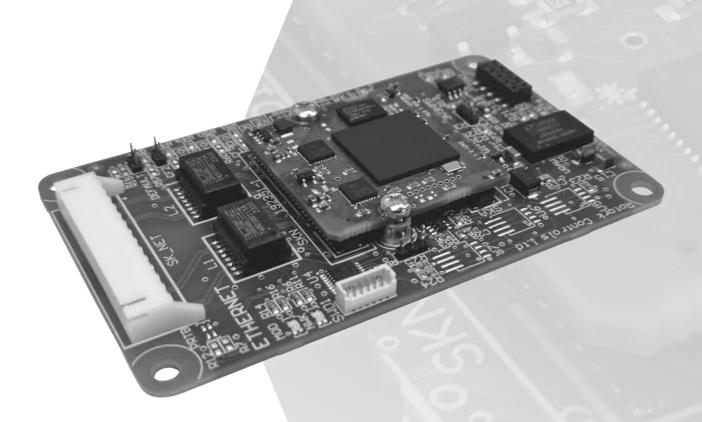
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Keeping the World Flowing for Future Generations



EtherNet/IP option card

Technical manual

Compatible with IQ3 Pro and IQT3 Pro actuators







The EtherNet/IP card described in this manual contains static-sensitive devices. Suitable precautions, such as wearing an earthed anti-static wrist strap, should be taken before handling the card. It should be kept in an anti-static bag or box while it is not fitted within an actuator.

Note 1:

Throughout this manual the EtherNet/IP option module may be referred to as the module, the EtherNet/IP option card, the option card or the card. EtherNet/IP is a trademark owned by ODVA.

Note 2

The information in this manual relates to the following firmware releases:

• EtherNet/IP option card v103 and v104

Differences between v103 and v104 firmware:

- NAMUR features not available in v103
- Parameter indices 28 to 31 are reserved in v103
- Parameter indices 324 onwards are not available in v103
- Enum values 99 onwards (for relay functions) not available in v103

Firmware versions:

This table shows the firmware required within the actuator, for the two versions of Ethernet option card:

Actuator firmware	Control board	rd User interface board			
v103 version	v128 (or later)	v207 (or later)			
v104 version	v133	v212			

This table show the firmware within the Ethernet option card for the two versions of Ethernet:

Ethernet option card	Actuator interface firmware	EtherNet I/P protocol firmware	Webpage
v103 version	v103	v1.58	v1.03
v104 version	v104	v1.62	v1.04

The EDS file associated with the EtherNet/IP option card (0293002B00340100.eds) can be downloaded from the Rotork ODVA Member Page at: https://marketplace.odva.org/organizations/220-rotork-controls-ltd. This location will always contain the latest version of EDS to be used with the latest firmware. The EDS files (in ZIP files) are also available for download from www.rotork.com:

Ethernet option card	EDS ZIP file name
v103 version	IQ3-IQT3 Pro EtherNetIP EDS v103.zip – Note within the EDS file the version listed is v1.01. The file name references v103 to make it clear it is to be used with v103 firmware.
v104 version	IQ3-IQT3 pro EtherNetIP EDS v104.zip

Note 3:

This manual assumes a pre-existing level of knowledge of using the actuator that the EtherNet/IP option card is installed inside. It is recommended that the IQ3 Pro full configuration manual (PUB002-040) for the actuator is read prior to setting up EtherNet/IP with the actuator. Manuals can be downloaded from the Rotork website. This manual also assumes intermediate knowledge of the EtherNet/IP protocol and networks. Training is available via the ODVA website www.odva.org.

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Acronyms and abbreviations

CIP Common Industrial Protocol

Comms Communications

DCS Data Concentrator System

DHCP Dynamic Host Configuration Protocol

DLR Device Level Ring
DNS Domain Name System
EDS Electronic Data Sheet

EMC Electromagnetic Compatability
 EMI Electromagnetic Interference
 ESD Electrostatic Discharge
 HTTP HyperText Transfer Protocol
 iAM Intelligent Asset Management

IP Internet Protocol

LED Light Emitting Diode

MAC Media Access Control

ODVA Open DeviceNet Vendors Association

PCBA Printed Circuit Board Assembly
PLC Programmable Logic Controller

SCADA Supervisory Control And Data Acquisition

TCP Transport Control Protocol
UDP User Datagram Protocol

1 Introduction

This document gives instructions for commissioning the EtherNet/IP option card.

1.1 EtherNet/IP

The card has been certified for EtherNet/IP compliance by ODVA.

Rotork can be found as a licensed vendor on the ODVA website. The EDS file associated with the EtherNet/IP option card (0293002B00340100.eds) can be downloaded from the Rotork ODVA Member Page at https://marketplace.odva.org/organizations/220-rotork-controls-ltd

The option card has two physical connection options that must be selected at the time of order, either 2 x RJ45 or 2 x M12, with transmission speeds of up to 100 Mbps, full duplex. Communications are established using auto negotiation and auto crossover, by default.

Due to the presence of two Ethernet ports, the option card is capable of being used in various network topologies, including:

- Ring (including Beacon Based Device Level Ring DLR)
- Star
- Line

The card indicates a loss of connection when one or more CIP Class 1 or 3 connections are lost.

The EtherNet/IP option circuits do not impinge on the actuator control electronics; the actuator itself remains fully self-protecting. The module performs the tasks of network interface, actuator data collection and the issuing of actuator commands to open, stop, close, perform an ESD operation, or move to a desired value (DV) position.



Fig 1: The option card is compatible with IQ3 Pro (left) and IQT3 Pro (right) actuators

1.2 Safety information

The control switch on the front panel must be in the 'STOP' position during commissioning of the option card, this will prevent all movement of the drive shaft.

The control switch is a 3-position switch, as described in PUB002-040. The actuator is powered by AC and DC voltages, as specified in PUB002-197. In normal circumstances this mains power is not exposed to the user but may be exposed if the terminal cover is removed during installation of the Ethernet cables to the RJ45 or M12 connectors. It is important that the actuator is isolated from mains power when removing the terminal cover when accessing the RJ45 or M12 connectors.

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2 EtherNet/IP option card properties

2.1 Mechanical properties

The option card is installed inside the actuator, mounting directly onto the main control board of the actuator using 4 Torx screws.

All the connectors are polarised to prevent incorrect insertion.



Fig 2: EtherNet/IP option card

2.2 Electrical properties

The option card external network connections are fully isolated from the actuator electronics.

2.3 Operation and storage

The option card is designed to be stored in the actuator and operated within the same environment as the actuator.

The constraints are:

Operating temperature: -40 to +70 °C (-40 to +158 °F)
 Storage temperature: -50 to +85 °C (-58 to +185 °F)

Relative humidity: 5 to 95% (<50 °C (<122 °F)) non-condensing

2.4 Inside an IQ3 Pro and IQT3 Pro actuator

The option card is suitable for fitting into IQ3 Pro actuators. The connections and fitting in an IQT3 Pro are similar to that for an IQ3 Pro and the following information effectively relates to both actuator types. The option card can be located into either of the two mounting locations available on the main PCB.

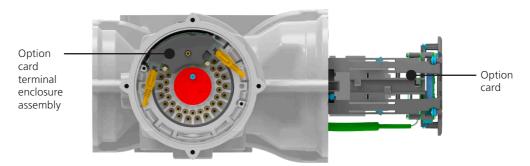


Fig 3: Option card and terminal enclosure locations

2 EtherNet/IP option card properties

2.5 Option card LEDs

If the actuator cover is opened there are several LEDs on the circuit board that are used to indicate communication activity. These indicate the communication between the network and the card. Alternatively the presence of an Ethernet connection can be observed on the EtherNet/IP menu on the actuator display or the availability of the webpages.

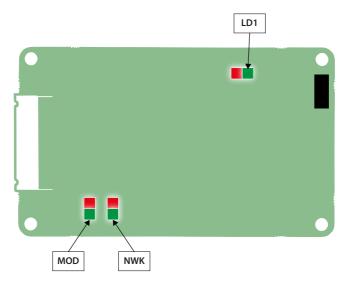


Fig 4: EtherNet/IP card LED positions

LED	Appearance	Meaning
MOD	Off	No power
MOD	Green	Controlled by scanner in Run state
MOD	Green flashing	Not configured, or scanner in Idle state
MOD	Red	Major fault
MOD	Red flashing	Recoverable fault(s), or module configured but stored parameters differ from currently used parameters
NWK	Off	No power or no IP address
NWK	Green	Online, one or more CIP Class 1 or 3 connections established
NWK	Green flashing	Online, no connections established
NWK	Red	Duplicate IP address, FATAL error
NWK	Red flashing	One or more CIP Class 1 or 3 connections timed out
LD1	Alternating red and green	Normal operation
LD1	Alternating 2 red and 1 green	Option card communication issue with its network module
LD1	Alternating 4 red and 1 green	Option card FTP Enabled
LD1	Alternating red and 2 green	Communication issue between option card and actuator control board

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3 Industrial Ethernet

3.1 Overview

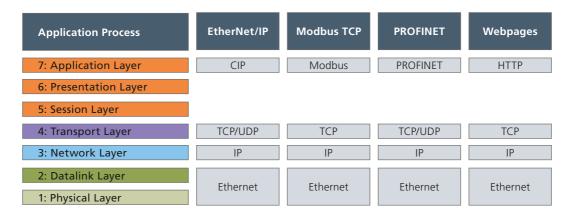
Ethernet is a family of computer networking technologies, invented in the early 1970's, commercially introduced in 1980 and first standardised in 1983 as IEEE 802.3. It is used extensively throughout the world.

In its most basic form, it is a means of carrying data between two points in a digital format. The data is packaged into message telegrams, which also include routing data, error checking and message type information.

The Ethernet specification is a transmission protocol which covers the bottom two layers in the OSI 7-layer comms model:

- It defines the specification for the Physical Layer interface, i.e. cabling and devices
- It also defines how data is routed through a network or series of networks, known as the Data Link Layer comprising of Logical Link Control (LLC) and Media Access Control (MAC)

The various Industrial Ethernet communications protocols 'sit' on top of the Ethernet Physical and Data Link layers, the figure below shows a simplified presentation of some of the protocols that reside in each OSI layer.



Ethernet refers only to the Physical and Datalink layers of the OSI model, and should not be confused with EtherNet/IP.

3.2 Network topology

Ethernet can be configured in several topologies, the most common ones are illustrated below.

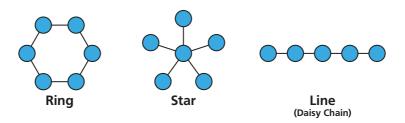


Fig 5: Common network topologies

Beacon Based Device Level Ring (DLR) is also supported. DLR is a network technology in industrial automation that enables controllers and I/O modules to create Ethernet ring networks.

