Screen 344 = Evaporator 44 Detail Screen 345 = Evaporator 45 Detail Screen 346 = Evaporator 46 Detail Screen 347 = Evaporator 47 Detail Screen 348 = Evaporator 48 Detail Screen 349 = Evaporator 49 Detail Screen 350 = Evaporator 50 Detail Screen 351 = Evaporator 51 Detail Screen 352 = Evaporator 52 Detail Screen 353 = Evaporator 53 Detail Screen 354 = Evaporator 54 Detail Screen 355 = Evaporator 55 Detail Screen 356 = Evaporator 56 Detail Screen 357 = Evaporator 57 Detail Screen 358 = Evaporator 58 Detail Screen 359 = Evaporator 59 Detail Screen 360 = Evaporator 60 Detail Screen 361 = Evaporator 61 Detail Screen 362 = Evaporator 62 Detail Screen 363 = Evaporator 63 Detail Screen 364 = Evaporator 64 Detail Screen 365 = Evaporator 65 Detail Screen 366 = Evaporator 66 Detail Screen 367 = Evaporator 67 Detail Screen 368 = Evaporator 68 Detail Screen 369 = Evaporator 69 Detail Screen 370 = Evaporator 70 Detail Screen	

AB	Modbus	Description	R/W	Format	Scale
				371 = Evaporator 71 Detail Screen 372 = Evaporator 72 Detail Screen 373 = Evaporator 73 Detail Screen 374 = Evaporator 74 Detail Screen 375 = Evaporator 75 Detail Screen 376 = Evaporator 76 Detail Screen 377 = Evaporator 77 Detail Screen 378 = Evaporator 78 Detail Screen 379 = Evaporator 79 Detail Screen 380 = Evaporator 80 Detail Screen 400 = Condenser Overview 401 = Condenser Sequencer Details 402 = Condenser Sequencer Schedule 1 403 = Condenser Sequencer Schedule 2 404 = Condenser Sequencer Schedule 3 405 = Condenser Sequencer Schedule 4 406 = Condenser 1 Detail Screen 407 = Condenser 2 Detail Screen 408 = Condenser 3 Detail Screen 409 = Condenser 4 Detail Screen 410 = Condenser 5 Detail Screen 411 = Condenser 6 Detail Screen 412 = Condenser 7 Detail Screen 413 = Condenser 8 Detail Screen 414 = Condenser 9 Detail Screen 415 = Condenser 10 Detail Screen 416 = Condenser 11 Detail Screen 417 = Condenser 12 Detail Screen 418 = Condenser 13 Detail Screen 419 = Condenser 14 Detail Screen 420 = Condenser 15 Detail Screen 421 = Condenser 16 Detail Screen 422 = Condenser 17 Detail Screen 423 = Condenser 18 Detail Screen 424 = Condenser 19 Detail Screen 425 = Condenser 20 Detail Screen 426 = Condenser 21 Detail Screen 427 = Condenser 22 Detail Screen 428 = Condenser 23 Detail Screen 429 = Condenser 24 Detail Screen 430 = Condenser 25 Detail Screen 431 = Condenser 26 Detail Screen 432 = Condenser 27 Detail Screen 433 = Condenser 28 Detail Screen 434 = Condenser 29 Detail Screen 435 = Condenser 30 Detail Screen 436 = Condenser 31 Detail Screen 437 = Condenser 32 Detail Screen 438 = Condenser 33 Detail Screen 439 = Condenser 34 Detail Screen 440 = Condenser 35 Detail Screen 441 = Condenser 36 Detail Screen 442 = Condenser 37 Detail Screen 443 = Condenser 38 Detail Screen 444 = Condenser 39 Detail Screen 445 = Condenser 40 Detail Screen 446 = Condenser 41 Detail Screen 447 = Condenser 42 Detail Screen 448 = Condenser 43 Detail Screen 449 = Condenser 44 Detail Screen	

AB	Modbus	Description	R/W	Format	Scale
				450 = Condenser 45 Detail Screen 451 = Condenser 46 Detail Screen 452 = Condenser 47 Detail Screen 453 = Condenser 48 Detail Screen 454 = Condenser 49 Detail Screen 455 = Condenser 50 Detail Screen 500 = Compressor Sequencer Overview 501 = Compressor Sequencer Level 1 Details 502 = Compressor Sequencer Level 1 Schedule 503 = Compressor Sequencer Level 2 Details 504 = Compressor Sequencer Level 2 Schedule 505 = Compressor Sequencer Level 3 Details 506 = Compressor Sequencer Level 3 Schedule 507 = Compressor Sequencer Level 4 Details 508 = Compressor Sequencer Level 4 Schedule 509 = Sequenced Compressor 1 Detail Screen 510 = Sequenced Compressor 2 Detail Screen 511 = Sequenced Compressor 3 Detail Screen 512 = Sequenced Compressor 4 Detail Screen 513 = Sequenced Compressor 5 Detail Screen 514 = Sequenced Compressor 6 Detail Screen 515 = Sequenced Compressor 7 Detail Screen 516 = Sequenced Compressor 8 Detail Screen 517 = Sequenced Compressor 9 Detail Screen 518 = Sequenced Compressor 10 Detail Screen 519 = Sequenced Compressor 11 Detail Screen 520 = Sequenced Compressor 12 Detail Screen 521 = Sequenced Compressor 13 Detail Screen 522 = Sequenced Compressor 14 Detail Screen 523 = Sequenced Compressor 15 Detail Screen 524 = Sequenced Compressor 16 Detail Screen 525 = Sequenced Compressor 17 Detail Screen 526 = Sequenced Compressor 18 Detail Screen 527 = Sequenced Compressor 19 Detail Screen 528 = Sequenced Compressor 20 Detail Screen 529 = Sequenced Compressor 21 Detail Screen 530 = Sequenced Compressor 22 Detail Screen 531 = Sequenced Compressor 23 Detail Screen 532 = Sequenced Compressor 24 Detail Screen 533 = Sequenced Compressor 25 Detail Screen 534 = Sequenced Compressor 26 Detail Screen 535 = Sequenced Compressor 27 Detail Screen 536 = Sequenced Compressor 28 Detail Screen 537 = Sequenced Compressor 29 Detail Screen 538 = Sequenced Compressor 30 Detail Screen 539 = Sequenced Compressor 31 Detail Screen 540 = Sequenced Compressor 32 Detail Screen 541 = Sequenced Compressor 33 Detail Screen 542 = Sequenced Compressor 34 Detail Screen 543 = Sequenced Compressor 35 Detail Screen 544 = Sequenced Compressor 36 Detail Screen 545 = Sequenced Compressor 37 Detail Screen 546 = Sequenced Compressor 38 Detail Screen 547 = Sequenced Compressor 39 Detail Screen 548 = Sequenced Compressor 40 Detail Screen 549 = Sequenced Compressor 41 Detail Screen 550 = Sequenced Compressor 42 Detail Screen 551 = Sequenced Compressor 43 Detail Screen 552 = Sequenced Compressor 44 Detail Screen 553 = Sequenced Compressor 45 Detail Screen	

AB	Modbus	Description	R/W	Format	Scale
				554 = Sequenced Compressor 46 Detail Screen 555 = Sequenced Compressor 47 Detail Screen 556 = Sequenced Compressor 48 Detail Screen 557 = Sequenced Compressor 49 Detail Screen 558 = Sequenced Compressor 50 Detail Screen 600 = OmniNet 700 = Energy Saver 800 = History RT Trend Graph 801 = History RT Trend Grid 802 = History Chart Graph 803 = History Chart Grid 804 = History Annunciations 805 = History Analysis 806 = History Report 900 = Documentation Document 901 = Documentation Video 1000 = Service IO Status 1001 = Service Maintenance 1002 = Service Activity Log 1003 = Service Panel Upkeep 1004 = Service Logic Window 1100 = File Manager Support Files 1101 = File Manager Documents 1102 = File Manager Program 1103 = File Manager Apps 1200 = Configuration System 1201 = Configuration Sensors 1300 = Panel Settings Localization 1301 = Panel Settings Users 1302 = Panel Settings Network 1303 = Panel Settings Email 1400 = Panel Info 1500 = Pump Package Overview 1501 = Pump Package 1 Detail Screen 1502 = Pump Package 2 Detail Screen 1503 = Pump Package 3 Detail Screen 1504 = Pump Package 4 Detail Screen 1505 = Pump Package 5 Detail Screen 1506 = Pump Package 6 Detail Screen 1507 = Pump Package 7 Detail Screen 1508 = Pump Package 8 Detail Screen 1509 = Pump Package 9 Detail Screen 1510 = Pump Package 10 Detail Screen -1 = None	
N10:30	400031		-		
	|	Reserved for Panel Information	|		
N10:99	400100		-		

2.2.2 Digital Data

AB	Modbus	Description	R/W	Format	Scale
N10:99	400100	Annunciate Search	R		bit
N11:12	400113	Inverted Annunciate Search	R		bit
N11:25	400126	AND Block	R		bit
N11:57	400158	OR Block	R		bit
N11:89	400190	NAND Block	R		bit

AB	Modbus	Descrition	R/W	Format	Scale
N11:96	400197	NOR Block	R		bit
N12:3	400204	XOR Block	R		bit
N12:10	400211	Invert Block	R		bit
N12:42	400243	Compare	R		bit
N12:74	400275	Flip/Flop	R		bit
N12:87	400288	Analog To Digital Block	R		bit
N13:50	400351	PTC Input Valid	R		bit
N13:51	400352	Custom Digital Input	R/W		bit
N13:83	400384	Custom Digital Output	R/W		bit
N13:90	400391	Modbus Loss of Communication	R		bit
N13:97	400398	Depricated	R		bit
N14:4	400405	Pulse	R		bit
N14:36	400437	Sensor Voting Fault	R		bit
N14:68	400469	Button Output	R		bit
N14:81	400482	IO Counter Reset	R		bit
N14:85	400486	ReActive kW Digital Input	R		bit
N14:86	400487	ReActive Auto Active Output	R		bit
N14:87	400488	ReActive Hold Active Output	R		bit
N14:89	400490	ReActive Schedule Auto Button	R		bit
N14:90	400491	ReActive Schedule Hold Button	R		bit
N14:91	400492	ReActive Schedule Previous Step Button	R		bit
N14:92	400493	ReActive Schedule Next Step Button	R		bit
N14:93	400494	Shutdown Status Inverted	R		bit
N14:94	400495	Warning Status Inverted	R		bit
N14:97	400498	Custom Annunciation Output	R		bit
N15:10	400511	Compressor Stop Permissive	R		bit
N15:12	400513	Loss of Panel Purge Pressure Input	R		bit
N15:13	400514	Timer Block	R		bit

2.2.3 Analog Data

AB	Modbus	Descrition	R/W	Format	Scale
N16:0	400601	Custom Analog	R/W		X1
	|		|		
N17:99	400800		R		
N18:0	400801	Counter Block Value	R		X100
	|		|		
N18:49	400850		R		
N18:50	400851	Math Block Output	R		X100
	|		|		
N20:49	401050		R		
N20:50	401051	PI Block Output	R		X100

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N21:49	401150		R		
N21:50	401151	Constant Block Value	R		X100
	|		|		
N22:49	401250		R		
N22:50	401251	Global Block Value	R		X100
	|		|		
N22:99	401300		R		
N23:0	401301	ReActive Energy Control Input	R		X1
N23:1	401302	Estimated Cooling Capacity	R		X1
	|		|		
N23:10	401311		R		
N23:11	401312	Estimated Shaft Power	R		X1
	|		|		
N23:20	401321		R		
N23:21	401322	Estimated Condensation Capacity	R		X1
	|		|		
N23:30	401331		R		
N23:31	401332	Heating Agent Inlet Oil Cooler Condenser	R		X10
	|		|		
N23:34	401335		R		
N23:35	401336	Heating Agent Outlet Subcooler	R		X10
	|		|		
N23:38	401339		R		
N23:39	401340	Vi Mode	R		X1
	|		|		
N23:48	401349		R		
N24:0	401401	Timer Block Running Value	R		X1
	|		|		
N28:99	401900		R		
N29:0	401901	Sensor Voting Block Value	R		X100
	|		|		
N33:99	402400		R		
N34:0	402401	Bad Sensor Number	R		X1
	|		|		
N38:99	402900		R		
N39:0	402901	Digital To Analog	R		X1
	|		|		

AB	Modbus	Description	R/W	Format	Scale
N39:99	403000		R		
N40:0	403001	IO Counter Input	R		X1
	|		|		
N40:49	403050		R		
N40:50	403051	IO Counter Difference	R		X1
	|		|		
N40:99	403100		R		
N41:0	403101	IO Counter Status	R		X1
	|		|		
N41:24	403125		R		
N41:25	403126	Modbus Block Value	R		X100
	|		|		
N46:24	403625		R		
N46:25	403626	Multiplexer	R		X1
	|		|		
N51:24	404125		R		
N51:25	404126	State Machine State	R		X1
	|		|		
N51:74	404175		R		
N51:75	404176		-		
	|	Reserved for Analog Data	|		
N65:99	405600		-		

2.2.4 Annunciations

AB	Modbus	Description	R/W	Format	Scale
N76:20	406621	Clear All Annunciations	W		X1
		Annunciation 1			

AB	Modbus	Description	R/W	Format	Scale
N76:21	406622	Annunciation Code	R	1 = High Motor Current 2 = Low Motor Current 3 = High Suction Pressure 4 = Low Suction Pressure 5 = High Motor Speed 6 = Low Motor Speed 7 = Capacity Slide Failed To Unload 8 = High Discharge Pressure 9 = Low Discharge Pressure 10 = High Discharge Temperature 11 = High Oil Separator Temperature 12 = Low Oil Separator Temperature 13 = High Oil Separator Level 14 = Low Oil Level 15 = High Inlet Oil Temperature 16 = Low Inlet Oil Temperature 17 = High Oil Differential Pressure 18 = Low Oil Differential Pressure 19 = High Oil Filter Differential 20 = Illegal Oil Filter Differential Pressure 21 = Oil Pump Illegal Interlock 22 = Oil Pump 1 Illegal Interlock 23 = Oil Pump 2 Illegal Interlock 24 = Oil Pump 1 Loss of Interlock Auxiliary 25 = Oil Pump 2 Loss of Interlock Auxiliary 26 = Oil Pump Start Attempts 27 = Oil Pump Loss of Interlock 28 = Compressor Illegal Interlock 29 = Compressor Motor Protection Shutdown 30 = Gas Leak Detection Shutdown 31 = No Oil Flow Detected 32 = Oil Pump Circulation Shutdown 33 = Low Suction Superheat Shutdown 34 = High Suction Superheat Shutdown 35 = Low Discharge Superheat Shutdown 36 = High Discharge Superheat Shutdown 37 = Low Intermediate Pressure 38 = High Inlet Temperature 39 = Low Inlet Temperature 40 = High Outlet Temperature 41 = Low Outlet Temperature 42 = Zero Load 43 = Balance Piston Not Open 44 = High Booster Discharge Pressure 45 = High Balance Piston Pressure 46 = Loss Of Compressor Interlock 47 = Illegal Compressor Motor Current Shutdown 48 = Power Reset Abort Shutdown 49 = Pump Down Too Long 50 = Loss Of Remote Start Signal 51 = Low Oil Flow 52 = Discharge Check Valve Failed To Open 53 = Discharge Check Valve Failed To Close 54 = Oil Drain Failed To Clear Shutdown 55 = Loss of Communication Fixed Drive 56 = Loss of Communication Variable Speed Drive 57 = Suction Pressure Force Unload 58 = Suction Pressure Load Limit 59 = Motor Current Force Unload	X1

AB	Modbus	Description	R/W	Format	Scale
				60 = Motor Current Load Limit 61 = Outlet Temperature Force Unload 62 = Outlet Temperature Load Limit 63 = Discharge Pressure Force Unload 64 = Discharge Pressure Load Limit 65 = Low Auxiliary Safety Pressure 66 = Low Pressure Differential 67 = Suction Check Valve Failed To Open 68 = Suction Check Valve Failed To Close 69 = Low Pressure Ratio 70 = Ammonia Storage Pressure Load Limit 71 = Ammonia Storage Pressure Force Unload 72 = High Motor Drive End Bearing Temperature 73 = High Motor Non Drive End Bearing Temperature 74 = High Motor Phase A Winding Temperature 75 = High Motor Phase B Winding Temperature 76 = High Motor Phase C Winding Temperature 77 = High Compressor Male Drive End Bearing Temperature 78 = High Compressor Male Non Drive End Bearing Temperature 79 = High Compressor Female Drive End Bearing Temperature 80 = High compressor Female Non Drive End Bearing Temperature 501 = VTrac Program May Need To Be Updated 502 = Maximum Male Rotor Position 503 = Minimum Male Rotor Position 504 = Maximum Female Rotor Position 505 = Minimum Female Rotor Position 506 = Dual Oil Pump Motor Protection 507 = Oil Pump 1 Motor Protection 508 = Oil Pump 2 Motor Protection 509 = High Intermediate Pressure 510 = High Intermediate Temperature 511 = Receiving Network Commands While Connected To Sequencer 512 = Oil parameter defaults have changed and may need to be updated. 513 = Oil Cooler Fan 1 Loss Of Interlock 514 = Oil Cooler Fan 2 Loss Of Interlock 515 = Oil Cooler Fan 3 Loss Of Interlock 516 = Oil Cooler Fan 1 Vibration 517 = Oil Cooler Fan 2 Vibration 518 = Oil Cooler Fan 3 Vibration 519 = Compressor Running Inefficiently 520 = Low Pressure Differential 1 521 = Low Pressure Differential 2 522 = Low Pressure Differential 3 523 = Low Suction Temperature 524 = Cylinder Temperature 1 525 = Cylinder Temperature 2 526 = Cylinder Temperature 3 527 = Cylinder Temperature 4 528 = Cylinder Temperature 5 529 = Cylinder Temperature 6 530 = Cylinder Temperature 7 531 = Cylinder Temperature 8 532 = Cylinder Temperature 9	

AB	Modbus	Description	R/W	Format	Scale
				533 = Cylinder Temperature 10 534 = Cylinder Temperature 11 535 = Cylinder Temperature 12 536 = High Pressure Ratio 537 = High Gas Differential 538 = Compressor Set Point Energy Schedule Invalid 539 = Loss of Oil Cooling 540 = Low Oil Differential Pressure Poil Psuc 541 = Low Discharge Temperature 542 = Invalid Refrigerant Selected 543 = High Oil Sump Temperature 544 = Low Oil Sump Temperature 545 = Compressor Sequencer Control Value Mismatch 546 = Variable Speed Drive Shutdown 547 = Danfoss Incorrect Motor Speed Unit (0-02) 548 = Danfoss Drive Not In Auto On Mode 549 = Stop Motor Before Changing Parameter 550 = System Backup Failed Restored Old Files 551 = Low Oil To Suction Differential Pressure 552 = Standstill period more than 1 month 553 = Low Gas Differential 554 = Start Speed Not Reached 555 = Minimum Speed Not Reached 556 = High Motor Power Consumption 557 = Discharge Suction Temperature Differential Too High 558 = High Economizer Level 559 = Suction Pressure Change Too High 560 = Oil Pressure Too High During Standstill 561 = High Intermediate Superheat Low Pressure 562 = Exceptional Increase Of Suction Temperature 563 = Low Economizer Superheat Shutdown 564 = High Economizer Superheat Shutdown 565 = Low Crankcase Level 566 = Liquid Detected Compressor Not Available 567 = High Discharge Pressure Zero Load Shutdown 568 = High Motor Current Zero Load Shutdown 569 = Oil Pump Motor Protection 570 = Slide Stopped Moving. Clear to retry 571 = High Lubrication Supply Temperature 572 = Low Lubrication Supply Temperature 573 = High Lubrication Return Temperature 574 = Speed Control Disabled 575 = Check Valve Leaking 576 = External Oil Pump Without Oil Filter Sensor Detected 577 = High Estimated Shaft Power 578 = High Estimated Condensation Capacity 579 = Suction Line Motor Valve Failed To Open 580 = Suction Line Motor Valve Failed To Close 581 = Gas Leak Detection Shutdown Multiple Recips 582 = High Discharge Pressure HPCO Test 583 = Low Oil Pressure 584 = Danfoss Drive Overrides Parameter 585 = Low Oil Filter Pressure Switch	

AB	Modbus	Description	R/W	Format	Scale
				586 = Undervoltage Detection Shutdown 1001 = Emergency Stop 1002 = Emergency Stop Over Bus 1003 = Lost Communication With Sequencer 1004 = Lost Communication With Gateway 1005 = LiveBit Time Communication With Gate-way 1006 = Upcoming Service Required 1007 = Past Due Service Required 1008 = Service Required 1009 = Directory Folder Backup Capacity 1010 = Directory Folder BIN Capacity 1011 = Directory Folder Data Capacity 1012 = Directory Folder Documents Capacity 1013 = Directory Folder History Annunciations Capacity 1014 = Directory Folder History Historical Capacity 1015 = Directory Folder History RTTrend Capacity 1016 = Directory Folder Log Capacity 1017 = Directory Folder ParameterArchive Capacity 1018 = Auxiliary Shutdown 1019 = Auxiliary Warning 1020 = Please contact GEA to update drawings 1021 = Watchdog 1022 = Analog Input Count Mismatch 1023 = Analog Output Count Mismatch 1024 = Digital Input Count Mismatch 1025 = Digital Output Count Mismatch 1026 = Analog Slice Not Recognized 1027 = Sensor Failure 1028 = Loss Of Communications IO Network 1029 = Exception From Bus Coupler 1030 = Manual RTTrend Snapshot 1031 = Output Overidden 1032 = Wire Break 1033 = Math Block Units Mismatch 1034 = Please contact Gea High Log Usage 1035 = Screen Saver Has Been Turned Off This Will Shorten The Panels Operational Life 1036 = Duo IO Counter Not Counting 1037 = Duo Standstill Monitoring 1038 = Discharge Pressure Differential 1039 = High Balance Piston Pressure Differential 1040 = Safety Chain 1041 = Pull Down Running 1042 = Power Reset Internal Sequencer Abort Shutdown 1043 = Loss Of Panel Purge 1044 = Maintenance Mode Active 1045 = Lost MPI Communication 1046 = LifeBit Time Communication With MPI Device 1047 = Heat Exchanger Needs Cleaned 1048 = Program of IO module may be needed via IO Status Service Screen 1049 = Customer Communication Network Failure 1050 = Evaporator Max Liquid Level 1051 = Gas Leak Detection Shutdown 1052 = Parameter Changing Too Fast	

AB	Modbus	Description	R/W	Format	Scale
				1053 = Undervoltage Detection Shutdown Duo 1054 = Undervoltage Detection Shutdown Two Stage 2001 = High Temperature 2002 = Low Temperature 2003 = Evaporator Max Liquid Level 2004 = Secondary Refrigerant Feedback Pump 2005 = Secondary Refrigerant Feedback Flow 2006 = Evaporator Loss Of Interlock 2007 = Evaporator Illegal Interlock 2008 = Took To Long To Defrost 2009 = Suction Valve Not Opening 2010 = Suction Valve Not Closing 2011 = Water Defrost Interlock 2012 = Coil Rinse Feedback 3001 = Condenser Loss Of Interlock 3002 = Condenser Illegal Interlock 3003 = Condenser High Discharge Pressure 3004 = Condenser Low Discharge Pressure 3005 = Detected Invalid Entries In Condenser Schedule. Please Check The Schedule. 3006 = Condenser No Coolant Flow Detected 3007 = Condenser No Coolant Flow Detected Shutdown 3008 = Condenser High Temperature 3009 = Condenser Fan Failure 3010 = Condenser Service Switch Fan 3011 = Condenser Vibration 3012 = Condenser Low Water Basin Level 3013 = Condenser Motor Valve Interlock 3014 = Condenser Motor Protection 4001 = High Vibration Damage 4002 = High Vibration Warning 4003 = VTrac High Vibration Damage Warning 4004 = VTrac No Communications 5001 = Refrigerant Sensor High High Shutdown 5002 = Refrigerant Sensor High Warning 5003 = Refrigerant Sensor High High Warning 6001 = Compressor Sequencer Shutdown 6002 = Condenser Sequencer Shutdown 6003 = Non Condensables Detected 6004 = Compressor Sequencer Set Point Energy Schedule Invalid 7001 = No Oil Still Return Activated 7002 = Oil Still Heater Loss Of Interlock -1 = Not Used 2	
N76:22	406623	Annunciation Type	R		X1
N76:23	406624	Auxiliary	R		X1
N76:24	406625	Hour	R		X1
N76:25	406626	Minute	R		X1
N76:26	406627	Second	R		X1
N76:27	406628	Month	R		X1
N76:28	406629	Day	R		X1
N76:29	406630	Year	R		X1
N76:30	406631	Clear Annunciation	W		X1
N76:31	406632	Annunciation 2			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N76:40	406641		-		
N76:41	406642	Annunciation 3			
	|		|		
N76:50	406651		-		
N76:51	406652	Annunciation 4			
	|		|		
N76:60	406661		-		
N76:61	406662	Annunciation 5			
	|		|		
N76:70	406671		-		
N76:71	406672	Annunciation 6			
	|		|		
N76:80	406681		-		
N76:81	406682	Annunciation 7			
	|		|		
N76:90	406691		-		
N76:91	406692	Annunciation 8			
	|		|		
N77:0	406701		-		
N77:1	406702	Annunciation 9			
	|		|		
N77:10	406711		-		
N77:11	406712	Annunciation 10			
	|		|		
N77:20	406721		-		

2.2.5 Compressor Annunciations

AB	Modbus	Descrition	R/W	Format	Scale
N77:21	406722	Compressor 1 Shutdowns	R	bit 0 = High Motor Current bit 1 = Low Motor Current bit 2 = High Suction Pressure bit 3 = Low Suction Pressure bit 4 = High Motor Speed bit 5 = Low Motor Speed bit 6 = Capacity Slide Failed To Unload bit 7 = High Discharge Pressure bit 8 = Reserved bit 9 = High Discharge Temperature bit 10 = High Oil Separator Temperature bit 11 = Low Oil Separator Temperature bit 12 = High Oil Separator Level bit 13 = Low Oil Level bit 14 = High Inlet Oil Temperature bit 15 = Low Inlet Oil Temperature	
N77:22	406723		R	bit 0 = High Oil Differential Pressure bit 1 = Low Oil Differential Pressure bit 2 = High Oil Filter Differential bit 3 = Reserved bit 4 = Oil Pump Illegal Interlock bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Oil Pump Loss of Interlock bit 11 = Compressor Illegal Interlock bit 12 = Compressor Motor Protection Shutdown bit 13 = Reserved bit 14 = No Oil Flow Detected bit 15 = Oil Pump Circulation Shutdown	
N77:23	406724		R	bit 0 = Low Suction Superheat Shutdown bit 1 = High Suction Superheat Shutdown bit 2 = Low Discharge Superheat Shutdown bit 3 = High Discharge Superheat Shutdown bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Low Outlet Temperature bit 9 = Zero Load bit 10 = Balance Piston Not Open bit 11 = Reserved bit 12 = High Balance Piston Pressure bit 13 = Loss Of Compressor Interlock bit 14 = Illegal Compressor Motor Current Shut-down bit 15 = Power Reset Abort Shutdown	

AB	Modbus	Description	R/W	Format	Scale
N77:24	406725		R	bit 0 = Pump Down Too Long bit 1 = Reserved bit 2 = Low Oil Flow bit 3 = Discharge Check Valve Failed To Open bit 4 = Discharge Check Valve Failed To Close bit 5 = Oil Drain Failed To Clear Shutdown bit 6 = Loss of Communication Fixed Drive bit 7 = Loss of Communication Variable Speed Drive bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N77:25	406726		R	bit 0 = Low Auxiliary Safety Pressure bit 1 = Low Pressure Differential bit 2 = Suction Check Valve Failed To Open bit 3 = Suction Check Valve Failed To Close bit 4 = Low Pressure Ratio bit 5 = Reserved bit 6 = Reserved bit 7 = High Motor Drive End Bearing Temperature bit 8 = High Motor Non Drive End Bearing Temperature bit 9 = High Motor Phase A Winding Temperature bit 10 = High Motor Phase B Winding Temperature bit 11 = High Motor Phase C Winding Temperature bit 12 = High Compressor Male Drive End Bearing Temperature bit 13 = High Compressor Male Non Drive End Bearing Temperature bit 14 = High Compressor Female Drive End Bearing Temperature bit 15 = High compressor Female Non Drive End Bearing Temperature	
N77:26	406727	Compressor 1 Warnings	R	bit 0 = High Motor Current bit 1 = Reserved bit 2 = High Suction Pressure bit 3 = Low Suction Pressure bit 4 = High Motor Speed bit 5 = Low Motor Speed bit 6 = Reserved bit 7 = High Discharge Pressure bit 8 = Reserved bit 9 = High Discharge Temperature bit 10 = High Oil Separator Temperature bit 11 = Low Oil Separator Temperature bit 12 = High Oil Separator Level bit 13 = Low Oil Level bit 14 = High Inlet Oil Temperature bit 15 = Low Inlet Oil Temperature	

AB	Modbus	Description	R/W	Format	Scale
N77:27	406728		R	bit 0 = High Oil Differential Pressure bit 1 = Low Oil Differential Pressure bit 2 = High Oil Filter Differential bit 3 = Illegal Oil Filter Differential Pressure bit 4 = Reserved bit 5 = Oil Pump 1 Illegal Interlock bit 6 = Oil Pump 2 Illegal Interlock bit 7 = Oil Pump 1 Loss of Interlock Auxiliary bit 8 = Oil Pump 2 Loss of Interlock Auxiliary bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N77:28	406729		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = High Inlet Temperature bit 6 = Low Inlet Temperature bit 7 = High Outlet Temperature bit 8 = Low Outlet Temperature bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N77:29	406730		R	bit 0 = Reserved bit 1 = Loss Of Remote Start Signal bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N77:30	406731		R	bit 0 = Low Auxiliary Safety Pressure bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = High Motor Drive End Bearing Temperature bit 8 = High Motor Non Drive End Bearing Temperature bit 9 = High Motor Phase A Winding Temperature bit 10 = High Motor Phase B Winding Temperature bit 11 = High Motor Phase C Winding Temperature bit 12 = High Compressor Male Drive End Bearing Temperature bit 13 = High Compressor Male Non Drive End Bearing Temperature bit 14 = High Compressor Female Drive End Bearing Temperature bit 15 = High compressor Female Non Drive End Bearing Temperature	
N77:32	406733	Compressor 2			
	|		|		
N77:41	406742		-		
N77:42	406743	Compressor 3			
	|		|		
N77:51	406752		-		
N77:52	406753	Compressor 4			
	|		|		
N77:61	406762		-		
N77:62	406763	Compressor 5			
	|		|		
N77:71	406772		-		
N77:72	406773	Compressor 6			
	|		|		
N77:81	406782		-		
N77:82	406783	Compressor 7			
	|		|		
N77:91	406792		-		
N77:92	406793	Compressor 8			
	|		|		
N78:1	406802		-		
N78:2	406803	Compressor 9			
	|		|		
N78:11	406812		-		

AB	Modbus	Description	R/W	Format	Scale
N78:12	406813	Compressor 10			
	|		|		
N78:21	406822		-		

2.2.6 System Annunciations

AB	Modbus	Description	R/W	Format	Scale
N78:21	406822	System Shutdowns	R	bit 0 = Emergency Stop bit 1 = Emergency Stop Over Bus bit 2 = Reserved bit 3 = Lost Communication With Gateway bit 4 = LiveBit Time Communication With Gateway bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N78:22	406823		R	bit 0 = Reserved bit 1 = Auxiliary Shutdown bit 2 = Reserved bit 3 = Reserved bit 4 = Watchdog bit 5 = Analog Input Count Mismatch bit 6 = Analog Output Count Mismatch bit 7 = Digital Input Count Mismatch bit 8 = Digital Output Count Mismatch bit 9 = Analog Slice Not Recognized bit 10 = Sensor Failure bit 11 = Loss Of Communications IO Network bit 12 = Exception From Bus Coupler bit 13 = Reserved bit 14 = Reserved bit 15 = Wire Break	
N78:23	406824		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Duo Standstill Monitoring bit 5 = Discharge Pressure Differential bit 6 = High Balance Piston Pressure Differential bit 7 = Safety Chain bit 8 = Reserved bit 9 = Power Reset Internal Sequencer Abort Shutdown bit 10 = Reserved bit 11 = Reserved bit 12 = Lost MPI Communication bit 13 = LifeBit Time Communication With MPI Device bit 14 = Reserved bit 15 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N78:24	406825		R	bit 0 = Customer Communication Network Failure bit 1 = Evaporator Max Liquid Level bit 2 = Gas Leak Detection Shutdown bit 3 = Reserved bit 4 = Undervoltage Detection Shutdown Duo bit 5 = Undervoltage Detection Shutdown Two Stage	
N78:26	406827	System Warnings	R	bit 0 = Reserved bit 1 = Reserved bit 2 = Lost Communication With Sequencer bit 3 = Lost Communication With Gateway bit 4 = LiveBit Time Communication With Gateway bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N78:27	406828		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Auxiliary Warning bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Sensor Failure bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N78:28	406829		R	bit 0 = Math Block Units Mismatch bit 1 = Please contact Gea High Log Usage bit 2 = Reserved bit 3 = Duo IO Counter Not Counting bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Pull Down Running bit 9 = Reserved bit 10 = Loss Of Panel Purge bit 11 = Maintenance Mode Active bit 12 = Lost MPI Communication bit 13 = LifeBit Time Communication With MPI Device bit 14 = Reserved bit 15 = Reserved	
N78:29	406830		R	bit 0 = Customer Communication Network Failure bit 1 = Evaporator Max Liquid Level bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved	

2.2.7 Refrigerant Sensor Annunciations

AB	Modbus	Description	R/W	Format	Scale
N79:80	406981		R	0 bit = Refrigerant Sensor 1 High Shutdown 1 bit = Refrigerant Sensor 1 High High Warning 2 bit = Refrigerant Sensor 1 High Warning 3 bit = Refrigerant Sensor 2 High Shutdown 4 bit = Refrigerant Sensor 2 High High Warning 5 bit = Refrigerant Sensor 2 High Warning 6 bit = Refrigerant Sensor 3 High Shutdown 7 bit = Refrigerant Sensor 3 High High Warning 8 bit = Refrigerant Sensor 3 High Warning 9 bit = Refrigerant Sensor 4 High Shutdown 10 bit = Refrigerant Sensor 4 High High Warning 11 bit = Refrigerant Sensor 4 High Warning 12 bit = Refrigerant Sensor 5 High Shutdown 13 bit = Refrigerant Sensor 5 High High Warning 14 bit = Refrigerant Sensor 5 High Warning	
N79:81	406982	Refrigerant Sensor 6 Refrigerant Sensor 7 Refrigerant Sensor 8 Refrigerant Sensor 9 Refrigerant Sensor 10			
N79:91	406983	Refrigerant Sensor 11 Refrigerant Sensor 12 Refrigerant Sensor 13 Refrigerant Sensor 14 Refrigerant Sensor 15			
N80:1	406984	Refrigerant Sensor 16 Refrigerant Sensor 17 Refrigerant Sensor 18 Refrigerant Sensor 19 Refrigerant Sensor 20			

AB	Modbus	Description	R/W	Format	Scale
N80:11	406985	Refrigerant Sensor 21 Refrigerant Sensor 22 Refrigerant Sensor 23 Refrigerant Sensor 24 Refrigerant Sensor 25			
N80:21	406986	Refrigerant Sensor 26 Refrigerant Sensor 27 Refrigerant Sensor 28 Refrigerant Sensor 29 Refrigerant Sensor 30			
N80:31	406987	Refrigerant Sensor 31 Refrigerant Sensor 32 Refrigerant Sensor 33 Refrigerant Sensor 34 Refrigerant Sensor 35			
N80:41	406988	Refrigerant Sensor 36 Refrigerant Sensor 37 Refrigerant Sensor 38 Refrigerant Sensor 39 Refrigerant Sensor 40			
N80:51	406989	Refrigerant Sensor 41 Refrigerant Sensor 42 Refrigerant Sensor 43 Refrigerant Sensor 44 Refrigerant Sensor 45			
N80:61	406990	Refrigerant Sensor 46 Refrigerant Sensor 47 Refrigerant Sensor 48 Refrigerant Sensor 49 Refrigerant Sensor 50			
N80:71	406991	Refrigerant Sensor 51 Refrigerant Sensor 52 Refrigerant Sensor 53 Refrigerant Sensor 54 Refrigerant Sensor 55			
N80:81	406992	Refrigerant Sensor 56 Refrigerant Sensor 57 Refrigerant Sensor 58 Refrigerant Sensor 59 Refrigerant Sensor 60			
N80:91	406993	Refrigerant Sensor 61 Refrigerant Sensor 62 Refrigerant Sensor 63 Refrigerant Sensor 64 Refrigerant Sensor 65			
N81:1	406994	Refrigerant Sensor 66 Refrigerant Sensor 67 Refrigerant Sensor 68 Refrigerant Sensor 69 Refrigerant Sensor 70			
N81:11	406995	Refrigerant Sensor 71 Refrigerant Sensor 72 Refrigerant Sensor 73 Refrigerant Sensor 74 Refrigerant Sensor 75			