3.3 Cable and screening

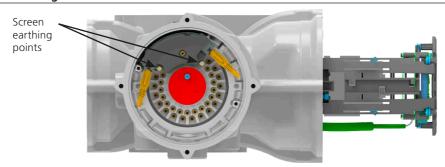


Fig 6: Screen earthing screw locations

Cable and screening

It is recommended that industrial grade dual pair screened CAT5 or CAT6 cables are used, due to their superior mechanical and electrical properties.

In the industrial environment, there are potential issues surrounding inadequate equipotential bonding, particularly on mature sites. For this reason, careful consideration needs to be given to the earthing of the screens of signal and communications cable. However, sites may have policies or rules regarding the connection of both ends of a cable to earth.

Screen connection options

It is the assumption that the screens of Ethernet cables should be earthed at both ends as a protection against EMI of all types. This is the optimum configuration and should be used if possible.

It is further assumed that the screens will be earthed by default at the 'central point,' e.g., PLC, DCS, etc.

To earth the Ethernet cable at the actuator, in order of preference, either:

- Use an 'EMC' gland to earth the screen at the point of entry into the enclosure
- Ensure the screw is fitted to the screen earthing point for the Ethernet port(s) used, as shown in the diagram above (Fig 6)

If earthing the Ethernet cable at the actuator is not required, in order of preference, either:

- On the Ethernet port that the earthing is not required, remove the earthing screw from the screen earthing point. This will allow the default termination of 1nF in parallel with $1M\Omega$ to earth on that port
- Crop the cable screen so that the chosen connector does not have a screen connection

For situations that make use of both Ethernet ports (i.e. Ring or Line topology), the earthing arrangements may need to be different for each port. For instance, in a Ring connected system, each leg needs to be earthed at one or both ends. This must take place at the actuators since the cable only connects between actuators. In other topologies employing switches or routers, there are more options.

3 Industrial Ethernet

3.4 Ethernet network security

When installing an Ethernet control network an assessment of the level of security required should be made. Security policies may require modification appropriate for the control and business networks.

Coordination between IT (Information Technology) and OT (Operational Technology) network teams is required to ensure a suitable network infrastructure is implemented.

For example, IT departments may use remote access to periodically maintain and update devices on the business network; these routine updates could disrupt the operation of the control system network. Additionally, control system software updates and configuration must be strictly controlled as remote connections may introduce security risks.

The security guidance in this document is intended to help the user implement and maintain reasonable security of the Ethernet actuator. However, no security implementation can guarantee to protect against all existing, new, or previously unknown threats. Rotork does not guarantee that adherence to these and any other security recommendations will protect the Ethernet actuator from security breaches and any subsequent impact on process in which the Ethernet actuator is involved with.

Many common industrial control protocols (e.g. Modbus/TCP, PROFINET, EtherNet/IP) do not encrypt data and so offer no protection against third parties monitoring data or injecting commands. Therefore we would recommend:

- · Segregating networks where possible to control the flow and availability of data. The Purdue model is a good example of this
- · Physical security of the network is reviewed and controlled to ensure that no third parties can access it
- Default passwords on devices be changed during installation/commissioning to ensure that access be limited to approved users

4.1 Factory default settings

A Rotork actuator fitted with an EtherNet/IP option card leaves the factory with the following default settings:

Host Name: "" Port 1 Network Speed: Auto Negotiate

DHCP Enabled: Enabled Port 2 Network Speed: Auto Negotiate

0.0 **Domain Name:** Command Filter Delay (ms): 250 IP Address: 0.0.0.0 FTP Enabled: Disabled Subnet Mask: 0.0.0.0 Webpage Admin Password: ROTACT Gateway Address: Webpage Engineer Password: 0.0.0.0 **ROTORK**

Primary DNS server: 0.0.0.0
Secondary DNS server: 0.0.0.0

Notes:

- · Webpage passwords should be changed from default during commissioning
- Command Filter Delay is the fastest rate which repeat-value write operations to each parameter is sent to the actuator control board

For example, the EtherNet/IP scanner could be writing desired position to parameter 23, DesiredPosition, every 10 ms. Each write operation sends the same value of 3,000 (position 30.0%). The option card detects repeat-value write operations, and only forwards the desired position value to the actuator control board every 250 ms (which is the default delay)

If the value being written to the parameter is different from the last, then the command is immediately forwarded to the actuator control board

4.2 Using a DHCP server to set up the EtherNet/IP card

The EtherNet/IP option card has a DHCP client service enabled by default. The network settings can be set using a DHCP server connected to the same network as the actuator.

The network settings can be checked using Insight 2 and the Bluetooth Setting Tool.

4.3 Configuring the option card using the actuator menus

Before you begin, read the appropriate safe use manual: PUB002-039 for multi-turn IQ3 Pro actuators or PUB002-065 for part-turn IQT3 Pro actuators and the full configuration manual, PUB002-040. Check for any errors that may affect the configuration and resolve them. An example is the text "Hardware Error" appearing at the top of the display. Check the Remote Control menu, as described in PUB002-040.

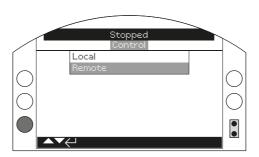
From the home screen select **Settings**.



From the **Settings** menu, select **Control**.



From the **Control** menu, select **Remote**.



From the **Remote** menu, select **EtherNet/IP**. Note that this option appears only when the option card is fitted.

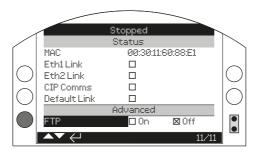


You have now reached the EtherNet/IP menu. The screen below is an example where the IP Address is static.

Note that there must be an Ethernet link established with the option card for IP settings to appear, otherwise zeros will be shown. It can take up to 15 seconds for IP settings to appear or disappear when Ethernet link is made or lost respectively.

Also note that when configuring the IP settings, changes take up to 15 seconds to appear. If the IP changes are not successful, the settings will revert to previous values or default values stated in Section 4.1 Factory default settings.





1/11	DHCP	Set this to On if you are using a DHCP server, Off otherwise.
2/11	IP Address	This is the IP address of the actuator and should follow your normal address sequence for your network. Use the ② and ③ keys to edit the values, as you would for changing tags and passwords on other actuator screens and ③ and ⑤ keys to move between characters. This does not need to be set if DHCP is on.
3/11	IP Netmask	This is usually set to 255.255.255.0, unless required otherwise by your Ethernet network.
4/11	Default Gateway	This should be set to 0.0.0.0, unless you are using a gateway.
5/11	DNS server	The primary DNS server used by the option card. It is common practice to use numerical IP addresses but there is an option to use a DNS server. If you are not using one, this should be set to 0.0.0.0.
6/11	MAC	MAC address of the option card.
7/11	Eth1 Link	Indicates whether Ethernet link is present on Port 1.
8/11	Eth2 Link	Indicates whether Ethernet link is present on Port 2.
9/11	CIP Comms	Indicates whether one or more CIP (Class 1 or Class 3) connections are established.
10/11	Default Link	Indicates whether the default hard wire link is inserted in the option card during power-up or firmware reset. If the default link is inserted, option card configurations are set to default values.
11/11	FTP	Indicates whether FTP is enabled and remote control of the actuator is disabled.

4.4 Configuring the option card using the web interface

Enter the IP address of your actuator in your browser and press return. The home page shows the serial number of the actuator and network type to determine whether you have connected to the correct device. The home page and banner on the bottom line are shown below. Note that the banner on the bottom line appears on every webpage.



Click on the Log In button. You will be prompted to enter the username and password.



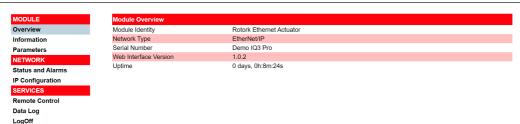
To Log on, enter the username ("Admin" or "Engineer") and password that has been assigned to the actuator using Insight 2. Refer to Section 4.1 Factory default settings for default webpage passwords. Passwords can be changed by connecting to the actuator using Insight 2. The two possible usernames are:

Engineer: Permission to read and write data from the option card.

Admin: Permission to read only.

Once logged in, the **Overview page** appears.

4.4.1 Overview

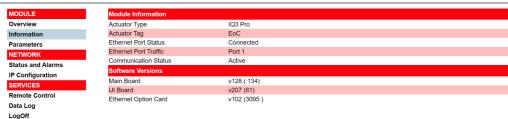


The **module overview** gives basic information about the actuator. Note that the serial number is free-form text, used to identify each actuator

The **menu** is located at the left hand side of the page. It remains visible on all other pages.

You can select further pages, as follows:

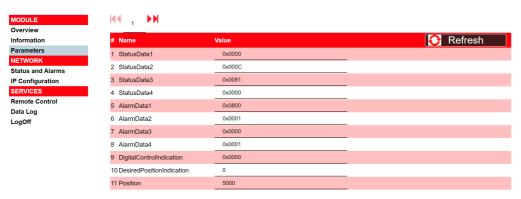
4.4.2 Information



This gives further details about the option card and actuator, and lists the software versions.

4.4.3 Parameters

This page shows the parameters listed in Section 6, Parameters. This page does not automatically refresh, so there is a Refresh button on the top right corner. The parameters are split into multiple pages. The parameter pages can be navigated using the arrow keys located at the top of the parameters table.



4.4.4 Status and Alarms



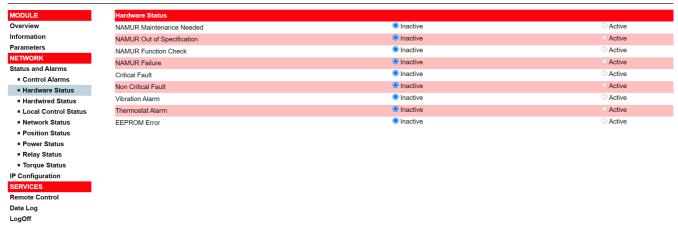
Clicking on Status and Alarms reveals more pages which can be accessed.

4.4.5 Control Alarms



This page shows the actuator alarms, as detailed in PUB002-040.

4.4.6 Hardware Status



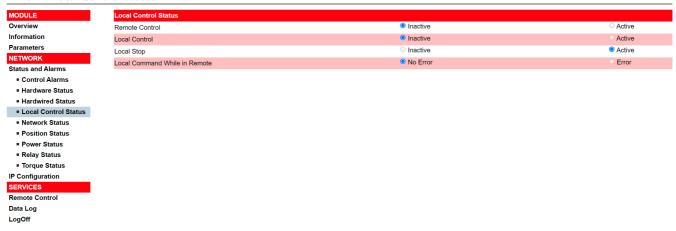
This page shows the hardware status, as detailed in PUB002-040.

4.4.7 Hardwired Status



This shows the status of the digital inputs and input function status, as detailed in PUB002-040.

4.4.8 Local Control Status



This shows the status of the local control switch, as detailed in PUB002-040.

4.4.9 Network Status



The Network Status page shows similar items to that of the EtherNet/IP menu on the actuator display.

4.4.10 Position Status



This shows the position calibration and status, as detailed in PUB002-040.

4.4.11 Power Status



This shows the status of the power supply, as detailed in PUB002-040.

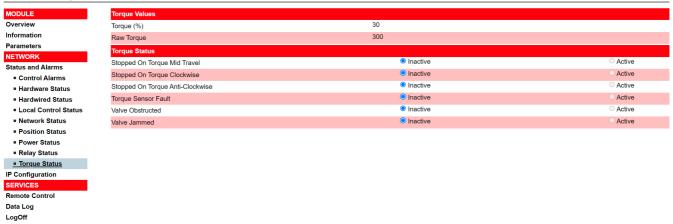
4.4.12 Relay Status



This shows the status of the relays, as detailed in PUB002-040. Not all relays are fitted on all actuators. Relays which are not fitted will show as inactive.

4.4.13 Torque Status

LogOff



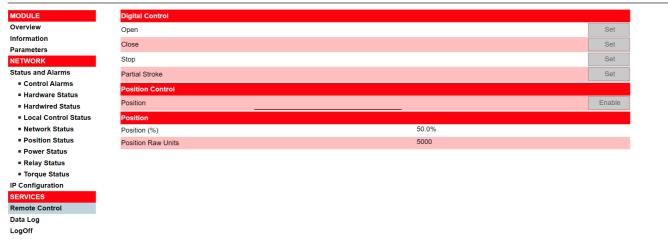
This shows the torque measurements, as detailed in PUB002-040.

4.4.14 IP Configuration



This displays the same data as the Network Status page but also allows you to edit the settings. Note that if the IP address of the option card is changed, the new IP address must be used to access the webpages.

4.4.15 Remote Control



This allows you to control the actuator remotely.

Trior to controlling the actuator remotely using this method, check parameter instance #39 ActionOnLossOfComms. Following a remote control operation using the option card web interface; the actuator will execute the action specified in parameter instance #39 ActionOnLossOfComms if there is no CIP Class 1 or 3 connection established. To prevent an action being taken, ensure the ActionOnLossOfComms is set to None (no action).

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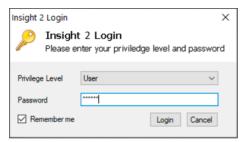
Data Log 4.4.16 Overview Information Compile Data Log Parameters **NETWORK** Status and Alarms ■ Control Alarms ■ Hardware Status ■ Hardwired Status ■ Local Control Status Network Status ■ Position Status ■ Power Status ■ Relay Status ■ Torque Status IP Configuration SERVICES Remote Control Data Log LogOff

This allows you to retrieve the data log and configuration from the actuator. Note that the data log file is a binary file, and can only be processed by being sent to a remote system for analysis. An example of a suitable remote system is the Rotork iAM product.

4.5 Using Insight 2 to set up the EtherNet/IP option card

See PUB095-004 for guidance on how to use Insight 2, a PC-based tool to view and configure actuator settings.

1. Launch Insight 2 and select the username assigned to you for the Privilege Level. In the Password field, enter the appropriate password. Then click on the Login button.

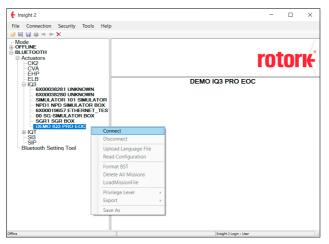


- 2. Insight 2 communicates with the actuator using Bluetooth. To enable discovery mode on the actuator, refer to the IQ3/IQT3 full configuration manual PUB002-040.
- 3. With the actuator now set to Bluetooth discoverable, in Insight 2 go to Connection -> Discover Device.

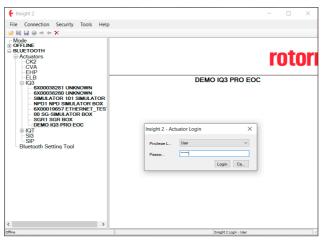


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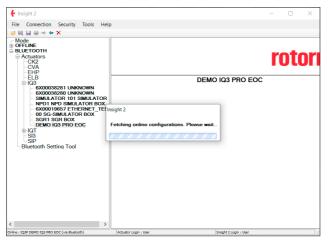
4. In the left panel a list of discovered actuators appears. Right click on an actuator and click Connect. In this example, an IQ3 actuator fitted with an EtherNet/IP option card is used.



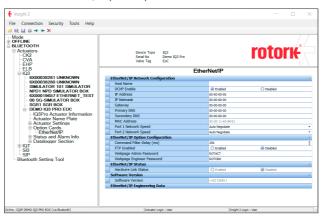
5. If connection to the actuator is successful, an actuator login prompt will appear. Set the appropriate privilige level and enter the corresponding password. Then click on the Login button.



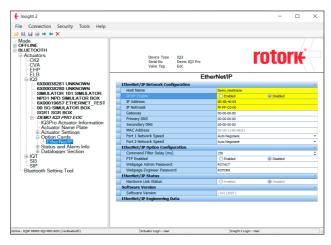
6. Insight 2 fetches the online configuration.



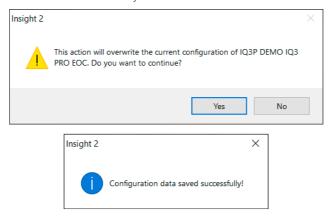
7. Once the configuation is retrieved from the actuator, expand Option Cards and select EtherNet/IP.



8. To modify the network settings, type in the new settings, then click on the Send Configuration icon (blue arrow pointing right). The IP settings must be entered in hexadecimal format, separated by hyphens. For example, 13.107.64.5 is 0D-6B-40-05 in hexadecimal format.



9. When sending configurations to the actuator, a warning dialog appears that current configurations of the actuator will be overwritten. Click on the Yes button to continue. If the configurations have successfully been modified, another dialog appears to confirm that configuration data has been sent to the actuator successfully.



5.1 EtherNet/IP status attribute table

The Status Attribute (#5) in the CIP Identity Object (0x01) is used by the option card as a basic diagnostics tool.

The following table describes the conditions required for each bit of the Status Attribute to be set by the option card.

Bit(s)	Description										
0	Module owned.										
1 – 3	Reserved.										
	Extended device status:										
4 – 7	Value Meaning 0000b Unknown. 0010b Faulted I/O connection. 0011b No I/O connection established. 0100b Non-volatile configuration bad. 0101b Major fault. 0110b Connection in Run mode. 0111b Connection in Idle mode. (other) Reserved.										
8	Minor recoverable fault: Set when Instance #18 NAMUROutofSpecAlarmData and Instance #20 NAMURMaintenanceAlarmData in the CIP Parameter Object (0x0F) have non-zero values.										
9	Reserved.										
10	Major recoverable fault: Set when Instance #17 NAMURFailureAlarmData and Instance #19 NAMURFunctionCheckAlarmData in the CIP Parameter Object (0x0F) have non-zero values. Also set when ByteO_CANFault bit is set in Instance #24 NetworkStatus1 in the CIP Parameter Object (0x0F), which indicates that there is a communication fault between the actuator and the option card.										
11 – 15	Reserved.										

6.1 EtherNet/IP parameter overview table

The table below provides an overview of the instances available in the CIP Parameter Object (0x0F) of the option card. See Section 6.3 for bitfield descriptions, 6.4 for enumeration descriptions, and refer to PUB002-040 for detailed parameter descriptions, where required. See Section 6.5 for descriptions of the attributes available for each parameter instance.