AB	Modbus	Descrition	R/W	Format	Scale
N81:21	406996	Refrigerant Sensor 76 Refrigerant Sensor 77 Refrigerant Sensor 78 Refrigerant Sensor 79 Refrigerant Sensor 80			
N81:31	406997	Refrigerant Sensor 81 Refrigerant Sensor 82 Refrigerant Sensor 83 Refrigerant Sensor 84 Refrigerant Sensor 85			
N81:41	406998	Refrigerant Sensor 86 Refrigerant Sensor 87 Refrigerant Sensor 88 Refrigerant Sensor 89 Refrigerant Sensor 90			
N81:51	406999	Refrigerant Sensor 91 Refrigerant Sensor 92 Refrigerant Sensor 93 Refrigerant Sensor 94 Refrigerant Sensor 95			
N81:61	407000	Refrigerant Sensor 96 Refrigerant Sensor 97 Refrigerant Sensor 98 Refrigerant Sensor 99 Refrigerant Sensor 100			

2.2.8 Sensor Failure Annuciations

AB	Modbus	Descrition	R/W	Format	Scale
N80:0	407001	Compressor 1/Unit Shutdowns	R	bit 0 = Suction Pressure bit 1 = Discharge Pressure bit 2 = Oil Pressure bit 3 = Oil Filter Outlet Pressure bit 4 = Discharge Temperature bit 5 = Oil Inlet Temperature bit 6 = Primary Slide Position bit 7 = Motor Speed bit 8 = Motor Current bit 9 = Outlet Temperature bit 10 = Liquid Feed Level bit 11 = Economizer Level bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N80:1	407002	Compressor 2 Shutdowns	R	bit 0 = Suction Pressure bit 1 = Discharge Pressure bit 2 = Oil Supply Pressure LP bit 3 = Reserved bit 4 = Discharge Temperature bit 5 = Reserved bit 6 = Primary Slide Position bit 7 = Motor Speed bit 8 = Motor Current bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N80:2	407003		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N80:3	407004		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N80:4	407005		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N80:5	407006	Compressor 1/Unit Warnings	R	bit 0 = Suction Pressure bit 1 = Oil Separator Temperature bit 2 = Reserved bit 3 = Remote Control Input bit 4 = Remote Set Point bit 5 = Economizer Pressure bit 6 = Economizer Temperature bit 7 = Inlet Temperature bit 8 = Condenser Inlet Temperature bit 9 = Condenser Outlet Temperature bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N80:06	407007	Compressor 2 Warnings	R	bit 0 = Suction Pressure bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Economizer Pressure bit 6 = Economizer Temperature bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Motor Drive End Bearing Temperature bit 14 = Motor Non Drive End Bearing Tempera-ture bit 15 = Reserved	
N80:7	407008		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N80:8	407009		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N80:9	407010		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	

2.2.9 Compressor Sequencer Annunciations

AB	Modbus	Description	R/W	Format	Scale
N80:10	407011	Compressor Sequencer Shutdowns	R	bit 0 = Compressor Sequencer Shutdown bit 1 = Condenser Sequencer Shutdown bit 2 = Reserved bit 3 = Reserved	
N80:15	407016	Compressor Sequencer Warnings	R	bit 0 = Reserved bit 1 = Reserved bit 2 = Non Condensables Detected bit 3 = Reserved	

2.2.10 Condenser Sequencer Annunciations

AB	Modbus	Description	R/W	Format	Scale
N80:50	407051	Condenser Sequencer Shutdowns	R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved	
N80:55	407056	Condenser Sequencer Warnings	R	bit 0 = Condenser Loss Of Interlock bit 1 = Reserved bit 2 = Condenser High Discharge Pressure bit 3 = Condenser Low Discharge Pressure bit 4 = Reserved bit 5 = Condenser No Coolant Flow Detected bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Condenser Motor Valve Interlock bit 13 = Reserved	

2.2.11 VTrac Annunciations

AB	Modbus	Description	R/W	Format	Scale
N80:90	407091	VTrac Shutdowns	R	bit 0 = High Vibration Damage bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved	
N80:95	407096	VTrac Warnings	R	bit 0 = Reserved bit 1 = High Vibration Warning bit 2 = VTrac High Vibration Damage Warning bit 3 = VTrac No Communications	

2.2.12 Compressor Annunciations 2

AB	Modbus	Descrition	R/W	Format	Scale
N81:0	407101	Compressor Shutdowns	R	bit 0 = Reserved bit 1 = Maximum Male Rotor Position bit 2 = Minimum Male Rotor Position bit 3 = Maximum Female Rotor Position bit 4 = Minimum Female Rotor Position bit 5 = Dual Oil Pump Motor Protection bit 6 = Reserved bit 7 = Reserved bit 8 = High Intermediate Pressure bit 9 = High Intermediate Temperature bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Oil Cooler Fan 1 Vibration	
N81:1	407102		R	bit 0 = Oil Cooler Fan 2 Vibration bit 1 = Oil Cooler Fan 3 Vibration bit 2 = Reserved bit 3 = Low Pressure Differential 1 bit 4 = Low Pressure Differential 2 bit 5 = Low Pressure Differential 3 bit 6 = Low Suction Temperature bit 7 = Cylinder Temperature 1 bit 8 = Cylinder Temperature 2 bit 9 = Cylinder Temperature 3 bit 10 = Cylinder Temperature 4 bit 11 = Cylinder Temperature 5 bit 12 = Cylinder Temperature 6 bit 13 = Cylinder Temperature 7 bit 14 = Cylinder Temperature 8 bit 15 = Cylinder Temperature 9	
N81:2	407103		R	bit 0 = Cylinder Temperature 10 bit 1 = Cylinder Temperature 11 bit 2 = Cylinder Temperature 12 bit 3 = High Pressure Ratio bit 4 = High Gas Differential bit 5 = Reserved bit 6 = Reserved bit 7 = Low Oil Differential Pressure Poil Psuc bit 8 = Low Discharge Temperature bit 9 = Invalid Refrigerant Selected bit 10 = High Oil Sump Temperature bit 11 = Low Oil Sump Temperature bit 12 = Reserved bit 13 = Variable Speed Drive Shutdown bit 14 = Reserved bit 15 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N81:3	407104		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Start Speed Not Reached bit 6 = Minimum Speed Not Reached bit 7 = High Motor Power Consumption bit 8 = Reserved bit 9 = High Economizer Level bit 10 = Suction Pressure Change Too High bit 11 = Reserved bit 12 = High Intermediate Superheat Low Pressure bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N81:4	407105		R	bit 0 = Reserved bit 1 = Reserved bit 2 = High Discharge Pressure Zero Load Shutdown bit 3 = High Motor Current Zero Load Shutdown bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N81:5	407106			bit 0 = Gas Leak Detection Shutdown Multiple Recips bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Undervoltage Detection Shutdown	
N81:5	407106	Compressor Warnings	R	bit 0 = Reserved bit 1 = Maximum Male Rotor Position bit 2 = Minimum Male Rotor Position bit 3 = Maximum Female Rotor Position bit 4 = Minimum Female Rotor Position bit 5 = Reserved bit 6 = Oil Pump 1 Motor Protection bit 7 = Oil Pump 2 Motor Protection bit 8 = High Intermediate Pressure bit 9 = High Intermediate Temperature bit 10 = Reserved bit 11 = Reserved bit 12 = Oil Cooler Fan 1 Loss Of Interlock bit 13 = Oil Cooler Fan 2 Loss Of Interlock bit 14 = Oil Cooler Fan 3 Loss Of Interlock bit 15 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N81:6	407107		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Compressor Running Inefficiently bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Low Suction Temperature bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N81:7	407108		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = High Gas Differential bit 5 = Reserved bit 6 = Loss of Oil Cooling bit 7 = Reserved bit 8 = Low Discharge Temperature bit 9 = Reserved bit 10 = High Oil Sump Temperature bit 11 = Low Oil Sump Temperature bit 12 = Compressor Sequencer Control Value Mismatch bit 13 = Reserved bit 14 = Danfoss Incorrect Motor Speed Unit (0-02) bit 15 = Danfoss Drive Not In Auto On Mode	
N81:8	407109		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Start Speed Not Reached bit 6 = Reserved bit 7 = High Motor Power Consumption bit 8 = Reserved bit 9 = Reserved bit 10 = Suction Pressure Change Too High bit 11 = Reserved bit 12 = High Intermediate Superheat Low Pressure bit 13 = Exceptional Increase Of Suction Temperature bit 14 = Reserved bit 15 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N81:9	407110		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = High Estimated Shaft Power bit 13 = High Estimated Condensation Capacity bit 14 = Suction Line Motor Valve Failed To Open bit 15 = Suction Line Motor Valve Failed To Close	
N81:10	407111		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Danfoss Drive Overrides Parameter bit 4 = Reserved bit 5 = Reserved	

2.2.13 Pump Package Annunciations

AB	Modbus	Description	R/W	Format	Scale
N82:0	407201	Pump Package Shutdowns	R	bit 0 = Pump Package High Vessel Level bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved bit 15 = Reserved	
N82:1	407202		R	bit 0 = Reserved bit 1 = Reserved bit 2 = Reserved bit 3 = Reserved bit 4 = Reserved bit 5 = Reserved bit 6 = Reserved bit 7 = Reserved bit 8 = Reserved bit 9 = Reserved bit 10 = Reserved bit 11 = Reserved bit 12 = Reserved bit 13 = Reserved bit 14 = Reserved	

AB	Modbus	Description	R/W	Format	Scale
N82:5	407206	Pump Package Warnings	R	bit 0 = Pump Package High Vessel Level bit 1 = Pump Package Low Vessel Level bit 2 = Pump Package Low Vessel Level Pump Shutdown bit 3 = Reserved bit 4 = Reserved bit 5 = No Pump Available To Run bit 6 = Reserved bit 7 = Pump 1 Thermal Oveload bit 8 = Pump 2 Thermal Oveload bit 9 = Pump 3 Thermal Oveload bit 10 = Pump 1 High Motor Current bit 11 = Pump 2 High Motor Current bit 12 = Pump 3 High Motor Current bit 13 = Pump 1 Low Motor Current bit 14 = Pump 2 Low Motor Current bit 15 = Pump 3 Low Motor Current	
N82:6	407207		R	bit 0 = Pump 1 Seal Oil Low Oil Level bit 1 = Pump 2 Seal Oil Low Oil Level bit 2 = Pump 3 Seal Oil Low Oil Level bit 3 = Pump 1 Low Differential Pressure bit 4 = Pump 2 Low Differential Pressure bit 5 = Pump 3 Low Differential Pressure bit 6 = Pump 1 Auxiliary Pump Shutdown bit 7 = Pump 2 Auxiliary Pump Shutdown bit 8 = Pump 3 Auxiliary Pump Shutdown bit 9 = Pump 1 Loss Of Interlock bit 10 = Pump 2 Loss Of Interlock bit 11 = Pump 3 Loss Of Interlock bit 12 = Pump 1 Illegal Interlock bit 13 = Pump 2 Illegal Interlock bit 14 = Pump 3 Illegal Interlock	

2.2.14 Custom Parameters

AB	Modbus	Description	R/W	Format	Scale
N150:50	414051	Custom Parameters	R/W	Range and Scaling are factory configurable	
	|		|		
N157:99	414800		-		

2.2.15 Compressor Commands

AB	Modbus	Description	R/W	Format	Scale
N91:0	408101	Compressor Start Mode	R/W	1 = Start 2 = Remote Else = Stop	X1
N91:1	408102	Remote Start Stop	R/W	0 = Disabled -1 = Enabled	X1
N91:2	408103	Compressor Capacity Mode	R/W	1 = Unload 2 = Load 3 = Auto 4 = External 5 = Holding At Step 1 5 + X-1 = Holding At Step X Else = Hold At Current Capacity	X1

AB	Modbus	Descrition	R/W	Format	Scale
N91:3	408104	Compressor Status	R	0 = Starting 1 = Running 2 = Stopping 3 = Stopped	X1

AB	Modbus	Description	R/W	Format	Scale
N91:4	408105	Compressor Sequence Status	R	Running always returns 0. Starting 0 = Check Oil Pump Circulation 1 = Check Standstill Monitoring 2 = Check Drive Conditions 3 = Check Oil Drain Timer 4 = Check Control Signal Cycling 5 = Check Permissive Start 6 = Check Engine Room Temperature 7 = Check Secondary Refrigerant Feedback Flow Delay 8 = Check Secondary Refrigerant Feedback Pump 9 = Check Secondary Refrigerant Feedback Flow 10 = Check Water Cooled Condenser 11 = Check Water Cooled Condenser Feedback Flow 12 = Check Evaporative Condenser 13 = Check Pump Down Build To Pressure 14 = Check Oil Temperaturer 15 = Check Discharge Check Valvet 16 = Check Suction Check Valve 17 = Check Suction Modulating Valve 18 = Check Slide Position 19 = Retrofit Oil Drain Input Energized 20 = Check Prelube Timerr 21 = Check Oil Circuit 22 = Check Unloaded Start 23 = Check Prelube Timer 24 = Check VHP Oil Temperature And Superheat 25 = Send Motor Start Signal 26 = Check Interlock Stopping 0 = Check If Booster Has Stopped 1 = Check Slide Position 2 = Unloading 3 = Pump Down 4 = Check Unloaded Start 5 = Check Stop Permissive 6 = Send Motor Stop Signal 7 = Check For Interlock Or Motor Current Stopped (in Bit format) 0 = Ready Bit 1 = Check Motor Start Timers Bit 2 = Check Oil Drain Timer Bit 3 = Check Control Signal Cycling Bit 4 = Check Permissive Start Bit 5 = Check Oil Temperature Bit 6 = Check Compressor Blocked Bit 7 = Check Slide Position Bit 8 = Check Engine Room Temperature Bit 9 = Check Oil Pump Circulation Bit 10 = Check Standstill Monitoring Bit 11 = Check Suction Pressure Bit 12 = Check Discharge Pressure Bit 13 = Check Suction Superheat Bit 14 = Check Discharge Superheat	X1
N91:5	408106	Load Pulse	R/W	1 to 10 seconds	X10
N91:6	408107	Unload Pulse	R/W	1 to 10 seconds	X10

AB	Modbus	Descrition	R/W	Format	Scale
N91:7	408108	Control Mode	R/W	1 = Capacity Control 1 2 = Capacity Control 2 3 = Capacity Control 3	X1
N91:8	408109	Capacity Control 1 Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N91:9	408110	Capacity Control 1 Set Point	R/W	Based on the control Signal	X1
N91:10	408111	Capacity Control 1 Minimum Capacity Slide	R/W	0 - 100 %	X1
N91:11	408112	Capacity Control 1 Maximum Capacity Slide	R/W	0 - 100 %	X1
N91:12	408113	Capacity Control 2 Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N91:13	408114	Capacity Control 2 Set Point	R/W	Based on the control Signal	X1
N91:14	408115	Capacity Control 2 Minimum Capacity Slide	R/W	0 - 100 %	X1
N91:15	408116	Capacity Control 2 Maximum Capacity Slide	R/W	0 - 100 %	X1

AB	Modbus	Description	R/W	Format	Scale
N91:16	408117	Capacity Control 3 Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N91:17	408118	Capacity Control 3 Set Point	R/W	Based on the control Signal	X1
N91:18	408119	Capacity Control 3 Minimum Capacity Slide	R/W	0 - 100 %	X1
N91:19	408120	Capacity Control 3 Maximum Capacity Slide	R/W	0 - 100 %	X1
N91:20	408121	Clear Motor Start Timers	R/W	Write any value to clear. Reading this value will return the High Timer between Motor Start to Start, Motor Stop to Start and Oil Drain.	X1
N91:21	408122	Abort Sequencer Timer	W	Write any value to Abort Sequencer Timer	X1
N91:22	408123	Register Sequencer Timer 5 Minutes	W	Write 17235 to enable a 5 minutes Sequencer Watchdog Timer	X1
N91:23	408124	Register Sequencer Timer 1 Minutes	W	Write 17235 to enable a 1 minutes Sequencer Watchdog Timer	X1
N91:24	408125	Economizer Control By Other Input	W	Any non zero value will indicate the economizer is on	X1
N91:25	408126	Remote VFD Control	R/W	0 - 100 % (-1 to Disable)	X1
N91:27	408128	Shutdown Warning Status	R	0 = Normal 1 = Warning 2 = Shutdown	X1
N91:28	408129	Control Value	R		X1
N91:29	408130	Primary Slide	R		X1
N91:30	408131	Motor Current	R		X1
N91:31	408132	Motor Speed	R		X1
N91:32	408133	Vi	R		X1
N91:33	408134	Motor RunTime KHours	R		X1
N91:34	408135	Motor RunTime Hours	R		X1
N91:35	408136	Limitation	R	Bit 0 = Suction Pressure Force Unload Bit 1 = Suction Pressure Load Limitation Bit 2 = Discharge Pressure Force Unload Bit 3 = Discharge Pressure Load Limitation Bit 4 = Motor Current Force Unload Bit 5 = Motor Current Load Limitation Bit 6 = Outlet Temperature Force Unload Bit 7 = Outlet Temperature Load Limitation Bit 8 = Vi Force Unload	X1
N91:36	408137	Current Set Point	R		X1
N91:37	408138	Current Control Signal	R		X1

AB	Modbus	Descrition	R/W	Format	Scale
N91:38	408139	Remote Control Value	R/W		X1
N91:39	408140	Remote Set Point	R/W		X1
N91:40	408141	Mega Watt Hours Consumed	R		X1
N91:41	408142	Kilo Watt Hours Consumed	R		X1
N91:42	408143	Compressor RunTime KHours	R		X1
N91:43	408144	Compressor RunTime Hours	R		X1
N91:44	408145	Power Failure Timer	R		X1
N91:45	408146	Custom Limitation	R/W		X1
N91:46	408147	Remaining Automatic Start Time	R		X1
N91:49	408150	Bit Commands	W	Bit 0 = Life-Bit(ProfiNET/ProfiBUS only) Bit 1 = Remote Start/Stop Bit 2 = External Unload Bit 3 = External Load Bit 4 = Reset Annunciations Bit 5 = Capacity Selection Bit 6 = Compressor Start Permissive Bit 7 = Remote Emergency Stop Trigger Bit 8 = Compressor 1 Block Bit 9 Compressor 2 Block Bit 10 = Unused Bit 11 = Energy Limitation	X1
N91:50	408151	Compressor 2			
	|		|		
N91:99	408200		-		
N92:0	408201	Compressor 3			
	|		|		
N92:49	408250		-		
N92:50	408251	Compressor 4			
	|		|		
N92:99	408300		-		
N93:0	408301	Compressor 5			
	|		|		
N93:49	408350		-		
N93:50	408351	Compressor 6			
	|		|		
N93:99	408400		-		
N94:0	408401	Compressor 7			
	|		|		
N94:49	408450		-		
N94:50	408451	Compressor 8			
	|		|		
N94:99	408500		-		
N95:0	408501	Compressor 9			
	|		|		

AB	Modbus	Description	R/W	Format	Scale
N95:49	408550		-		
N95:50	408551	Compressor 10			
	|		|		
N95:99	408600		-		

2.2.16 Compressor Digital Data

AB	Modbus	Description	R/W	Format	Scale
N96:0	408601	Compressor Motor Start	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:0	408601				
N96:1	408602	Compressor Motor Interlock	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:1	408602				
N96:2	408603	Compressor Motor Protection Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:2	408603				
N96:3	408604	Compressor Illegal Start Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:3	408604				
N96:4	408605	Compressor Motor Thermal Shut-down	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:4	408605				
N96:5	408606	Compressor Motor Starter Locked Out	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:5	408606				
N96:6	408607	Motor Start To Start Timer Active Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:6	408607				
N96:7	408608	kWh Pulse Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:7	408608				
N96:8	408609	kWh Clear Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:8	408609				
N96:9	408610	Compressor Running Lamp	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:9	408610				

AB	Modbus	Descrition	R/W	Format	Scale
N96:10	408611	Warning Lamp	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:10	408611				
N96:11	408612	Shutdown Lamp	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:11	408612				
N96:12	408613	Compressor Ready To Start	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:12	408613				
N96:13	408614	Emergency Stop Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N96:12	408613				
N96:14	408615	Shutdown Status	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N96:13	408614				
N96:15	408616	Warning Status	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N96:14	408615				
N96:16	408617	Compressor Shutdown Active	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:16	408617				
N96:17	408618	Compressor Warning Active	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:17	408618				
N96:18	408619	All Compressor Shutdown Active	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N96:17	408618				
N96:19	408620	Horn Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N96:18	408619				
N96:20	408621	Capacity Set Point Selection	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:20	408621				
N96:21	408622	Yosaku Liquid Injection Solenoid	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:21	408622				
N96:22	408623	Starter Mode Selection	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:22	408623				

AB	Modbus	Descrition	R/W	Format	Scale
N96:23	408624	Motor Stop To Start Timer Active Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:23	408624				
N96:24	408625	Capacity Slide Load Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:24	408625				
N96:25	408626	Capacity Slide Unload Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:25	408626				
N96:26	408627	Capacity Solenoid 1-Frick RDB	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:26	408627				
N96:27	408628	Capacity Solenoid 2-Frick RDB	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:27	408628				
N96:28	408629	Capacity Solenoid 3-Frick RDB	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:28	408629				
N96:29	408630	Capacity Solenoid 4	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:29	408630				
N96:30	408631	Capacity Solenoid 5	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:30	408631				
N96:31	408632	Capacity Solenoid 6	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:31	408632				
N96:32	408633	Capacity Solenoid 7	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:32	408633				
N96:33	408634	Capacity Solenoid 8	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:33	408634				
N96:34	408635	Capacity Solenoid 9	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:34	408635				
N96:35	408636	Capacity Solenoid 10	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		

AB	Modbus	Descrition	R/W	Format	Scale
N96:35	408636				
N96:36	408637	Capacity Output 1	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:36	408637				
N96:37	408638	Capacity Output 2	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:37	408638				
N96:38	408639	Capacity Control Permissive	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:38	408639				
N96:39	408640	External Unload	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:39	408640				
N96:40	408641	External Load	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:40	408641				
N96:41	408642	Hot Gas Bypass Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:41	408642				
N96:42	408643	Unloaded Start Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:42	408643				
N96:43	408644	Fast Unload Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:43	408644				
N96:44	408645	Centrifugal Compressor Surging Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:44	408645				
N96:45	408646	Suction Bypass Solenoid	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:45	408646				
N96:46	408647	Oil Drain Time Active Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:46	408647				
N96:47	408648	Compressor Motor Stop	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:47	408648				
N96:48	408649	Recip Oil Return Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit

AB	Modbus	Descrition	R/W	Format	Scale
	|	Block Number	10		
N96:48	408649				
N96:49	408650	Compressor Vi Slide Increase-Secondary Slide Load Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:49	408650				
N96:50	408651	Compressor Vi Slide Decrease-Secondary Slide Unload Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:50	408651				
N96:51	408652	Compressor Low Vi Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:51	408652				
N96:52	408653	Compressor Medium Vi Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:52	408653				
N96:53	408654	Compressor Stepped Vi Booster Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:53	408654				
N96:54	408655	Compressor Safety Chain Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:54	408655				
N96:55	408656	Recip Oil Return Active	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:55	408656				
N96:56	408657	Economizer Max Level	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:56	408657				
N96:57	408658	Economizer Level Control Solenoid Release	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:57	408658				
N96:58	408659	Oil Pump Extra Lubrication Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:58	408659				
N96:59	408660	Oil Pump 1 Start Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:59	408660				
N96:60	408661	Oil Pump 2 Start Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit

AB	Modbus	Descrition	R/W	Format	Scale
	|	Block Number	10		
N96:60	408661				
N96:61	408662	Oil Pump 1 Start Interlock	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:61	408662				
N96:62	408663	Oil Pump 2 Start Interlock	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:62	408663				
N96:63	408664	Oil Pump 1 Motor Protection	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:63	408664				
N96:64	408665	Oil Pump 2 Motor Protection	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:64	408665				
N96:65	408666	Oil Pump Manual Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:65	408666				
N96:66	408667	Oil Make Flow Switch	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:66	408667				
N96:67	408668	Oil Pump Lead Selection	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:67	408668				
N96:68	408669	Solenoid Oil Return Oil Separator	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:68	408669				
N96:69	408670	Oil Separator Heater Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:69	408670				
N96:70	408671	Oil Separator Low Level	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:70	408671				
N96:71	408672	Oil Separator High Level	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:71	408672				
N96:72	408673	Crankcase High Oil Level	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:72	408673				
N96:73	408674	Oil Drain Line Clear Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit

AB	Modbus	Descrition	R/W	Format	Scale
	|	Block Number	10		
N96:73	408674				
N96:74	408675	Booster Oil Supply Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:74	408675				
N96:75	408676	Crankcase Heater Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:75	408676				
N96:76	408677	Auxiliary Digital Output 2	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:76	408677				
N96:77	408678	Oil Filter Differential Switch Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:77	408678				
N96:78	408679	Release Oil Cooling	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:78	408679				
N96:79	408680	Motorized Suction Valve Fully Opened Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:79	408680				
N96:80	408681	Motorized Suction Valve Fully Closed Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:80	408681				
N96:81	408682	Motorized Suction Valve Open Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:81	408682				
N96:82	408683	Motorized Suction Valve Close Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:82	408683				
N96:83	408684	Motorized Discharge Valve Closed Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:83	408684				
N96:84	408685	Motorized Discharge Valve Opened Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:84	408685				

AB	Modbus	Descrition	R/W	Format	Scale
N96:85	408686	Motorized Discharge Valve Close Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:85	408686				
N96:86	408687	Motorized Discharge Valve Open Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:86	408687				
N96:87	408688	Internal Sequencer Duo Unit Running Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N96:86	408687				
N96:88	408689	Thermopump Enable	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:88	408689				
N96:89	408690	Compressor Stop Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:89	408690				
N96:90	408691	Compressor Manual Start Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:90	408691				
N96:91	408692	Compressor Remote Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:91	408692				
N96:92	408693	Compressor Load Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:92	408693				
N96:93	408694	Compressor Unload Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:93	408694				
N96:94	408695	Compressor Auto Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:94	408695				
N96:95	408696	Compressor Hold Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:95	408696				
N96:96	408697	Compressor External Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:96	408697				

AB	Modbus	Descrition	R/W	Format	Scale
N96:97	408698	Compressor Motor Start To Start Clear Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:97	408698				
N96:98	408699	Compressor in Stop Mode Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:98	408699				
N96:99	408700	Compressor in Manual Start Mode Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N96:99	408700				
N97:0	408701	Compressor in Remote Mode Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:0	408701				
N97:1	408702	Compressor in Stopped State Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:1	408702				
N97:2	408703	Compressor in Starting State Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:2	408703				
N97:3	408704	Compressor in Running State Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:3	408704				
N97:4	408705	Compressor in Stopping State Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:4	408705				
N97:5	408706	Compressor Capacity Control Mode Manual Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:5	408706				
N97:6	408707	Compressor Capacity Control Mode Remote Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:6	408707				
N97:7	408708	Compressor Capacity Control Mode Auto Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:7	408708				
N97:8	408709	Compressor Capacity Control Mode External Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		

AB	Modbus	Descrition	R/W	Format	Scale
N97:8	408709				
N97:9	408710	Compressor Start Permissive	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:9	408710				
N97:10	408711	Compressor Remote Start-Stop	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:10	408711				
N97:11	408712	Compressor Remote Standby	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:11	408712				
N97:12	408713	Suction Filter Combo Solenoid	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:12	408713				
N97:13	408714	Balance Piston Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:13	408714				
N97:14	408715	Balance Piston Bypass Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:14	408715				
N97:15	408716	Oil Cooling-Liquid Injection Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:15	408716				
N97:16	408717	Economizer Solenoid	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:16	408717				
N97:17	408718	Jacket Cooling Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:17	408718				
N97:18	408719	Jacket Cooling Flow Switch Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:18	408719				
N97:19	408720	Chiller Liquid Feed Solenoid	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	2		
N97:19	408720				
N97:20	408721	Pump Down In Progress Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:20	408721				
N97:21	408722	Liquid Feed Solenoid 2	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		

AB	Modbus	Descrition	R/W	Format	Scale
N97:21	408722				
N97:22	408723	Cylinder Head Temperature Safety	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:22	408723				
N97:23	408724	Auxiliary Shutdown Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	2		
N97:23	408724				
N97:24	408725	Auxiliary Warning Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	2		
N97:24	408725				
N97:25	408726	Compressor Solenoid Pressure Equalization	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:25	408726				
N97:26	408727	Water Cooling Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:26	408727				
N97:27	408728	Compressor Sequencing Auto Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	4		
N97:27	408728				
N97:28	408729	Compressor Sequencing Manual Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	4		
N97:28	408729				
N97:29	408730	Compressor Sequencing Next Step Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	4		
N97:29	408730				
N97:30	408731	Compressor Sequencing Previous Step Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	4		
N97:30	408731				
N97:31	408732	Compressor Sequencing In Auto Mode	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	4		
N97:31	408732				
N97:32	408733	Compressor Sequencing In Manual Mode	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	4		
N97:32	408733				
N97:33	408734	Condenser Sequencing Auto Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit

AB	Modbus	Descrition	R/W	Format	Scale
	|	Block Number	1		
N97:32	408733				
N97:34	408735	Condenser Sequencing Manual Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N97:33	408734				
N97:35	408736	Condenser Sequencing Next Step Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N97:34	408735				
N97:36	408737	Condenser Sequencing Previous Step Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N97:35	408736				
N97:37	408738	Pump Down Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:37	408738				
N97:38	408739	Pump Down Enabled	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:38	408739				
N97:39	408740	Compressor Blocked Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:39	408740				
N97:40	408741	Economizer Status	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:40	408741				
N97:41	408742	Limit Running Compressors	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N97:40	408741				
N97:42	408743	Gas Leak Detection Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:42	408743				
N97:43	408744	Breaker Tripped Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N97:42	408743				
N97:44	408745	Pump Down Initiate Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:44	408745				
N97:45	408746	Liquid Feed Solenoid 1	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		

AB	Modbus	Descrition	R/W	Format	Scale
N97:45	408746				
N97:46	408747	Compressor Stop Hardwired Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:46	408747				
N97:47	408748	Compressor Manual Start Hardwired Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:47	408748				
N97:48	408749	Compressor Remote Hardwired Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:48	408749				
N97:49	408750	Compressor Load Hardwired Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:49	408750				
N97:50	408751	Compressor Unload Hardwired Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:50	408751				
N97:51	408752	Compressor Auto Hardwired Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:51	408752				
N97:52	408753	Compressor Hold Hardwired Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:52	408753				
N97:53	408754	Compressor External Hardwired Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:53	408754				
N97:54	408755	Compressor Stop Fail Safe Hardwired Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:54	408755				
N97:55	408756	Hardwired Screen Saver Wake Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N97:54	408755				
N97:56	408757	Compressor Capacity Control Mode Load Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:56	408757				

AB	Modbus	Descrition	R/W	Format	Scale
N97:57	408758	Compressor Capacity Control Mode Unload Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:57	408758				
N97:58	408759	Auxiliary Digital Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:58	408759				
N97:59	408760	Custom Lamp Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	30		
N97:60	408761				
N97:61	408762	Turbine Oil Pump Motor Start	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:61	408762				
N97:62	408763	Status Compressor Running Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:62	408763				
N97:63	408764	Compressor Ready For Remote	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:63	408764				
N97:64	408765	Oil Cooler Fan 1 Start	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	30		
N97:65	408766				
N97:66	408767	Oil Cooler Fan 2 Start	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	30		
N97:67	408768				
N97:68	408769	Oil Cooler Fan 3 Start	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	30		
N97:69	408770				
N97:70	408771	Oil Cooler Fan 1 Interlock	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	30		
N97:71	408772				
N97:72	408773	Oil Cooler Fan 2 Interlock	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	30		
N97:73	408774				
N97:74	408775	Oil Cooler Fan 3 Interlock	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	30		
N97:75	408776				
N97:76	408777	Compressor Cooler Fan 1 Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		

AB	Modbus	Description	R/W	Format	Scale
N97:76	408777				
N97:77	408778	Compressor Cooler Fan 2 Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:77	408778				
N97:78	408779	Compressor Cooler Fan 3 Button	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:78	408779				
N97:79	408780	Oil Cooler Fan 1 Vibration Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:79	408780				
N97:80	408781	Oil Cooler Fan 2 Vibration Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:80	408781				
N97:81	408782	Oil Cooler Fan 3 Vibration Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:81	408782				
N97:82	408783	Panel Heater Start	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	1		
N97:81	408782				
N97:83	408784	Duo Retrofit Oil Suppy Solenoid Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:83	408784				
N97:84	408785	Injection Oil Solenoid Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:84	408785				
N97:85	408786	Compressor Ready For Immediate Start	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:85	408786				
N97:86	408787	Compressor Motor Start Request	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:86	408787				
N97:87	408788	Unit Economizer Solenoid	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:86	408787				
N97:88	408789	Suction Line Motor Valve Open Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:88	408789				

AB	Modbus	Descrition	R/W	Format	Scale
N97:89	408790	Undervoltage Detection Input	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:89	408790				
N97:90	408791	Undervoltage Detection Input Duo	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|		1		
N97:89	408790				
N97:91	408792	Undervoltage Detection Input Two Stage	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|		1		
N97:90	408791				
N97:98	408799	TCMO Bypass Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:98	408799				
N97:99	408800	Thermopump Valve 98V Output	R	bit 0 = Compressor 1 ... bit 9 = Compressor 10	bit
	|	Block Number	10		
N97:99	408800				

2.2.17 Compressor Analog Data

AB	Modbus	Descrition	R/W	Format	Scale
N98:0	408801	Suction Pressure	R		X100
	|		|		
N98:9	408810		R		
N98:10	408811	Storage Tank Pressure	R		X100
	|		|		
N98:19	408820		R		
N98:20	408821	Discharge Pressure	R		X100
	|		|		
N98:29	408830		R		
N98:30	408831	Oil Pressure	R		X100
	|		|		
N98:39	408840		R		
N98:40	408841	Required Oil Pressure	R		X100
	|		|		
N98:49	408850		R		
N98:50	408851	Oil Filter Outlet Pressure	R		X100
	|		|		
N98:59	408860		R		
N98:60	408861	Oil Filter Inlet Pressure	R		X100
	|		|		

AB	Modbus	Descrition	R/W	Format	Scale
N98:69	408870		R		
N98:70	408871	Oil Differential Pressure	R		X100
	|		|		
N98:79	408880		R		
N98:80	408881	Oil Filter Differential Pressure	R		X100
	|		|		
N98:89	408890		R		
N98:90	408891	Crankcase Pressure	R		X100
	|		|		
N98:99	408900		R		
N99:0	408901	Intermediate Pressure	R		X100
	|		|		
N99:9	408910		R		
N99:10	408911	Intermediate Pressure Intercooler	R		X100
	|		|		
N99:19	408920		R		
N99:20	408921	Economizer Pressure	R		X100
	|		|		
N99:29	408930		R		
N99:30	408931	Double Balance Piston Pressure	R		X100
	|		|		
N99:39	408940		R		
N99:40	408941	Pressure Ratio	R		X10
	|		|		
N99:49	408950		R		
N99:50	408951	Suction Temperature	R		X10
	|		|		
N99:59	408960		R		
N99:60	408961	Discharge Temperature	R		X10
	|		|		
N99:69	408970		R		
N99:70	408971	Oil Separator Temperature	R		X10
	|		|		
N99:79	408980		R		
N99:80	408981	Oil Inlet Temperature	R		X10
	|		|		
N99:89	408990		R		
N99:90	408991	Oil Cooler Temperature	R		X10
	|		|		

AB	Modbus	Description	R/W	Format	Scale
N99:99	409000		R		
N100:0	409001	Inlet Temperature	R		X10
	|		|		
N100:9	409010		R		
N100:10	409011	Outlet Temperature	R		X10
	|		|		
N100:19	409020		R		
N100:20	409021	Intermediate Temperature Low Pressure Discharge	R		X10
	|		|		
N100:29	409030		R		
N100:30	409031	Intermediate Temperature High Pressure Suction	R		X10
	|		|		
N100:39	409040		R		
N100:40	409041	Intermediate Temperature Intercooler	R		X10
	|		|		
N100:49	409050		R		
N100:50	409051	Economizer Temperature	R		X10
	|		|		
N100:59	409060		R		
N100:60	409061	Primary Slide Position	R		X1
	|		|		
N100:69	409070		R		
N100:70	409071	Primary Slide Sensor Voltage	R		X100
	|		|		
N100:79	409080		R		
N100:80	409081	Primary Slide Sensor Signal	R		X10
	|		|		
N100:89	409090		R		
N100:90	409091	Primary Slide Percent of Max Travel	R		X1
	|		|		
N100:99	409100		R		
N101:0	409101	Slide Or Capacity Output	R		X1
	|		|		
N101:9	409110		R		
N101:10	409111	Remote Set Point	R		X10
	|		|		
N101:19	409120		R		