1 StatusData Bitled 2 Read StatusData Control Status S	Index	Data Name	Data Type	Data Size (octets)	Data Access	Description
2 Sebescherach Serviced 2 Road Scharboland Serviced 2 Road Scharboland Serviced 3 Road						Implicit Messaging
StatusDated	1	StatusData1	Bitfield	2	Read	StatusData1 to StatusData4: Actuator general status signals.
4 Standbilbard Strided 2 Read AarmData1 Strided 2 Read AarmData2 Strided 2 Read Digital control inclination Strided 2 Read Strided St	2	StatusData2	Bitfield	2	Read	
5 AlarmData Stried 2 Read AlarmData National Stried 2 Read AlarmData Stried 2 Read Stried Stried 2 Read Stried Stried Read Stried	3	StatusData3	Bitfield	2	Read	
5 Alambata Bitlied 2 Read Digital control. This is a read only version of the digital control parameter (index 23). Post Post	4	StatusData4	Bitfield	2	Read	
6 AmmOstada Briffeld 2 Read 8 Alam Chanda Briffeld 2 Read 8 Alam Chanda Briffeld 2 Read 9 Opjala Control. This is a most may be review of the digital control parameter (index 27) Position for control parameter (index 27) Position control. This is a most may be review of the digital control parameter (index 27) Position for parameter (index 27) Position for para	5	AlarmData1	Bitfield		Read	AlarmData1 to AlarmData4: Actuator general Alarm signals.
Read						
8 Nambusad Stried 2 Read Digital control: This is a read only version of the digital control parameter (index 27) Position control parameter (index 27) Position control parameter (index 27) Position control: This is a read only version of the position control parameter (index 27) Position (index 27) Position control parameter (index 27) Position (index			+			
go giplatControlIndication DisplatControlIndication DisplatControlIn			+			
Position control. This is a read only version of the position control parameter (index 23)						Digital control. This is a road only version of the digital control parameter (index 22)
Device/PositionIndication Unspreed int 2 Read Nation Notice Nation Notice Nation Notice Nation N		DigitalControllidication	Dittielu		neau	
17 Torquer/Drinct Signed int 2 Read Internal temperature of the actuators: Signed you will calibrate to limited range position if configured.	10	DesiredPositionIndication	Unsigned int	2	Read	Value in 100ths of %, range 0 (0.00%) to 10000 (100.00%).
Temperature	11	Position	Unsigned int	2	Read	
Analogueinput1 Unsigned int Unsigned int 2 Read Analogue input 1: Only applicable to actuators capable of additional analogue input cards. Range of 0.0059; bit 10000 (100.005) to 10000	12	TorqueOrThrust	Signed int	2	Read	Instantaneous torque in 10ths of a %. Range 0 (0.0%) to 1200 (120.0%).
Analogueinput1 Unsigned int 2 Read Analogue input 1: Only applicable to actuators capable of additional analogue input cards. Range 0 (0.00%) to 1000 (100.00%) to 1000 (100.0	13	Temperature	Signed int	2	Read	Internal temperature of the actuator: Signed value with units of 0.1 degrees Celsius.
Read	14		Unsigned int	2	Read	Analogue input 1: Only applicable to actuators capable of additional analogue input cards. Range 0 (0.00%) to 10000 (100.00%).
NAMUR 107 status and ailarm data for Failure or Heund in publication PUB002-040.	15	Analogueinput2	Unsigned int	2	Read	Range 0 (0.00%) to 10000 (100.00%).
NAMURFailureAlarmData Sitfield 4 Read NAMURFailureData bits are defined in the Bitfields table, and more details can be found in publication PUBDOZ-040.	16	NAMURAlarmDataAllMasked	Bitfield	4	Read	Data bits are defined in the Bitfields table, and more details can be found in publication PUB002-040.
NAMUROutofSpecAlarmData Strifield 4 Read NAMUROutofSpecDataMask, no. 35). Data bits are defined in the littleids table, and more details can be found in publication PUB002-040.	17	NAMURFailure Alarm Data	Bitfield	4	Read	NAMURFailureDataMask, no. 34). Data bits are defined in the Bitfields table, and more details can be found in publication PUB002-040.
NAMURFunctionCheckAlarmData Stiffeld 4 Read	18	NAMUROutofSpecAlarmData	Bitfield	4	Read	NAMUROutOfSpecDataMask, no. 35). Data bits are defined in the Bitfields table, and more details can be found in publication PUB002-040.
NAMURNamenanceAlarmData Bitfield 4 Read NAMURNamenanceDataMask, no. 37). Data bits are defined in the Bitfields table, and more details can be found in publication PUB002-104.	19	NAMURFunctionCheckAlarmData	Bitfield	4	Read	NAMURFunctionCheckDataMask, no. 36). Data bits are defined in the Bitfields table, and more details can be found in publication PUB002-040.
22 DigitalControl Bitfield 2 Read / Write Digital control: Digital movement for the actuator. Writing here will cause movement if the actuator is available for remote control. 23 DesiredPosition Unsigned int 2 Read / Write DesiredPosition Unsigned int DesiredPosition Unsigned int DesiredPosition Unsigned int DesiredPosition Unsigned int DesiredPosition October DesiredPosition October DesiredPosition October DesiredPosition October DesiredPosition Desired DesiredPosition Unsigned int DesiredPosition October DesiredPosition Desired D	20	NAMURMaintenanceAlarmData	Bitfield	4	Read	NAMURMaintenanceDataMask, no.37). Data bits are defined in the Bitfields table, and more details can
DesiredPosition Unsigned int 2 Read / Write Read / Write 1 DesiredPosition Unsigned int 2 Read / Write Read	21	NAMURStatusAlarmData	Bitfield	4	Read	
DesiredPosition Unsigned int 2 Read / Write 10000 (100.00%), Writing here will cause movement if the actuator is available for remote control and the PositionEnable bit is est in DigitalControl (index 22). MultiportMultiset actuator: Value in 10s of port number. Range 10 (port 1) to 160 (port 16). MultiportMultiset actuator: Value in 10s of port number. Range 10 (port 1) to 160 (port 16). MultiportStatus3 Bitfield 2 Read Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Requires the actuator to be a Multiport status. MultiportStatus4 Bitfield 2 Read MultiportStatus5 Bitfield 2 Read MultiportStatus4 MultiportStatus4 Bitfield 2 Read MultiportStatus4 MultiportStatus4 Bitfield 2 Read Multiport status. MultiportNearestPort Unsigned int 2 Read Multiport NearestPort: indicates the port nearest to the current position. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. MultiportPositionDegrees Unsigned int Port 1 = 0° Port 2 = 120° Port 3 = 240° Read Write Read / Write Rea	22	DigitalControl	Bitfield	2	Read / Write	if the actuator is available for remote control.
NetworkStatus Bitfield 2 Read NetworkStatus DetworkStatus Read NetworkStatus Read Read Read NetworkStatus Read Read Read NetworkStatus Read Read Read NetworkStatus Read Read Read Read NetworkStatus Read NetworkStatu	23	DesiredPosition	Unsigned int	2	Read / Write	to 10000 (100.00%). Writing here will cause movement if the actuator is available for remote control and the PositionEnable bit is set in DigitalControl (index 22).
Read Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.	- 24	10	B1461 1 1			
NetworkStatus3						NetworkStatus1 to NetworkStatus4: Option card status.
NetworkStatus4						Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
MultiportStatus1 Bitfield 2 Read MultiportStatus2 Bitfield 2 Read Read Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.						
MultiportStatus2						
MultiportStatus3 Bitfield 2 Read MultiportStatus4 Bitfield 2 Read MultiportStatus4 Bitfield 2 Read MultiportNearestPort Unsigned int 2 Read MultiportNearestPort Unsigned int 2 Read / Write SetResetRelays Bitfield 4 Read / Write MultiportTargetPort Unsigned int 2 Read / Write Multiport Nearest Port: indicates the port nearest to the current position. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Relay control: 32-bit register for controlling the output of the relays. Bits 0 to 8, sets relays 1 to 9 respectively (value 1 sets relay, value 0 does nothing). MultiportTargetPort Unsigned int 2 Read / Write Multiport Position Degrees: The port number which the actuator is currently attempting to position to or has been instructed to move to. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Multiport Position Degrees: The position Degrees: The position of the actuator in degrees where 0° is the first port. Intermediate positions are divided equally by the number of ports. For example, for 3 ports: - Port 1 = 0° - Port 2 = 120° - Port 3 = 240° Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Explicit Messaging NAMUR 107 Mask Configuration for Failure Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for						Multiport status. See Bitfields table for detailed description.
MultiportStatus3 Bitfield 2 Read MultiportStatus4 Bitfield 2 Read MultiportStatus4 Bitfield 2 Read MultiportNearestPort Unsigned int						Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
MultiportNearestPort Unsigned int 2 Read Multiport Nearest Port: indicates the port nearest to the current position. Requires the actuator to be a Multiport Disiding refer to PUB002-221 for more information about Multiport. Read / Write Bits 0 to 8, sets relays 1 to 9 respectively (value 1 resets relay, value 0 does nothing). Bits 9 to 17, resets relays 1 to 9 respectively (value 1 resets relay, value 0 does nothing). MultiportTargetPort Unsigned int 2 Read MultiportTargetPort: The port number which the actuator is currently attempting to position to or has been instructed to move to. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. MultiportPositionDegrees: The position of the actuator in degrees where 0° is the first port. Intermediate positions are divided equally by the number of ports. For example, for 3 ports: MultiportPositionDegrees: The position Degrees: The position of the actuator in degrees where 0° is the first port. Intermediate positions are divided equally by the number of ports. For example, for 3 ports: MultiportPositionDegrees: The position Degrees: The position of the actuator in degrees where 0° is the first port. Intermediate positions are divided equally by the number of ports. For example, for 3 ports: Multiport Position Degrees: The position of the actuator in degrees where 0° is the first port. Intermediate positions are divided equally by the number of ports. For example, for 3 ports: Port 1 = 0° Port 2 = 120° Port 3 = 240° Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Solicit Messaging NAMUR 107 Mask Configuration for Failure Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are def	30	MultiportStatus3	Bitfield		Read	
MultiportNearestPort Unsigned int 2 Read Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.	31	MultiportStatus4	Bitfield	2	Read	
SetResetRelays Bitfield 4 Read / Write Bits 0 to 8, sets relays 1 to 9 respectively (value 1 sets relay, value 0 does nothing). Bits 9 to 17, resets relays 1 to 9 respectively (value 1 resets relay, value 0 does nothing). MultiportTargetPort Unsigned int 2 Read MultiportTargetPort: The port number which the actuator is currently attempting to position to or has been instructed to move to. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Multiport Position Degrees: The position of the actuator in degrees where 0° is the first port. Intermediate positions are divided equally by the number of ports. For example, for 3 ports: - Port 1 = 0° - Port 2 = 120° - Port 3 = 240° Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Explicit Messaging NAMURFailureDataMask Bitfield 4 Read / Write NAMUR 107 Mask Configuration for Failure Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040.	32	MultiportNearestPort	Unsigned int	2	Read	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
has been instructed to move to. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Multiport Position Degrees: The position of the actuator in degrees where 0° is the first port. Intermediate positions are divided equally by the number of ports. For example, for 3 ports: Port 1 = 0° Port 2 = 120° Port 3 = 240° Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Explicit Messaging NAMURFailureDataMask Bitfield Read / Write NAMUR 107 Mask Configuration for Failure Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Out Of Specification Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040.	33	SetResetRelays	Bitfield	4	Read / Write	Bits 0 to 8, sets relays 1 to 9 respectively (value 1 sets relay, value 0 does nothing).
MultiportPositionDegrees Unsigned int 2 Read MultiportPosition Degrees: The position of the actuator in degrees where 0° is the first port. Intermediate positions are divided equally by the number of ports. For example, for 3 ports: - Port 1 = 0° - Port 2 = 120° - Port 3 = 240° Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Explicit Messaging NAMURFailureDataMask Bitfield 4 Read / Write NAMUR 107 Mask Configuration for Failure Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Out Of Specification Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR	353	MultiportTargetPort	Unsigned int	2	Read	has been instructed to move to.
Port 2 = 120° Port 3 = 240° Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Sequires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.	354	MultiportPositionDegrees	Unsigned int	2	Read	Multiport Position Degrees: The position of the actuator in degrees where 0° is the first port. Intermediate positions are divided equally by the number of ports. For example, for 3 ports: – Port 1 = 0°
NAMUR 107 Mask Configuration for Failure Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Out Of Specification Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Out Of Specification Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Failure Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Failure Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Failure Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040.						
MAMUR 107 Mask Configuration for Out Of Specification Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Out Of Specification Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040.	3.	NAMURE: Item Day Add	District 2		Decid (1941)	
36 NAMURFunctionCheckDataMask Bitfield 4 Read / Write NAMUR 107 Mask Configuration for Function PUB002-040. NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields table and more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table						more details can be found in publication PUB002-040. NAMUR 107 Mask Configuration for Out Of Specification Level: Data bits are defined in the
table and more details can be found in publication PUBUUZ-U4U. NAMURMaintenanceDataMask Riffield 4 Read / Write NAMUR 107 Mask Configuration for Maintenance Level: Data bits are defined in the Bitfields table						NAMUR 107 Mask Configuration for Function Check Level: Data bits are defined in the Bitfields
	37	NAMURMaintenanceDataMask	Bitfield	4	Read / Write	

Note: Indices 28 to 31 are reserved and 324 onwards are not available on v103 firmware

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Action/broad/Comms Enumeration 1 Read / Write - Constant/Public Control of Committee (Control of Control of Co	Index	Data Name	Data Type	Data Size (octets)	Data Access	Description
ActionOrticosOfComes Purveration 1 sold Vivine 2 mod / Vivine 4 commissionStation Unsgred ist 2 mod / Vivine 4 commissionStation 1 mod / Vivine 4 commissionStation 1 mod / Vivine 4 commissionStation 4 commissionStatio	38	LossOfCommsTimeout	Unsigned int	2	Read / Write	milliseconds, after communications with the option card have been lost, that the configured action on
Commissativation. Unsigned int 2 Read / Write Commissativation Configuration for the position that the actuard should move to when common control of the position that the actuard should move to when common control of the position of the position that the actuard should move to when common control of the position of t	39	ActionOnLossOfComms	Enumeration	1	Read / Write	ActionOnLossOfComms: Configuration for action on loss of signal. Action to be performed when communication loss occurs and the time set in LossOfCommsTimeout (paramter 38) has elapsed. Values: 0 – No action 1 – Open 3 – Close 5 – Stop
42 FuncionOSIS Enumeration 1 Read / Write FuncionOSIS 12 FuncionOSIS to Save appelled with a funcionOSIS Commercial 1 Read / Write FuncionOSIS Com	40	CommsLostPosition	Unsigned int	2	Read / Write	CommsLostPosition: Configuration for the position that the actuator should move to when comms loss occurs, and the action (parameter ActionOnLossOfComms, no. 39) is set to Go To position.
### Service of Service	41	FunctionOfS1	Enumeration	1	Read / Write	
FunctionOfS			Enumeration			
46 Function/DS Enumeration Read / Write Read /						
46 FunctionOSS Enumeration 1 Read / Write 47 FunctionOSS Enumeration 1 Read / Write 48 FunctionOSS Enumeration 1 Read / Write 49 FunctionOSS Enumeration 1 Read / Write 51 FunctionOSS Enumeration 1 Read / Write 52 FunctionOSS Enumeration 1 Read / Write 53 ContextTypeS1 Enumeration 1 Read / Write 54 ContextTypeS1 Enumeration 1 Read / Write 55 ContextTypeS2 Enumeration 1 Read / Write 56 ContextTypeS3 Enumeration 1 Read / Write 57 ContextTypeS3 Enumeration 1 Read / Write 58 ContextTypeS3 Enumeration 1 Read / Write 59 ContextTypeS3 Enumeration 1 Read / Write 59 ContextTypeS3 Enumeration 1 Read / Write 50 ContextTypeS3 Enumeration 1 Read / Write 51 ContextTypeS3 Enumeration 1 Read / Write 52 ContextTypeS3 Enumeration 1 Read / Write 53 ContextTypeS3 Enumeration 1 Read / Write 54 ContextTypeS3 Enumeration 1 Read / Write 55 ContextTypeS3 Enumeration 1 Read / Write 56 ContextTypeS3 Enumeration 1 Read / Write 57 ContextTypeS3 Enumeration 1 Read / Write 58 ContextTypeS3 Unsigned int 2 Read / Write 59 PostonTypeS1 Unsigned int 2 Read / Write 50 PostonTypeS1 Unsigned int 2 Read / Write 50 PostonTypeS1 Unsigned int 2 Read / Write 51 PostonTypeS1 Unsigned int 2 Read / Write 52 ContextTypeS1 Unsigned int 2 Read / Write 53 PostonTypeS1 Unsigned int 2 Read / Write 54 PostonTypeS1 Unsigned int 2 Read / Write 55 ContextTypeS1 Unsigned int 2 Read / Write 56 PostonTypeS1 Unsigned int 2 Read / Write 57 PostonTypeS1 Unsigned int 2 Read / Write 58 ContextTypeS1 Unsigned int 2 Read / Write 59 PostonTypeS1 Unsigned int 2 Read / Write 50 P						
44 Function/0157 Enumeration 1 Read / Write Function/0159 Enumeration 1 Read / Write Function/0159 Enumeration 1 Read / Write Function/0159 Enumeration 1 Read / Write Function/01512 Enumeration 1 Re						
449 FunctionOSS Enumeration 1 Read / Write 450 FunctionOSS Enumeration 1 Read / Write 451 FunctionOSS Enumeration 1 Read / Write 452 FunctionOSS Enumeration 1 Read / Write 453 FunctionOSS Enumeration 1 Read / Write 454 ContactTypeS1 Enumeration 1 Read / Write 455 ContactTypeS3 Enumeration 1 Read / Write 456 ContactTypeS4 Enumeration 1 Read / Write 457 ContactTypeS5 Enumeration 1 Read / Write 458 ContactTypeS5 Enumeration 1 Read / Write 459 ContactTypeS5 Enumeration 1 Read / Write 450 ContactTypeS5 Enumeration 1 Read / Write 451 ContactTypeS5 Enumeration 1 Read / Write 452 ContactTypeS6 Enumeration 1 Read / Write 453 ContactTypeS6 Enumeration 1 Read / Write 454 ContactTypeS1 Enumeration 1 Read / Write 455 ContactTypeS1 Enumeration 1 Read / Write 456 ContactTypeS1 Enumeration 1 Read / Write 457 ContactTypeS1 Enumeration 1 Read / Write 458 ContactTypeS1 Enumeration 1 Read / Write 459 ContactTypeS1 Enumeration 1 Read / Write 450 ContactTypeS1 Unsigned int 2 Read / Write 451 PositionTripS2 Unsigned int 2 Read / Write 452 ContactTypeS1 Enumeration 1 Read / Write 453 PositionTripS2 Unsigned int 2 Read / Write 454 PositionTripS3 Unsigned int 2 Read / Write 455 PositionTripS3 Unsigned int 2 Read / Write 456 PositionTripS3 Unsigned int 2 Read / Write 457 ContactTypeS1 Enumeration 1 Read / Write 458 PositionTripS3 Unsigned int 2 Read / Write 459 PositionTripS3 Unsigned int 2 Read / Write 450 ContactTypeS1 Enumeration 1 Read / Write 450 ContactTypeS1 Unsigned int 2 Read / Write 451 PositionTripS3 Unsigned int 2 Read / Write 452 ContactTypeS1 Unsigned int 2 Read / Write 453 PositionTripS3 Unsigned int 2 Read / Write 454 PositionTripS3 Unsigned int 2 Read / Write 455 PositionTripS3 Unsigned int 2 Read / Write 456 PositionTripS3 Unsigned int 2 Read / Write 457 PositionTripS3 Unsigned int 2 Read / Write 458 PositionTripS3		i				
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Second Contact Type 51 Enumeration 1 Read / Wilter	50	FunctionOfS10	Enumeration	1	Read / Write	
Secondartypes2 Enumeration 1 Read / Write						
Second ContactTypeS3						Contact Time CO to Contact Time COO. If filted configuration for relating A to A2 contact A
5-5 ContactType-54 Enumeration 1 Read / Write		7.				
Face Fortier		7.				
Second Contest Types						i – Inditrially Open contact
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NetworkUptime Unsigned int 4 Read NetworkUptime: The time, in units of 0.25s, since the last reset of the option card.						DefaultHardWireLinkEnabled: Indicates whether the default hard wire link is inserted in the option card during power-up or firmware reset. Value 0 indicates default link not present, Value 1 indicates default link in place. If the default link is inserted, option card configurations are set to default values.
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95 ClosingTorqueAt10Pct Unsigned int 2 Read						
96 ClosingTorqueAt11Pct Unsigned int 2 Read	96	ClosingTorqueAt10Pct ClosingTorqueAt11Pct	Unsigned int	2		

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97	ClosingTorqueAt12Pct	Unsigned int	2	Read	ClosingTorqueAt0Pct to ClosingTorqueAt100Pct: Instantaneous Torque log - closing. Indicates the
98	ClosingTorqueAt13Pct	Unsigned int	2	Read	average value of the closing torque at each percentage position. Range 0 (0%) to 120 (120%).
99	ClosingTorqueAt14Pct	Unsigned int Unsigned int	2	Read	_
100	ClosingTorqueAt15Pct ClosingTorqueAt16Pct	Unsigned int	2	Read Read	
102	ClosingTorqueAt17Pct	Unsigned int	2	Read	-
103	ClosingTorqueAt18Pct	Unsigned int	2	Read	
104	ClosingTorqueAt19Pct	Unsigned int	2	Read	
105	ClosingTorqueAt20Pct	Unsigned int	2	Read	
106	ClosingTorqueAt21Pct	Unsigned int	2	Read	
107	ClosingTorqueAt22Pct	Unsigned int	2	Read	_
108	ClosingTorqueAt23Pct	Unsigned int	2	Read	_
109 110	ClosingTorqueAt24Pct ClosingTorqueAt25Pct	Unsigned int Unsigned int	2	Read Read	-
111	ClosingTorqueAt26Pct	Unsigned int	2	Read	-
112	ClosingTorqueAt27Pct	Unsigned int	2	Read	-
113	ClosingTorqueAt28Pct	Unsigned int	2	Read	-
114	ClosingTorqueAt29Pct	Unsigned int	2	Read	
115	ClosingTorqueAt30Pct	Unsigned int	2	Read	
116	ClosingTorqueAt31Pct	Unsigned int	2	Read	
117	ClosingTorqueAt32Pct	Unsigned int	2	Read	
118 119	ClosingTorqueAt33Pct ClosingTorqueAt34Pct	Unsigned int Unsigned int	2	Read Read	_
120	ClosingTorqueAt34Pct ClosingTorqueAt35Pct	Unsigned int	2	Read	-
121	ClosingTorqueAt36Pct	Unsigned int	2	Read	-
122	ClosingTorqueAt37Pct	Unsigned int	2	Read	
123	ClosingTorqueAt38Pct	Unsigned int	2	Read	
124	ClosingTorqueAt39Pct	Unsigned int	2	Read	
125	ClosingTorqueAt40Pct	Unsigned int	2	Read	
126	ClosingTorqueAt41Pct	Unsigned int	2	Read	
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129	ClosingTorqueAt44Pct	Unsigned int	2	Read	-
130	ClosingTorqueAt45Pct	Unsigned int	2	Read	-
131	ClosingTorqueAt46Pct	Unsigned int	2	Read	1
132	ClosingTorqueAt47Pct	Unsigned int	2	Read	
133	ClosingTorqueAt48Pct	Unsigned int	2	Read	
134	ClosingTorqueAt49Pct	Unsigned int	2	Read	
135	ClosingTorqueAt50Pct	Unsigned int	2	Read	_
136 137	ClosingTorqueAt51Pct ClosingTorqueAt52Pct	Unsigned int Unsigned int	2	Read	-
138	ClosingTorqueAt53Pct	Unsigned int	2	Read Read	-
139	ClosingTorqueAt54Pct	Unsigned int	2	Read	_
140	ClosingTorqueAt55Pct	Unsigned int	2	Read	
141	ClosingTorqueAt56Pct	Unsigned int	2	Read	
142	ClosingTorqueAt57Pct	Unsigned int	2	Read	
143	ClosingTorqueAt58Pct	Unsigned int	2	Read	
144	ClosingTorqueAt59Pct	Unsigned int	2	Read	_
145 146	ClosingTorqueAt60Pct ClosingTorqueAt61Pct	Unsigned int Unsigned int	2	Read Read	_
147	ClosingTorqueAt62Pct	Unsigned int	2	Read	-
148	ClosingTorqueAt63Pct	Unsigned int	2	Read	-
149	ClosingTorqueAt64Pct	Unsigned int	2	Read	
150	ClosingTorqueAt65Pct	Unsigned int	2	Read	
151	ClosingTorqueAt66Pct	Unsigned int	2	Read	
152	ClosingTorqueAt67Pct	Unsigned int	2	Read	_
153	ClosingTorqueAt68Pct	Unsigned int	2	Read	_
154 155	ClosingTorqueAt69Pct ClosingTorqueAt70Pct	Unsigned int Unsigned int	2	Read	_
156	ClosingTorqueAt71Pct	Unsigned int	2	Read Read	
157	ClosingTorqueAt71Pct	Unsigned int	2	Read	-
158	ClosingTorqueAt73Pct	Unsigned int	2	Read	
159	ClosingTorqueAt74Pct	Unsigned int	2	Read	
160	ClosingTorqueAt75Pct	Unsigned int	2	Read	
161	ClosingTorqueAt76Pct	Unsigned int	2	Read	
162	ClosingTorqueAt77Pct	Unsigned int	2	Read	_
163	ClosingTorqueAt78Pct	Unsigned int	2	Read	
164 165	ClosingTorqueAt79Pct ClosingTorqueAt80Pct	Unsigned int Unsigned int	2	Read Read	
166	ClosingTorqueAt81Pct	Unsigned int	2	Read	
167	ClosingTorqueAt82Pct	Unsigned int	2	Read	
168	ClosingTorqueAt83Pct	Unsigned int	2	Read	
169	ClosingTorqueAt84Pct	Unsigned int	2	Read	
170	ClosingTorqueAt85Pct	Unsigned int	2	Read	
171	ClosingTorqueAt86Pct	Unsigned int	2	Read	
172	ClosingTorqueAt87Pct	Unsigned int	2	Read	_
173	ClosingTorqueAt88Pct	Unsigned int	2	Read	_
174 175	ClosingTorqueAt89Pct ClosingTorqueAt90Pct	Unsigned int Unsigned int	2	Read Read	_
176	ClosingTorqueAt91Pct	Unsigned int	2	Read	
177	ClosingTorqueAt92Pct	Unsigned int	2	Read	
178	ClosingTorqueAt93Pct	Unsigned int	2	Read	
179	ClosingTorqueAt94Pct	Unsigned int	2	Read	