AB	Modbus	Descrition	R/W	Format	Scale
N101:20	409121	Recip Max Step	R		X1
	|		|		
N101:29	409130		R		
N101:30	409131	Vi Slide Secondary Slide Position	R		X1
	|		|		
N101:39	409140		R		
N101:40	409141	Vi Slide Secondary Slide Voltage	R		X100
	|		|		
N101:49	409150		R		
N101:50	409151	Vi Slide Secondary Slide Sensor Signal	R		X10
	|		|		
N101:59	409160		R		
N101:60	409161	Ideal Secondary Slide Position	R		X1
	|		|		
N101:69	409170		R		
N101:70	409171	Volume Slide Target Position	R		X1
	|		|		
N101:79	409180		R		
N101:80	409181	Position of Vi Stop	R		X10
	|		|		
N101:89	409190		R		
N101:90	409191	Calculated Volume Index	R		X10
	|		|		
N101:99	409200		R		
N102:0	409201	Optimum Vi	R		X10
	|		|		
N102:9	409210		R		
N102:10	409211	Midpoint of Vi Range	R		X10
	|		|		
N102:19	409220		R		
N102:20	409221	Tonnage Rating	R		X1
	|		|		
N102:29	409230		R		
N102:30	409231	Current Capacity Step	R		X1
	|		|		
N102:39	409240		R		
N102:40	409241	Current Capacity	R		X1
	|		|		

AB	Modbus	Description	R/W	Format	Scale
N102:49	409250		R		
N102:50	409251	Motor Current	R		X10
	|		|		
N102:59	409260		R		
N102:60	409261	Motor Speed PID	R		X10
	|		|		
N102:69	409270		R		
N102:70	409271	Motor Speed	R		X1
	|		|		
N102:79	409280		R		
N102:80	409281	Motor Speed Input	R		X1
	|		|		
N102:89	409290		R		
N102:90	409291	Motor Drive Frequency Reference	R		X10
	|		|		
N102:99	409300		R		
N103:0	409301	Remote Motor Speed Set Point	R		X10
	|		|		
N103:9	409310		R		
N103:10	409311	kWh Pulse Total Count	R		X1
	|		|		
N103:19	409320		R		
N103:20	409321	Oil Pump Speed	R		X1
	|		|		
N103:29	409330		R		
N103:30	409331	Liquid Injection Motorized Valve Position	R		X1
	|		|		
N103:39	409340		R		
N103:40	409341	kWh Demand	R		X10
	|		|		
N103:49	409350		R		
N103:50	409351	kW Total Usage	R		X10
	|		|		
N103:59	409360		R		
N103:60	409361	kWh Counter	R		X1
	|		|		
N103:69	409370		R		

AB	Modbus	Descrition	R/W	Format	Scale
N103:70	409371	kW Usage Input from Meter used for Energy Savings	R		X10
N103:71	409372	Saturated Suction Temperature	R		X10
	|		|		
N103:80	409381		R		
N103:81	409382	Saturated Discharge Temperature	R		X10
	|		|		
N103:90	409391		R		
N103:91	409392	Saturated Intermediate Temperature	R		X10
	|		|		
N104:0	409401		R		
N104:1	409402	Saturated Liquid Temperature	R		X10
	|		|		
N104:10	409411		R		
N104:11	409412	Suction Superheat	R		X10
	|		|		
N104:20	409421		R		
N104:21	409422	Discharge Superheat	R		X10
	|		|		
N104:30	409431		R		
N104:31	409432	Intermediate Superheat	R		X10
	|		|		
N104:40	409441		R		
N104:41	409442	Calculated Zero Load Position	R		X1
	|		|		
N104:50	409451		R		
N104:51	409452	Oil Pump Speed PI	R		X100
	|		|		
N104:60	409461		R		
N104:61	409462	Oil Supply Pressure LP	R		X100
	|		|		
N104:70	409471		R		
N104:71	409472	Compressor Up Sequence Stage	R		X1
	|		|		
N104:80	409481		R		
N104:81	409482	Standstill Protection	R		X1
	|		|		
N104:90	409491		R		
N104:91	409492	Panel Temperature	R		X10

AB	Modbus	Descrition	R/W	Format	Scale
N104:92	409493	Loop Time	R		X1
N104:93	409494	Centrifugal Pre Rotation Vane Valve Output	R		X10
	|		|		
N105:2	409503		R		
N105:3	409504	Centrifugal Hot Gas Valve Output	R		X10
	|		|		
N105:12	409513		R		
N105:13	409514	Centrifugal Oil Sump Pressure	R		X100
	|		|		
N105:22	409523		R		
N105:23	409524	Discharge Suction Differential	R		X100
	|		|		
N105:32	409533		R		
N105:33	409534	Number Of Compressor Starts	R		X1
	|		|		
N105:42	409543		R		
N105:43	409544	Saturated Economizer Temperature	R		X10
	|		|		
N105:52	409553		R		
N105:53	409554	Motor Speed Maximum	R		X1
	|		|		
N105:62	409563		R		
N105:63	409564	Remote Control Input	R		X10
	|		|		
N105:72	409573		R		
N105:73	409574	Oil Differential Pressure Oil Pressure - Suction Pressure	R		X100
	|		|		
N105:82	409583		R		
N105:83	409584	Adjusted Zero Load Position	R		X1
	|		|		
N105:92	409593		R		
N105:93	409594		-		
	|	Reserved for Compressor Analog Data	|		
N105:99	409600		-		

2.2.18 Compressor Parameters

AB	Modbus	Descrition	R/W	Format	Scale
N106:0	409601	Compressor Viewport	R/W	0 = No Entries 1-10 = Compressor #X	
		Capacity Control 1			
N106:2	409603	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N106:3	409604	Set Point	R/W		X1
N108:32	409833	Set Point High Stage Only	R/W		X1
N106:4	409605	Dead Band	R/W		X1
N106:5	409606	Proportional Band	R/W		X1
N108:62	409863	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N106:6	409607	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N106:7	409608	Automatic Start	R/W		X1
N109:27	409928	Automatic Start Offset	R/W		X1
N109:28	409929	Automatic Stop Offset	R/W		X1
N106:8	409609	Automatic Start Delay	R/W	5 - 1800 s	X1
N106:9	409610	Automatic Stop	R/W		X1
N106:10	409611	Automatic Stop Delay	R/W	5 - 1800 s	X1
N106:11	409612	Load Pulse Period	R/W	1 - 20 s	X1
N106:12	409613	Unload Pulse Period	R/W	1 - 20 s	X1
N106:13	409614	Minimum Capacity Slide Position	R/W		X1
N106:14	409615	Maximum Capacity Slide Position	R/W		X1
N110:35	410036	Dynamic Set Point	R/W	0 = Disabled -1 = Enabled	X1
N110:36	410037	Temperature Difference At Full Load	R/W	0.1 - 20.0 K 32.2 F° - 68 F°	X10
N108:56	409857	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N106:15	409616	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N109:75	409976	Automatic Load Limiting Restart	R/W	0 = Disabled -1 = Enabled	X1
N109:76	409977	Automatic Load Limiting Restart Set Point Offset	R/W	0.00 - 7.00 barD -29.9 PSID - 86.8 PSID	X100

AB	Modbus	Descrition	R/W	Format	Scale
		Capacity Control 2			
N106:17	409618	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N106:18	409619	Set Point	R/W		X1
N106:19	409620	Dead Band	R/W		X1
N106:20	409621	Proportional Band	R/W		X1
N108:59	409860	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N106:21	409622	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N109:29	409930	Automatic Start Offset	R/W		X1
N109:30	409931	Automatic Stop Offset	R/W		X1
N106:22	409623	Automatic Start	R/W		X1
N106:23	409624	Automatic Start Delay	R/W	5 - 1800 s	X1
N106:24	409625	Automatic Stop	R/W		X1
N106:25	409626	Automatic Stop Delay	R/W	5 - 1800 s	X1
N106:26	409627	Load Pulse Period	R/W	1 - 20 s	X1
N106:27	409628	Unload Pulse Period	R/W	1 - 20 s	X1
N106:28	409629	Minimum Capacity Slide Position	R/W		X1
N106:29	409630	Maximum Capacity Slide Position	R/W		X1
N110:37	410038	Dynamic Set Point	R/W	0 = Disabled -1 = Enabled	X1
N110:38	410039	Temperature Difference At Full Load	R/W	0.1 - 20.0 K 32.2 F° - 68 F°	X10
N108:57	409858	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N106:30	409631	Ramp Rate per Minute	R/W	0 - 5	X1
N109:77	409978	Automatic Load Limiting Restart	R/W	0 = Disabled -1 = Enabled	X1
N109:78	409979	Automatic Load Limiting Restart Set Point Offset	R/W	0.00 - 7.00 barD -29.9 PSID - 86.8 PSID	X100

AB	Modbus	Descrition	R/W	Format	Scale
		Capacity Control 3			
N106:32	409633	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N106:33	409634	Set Point	R/W		X1
N106:34	409635	Dead Band	R/W		X1
N106:35	409636	Proportional Band	R/W		X1
N108:60	409861	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N106:36	409637	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N109:31	409932	Automatic Start Offset	R/W		X1
N109:32	409933	Automatic Stop Offset	R/W		X1
N106:37	409638	Automatic Start	R/W		X1
N106:38	409639	Automatic Start Delay	R/W	5 - 1800 s	X1
N106:39	409640	Automatic Stop	R/W		X1
N106:40	409641	Automatic Stop Delay	R/W	5 - 1800 s	X1
N106:41	409642	Load Pulse Period	R/W	1 - 20 s	X1
N106:42	409643	Unload Pulse Period	R/W	1 - 20 s	X1
N106:43	409644	Minimum Capacity Slide Position	R/W	0 - 100 %	X1
N106:44	409645	Maximum Capacity Slide Position	R/W	0 - 100 %	X1
N110:39	410040	Dynamic Set Point	R/W	0 = Disabled -1 = Enabled	X1
N110:40	410041	Temperature Difference At Full Load	R/W	0.1 - 20.0 K 32.2 F° - 68 F°	X10
N108:58	409859	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N106:45	409646	Ramp Rate per Minute	R/W	0 - 5	X1
N109:79	409980	Automatic Load Limiting Restart	R/W	0 = Disabled -1 = Enabled	X1
N109:80	409981	Automatic Load Limiting Restart Set Point Offset	R/W	0.00 - 7.00 barD -29.9 PSID - 86.8 PSID	X100
		Control			
N106:46	409647	Control Mode	R/W	0 = Capacity Control 1 1 = Capacity Control 2 2 = Capacity Control 3	X1

AB	Modbus	Descrition	R/W	Format	Scale
N106:47	409648	Control Mode Select By Digital Input	R/W	0 = Disabled -1 = Enabled	X1
N106:48	409649	Maximum Capacity Slide To Allow Start Override	R/W		X1
N106:49	409650	Set Point Location	R/W	0 = Local 1 = Remote	X1
N108:46	409847	Remote Set Point Units	R/W	0 = Pressure 1 = Temperature 2 = Percent 3 = Low Pressure	X1
N108:74	409875	Remote Control Value Units	R/W	0 = Pressure 1 = Temperature	X1
N106:50	409651	Maximum Capacity Slide To Allow Start	R/W	0 - 100 %	X1
N106:51	409652	Capacity Slide Failed to Unload Shut-down Timer	R/W	30 - 600 s	X1
N106:52	409653	Capacity Control Delay	R/W		X1
N107:8	409709	Load Limitation Delay	R/W	15 - 300 s	X1
N108:91	409892	Next Step Delay	R/W		X1
N108:54	409855	Previous Step Delay	R/W		X1
N108:55	409856	Soak Delay	R/W	30 - 300 s	X1
N109:66	409967	Max Step Delay	R/W		X1
N109:1	409902	Minimum Capacity Step	R/W		X1
N109:11	409912	Invert Solenoids	R/W	0 = Disabled -1 = Enabled	X1
N106:53	409654	Sequencer Overwrite Local Capacity Parameters	R/W	0 = Disabled -1 = Enabled	X1
N106:54	409655	Zero Load Shutdown Timer	R/W	0 - 600 s	X1
N106:55	409656	Swing Compressor Control	R/W	0 = Low Stage 1 = High Stage	X1
N106:56	409657	Suction Bypass Timer	R/W	0 - 60 s	X1
N106:57	409658	Fast Unload Running Timer	R/W	1 - 60 s	X1
N108:38	409839	External Capacity Mode	R/W	0 = Direct Pulse Control 1 = Indirect Pulse Control	X1
N108:47	409848	Suction Check Valve Close Assist Pulse Timer	R/W	5 - 120 s	X1
N108:52	409853	Remote Control Interface	R/W	0 = Network 1 = Hard Wired	X1
N108:99	409900	Control Mode After Shutdown	R/W	0 = Disabled -1 = Enabled	X1
N108:72	409873	Profibus DP or Profinet Communica-tion	R/W	0 = Read 1 = Read/Write 2 = Disabled	X1
N108:73	409874	Customer Communication Network Failure	R/W	0 = Warning 1 = Shutdown	X1

AB	Modbus	Descrition	R/W	Format	Scale
N108:92	409893	Auxiliary Digital Output	R/W	0 = Warning 1 = Maximum Capacity Slide Position 2 = Minimum Capacity Slide Position 3 = Minimum Capacity Step 4 = Maximum Capacity Step 5 = More Capacity 6 = Less Capacity 7 = High Oil Level 8 = Low Oil Level 9 = Maximum Capacity 10 = Compressor Running 11 = Shutdown 12 = Compressor Motor Start Request	X1
N110:26	410027	Auxiliary Digital Output 2	R/W	0 = Warning 1 = Maximum Capacity Slide Position 2 = Minimum Capacity Slide Position 3 = Minimum Capacity Step 4 = Maximum Capacity Step 5 = More Capacity 6 = Less Capacity 7 = High Oil Level 8 = Low Oil Level 9 = Maximum Capacity 10 = Compressor Running 11 = Shutdown 12 = Compressor Motor Start Request	X1
N109:12	409913	Sequencer Control	R/W	0 = GEA Omni 1 = GEA FES Legacy Panel	X1
N109:13	409914	Start Permissive Control	R/W	0 = Start Permissive and Stop Immediate 1 = Start Permissive Only 2 = Start Permissive And Stop Immediate Do Not Auto Restart	X1
N108:79	409880	Stopping Sequence	R/W	0 = Stop Compressor Immediately 1 = Hold Variable Speed Drive While Slide Unloads 2 = Unload Slide 3 = Hold Cylinders While Drive Unloads 4 = Unload VFD and Cylinders in Series 5 = Unload Variable Speed Drive 6 = Unload Variable Speed Drive and Slide in Series -1 = Unload Slide And Variable Speed Drive in Parallel	X1
		Variable Vi			
N106:58	409659	Vi Operating Mode	R/W	0 = Auto 1 = Manual	X1
N106:61	409662	Manual Vi Control Vi Setting	R/W		X1
N108:41	409842	Stepped Manual Vi Control Setting	R/W	0 = Low 1 = Medium 2 = High	X1
N106:59	409660	Vi Deadband	R/W		X1
N106:60	409661	Vi Load-Unload Timer	R/W	1 - 10 s	X1
N106:62	409663	Volume Slide Adjustment Factor	R/W	-100 - 100 %	X1
N106:63	409664	Low-Medium Vi Transfer Point	R/W	0.0 - 10.0 Vi	X10
N106:64	409665	Low-Medium Vi Transfer Dead Band	R/W	0.0 - 10.0 Vi	X10

AB	Modbus	Descrition	R/W	Format	Scale
N106:65	409666	Medium-High Vi Transfer Point	R/W	0.0 - 10.0 Vi	X10
N106:66	409667	Medium-High Vi Transfer Dead Band	R/W	0.0 - 10.0 Vi	X10

AB	Modbus	Descrition	R/W	Format	Scale
		Motor			
N109:67	409968	Number of Starts	R/W	0 - 1000000000	X1
N106:67	409668	Accumulated Runtime Hours	R/W	0 - 1000000000 h	X1
N106:68	409669	Motor Start To Start Delay	R/W		X10
N106:69	409670	Motor Stop To Start Delay	R/W		X1
N106:70	409671	Motor Bypass Configuration	R/W	0 = Fixed Speed 1 = Variable Speed	X1
N108:40	409841	Motor Bypass Configuration By Digital Input	R/W	0 = Disabled -1 = Enabled	X1
		Motor Power			
N106:71	409672	Motor Current Nominal FLA	R/W	1.0 - 2000.0 A	X10
N110:16	410017	Motor Nameplate Voltage	R/W	0.0 - 6000.0 V	X10
N110:17	410018	Motor Nameplate kW	R/W	0.0 - 1492.0 kW	X10
N110:18	410019	Motor Nameplate hp	R/W	0.0 - 2000.0 hp	X10
N106:72	409673	kW Demand Metering Ratio	R/W	0.0 - 3200.0 kW	X10
N106:73	409674	kWh Input Pulse Weight	R/W	0.0 - 3200.0 kWh	X10
N106:74	409675	kWh Estimated Usage	R/W	0.0 - 1000000000.0 kWh	X10
		Motor Current			
N106:75	409676	High Motor Current Shutdown Run Delay	R/W	0 - 60 s	X1
N106:76	409677	High Motor Current Shutdown	R/W	1.0 - 2000.0 A	X10
N106:77	409678	High Motor Current Shutdown Timer	R/W	1 - 30 s	X1
N106:78	409679	High Motor Current Warning Offset	R/W	0.0 - 300.0 A	X10
N106:79	409680	Illegal Compressor Motor Current Shutdown	R/W	5 - 20 %	X1
N106:80	409681	Low Motor Current Run Delay	R/W	0 - 30 s	X1
N106:81	409682	Low Motor Current Shutdown	R/W		X10
N106:82	409683	Low Motor Current Shutdown Timer	R/W	0 - 30 s	X1
N106:83	409684	Limitation Motor Current Load Inhibit Offset	R/W	0.0 - 300.0 A	X10
N106:84	409685	Limitation Motor Current Force Unload Offset	R/W	0.0 - 300.0 A	X10
N109:65	409966	High Motor Current Predictive Factor	R/W	0 - 100 %	X1
		Motor Interlock			
N108:77	409878	Start Motor Failure to Interlock Timer	R/W	1 - 60 s	X1
N108:78	409879	Stopping Loss of Compressor Interlock Shutdown Timer	R/W	1.0 - 60.0 s	X10
		Motor Speed			
N106:85	409686	Proportional Term	R/W	0 - 500	X1
N106:86	409687	Integral Term	R/W	1.0 - 250.0 s/R	X10
N106:87	409688	Mode	R/W	0 = Auto 1 = Percent 2 = Motor Speed	X1
N106:88	409689	Manual Mode Position	R/W	0 - 100 %	X1
N108:28	409829	High Motor Speed Shutdown	R/W	100 - 6000 rpm	X1
N108:29	409830	Low Motor Speed Shutdown	R/W	100 - 3000 rpm	X1

AB	Modbus	Description	R/W	Format	Scale
N108:93	409894	High Motor Speed Warning Offset	R/W	0 - 500 rpm	X1
N108:94	409895	Low Motor Speed Warning Offset	R/W	0 - 500 rpm	X1
N106:89	409690	Motor Speed Maximum	R/W		X1
N106:90	409691	Motor Speed Minimum	R/W		X1
N109:8	409909	Synchronous Speed	R/W	900 - 6000 rpm	X1
N106:91	409692	Motor Speed Start	R/W		X1
N109:5	409906	Turbine Speed Minimum	R/W	100 - 3000 rpm	X1
		Motor Temperature			
N108:83	409884	High Motor Bearing Shutdown	R/W	0.0 - 200.0 °C 32 °F - 392 °F	X10
N108:84	409885	High Motor Bearing Warning Offset	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
N108:85	409886	High Motor Winding Shutdown	R/W	0.0 - 200.0 °C 32 °F - 392 °F	X10
N108:86	409887	High Motor Winding Warning Offset	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
		Oil Pump			
N108:67	409868	Oil Pump 1 Runtime	R/W	0.0 - 1000000000.0 h	X10
N108:68	409869	Oil Pump 2 Runtime	R/W	0.0 - 1000000000.0 h	X10
N106:92	409693	Oil Pump Start Attempts	R/W	1 - 3	X1
N106:93	409694	Oil Pump Drain Timer	R/W		X1
N106:94	409695	Oil Pump Compressor Allowed Start Timer	R/W	10 - 60 s	X1
N106:95	409696	Oil Pump Prelube Timer	R/W	0 - 300 s	X1
N106:96	409697	Oil Pump PostLube Timer	R/W	0 - 30 s	X1
N106:97	409698	Oil Pump Run Minimum Timer	R/W	0 - 600 s	X1
N106:98	409699	Oil Pump Automatic Start	R/W	0.00 - 10.00 barD -29.9 PSID - 130.3 PSID	X100
N106:99	409700	Oil Pump Automatic Stop	R/W	0.00 - 10.00 barD -29.9 PSID - 130.3 PSID	X100
N107:0	409701	Oil Pump Lead Selection	R/W	0 = Pump 1 1 = Pump 2 2 = Automatic (Runtime) 3 = Digital Input	X1
N108:65	409866	Oil Pump Automatic Switch (Runtime) Enable	R/W	0 = Disabled -1 = Enabled	X1
N108:66	409867	Oil Pump Automatic Switch (Runtime)	R/W	0 - 1000000000 h	X1
N107:1	409702	Oil Pump Maintained Timer	R/W	0 - 300 s	X1
N107:2	409703	Oil Pump Circulation Mode	R/W	0 = Disabled 1 = Time 2 = Temperature	X1
N107:3	409704	Oil Pump Circulation Temperature Set Point	R/W		X10
N107:4	409705	Oil Pump Circulation Shutdown Timer	R/W	0 - 600 s	X1
N107:5	409706	Time Between Oil Pump Circulation	R/W	1 - 500 h	X1
N107:6	409707	Duration Of Oil Pump Circulation	R/W	1 - 500 min	X1

AB	Modbus	Descrition	R/W	Format	Scale
N108:69	409870	Oil Pump Variable Speed Set Point	R/W	-5.00 - 5.00 barD -177.6 PSID - 57.8 PSID	X100
N108:70	409871	Oil Pump Variable Speed Proportional Term	R/W	0 - 500	X1
N108:71	409872	Oil Pump Variable Speed Integral Term	R/W	1.0 - 250.0 s/R	X10
N109:44	409945	Heat Pump Minimum Discharge Temperature	R/W	1.0 - 200.0 °C 33.8 °F - 392 °F	X10
		Oil Pump Interlock			
N107:9	409710	Illegal Oil Pump Interlock Shutdown Timer	R/W	1 - 60 s	X1
N107:10	409711	Oil Pump Loss of Lead Interlock Warning Timer	R/W	1 - 60 s	X1
N107:11	409712	Oil Pump Loss of Interlock Shutdown Timer	R/W	1 - 60 s	X1
		Oil Pressure			
N107:12	409713	High Oil Differential Pressure Shutdown	R/W		X100
N107:13	409714	High Oil Differential Pressure Starting Shutdown Timer	R/W	0 - 900 s	X1
N107:14	409715	High Oil Differential Pressure Running Shutdown Timer	R/W	0 - 900 s	X1
N107:15	409716	High Oil Differential Pressure Warning Offset	R/W	0.00 - 10.00 barD -29.9 PSID - 130.3 PSID	X100
N107:16	409717	High Oil Differential Pressure Warning Timer	R/W	0 - 600 s	X1
N107:7	409708	Low Pressure Differential Shutdown	R/W		X100
N109:82	409983	Low Oil Differential Pressure Shutdown Start	R/W	0.00 - 20.00 barD -29.9 PSID - 275.4 PSID	X100
N110:25	410026	Low Low Oil Differential Pressure Shutdown	R/W		X100
N107:17	409718	Low Oil Differential Pressure Shutdown	R/W		X100
N107:18	409719	Low Oil Differential Pressure Starting Shutdown Timer	R/W	0 - 900 s	X1
N107:19	409720	Low Oil Differential Pressure Running Shutdown Timer	R/W	0 - 900 s	X1
N107:20	409721	Low Oil Differential Run Delay	R/W	1 - 300 s	X1
N107:21	409722	Low Oil Differential Pressure Warning Offset	R/W	0.00 - 10.00 barD -29.9 PSID - 130.3 PSID	X100
N107:22	409723	Low Oil Differential Pressure Warning Timer	R/W	0 - 600 s	X1
N109:72	409973	Low Oil To Suction Differential Pressure	R/W	0.00 - 10.00 barD -29.9 PSID - 130.3 PSID	X100
N109:73	409974	Disable Oil Pressure Differential Safety	R/W	0.00 - 20.00 barA -29.9 PSIG - 275.4 PSIG	X100
N112:29	410230	Low Gas Pressure Differential Shutdown	R/W	3.00 - 10.00 barD 28.8 PSID - 130.3 PSID	X100
N112:28	410229	Low Pressure Differential Shutdown Delay	R/W	15 - 600 s	X1

AB	Modbus	Descrition	R/W	Format	Scale
		Oil Filter Pressure			
N107:23	409724	High Oil Filter Differential Shutdown	R/W		X100
N107:24	409725	High Oil Filter Differential Warning Offset	R/W	0.00 - 5.00 barD -29.9 PSID - 57.8 PSID	X100
N107:25	409726	High Oil Filter Differential Timer	R/W	1 - 60 s	X1
N107:26	409727	Illegal Oil Filter Differenital Pressure Warning Timer	R/W	0 - 300 s	X1
N107:27	409728	Oil Filter Pipe Loss Adjustment	R/W	0.00 - 6.89 barD -29.9 PSID - 85.3 PSID	X100
		Oil Separator			
N107:28	409729	Oil Separator Temperature Setpoint	R/W		X10
N107:29	409730	High Oil Separator Temperature Shutdown	R/W		X10
N107:30	409731	High Oil Separator Temperature Warning Offset	R/W	0.0 - 70.0 K 32 F° - 158 F°	X10
N107:31	409732	Low Oil Separator Temperature Shut-down	R/W		X10
N107:32	409733	Low Oil Separator Temperature Warning Offset	R/W	0.0 - 70.0 K 32 F° - 158 F°	X10
N107:33	409734	High Oil Separator Level Shutdown Timer	R/W	0 - 600 s	X1
N107:34	409735	High Oil Separator Level Warning Timer	R/W	0 - 300 s	X1
N107:35	409736	Low Oil Separator Level Starting Stopped or Stopping Shutdown Timer	R/W	1 - 900 s	X1
N107:36	409737	Low Oil Separator Level Running Shutdown Timer	R/W	1 - 900 s	X1
N108:63	409864	Low Oil Separator Level Starting Stopped or Stopping Warning Timer	R/W	1 - 900 s	X1
N108:64	409865	Low Oil Separator Level Running Warning Timer	R/W	1 - 900 s	X1
		Oil Temperature			
N107:37	409738	High Oil Temperature Shutdown	R/W		X10
N107:38	409739	High Oil Temperature Warning Offset	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
N107:39	409740	Low Oil Temperature Shutdown	R/W		X10
N107:40	409741	Low Oil Temperature Warning Offset	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
N107:41	409742	Low Oil Temperature Start Delay	R/W	0 - 600 s	X1
N109:81	409982	Crankcase Oil Heater Set Point	R/W	0.0 - 100.0 °C 32 °F - 212 °F	X10
		Suction Pressure			
N107:44	409745	High Suction Pressure Warning	R/W		X100
N107:42	409743	High Suction Pressure High Motor Speed Shutdown	R/W		X100
N107:43	409744	High Suction Pressure Low Motor Speed Shutdown	R/W		X100
N107:45	409746	High Suction Pressure Start Delay	R/W	0 - 300 s	X1
N107:46	409747	Low Suction Pressure Shutdown	R/W		X100

AB	Modbus	Descrition	R/W	Format	Scale
N108:42	409843	Low Suction Pressure Booster Shut-down	R/W		X100
N108:43	409844	Low Suction Pressure High Stage Shutdown	R/W		X100
N107:47	409748	Low Suction Pressure Shutdown Machine Limit	R/W		X100
N107:48	409749	Low Suction Pressure Start Delay	R/W	0 - -1 s	X1
N107:49	409750	Low Suction Pressure Warning Offset	R/W	0.00 - 5.00 barD -29.9 PSID - 57.8 PSID	X100
N107:50	409751	Limitation Suction Pressure Load Inhibit Offset	R/W	0.01 - 5.00 barD -29.6 PSID - 57.8 PSID	X100
N107:51	409752	Limitation Suction Pressure Force Unload Offset	R/W	0.01 - 5.00 barD -29.6 PSID - 57.8 PSID	X100
N108:80	409881	Low Stage Allowed To Start Offset	R/W	-10.00 - 10.00 barD -325.2 PSID - 130.3 PSID	X100
N109:6	409907	Set Point Based Off Low Stage Suction Pressure	R/W	0 = Disabled -1 = Enabled	X1
N109:7	409908	Low Stage Suction Pressure Offset	R/W	0.00 - 6.89 barD -29.9 PSID - 85.3 PSID	X100
N109:39	409940	Winter Suction Pressure Override Detection	R/W	-1.00 - 10.00 barD -59.4 PSID - 130.3 PSID	X100
N109:98	409999	Winter Suction Pressure Override Detection Shutoff Offset	R/W	0.00 - 5.00 barD -29.9 PSID - 57.8 PSID	X100
N109:40	409941	Low Suction Pressure Winter Offset	R/W	0.00 - 2.00 barD -29.9 PSID - 14.3 PSID	X100
N109:41	409942	Low Suction Pressure Winter Manual Override	R/W	0 = Disabled -1 = Enabled	X1
N109:99	410000	Winter Suction Temperature Override Detection	R/W	-20.0 - 10.0 °C -4 °F - 50 °F	X10
N110:0	410001	Winter Suction Temperature Override Detection Shutoff Offset	R/W	0.0 - 10.0 °C 32 °F - 50 °F	X10
N110:1	410002	Low Suction Temperature Winter Offset	R/W	0.0 - 2.0 K 32 F° - 35.6 F°	X10
N110:2	410003	Low Suction Temperature Winter Manual Override	R/W	0 = Disabled -1 = Enabled	X1
N110:3	410004	Suction Pressure Change Limitation Annunciation Enabled	R/W	0 = Disabled -1 = Enabled	X1
N110:4	410005	Suction Pressure Change Limitation Max Rate of Change	R/W	0.0 - 10.0 K 32 F° - 50 F°	X10
		Storage Pressure			
N107:56	409757	Low Storage Pressure Shutdown	R/W	1.00 - 1.15 barA	X100
N108:61	409862	Low Storage Pressure Warning Offset	R/W	0.00 - 5.00 barD	X100
N108:75	409876	Limitation Storage Pressure Load Inhibit Offset	R/W	0.00 - 5.00 barD	X100
N108:76	409877	Limitation Storage Pressure Force Unload Offset	R/W	0.00 - 5.00 barD	X100

AB	Modbus	Descrition	R/W	Format	Scale
		Discharge Pressure			
N107:52	409753	High Discharge Pressure Shutdown	R/W		X100
N108:44	409845	High Discharge Pressure Low Stage Shutdown	R/W		X100
N108:45	409846	High Discharge Pressure High Stage Shutdown	R/W		X100
N107:53	409754	High Discharge Pressure Warning Offset	R/W	0.00 - 10.00 barD -29.9 PSID - 130.3 PSID	X100
N109:64	409965	Low Stage Allow To Start Below Discharge Pressure	R/W	0.00 - 63.00 barA -29.9 PSIG - 899 PSIG	X100
N107:54	409755	Limitation Discharge Pressure Load Inhibit Offset	R/W	0.10 - 10.00 barD -27 PSID - 130.3 PSID	X100
N107:55	409756	Limitation Discharge Pressure Force Unload Offset	R/W	0.10 - 10.00 barD -27 PSID - 130.3 PSID	X100
		Discharge Temperature			
N107:57	409758	High Discharge Temperature Shutdown	R/W		X10
N107:58	409759	High Discharge Temperature Warning Offset	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
N107:99	409800	High Discharge Temperature Inhibit Offset	R/W	0.1 - 50.0 K 32.2 F° - 122 F°	X10
N108:0	409801	High Discharge Temperature Force Offset	R/W	0.1 - 50.0 K 32.2 F° - 122 F°	X10
N109:42	409943	Low Discharge Temperature Shutdown	R/W	1.0 - 200.0 °C 33.8 °F - 392 °F	X10
N110:30	410031	Water Cooled Begin	R/W	50.0 - 150.0 °C 122 °F - 302 °F	X10
N110:31	410032	Water Cooled End	R/W	50.0 - 150.0 °C 122 °F - 302 °F	X10
N110:33	410034	Thermopump Valve 98V Delay	R/W	0 - 900 s	X1
N110:34	410035	Water Cooled Delay	R/W	0 - 900 s	X1
N109:43	409944	Low Discharge Temperature Warning Offset	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
		Oil Cooling			
N107:59	409760	Oil Cooling Control Signal	R/W	0 = Discharge Temperature 1 = Inlet Oil Temperature	X1
N107:60	409761	Motorized Liquid Injection Valve Temperature Set Point	R/W	45.0 - 110.0 °C 113 °F - 230 °F	X10
N109:25	409926	Liquid Injection Begin Offset	R/W		X10
N109:26	409927	Liquid Injection End Offset	R/W		X10
N107:61	409762	Minimum Valve Position	R/W	2 - 100 %	X1
N107:62	409763	Proportional Term	R/W	0 - 500	X1
N107:63	409764	Integral Term	R/W	1.0 - 250.0 s/R	X10
N107:64	409765	Mode	R/W	0 = Auto 1 = Manual	X1
N107:65	409766	Manual Mode Position	R/W	0 - 100 %	X1
N107:66	409767	Calibrate Time before Bleed	R/W	5 - 90 s	X1
N107:67	409768	Liquid Injection Begin	R/W		X10

AB	Modbus	Descrition	R/W	Format	Scale
N107:68	409769	Liquid Injection End	R/W		X10
N108:39	409840	Liquid Injection Pulse Period	R/W	4 - 30 s	X1
N108:81	409882	Fan To Start With Compressor	R/W	0 = Fan 1 1 = Fan 2 2 = Fan 3	X1
N109:83	409984	Fan 1 Vibration Warning	R/W	0.00 - 0.50 in/s	X100
N109:84	409985	Fan 1 Vibration Shutdown	R/W	0.00 - 0.50 in/s	X100
N109:85	409986	Fan 2 Vibration Warning	R/W	0.00 - 0.50 in/s	X100
N109:86	409987	Fan 2 Vibration Shutdown	R/W	0.00 - 0.50 in/s	X100
N109:87	409988	Fan 3 Vibration Warning	R/W	0.00 - 0.50 in/s	X100
N109:88	409989	Fan 3 Vibration Shutdown	R/W	0.00 - 0.50 in/s	X100
		Inlet Temperature			
N107:69	409770	High Inlet Temperature Warning	R/W	-75.0 - 100.0 °C -103 °F - 212 °F	X10
N107:70	409771	Low Inlet Temperature Warning	R/W	-75.0 - 100.0 °C -103 °F - 212 °F	X10
		Outlet Temperature			
N107:71	409772	High Outlet Temperature Warning	R/W	-75.0 - 100.0 °C -103 °F - 212 °F	X10
N107:72	409773	High Outlet Temperature Warning Timer	R/W	0 - 300 s	X1
N107:73	409774	Low Outlet Temperature Shutdown	R/W	-60.0 - 200.0 °C -76 °F - 392 °F	X10
N107:74	409775	Low Outlet Temperature Shutdown Timer	R/W	0 - 300 s	X1
N107:75	409776	Low Outlet Temperature Warning Off-set	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
N107:76	409777	Low Outlet Temperature Warning Start Delay	R/W	0 - 300 s	X1
N108:30	409831	Limitation Outlet Temperature Load Inhibit Offset	R/W	0.1 - 50.0 K 32.2 F° - 122 F°	X10
N107:77	409778	Limitation Outlet Temperature Force Unload Offset	R/W	0.1 - 50.0 K 32.2 F° - 122 F°	X10
		Loss of Remote Start Signal			
N107:78	409779	Loss of Remote Start Signal Run Warning Timer	R/W	0 - 120 s	X1
		Power Failure Restart			
N107:79	409780	Power Failure Restart Mode	R/W	0 = Disabled 1 = Local 2 = Remote 3 = Shutdown 4 = Previous State	X1
N107:80	409781	Power Failure Restart Delay	R/W	0 - 8000 s	X1
N107:81	409782	Power Failure Restart Abort Timer	R/W	0.0 - 480.0 min	X10
		Superheat			
N107:82	409783	Superheat Suction Annunciations	R/W	0 = Disabled -1 = Enabled	X1
N107:83	409784	High Suction Superheat Shutdown	R/W	0.0 - 100.0 K 32 F° - 212 F°	X10