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180	ClosingTorqueAt95Pct	Unsigned int	2	Read	ClosingTorqueAt0Pct to ClosingTorqueAt100Pct: Instantaneous Torque log – closing. Indicates the
181 182	ClosingTorqueAt96Pct ClosingTorqueAt97Pct	Unsigned int Unsigned int	2	Read Read	average value of the closing torque at each percentage position. Range 0 (0%) to 120 (120%).
183	ClosingTorqueAt98Pct	Unsigned int	2	Read	
184	ClosingTorqueAt99Pct	Unsigned int	2	Read	
185	ClosingTorqueAt100Pct	Unsigned int	2	Read	
186	OpeningTorqueAt0Pct	Unsigned int	2	Read	OpeningTorqueAt0Pct to OpeningTorqueAt100Pct: Instantaneous Torque log – opening. Indicates
187	OpeningTorqueAt1Pct	Unsigned int	2	Read	the average value of the opening torque at each percentage position. Range 0 (0%) to 120 (120%).
188 189	OpeningTorqueAt2Pct OpeningTorqueAt3Pct	Unsigned int Unsigned int	2	Read Read	
190	OpeningTorqueAt4Pct	Unsigned int	2	Read	-
191	OpeningTorqueAt5Pct	Unsigned int	2	Read	
192	OpeningTorqueAt6Pct	Unsigned int	2	Read	
193	OpeningTorqueAt7Pct	Unsigned int	2	Read	
194 195	OpeningTorqueAt8Pct OpeningTorqueAt9Pct	Unsigned int Unsigned int	2	Read Read	
196	OpeningTorqueAt10Pct	Unsigned int	2	Read	
197	OpeningTorqueAt11Pct	Unsigned int	2	Read	
198	OpeningTorqueAt12Pct	Unsigned int	2	Read	
199	OpeningTorqueAt13Pct	Unsigned int	2	Read	
200	OpeningTorqueAt14Pct OpeningTorqueAt15Pct	Unsigned int Unsigned int	2	Read Read	
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204	OpeningTorqueAt18Pct	Unsigned int	2	Read	
205	OpeningTorqueAt19Pct	Unsigned int	2	Read	_
206	OpeningTorqueAt20Pct OpeningTorqueAt21Pct	Unsigned int Unsigned int	2	Read Read	-
208	OpeningTorqueAt22Pct	Unsigned int	2	Read	
209	OpeningTorqueAt23Pct	Unsigned int	2	Read	
210	OpeningTorqueAt24Pct	Unsigned int	2	Read	
211	OpeningTorqueAt25Pct	Unsigned int	2	Read	
212	OpeningTorqueAt26Pct OpeningTorqueAt27Pct	Unsigned int Unsigned int	2	Read Read	
214	OpeningTorqueAt28Pct	Unsigned int	2	Read	
215	OpeningTorqueAt29Pct	Unsigned int	2	Read	
216	OpeningTorqueAt30Pct	Unsigned int	2	Read	
217	OpeningTorqueAt31Pct	Unsigned int	2	Read	_
218 219	OpeningTorqueAt32Pct OpeningTorqueAt33Pct	Unsigned int Unsigned int	2	Read Read	-
220	OpeningTorqueAt34Pct	Unsigned int	2	Read	
221	OpeningTorqueAt35Pct	Unsigned int	2	Read	
222	OpeningTorqueAt36Pct	Unsigned int	2	Read	
223	OpeningTorqueAt37Pct	Unsigned int	2	Read	
224	OpeningTorqueAt38Pct OpeningTorqueAt39Pct	Unsigned int Unsigned int	2	Read Read	
226	OpeningTorqueAt40Pct	Unsigned int	2	Read	
227	OpeningTorqueAt41Pct	Unsigned int	2	Read	
228	OpeningTorqueAt42Pct	Unsigned int	2	Read	
229	OpeningTorqueAt43Pct OpeningTorqueAt44Pct	Unsigned int	2	Read	
230	OpeningTorqueAt44PCt OpeningTorqueAt45Pct	Unsigned int Unsigned int	2	Read Read	
232	OpeningTorqueAt46Pct	Unsigned int	2	Read	
233	OpeningTorqueAt47Pct	Unsigned int	2	Read	
234	OpeningTorqueAt48Pct	Unsigned int	2	Read	
235	OpeningTorqueAt49Pct	Unsigned int	2	Read	
236	OpeningTorqueAt50Pct OpeningTorqueAt51Pct	Unsigned int Unsigned int	2	Read Read	
238	OpeningTorqueAt51Pct	Unsigned int	2	Read	
239	OpeningTorqueAt53Pct	Unsigned int	2	Read	
240	OpeningTorqueAt54Pct	Unsigned int	2	Read	
241	OpeningTorqueAt55Pct	Unsigned int	2	Read	
242	OpeningTorqueAt56Pct OpeningTorqueAt57Pct	Unsigned int Unsigned int	2	Read Read	
244	OpeningTorqueAt58Pct	Unsigned int	2	Read	=
245	OpeningTorqueAt59Pct	Unsigned int	2	Read	ead
246	OpeningTorqueAt60Pct	Unsigned int	2	Read	
247	OpeningTorqueAt61Pct	Unsigned int	2	Read	
248 249	OpeningTorqueAt62Pct OpeningTorqueAt63Pct	Unsigned int Unsigned int	2	Read Read	
250	OpeningTorqueAt64Pct	Unsigned int	2	Read	
251	OpeningTorqueAt65Pct	Unsigned int	2	Read	
252	OpeningTorqueAt66Pct	Unsigned int	2	Read	
253	OpeningTorqueAt67Pct	Unsigned int	2	Read	
254 255	OpeningTorqueAt68Pct OpeningTorqueAt69Pct	Unsigned int Unsigned int	2	Read Read	_
256	OpeningTorqueAt69PCt OpeningTorqueAt70Pct	Unsigned int	2	Read	
257	OpeningTorqueAt71Pct	Unsigned int	2	Read	
258	OpeningTorqueAt72Pct	Unsigned int	2	Read	
259	OpeningTorqueAt73Pct	Unsigned int	2	Read	
260 261	OpeningTorqueAt74Pct OpeningTorqueAt75Pct	Unsigned int Unsigned int	2	Read Read	
262	OpeningTorqueAt76Pct	Unsigned int	2	Read	

Index	Data Name	Data Type	Data Size (octets)	Data Access	Description
263	OpeningTorqueAt77Pct	Unsigned int	2	Read	OpeningTorqueAt0Pct to OpeningTorqueAt100Pct: Instantaneous Torque log – opening. Indicates
264	OpeningTorqueAt78Pct	Unsigned int	2	Read	the average value of the opening torque at each percentage position. Range 0 (0%) to 120 (120%).
265	OpeningTorqueAt79Pct	Unsigned int	2	Read	
266	OpeningTorqueAt80Pct	Unsigned int	2	Read	
267	OpeningTorqueAt81Pct	Unsigned int	2	Read	
268	OpeningTorqueAt82Pct	Unsigned int	2	Read	
269	OpeningTorqueAt83Pct	Unsigned int	2	Read	
270 271	OpeningTorqueAt84Pct	Unsigned int	2	Read Read	
271	OpeningTorqueAt85Pct OpeningTorqueAt86Pct	Unsigned int Unsigned int	2	Read	
273	OpeningTorqueAt87Pct	Unsigned int	2	Read	
274	OpeningTorqueAt88Pct	Unsigned int	2	Read	
275	OpeningTorqueAt89Pct	Unsigned int	2	Read	
276	OpeningTorqueAt90Pct	Unsigned int	2	Read	
277	OpeningTorqueAt91Pct	Unsigned int	2	Read	
278	OpeningTorqueAt92Pct	Unsigned int	2	Read	
279	OpeningTorqueAt93Pct	Unsigned int	2	Read	
280	OpeningTorqueAt94Pct	Unsigned int	2	Read	
281	OpeningTorqueAt95Pct	Unsigned int	2	Read	
282	OpeningTorqueAt96Pct	Unsigned int	2	Read	
283	OpeningTorqueAt97Pct	Unsigned int	2	Read	
284	OpeningTorqueAt98Pct	Unsigned int	2	Read	
285	OpeningTorqueAt99Pct	Unsigned int	2	Read	
286	OpeningTorqueAt100Pct	Unsigned int	2	Read	
287	ActuatorTag	Char	32	Read / Write	ActuatorTag: The customers Valve Tag can be entered in here for reference.
288	ActuatorType	Enumeration	1	Read	Actuator Type: Value 26 – IQ3Pro, value 27 – IQ3Pro.
289	ActuatorSerialNumber	Char	16	Read	Actuator Type: Value 20 – 1Q3110, Value 27 – 1Q31110. Actuator Serial Number: Manufacturer data. Actuator serial number.
290	ControllerSerialNumber	Char	24	Read	ControllerSerialNumber: Manufacturer data. Serial number for actuator main controller board.
291	UlSerialNumber	Char	24	Read	UlSerialNumber: Manufacturer data. Serial Number for user interface board/local controls.
292	PositionSensorSerialNumber	Char	24	Read	PositionSensorSerialNumber: Manufacturer data. Serial number for the position sensor.
293	DCPowerModuleSerialNumber	Char	24	Read	DCPowerModuleSerialNumber: Manufacturer data. Serial number for the DC power board.
294	PowerModuleSerialNumber	Char	24	Read	PowerModuleSerialNumber: Manufacturer data. Serial number for the power module board.
295	SolidStateStarterModule SerialNumber	Char	24	Read	SolidStateStarterModuleSerialNumber: Manufacturer data. Serial Number for the solid-state starter module board.
296	Option1SerialNumber	Char	24	Read	Option1SerialNumber to Option4SerialNumber: Manufacturer data. Serial Number for options 1
297	Option2SerialNumber	Char	24	Read	to 4 - if fitted.
298	Option3SerialNumber	Char	24	Read	
299	Option4SerialNumber	Char	24	Read	
300	AssetIDList1	Unsigned int	2	Read	AssetIDList1to AssetIDList10: Lists the asset IDs in the system. This data is used internally.
301	AssetIDList2	Unsigned int	2	Read	
302	AssetIDList3	Unsigned int	2	Read	
303	AssetIDList4	Unsigned int	2	Read	
304	AssetIDList5	Unsigned int	2	Read	
305	AssetIDList6	Unsigned int	2	Read	
306	AssetIDList7	Unsigned int	2	Read	
307	AssetIDList8	Unsigned int	2	Read	
308	AssetIDList9	Unsigned int	2	Read	
309	AssetIDList10	Unsigned int	2	Read	
310	Asset1SoftwareVersion	Char	12	Read	Asset1SoftwareVersion to Asset10SoftwareVersion: Software versions for the assets (main actuator
311	Asset2SoftwareVersion	Char	12	Read	board, user interface board, option card, etc) in the actuator. Each software version is max 12 characters
312	Asset3SoftwareVersion	Char	12	Read	long, which is the version number followed by build number. For example, "v102(3145)".
313	Asset4SoftwareVersion	Char	12	Read	
314	Asset5SoftwareVersion	Char	12	Read	
315	Asset6SoftwareVersion	Char	12	Read	
316	Asset7SoftwareVersion	Char	12	Read	
317	Asset8SoftwareVersion	Char	12	Read	
318	Asset9SoftwareVersion	Char	12	Read	
319	Asset10SoftwareVersion	Char	12	Read	
320	FirmwareUpgradeover NetworkEnable	Enumeration	1	Read / Write	FirmwareUpgradeoverNetworkEnable: Used to initiate the firmware upgrade of the network module. Firmware file is required to be loaded first via FTP. Writing 1 initiates upgrade.
321	FileLoadStatus	Enumeration	1	Read / Write	FileLoadStatus: Status parameter for data log and config file compilation. 0 - Idle, or Done (ready for download from the option card webpages). 1 - Set to 1 to start data log/config file compilation. Or if reading, 1 indicates compilation in progress. 2 - Error during compilation. The option card must first get the data log from the actuator user interface board, initiated by setting this parameter to 1, once compiled and 'Done' is indicated, then it's ready for download from the webpages. Used by option card webpages ONLY.
322	FileLoadProgress	Unsigned int	2	Read	Used by option card webpages ONLY. FileLoadProgress: Progress parameter for data log and config file compilation. Range 0 to 100, indicating % complete. Used by option card webpages ONLY.
323	DataLogTimestamp	Char	16	Read / Write	DataLogTimestamp: Data log and configuration date and time. Used by option card webpages ONLY.
324	LimitedRangePositionMin	Unsigned int	2	Read / Write	Minimum Range: Minimum span for positioning in 100ths %.
325	LimitedRangePositionMax	Unsigned int	2		Maximum Range: Maximum span for positioning in 100ths %.
326	Deadband	Unsigned int	2		Deadband: Deadband range in both directions whilst positioning in 100ths %.
327	Hysteresis	Unsigned int	2		Hysteresis: Hysteresis range in both directions whilst positioning in 100ths %.
328	IQT3SlowModeSpeed	Unsigned int	2		Slow Mode: Speed setting for operation near limits, percentage of rated speed.
		Unsigned int	4		MIT: Motion Inhibit Timer in ms.
329	MotionInhibitTimeMs				

Note: Indices 28 to 31 are reserved and 324 onwards are not available on v103 firmware

Index	Data Name	Data Type	Data Size (octets)	Data Access	Description
331	AuxInputTypeMask	Bitfield	2	Read / Write	Aux Mask: Auxiliary function type, value (1) command action (0) Digital Input (DI). Bits 0-3 representing the actions DI1/Open, DI2/Close, DI3/STOP or Maintain, DI4/ESD see bit fields.
332	AuxInputContactStateMask	Bitfield	2	Read / Write	Aux Input: Auxiliary input type, value (1) Normally open (0) Normally closed. Bits 0-3 representing the actions DI1/Open, DI2/Close, DI3/STOP or Maintain, DI4/ESD see bit fields.
333	PartialStrokePosition	Unsigned int	2	Read / Write	Partial Stroke Position: Specifies the position to move to when the partial stroke action is invoked. Partial Stroke Limit: Sets the initial position from where the partial stroke test is to run.
334	PartialStrokeStartingLimit	Enumeration	1	Read / Write	0 – Test from open limit 1 – Test from closed limit
335	PartialStrokeOutTimeMs	Unsigned int	4	Read / Write	Partial Stroke Out Time: Time taken to reach the specified partial stroke position as set by parameter index 333 (multiples of 1ms).
336	PartialStrokeReturnTimeMs	Unsigned int	4	Read / Write	Partial Stroke Return Time: Time taken to return to the starting position of a partial stroke (multiples of 1ms).
337	CloseTorqueSet	Unsigned int	2	Read	Close Torque Set: The torque percentage of rated in the close direction in 0-100%.
338	OpenTorqueSet	Unsigned int	2	Read	Open Torque Set: The torque percentage of rated in the Open direction in 0-100%.
339	EsdNetDisable	Enumeration	1	Read / Write	ESD Netdisable: When set the ESD input will act as a 'net disable input' and not ESD. Meaning that commands via the network can be disabled if the input is activated. 0 – ESD input 1 – Net disable input
340	EsdAction	Enumeration	1	Read / Write	ESD Action: Sets the programmed action to be performed when the ESD is active. 0 – Close 1 – Stop 2 – Open 3 – Off 4 – Reserved 5 – Position
341	EsdContact	Enumeration	1	Read / Write	ESD Contact: Sets the contact type for the ESD 0 – Normally closed 1 – Normally open
342	EsdOverrideInterlock	Enumeration	1	Read / Write	ESD Override Interlock: Sets whether the ESD can override an interlock signal. 0 – No 1 – Yes
343	EsdOverrideThermostatTrip	Enumeration	1	Read / Write	ESD Override Thermostat: Sets whether the ESD can over ride an interlock signal. 0 – No 1 – Yes
344	EsdOverrideLocalStop	Enumeration	1	Read / Write	ESD Override Local Stop: Sets whether the ESD can over ride a Local Stop signal. 0 – No 1 – Yes
345	EsdOverrideInterruptTimer	Enumeration	1	Read / Write	ESD Override Interrupter Timer: Sets whether the ESD can over ride the Interrupter Timer. 0 – No 1 – Yes
346	InterlocksInputMode	Enumeration	1	Read	Interlocks Mode: Indicates which mode the interlocks will operate in. 0 – Interlocks disabled 1 – Interlocks enabled 2 – Conditional control enabled 3 – Partial stroke on open interlock
347	InterruptTimerStartingLimit	Enumeration	1	Read / Write	Interrupter Timer Start Point: Sets the limit (open/closed) that the interrupter timer is to operate at. 0 – Closed limit 1 – Open limit
348	InterruptTimerOnTime100Ms	Unsigned int	4	Read / Write	Interrupter Timer On: Sets the On time for the Interrupter Time - the time that the motor is energised, in 100ms steps.
349	InterruptTimerOffTime100Ms	Unsigned int	4	Read / Write	Interrupter Timer Off: Sets the Off time for the Interrupter Time - the time that the motor is de-energised, in 100ms steps.
350	InterruptTimerPosition OpenDirection	Unsigned int	2	Read / Write	Interrupter Timer Position Open: Sets the position in the Open direction which the function will operate in 100ths percent.
351	InterruptTimerPosition CloseDirection	Unsigned int	2	Read / Write	Interrupter Timer Position Close: Sets the position in the close direction which the function will operate in 100ths percent.
352	AnalogueInputMinMax	Enumeration	1	Read / Write	Analogue Input Span: Writing to this parameter will set up the span for the analogue input. A value of 1 will calibrate the maximum input and a value of 2 will calibrate the minimum. The relevant signals will need to be applied to the input prior to sending the command.
355	MultiportNumPorts	Unsigned int	2	Read	Mulitiport Number of Ports: Indicates the number of ports set up in a Multiport actuator. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
356	MultiportActivePorts	Bitfield	2	Read / Write	Mulitiport Active Ports: Allows the set ports to the deactivated. 16 Bit field representing 16 ports (see bit fields). Bit value 1 means port active, a 0 means port inactive. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
357	MultiportCurrentBacklash	Signed int	2	Read	Mulitiport Current Backlash: This value is used to remove backlash in the system when operating in bidirectional mode. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
358	MultiportEsdPort	Unsigned int	2	Read / Write	Multiport ESD Port: Sets the target port the unit is to go to in the event of an ESD. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
359	MultiportDirection	Enumeration	1	Read	Multiport Direction Mode: Indicates the direction mode set in the Multiport unit. Value 0 - Bidirectional-no wrap, 1 - Clockwise only, 2 - Anti-clockwise only, 3 - Bidirectional-wrap. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.