AB	Modbus	Descrition	R/W	Format	Scale
N107:84	409785	High Suction Superheat Shutdown Timer	R/W	0 - 900 s	X1
N107:85	409786	Low Suction Superheat Shutdown	R/W		X10
N107:86	409787	Low Suction Superheat Shutdown Timer	R/W	0 - 900 s	X1
N108:53	409854	Superheat Discharge Annunciations	R/W	0 = Disabled -1 = Enabled	X1
N107:87	409788	High Discharge Superheat Shutdown	R/W	0.0 - 150.0 K 32 F° - 302 F°	X10
N107:88	409789	High Discharge Superheat Shutdown Timer	R/W	0 - 900 s	X1
N107:89	409790	Low Discharge Superheat Shutdown	R/W	0.0 - 150.0 K 32 F° - 302 F°	X10
N107:90	409791	Low Discharge Superheat Shutdown Timer	R/W	0 - 900 s	X1
N107:91	409792	Low Intermediate Superheat Shutdown	R/W	0.0 - 25.0 K 32 F° - 77 F°	X10
N107:92	409793	Low Intermediate Superheat Shutdown Timer	R/W	0 - 999 s	X1
N107:93	409794	Low Intermediate Superheat Warning Offset	R/W	0.0 - 10.0 K 32 F° - 50 F°	X10
N107:94	409795	Low Intermediate Superheat Warning Timer	R/W	0 - 900 s	X1
		Intermediate Temperature, Pressure			
N107:95	409796	High Intermediate Pressure Shutdown	R/W	0.00 - 15.50 barA -29.9 PSIG - 210.1 PSIG	X100
N110:41	410042	High Intermediate Pressure Low Motor Speed Shutdown	R/W		X100
N107:96	409797	High Intermediate Pressure Warning Offset	R/W	0.00 - 5.00 barD -29.9 PSID - 57.8 PSID	X100
N110:43	410044	High Intermediate Pressure Start Delay	R/W		X1
N107:97	409798	High Intermediate Temperature Shutdown	R/W	-76.0 - 212.0 °C -104.8 °F - 413.6 °F	X10
N107:98	409799	High Intermediate Temperature Warning Offset	R/W	0.0 - 20.0 K 32 F° - 68 F°	X10
		Pressure Ratio			
N108:1	409802	High Pressure Ratio Shutdown	R/W		X10
N108:2	409803	High Pressure Ratio Shutdown Timer	R/W	0 - 600 s	X1
		Cylinder Head Temperature			
N108:3	409804	High Cylinder Head Temperature 1 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:4	409805	High Cylinder Head Temperature 2 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:5	409806	High Cylinder Head Temperature 3 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:6	409807	High Cylinder Head Temperature 4 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10

AB	Modbus	Descrition	R/W	Format	Scale
N108:7	409808	High Cylinder Head Temperature 5 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:8	409809	High Cylinder Head Temperature 6 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:9	409810	High Cylinder Head Temperature 7 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:10	409811	High Cylinder Head Temperature 8 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:11	409812	High Cylinder Head Temperature 9 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:12	409813	High Cylinder Head Temperature 10 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:13	409814	High Cylinder Head Temperature 11 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:14	409815	High Cylinder Head Temperature 12 Shutdown	R/W	0.0 - 170.0 °C 32 °F - 338 °F	X10
N108:15	409816	High Cylinder Head Temperature Shutdown Timer	R/W	0 - 120 s	X1
		Economizer			
N108:17	409818	Economizer Output On Above Capacity Slide	R/W	0 - 100 %	X1
N108:18	409819	Economizer Output Off Below Capacity Slide	R/W	0 - 100 %	X1
N110:6	410007	Economizer Level Set Point	R/W	0 - 100 %	X1
N110:7	410008	Economizer Level Proportional Term	R/W	0 - 500	X1
N110:8	410009	Economizer Level Integeral Term	R/W	1.0 - 250.0 s/R	X10
N110:9	410010	Economizer Level Dead Band	R/W	0 - 20 %	X1
N110:10	410011	Economizer Level Mode	R/W	0 = Auto 1 = Manual	X1
N110:11	410012	Economizer Level Manual Mode Position	R/W	0 - 100 %	X1
N110:12	410013	Economizer Level Maximum Level Shutdown Delay	R/W	0 - 60 s	X1
		Pump Down			
N108:19	409820	Compressor Start Pressure	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N108:20	409821	Pump Down Maximum Time	R/W	1 - 40 min	X1
N108:21	409822	Pump Down Count	R/W	0 = Continous 1 = Once	X1
N108:22	409823	Pump Down Cycle On Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N108:23	409824	Pump Down Cycle Off Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N108:24	409825	Pump Down Max Cycle Attempts	R/W	0 - 100	X1
N108:25	409826	Pump Down Max Cycle Period	R/W	0.00 - 20.00 h	X100
N108:26	409827	Second Liquid Feed On Above Capacity	R/W	0 - 100 %	X1
N108:27	409828	Second Liquid Feed Off Below Capacity	R/W	0 - 100 %	X1

AB	Modbus	Descrition	R/W	Format	Scale
		Capacity Outputs			
N108:33	409834	Capacity Output 1 On	R/W	0 - 100 %	X1
N108:34	409835	Capacity Output 1 Off	R/W	0 - 100 %	X1
N108:35	409836	Capacity Output 2 On	R/W	0 - 100 %	X1
N108:36	409837	Capacity Output 2 Off	R/W	0 - 100 %	X1
N108:82	409883	Slide Or Capacity Selection	R/W	0 = Capacity 1 = Percent Of Max Travel 2 = Total Package Capacity	X1
		VTrac™			
N108:37	409838	Damage Annunciation Type	R/W	0 = Warning 1 = Shutdown	X1
N108:31	409832	Annunciations Enabled Above Capacity Slide	R/W	50 - 100 %	X1
N109:38	409939	Annunciations Enabled Above Step	R/W		X1
		Duo Sequencer			
N108:48	409849	Minimum Position	R/W		X1
N108:49	409850	Part Load Position	R/W		X1
N108:50	409851	Maximum Position	R/W		X1
N108:51	409852	Sequence Priority	R/W	1 - 100	X1
		Compressor Rotor Temperature			
N108:87	409888	High Male Rotor Temperature Shutdown	R/W	0.0 - 200.0 °C 32 °F - 392 °F	X10
N108:88	409889	High Male Rotor Temperature Warning Offset	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
N108:89	409890	High Female Rotor Temperature Shutdown	R/W	0.0 - 200.0 °C 32 °F - 392 °F	X10
N108:90	409891	High Female Rotor Temperature Warning Offset	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
		Discharge Check Valve			
N108:95	409896	Discharge Check Failed to Close Shutdown Delay	R/W	1 - 60 s	X1
N108:96	409897	Discharge Check Failed to Open Shutdown Delay	R/W	1 - 60 s	X1
		Suction Check Valve			
N108:97	409898	Suction Check Failed to Close Shutdown Delay	R/W	1 - 60 s	X1
N108:98	409899	Suction Check Failed to Open Shutdown Delay	R/W	1 - 60 s	X1
		Axial Clearance Rotors			
N109:0	409901	Start Monitoring Delay	R/W	1 - 60 min	X1
N109:14	409915	Male Rotor Zero Position	R/W	0.00 - 2.00 mm	X100
N109:15	409916	Male Rotor Suction Side Shutdown Position	R/W	0.00 - 2.00 mm	X100
N109:16	409917	Male Rotor Suction Side Warning Position Offset	R/W	0.00 - 2.00 mm	X100
N109:17	409918	Male Rotor Discharge Side Shutdown Position	R/W	0.00 - 2.00 mm	X100

AB	Modbus	Descrition	R/W	Format	Scale
N109:18	409919	Male Rotor Discharge Side Warning Position Offset	R/W	0.00 - 2.00 mm	X100
N109:19	409920	Female Rotor Zero Position	R/W	0.00 - 2.00 mm	X100
N109:20	409921	Female Rotor Suction Side Shutdown Position	R/W	0.00 - 2.00 mm	X100
N109:21	409922	Female Rotor Suction Side Warning Position Offset	R/W	0.00 - 2.00 mm	X100
N109:22	409923	Female Rotor Discharge Side Shut-down Position	R/W	0.00 - 2.00 mm	X100
N109:23	409924	Female Rotor Discharge Side Warn-ing Position Offset	R/W	0.00 - 2.00 mm	X100
N109:24	409925	Manual Mode Position	R/W		X1
		Compressor Service			
N108:16	409817	Compressor Service Notification	R/W	0 = Disabled 1 = Email Only 2 = Both -1 = Notification Only	X1
		Automatic Seal Service HEADING Suction Temperature			
N109:2	409903	Low Suction Temperature Shutdown	R/W		X10
N109:3	409904	Low Suction Temperature Warning Offset	R/W	0.0 - 30.0 K 32 F° - 86 F°	X10
		Recip Oil Return Solenoid			
N109:4	409905	Oil Return Solenoid Delay	R/W	0 - 20 min	X1
		Pressure Differential			
N110:29	410030	High Gas Differential Warning Offset	R/W	0.00 - 100.00 barD -29.9 PSID - 1435.7 PSID	X100
N109:9	409910	High Pressure Differential Shutdown	R/W		X100
N109:10	409911	High Pressure Differential Shutdown Delay	R/W	0 - 300 s	X1
		GSC TP Sequencer			
N109:33	409934	Sequencer Active	R/W	0 = Disabled -1 = Enabled	X1
N109:34	409935	Sequencer Number	R/W	1 - 8	X1
N109:35	409936	Minimum Capacity	R/W	0 - 100 %	X1
N109:36	409937	Medium Capacity	R/W	0 - 100 %	X1
N109:37	409938	Maximum Capacity	R/W	0 - 100 %	X1
		Pre Rotation Vane Control			
N109:45	409946	Pre Rotation Vane Control Stopped Minimum Valve Position	R/W	0.0 - 100.0 %	X10
N109:46	409947	Pre Rotation Vane Control Starting Minimum Valve Position	R/W	0.0 - 100.0 %	X10
N109:47	409948	Pre Rotation Vane Control Running Minimum Valve Position	R/W	0.0 - 100.0 %	X10
N109:48	409949	Pre Rotation Vane Control Running Maximum Valve Position	R/W	0.0 - 100.0 %	X10
N109:49	409950	Hot Gas Bypass Percentage Before Starting Capacity Control	R/W	0.0 - 100.0 %	X10
N109:50	409951	Proportional Term	R/W	0 - 500	X1

AB	Modbus	Descrition	R/W	Format	Scale
N109:51	409952	Integral Term	R/W	1.0 - 250.0 s/R	X10
N109:52	409953	Mode	R/W	0 = Auto 1 = Manual	X1
N109:53	409954	Manual Mode Position	R/W	0.0 - 100.0 %	X10
		Hot Gas Bypass Control			
N109:54	409955	Suction Pressure Capacity Control Dead Band	R/W	0.00 - 0.70 barD -29.9 PSID - -9.2 PSID	X100
N109:55	409956	Outlet Inlet Temperature Capacity Control Dead Band	R/W	0.0 - 10.0 K 32 F° - 50 F°	X10
N109:56	409957	Hot Gas Bypass Stopped Minimum Valve Position	R/W	0.0 - 100.0 %	X10
N109:57	409958	Hot Gas Bypass Starting Minimum Valve Position	R/W	0.0 - 100.0 %	X10
N109:58	409959	Hot Gas Bypass Running Minimum Valve Position	R/W	0.0 - 100.0 %	X10
N109:59	409960	Stop Hot Gas Above PRV Valve Position	R/W	0.0 - 100.0 %	X10
N109:60	409961	Proportional Term	R/W	0 - 500	X1
N109:61	409962	Integral Term	R/W	1.0 - 250.0 s/R	X10
N109:62	409963	Mode	R/W	0 = Auto 1 = Manual	X1
N109:63	409964	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N109:68	409969	Low Oil Temperature Start Delay During Starting Sequence	R/W	0 - 3600 s	X1
N109:69	409970	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N109:70	409971	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N109:71	409972	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N109:74	409975	Use Dead Band	R/W	0 = Disabled -1 = Enabled	X1
N109:89	409990	High Discharge Temperature Limitation	R/W	0 = Increase Stepping 1 = Decrease Stepping	X1
N109:90	409991	Previous Step Force Unload Delay	R/W	15 - 300 s	X1
N109:91	409992	Stand Still Time	R/W	0 - 100 h	X1
N109:92	409993	Maximum Unload Time	R/W	15 - 300 s	X1
N109:93	409994	High Power Consumption Shutdown	R/W	1 - 10000 kW	X1
N109:94	409995	High Power Consumption Warning Offset	R/W	1 - 1000 kW	X1
N109:95	409996	Limitation Power Consumption Load Inhibit	R/W	1 - 1000 kW	X1
N109:96	409997	Limitation Power Consumption Force Unload	R/W	1 - 1000 kW	X1
N109:97	409998	Low Suction Pressure Shutdown High Stage Only	R/W		X100
N110:13	410014	Ramp Time To Start Speed	R/W	1 - 60 s	X1
N110:14	410015	Ramp Time To Minimum Speed	R/W	1 - 60 s	X1

AB	Modbus	Descrition	R/W	Format	Scale
N110:5	410006	Economizer Output Active In Low Stage Mode	R/W	0 = Disabled -1 = Enabled	X1
N110:15	410016	Zero Load Virtual Bushing	R/W	0 - 50 %	X1
N110:19	410020	Maximum Discharge Temperature Offset	R/W	0.0 - 15.0 K 32 F° - 59 F°	X10
N110:20	410021	Minimum Set Point Offset	R/W	0.00 - 5.00 barD -29.9 PSID - 57.8 PSID	X100
N110:21	410022	Low Oil Separator Temperature Difference Start Condition	R/W	0.0 - 20.0 K 32 F° - 68 F°	X10
N110:32	410033	Low Oil Separator Temperature Start Condition Offset	R/W	0.0 - 20.0 K 32 F° - 68 F°	X10
N110:22	410023	Low Oil Separator Temperature Difference Warning Timer	R/W	0 - 3600 s	X1
N110:23	410024	Oil Return Discharge Superheat Difference	R/W	0.0 - 20.0 K 32 F° - 68 F°	X10
N110:24	410025	Suction Pressure Change Max Ramp Rate	R/W	0.0 - 10.0 K/min	X10
		Intercooler			
N110:27	410028	Suction Temperature Exceptional Increase	R/W	0.0 - 100.0 K 32 F° - 212 F°	X10
N110:28	410029	High Suction Pressure Warning Offset	R/W	0.00 - 7.00 barD -29.9 PSID - 86.8 PSID	X100
N110:42	410043	Injection Start Delay	R/W	0 - 600 s	X1
		Liquid Formation HEADING			
N110:44	410045	Limitation High Gas Differential Load Inhibit	R/W		X100
N110:45	410046	Limitation High Gas Differential Force Unload	R/W		X100
		Suction Pressure Valve HEADING			
		Suction Line Motor Valve HEADING			
N110:48	410049	Motor Valve Fully Opened At	R/W	50 - 100 %	X1
N110:49	410050	Motor Valve Fully Closed At	R/W	0 - 100 %	X1
N110:46	410047	Motor Valve Failed To Open / Close Warning Timer	R/W	10 - 90 %	X1
N110:47	410048	Motor Valve Closing Delay After Compressor Stop	R/W	0 - 100 s	X1
		Engine Room Temperature HEADING			
		Additional Limitations			
N110:50	410051	Unload Slide After Cleared Shutdown	R/W	0 = Disabled -1 = Enabled	X1

2.2.19 Compressor Configuration

AB	Modbus	Descrition	R/W	Format	Scale
N112:0	410201	Compressor Viewport	R/W	0 = No Entries 1-10 = Compressor #X	
N112:1	410202	Type	R	0 = Screw 1 = Recip 2 = Centrifugal	X1
N112:2	410203	Manufacturer	R	1 = GEA Grasso 2 = GEA Bock 3 = Hartford(Dunham-Bush) 4 = Frick 5 = Hall 6 = Howden 7 = Kobe 8 = Mycom 9 = Sabroe 10 = Stal 11 = Sullair 12 = Thermatrol 13 = Vilter 14 = York 15 = GEA ILKA MAFA 16 = Bitzer 17 = Other	X1

AB	Modbus	Description	R/W	Format	Scale
N112:3	410204	Series	R	0 = All 10000 = LT/GL 10040 = LT/GLX 10080 = MC/GM/M-Series 10120 = M/GMX 10160 = SH/GS 10200 = 5HP 10240 = 6 10280 = 7S 10320 = 7SW 10360 = 8S 10400 = 8SW 10440 = 9 10480 = 10 10520 = 11 10560 = 12 10600 = 12E 10640 = V 10680 = V HP 21050 = F 21089 = AM 21109 = HGX 41000 = RWB II 41100 = TDSH 41200 = RXF/RXB 41300 = RDB 41400 = RWF 61400 = R-Series(XRV) 61500 = S-Series(WRV) 71600 = L-Series 71700 = LC-Series 71800 = HE-Series 71900 = MiniScrew 82000 = Mycom 92100 = SAB 128 Mk1 92200 = SAB 128 Mk2 92300 = SAB 128 Mk3 92400 = SAB 163 Mk1 92500 = SAB 163 Mk2 92600 = SAB 163 Mk3 92700 = SAB 202 92800 = SAB 80 Series 92900 = SMC E 93000 = CMO 2 93100 = CMO 3 93200 = SMC 180 93300 = SMC L 93400 = SMC S 93500 = SMC MK1 103500 = Stal Maxi S50 103600 = Stal Maxi S70 103700 = Stal Maxi S90 103800 = Stal S80 113900 = A-Series 114000 = B-Series 114100 = C-Series 134200 = Vilter 154500 = 2/100 154510 = 2/100hh 154520 = 5/100	X1

AB	Modbus	Descrition	R/W	Format	Scale
				154530 = 5/100hh 154540 = 5/140 164300 = OS.85 164400 = OS.53 / OS.74 176000 = GRAM	

AB	Modbus	Description	R/W	Format	Scale
N112:4	410205	Model	R	0 = PR-P1830 P-50 1 = PR-P2240 P-51 2 = PR-P2655 P-52 3 = RR-R1830 R-50 4 = RR-R2240 R-51 5 = RR-R2655 R-52 6 = S-RS1830 S-50 7 = S-RS2240 S-51 8 = S-RS2655 S-52 9 = T-RT1830 T-50 10 = T-RT2240 T-51 11 = T-RT2655 T-52 12 = V-RV1830 V-50 13 = V-RV2240 V-51 14 = V-RV2655 V-52 15 = W-RW1830 W-50 16 = W-RW2240 W-51 17 = W-RW2655 W-52 18 = Y-RY1830 Y-50 19 = Y-RY2240 Y-51 20 = Y-RY2655 Y-52 21 = Z-RZ1830 Z-50 22 = Z-RZ2240 Z-51 23 = Z-RZ2655 Z-52 24 = XAR-XA1830 XA-50 25 = XAR-XA2240 XA-51 26 = XAR-XA2655 XA-52 27 = XBR-XB1830 XB-50 28 = XBR-XB2240 XB-51 29 = XBR-XB2655 XB-52 30 = XCR-XC1830 XC-50 31 = XCR-XC2240 XC-51 32 = XCR-XC2655 XC-52 33 = XDR-XC1830 XD-50 34 = XDR-XD2240 XD-51 35 = XDR-XD2655 XD-52 36 = XER-XE1830 XE-50 37 = XER-XE2240 XE-51 38 = XER-XE2655 XE-52 39 = XFR-XF1830 XF-50 40 = XFR-XF2240 XF-51 41 = XFR-XF2655 XF-52 80 = HR-H2655 H-5 81 = LR-L2655 L-5 82 = MR-M2655 M-5 83 = NR-N2655 N-5 160 = CR-C2648 C-51 161 = CR-C2640 C-52 162 = CR-C3248 C-53 163 = DR-D2648 D-51 164 = DR-D2640 D-52 165 = DR-D3248 D-53 166 = ER-E2648 E-51 167 = ER-E2640 E-52 168 = ER-E3248 E-53 169 = GR-G2648 G-51 170 = GR-G2640 G-52 171 = GR-G3248 G-53 172 = GR-G2648 G-9 200 = 35HP	X1

AB	Modbus	Descrition	R/W	Format	Scale
				201 = 45HP 202 = 55HP 203 = 65HP 240 = 46 241 = 46 25 242 = 66 243 = 86 244 = 46 B 245 = 46 25 B 246 = 66 B 247 = 86 B 280 = 37S 281 = 47S 282 = 47S 25 283 = 57S 284 = 67S 285 = 77S 286 = 87S 320 = 37SW 321 = 47SW 322 = 47SW 25 323 = 57SW 324 = 67SW 325 = 77SW 326 = 87SW 360 = 58S 361 = 68S 400 = 58SW 401 = 68SW 440 = 29 441 = 29 B 442 = 49 443 = 49 B 444 = 69 445 = 69 B 446 = 219 447 = 219S 448 = 429 449 = 429S 480 = 210 481 = 210 B 482 = 310 483 = 310 B 484 = 410 485 = 410 B 486 = 610 487 = 610 B 488 = 810 489 = 810 B 490 = 2110 491 = 2110S 492 = 3110 493 = 3110S 494 = 4210 495 = 4210S 496 = 6210 497 = 6210S 520 = 211 521 = 211 B 522 = 311	

AB	Modbus	Descrition	R/W	Format	Scale
				523 = 311 B 524 = 411 525 = 411 B 526 = 611 527 = 611 B 528 = 911 529 = 911 B 530 = 1211 531 = 1211 B 532 = 2111 533 = 2111S 534 = 3111 535 = 3111S 536 = 4211 537 = 4211S 538 = 5111 539 = 5111S 540 = 6311 541 = 6311S 542 = 7211 543 = 7211S 544 = 8411 545 = 8411S 546 = 9311 547 = 9311S 548 = 10211 549 = 10211S 560 = 212 561 = 212 B 562 = 312 563 = 312 B 564 = 412 565 = 412 B 566 = 612 567 = 612 B 568 = 912 569 = 912 B 570 = 1212 571 = 1212 B 572 = 2112 573 = 2112S 574 = 3112 575 = 3112S 576 = 4212 577 = 4212S 578 = 5112 579 = 5112S 580 = 6312 581 = 6312S 582 = 7212 583 = 7212S 584 = 8412 585 = 8412S 586 = 9312 587 = 9312S 588 = 10212 589 = 10212S 600 = 212E 601 = 212E B 602 = 312E	

AB	Modbus	Descrition	R/W	Format	Scale
				603 = 312E B 604 = 412E 605 = 412E 25 606 = 412E B 607 = 612E 608 = 612E B 609 = 912E 610 = 912E B 611 = 1212E 612 = 1212E B 613 = 2112E 614 = 2112ES 615 = 3112E 616 = 3112ES 617 = 4212E 618 = 4212ES 619 = 5112E 620 = 5112ES 621 = 6312E 622 = 6312ES 623 = 7212E 624 = 7212ES 625 = 8412E 626 = 8412ES 627 = 9312E 628 = 9312ES 629 = 10212E 630 = 10212ES 640 = V700 50 641 = V700 642 = V700 B 50 643 = V700 B 644 = V700T 645 = V1100 646 = V1100 B 647 = V1100T 648 = V1400 649 = V1400 B 650 = V1400T 651 = V1800 30 652 = V1800 653 = V1800 B 30 654 = V1800 B 655 = V1800T 656 = V300 657 = V300 B 658 = V300T 659 = V450 660 = V450 B 661 = V450T 662 = V600 663 = V600 B 664 = V600T 680 = V300 HP 681 = V450 HP 682 = V600 HP 1050 = F14 1166 1051 = F14 1166 W 1052 = F14 1366 1053 = F14 1366 W	

AB	Modbus	Descrition	R/W	Format	Scale
				1054 = F16 1751 1055 = F16 1751 W 1056 = F16 2051 1057 = F16 2051 W 1058 = F18 3235 1059 = F28 6360 1060 = AM4 1061 = AM5 1110 = HGX34/110-4 ML 1111 = HGX34/110-4 S 1112 = HGX34/110-4 SH 1113 = HGX34/130-4 ML 1114 = HGX34/130-4 S 1115 = HGX34/130-4 SH 1116 = HGX34/150-4 ML 1117 = HGX34/150-4 S 1118 = HGX34/150-4 SH 1119 = HGX34/170-4 ML 1120 = HGX34/170-4 S 1121 = HGX34/170-4 SH 1122 = HGX34/190-4 ML 1123 = HGX34/190-4 S 1124 = HGX34/190-4 SH 1125 = HGX34/210-4 ML 1126 = HGX34/210-4 S 1127 = HGX34/210-4 SH 1128 = HGX34/230-4 ML 1129 = HGX34/230-4 S 1130 = HGX34/230-4 SH 1131 = HGX34/290-4 ML 1132 = HGX34/290-4 S 1133 = HGX34/290-4 SH 1134 = HGX46/280-4 ML 1135 = HGX46/280-4 S 1136 = HGX46/280-4 SH 1137 = HGX46/310-4 ML 1138 = HGX46/310-4 S 1139 = HGX46/310-4 SH 1140 = HGX46/345-4 ML 1141 = HGX46/345-4 S 1142 = HGX46/345-4 SH 1143 = HGX46/440-4 ML 1144 = HGX12e/20-4 S 1145 = HGX12e/30-4 S 1146 = HGX12e/40-4 S 1147 = HGX12e/50-4 S 1148 = HGX12e/60-4 S 1149 = HGX12e/75-4 S 1150 = HGX22e/85-4 S 1151 = HGX22e/105-4 S 1152 = HGX22e/130-4 S 1153 = HGX34e/145-4 S 1154 = HGX34e/170-4 S 1155 = HGX34e/210-4 S 1156 = HGX34e/255-4 S 1157 = HGX4/310-4 1158 = HGX4/385-4 1159 = HGX4/465-4 1160 = HGX4/555-4 1800 = 19	

AB	Modbus	Descrition	R/W	Format	Scale
				1801 = 23 1802 = 28 1803 = 32 2900 = SMC104E STD 2901 = SMC104E ADD 2902 = SMC104E EXTA 2903 = SMC104E EXTB 2904 = SMC104E EXTC 2905 = SMC106E STD 2906 = SMC106E ADD 2907 = SMC106E EXT 2908 = SMC108E STD 2909 = SMC108E ADD 2910 = SMC108E EXT 2911 = TSMC108E 2912 = SMC112E STD 2913 = SMC112E ADD 2914 = SMC112E EXT 2915 = SMC116E STD 2916 = SMC116E ADD 2917 = SMC116E EXT 2918 = TSMC116E 3000 = CMO24 3001 = CMO26 3002 = CMO28 3003 = TCMO28 3100 = CMO34 3101 = CMO36 3102 = CMO38 3103 = TCMO38 3200 = SMC186 STD 3201 = SMC186 ADD 3202 = SMC188 STD 3203 = SMC188 ADD 3204 = TSMC188 3300 = SMC104L STD 3301 = SMC104L ADD 3302 = SMC104L EXTA 3303 = SMC104L EXTB 3304 = SMC104L EXTC 3305 = SMC106L STD 3306 = SMC106L ADD 3307 = SMC106L EXT 3308 = SMC108L STD 3309 = SMC108L ADD 3310 = SMC108L EXT 3311 = TSMC108L 3312 = SMC112L STD 3313 = SMC112L ADD 3314 = SMC112L EXT 3315 = SMC116L STD 3316 = SMC116L ADD 3317 = SMC116L EXT 3318 = TSMC116L 3400 = SMC104S STD 3401 = SMC104S ADD 3402 = SMC104S EXTA 3403 = SMC104S EXTB 3404 = SMC104S EXTC 3405 = SMC106S STD	

AB	Modbus	Description	R/W	Format	Scale
				3406 = SMC106S ADD 3407 = SMC106S EXT 3408 = SMC108S STD 3409 = SMC108S ADD 3410 = SMC108S EXT 3411 = TSMC108S 3412 = SMC112S STD 3413 = SMC112S ADD 3414 = SMC112S EXT 3415 = SMC116S STD 3416 = SMC116S ADD 3417 = SMC116S EXT 3418 = TSMC116S 3500 = SMC 4 100 3501 = SMC 6 100 3502 = SMC 8 100 3503 = TSMC 8 100 3504 = SMC 12 100 3505 = SMC 16 100 3506 = TSMC 16 100 3507 = TSMC 16 100 4200 = VSM-701 4201 = VSS-1201 4202 = VSS-1801 4203 = VSS-451 4204 = VSS-601 4205 = VSM-601 4206 = VSS-1501 4500 = 2V3 4501 = 2V4 4502 = 2W5 4503 = 2W5 60 4504 = 2W6 4510 = 2V3hh 4511 = 2V4hh 4512 = 2W5hh 4513 = 2W5hh 60 4514 = 2W6hh 4520 = 5W5 4521 = 5W5 60 4522 = 5W6 4523 = 5VV7 4524 = 5VV7 56 4525 = 5VV8 4530 = 5W5hh 4531 = 5W5hh 60 4532 = 5W6hh 4533 = 5VV7hh 4534 = 5VV7hh 56 4535 = 5VV8hh 4540 = 5W5 4541 = 5W5 60 4542 = 5W6 4543 = 5VV7 4544 = 5VV7 56 4545 = 5VV8 999999 = All	
N112:5	410206	Number Of Steps	R		X1
N112:6	410207	Number Of Solenoids	R		X1

AB	Modbus	Description	R/W	Format	Scale
N112:7	410208	Frame Size Grasso Only	R	0 = C 1 = D 2 = E 3 = G 4 = G9 100 = H 101 = HM 102 = HS 103 = L 104 = LM 105 = LS 106 = M 107 = MM 108 = MS 109 = MH 110 = MCM 111 = N 112 = NM 113 = NS 114 = NH 115 = CM 116 = CS 117 = DM 118 = DS 119 = EM 120 = ES 121 = GM 122 = GS 200 = P 201 = R 202 = S 203 = T 204 = V 205 = W 206 = Y 207 = Z 208 = XA 209 = XB 210 = XC 211 = XD 212 = XE 213 = XF 214 = XG 215 = XH	X1

AB	Modbus	Descrition	R/W	Format	Scale
N112:8	410209	Swept Volume Grasso Only	R	231 = C 265 = D 321 = E 372 = G 471 = H 544 = L 708 = M 805 = P 870 = N 1040 = R 1290 = S 1460 = T 1740 = V 1990 = W 2390 = Y 2748 = Z 3250 = XA 4150 = XB 4900 = XC 5800 = XD 7170 = XE 8560 = XF 9807 = XG 11467 = XH	X1
N112:9	410210	Vi Code Grasso Only	R		X1
N112:10	410211	External Capacity Mode	R	0 = Direct Pulse Control 1 = Indirect Pulse Control	X1
N112:11	410212	Variable Speed Motor Active	R		X1
N112:12	410213	Drive Type	R	0 = Fixed Speed, Solid State, ATL, or Wye-Delta 1 = Variable Speed 2 = Variable Speed with Bypass 3 = Steam Turbine 4 = Gas/Diesel Engine	X1
N112:13	410214	Motor Current Input	R	0 = 4 - 20mA 1 = CT with 4 - 20mA Output 2 = CT 3 = 1A CT 4 = Communication	X1
N112:14	410215	Motor Speed Input	R		X1
N112:15	410216	Motor Start Manufacturer	R	0 = Disabled -1 = Enabled	X1
N112:16	410217	Motor Start Signal	R	0 = Maintained 1 = Pulsed	X1
N112:17	410218	Vi Type	R	0 = Fixed 1 = Continuous Variable 2 = Step Variable	X1
N112:18	410219	Hot Gas Bypass	R	0 = Disabled -1 = Enabled	X1

AB	Modbus	Description	R/W	Format	Scale
N112:19	410220	Oil Cooling	R	0 = Other 1 = Liquid Injection 2 = Thermosiphon 3 = Water Cooled 4 = IntelliSOC (Danfoss) 5 = Motorized Valve 6 = Yosaku Pulsed Liquid Injection 7 = DX Oil Cooling 8 = Fan Cooled 1/2 HP 9 = Fan Cooled 1/3 HP 10 = Thermopump	X1
N112:20	410221	VTrac Enabled	R	0 = Disabled -1 = Enabled	X1
N112:21	410222	Pump Down Type	R	0 = Disabled 1 = Manual 2 = Auto	X1
N112:22	410223	Oil Pump Type	R	0 = Internal/No Pump 1 = External Full-Time No Prelube 2 = None 3 = Internal 4 = Shared Full Time 5 = External Startup/Prelube 6 = External Cycling 7 = External Full-Time	X1
N112:23	410224	Oil Filter Transducer	R	0 = None 1 = Inlet 2 = Outlet 3 = Both	X1
N112:24	410225	Low Oil Level Enabled	R	0 = Disabled -1 = Enabled	X1
N112:25	410226	High Oil Level Enabled	R	0 = Disabled -1 = Enabled	X1
N112:26	410227	Suction Filter Combo Solenoid	R	0 = Disabled -1 = Enabled	X1
N112:27	410228	Double Balance Piston Enabled	R	0 = Disabled -1 = Enabled	X1
N112:28	410229	Fast Unload Solenoid Enabled	R	0 = Disabled -1 = Enabled	X1
N112:29	410230	Startup Bypass Solenoid Enabled	R	0 = Disabled -1 = Enabled	X1
N112:30	410231	Oil Separator Temperature Probe	R	0 = Disabled -1 = Enabled	X1
N112:31	410232	Economizer Type	R	0 = Non-Economized 1 = Flash Economized 2 = DX Economized 3 = Non-Economized w/ Sideload 4 = Flash Economized w/ Sideload 5 = DX Economized w/ Sideload 6 = Intercooler 7 = Economizer Control By Others (Network) 8 = Economizer Control By Others (Hardwired)	X1

AB	Modbus	Description	R/W	Format	Scale
N112:32	410233	Economizer Pressure Transducer	R	0 = 0-100 PSIA 1 = 0-200 PSIA 2 = 0-300 PSIA 3 = 0-200 PSIG 4 = 0-300 PSIG 5 = 0-500 PSIG 6 = 0-870 PSIG 7 = 0-7 barA 8 = 0-10 barA 9 = 0-13 barA 10 = 0-25 barA 11 = 0-30 barA 12 = 0-32 barA 13 = 0-35 barA 14 = Custom -1 = None	X1
N112:33	410234	Economizer Temperature Monitor	R		X1
N112:34	410235	Remote Set Point	R	0 = None 1 = Temperature 2 = Pressure 3 = Slide Valve	X1

2.2.20 Compressor VTrac Data

AB	Modbus	Description	R/W	Format	Scale
N112:50	410251	VTrac Object Data	R		X1000
	|		|		
N113:49	410250		R		

2.2.21 Compressor Sequencer Commands

AB	Modbus	Description	R/W	Format	Scale
		Level 1			
N113:50	410351	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	
N113:51	410352	Control Value	R		Depends on Control Signal

AB	Modbus	Description	R/W	Format	Scale
N113:52	410353	Control Set Point	R/W		Depends on Control Signal
N113:53	410354	Control Capacity Mode	R/W	0 = Capacity Control 1 1 = Capacity Control 2 2 = Capacity Control 3	X1
N113:54	410355	Control Mode	R/W	0 = Auto 1 = External 2 = Manual 3 = Load 4 = Unload	X1
N113:55	410356	Current Step	R/W		X1
N113:56	410357	Max Step	R		X1
N113:57	410358	Current Status	R	0 = Not Permitted To Start 1 = Shutdown 2 = Soaking 3 = Waiting On Next Step Timer 4 = Waiting On Previous Step Timer 5 = At Maximum Step 6 = At Minimum Step 7 = Holding 8 = Waiting 9 = Waiting For Compressor To Load 10 = Waiting For Compressor To Unload 11 = Waiting For System To Stabalize 12 = Waiting For Condenser To Load 13 = Waiting For Condenser To Unload 14 = Backup	X1
N113:58	410359	Current Timer Value	R		X10
N113:59	410360	Number Of Compressors Running On This Level	R		X1
N113:60	410361	Number Of Compressor Total On This Level	R		X1
N113:61	410362	Number Of Compressor Available On This Level			
N113:62	410363	Is Shutdown			
N113:63	410364	Enabled			
N113:64	410365	Master Or Slave	R	0 = Slave or Disabled 1 = Master	
N113:70	410371	Level 2			
	|		|		
N113:89	410390		-		
N113:90	410391	Level 3			
	|		|		
N114:9	410410		-		
N114:10	410411	Level 4			
	|		|		
N114:29	410430		-		

2.2.22 Sequenced Compressor Status

AB	Modbus	Descrition	R/W	Format	Scale
		Sequenced Compressor 1			
N115:0	410501	Enabled	R	0 = False 1 = True	
N115:1	410502	Device Type	R	0 = Omni 1 = FES Legacy Product	
N115:2	410503	Compressor Index	R		X1
N115:3	410504	Level	R		X1
N115:4	410505	Compressor Type	R	0 = Screw 1 = Recip 2 = Centrifugal	
N115:5	410506	Compressor Drive	R	0 = Fixed Speed, Solid State, ATL, or Wye-Delta 1 = Variable Speed 2 = Variable Speed with Bypass 3 = Steam Turbine 4 = Gas/Diesel Engine	
N115:6	410507	Allowed To Start	R	0 = False 1 = True	
N115:7	410508	Any Start Timers Active	R	0 = False 1 = True	
N115:8	410509	Annunciation Status	R	0 = Normal 1 = Warning 2 = Shutdown	
N115:9	410510	Current State	R	0 = Starting 1 = Running 2 = Stopping 3 = Stopped	
N115:10	410511	Capacity Control State	R	0 = Auto 1 = External 2 = Manual 3 = Load 4 = Unload	
N115:11	410512	Control Signal	R	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	
N115:12	410513	Control Value	R	Depends on Control Signal	
N115:13	410514	Capacity Slide	R		X1
N115:14	410515	Current Step	R		X1
N115:15	410516	Motor Speed Percentage	R		X1
N115:16	410517	Runtime	R		X1

AB	Modbus	Descrition	R/W	Format	Scale
N115:17	410518	Motor Current	R		X10
N115:18	410519	Motor Speed Percentage	R		X1
N115:19	410520	Suction Pressure	R		X10
N115:20	410521	Process Temperature	R		X1
N115:21	410522	Discharge Pressure	R		X10
N115:30	410531	Sequenced Compressor 2			
	|		|		
N115:59	410560		-		
N115:60	410561	Sequenced Compressor 3			
	|		|		
N115:89	410590		-		
N115:90	410591	Sequenced Compressor 4			
	|		|		
N116:19	410620		-		
N116:20	410621	Sequenced Compressor 5			
	|		|		
N116:49	410650		-		
N116:50	410651	Sequenced Compressor 6			
	|		|		
N116:79	410680		-		
N116:80	410681	Sequenced Compressor 7			
	|		|		
N117:9	410710		-		
N117:10	410711	Sequenced Compressor 8			
	|		|		
N117:39	410740		-		
N117:40	410741	Sequenced Compressor 9			
	|		|		
N117:69	410770		-		
N117:70	410771	Sequenced Compressor 10			
	|		|		
N117:99	410800		-		
N118:0	410801	Sequenced Compressor 11			
	|		|		
N118:29	410830		-		
N118:30	410831	Sequenced Compressor 12			
	|		|		
N118:59	410860		-		
N118:60	410861	Sequenced Compressor 13			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N118:89	410890		-		
N118:90	410891	Sequenced Compressor 14			
	|		|		
N119:19	410920		-		
N119:20	410921	Sequenced Compressor 15			
	|		|		
N119:49	410950		-		
N119:50	410951	Sequenced Compressor 16			
	|		|		
N119:79	410980		-		
N119:80	410981	Sequenced Compressor 17			
	|		|		
N120:9	411010		-		
N120:10	411011	Sequenced Compressor 18			
	|		|		
N120:39	411040		-		
N120:40	411041	Sequenced Compressor 19			
	|		|		
N120:69	411070		-		
N120:70	411071	Sequenced Compressor 20			
	|		|		
N120:99	411100		-		
N121:0	411101	Sequenced Compressor 21			
	|		|		
N121:29	411130		-		
N121:30	411131	Sequenced Compressor 22			
	|		|		
N121:59	411160		-		
N121:60	411161	Sequenced Compressor 23			
	|		|		
N121:89	411190		-		
N121:90	411191	Sequenced Compressor 24			
	|		|		
N122:19	411220		-		
N122:20	411221	Sequenced Compressor 25			
	|		|		
N122:49	411250		-		
N122:50	411251	Sequenced Compressor 26			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N122:79	411280		-		
N122:80	411281	Sequenced Compressor 27			
	|		|		
N123:9	411310		-		
N123:10	411311	Sequenced Compressor 28			
	|		|		
N123:39	411340		-		
N123:40	411341	Sequenced Compressor 29			
	|		|		
N123:69	411370		-		
N123:70	411371	Sequenced Compressor 30			
	|		|		
N123:99	411400		-		
N124:0	411401	Sequenced Compressor 31			
	|		|		
N124:29	411430		-		
N124:30	411431	Sequenced Compressor 32			
	|		|		
N124:59	411460		-		
N124:60	411461	Sequenced Compressor 33			
	|		|		
N124:89	411490		-		
N124:90	411491	Sequenced Compressor 34			
	|		|		
N125:19	411520		-		
N125:20	411521	Sequenced Compressor 35			
	|		|		
N125:49	411550		-		
N125:50	411551	Sequenced Compressor 36			
	|		|		
N125:79	411580		-		
N125:80	411581	Sequenced Compressor 37			
	|		|		
N126:9	411610		-		
N126:10	411611	Sequenced Compressor 38			
	|		|		
N126:39	411640		-		
N126:40	411641	Sequenced Compressor 39			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N126:69	411670		-		
N126:70	411671	Sequenced Compressor 40			
	|		|		
N126:99	411700		-		
N127:0	411701	Sequenced Compressor 41			
	|		|		
N127:29	411730		-		
N127:30	411731	Sequenced Compressor 42			
	|		|		
N127:59	411760		-		
N127:60	411761	Sequenced Compressor 43			
	|		|		
N127:89	411790		-		
N127:90	411791	Sequenced Compressor 44			
	|		|		
N128:19	411820		-		
N128:20	411821	Sequenced Compressor 45			
	|		|		
N128:49	411850		-		
N128:50	411851	Sequenced Compressor 46			
	|		|		
N128:79	411880		-		
N128:80	411881	Sequenced Compressor 47			
	|		|		
N129:9	411910		-		
N129:10	411911	Sequenced Compressor 48			
	|		|		
N129:39	411940		-		
N129:40	411941	Sequenced Compressor 49			
	|		|		
N129:69	411970		-		
N129:70	411971	Sequenced Compressor 50			
	|		|		
N129:99	412000		-		

2.2.23 Compressor Sequencer Analog Data

AB	Modbus	Descrition	R/W	Format	Scale
N130:0	412001	System Suction Pressure	R		X100
	|		|		
N130:3	412004		R		
N130:4	412005	Compressor Sequencing Inlet Temperature Pressure	R		X10
	|		|		
N130:7	412008		R		
N130:8	412009	Compressor Sequencing Outlet Temperature Pressure	R		X10
	|		|		
N130:11	412012		R		
N130:12	412013	Compressor Sequencing Discharge Pressure	R		X100
	|		|		
N130:15	412016		R		
N130:16	412017	Compressor Sequencing Saturated Suction Temperature	R		X10
	|		|		
N130:19	412020		R		
N130:20	412021	Compressor Sequencing Saturated Discharge Temperature	R		X10
	|		|		
N130:23	412024		R		
N130:24	412025	Compressor Sequencing Force to Step	R		X1
	|		|		
N130:27	412028		R		
N130:28	412029	Compressor Sequencing Current Step	R		X1
	|		|		
N130:31	412032		R		
N130:32	412033	Compressor Sequencing Storage Pressure	R		X100
	|		|		
N130:35	412036		R		
N130:36	412037	Compressor Sequencer Remote Set Point	R		X100
	|		|		
N130:39	412040		R		
N130:40	412041		-		

AB	Modbus	Description	R/W	Format	Scale
	|	Reserved for Compressor Sequencer Analog Data	|		
N130:49	412050		-		

2.2.24 Compressor Sequencer Digital Data

AB	Modbus	Description	R/W	Format	Scale
N130:50	412051	Compressor Sequencer Level Shutdown Input	R		bit
N130:51	412052	Compressor Sequencer Level Permissive Input	R		bit
N130:52	412053	Compressor Sequencer Level Enable Input	R		bit
N130:53	412054	Compressor Sequenced Ready Output	R		bit
N130:54	412055	Compressor Sequenced in Motor Start To Start Output	R		bit
N130:55	412056	Compressor Sequenced in Stop Mode Output	R		bit
N130:56	412057	Compressor Sequenced Running Output	R		bit
N130:57	412058	Compressor Sequenced in Local Mode Output	R		bit
N130:58	412059	Compressor Sequenced in Remote Mode Output	R		bit
N130:59	412060	Compressor Sequencer Shutdown Status	R		bit
N130:60	412061	Compressor Sequencer Warning Status	R		bit
N130:61	412062	Compressor Sequenced Communication Error Output	R		bit
N130:62	412063	Compressor Override Automatic Start Value	R		bit
N130:63	412064	Compressor Sequenced Local or Remote Ready Output	R		bit
N130:64	412065	Compressor Sequencer Ramp to Setpoint Completed Output	R		bit
N130:65	412066	Compressor Sequencer Force to Next Step Input	R		bit
N130:66	412067	Compressor Sequencer Force to Previous Step Input	R		bit
N130:67	412068	Compressor Sequencer Force to Step Enable	R		bit
N130:68	412069	Compressor Sequencer Device Permissive Input	R		bit
N130:72	412073	Compressor Sequencer Device Enable Input	R		bit
N130:76	412077	Compressor Sequenced in Warning Output	R		bit
N130:77	412078	Compressor Sequenced in Shutdown Output	R		bit

AB	Modbus	Descrition	R/W	Format	Scale
N130:78	412079	Compressor Sequencer Ramp to Step Enable	R		bit
N130:79	412080	Compressor Sequencer Capacity Selection	R		bit
N130:80	412081		-		
	|	Reserved for Compressor Sequencer Digital Data	|		
N130:99	412100		-		

2.2.25 Compressor Sequencer Parameters

AB	Modbus	Descrition	R/W	Format	Scale
N131:0	412101	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N131:1	412102	Set Point	R/W		X1
N131:2	412103	Next Step	R/W		X1
N131:3	412104	Previous Step	R/W		X1
N282:69	427270	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N282:70	427271	Automatic Start	R/W		X1
N282:71	427272	Automatic Start Offset	R/W		X1
N282:72	427273	Automatic Stop Offset	R/W		X1
N282:73	427274	Automatic Start Delay	R/W	5 - 1800 s	X1
N282:74	427275	Automatic Stop	R/W		X1
N282:75	427276	Automatic Stop Delay	R/W	5 - 1800 s	X1
N131:16	412117	All Output Zones Satisfied Set Point	R/W	-56.7 - 204.4	X10
N131:34	412135	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1

AB	Modbus	Descrition	R/W	Format	Scale
N131:4	412105	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N131:5	412106	Set Point	R/W		X1
N131:6	412107	Next Step	R/W		X1
N131:7	412108	Previous Step	R/W		X1
N282:76	427277	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N282:77	427278	Automatic Start	R/W		X1
N282:78	427279	Automatic Start Offset	R/W		X1
N282:79	427280	Automatic Stop Offset	R/W		X1
N282:80	427281	Automatic Start Delay	R/W	5 - 1800 s	X1
N282:81	427282	Automatic Stop	R/W		X1
N282:82	427283	Automatic Stop Delay	R/W	5 - 1800 s	X1
N131:17	412118	All Output Zones Satisfied Set Point	R/W	-56.7 - 204.4	X10
N131:35	412136	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N131:8	412109	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N131:9	412110	Set Point	R/W		X1
N131:10	412111	Next Step	R/W		X1
N131:11	412112	Previous Step	R/W		X1
N282:83	427284	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N282:84	427285	Automatic Start	R/W		X1

AB	Modbus	Descrition	R/W	Format	Scale
N282:85	427286	Automatic Start Offset	R/W		X1
N282:86	427287	Automatic Stop Offset	R/W		X1
N282:87	427288	Automatic Start Delay	R/W	5 - 1800 s	X1
N282:88	427289	Automatic Stop	R/W		X1
N282:89	427290	Automatic Stop Delay	R/W	5 - 1800 s	X1
N131:18	412119	All Output Zones Satisfied Set Point	R/W	-56.7 - 204.4	X10
N131:36	412137	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N131:12	412113	Capacity Selection	R/W	0 = Capacity Control 1 1 = Capacity Control 2 2 = Capacity Control 3	X1
N131:13	412114	Minimum Position	R/W	0 - 100 %	X1
N131:14	412115	Maximum Position	R/W	0 - 100 %	X1
N131:15	412116	Override Loading or Unloading Compressor Timer	R/W	0.1 - 30.0 min	X10
N282:49	427250	Automatic Evaporator Disable	R/W	0 = Disabled -1 = Enabled	X1
N282:50	427251	Set Point Location	R/W	0 = Local 1 = Remote	X1
N282:51	427252	Control Mode Select By Digital Input	R/W	0 = Disabled -1 = Enabled	X1
N282:52	427253	All Output Zones Satisfied Mode	R/W	0 = Set Point 1 = Offset	X1
N282:53	427254	All Output Zones Satisfied Offset	R/W	-56.7 - 204.4	X10
N282:54	427255	All Output Zones Satisfied Mode	R/W	0 = Set Point 1 = Offset	X1
N282:55	427256	All Output Zones Satisfied Offset	R/W	-56.7 - 204.4	X10
N282:56	427257	All Output Zones Satisfied Mode	R/W	0 = Set Point 1 = Offset	X1
N282:57	427258	All Output Zones Satisfied Offset	R/W	-56.7 - 204.4	X10
N282:58	427259	Use Local Control Value	R/W	0 = Disabled -1 = Enabled	X1
N282:59	427260	Previous Step Timer	R/W	1 - 3600 s	X1
N282:60	427261	Next Step Timer	R/W	1 - 3600 s	X1
N282:61	427262	Soak Timer	R/W	1 - 3600 s	X1
N282:62	427263	Sort Type	R/W	0 = Index 1 = Running Hours 2 = COP 3 = COP Sync Speed 4 = COP Sync Multipack	X1
N282:63	427264	Minimum Running Hours Difference	R/W		X1
N282:64	427265	Capacity Dependent Switch Off Delay	R/W	0 - 3600 s	X1
N282:65	427266	Emergency Stop	R/W	0 = Disabled -1 = Enabled	X1
N282:66	427267	Signal Observer Sample Time	R/W	5.0 - 120.0 s	X10
N282:67	427268	Signal Observer Dead Band	R/W	0.0 - 20.0 K 32 F° - 68 F°	X10
N282:68	427269	Monitoring Timer	R/W	0 - 600 s	X1

AB	Modbus	Description	R/W	Format	Scale
N282:90	427291	Minimum Soak Timer Offset	R/W	0.0 - 100.0 K 32 F° - 212 F°	X10
N282:91	427292	Force Start	R/W	0 = Disabled -1 = Enabled	X1
N282:92	427293	Force Start Running Hours Difference	R/W		X1
N282:93	427294	Fixed Capacity Dependent Switch Off Order	R/W	0 = Disabled -1 = Enabled	X1
N282:94	427295	Remote Control Interface	R/W	0 = Network 1 = Hard Wired	X1
N282:95	427296	Multipack Maximum Offset	R/W	-50 - 50 %	X1
N131:25	412126	Level 2			
	|		|		
N131:49	412150		-		
N131:50	412151	Level 3			
	|		|		
N131:74	412175		-		
N131:75	412176	Level 4			
	|		|		
N131:99	412200		-		

2.2.26 Condenser Sequencer Commands

AB	Modbus	Description	R/W	Format	Scale
N132:0	412201	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	
N132:1	412202	Control Value	R		Depends on Control Signal
N132:2	412203	Control Set Point	R/W		Depends on Control Signal

AB	Modbus	Description	R/W	Format	Scale
N132:3	412204	Control Mode	R/W	0 = Auto 1 = External 2 = Manual 3 = Load 4 = Unload	X1
N132:4	412205	Current Step	R/W		X1
N132:5	412206	Max Step	R		X1
N132:6	412207	Current Status	R	0 = Not Permitted To Start 1 = Shutdown 2 = Soaking 3 = Waiting On Next Step Timer 4 = Waiting On Previous Step Timer 5 = At Maximum Step 6 = At Minimum Step 7 = Holding 8 = Waiting 9 = Waiting For Compressor To Load 10 = Waiting For Compressor To Unload 11 = Waiting For System To Stabalize 12 = Waiting For Condenser To Load 13 = Waiting For Condenser To Unload 14 = Backup	X1
N132:7	412208	Current Timer Value	R		X10
N132:8	412209	Number Of Fans Running	R		X1
N132:9	412210	Number Of Fans Total	R		X1
N132:10	412211	Number Of Pumps Running	R		X1
N132:11	412212	Number Of Pumps Total	R		X1
N132:12	412213	Is Shutdown			

2.2.27 Sequenced Condenser Status

AB	Modbus	Description	R/W	Format	Scale
		Condenser Device 1			
N133:50	412351	Enabled	R	0 = False 1 = True	
N133:51	412352	Current State	R	0 = Stopped 1 = Running 2 = Running Low 3 = Running High 4 = Holding 5 = Auto 6 = Shutdown 7 = Warning	
N133:53	412354	Motor Speed Percentage	R		X1
N133:54	412355	Runtime KHours	R		X1
N133:55	412356	Runtime Hours	R		X1
N133:60	412361	Condenser Device 2			
	|		|		
N133:69	412370		-		
N133:70	412371	Condenser Device 3			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N133:79	412380		-		
N133:80	412381	Condenser Device 4			
	|		|		
N133:89	412390		-		
N133:90	412391	Condenser Device 5			
	|		|		
N133:99	412400		-		
N134:0	412401	Condenser Device 6			
	|		|		
N134:9	412410		-		
N134:10	412411	Condenser Device 7			
	|		|		
N134:19	412420		-		
N134:20	412421	Condenser Device 8			
	|		|		
N134:29	412430		-		
N134:30	412431	Condenser Device 9			
	|		|		
N134:39	412440		-		
N134:40	412441	Condenser Device 10			
	|		|		
N134:49	412450		-		
N134:50	412451	Condenser Device 11			
	|		|		
N134:59	412460		-		
N134:60	412461	Condenser Device 12			
	|		|		
N134:69	412470		-		
N134:70	412471	Condenser Device 13			
	|		|		
N134:79	412480		-		
N134:80	412481	Condenser Device 14			
	|		|		
N134:89	412490		-		
N134:90	412491	Condenser Device 15			
	|		|		
N134:99	412500		-		
N135:0	412501	Condenser Device 16			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N135:9	412510		-		
N135:10	412511	Condenser Device 17			
	|		|		
N135:19	412520		-		
N135:20	412521	Condenser Device 18			
	|		|		
N135:29	412530		-		
N135:30	412531	Condenser Device 19			
	|		|		
N135:39	412540		-		
N135:40	412541	Condenser Device 20			
	|		|		
N135:49	412550		-		
N135:50	412551	Condenser Device 21			
	|		|		
N135:59	412560		-		
N135:60	412561	Condenser Device 22			
	|		|		
N135:69	412570		-		
N135:70	412571	Condenser Device 23			
	|		|		
N135:79	412580		-		
N135:80	412581	Condenser Device 24			
	|		|		
N135:89	412590		-		
N135:90	412591	Condenser Device 25			
	|		|		
N135:99	412600		-		
N136:0	412601	Condenser Device 26			
	|		|		
N136:9	412610		-		
N136:10	412611	Condenser Device 27			
	|		|		
N136:19	412620		-		
N136:20	412621	Condenser Device 28			
	|		|		
N136:29	412630		-		
N136:30	412631	Condenser Device 29			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N136:39	412640		-		
N136:40	412641	Condenser Device 30			
	|		|		
N136:49	412650		-		
N136:50	412651	Condenser Device 31			
	|		|		
N136:59	412660		-		
N136:60	412661	Condenser Device 32			
	|		|		
N136:69	412670		-		
N136:70	412671	Condenser Device 33			
	|		|		
N136:79	412680		-		
N136:80	412681	Condenser Device 34			
	|		|		
N136:89	412690		-		
N136:90	412691	Condenser Device 35			
	|		|		
N136:99	412700		-		
N137:0	412701	Condenser Device 36			
	|		|		
N137:9	412710		-		
N137:10	412711	Condenser Device 37			
	|		|		
N137:19	412720		-		
N137:20	412721	Condenser Device 38			
	|		|		
N137:29	412730		-		
N137:30	412731	Condenser Device 39			
	|		|		
N137:39	412740		-		
N137:40	412741	Condenser Device 40			
	|		|		
N137:49	412750		-		
N137:50	412751	Condenser Device 41			
	|		|		
N137:59	412760		-		
N137:60	412761	Condenser Device 42			

AB	Modbus	Description	R/W	Format	Scale
	|		|		
N137:69	412770		-		
N137:70	412771	Condenser Device 43			
	|		|		
N137:79	412780		-		
N137:80	412781	Condenser Device 44			
	|		|		
N137:89	412790		-		
N137:90	412791	Condenser Device 45			
	|		|		
N137:99	412800		-		
N138:0	412801	Condenser Device 46			
	|		|		
N138:9	412810		-		
N138:10	412811	Condenser Device 47			
	|		|		
N138:19	412820		-		
N138:20	412821	Condenser Device 48			
	|		|		
N138:29	412830		-		
N138:30	412831	Condenser Device 49			
	|		|		
N138:39	412840		-		
N138:40	412841	Condenser Device 50			
	|		|		
N138:49	412850		-		

2.2.28 Condenser Sequencer Analog Data

AB	Modbus	Description	R/W	Format	Scale
N138:50	412851	System Discharge Pressure	R		X100
	|		|		
N138:53	412854		R		
N138:54	412855	Relative Humidty Input	R		X10
	|		|		
N138:57	412858		R		
N138:58	412859	Ambient Air Temperature	R		X10
	|		|		
N138:61	412862		R		
N138:62	412863	Wet Bulb Temperature	R		X10

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N138:65	412866		R		
N138:66	412867	Condenser Saturated Discharge Pressure	R		X100
	|		|		
N138:69	412870		R		
N138:70	412871	Condenser Inlet Temperature	R		X10
	|		|		
N138:73	412874		R		
N138:74	412875	Condenser Outlet Temperature	R		X10
	|		|		
N138:77	412878		R		
N138:78	412879	Condenser Sequencing Force to Step	R		X1
	|		|		
N138:81	412882		R		
N138:82	412883	Condenser Sequencing Current Step	R		X1
	|		|		
N138:85	412886		R		
N138:86	412887	Condenser Control Temperature	R		X10
	|		|		
N138:89	412890		R		
N138:90	412891	Saturated Liquid Pressure	R		X100
	|		|		
N138:93	412894		R		
N138:94	412895	Condensation Pressure	R		X100
N138:95	412896	Refrigerant After Subcooler	R		X10
	|		|		
N138:98	412899		R		
N138:99	412900		-		
	|	Reserved for Condenser Sequencer Analog Data	|		
N138:99	412900		-		

2.2.29 Condenser Sequencer Digital Data

AB	Modbus	Descrition	R/W	Format	Scale
N139:0	412901	Condenser Sequencer Ramp to Set Point Complete Output	R		bit
N139:1	412902	Condenser Sequencer Force to Next Step Input	R		bit
N139:2	412903	Condenser Sequencer Force to Previous Step Input	R		bit

AB	Modbus	Descrition	R/W	Format	Scale
N139:3	412904	Condenser Sequencer Manual Active Output	R		bit
N139:4	412905	Condenser Sequencer Auto Active Output	R		bit
N139:5	412906	Condenser Sequencer Force To Schedule 1	R		bit
N139:6	412907	Condenser Sequencer Force To Schedule 2	R		bit
N139:7	412908	Condenser Sequencer Force To Schedule 3	R		bit
N139:8	412909	Condenser Sequencer Force To Schedule 4	R		bit
N139:9	412910	Condenser Water Pump Lockout Override Output	R		bit
N139:10	412911	Condenser Water Pump Lockout Input	R		bit
N139:11	412912	Condenser Sequencer Permissive Input	R		bit
N139:12	412913	Condenser Sequencer Shutdown Input	R		bit
N139:13	412914	Condenser Enabled Output	R		bit
N139:17	412918	Feedback Condenser Unit	R		bit
N139:18	412919	Release Condenser Unit	R		bit
N139:19	412920	Condenser Flow Switch	R		bit
N139:23	412924	Condenser Water Basin Heater	R		bit
N139:24	412925	Condenser Water Spray Pump Heater	R		bit
N139:25	412926	Condenser Solenoid Water Basin Filling	R		bit
N139:26	412927	Condenser OK	R		bit
N139:27	412928	Condenser Motor Valves Open	R		bit
N139:28	412929	Condenser Motor Valves Close	R		bit
N139:29	412930	Condenser Motor Valves Open Interlock	R		bit
N139:30	412931	Condenser Water Basin Heater Lamp	R		bit
N139:31	412932	Condenser Motor Valves Close Interlock	R		bit
N139:32	412933	Condenser Shutdown Lamp	R		bit
N139:33	412934	Condenser Water Basin Low Level	R		bit
N139:34	412935	Condenser Water Basin High Level	R		bit
N139:35	412936	Condenser Solenoid Water Basin Outlet	R		bit
N139:36	412937	Condenser Water Basin Thermostat	R		bit
N139:41	412942	Condenser Fan Mode Auto	R		bit
N139:42	412943	Condenser Water Spray Pump Mode Auto	R		bit
N139:43	412944	Condenser Mode Winter	R		bit
N139:44	412945	Condenser Device Enabled Button	R		bit

AB	Modbus	Description	R/W	Format	Scale
N139:48	412949	Condenser Sequencer Enabled Output	R		bit
N139:49	412950	Condenser Sequencer Shutdown Status	R		bit

2.2.30 Condenser Sequencer Parameters

AB	Modbus	Description	R/W	Format	Scale
N139:50	412951	Condenser Sequencer Viewport	R/W	0 = No Entries 1-1= Level #X	
N139:51	412952	Control Signal	R/W	0 = Discharge Pressure 1 = Discharge Pressure As Temperature 2 = Wet Bulb 3 = Condenser Control Temperature 4 = Wet Bulb (Temperature)	X1
N139:52	412953	Set Point	R/W	6.18 - 25.15 barA 75 PSIG - 350 PSIG	X100
N139:53	412954	Previous Step	R/W	0.00 - 2.76 barD -29.9 PSID - 25.3 PSID	X100
N139:54	412955	Next Step	R/W	0.00 - 2.76 barD -29.9 PSID - 25.3 PSID	X100
N139:55	412956	Control Signal	R/W	0 = Discharge Pressure 1 = Discharge Pressure As Temperature 2 = Wet Bulb 3 = Condenser Control Temperature 4 = Wet Bulb (Temperature)	X1
N139:56	412957	Set Point	R/W	6.18 - 25.15 barA 75 PSIG - 350 PSIG	X100
N139:57	412958	Previous Step	R/W	0.00 - 2.76 barD -29.9 PSID - 25.3 PSID	X100
N139:58	412959	Next Step	R/W	0.00 - 2.76 barD -29.9 PSID - 25.3 PSID	X100
N139:59	412960	Control Signal	R/W	0 = Discharge Pressure 1 = Discharge Pressure As Temperature 2 = Wet Bulb 3 = Condenser Control Temperature 4 = Wet Bulb (Temperature)	X1
N139:60	412961	Set Point	R/W	6.18 - 25.15 barA 75 PSIG - 350 PSIG	X100
N139:61	412962	Previous Step	R/W	0.00 - 2.76 barD -29.9 PSID - 25.3 PSID	X100
N139:62	412963	Next Step	R/W	0.00 - 2.76 barD -29.9 PSID - 25.3 PSID	X100
N270:9	426010	Control Signal	R/W	0 = Discharge Pressure 1 = Discharge Pressure As Temperature 2 = Wet Bulb 3 = Condenser Control Temperature 4 = Wet Bulb (Temperature)	X1
N270:10	426011	Set Point	R/W	6.18 - 25.15 barA 75 PSIG - 350 PSIG	X100
N270:11	426012	Previous Step	R/W	0.00 - 2.76 barD -29.9 PSID - 25.3 PSID	X100

AB	Modbus	Descrition	R/W	Format	Scale
N270:12	426013	Next Step	R/W	0.00 - 2.76 barD -29.9 PSID - 25.3 PSID	X100
N139:66	412967	Wet Bulb Set Point Split	R/W	0.00 - 2.07 barD -29.9 PSID - 15.3 PSID	X100
N270:13	426014	High Condenser Temperature Warning	R/W	0.0 - 100.0 °C 32 °F - 212 °F	X10
N270:14	426015	High Condenser Temperature Warning Delay	R/W	0 - 30 s	X1
N139:67	412968	High Discharge Pressure Warning	R/W	6.18 - 25.14 barA 75 PSIG - 350 PSIG	X100
N139:68	412969	High Discharge Pressure Warning Delay	R/W	0 - 30 s	X1
N139:69	412970	Low Discharge Pressure Warning	R/W	0.00 - 25.14 barA -29.9 PSIG - 350 PSIG	X100
N139:70	412971	Low Discharge Pressure Warning Delay	R/W	0 - 30 s	X1
N139:72	412973	Schedule Selection	R/W	0 - 999	X1
N139:73	412974	Service Input Annunciation	R/W	0 = Notification 1 = Warning	X1
N139:75	412976	Water Pump Lockout Enabled	R/W	0 = Disabled -1 = Enabled	X1
N139:76	412977	Water Pump Lockout Start	R/W	0.0 - 100.0 °C 32 °F - 212 °F	X10
N139:77	412978	Water Pump Lockout End	R/W	0.0 - 100.0 °C 32 °F - 212 °F	X10
N139:78	412979	Water Pump Lockout Discharge Pressure Override Start	R/W	5.17 - 24.13 barA 60.3 PSIG - 335.3 PSIG	X100
N139:79	412980	Water Pump Lockout Discharge Pressure Override End	R/W	5.17 - 24.13 barA 60.3 PSIG - 335.3 PSIG	X100
N139:80	412981	Water Pump Lockout Next Device Delay	R/W	1 - 30 min	X1
N139:81	412982	Water Pump Lockout Previous Device Delay	R/W	1 - 30 min	X1
N139:82	412983	Non Condensable Pressure Differential 1 Warning	R/W	0.00 - 100.00 barD -29.9 PSID - 1435.7 PSID	X100
N139:83	412984	Non Condensable Pressure Differential 2 Warning	R/W	0.00 - 100.00 barD -29.9 PSID - 1435.7 PSID	X100
N139:84	412985	Non Condensable Pressure Differential 3 Warning	R/W	0.00 - 100.00 barD -29.9 PSID - 1435.7 PSID	X100
N139:85	412986	Non Condensable Pressure Differential 4 Warning	R/W	0.00 - 100.00 barD -29.9 PSID - 1435.7 PSID	X100
N139:86	412987	Variable Set Point	R/W	0 = Disabled -1 = Enabled	X1
N139:87	412988	Ambient Temperature Offset	R/W	0.0 - 10.0 K 32 F° - 50 F°	X10
N139:88	412989	Minimum Variable Set Point	R/W	18.0 - 35.0 °C 64.4 °F - 95 °F	X10
N139:89	412990	Maximum Variable Set Point	R/W	30.0 - 55.0 °C 86 °F - 131 °F	X10

AB	Modbus	Descrition	R/W	Format	Scale
N139:90	412991	Minimum Temperature Difference	R/W	0.0 - 5.0 K 32 F° - 41 F°	X10
N139:91	412992	Maximum Temperature Difference	R/W	8.0 - 15.0 K 46.4 F° - 59 F°	X10
N139:92	412993	Variable Set Point	R/W	0 = Disabled -1 = Enabled	X1
N139:93	412994	Ambient Temperature Offset	R/W	0.0 - 10.0 K 32 F° - 50 F°	X10
N139:94	412995	Minimum Variable Set Point	R/W	18.0 - 35.0 °C 64.4 °F - 95 °F	X10
N139:95	412996	Maximum Variable Set Point	R/W	30.0 - 55.0 °C 86 °F - 131 °F	X10
N139:96	412997	Minimum Temperature Difference	R/W	0.0 - 5.0 K 32 F° - 41 F°	X10
N139:97	412998	Maximum Temperature Difference	R/W	8.0 - 15.0 K 46.4 F° - 59 F°	X10
N139:98	412999	Variable Set Point	R/W	0 = Disabled -1 = Enabled	X1
N139:99	413000	Ambient Temperature Offset	R/W	0.0 - 10.0 K 32 F° - 50 F°	X10
N269:99	426000	Minimum Variable Set Point	R/W	18.0 - 35.0 °C 64.4 °F - 95 °F	X10
N270:0	426001	Maximum Variable Set Point	R/W	30.0 - 55.0 °C 86 °F - 131 °F	X10
N270:1	426002	Minimum Temperature Difference	R/W	0.0 - 5.0 K 32 F° - 41 F°	X10
N270:2	426003	Maximum Temperature Difference	R/W	8.0 - 15.0 K 46.4 F° - 59 F°	X10
N270:3	426004	Variable Set Point	R/W	0 = Disabled -1 = Enabled	X1
N270:4	426005	Ambient Temperature Offset	R/W	0.0 - 10.0 K 32 F° - 50 F°	X10
N270:5	426006	Minimum Variable Set Point	R/W	18.0 - 35.0 °C 64.4 °F - 95 °F	X10
N270:6	426007	Maximum Variable Set Point	R/W	30.0 - 55.0 °C 86 °F - 131 °F	X10
N270:7	426008	Minimum Temperature Difference	R/W	0.0 - 5.0 K 32 F° - 41 F°	X10
N270:8	426009	Maximum Temperature Difference	R/W	8.0 - 15.0 K 46.4 F° - 59 F°	X10
N270:20	426021	Dynamic Soak Timer	R/W	0 = Disabled -1 = Enabled	X1
N270:21	426022	Ramp Rate	R/W	0.01 - 100.00 barD -29.6 PSID - 1435.7 PSID	X100
N270:22	426023	Minimum Soak Timer	R/W	1 - 300 s	X1
N270:23	426024	Maximum Soak Timer	R/W	60 - 300 s	X1
N139:63	412964	Smart Stepping Enabled	R/W	0 = Disabled -1 = Enabled	X1
N139:64	412965	Fan Minimum Speed	R/W	0 - 100 %	X1

AB	Modbus	Description	R/W	Format	Scale
N139:65	412966	Fan Maximum Speed	R/W	0 - 100 %	X1
N270:15	426016	Ambient Temperature Switchover	R/W		X1
N270:16	426017	Switchover Enabled	R/W	0 = Disabled -1 = Enabled	X1
N270:17	426018	Low Ambient Temperature Switch-over Setpoint	R/W	0.0 - 100.0 °C 32 °F - 212 °F	X10
N270:18	426019	High Ambient Temperature Switch-over Offset	R/W	0.0 - 100.0 K 32 F° - 212 F°	X10
N270:19	426020	Schedule	R/W	0 = Schedule 1 1 = Schedule 2 2 = Schedule 3 3 = Schedule 4	X1
N270:24	426025	Evaporative Condenser Operating Mode	R/W	0 = Summer 1 = Winter 2 = Hardwired Digital 3 = Hardwired Analog	X1

2.2.31 Condenser Device Logic Points

AB	Modbus	Description	R/W	Format	Scale
N140:0	413001	Condenser Device Output A	R		bit
N140:4	413005	Condenser Device Output B	R		bit
N140:8	413009	Condenser Device Interlock A	R		bit
N140:12	413013	Condenser Device Interlock B	R		bit
N140:16	413017	Condenser Shutdown Status	R		bit
N140:20	413021	Condenser Warning Status	R		bit
N140:24	413025	Condenser Device Fan Failure	R		bit
N140:28	413029	Condenser Device Service Switch Fan	R		bit
N140:32	413033	Condenser Vibration Input	R		bit
N140:36	413037	Condenser Digital Protection A	R		bit
N140:40	413041	Condenser Digital Protection B	R		bit
N140:44	413045	Condenser Lamp Output A	R		bit
N140:45	413046		-		
	|	Reserved for Condenser Device Logic Points	|		
N140:49	413050		-		

2.2.32 Condenser Device Parameters

AB	Modbus	Description	R/W	Format	Scale
N140:50	413051	Condenser Sequencer Viewport	R/W	0 = No Entries 1-50= Device #X	
N140:51	413052	Runtime	R/W	0 - 1000000000 h	X1
N140:52	413053	Number of Starts	R/W	0 - 1000000000	X1
N140:53	413054	Enabled	R/W	0 = Disabled -1 = Enabled	X1

AB	Modbus	Description	R/W	Format	Scale
N140:54	413055	Interlock Delay	R/W	3 - 20 s	X1
N140:55	413056	High to Low Speed Delay (Two Speed Fan)	R/W	2 - 240 s	X1
N140:58	413059	Vibration Input Delay Restart Timer	R/W	0 - 120 s	X1
N140:66	413067	Vibration Input Number Of Restarts	R/W	0 - 5	X1
N140:56	413057	Proportional Term	R/W	0.0 - 500.0	X10
N140:57	413058	Integral Term	R/W	1.0 - 250.0 s/R	X10
N140:59	413060	Mode	R/W	0 = Auto 1 = Manual	X1
N140:60	413061	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N140:61	413062	Start Condition	R/W	0 = None 1 = Compressor Controlled	X1
N140:62	413063	Feedback Condenser Unit Warning Delay	R/W	0 - 300 s	X1
N140:63	413064	Condenser Unit Stop Delay	R/W	0 - 1800 s	X1
N140:64	413065	Condenser Flow Switch Delay	R/W	0 - 60 s	X1
N140:65	413066	Affected Devices Flow Switch Shut-down	R/W	0 = Condenser 1 = Condenser And Compressor	X1

2.2.33 Refrigerant Sensor Status

AB	Modbus	Description	R/W	Format	Scale
N142:0	413201	Control Value	R		X1
N142:1	413202	Annunciations Enabled		Bit 0 = High High Shutdown Enabled Bit 1 = High High Warning Enabled Bit 2 = High Warning Enabled	
N142:2	413203	Annunciations Status		Bit 0 = High High Shutdown Annunciated Bit 1 = High High Warning Annunciated Bit 2 = High Warning Annunciated	
N142:3	413204	High High Shutdown Set Point	R/W		X1
N142:4	413205	High High Shutdown Delay	R/W		X1
N142:5	413206	High High Warning Set Point	R/W		X1
N142:6	413207	High High Warning Delay	R/W		X1
N142:7	413208	High Warning Set Point	R/W		X1
N142:8	413209	High Warning Delay	R/W		X1
N142:9	413210	Refrigerant Sensor 2			
	|		|		
N142:17	413218		-		
N142:18	413219	Refrigerant Sensor 3			
	|		|		
N142:26	413227		-		
N142:27	413228	Refrigerant Sensor 4			
	|		|		
N142:35	413236		-		
N142:36	413237	Refrigerant Sensor 5			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N142:44	413245		-		
N142:45	413246	Refrigerant Sensor 6			
	|		|		
N142:53	413254		-		
N142:54	413255	Refrigerant Sensor 7			
	|		|		
N142:62	413263		-		
N142:63	413264	Refrigerant Sensor 8			
	|		|		
N142:71	413272		-		
N142:72	413273	Refrigerant Sensor 9			
	|		|		
N142:80	413281		-		
N142:81	413282	Refrigerant Sensor 10			
	|		|		
N142:89	413290		-		
N142:90	413291	Refrigerant Sensor 11			
	|		|		
N142:98	413299		-		
N142:99	413300	Refrigerant Sensor 12			
	|		|		
N143:7	413308		-		
N143:8	413309	Refrigerant Sensor 13			
	|		|		
N143:16	413317		-		
N143:17	413318	Refrigerant Sensor 14			
	|		|		
N143:25	413326		-		
N143:26	413327	Refrigerant Sensor 15			
	|		|		
N143:34	413335		-		
N143:35	413336	Refrigerant Sensor 16			
	|		|		
N143:43	413344		-		
N143:44	413345	Refrigerant Sensor 17			
	|		|		
N143:52	413353		-		
N143:53	413354	Refrigerant Sensor 18			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N143:61	413362		-		
N143:62	413363	Refrigerant Sensor 19			
	|		|		
N143:70	413371		-		
N143:71	413372	Refrigerant Sensor 20			
	|		|		
N143:79	413380		-		
N143:80	413381	Refrigerant Sensor 21			
	|		|		
N143:88	413389		-		
N143:89	413390	Refrigerant Sensor 22			
	|		|		
N143:97	413398		-		
N143:98	413399	Refrigerant Sensor 23			
	|		|		
N144:6	413407		-		
N144:7	413408	Refrigerant Sensor 24			
	|		|		
N144:15	413416		-		
N144:16	413417	Refrigerant Sensor 25			
	|		|		
N144:24	413425		-		
N144:25	413426	Refrigerant Sensor 26			
	|		|		
N144:33	413434		-		
N144:34	413435	Refrigerant Sensor 27			
	|		|		
N144:42	413443		-		
N144:43	413444	Refrigerant Sensor 28			
	|		|		
N144:51	413452		-		
N144:52	413453	Refrigerant Sensor 29			
	|		|		
N144:60	413461		-		
N144:61	413462	Refrigerant Sensor 30			
	|		|		
N144:69	413470		-		
N144:70	413471	Refrigerant Sensor 31			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N144:78	413479		-		
N144:79	413480	Refrigerant Sensor 32			
	|		|		
N144:87	413488		-		
N144:88	413489	Refrigerant Sensor 33			
	|		|		
N144:96	413497		-		
N144:97	413498	Refrigerant Sensor 34			
	|		|		
N145:5	413506		-		
N145:6	413507	Refrigerant Sensor 35			
	|		|		
N145:14	413515		-		
N145:15	413516	Refrigerant Sensor 36			
	|		|		
N145:23	413524		-		
N145:24	413525	Refrigerant Sensor 37			
	|		|		
N145:32	413533		-		
N145:33	413534	Refrigerant Sensor 38			
	|		|		
N145:41	413542		-		
N145:42	413543	Refrigerant Sensor 39			
	|		|		
N145:50	413551		-		
N145:51	413552	Refrigerant Sensor 40			
	|		|		
N145:59	413560		-		
N145:60	413561	Refrigerant Sensor 41			
	|		|		
N145:68	413569		-		
N145:69	413570	Refrigerant Sensor 42			
	|		|		
N145:77	413578		-		
N145:78	413579	Refrigerant Sensor 43			
	|		|		
N145:86	413587		-		
N145:87	413588	Refrigerant Sensor 44			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N145:95	413596		-		
N145:96	413597	Refrigerant Sensor 45			
	|		|		
N146:4	413605		-		
N146:5	413606	Refrigerant Sensor 46			
	|		|		
N146:13	413614		-		
N146:14	413615	Refrigerant Sensor 47			
	|		|		
N146:22	413623		-		
N146:23	413624	Refrigerant Sensor 48			
	|		|		
N146:31	413632		-		
N146:32	413633	Refrigerant Sensor 49			
	|		|		
N146:40	413641		-		
N146:41	413642	Refrigerant Sensor 50			
	|		|		
N146:49	413650		-		
N146:50	413651	Refrigerant Sensor 51			
	|		|		
N146:58	413659		-		
N146:59	413660	Refrigerant Sensor 52			
	|		|		
N146:67	413668		-		
N146:68	413669	Refrigerant Sensor 53			
	|		|		
N146:76	413677		-		
N146:77	413678	Refrigerant Sensor 54			
	|		|		
N146:85	413686		-		
N146:86	413687	Refrigerant Sensor 55			
	|		|		
N146:94	413695		-		
N146:95	413696	Refrigerant Sensor 56			
	|		|		
N147:3	413704		-		
N147:4	413705	Refrigerant Sensor 57			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N147:12	413713		-		
N147:13	413714	Refrigerant Sensor 58			
	|		|		
N147:21	413722		-		
N147:22	413723	Refrigerant Sensor 59			
	|		|		
N147:30	413731		-		
N147:31	413732	Refrigerant Sensor 60			
	|		|		
N147:39	413740		-		
N147:40	413741	Refrigerant Sensor 61			
	|		|		
N147:48	413749		-		
N147:49	413750	Refrigerant Sensor 62			
	|		|		
N147:57	413758		-		
N147:58	413759	Refrigerant Sensor 63			
	|		|		
N147:66	413767		-		
N147:67	413768	Refrigerant Sensor 64			
	|		|		
N147:75	413776		-		
N147:76	413777	Refrigerant Sensor 65			
	|		|		
N147:84	413785		-		
N147:85	413786	Refrigerant Sensor 66			
	|		|		
N147:93	413794		-		
N147:94	413795	Refrigerant Sensor 67			
	|		|		
N148:2	413803		-		
N148:3	413804	Refrigerant Sensor 68			
	|		|		
N148:11	413812		-		
N148:12	413813	Refrigerant Sensor 69			
	|		|		
N148:20	413821		-		
N148:21	413822	Refrigerant Sensor 70			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N148:29	413830		-		
N148:30	413831	Refrigerant Sensor 71			
	|		|		
N148:38	413839		-		
N148:39	413840	Refrigerant Sensor 72			
	|		|		
N148:47	413848		-		
N148:48	413849	Refrigerant Sensor 73			
	|		|		
N148:56	413857		-		
N148:57	413858	Refrigerant Sensor 74			
	|		|		
N148:65	413866		-		
N148:66	413867	Refrigerant Sensor 75			
	|		|		
N148:74	413875		-		
N148:75	413876	Refrigerant Sensor 76			
	|		|		
N148:83	413884		-		
N148:84	413885	Refrigerant Sensor 77			
	|		|		
N148:92	413893		-		
N148:93	413894	Refrigerant Sensor 78			
	|		|		
N149:1	413902		-		
N149:2	413903	Refrigerant Sensor 79			
	|		|		
N149:10	413911		-		
N149:11	413912	Refrigerant Sensor 80			
	|		|		
N149:19	413920		-		
N149:20	413921	Refrigerant Sensor 81			
	|		|		
N149:28	413929		-		
N149:29	413930	Refrigerant Sensor 82			
	|		|		
N149:37	413938		-		
N149:38	413939	Refrigerant Sensor 83			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N149:46	413947		-		
N149:47	413948	Refrigerant Sensor 84			
	|		|		
N149:55	413956		-		
N149:56	413957	Refrigerant Sensor 85			
	|		|		
N149:64	413965		-		
N149:65	413966	Refrigerant Sensor 86			
	|		|		
N149:73	413974		-		
N149:74	413975	Refrigerant Sensor 87			
	|		|		
N149:82	413983		-		
N149:83	413984	Refrigerant Sensor 88			
	|		|		
N149:91	413992		-		
N149:92	413993	Refrigerant Sensor 89			
	|		|		
N150:0	414001		-		
N150:1	414002	Refrigerant Sensor 90			
	|		|		
N150:9	414010		-		
N150:10	414011	Refrigerant Sensor 91			
	|		|		
N150:18	414019		-		
N150:19	414020	Refrigerant Sensor 92			
	|		|		
N150:27	414028		-		
N150:28	414029	Refrigerant Sensor 93			
	|		|		
N150:36	414037		-		
N150:37	414038	Refrigerant Sensor 94			
	|		|		
N150:45	414046		-		
N150:46	414047	Refrigerant Sensor 95			
	|		|		
N150:54	414055		-		
N150:55	414056	Refrigerant Sensor 96			

AB	Modbus	Description	R/W	Format	Scale
	|		|		
N150:63	414064		-		
N150:64	414065	Refrigerant Sensor 97			
	|		|		
N150:72	414073		-		
N150:73	414074	Refrigerant Sensor 98			
	|		|		
N150:81	414082		-		
N150:82	414083	Refrigerant Sensor 99			
	|		|		
N150:90	414091		-		
N150:91	414092	Refrigerant Sensor 100			
	|		|		
N150:99	414100		-		

2.2.34 Custom Superheat

AB	Modbus	Description	R/W	Format	Scale
N158:0	414801	Custom Superheat	R		X10
	|		|		
N158:9	414810		R		
N158:10	414811	Custom Superheat Temperature Input	R		X10
	|		|		
N158:19	414820		R		
N158:20	414821	Custom Superheat Pressure Input	R		X100
	|		|		
N158:29	414830		R		
N158:30	414831	Custom Superheat Saturated Temperature Output	R		X10
	|		|		
N158:39	414840		R		
N158:40	414841	Custom Superheat Saturated Pressure Output	R		X100
	|		|		
N158:49	414850		R		

2.2.35 Evaporator Commands

AB	Modbus	Descrition	R/W	Format	Scale
N158:50	414851	Status	R	1 = Disabled 2 = Shutdown 1 3 = Shutdown 2 4 = Satisfied Fans Off 5 = Satisfied Fans On 6 = Satisfied 7 = Cooling 8 = Heating - Pump Down 9 = Heating 10 = Standby 11 = Defrost Stage 1 12 = Defrost Stage 2 13 = Defrost Stage 3 14 = Defrost Stage 4 15 = Defrost Stage 5 16 = Defrost Stage 6 17 = Defrost Stage 7 18 = Defrost Stage 8 19 = Defrost Stage 9 20 = Defrost Stage 10 21 = Defrost Stage 11 22 = Defrost Stage 12 23 = Override 24 = Reset Delay 31 = Monitor Only	X1
N158:51	414852	Annunciation	R	Bit 0 = Shutdown Bit 1 = High Temperature Bit 2 = Low Temperature Bit 3 = Evaporator Max Liquid Level (Analog Value) Bit 4 = (Evaporator Max Liquid Level (Digital Value) Bit 5 = Secondary Refrigerant Feedback Pump Bit 6 = Secondary Refrigerant Feedback Flow	X1
N158:52	414853	Output	R/W	Bit 0 = Output #1 Bit 1 = Output #2 Bit 2 = Output #3 Bit 3 = Output #4 Bit 4 = Output #5 Bit 5 = Output #6 Bit 6 = Output #7 Bit 7 = Output #8 Bit 8 = Output #9 Bit 9 = Output #10 Bit 10 = Output #11 Bit 11 = Output #12 Bit 12 = Output #13 Bit 13 = Output #14 Bit 14 = Output #15Bit	X1
N158:53	414854	Temperature	R		X10
N158:54	414855	Set Point	R/W		X10
N158:55	414856	Humidity	R		X10
N158:56	414857	High Temperature Offset	R/W		X10
N158:57	414858	Low Temperature Offset	R/W		X10

AB	Modbus	Descrition	R/W	Format	Scale
N158:58	414859	Fan Status	R	0=Off 1=On(Forward) 2=On(Reverse)	X1
N158:59	414860	Dead Band	R/W		X1
N158:60	414861	Evaporator Start Delay	R/W		X1
N158:61	414862	Evaporator Defrost Timer	R/W		X1
N158:62	414863	Liquid Feed Timer	R/W		X1
N158:63	414864	Defrost Status	R	1=Defrosting 2=Defrost Pending	X1
N158:64	414865	Defrost Initiate	W	Any write initiates a defrost	X1
N158:65	414866	Active Shutdowns	R	Bit 0 = Max Liquid Level Bit 1 = Secondary Refrigerant Feedback Flow	X1
N158:66	414867	Active Warnings	R	Bit 0 = Low Temperature Bit 1 = High Temperature Bit 2 = Evaporator Max Liquid Level Bit 3 = Secondary Refrigerant Feedback Pump Bit 5 = Secondary Refrigerant Flow	X1
N158:68	414869	Evaporator 2			
	|		|		
N158:85	414886		-		
N158:86	414887	Evaporator 3			
	|		|		
N159:3	414904		-		
N159:4	414905	Evaporator 4			
	|		|		
N159:21	414922		-		
N159:22	414923	Evaporator 5			
	|		|		
N159:39	414940		-		
N159:40	414941	Evaporator 6			
	|		|		
N159:57	414958		-		
N159:58	414959	Evaporator 7			
	|		|		
N159:75	414976		-		
N159:76	414977	Evaporator 8			
	|		|		
N159:93	414994		-		
N159:94	414995	Evaporator 9			
	|		|		
N160:11	415012		-		
N160:12	415013	Evaporator 10			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N160:29	415030		-		
N160:30	415031	Evaporator 11			
	|		|		
N160:47	415048		-		
N160:48	415049	Evaporator 12			
	|		|		
N160:65	415066		-		
N160:66	415067	Evaporator 13			
	|		|		
N160:83	415084		-		
N160:84	415085	Evaporator 14			
	|		|		
N161:1	415102		-		
N161:2	415103	Evaporator 15			
	|		|		
N161:19	415120		-		
N161:20	415121	Evaporator 16			
	|		|		
N161:37	415138		-		
N161:38	415139	Evaporator 17			
	|		|		
N161:55	415156		-		
N161:56	415157	Evaporator 18			
	|		|		
N161:73	415174		-		
N161:74	415175	Evaporator 19			
	|		|		
N161:91	415192		-		
N161:92	415193	Evaporator 20			
	|		|		
N162:9	415210		-		
N162:10	415211	Evaporator 21			
	|		|		
N162:27	415228		-		
N162:28	415229	Evaporator 22			
	|		|		
N162:45	415246		-		
N162:46	415247	Evaporator 23			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N162:63	415264		-		
N162:64	415265	Evaporator 24			
	|		|		
N162:81	415282		-		
N162:82	415283	Evaporator 25			
	|		|		
N162:99	415300		-		
N163:0	415301	Evaporator 26			
	|		|		
N163:17	415318		-		
N163:18	415319	Evaporator 27			
	|		|		
N163:35	415336		-		
N163:36	415337	Evaporator 28			
	|		|		
N163:53	415354		-		
N163:54	415355	Evaporator 29			
	|		|		
N163:71	415372		-		
N163:72	415373	Evaporator 30			
	|		|		
N163:89	415390		-		
N163:90	415391	Evaporator 31			
	|		|		
N164:7	415408		-		
N164:8	415409	Evaporator 32			
	|		|		
N164:25	415426		-		
N164:26	415427	Evaporator 33			
	|		|		
N164:43	415444		-		
N164:44	415445	Evaporator 34			
	|		|		
N164:61	415462		-		
N164:62	415463	Evaporator 35			
	|		|		
N164:79	415480		-		
N164:80	415481	Evaporator 36			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N164:97	415498		-		
N164:98	415499	Evaporator 37			
	|		|		
N165:15	415516		-		
N165:16	415517	Evaporator 38			
	|		|		
N165:33	415534		-		
N165:34	415535	Evaporator 39			
	|		|		
N165:51	415552		-		
N165:52	415553	Evaporator 40			
	|		|		
N165:69	415570		-		
N165:70	415571	Evaporator 41			
	|		|		
N165:87	415588		-		
N165:88	415589	Evaporator 42			
	|		|		
N166:5	415606		-		
N166:6	415607	Evaporator 43			
	|		|		
N166:23	415624		-		
N166:24	415625	Evaporator 44			
	|		|		
N166:41	415642		-		
N166:42	415643	Evaporator 45			
	|		|		
N166:59	415660		-		
N166:60	415661	Evaporator 46			
	|		|		
N166:77	415678		-		
N166:78	415679	Evaporator 47			
	|		|		
N166:95	415696		-		
N166:96	415697	Evaporator 48			
	|		|		
N167:13	415714		-		
N167:14	415715	Evaporator 49			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N167:31	415732		-		
N167:32	415733	Evaporator 50			
	|		|		
N167:49	415750		-		
N167:50	415751	Evaporator 51			
	|		|		
N167:67	415768		-		
N167:68	415769	Evaporator 52			
	|		|		
N167:85	415786		-		
N167:86	415787	Evaporator 53			
	|		|		
N168:3	415804		-		
N168:4	415805	Evaporator 54			
	|		|		
N168:21	415822		-		
N168:22	415823	Evaporator 55			
	|		|		
N168:39	415840		-		
N168:40	415841	Evaporator 56			
	|		|		
N168:57	415858		-		
N168:58	415859	Evaporator 57			
	|		|		
N168:75	415876		-		
N168:76	415877	Evaporator 58			
	|		|		
N168:93	415894		-		
N168:94	415895	Evaporator 59			
	|		|		
N169:11	415912		-		
N169:12	415913	Evaporator 60			
	|		|		
N169:29	415930		-		
N169:30	415931	Evaporator 61			
	|		|		
N169:47	415948		-		
N169:48	415949	Evaporator 62			

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N169:65	415966		-		
N169:66	415967	Evaporator 63			
	|		|		
N169:83	415984		-		
N169:84	415985	Evaporator 64			
	|		|		
N170:1	416002		-		
N170:2	416003	Evaporator 65			
	|		|		
N170:19	416020		-		
N170:20	416021	Evaporator 66			
	|		|		
N170:37	416038		-		
N170:38	416039	Evaporator 67			
	|		|		
N170:55	416056		-		
N170:56	416057	Evaporator 68			
	|		|		
N170:73	416074		-		
N170:74	416075	Evaporator 69			
	|		|		
N170:91	416092		-		
N170:92	416093	Evaporator 70			
	|		|		
N171:9	416110		-		
N171:10	416111	Evaporator 71			
	|		|		
N171:27	416128		-		
N171:28	416129	Evaporator 72			
	|		|		
N171:45	416146		-		
N171:46	416147	Evaporator 73			
	|		|		
N171:63	416164		-		
N171:64	416165	Evaporator 74			
	|		|		
N171:81	416182		-		
N171:82	416183	Evaporator 75			

AB	Modbus	Description	R/W	Format	Scale
	|		|		
N171:99	416200		-		
N172:0	416201	Evaporator 76			
	|		|		
N172:17	416218		-		
N172:18	416219	Evaporator 77			
	|		|		
N172:35	416236		-		
N172:36	416237	Evaporator 78			
	|		|		
N172:53	416254		-		
N172:54	416255	Evaporator 79			
	|		|		
N172:71	416272		-		
N172:72	416273	Evaporator 80			
	|		|		
N172:89	416290		-		

2.2.36 Evaporator Parameters

AB	Modbus	Description	R/W	Format	Scale
N173:50	416351	Evaporator Viewport	R/W	0 = No Entries 1-80 = Evaporator #X	
N173:51	416352	Set Point	R/W	-56.7 - 204.4 °C -70.1 °F - 399.9 °F	X10
N173:52	416353	Set Point Delay	R/W	0 - 300 s	X1
N173:53	416354	Dead Band	R/W	0.0 - 100.0 K 32 F° - 212 F°	X10
N173:54	416355	Temperature High Warning Offset	R/W	0.0 - 40.0 K 32 F° - 104 F°	X10
N173:55	416356	Temperature High Warning Delay	R/W	2 - 60 s	X1
N173:56	416357	Temperature Low Warning Offset	R/W	0.0 - 40.0 K 32 F° - 104 F°	X10
N173:57	416358	Temperature Low Warning Delay	R/W	2 - 60 s	X1
N174:56	416457	Liquid Solenoid Output Delay	R/W	30 - 300 s	X1
N173:58	416359	Heating Temperature Set Point	R/W	-60.0 - 200.0 °C -76 °F - 392 °F	X10
N173:59	416360	Heating Temperature Delay	R/W	0 - 300 s	X1
N173:60	416361	Pump Down Before Heating Enabled	R/W	0 = Disabled -1 = Enabled	X1
N173:61	416362	Pump Down Time	R/W	0.0 - 480.0 min	X10
N174:39	416440	Post Pump Down Delay	R/W	0 - 300 s	X1
N173:62	416363	Dehumidification Control Type	R/W	0 = Temperature 1 = Humidity	X1

AB	Modbus	Descrition	R/W	Format	Scale
N173:63	416364	Dehumidification Temperature Set Point	R/W	-60.0 - 200.0 °C -76 °F - 392 °F	X10
N173:64	416365	Dehumidification Temperature Delay	R/W	0 - 300 s	X1
N173:65	416366	Humidity Set Point	R/W	0.0 - 100.0 %	X10
N173:66	416367	Humidity Delay	R/W	0 - 300 s	X1
N173:67	416368	Proportional Term	R/W	0.0 - 500.0	X10
N173:68	416369	Integral Term	R/W	1.0 - 250.0 s/R	X10
N173:69	416370	Mode	R/W	0 = Auto 1 = Manual	X1
N173:70	416371	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N173:71	416372	Minimum Speed	R/W	0.0 - 100.0 %	X10
N173:72	416373	Glycol Proportional Term	R/W	0.0 - 500.0	X10
N173:73	416374	Glycol Integral Term	R/W	1.0 - 250.0 s/R	X10
N173:74	416375	Mode	R/W	0 = Auto 1 = Manual	X1
N173:75	416376	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N173:76	416377	Minimum Speed	R/W	0.0 - 100.0 %	X10
N173:77	416378	Minimum Speed Agitation Delay	R/W	0.0 - 200.0 min	X10
N173:78	416379	Variable Speed Agitation Timer	R/W	0.0 - 200.0 min	X10
N173:79	416380	Fan Cycling Enabled	R/W	0 = Disabled -1 = Enabled	X1
N173:80	416381	Fan Cycling On Delay	R/W	0.0 - 200.0 min	X10
N173:81	416382	Fan Cycling Off Delay	R/W	0.0 - 200.0 min	X10
N173:82	416383	Fan Cycling Agitation Timer	R/W	0.0 - 200.0 min	X10
N173:83	416384	Fan Forward Reverse Cycling Time	R/W	0.0 - 600.0 min	X10
N173:84	416385	Fan Forward Reverse Spin Down Time	R/W	10 - 600 s	X1
N174:53	416454	Set Point Delay While Agitating	R/W	0.0 - 200.0 min	X10
N174:54	416455	Liquid Solenoid Runtime Defrost	R/W	0 = Disabled -1 = Enabled	X1
N174:55	416456	Liquid Solenoid Valve Runtime Until Defrost	R/W	0.0 - 32000.0 min	X10
N173:85	416386	Liquid Solenoid Valve Runtime	R/W	0.0 - 32000.0 min	X10
N173:86	416387	Defrost Timer Stage 1	R/W		X10
N173:87	416388	Defrost Timer Stage 2	R/W		X10
N173:88	416389	Defrost Timer Stage 3	R/W		X10
N173:89	416390	Defrost Timer Stage 4	R/W		X10
N173:90	416391	Defrost Timer Stage 5	R/W		X10
N173:91	416392	Defrost Timer Stage 6	R/W		X10
N173:92	416393	Defrost Timer Stage 7	R/W		X10
N173:93	416394	Defrost Timer Stage 8	R/W		X10
N173:94	416395	Defrost Timer Stage 9	R/W		X10
N173:95	416396	Defrost Timer Stage 10	R/W		X10
N173:96	416397	Defrost Timer Stage 11	R/W		X10
N173:97	416398	Defrost Timer Stage 12	R/W		X10

AB	Modbus	Descrition	R/W	Format	Scale
N173:98	416399	Post Defrost Temperature Warning Delay	R/W	0.0 - 480.0 min	X10
N173:99	416400	Defrost Group Number	R/W	0 - 80	X1

AB	Modbus	Description	R/W	Format	Scale
N174:0	416401	Daily Defrost 1	R/W	0 = 12:00 AM 15 = 12:15 AM 30 = 12:30 AM 45 = 12:45 AM 100 = 1:00 AM 115 = 1:15 AM 130 = 1:30 AM 145 = 1:45 AM 200 = 2:00 AM 215 = 2:15 AM 230 = 2:30 AM 245 = 2:45 AM 300 = 3:00 AM 315 = 3:15 AM 330 = 3:30 AM 345 = 3:45 AM 400 = 4:00 AM 415 = 4:15 AM 430 = 4:30 AM 445 = 4:45 AM 500 = 5:00 AM 515 = 5:15 AM 530 = 5:30 AM 545 = 5:45 AM 600 = 6:00 AM 615 = 6:15 AM 630 = 6:30 AM 645 = 6:45 AM 700 = 7:00 AM 715 = 7:15 AM 730 = 7:30 AM 745 = 7:45 AM 800 = 8:00 AM 815 = 8:15 AM 830 = 8:30 AM 845 = 8:45 AM 900 = 9:00 AM 915 = 9:15 AM 930 = 9:30 AM 945 = 9:45 AM 1000 = 10:00 AM 1015 = 10:15 AM 1030 = 10:30 AM 1045 = 10:45 AM 1100 = 11:00 AM 1115 = 11:15 AM 1130 = 11:30 AM 1145 = 11:45 AM 1200 = 12:00 PM 1215 = 12:15 PM 1230 = 12:30 PM 1245 = 12:45 PM 1300 = 1:00 PM 1315 = 1:15 PM 1330 = 1:30 PM 1345 = 1:45 PM 1400 = 2:00 PM 1415 = 2:15 PM 1430 = 2:30 PM 1445 = 2:45 PM	X1

AB	Modbus	Description	R/W	Format	Scale
				1500 = 3:00 PM 1515 = 3:15 PM 1530 = 3:30 PM 1545 = 3:45 PM 1600 = 4:00 PM 1615 = 4:15 PM 1630 = 4:30 PM 1645 = 4:45 PM 1700 = 5:00 PM 1715 = 5:15 PM 1730 = 5:30 PM 1745 = 5:45 PM 1800 = 6:00 PM 1815 = 6:15 PM 1830 = 6:30 PM 1845 = 6:45 PM 1900 = 7:00 PM 1915 = 7:15 PM 1930 = 7:30 PM 1945 = 7:45 PM 2000 = 8:00 PM 2015 = 8:15 PM 2030 = 8:30 PM 2045 = 8:45 PM 2100 = 9:00 PM 2115 = 9:15 PM 2130 = 9:30 PM 2145 = 9:45 PM 2200 = 10:00 PM 2215 = 10:15 PM 2230 = 10:30 PM 2245 = 10:45 PM 2300 = 11:00 PM 2315 = 11:15 PM 2330 = 11:30 PM 2345 = 11:45 PM -1 = Disabled	

AB	Modbus	Descrition	R/W	Format	Scale
N174:47	416448	Daily Defrost 2	R/W	0 = 12:00 AM 15 = 12:15 AM 30 = 12:30 AM 45 = 12:45 AM 100 = 1:00 AM 115 = 1:15 AM 130 = 1:30 AM 145 = 1:45 AM 200 = 2:00 AM 215 = 2:15 AM 230 = 2:30 AM 245 = 2:45 AM 300 = 3:00 AM 315 = 3:15 AM 330 = 3:30 AM 345 = 3:45 AM 400 = 4:00 AM 415 = 4:15 AM 430 = 4:30 AM 445 = 4:45 AM 500 = 5:00 AM 515 = 5:15 AM 530 = 5:30 AM 545 = 5:45 AM 600 = 6:00 AM 615 = 6:15 AM 630 = 6:30 AM 645 = 6:45 AM 700 = 7:00 AM 715 = 7:15 AM 730 = 7:30 AM 745 = 7:45 AM 800 = 8:00 AM 815 = 8:15 AM 830 = 8:30 AM 845 = 8:45 AM 900 = 9:00 AM 915 = 9:15 AM 930 = 9:30 AM 945 = 9:45 AM 1000 = 10:00 AM 1015 = 10:15 AM 1030 = 10:30 AM 1045 = 10:45 AM 1100 = 11:00 AM 1115 = 11:15 AM 1130 = 11:30 AM 1145 = 11:45 AM 1200 = 12:00 PM 1215 = 12:15 PM 1230 = 12:30 PM 1245 = 12:45 PM 1300 = 1:00 PM 1315 = 1:15 PM 1330 = 1:30 PM 1345 = 1:45 PM 1400 = 2:00 PM 1415 = 2:15 PM 1430 = 2:30 PM 1445 = 2:45 PM	X1

AB	Modbus	Description	R/W	Format	Scale
				1500 = 3:00 PM 1515 = 3:15 PM 1530 = 3:30 PM 1545 = 3:45 PM 1600 = 4:00 PM 1615 = 4:15 PM 1630 = 4:30 PM 1645 = 4:45 PM 1700 = 5:00 PM 1715 = 5:15 PM 1730 = 5:30 PM 1745 = 5:45 PM 1800 = 6:00 PM 1815 = 6:15 PM 1830 = 6:30 PM 1845 = 6:45 PM 1900 = 7:00 PM 1915 = 7:15 PM 1930 = 7:30 PM 1945 = 7:45 PM 2000 = 8:00 PM 2015 = 8:15 PM 2030 = 8:30 PM 2045 = 8:45 PM 2100 = 9:00 PM 2115 = 9:15 PM 2130 = 9:30 PM 2145 = 9:45 PM 2200 = 10:00 PM 2215 = 10:15 PM 2230 = 10:30 PM 2245 = 10:45 PM 2300 = 11:00 PM 2315 = 11:15 PM 2330 = 11:30 PM 2345 = 11:45 PM -1 = Disabled	

AB	Modbus	Description	R/W	Format	Scale
N174:48	416449	Daily Defrost 3	R/W	0 = 12:00 AM 15 = 12:15 AM 30 = 12:30 AM 45 = 12:45 AM 100 = 1:00 AM 115 = 1:15 AM 130 = 1:30 AM 145 = 1:45 AM 200 = 2:00 AM 215 = 2:15 AM 230 = 2:30 AM 245 = 2:45 AM 300 = 3:00 AM 315 = 3:15 AM 330 = 3:30 AM 345 = 3:45 AM 400 = 4:00 AM 415 = 4:15 AM 430 = 4:30 AM 445 = 4:45 AM 500 = 5:00 AM 515 = 5:15 AM 530 = 5:30 AM 545 = 5:45 AM 600 = 6:00 AM 615 = 6:15 AM 630 = 6:30 AM 645 = 6:45 AM 700 = 7:00 AM 715 = 7:15 AM 730 = 7:30 AM 745 = 7:45 AM 800 = 8:00 AM 815 = 8:15 AM 830 = 8:30 AM 845 = 8:45 AM 900 = 9:00 AM 915 = 9:15 AM 930 = 9:30 AM 945 = 9:45 AM 1000 = 10:00 AM 1015 = 10:15 AM 1030 = 10:30 AM 1045 = 10:45 AM 1100 = 11:00 AM 1115 = 11:15 AM 1130 = 11:30 AM 1145 = 11:45 AM 1200 = 12:00 PM 1215 = 12:15 PM 1230 = 12:30 PM 1245 = 12:45 PM 1300 = 1:00 PM 1315 = 1:15 PM 1330 = 1:30 PM 1345 = 1:45 PM 1400 = 2:00 PM 1415 = 2:15 PM 1430 = 2:30 PM 1445 = 2:45 PM	X1

AB	Modbus	Description	R/W	Format	Scale
				1500 = 3:00 PM 1515 = 3:15 PM 1530 = 3:30 PM 1545 = 3:45 PM 1600 = 4:00 PM 1615 = 4:15 PM 1630 = 4:30 PM 1645 = 4:45 PM 1700 = 5:00 PM 1715 = 5:15 PM 1730 = 5:30 PM 1745 = 5:45 PM 1800 = 6:00 PM 1815 = 6:15 PM 1830 = 6:30 PM 1845 = 6:45 PM 1900 = 7:00 PM 1915 = 7:15 PM 1930 = 7:30 PM 1945 = 7:45 PM 2000 = 8:00 PM 2015 = 8:15 PM 2030 = 8:30 PM 2045 = 8:45 PM 2100 = 9:00 PM 2115 = 9:15 PM 2130 = 9:30 PM 2145 = 9:45 PM 2200 = 10:00 PM 2215 = 10:15 PM 2230 = 10:30 PM 2245 = 10:45 PM 2300 = 11:00 PM 2315 = 11:15 PM 2330 = 11:30 PM 2345 = 11:45 PM -1 = Disabled	

AB	Modbus	Description	R/W	Format	Scale
N174:49	416450	Daily Defrost 4	R/W	0 = 12:00 AM 15 = 12:15 AM 30 = 12:30 AM 45 = 12:45 AM 100 = 1:00 AM 115 = 1:15 AM 130 = 1:30 AM 145 = 1:45 AM 200 = 2:00 AM 215 = 2:15 AM 230 = 2:30 AM 245 = 2:45 AM 300 = 3:00 AM 315 = 3:15 AM 330 = 3:30 AM 345 = 3:45 AM 400 = 4:00 AM 415 = 4:15 AM 430 = 4:30 AM 445 = 4:45 AM 500 = 5:00 AM 515 = 5:15 AM 530 = 5:30 AM 545 = 5:45 AM 600 = 6:00 AM 615 = 6:15 AM 630 = 6:30 AM 645 = 6:45 AM 700 = 7:00 AM 715 = 7:15 AM 730 = 7:30 AM 745 = 7:45 AM 800 = 8:00 AM 815 = 8:15 AM 830 = 8:30 AM 845 = 8:45 AM 900 = 9:00 AM 915 = 9:15 AM 930 = 9:30 AM 945 = 9:45 AM 1000 = 10:00 AM 1015 = 10:15 AM 1030 = 10:30 AM 1045 = 10:45 AM 1100 = 11:00 AM 1115 = 11:15 AM 1130 = 11:30 AM 1145 = 11:45 AM 1200 = 12:00 PM 1215 = 12:15 PM 1230 = 12:30 PM 1245 = 12:45 PM 1300 = 1:00 PM 1315 = 1:15 PM 1330 = 1:30 PM 1345 = 1:45 PM 1400 = 2:00 PM 1415 = 2:15 PM 1430 = 2:30 PM 1445 = 2:45 PM	X1

AB	Modbus	Description	R/W	Format	Scale
				1500 = 3:00 PM 1515 = 3:15 PM 1530 = 3:30 PM 1545 = 3:45 PM 1600 = 4:00 PM 1615 = 4:15 PM 1630 = 4:30 PM 1645 = 4:45 PM 1700 = 5:00 PM 1715 = 5:15 PM 1730 = 5:30 PM 1745 = 5:45 PM 1800 = 6:00 PM 1815 = 6:15 PM 1830 = 6:30 PM 1845 = 6:45 PM 1900 = 7:00 PM 1915 = 7:15 PM 1930 = 7:30 PM 1945 = 7:45 PM 2000 = 8:00 PM 2015 = 8:15 PM 2030 = 8:30 PM 2045 = 8:45 PM 2100 = 9:00 PM 2115 = 9:15 PM 2130 = 9:30 PM 2145 = 9:45 PM 2200 = 10:00 PM 2215 = 10:15 PM 2230 = 10:30 PM 2245 = 10:45 PM 2300 = 11:00 PM 2315 = 11:15 PM 2330 = 11:30 PM 2345 = 11:45 PM -1 = Disabled	

AB	Modbus	Description	R/W	Format	Scale
N174:50	416451	Daily Defrost 5	R/W	0 = 12:00 AM 15 = 12:15 AM 30 = 12:30 AM 45 = 12:45 AM 100 = 1:00 AM 115 = 1:15 AM 130 = 1:30 AM 145 = 1:45 AM 200 = 2:00 AM 215 = 2:15 AM 230 = 2:30 AM 245 = 2:45 AM 300 = 3:00 AM 315 = 3:15 AM 330 = 3:30 AM 345 = 3:45 AM 400 = 4:00 AM 415 = 4:15 AM 430 = 4:30 AM 445 = 4:45 AM 500 = 5:00 AM 515 = 5:15 AM 530 = 5:30 AM 545 = 5:45 AM 600 = 6:00 AM 615 = 6:15 AM 630 = 6:30 AM 645 = 6:45 AM 700 = 7:00 AM 715 = 7:15 AM 730 = 7:30 AM 745 = 7:45 AM 800 = 8:00 AM 815 = 8:15 AM 830 = 8:30 AM 845 = 8:45 AM 900 = 9:00 AM 915 = 9:15 AM 930 = 9:30 AM 945 = 9:45 AM 1000 = 10:00 AM 1015 = 10:15 AM 1030 = 10:30 AM 1045 = 10:45 AM 1100 = 11:00 AM 1115 = 11:15 AM 1130 = 11:30 AM 1145 = 11:45 AM 1200 = 12:00 PM 1215 = 12:15 PM 1230 = 12:30 PM 1245 = 12:45 PM 1300 = 1:00 PM 1315 = 1:15 PM 1330 = 1:30 PM 1345 = 1:45 PM 1400 = 2:00 PM 1415 = 2:15 PM 1430 = 2:30 PM 1445 = 2:45 PM	X1

AB	Modbus	Descrition	R/W	Format	Scale
				1500 = 3:00 PM 1515 = 3:15 PM 1530 = 3:30 PM 1545 = 3:45 PM 1600 = 4:00 PM 1615 = 4:15 PM 1630 = 4:30 PM 1645 = 4:45 PM 1700 = 5:00 PM 1715 = 5:15 PM 1730 = 5:30 PM 1745 = 5:45 PM 1800 = 6:00 PM 1815 = 6:15 PM 1830 = 6:30 PM 1845 = 6:45 PM 1900 = 7:00 PM 1915 = 7:15 PM 1930 = 7:30 PM 1945 = 7:45 PM 2000 = 8:00 PM 2015 = 8:15 PM 2030 = 8:30 PM 2045 = 8:45 PM 2100 = 9:00 PM 2115 = 9:15 PM 2130 = 9:30 PM 2145 = 9:45 PM 2200 = 10:00 PM 2215 = 10:15 PM 2230 = 10:30 PM 2245 = 10:45 PM 2300 = 11:00 PM 2315 = 11:15 PM 2330 = 11:30 PM 2345 = 11:45 PM -1 = Disabled	
N174:51	416452	Defrost Termination by Temperature	R/W	0 = Disabled -1 = Enabled	X1
N174:52	416453	Defrost Termination Temperature	R/W	0.0 - 325.0 °C 32 °F - 617 °F	X10
N174:1	416402	Suction Valve Open During Satisfied Stages	R/W	0 = Disabled -1 = Enabled	X1
N174:2	416403	Enabled	R/W	0 = Disabled -1 = Enabled	X1
N174:3	416404	Reverse Solenoid 1	R/W	0 = Disabled 1 = Enabled	X1
N174:4	416405	Reverse Solenoid 1	R/W	0 = Disabled 1 = Enabled	X1
N174:5	416406	Reverse Solenoid 1	R/W	0 = Disabled 1 = Enabled	X1
N174:6	416407	Reverse Solenoid 1	R/W	0 = Disabled 1 = Enabled	X1
N174:7	416408	Reverse Solenoid 1	R/W	0 = Disabled 1 = Enabled	X1

AB	Modbus	Descrition	R/W	Format	Scale
N174:8	416409	Reverse Solenoid 1	R/W	0 = Disabled 1 = Enabled	X1
N174:9	416410	Reverse Solenoid 1	R/W	0 = Disabled 1 = Enabled	X1
N174:10	416411	Reverse Solenoid 1	R/W	0 = Disabled 1 = Enabled	X1
N174:11	416412	Reverse Solenoid 1	R/W	0 = Disabled 1 = Enabled	X1
N174:12	416413	Secondary Refrigerant	R/W		X1
N174:13	416414	Flow Switch Starting Delay	R/W	0 - 999 s	X1
N174:14	416415	Pump Off Delay	R/W	0 - 999 s	X1
N174:46	416447	Secondary Refrigerant Feedback Pump Delay	R/W	0 - 999 s	X1
N174:15	416416	Liquid Feed	R/W		X1
N174:16	416417	Set Point	R/W	0.0 - 100.0 %	X10
N174:17	416418	Maximum Level	R/W	0.0 - 100.0 %	X10
N174:18	416419	Proportional Term	R/W	0.0 - 500.0	X10
N174:19	416420	Integral Term	R/W	1.0 - 250.0 s/R	X10
N174:20	416421	High Level Warning Delay	R/W	0 - 60 s	X1
N174:21	416422	High Level Shutdown Delay	R/W	0 - 60 s	X1
N174:22	416423	Dead Band	R/W	0.0 - 10.0 %	X10
N174:23	416424	Limitation Suction Pressure Load Inhibit Offset	R/W	0.01 - 5.00 barD -29.6 PSID - 57.8 PSID	X100
N174:24	416425	Limitation Suction Pressure Force Unload Offset	R/W	0.01 - 5.00 barD -29.6 PSID - 57.8 PSID	X100
N174:25	416426	Limitation Outlet Temperature Load Inhibit Offset	R/W	0.1 - 50.0 K 32.2 F° - 122 F°	X10
N174:26	416427	Limitation Outlet Temperature Force Unload Offset	R/W	0.1 - 50.0 K 32.2 F° - 122 F°	X10
N174:27	416428	Hot Gas Bypass Calculation Mode	R/W	0 = None 1 = Secondary Refrigerant Controlled 2 = Suction Preassure Cotrolled	X1
N174:28	416429	Suction Pressure High Shutdown High Motor Speed	R/W		X100
N174:29	416430	Suction Pressure High Shutdown Low Motor Speed	R/W		X100
N174:30	416431	High Suction Pressure Warning	R/W		X100
N174:31	416432	High Suction Pressure Start Delay	R/W	0 - 300 s	X1
N174:32	416433	Low Suction Pressure Shutdown	R/W		X100
N174:33	416434	Low Suction Pressure Low Stage Shutdown	R/W	0.10 - 10.00 barA -27 PSIG - 130.3 PSIG	X100
N174:34	416435	Low Suction Pressure High Stage Shutdown	R/W	0.10 - 10.00 barA -27 PSIG - 130.3 PSIG	X100
N174:35	416436	Low Suction Pressure Shutdown Machine Limit	R/W		X100
N174:36	416437	Low Suction Pressure Start Delay	R/W	0 - -1 s	X1
N174:37	416438	Low Suction Pressure Warning Offset	R/W	0.00 - 5.00 barD -29.9 PSID - 57.8 PSID	X100

AB	Modbus	Descrition	R/W	Format	Scale
N174:38	416439	Low Auxiliary Safety Pressure Shut-down	R/W	0.01 - 5.00 barA	X100
N174:40	416441	High Outlet Temperature Warning	R/W	-75.0 - 100.0 °C -103 °F - 212 °F	X10
N174:41	416442	High Outlet Temperature Warning Timer	R/W	0 - 300 s	X1
N174:42	416443	Low Outlet Temperature Shutdown	R/W	-60.0 - 200.0 °C -76 °F - 392 °F	X10
N174:43	416444	Low Outlet Temperature Shutdown Timer	R/W	0 - 300 s	X1
N174:44	416445	Low Outlet Temperature Warning Off-set	R/W	0.0 - 50.0 K 32 F° - 122 F°	X10
N174:45	416446	Low Outlet Temperature Warning Start Delay	R/W	0 - 300 s	X1
N175:1	416502	Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N175:2	416503	Proportional Term	R/W	0.0 - 500.0	X10
N175:3	416504	Integral Term	R/W	1.0 - 250.0 s/R	X10
N175:4	416505	Mode	R/W	0 = Auto 1 = Manual	X1
N175:5	416506	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N175:6	416507	Minimum Speed Setting	R/W	0.0 - 100.0 %	X10
N175:7	416508	Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N175:8	416509	Proportional Term	R/W	0.0 - 500.0	X10
N175:9	416510	Integral Term	R/W	1.0 - 250.0 s/R	X10
N175:10	416511	Mode	R/W	0 = Auto 1 = Manual	X1
N175:11	416512	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N175:12	416513	Minimum Speed Setting	R/W	0.0 - 100.0 %	X10
N174:58	416459	Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N174:59	416460	Proportional Term	R/W	0.0 - 500.0	X10
N174:60	416461	Integral Term	R/W	1.0 - 250.0 s/R	X10
N174:61	416462	Mode	R/W	0 = Auto 1 = Manual	X1
N174:62	416463	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N174:63	416464	Minimum Speed Setting	R/W	0.0 - 100.0 %	X10
N174:64	416465	Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N174:65	416466	Proportional Term	R/W	0.0 - 500.0	X10
N174:66	416467	Integral Term	R/W	1.0 - 250.0 s/R	X10
N174:67	416468	0 = Auto 1 = Manual	R/W	0 = Auto 1 = Manual	X1
N174:68	416469	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N174:69	416470	Minimum Speed Setting	R/W	0.0 - 100.0 %	X10
N174:70	416471	Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100

AB	Modbus	Descrition	R/W	Format	Scale
N174:71	416472	Proportional Term	R/W	0.0 - 500.0	X10
N174:72	416473	Integral Term	R/W	1.0 - 250.0 s/R	X10
N174:73	416474	Mode	R/W	0 = Auto 1 = Manual	X1
N174:74	416475	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N174:75	416476	Minimum Speed Setting	R/W	0.0 - 100.0 %	X10
N174:76	416477	Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N174:77	416478	Proportional Term	R/W	0.0 - 500.0	X10
N174:78	416479	Integral Term	R/W	1.0 - 250.0 s/R	X10
N174:79	416480	Mode	R/W	0 = Auto 1 = Manual	X1
N174:80	416481	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N174:81	416482	Minimum Speed Setting	R/W	0.0 - 100.0 %	X10
N174:82	416483	Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N174:83	416484	Proportional Term	R/W	0.0 - 500.0	X10
N174:84	416485	Integral Term	R/W	1.0 - 250.0 s/R	X10
N174:85	416486	Mode	R/W	0 = Auto 1 = Manual	X1
N174:86	416487	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N174:87	416488	Minimum Speed Setting	R/W	0.0 - 100.0 %	X10
N174:88	416489	Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N174:89	416490	Proportional Term	R/W	0.0 - 500.0	X10
N174:90	416491	Integral Term	R/W	1.0 - 250.0 s/R	X10
N174:91	416492	Mode	R/W	0 = Auto 1 = Manual	X1
N174:92	416493	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N174:93	416494	Minimum Speed Setting	R/W	0.0 - 100.0 %	X10
N174:94	416495	Set Point	R/W	0.00 - 100.00 barA -29.9 PSIG - 1435.7 PSIG	X100
N174:95	416496	Proportional Term	R/W	0.0 - 500.0	X10
N174:96	416497	Integral Term	R/W	1.0 - 250.0 s/R	X10
N174:97	416498	Mode	R/W	0 = Auto 1 = Manual	X1
N174:98	416499	Manual Mode Position	R/W	0.0 - 100.0 %	X10
N174:99	416500	Minimum Speed Setting	R/W	0.0 - 100.0 %	X10
N175:0	416501	Associate Control Level	R/W	0 = Control Level 1 1 = Control Level 2 2 = Control Level 3 3 = Control Level 4 4 = Local Compressors -1 = None	X1
N175:13	416514	Enabled By	R/W	0 = Manual 1 = Digital Input	X1
N175:14	416515	Start Time Delay	R/W	5 - 60 s	X1

AB	Modbus	Description	R/W	Format	Scale
N175:15	416516	Startup Delay	R/W	0.0 - 60.0 min	X10
N175:16	416517	Stabilization Delay	R/W	0.0 - 60.0 min	X10
N175:17	416518	Allowable Loss	R/W	0.0 - 60.0 K 32 F° - 140 F°	X10
N175:18	416519	Flow Switch Running Delay	R/W	0 - 999 s	X1
N174:57	416458	Pump Down Pressure	R/W		X100
N175:23	416524	Pump Down Pressure 2	R/W		X100
N175:19	416520	Pump Down Maximum Time	R/W	10 - 600 s	X1
N175:20	416521	Minimum Valve Position	R/W	0.0 - 20.0 %	X10
N175:21	416522	Release Injection Solenoid (Base Load)	R/W	0 - 100 %	X1
N175:22	416523	Release Injection Solenoid (Base Load) 2	R/W	0 - 100 %	X1
N175:24	416525	Liquid Feed Maximum Valve Position	R/W	20 - 100 %	X1
N175:25	416526	Secondary Refrigerant Pump Switch Off	R/W	0 = Disabled -1 = Enabled	X1

2.2.37 Evaporator Analog Data

AB	Modbus	Description	R/W	Format	Scale
N175:50	416551	Evaporator Humidity Input	R		X10
	|		|		
N176:29	416630		R		
N176:30	416631	Evaporator Temperature Input	R		X10
	|		|		
N177:9	416710		R		
N177:10	416711	Evaporator Motor Speed Output	R		X10
	|		|		
N177:89	416790		R		
N177:90	416791	Evaporator Status	R		X1
	|		|		
N178:69	416870		R		
N179:50	416951	Liquid Feed Valve Output	R		X10
	|		|		
N180:29	417030		R		
N180:30	417031	Calculated Cooling Capacity	R		X10
	|		|		
N181:9	417110		R		
N181:10	417111	Liquid Feed Level	R		X10
	|		|		
N181:89	417190		R		
N181:90	417191		-		

AB	Modbus	Description	R/W	Format	Scale
	|	Reserved for Evaporator Analog Data	|		
N185:49	417550		-		

2.2.38 Evaporator Digital Data

AB	Modbus	Description	R/W	Format	Scale
N185:50	417551	Evaporator Enable Input	R		bit
	|				
N185:54	417555				
N185:55	417556	Evaporator Emergency Stop Input	R		bit
	|				
N185:59	417560				
N185:60	417561	Evaporator Shutdown Input 1	R		bit
	|				
N185:64	417565				
N185:65	417566	Evaporator Shutdown Input 2	R		bit
	|				
N185:69	417570				
N185:70	417571	Evaporator Defrost Initiate Input	R		bit
	|				
N185:74	417575				
N185:75	417576	Evaporator Defrost Pause Input	R		bit
	|				
N185:79	417580				
N185:80	417581	Evaporator Defrost Terminate Input	R		bit
	|				
N185:84	417585				
N185:85	417586	Evaporator Blast Start-Stop Input	R		bit
	|				
N185:89	417590				
N185:90	417591	Evaporator Output 1	R		bit
	|				
N185:94	417595				
N185:95	417596	Evaporator Output 2	R		bit
	|				
N185:99	417600				
N186:0	417601	Evaporator Output 3	R		bit
	|				
N186:4	417605				
N186:5	417606	Evaporator Output 4	R		bit

AB	Modbus	Descrition	R/W	Format	Scale
	|			
N186:9	417610				
N186:10	417611	Evaporator Output 5	R		bit
	|			
N186:14	417615				
N186:15	417616	Evaporator Output 6	R		bit
	|			
N186:19	417620				
N186:20	417621	Evaporator Output 7	R		bit
	|			
N186:24	417625				
N186:25	417626	Evaporator Output 8	R		bit
	|			
N186:29	417630				
N186:30	417631	Evaporator Output 9	R		bit
	|			
N186:34	417635				
N186:35	417636	Evaporator Shutdown Status	R		bit
	|			
N186:39	417640				
N186:40	417641	Evaporator Warning Status	R		bit
	|			
N186:44	417645				
N186:45	417646	Evaporator Reverse Fan Enabled	R		bit
	|			
N186:49	417650				
N186:50	417651	Evaporator Heat Enabled Input	R		bit
	|			
N186:54	417655				
N186:55	417656	Evaporator Defrost Button Input	R		bit
	|			
N186:59	417660				
N186:60	417661	Evaporator Enabled Output	R		bit
	|			
N186:64	417665				
N186:65	417666	Evaporator Defrost Output	R		bit
	|			
N186:69	417670				

AB	Modbus	Descrition	R/W	Format	Scale
N186:70	417671	Secondary Refrigerant Feedback Pump	R		bit
	|				
N186:74	417675				
N186:75	417676	Secondary Refrigerant Feedback Flow	R		bit
	|				
N186:79	417680				
N186:80	417681	Liquid Feed Maximum Level	R		bit
	|				
N186:84	417685				
N186:85	417686	Secondary Refrigerant Release Pump	R		bit
	|				
N186:89	417690				
N186:90	417691	Liquid Feed Digital Valve Output	R		bit
	|				
N186:94	417695				
N186:95	417696	Evaporator Temperature Warnings Enabled	R		bit
	|				
N186:99	417700				
N187:0	417701	Liquid Feed Reset KV	R		bit
	|				
N187:4	417705				
N187:5	417706	Liquid Feed Evacuate	R		bit
	|				
N187:9	417710				
N187:10	417711	Common Evaporator Temperature Output	R		bit
	|				
N187:9	417710				
N187:11	417712	All Evaporator Shutdown Status	R		bit
	|				
N187:10	417711				
N187:12	417713	Evaporator Defrost Finished Input	R		bit
	|				
N187:16	417717				
N187:17	417718	Evaporator Heat Trace During Defrost	R		bit
	|				

AB	Modbus	Description	R/W	Format	Scale
N187:21	417722				
N187:22	417723	Evaporator Heat Trace Always On	R		bit
	|				
N187:26	417727				
N187:27	417728	Evaporator Button Enable Input	R		bit
	|				
N187:31	417732				
N187:32	417733	Release Liquid Level Control 2	R		bit
	|				
N187:36	417737				
N187:33	417734		-		
	|	Reserved for Evaporator Digital Data	|		
N187:49	417750		-		

2.2.39 Internal Sequencer Digital Data

AB	Modbus	Description	R/W	Format	Scale
N188:0	417801	Internal Sequencer Stop Button	R		bit
N188:1	417802	Internal Sequencer Manual Start Button	R		bit
N188:2	417803	Internal Sequencer Remote Button	R		bit
N188:3	417804	Internal Sequencer Load Button	R		bit
N188:4	417805	Internal Sequencer Unload Button	R		bit
N188:5	417806	Internal Sequencer Auto Button	R		bit
N188:6	417807	Internal Sequencer Hold Button	R		bit
N188:7	417808	Internal Sequencer External Button	R		bit
N188:8	417809	Internal Sequencer in Manual Start Mode Output	R		bit
N188:9	417810	Internal Sequencer in Remote Mode Output	R		bit
N188:10	417811	Internal Sequencer in Stopped State Output	R		bit
N188:11	417812	Internal Sequencer in Starting State Output	R		bit
N188:12	417813	Internal Sequencer in Running State Output	R		bit
N188:13	417814	Internal Sequencer in Stopping State Output	R		bit
N188:14	417815	Internal Sequencer Capacity Control Mode Manual Output	R		bit
N188:15	417816	Internal Sequencer Capacity Control Mode Remote Output	R		bit
N188:16	417817	Internal Sequencer Capacity Control Mode Auto Output	R		bit
N188:17	417818	Internal Sequencer Capacity Control Mode External Output	R		bit

AB	Modbus	Description	R/W	Format	Scale
N188:18	417819	Internal Sequencer Capacity Control Mode Load Output	R		bit
N188:19	417820	Internal Sequencer Capacity Control Mode Unload Output	R		bit
N188:20	417821	Internal Sequencer Capacity Load Output	R		bit
N188:21	417822	Internal Sequencer Capacity Unload Output	R		bit
N188:22	417823	Internal Sequencer in Stop Mode Output	R		bit
N188:23	417824	Internal Sequencer Duo Shutdown Status Outputt	R		bit
N188:24	417825	Internal Sequencer Duo One Compressor Blocked Input	R		bit

2.2.40 Two Stage Digital Data

AB	Modbus	Description	R/W	Format	Scale
N188:50	417851	Two Stage External HP Only Selection Input	R		bit
N188:51	417852	Oil Supply / Function Oil Solenoid Output	R		bit
N188:52	417853	Two Stage HP Only Mode Active Output	R		bit

2.2.41 SP2 Commands

AB	Modbus	Description	R/W	Format	Scale
N193:50	418351	Compressor Start Mode	R/W	1 = Start 2 = Remote Else = Stop	X1
N193:51	418352	Remote Start Stop	R/W	0 = Disabled -1 = Enabled	X1
N193:52	418353	Compressor Capacity Mode	R/W	1 = Unload 2 = Load 3 = Auto 4 = External Else = Holding At	X1
N193:53	418354	Compressor Status	R	0 = Starting 1 = Running 2 = Stopping 3 = Stopped	X1
N193:54	418355	Load Pulse	R/W	1 to 10 seconds	X10
N193:55	418356	Unload Pulse	R/W	1 to 10 seconds	X10

AB	Modbus	Descrition	R/W	Format	Scale
N193:56	418357	Capacity Control Control Signal HP	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N193:57	418358	Capacity Control Set Point HP	R/W	Based on the control Signal	X1
N193:58	418359	Clear Motor Start Timers HP	R/W	Write any value to clear. Reading this value with return the High Timer between Motor Start to Start, Motor Stop to Start and Oil Drain.	X1
N193:59	418360	Shutdown Warning Status HP	R/W	0 = Normal 1 = Warning 2 = Shutdown	X1
N193:60	418361	Economizer Control By Other Input HP	R/W		X1
N193:61	418362	Capacity Control Control Signal LP	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N193:62	418363	Capacity Control Set Point LP	R/W	Based on the control Signal	X1
N193:63	418364	Clear Motor Start Timers LP	R/W	Write any value to clear. Reading this value with return the High Timer between Motor Start to Start, Motor Stop to Start and Oil Drain.	X1
N193:64	418365	Shutdown Warning Status LP	R/W	0 = Normal 1 = Warning 2 = Shutdown	X1
N193:65	418366	Economizer Control By Other Input LP	R/W		X1
N193:66	418367	Abort Sequencer Timer	R/W	Write any value to Abort Sequencer Timer	X1
N193:67	418368	Register Sequencer Timer 5 Minutes	R/W	Write 17235 to enable a 5 minutes Sequencer Watchdog Timer	X1
N193:68	418369	Register Sequencer Timer 1 Minutes	R/W	Write 17235 to enable a 1 minutes Sequencer Watchdog Timer	X1
N193:69	418370	Two Stage Operation	R/W		X1
N193:70	418371	Current Capacity	R/W		X1

AB	Modbus	Description	R/W	Format	Scale
N193:71	418372	Set Point	R/W		X1
N193:72	418373	Capacity Control Value HP	R/W		X1
N193:73	418374	Capacity Control Value LP	R/W		X1
N193:74	418375	Bit Commands	R/W		X1
N193:75	418376	Remote Set Point	R/W		X1
N193:76	418377	Remote Control Value	R/W		X1
N193:77	418378	Capacity Control Signal	R/W		X1
N193:78	418379	Active Set Point	R		X1
N193:79	418380	Active Control Value	R		X1
N193:80	418381	Active Control Signal	R	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N193:81	418382	Set Point HP	R		X1

2.2.42 SP2 Parameters

AB	Modbus	Description	R/W	Format	Scale
N194:55	418456	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N195:9	418510	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N194:56	418457	Set Point	R/W		X1
N194:57	418458	Dead Band	R/W		X1
N194:58	418459	Proportional Band	R/W		X1
N194:81	418482	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1

AB	Modbus	Description	R/W	Format	Scale
N194:82	418483	Automatic Start	R/W		X1
N194:97	418498	Automatic Start Offset	R/W		X1
N194:83	418484	Automatic Start Delay	R/W	5 - 1800 s	X1
N194:84	418485	Automatic Stop	R/W		X1
N194:98	418499	Automatic Stop Offset	R/W		X1
N194:85	418486	Automatic Stop Delay	R/W	5 - 1800 s	X1
N194:59	418460	Load Pulse Period	R/W	1 - 20 s	X1
N194:60	418461	Unload Pulse Period	R/W	1 - 20 s	X1
N194:93	418494	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N195:5	418506	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N194:94	418495	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N279:99	427000	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N195:10	418511	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N280:0	427001	Set Point	R/W		X1
N280:1	427002	Dead Band	R/W		X1
N280:2	427003	Proportional Band	R/W		X1
N280:3	427004	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N280:4	427005	Automatic Start	R/W		X1
N280:5	427006	Automatic Start Offset	R/W		X1
N280:6	427007	Automatic Start Delay	R/W	5 - 1800 s	X1
N280:7	427008	Automatic Stop	R/W		X1
N280:8	427009	Automatic Stop Offset	R/W		X1
N280:9	427010	Automatic Stop Delay	R/W	5 - 1800 s	X1
N280:10	427011	Load Pulse Period	R/W	1 - 20 s	X1
N280:11	427012	Unload Pulse Period	R/W	1 - 20 s	X1
N280:12	427013	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N280:13	427014	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1

AB	Modbus	Descrition	R/W	Format	Scale
N280:14	427015	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N280:15	427016	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N195:11	418512	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N280:16	427017	Set Point	R/W		X1
N280:17	427018	Dead Band	R/W		X1
N280:18	427019	Proportional Band	R/W		X1
N280:19	427020	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N280:20	427021	Automatic Start	R/W		X1
N280:21	427022	Automatic Start Offset	R/W		X1
N280:22	427023	Automatic Start Delay	R/W	5 - 1800 s	X1
N280:23	427024	Automatic Stop	R/W		X1
N280:24	427025	Automatic Stop Offset	R/W		X1
N280:25	427026	Automatic Stop Delay	R/W	5 - 1800 s	X1
N280:26	427027	Load Pulse Period	R/W	1 - 20 s	X1
N280:27	427028	Unload Pulse Period	R/W	1 - 20 s	X1
N280:28	427029	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N280:29	427030	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N280:30	427031	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N195:13	418514	Minimum Capacity Slide Position	R/W		X1
N195:14	418515	Minimum Capacity Slide Position	R/W		X1
N195:15	418516	Minimum Capacity Slide Position	R/W		X1
N195:16	418517	Minimum Capacity Slide Position	R/W		X1
N195:17	418518	Minimum Capacity Slide Position	R/W		X1
N195:18	418519	Minimum Capacity Slide Position	R/W		X1

AB	Modbus	Description	R/W	Format	Scale
N194:61	418462	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N194:62	418463	Set Point Intermediate	R/W		X1
N194:64	418465	Dead Band	R/W		X1
N194:65	418466	Proportional Band	R/W		X1
N194:73	418474	Load Pulse Period	R/W	1 - 20 s	X1
N194:74	418475	Unload Pulse Period	R/W	1 - 20 s	X1
N194:71	418472	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N195:4	418505	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N194:72	418473	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N195:0	418501	Set Point Based Off Booster Suction Pressure	R/W	0 = Disabled -1 = Enabled	X1
N195:1	418502	Booster Suction Pressure Offset 1	R/W	0.00 - 6.89 barD -29.9 PSID - 85.3 PSID	X100
N280:31	427032	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N280:32	427033	Set Point Intermediate	R/W		X1
N280:33	427034	Dead Band	R/W		X1
N280:34	427035	Proportional Band	R/W		X1
N280:35	427036	Load Pulse Period	R/W	1 - 20 s	X1
N280:36	427037	Unload Pulse Period	R/W	1 - 20 s	X1
N280:37	427038	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1

AB	Modbus	Description	R/W	Format	Scale
N280:38	427039	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N280:39	427040	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N280:40	427041	Set Point Based Off Booster Suction Pressure	R/W	0 = Disabled -1 = Enabled	X1
N280:41	427042	Booster Suction Pressure Offset 2	R/W	0.00 - 6.89 barD -29.9 PSID - 85.3 PSID	X100
N280:42	427043	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N280:43	427044	Set Point Intermediate	R/W		X1
N280:44	427045	Dead Band	R/W		X1
N280:45	427046	Proportional Band	R/W		X1
N280:46	427047	Load Pulse Period	R/W	1 - 20 s	X1
N280:47	427048	Unload Pulse Period	R/W	1 - 20 s	X1
N280:48	427049	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N280:49	427050	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N280:50	427051	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N280:51	427052	Set Point Based Off Booster Suction Pressure	R/W	0 = Disabled -1 = Enabled	X1
N280:52	427053	Booster Suction Pressure Offset 3	R/W	0.00 - 6.89 barD -29.9 PSID - 85.3 PSID	X100
N194:63	418464	Set Point High Stage Only	R/W		X1
N194:66	418467	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N194:67	418468	Automatic Start	R/W		X1
N194:95	418496	Automatic Start Offset	R/W		X1
N194:68	418469	Automatic Start Delay	R/W	5 - 1800 s	X1
N194:69	418470	Automatic Stop	R/W		X1
N194:96	418497	Automatic Stop Offset	R/W		X1
N194:70	418471	Automatic Stop Delay	R/W	5 - 1800 s	X1
N280:53	427054	Set Point High Stage Only	R/W		X1

AB	Modbus	Description	R/W	Format	Scale
N280:54	427055	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N280:55	427056	Automatic Start	R/W		X1
N280:56	427057	Automatic Start Offset	R/W		X1
N280:57	427058	Automatic Start Delay	R/W	5 - 1800 s	X1
N280:58	427059	Automatic Stop	R/W		X1
N280:59	427060	Automatic Stop Offset	R/W		X1
N280:60	427061	Automatic Stop Delay	R/W	5 - 1800 s	X1
N280:61	427062	Set Point High Stage Only	R/W		X1
N280:62	427063	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N280:63	427064	Automatic Start	R/W		X1
N280:64	427065	Automatic Start Offset	R/W		X1
N280:65	427066	Automatic Start Delay	R/W	5 - 1800 s	X1
N280:66	427067	Automatic Stop	R/W		X1
N280:67	427068	Automatic Stop Offset	R/W		X1
N280:68	427069	Automatic Stop Delay	R/W	5 - 1800 s	
N195:19	418520	Minimum Capacity Slide Position	R/W		X1
N195:20	418521	Minimum Capacity Slide Position	R/W		X1
N195:21	418522	Minimum Capacity Slide Position	R/W		X1
N195:22	418523	Minimum Capacity Slide Position	R/W		X1
N195:23	418524	Minimum Capacity Slide Position	R/W		X1
N195:24	418525	Minimum Capacity Slide Position	R/W		X1
N280:69	427070	Control Mode	R/W	0 = Capacity Control 1 1 = Capacity Control 2 2 = Capacity Control 3	X1
N194:75	418476	Set Point Location	R/W	0 = Local 1 = Remote	X1
N194:76	418477	Remote Set Point Units	R/W	0 = Pressure 1 = Temperature 2 = Percent 3 = Low Pressure	X1
N194:77	418478	Remote Control Value Units	R/W	0 = Pressure 1 = Temperature	X1
N194:52	418453	External Capacity Mode	R/W	0 = Direct Pulse Control 1 = Indirect Pulse Control	X1
N194:51	418452	Remote Control Interface	R/W	0 = Network 1 = Hard Wired	X1
N195:2	418503	Control Mode After Shutdown	R/W	0 = Disabled -1 = Enabled	X1
N194:86	418487	Profibus DP or Profinet Communication	R/W	0 = Read 1 = Read/Write 2 = Disabled	X1
N194:87	418488	Customer Communication Network Failure	R/W	0 = Warning 1 = Shutdown	X1

AB	Modbus	Descrition	R/W	Format	Scale
N194:99	418500	External Hardwire Control Interface	R/W	0 = Common 1 = Independent	X1
N194:50	418451	Operation Mode	R/W	0 = Two Stage 1 = HP Only 2 = Remote	X1
N195:7	418508	Keep Capacity Control Mode When Switching	R/W	0 = Disabled -1 = Enabled	X1
N194:53	418454	Pull Down To Start LP	R/W		X1
N194:54	418455	Pull Down To Start LP Warning Timer	R/W	10 - 120 min	X1
N195:3	418504	Loss of Remote Start Signal Run Warning Timer	R/W	0 - 120 s	X1
N194:78	418479	Power Failure Restart Mode	R/W	0 = Disabled 1 = Local 2 = Remote 3 = Shutdown 4 = Previous State	X1
N194:79	418480	Power Failure Restart Delay	R/W	0 - 8000 s	X1
N194:80	418481	Power Failure Restart Abort Timer	R/W	0.0 - 480.0 min	X10
N194:88	418489	Capacity Output 1 On	R/W		X1
N194:89	418490	Capacity Output 1 Off	R/W		X1
N194:90	418491	Capacity Output 2 On	R/W		X1
N194:91	418492	Capacity Output 2 Off	R/W		X1
N194:92	418493	Slide Or Capacity Selection	R/W	0 = Capacity 1 = Percent Of Max Travel 2 = Total Package Capacity	X1

AB	Modbus	Description	R/W	Format	Scale
N195:6	418507	Control Mode Select By Digital Input	R/W	0 = Disabled -1 = Enabled	X1
N195:8	418509	Suction Check Valve Close Assist Pulse Timer	R/W	5 - 120 s	X1 +A4134: F4145A4 132: F4145A4 130: F4145A4 129: F4145A4 128: F4145E3 984A413 6: F4145A4 127: F4145E3 984A413 6: F4145A4 124: F4145A4 122: F4145A4 119: F4145A4 116: F4145A4 114: F4145A4 111: F4145A4 108: F4145A4 106: F4145A4 103: F4145A4 100: F4145A4 098: F4145A4 096: F4145A4 094: F4145A4 091: F4145A4 088: F4145A4 087: F4145A4 085: F4145A4 086: F4145E3 984A413 6: F4145A4 087A407 9:

AB	Modbus	Description	R/W	Format	Scale
					F4145

2.2.43 SPduo Commands

AB	Modbus	Description	R/W	Format	Scale
N196:0	418601	Compressor Start Mode	R/W	1 = Start 2 = Remote Else = Stop	
N196:1	418602	Remote Start Stop	R/W	0 = Disabled -1 = Enabled	
N196:2	418603	Compressor Capacity Mode	R/W	1 = Unload 2 = Load 3 = Auto 4 = External Else = Holding At	
N196:3	418604	Compressor Status	R	0 = Starting 1 = Running 2 = Stopping 3 = Stopped	
N196:4	418605	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	
N196:5	418606	Set Point	R/W	Based on the control Signal	
N196:6	418607	Clear Motor Start Timers HP	R/W	Write any value to clear. Reading this value with return the High Timer between Motor Start to Start, Motor Stop to Start and Oil Drain.	
N196:7	418608	Shutdown Warning Status HP	R/W	0 = Normal 1 = Warning 2 = Shutdown	
N196:8	418609	Economizer Control By Other Input HP	R/W		
N196:9	418610	Clear Motor Start Timers LP	R/W	Write any value to clear. Reading this value with return the High Timer between Motor Start to Start, Motor Stop to Start and Oil Drain.	
N196:10	418611	Shutdown Warning Status LP	R/W	0 = Normal 1 = Warning 2 = Shutdown	
N196:11	418612	Economizer Control By Other Input LP	R/W		
N196:12	418613	Abort Sequencer Timer	R/W	Write any value to Abort Sequencer Timer	
N196:13	418614	Register Sequencer Timer 5 Minutes	R/W	Write 17235 to enable a 5 minutes Sequencer Watchdog Timer	

AB	Modbus	Description	R/W	Format	Scale
N196:14	418615	Register Sequencer Timer 1 Minutes	R/W	Write 17235 to enable a 1 minutes Sequencer Watchdog Timer	
N196:15	418616	RunningCompressors	R/W		
N196:16	418617	AvailableCompressors	R/W		
N196:17	418618	Current Capacity	R/W		
N196:18	418619	Control Value	R/W		
N196:19	418620	Sequencer Status	R/W		
N196:20	418621	Internal Sequencer Primary Start Delay Timer Value	R/W		
N196:21	418622	Internal Sequencer Secondary Start Delay Timer Value	R/W		
N196:22	418623	Internal Sequencer Primary Stop Delay Timer Value	R/W		
N196:23	418624	Internal Sequencer Secondary Stop Delay Timer Value	R/W		
N196:24	418625	Internal Sequencer Secondary Increase Capacity Delay Timer Value	R/W		
N196:25	418626	Internal Sequencer Secondary Decrease Capacity Delay Timer Value	R/W		
N196:26	418627	Power Failure Reset Delay Timer Value	R/W		
N196:27	418628	Bit Commands	R/W		
N196:28	418629	Remote Set Point	R/W		
N196:29	418630	Remote Control Value	R/W		
N196:30	418631	Active Set Point	R		
N196:31	418632	Active Control Value	R		
N196:32	418633	Active Control Signal	R		
N196:33	418634	Remaining Automatic Start Time	R		

2.2.44 SPduo Parameters

AB	Modbus	Description	R/W	Format	Scale
N197:0	418701	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N197:1	418702	Set Point	R/W		X1
N197:2	418703	Dead Band	R/W		X1
N197:3	418704	Proportional Band	R/W		X1

AB	Modbus	Descrition	R/W	Format	Scale
N197:4	418705	Load Pulse Period	R/W	1 - 20 s	X1
N197:5	418706	Unload Pulse Period	R/W	1 - 20 s	X1
N197:6	418707	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N197:7	418708	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N197:39	418740	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N197:41	418742	Set Point	R/W		X1
N197:42	418743	Dead Band	R/W		X1
N197:43	418744	Proportional Band	R/W		X1
N197:51	418752	Load Pulse Period	R/W	1 - 20 s	X1
N197:52	418753	Unload Pulse Period	R/W	1 - 20 s	X1
N197:53	418754	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1
N197:55	418756	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N197:56	418757	Control Signal	R/W	0 = Suction Pressure 1 = Suction Pressure As Temperature 2 = Inlet Temperature 3 = Outlet Temperature 4 = Discharge Pressure 5 = Discharge Pressure As Temperature 6 = Remote Capacity 7 = Remote Temperature 8 = Remote Pressure 9 = Storage Tank Pressure 10 = Condenser Outlet Temperature 11 = Condenser Inlet Temperature 12 = Average Outlet Temperature 13 = Average Condenser Outlet Temperature 14 = Remote Pressure As Temperature	X1
N197:58	418759	Set Point	R/W		X1
N197:59	418760	Dead Band	R/W		X1
N197:60	418761	Proportional Band	R/W		X1
N197:68	418769	Load Pulse Period	R/W	1 - 20 s	X1
N197:69	418770	Unload Pulse Period	R/W	1 - 20 s	X1
N197:70	418771	Ramp Rate Selection	R/W	0 = Disabled -1 = Enabled	X1

AB	Modbus	Descrition	R/W	Format	Scale
N197:72	418773	Ramp Rate per Minute	R/W	0.00 - 5.17 barA -29.9 PSIG - 60.3 PSIG	X100
N197:38	418739	Control Mode	R/W	0 = Capacity Control 1 1 = Capacity Control 2 2 = Capacity Control 3	X1
N197:8	418709	Running Hours Monitoring	R/W	0 = Disabled -1 = Enabled	X1
N197:9	418710	Minimum Running Hours Difference	R/W	1 - 10000 h	X1
N197:10	418711	Maximum Running Compressors	R/W	1 - 10	X1
N197:11	418712	Start Delay Lag Compressor	R/W	1 - 3600 s	X1
N197:12	418713	Stop Delay	R/W	1 - 1800 s	X1
N197:13	418714	Force Start Delay	R/W	60 - 3600 s	X1
N197:14	418715	Force Stop Delay	R/W	60 - 3600 s	X1
N197:15	418716	Remote Control Interface	R/W	0 = Network 1 = Hard Wired	X1
N197:17	418718	Set Point Location	R/W	0 = Local 1 = Remote	X1
N197:18	418719	Remote Set Point Units	R/W	0 = Pressure 1 = Temperature 2 = Percent 3 = Low Pressure	X1
N197:19	418720	Remote Control Value Units	R/W	0 = Pressure 1 = Temperature	X1
N197:20	418721	Power Failure Restart Mode	R/W	0 = Disabled 1 = Local 2 = Remote 3 = Shutdown 4 = Previous State	X1
N197:21	418722	Power Failure Restart Delay	R/W	0 - 8000 s	X1
N197:22	418723	Power Failure Restart Abort Timer	R/W	0.0 - 480.0 min	X10
N197:23	418724	Starting Priority	R/W	0 = Manual One Two 1 = Manual Two One 2 = Running Hours	X1
N197:24	418725	Profibus DP or Profinet Communication	R/W	0 = Read 1 = Read/Write 2 = Disabled	X1
N197:25	418726	Customer Communication Network Failure	R/W	0 = Warning 1 = Shutdown	X1
N197:26	418727	Control Mode After Shutdown	R/W	0 = Disabled -1 = Enabled	X1
N197:27	418728	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N197:28	418729	Automatic Start	R/W		X1
N197:29	418730	Automatic Start Offset	R/W		X1
N197:30	418731	Automatic Start Delay	R/W	5 - 1800 s	X1
N197:31	418732	Automatic Stop	R/W		X1
N197:32	418733	Automatic Stop Offset	R/W		X1
N197:33	418734	Automatic Stop Delay	R/W	5 - 1800 s	X1

AB	Modbus	Description	R/W	Format	Scale
N197:34	418735	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N197:44	418745	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N197:45	418746	Automatic Start	R/W		X1
N197:46	418747	Automatic Start Offset	R/W		X1
N197:47	418748	Automatic Start Delay	R/W	5 - 1800 s	X1
N197:48	418749	Automatic Stop	R/W		X1
N197:49	418750	Automatic Stop Offset	R/W		X1
N197:50	418751	Automatic Stop Delay	R/W	5 - 1800 s	X1
N197:40	418741	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N197:61	418762	Automatic Start Stop	R/W	0 = Disabled 2 = Offsets -1 = Set Points	X1
N197:62	418763	Automatic Start	R/W		X1
N197:63	418764	Automatic Start Offset	R/W		X1
N197:64	418765	Automatic Start Delay	R/W	5 - 1800 s	X1
N197:65	418766	Automatic Stop	R/W		X1
N197:66	418767	Automatic Stop Offset	R/W		X1
N197:67	418768	Automatic Stop Delay	R/W	5 - 1800 s	X1
N197:57	418758	Remote Control Direction	R/W	0 = Forward 1 = Reverse	X1
N197:35	418736	External Capacity Mode	R/W	0 = Direct Pulse Control 1 = Indirect Pulse Control	X1
N197:36	418737	Loss of Remote Start Signal Run Warning Timer	R/W	0 - 120 s	X1
N197:16	418717	Increments Per Revolve	R/W	1 - 999	X1
N197:37	418738	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N197:54	418755	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N197:71	418772	Ramp Rate Selection After Limitation	R/W	0 = Disabled -1 = Enabled	X1
N197:73	418774	Control Mode Select By Digital Input	R/W	0 = Disabled -1 = Enabled	X1
N197:74	418775	Start Delay Lead Compressor	R/W	1 - 3600 s	X1
N197:75	418776	Minimum Capacity Slide Position	R/W		X1
N197:76	418777	Minimum Capacity Slide Position	R/W		X1
N197:77	418778	Minimum Capacity Slide Position	R/W		X1
N197:78	418779	Minimum Capacity Slide Position	R/W		X1
N197:79	418780	Minimum Capacity Slide Position	R/W		X1
N197:80	418781	Minimum Capacity Slide Position	R/W		X1
N108:51	409852	Sequence Priority	R/W	1 - 100	X1
N108:48	409849	Minimum Position	R/W		X1
N108:49	409850	Part Load Position	R/W		X1

AB	Modbus	Descrition	R/W	Format	Scale
N108:50	409851	Maximum Position	R/W		X1
N108:51	409852	Sequence Priority	R/W	1 - 100	X1
N108:48	409849	Minimum Position	R/W		X1
N108:49	409850	Part Load Position	R/W		X1
N108:50	409851	Maximum Position	R/W		X1

2.2.45 Custom Address Mapping

AB	Modbus	Descrition	R/W	Format	Scale
N209:99	420000	Custom Addressing	R/W	See section 3.23 in instrustion manual for more info	Varies
	|		|		
N219:98	420999		R/W		

2.2.46 Compressor Analog Data 2

AB	Modbus	Descrition	R/W	Format	Scale
N219:99	421000	Motor Drive End Bearing Temperature	R		X10
	|		|		
N220:8	421009		R		
N220:9	421010	Motor Non Drive End Bearing Temperature	R		X10
	|		|		
N220:18	421019		R		
N220:19	421020	Motor Phase A Winding Temperature	R		X10
	|		|		
N220:28	421029		R		
N220:29	421030	Motor Phase B Winding Temperature	R		X10
	|		|		
N220:38	421039		R		
N220:39	421040	Motor Phase C Winding Temperature	R		X10
	|		|		
N220:48	421049		R		
N220:49	421050	Male Rotor Drive End Temperature	R		X10
	|		|		
N220:58	421059		R		
N220:59	421060	Male Rotor Non Drive End Temperature	R		X10
	|		|		
N220:68	421069		R		
N220:69	421070	Female Rotor Drive End Temperature	R		X10
	|		|		

AB	Modbus	Descrition	R/W	Format	Scale
N220:78	421079		R		
N220:79	421080	Female Rotor Non Drive End Temperature	R		X10
	|		|		
N220:88	421089		R		
N220:89	421090	Turbine Speed	R		X1
	|		|		
N220:98	421099		R		
N220:99	421100	Male Rotor Position Sensor	R		X100
	|		|		
N221:8	421109		R		
N221:9	421110	Female Rotor Position Sensor	R		X100
	|		|		
N221:18	421119		R		
N221:19	421120	Compressor Control Mode	R		X1
	|		|		
N221:28	421129		R		
N221:29	421130	Cylinder Head Temperature 1	R		X10
	|		|		
N221:38	421139		R		
N221:39	421140	Cylinder Head Temperature 2	R		X10
	|		|		
N221:48	421149		R		
N221:49	421150	Cylinder Head Temperature 3	R		X10
	|		|		
N221:58	421159		R		
N221:59	421160	Cylinder Head Temperature 4	R		X10
	|		|		
N221:68	421169		R		
N221:69	421170	Cylinder Head Temperature 5	R		X10
	|		|		
N221:78	421179		R		
N221:79	421180	Cylinder Head Temperature 6	R		X10
	|		|		
N221:88	421189		R		
N221:89	421190	Cylinder Head Temperature 7	R		X10
	|		|		
N221:98	421199		R		
N221:99	421200	Cylinder Head Temperature 8	R		X10

AB	Modbus	Descrition	R/W	Format	Scale
	|		|		
N222:8	421209		R		
N222:9	421210	Cylinder Head Temperature 9	R		X10
	|		|		
N222:18	421219		R		
N222:19	421220	Cylinder Head Temperature 10	R		X10
	|		|		
N222:28	421229		R		
N222:29	421230	Cylinder Head Temperature 11	R		X10
	|		|		
N222:38	421239		R		
N222:39	421240	Cylinder Head Temperature 12	R		X10
	|		|		
N222:48	421249		R		
N222:49	421250	Oil Cooler Fan 1 Vibration Input	R		X100
	|		|		
N222:58	421259		R		
N222:59	421260	Oil Cooler Fan 2 Vibration Input	R		X100
	|		|		
N222:68	421269		R		
N222:69	421270	Oil Cooler Fan 3 Vibration Input	R		X100
	|		|		
N222:78	421279		R		
N222:79	421280	Economizer Level	R		X1
	|		|		
N222:88	421289		R		
N222:89	421290	Economizer Level Control Set Point	R		X1
	|		|		
N222:98	421299		R		
N222:99	421300	Saturated Suction Temperature Rate of Change	R		X10
	|		|		
N223:8	421309		R		
N223:9	421310	Current Power Consumption	R		X1
	|		|		
N223:18	421319		R		
N223:19	421320	Maximum Power Consumption	R		X1
	|		|		
N223:28	421329		R		

AB	Modbus	Description	R/W	Format	Scale
N223:29	421330	Current Capacity Step Percentage	R		X1
	|		|		
N223:38	421339		R		
N223:39	421340	Danfoss VFD Motor Set Point	R		X1
	|		|		
N223:48	421349		R		
N223:49	421350	Danfoss VFD Motor Torque	R		X1
	|		|		
N223:58	421359		R		
N223:59	421360	Danfoss VFD Alarm Word	R		X1
	|		|		
N223:68	421369		R		
N223:69	421370	Danfoss VFD Warning Word	R		X1
	|		|		
N223:78	421379		R		
N223:79	421380	Lubrication Supply Temperature	R		X10
	|		|		
N223:88	421389		R		
N223:89	421390	Lubrication Return Temperature	R		X10
	|		|		
N223:98	421399		R		
N223:99	421400	Engineroom Temperature	R		X10
	|		|		
N224:8	421409		R		
N224:9	421410	Suction Line Motor Valve Input	R		X1
	|		|		
N224:18	421419		R		
N224:19	421420		-		
	|	Reserved for Compressor Analog Data 2	|		
N229:98	421999		-		

2.2.47 Oil Still Parameters

AB	Modbus	Description	R/W	Format	Scale
N192:0	418201	Oil Still Viewport	R/W	0 = No Entries 1-4 = Oil Still #X	
N192:0	418201	Oil Still Temperature Set Point	R/W		X10
N192:1	418202	Oil Drain	R/W	30 - 300 s	X1

AB	Modbus	Description	R/W	Format	Scale
N192:2	418203	Oil Return Transfer Mode	R/W	0 = Manual 1 = Automatic 2 = Rapid Return	X1
N192:3	418204	Oil Return Automatic Transfer Day	R/W	0 = Monday 1 = Tuesday 2 = Wednesday 3 = Thursday 4 = Friday 5 = Saturday 6 = Sunday 7 = Once A Day	X1
N192:4	418205	Oil Return Automatic Transfer Hour	R/W	1 - 24 h	X1
N192:5	418206	Oil Return Automatic Transfer Minute	R/W	0 - 60 min	X1
N192:6	418207	Drain Delay	R/W	60 - 120 s	X1
N192:7	418208	Oil Return	R/W	10 - 30 s	X1
N192:8	418209	Return Delay	R/W	80 - 3600 s	X1
N192:12	418213	Hot Gas Output Delay	R/W	1 - 30 s	X1
N192:9	418210	Hot Gas Return Cycle Timer	R/W	0 - 3600 s	X1
N192:13	418214	Oil Return Off Delay	R/W	1 - 30 s	X1
N192:10	418211	Heater On Temperature	R/W	10.0 - 70.0 °C 50 °F - 158 °F	X10
N192:11	418212	Heater Off Temperature	R/W	10.0 - 70.0 °C 50 °F - 158 °F	X10
N192:14	418215	Pulse Time	R/W	10 - 3600 s	X1
N192:15	418216	Pause Time	R/W	10 - 21600 s	X1
N192:16	418217	Saturated Suction Temperature Offset	R/W	7.5 - 100.0 K 45.5 F° - 212 F°	X10
N192:17	418218	Heater Set Point Compressor Running	R/W	10.0 - 100.0 °C 50 °F - 212 °F	X10
N192:18	418219	Heater Set Point Compressor Stopped	R/W	10.0 - 100.0 °C 50 °F - 212 °F	X10
N192:19	418220	Release Time	R/W	0 - 600 s	X1
N192:20	418221	Drain Time	R/W	0 - 600 s	X1
N192:21	418222	Wait Time	R/W	10 - 3600 s	X1
N192:22	418223	Oil Return Time	R/W	0 - 600 s	X1
N192:23	418224	Evaporating Time	R/W	0 - 1200 s	X1
N192:24	418225	Release Time	R/W		X1
N192:25	418226	Enabled	R/W	0 = Disabled -1 = Enabled	X1

2.2.48 Oil Still Analog Data

AB	Modbus	Description	R/W	Format	Scale
N273:49	426350	Oil Still Temperature Sensor	R		X10
	|		|		
N273:52	426353		R		
N273:53	426354	Oil Still Oil Return Release Temperature	R		X10

AB	Modbus	Description	R/W	Format	Scale
	|		|		
N273:56	426357		R		
N273:57	426358		-		
	|	Reserved for Oil Still Analog Data	|		
N273:98	426399		-		

2.2.49 Oil Still Digital Data

AB	Modbus	Description	R/W	Format	Scale
N193:0	418301	Oil Still Heater Output	R		bit
	|				
N193:0	418301				
N193:1	418302	Oil Still Equalizer Output	R		bit
	|				
N193:1	418302				
N193:2	418303	Oil Still Oil Drain Output	R		bit
	|				
N193:2	418303				
N193:3	418304	Oil Still Oil Return Output	R		bit
	|				
N193:3	418304				
N193:4	418305	Oil Still Hot Gas Pump Output	R		bit
	|				
N193:4	418305				
N193:5	418306	Oil Still Oil Return Pending Output	R		bit
	|				
N193:5	418306				
N193:6	418307	Oil Still Check Pending Output	R		bit
	|				
N193:6	418307				
N193:7	418308	Oil Still Ready to Check Output	R		bit
	|				
N193:7	418308				
N193:8	418309	Oil Still Check Button Input	R		bit
	|				
N193:8	418309				
N193:9	418310	Oil Still Oil Return Button Input	R		bit
	|				
N193:9	418310				
N193:10	418311	Oil Still Enabled Input	R		bit

AB	Modbus	Descrition	R/W	Format	Scale
	|				
N193:10	418311				
N193:11	418312	Oil Still Compressor Run Input	R		bit
	|				
N193:11	418312				
N193:12	418313	Oil Still Level Switch Input	R		bit
	|				
N193:12	418313				
N193:13	418314	Oil Still Return Initiate Input	R		bit
	|				
N193:13	418314				
N193:14	418315	Oil Still Temperature Sensor Input	R		bit
	|				
N193:14	418315				
N193:15	418316	Oil Still Compressor 1 Oil Return Button Input	R		bit
	|				
N193:15	418316				
N193:16	418317	Oil Still Compressor 2 Oil Return Button Input	R		bit
	|				
N193:16	418317				
N193:17	418318	Oil Still Compressor 1 Oil Return Button Output	R		bit
	|				
N193:17	418318				
N193:18	418319	Oil Still Compressor 2 OIl Return Button Output	R		bit
	|				
N193:18	418319				
N193:19	418320	Oil Still Check Button Output	R		bit
	|				
N193:19	418320				
N193:20	418321	Oil Still Oil Return Button Output	R		bit
	|				
N193:20	418321				
N193:21	418322	Oil Still Oil Check Button Flash Output	R		bit
	|				
N193:21	418322				

AB	Modbus	Description	R/W	Format	Scale
N193:22	418323	Oil Still Liquid Bleed Air Dump Solenoid	R		bit
	|				
N193:22	418323				
N193:23	418324	Oil Still Pump Output	R		bit
	|				
N193:23	418324				
N193:24	418325	Oil Still Oil Return Button Flash Output	R		bit
	|				
N193:24	418325				
N193:25	418326	Oil Still Shutdown Status	R		bit
	|				
N193:25	418326				
N193:26	418327	Oil Still Warning Status	R		bit
	|				
N193:26	418327				
N193:27	418328	Oil Still Reset Button Output	R		bit
	|				
N193:27	418328				
N193:28	418329	Oil Still Heater Interlock	R		bit
	|				
N193:28	418329	Oil Still Heater Interlock	R		bit
	|				
N193:28	418329				
N193:29	418330	Oil Still Disabled Output	R		bit
	|				
N193:29	418330				
N193:30	418331	Oil Still Disabled Input	R		bit
	|				
N193:30	418331				
N193:31	418332	Oil Still Refrigerant Sensor	R		bit
	|				
N193:31	418332				
N193:32	418333		-		
	|	Reserved for Oil Still Digital Data	|		
N193:49	418350		-		

2.2.50 Underfloor Temperature Monitoring

AB	Modbus	Descrition	R/W	Format	Scale
N240:99	423100	Underfloor Temperature Monitoring	R		X10
N241:0	423101	High Underfloor Temperature Sensor Shutdown	R/W	-50.1° F to 212.0° F	X10
N241:1	423102	High Underfloor Temperature Sensor Warning Offset	R/W	0.0° F to 36.0° F	X10
N241:2	423103	Low Underfloor Temperature Sensor Shutdown	R/W	-50.1° F to 212.0° F	X10
N241:3	423104	Low Underfloor Temperature Sensor Warning Offset	R/W	0.0° F to 36.0° F	X10
N241:4	423105	Underfloor Temperature 2			
	|				
N241:8	423109				
N241:9	423110	Underfloor Temperature 3			
	|				
N241:13	423114				
N241:14	423115	Underfloor Temperature 4			
	|				
N241:18	423119				
N241:19	423120	Underfloor Temperature 5			
	|				
N241:23	423124				
N241:24	423125	Underfloor Temperature 6			
	|				
N241:28	423129				
N241:29	423130	Underfloor Temperature 7			
	|				
N241:33	423134				
N241:34	423135	Underfloor Temperature 8			
	|				
N241:38	423139				
N241:39	423140	Underfloor Temperature 9			
	|				
N241:43	423144				
N241:44	423145	Underfloor Temperature 10			
	|				
N241:48	423149				
N241:49	423150	Underfloor Temperature 11			
	|				
N241:53	423154				
N241:54	423155	Underfloor Temperature 12			
	|				
N241:58	423159				
N241:59	423160	Underfloor Temperature 13			
	|				

AB	Modbus	Description	R/W	Format	Scale
N241:63	423164				
N241:64	423165	Underfloor Temperature 14			
	|				
N241:68	423169				
N241:69	423170	Underfloor Temperature 15			
	|				
N241:73	423174				
N241:74	423175	Underfloor Temperature 16			
	|				
N241:78	423179				
N241:79	423180	Underfloor Temperature 17			
	|				
N241:83	423184				
N241:84	423185	Underfloor Temperature 18			
	|				
N241:88	423189				
N241:89	423190	Underfloor Temperature 19			
	|				
N241:93	423194				
N241:94	423195	Underfloor Temperature 20			
	|				
N241:98	423199				

2.2.51 Pump Package Parameters

AB	Modbus	Description	R/W	Format	Scale
N273:99	426400	Pump Package Viewport	R/W	0 = No Entries 1-4 = Pump Package #X	
N274:0	426401	Enabled By	R/W	0 = Manual 1 = Digital Input	X1
N274:1	426402	Pump Control	R/W	0 = Disabled 1 = Auto Control 2 = Pump 1 On 3 = Pump 2 On 4 = Pump 3 On 5 = All Pumps On	X1
N274:2	426403	Lead Pump Selection	R/W	0 = Pump 1 1 = Pump 2 2 = Pump 3	X1
N274:3	426404	Lag Pump Selection	R/W	0 = Pump 1 1 = Pump 2 2 = Pump 3	X1
N274:4	426405	Backup Pump Selection	R/W	0 = Pump 1 1 = Pump 2 2 = Pump 3	X1
N274:5	426406	Backup Pump Start Pressure	R/W	0.07 - 6.89 barD -27.8 PSID - 85.2 PSID	X100

AB	Modbus	Descrition	R/W	Format	Scale
N274:6	426407	Backup Pump Shutoff Pressure	R/W	0.07 - 6.89 barD -27.8 PSID - 85.2 PSID	X100
N274:40	426441	Backup Pump Start Discharge Pressure	R/W	1.01 - 35.49 barA -0.1 PSIG - 500 PSIG	X100
N274:41	426442	Backup Pump Shutoff Discharge Pressure	R/W	1.01 - 35.49 barA -0.1 PSIG - 500 PSIG	X100
N274:7	426408	Automatic Pump Switchover	R/W	0 = Weekly 1 = Runtime -1 = None	X1
N274:8	426409	Pump Switchover Delay	R/W	0 - 60 s	X1
N274:9	426410	Pump 1 Run Time	R/W	0 - 99999 h	X1
N274:10	426411	Pump 2 Run Time	R/W	0 - 99999 h	X1
N274:11	426412	Pump 3 Run Time	R/W	0 - 99999 h	X1
N274:12	426413	Pump Low Differential Pressure Warning	R/W	0.07 - 6.89 barD -27.8 PSID - 85.2 PSID	X100
N274:13	426414	Pump Low Discharge Pressure Warning	R/W	0.07 - 6.89 barA -27.8 PSIG - 85.2 PSIG	X100
N274:14	426415	Delay Time Low Pressure	R/W	1 - 1800 s	X1
N274:15	426416	Restart Pumps On Low Pressure	R/W	0 = Disabled -1 = Enabled	X1
N274:16	426417	Number of Automatic Restarts for Cavitation	R/W	1 - 10	X1
N274:17	426418	Pump Restart Delay For Anti-Cavitation	R/W	6 - 1800 s	X1
N274:18	426419	Continuous Pump Run Failure Reset Time	R/W	1 - 30 min	X1
N274:19	426420	Pump 1 High Motor Current Pump Shutdown	R/W	0.0 - 999.0 A	X10
N274:20	426421	Pump 2 High Motor Current Pump Shutdown	R/W	0.0 - 999.0 A	X10
N274:21	426422	Pump 3 High Motor Current Pump Shutdown	R/W	0.0 - 999.0 A	X10
N274:22	426423	Motor Current Pump Shutdown Delay	R/W	0 - 120 s	X1
N274:23	426424	Saturated Temperature Begin	R/W		X10
N274:24	426425	Saturated Temperature End	R/W		X10
N274:25	426426	Compressor Must Be Running To Allow Pumps To Run	R/W	0 = Disabled -1 = Enabled	X1
N274:26	426427	High Level Warning Set Point	R/W	0.0 - 100.0 %	X10
N274:27	426428	Low Level Warning Set Point	R/W	0.0 - 100.0 %	X10
N274:28	426429	Low Level Pump Shutoff Set Point	R/W	0.0 - 100.0 %	X10
N274:29	426430	Low Level Pump Shutoff Delay	R/W	1 - 60 s	X1
N274:30	426431	Low Level Pump Shutoff Enable Offset	R/W	1.0 - 50.0 %	X10
N274:31	426432	Modulating Level Valve Set Point	R/W	0.0 - 100.0 %	X10
N274:32	426433	Proportional Term	R/W	0.0 - 500.0	X10
N274:33	426434	Integral Term	R/W	0.0 - 500.0 s/R	X10
N274:34	426435	Control Mode	R/W	0 = Auto 1 = Manual	X1

AB	Modbus	Description	R/W	Format	Scale
N274:35	426436	Manual Mode Position	R/W	0 - 100	X1
N274:36	426437	Liquid Feed Valve On Below	R/W	0.0 - 100.0 %	X10
N274:37	426438	Liquid Feed Valve Off Above	R/W	0.0 - 100.0 %	X10
N274:38	426439	Bypass Valve Open Below Set Point	R/W	0 - 100	X1
N274:39	426440	Bypass Valve Close Above Set Point	R/W	0 - 100	X1

2.2.52 Pump Package Analog Data

AB	Modbus	Description	R/W	Format	Scale
N275:99	426600	Pump Package Suction Pressure	R		X100
	|		|		
N276:8	426609		R		
N276:9	426610	Pump Package Discharge Pressure	R		X100
	|		|		
N276:18	426619		R		
N276:19	426620	Pump Package Vessel Level	R		X1
	|		|		
N276:28	426629		R		
N276:29	426630	Pump Package Modulating Level Valve	R		X1
	|		|		
N276:38	426639		R		
N276:39	426640	Pump Package Pump 1 Motor Current	R		X1
	|		|		
N276:48	426649		R		
N276:49	426650	Pump Package Pump 2 Motor Current	R		X1
	|		|		
N276:58	426659		R		
N276:59	426660	Pump Package Pump 3 Motor Current	R		X1
	|		|		
N276:68	426669		R		
N276:69	426670	Pump Package Differential Pressure	R		X100
	|		|		
N276:78	426679		R		
N276:79	426680	Pump Package Pump 1 Differential Pressure	R		X100
	|		|		
N276:88	426689		R		
N276:89	426690	Pump Package Pump 2 Differential Pressure	R		X100

AB	Modbus	Description	R/W	Format	Scale
	|		|		
N276:98	426699		R		
N276:99	426700	Pump Package Pump 3 Differential Pressure	R		X100
	|		|		
N277:8	426709		R		
N277:9	426710	Pump Package Pump 1 Inlet Pressure	R		X100
	|		|		
N277:18	426719		R		
N277:19	426720	Pump Package Pump 2 Inlet Pressure	R		X100
	|		|		
N277:28	426729		R		
N277:29	426730	Pump Package Pump 3 Inlet Pressure	R		X100
	|		|		
N277:38	426739		R		
N277:39	426740	Pump Package Pump 1 Outlet Pressure	R		X100
	|		|		
N277:48	426749		R		
N277:49	426750	Pump Package Pump 2 Outlet Pressure	R		X100
	|		|		
N277:58	426759		R		
N277:59	426760	Pump Package Pump 3 Outlet Pressure	R		X100
	|		|		
N277:68	426769		R		
N277:69	426770		-		
	|	Reserved for Pump Package Analog Data	|		
N278:48	426849		-		

2.2.53 Pump Package Digital Data

AB	Modbus	Description	R/W	Format	Scale
N274:99	426500	Pump Package Enable Input	R		bit
	|				
N274:99	426500				
N275:0	426501	Pump Package Enabled Output	R		bit
	|				

AB	Modbus	Description	R/W	Format	Scale
N275:0	426501				
N275:1	426502	Pump Package Reset Input	R		bit
	|				
N275:1	426502				
N275:2	426503	Pump Package Reset Output	R		bit
	|				
N275:2	426503				
N275:3	426504	Pump Package Compressor Running Input	R		bit
	|				
N275:3	426504				
N275:4	426505	Pump Package Pump Start Permissive Input	R		bit
	|				
N275:4	426505				
N275:5	426506	Pump Package Seal Oil Level Monitoring	R		bit
	|				
N275:5	426506				
N275:6	426507	Pump Package High Level Shutdown	R		bit
	|				
N275:6	426507				
N275:7	426508	Pump Package Pump 1 Start Output	R		bit
	|				
N275:7	426508				
N275:8	426509	Pump Package Pump 2 Start Output	R		bit
	|				
N275:8	426509				
N275:9	426510	Pump Package Pump 3 Start Output	R		bit
	|				
N275:9	426510				
N275:10	426511	Pump Package Pump 1 Start Permissive	R		bit
	|				
N275:10	426511				
N275:11	426512	Pump Package Pump 2 Start Permissive	R		bit
	|				
N275:11	426512				
N275:12	426513	Pump Package Pump 3 Start Permissive	R		bit

AB	Modbus	Descrition	R/W	Format	Scale
	|				
N275:12	426513				
N275:13	426514	Pump Package Pump 1 Interlock	R		bit
	|				
N275:13	426514				
N275:14	426515	Pump Package Pump 2 Interlock	R		bit
	|				
N275:14	426515				
N275:15	426516	Pump Package Pump 3 Interlock	R		bit
	|				
N275:15	426516				
N275:16	426517	Pump Package Pump 1 Thermal Overload	R		bit
	|				
N275:16	426517				
N275:17	426518	Pump Package Pump 2 Thermal Overload	R		bit
	|				
N275:17	426518				
N275:18	426519	Pump Package Pump 3 Thermal Overload	R		bit
	|				
N275:18	426519				
N275:19	426520	Pump Package Pump 1 High Motor Current	R		bit
	|				
N275:19	426520				
N275:20	426521	Pump Package Pump 2 High Motor Current	R		bit
	|				
N275:20	426521				
N275:21	426522	Pump Package Pump 3 High Motor Current	R		bit
	|				
N275:21	426522				
N275:22	426523	Pump Package Pump 1 Seal Oil Level Monitoring	R		bit
	|				
N275:22	426523				
N275:23	426524	Pump Package Pump 2 Seal Oil Level Monitoring	R		bit
	|				

AB	Modbus	Descrition	R/W	Format	Scale
N275:23	426524				
N275:24	426525	Pump Package Pump 3 Seal Oil Level Monitoring	R		bit
	|				
N275:24	426525				
N275:25	426526	Pump Package Pump 1 Auxiliary Pump Shutdown Input	R		bit
	|				
N275:25	426526				
N275:26	426527	Pump Package Pump 2 Auxiliary Pump Shutdown Input	R		bit
	|				
N275:26	426527				
N275:27	426528	Pump Package Pump 3 Auxiliary Pump Shutdown Input	R		bit
	|				
N275:27	426528				
N275:28	426529	Pump Package Pump 1 Low Differential Pressure Input	R		bit
	|				
N275:28	426529				
N275:29	426530	Pump Package Pump 2 Low Differential Pressure Input	R		bit
	|				
N275:29	426530				
N275:30	426531	Pump Package Pump 3 Low Differential Pressure Input	R		bit
	|				
N275:30	426531				
N275:31	426532	Pump Package High Differential Pressure Input	R		bit
	|				
N275:31	426532				
N275:32	426533	Pump Package Pump 1 High Differential Pressure Input	R		bit
	|				
N275:32	426533				
N275:33	426534	Pump Package Pump 2 High Differential Pressure Input	R		bit
	|				
N275:33	426534				
N275:34	426535	Pump Package Pump 3 High Differential Pressure Input	R		bit

AB	Modbus	Description	R/W	Format	Scale
	|				
N275:34	426535				
N275:35	426536	Pump Package Needs Reset	R		bit
	|				
N275:35	426536				
N275:36	426537	Pump Package Warning Status	R		bit
	|				
N275:36	426537				
N275:37	426538	Pump Package Pump Shutoff Status	R		bit
	|				
N275:37	426538				
N275:38	426539	Pump Package Liquid Feed Valve	R		bit
	|				
N275:38	426539				
N275:39	426540	Pump Package Bypass Valve	R		bit
	|				
N275:39	426540				
N275:40	426541	Pump Package Companion Shutoff Valve	R		bit
	|				
N275:40	426541				
N275:41	426542		-		
	|	Reserved for Pump Package Digital Data	|		
N275:98	426599		-		

2.2.54 Pump Package Commands

AB	Modbus	Description	R/W	Format	Scale
N278:49	426850	Pump Control	R/W	0 = Disabled 1 = Auto Control 2 = Pump 1 On 3 = Pump 2 On 4 = Pump 3 On 5 = All Pumps On	X1
N278:50	426851	Lead Pump Selection	R/W	0 = Pump 1 1 = Pump 2 2 = Pump 3	X1
N278:51	426852	Lag Pump Selection	R/W	0 = Pump 1 1 = Pump 2 2 = Pump 3	X1
N278:52	426853	Backup Pump Selection	R/W	0 = Pump 1 1 = Pump 2 2 = Pump 3	X1

AB	Modbus	Descrition	R/W	Format	Scale
N278:59	426860	Pump Package 1			
	|		|		
N278:68	426869		-		
N278:69	426870	Pump Package 2			
	|		|		
N278:78	426879		-		
N278:79	426880	Pump Package 3			
	|		|		
N278:88	426889		-		
N278:89	426890	Pump Package 4			
	|		|		
N278:98	426899		-		
N278:99	426900	Pump Package 5			
	|		|		
N279:8	426909		-		
N279:9	426910	Pump Package 6			
	|		|		
N279:18	426919		-		
N279:19	426920	Pump Package 7			
	|		|		
N279:28	426929		-		
N279:29	426930	Pump Package 8			
	|		|		
N279:38	426939		-		
N279:39	426940	Pump Package 9			
	|		|		
N279:48	426949		-		
N279:49	426950	Pump Package 10			
	|		|		
N279:58	426959		-		

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