Note: Indices 28 to 31 are reserved and 324 onwards are not available on v103 firmware

6.2 Producing and consuming data (implicit messaging)

6.2.1 Producing data (Assem100)

Parameter Number	Parameter Name	Data Type	Index	Bit Description (For detailed information see Bitfield and Parameter table)
Hamber			Byte[0].0	Digital Input 1
			Byte[0].1	Digital Input 2
			Byte[0].2	Digital Input 3
			Byte[0].3	Digital Input 4
			Byte[0].4	Digital Input 5
			Byte[0].5	Digital Input 6
			Byte[0].6	Digital Input 7
	5 5 4	B1161 1 1	Byte[0].7	Digital Input 8
1	StatusData1	Bitfield	Byte[1].0	Relay 9 Status
			Byte[1].1	Relay 10 Status
			Byte[1].2	Relay 11 Status
			Byte[1].3	Relay 12 Status
			Byte[1].4	Digital Input 9
			Byte[1].5	Digital Input 10
			Byte[1].6	Digital Input 11
			Byte[1].7	Digital Input 12
			Byte[2].0	Relay 1 Status
			Byte[2].1	Relay 2 Status
			Byte[2].2	Relay 3 Status
			Byte[2].3	Relay 4 Status
			Byte[2].4	Relay 5 Status
			Byte[2].4 Byte[2].5	Relay 6 Status
			Byte[2].6	Relay 7 Status
2	StatusData2	Bitfield	Byte[2].7	Relay 8 Status Motor Running
			Byte[3].0	Moving Open
			Byte[3].1	3 1
			Byte[3].2	Moving Close
			Byte[3].3	Close Limit Reached
			Byte[3].4	Open Limit Reached
			Byte[3].5	Column Moving
			Byte[3].6	Remote Selected
			Byte[3].7	Local Selected
			Byte[4].0	Local Stop Selected
			Byte[4].1	Reserved
			Byte[4].2	Torque Trip Open Active
			Byte[4].3	Torque Trip Close Active
			Byte[4].4	Reserved
			Byte[4].5	Interrupter Timer Active
			Byte[4].6	Motion Inhibit Timer Active
3	StatusData3	Bitfield	Byte[4].7	Stopped Mid Travel
	Statusbatas	Ditticia	Byte[5].0	ESD Active
			Byte[5].1	Partial Stroke in Progress
			Byte[5].2	Phase Sequence
			Byte[5].3	Reserved
			Byte[5].4	Reserved
			Byte[5].5	Partial Stroke Passed
			Byte[5].6	Reserved
			Byte[5].7	Positioner Active
			Byte[6].0	Slow Mode Active
			Byte[6].1	Reserved
			Byte[6].2	Reserved
			Byte[6].3	Reserved
4	StatusData4	Bitfield	Byte[6].4	Reserved
			Byte[6].5	Reserved
			Byte[6].6	Reserved
			Byte[6].7	Reserved
			Byte[7].all	Reserved
			Byte[8].0	EEprom checksum error
			Byte[8].1	Thermostat Tripped
			Byte[8].2	Valve Obstructed
			Byte[8].3	Valve Jammed
			Byte[8].4	Manual Movement
				Manual movement in Close direction
			Byte[8].5	
			Byte[8].6	Manual Movement in Open Direction Manual movement moved valve to close position
5	AlarmData1	Bitfield	Byte[8].7	Manual movement moved valve to close position Manual Movement moved valve to open position
			Byte[9].0	
			Byte[9].1	End of travel movement
			Byte[9].2	Actuator has stalled
			Byte[9].3	Monitor Relay
			Byte[9].4	Reserved
			Byte[9].5	Battery Low
			Byte[9].6	Battery Flat
	I .		Byte[9].7	EEprom Updated

Parameter Number	Parameter Name	Data Type	Index	Bit Description (For detailed information see Bitfield and Parameter table)
			Byte[10].0	Datalogger Updated
			Byte[10].1	General Alarm
			Byte[10].2	Valve Alarm
			Byte[10].3	Actuator Alarm
			Byte[10].4	Network Card Fault
			Byte[10].5	Partial Stroke Error
			Byte[10].6	Control Contention
			Byte[10].7	Mains Fault
6	AlarmData2	Bitfield	Byte[11].0	Comms Loss
			Byte[11].1	Loss of Phase
			Byte[11].2	24VDC Customer fault
			Byte[11].3	Control Alarm
			Byte[11].4	Position Sensor Fault
			Byte[11].5	Torque Sensor Fault
			Byte[11].6	Torque Tripped Mid-Travel
			Byte[11].7	Local control signal held active when in remote
			Byte[12].0	Reserved
			Byte[12].1	Reserved
				Reserved
			Byte[12].2	Maintance Alert
			Byte[12].3	Critical Fault
			Byte[12].4	
			Byte[12].5	Non-Critical Fault
			Byte[12].6	Reserved
7	AlarmData3	Bitfield	Byte[12].7	Open Interlock Active
			Byte[13].0	Close Interlock Active
			Byte[13].1	Vibration Service Alarm
			Byte[13].2	Valve Travel Time Exceeded
			Byte[13].3	Auxillary Override Alarm
			Byte[13].4	Namur Maintenance
			Byte[13].5	Namur Out Of Specification Level
			Byte[13].6	Namur Function Check
			Byte[13].7	Namur Failure
			Byte[14].0	Network Disable Active
			Byte[14].1	Closed Loop Control fault
			Byte[14].2	Reserved
			Byte[14].3	Reserved
8	AlarmData4	Bitfield	Byte[14].4	Reserved
			Byte[14].5	Reserved
			Byte[14].6	Reserved
			Byte[14].7	Reserved
			Byte[15].all	Reserved
			Byte[16].0	Open
			Byte[16].1	Close
			Byte[16].2	Stop
			Byte[16].3	ESD
			Byte[16].4	PartialStroke
			Byte[16].5	Reserved
			Byte[16].6	HandAuto
_			Byte[16].7	PositionEnable
9	DigitalControlIndication	Bitfield	Byte[17].0	Reserved
			Byte[17].1	Reserved
			Byte[17].2	Reserved
			Byte[17].3	Reserved
			Byte[17].4	Reserved
			Byte[17].4	
			Byte[17].6	Reserved Reserved
			Byte[17].7	
10	Desired Desition In direction	Unsigned int		PositionEnable
10	DesiredPositionIndication DesiredPosition		Byte[18],Byte[19]	Read Only
11	Position	Unsigned int	Byte[20],Byte[21]	Read Only
12	TorqueOrThrust	Signed int	Byte[22],Byte[23]	Read Only
13	Temperature	Signed int	Byte[24],Byte[25]	Read Only
14 15	Analogueinput1	Unsigned int	Byte[26],Byte[27]	Read Only
	Analogueinput2	Unsigned int	Byte[28],Byte[29]	Read Only

Parameter Number	Parameter Name	Data Type	Index	Bit Description (For detailed information see Bitfield and Parameter table)
			Byte[30].0	Battery Low
			Byte[30].1	Local Control Fault
			Byte[30].2	Power Fault
			Byte[30].3 Byte[30].4	Thermostat Service Contactor
			Byte[30].5	Service Contactor Service Due
			Byte[30].6	Service Bue Service Hi Hi Trip
			Byte[30].7	Service Hi Trip
			Byte[31].0	Service Motor Starts
			Byte[31].1	Service Output Turns
			Byte[31].2	Monitor Relay
			Byte[31].3	Control Fail
16	NAMURAlarmDataAllMasked	Bitfield	Byte[31].4	Actuator Fail
			Byte[31].5	Comms Fail
			Byte[31].6	Hardware Option Fail
			Byte[31].7	Partial Stroke Error
			Byte[32].0	Valve Error Actuator Stalled
			Byte[32].1 Byte[32].2	Position Limp Home
			Byte[32].3	End of Travel Move
			Byte[32].4	Network Card Fault
			Byte[32].5	Customer Power Supply Fail
			Byte[32].6	Valve Travel Time
			Byte[32].7	Wrong Direction Detected
			Byte[33].all	Reserved
			Byte[34].0	Battery Low
			Byte[34].1	Local Control Fault
			Byte[34].2	Power Fault
			Byte[34].3	Thermostat
			Byte[34].4	Service Contactor
			Byte[34].5	Service Due
			Byte[34].6	Service Hi Hi Trip
			Byte[34].7 Byte[35].0	Service Hi Trip Service Motor Starts
			Byte[35].1	Service Output Turns
			Byte[35].2	Monitor Relay
			Byte[35].3	Control Fail
17	NAMURFailureAlarmData	Bitfield	Byte[35].4	Actuator Fail
		Sittled	Byte[35].5	Comms Fail
			Byte[35].6	Hardware Option Fail
			Byte[35].7	Partial Stroke Error
			Byte[36].0	Valve Error
			Byte[36].1	Actuator Stalled
			Byte[36].2	Position Limp Home
			Byte[36].3	End of Travel Move
			Byte[36].4 Byte[36].5	Network Card Fault Customer Power Supply Fail
			Byte[36].6	Valve Travel Time
			Byte[36].7	Wrong Direction Detected
			Byte[37].all	Reserved
			Byte[38].0	Battery Low
			Byte[38].1	Local Control Fault
			Byte[38].2	Power Fault
			Byte[38].3	Thermostat
			Byte[38].4	Service Contactor
			Byte[38].5	Service Due
			Byte[38].6	Service Hi Hi Trip
			Byte[38].7	Service Hi Trip
			Byte[39].0	Service Motor Starts
			Byte[39].1	Service Output Turns Monitor Relay
			Byte[39].2 Byte[39].3	Control Fail
18	NAMUROutofSpecAlarmData	Bitfield	Byte[39].4	Actuator Fail
		Sicileia	Byte[39].5	Comms Fail
			Byte[39].6	Hardware Option Fail
			Byte[39].7	Partial Stroke Error
			Byte[40].0	Valve Error
			Byte[40].1	Actuator Stalled
			Byte[40].2	Position Limp Home
			Byte[40].3	End of Travel Move
			Byte[40].4	Network Card Fault
			Byte[40].5	Customer Power Supply Fail
			Byte[40].6	Valve Travel Time
			Byte[40].7	Wrong Direction Detected
			Byte[41].all	Reserved

arameter Number	Parameter Name	Data Type	Index	Bit Description (For detailed information see Bitfield and Parameter table)
Number			Byte[42].0	Battery Low
			Byte[42].1	Local Control Fault
			Byte[42].2	Power Fault
			Byte[42].3	Thermostat
			Byte[42].4	Service Contactor
			Byte[42].5	Service Due
			Byte[42].6	Service Hi Hi Trip
			Byte[42].7	Service Hi Trip
			Byte[43].0	Service Motor Starts
			Byte[43].1	Service Output Turns
			Byte[43].2	Monitor Relay
			Byte[43].3	Control Fail
19	NAMURFunctionCheckAlarmData	Bitfield	Byte[43].4	Actuator Fail
			Byte[43].5	Comms Fail
			Byte[43].6	Hardware Option Fail
			Byte[43].7	Partial Stroke Error
			Byte[44].0	Valve Error
			Byte[44].1	Actuator Stalled
			Byte[44].2	Position Limp Home
			Byte[44].3	End of Travel Move
			Byte[44].4	Network Card Fault
			Byte[44].5	Customer Power Supply Fail
			Byte[44].6	Valve Travel Time
			Byte[44].7	Wrong Direction Detected
			Byte[45].all	Reserved
			Byte[46].0	Battery Low
			Byte[46].1	Local Control Fault
			Byte[46].2	Power Fault
			Byte[46].3	Thermostat
			Byte[46].4	Service Contactor
			Byte[46].5	Service Due
			Byte[46].6	Service Hi Hi Trip
			Byte[46].7	Service Hi Trip
			Byte[47].0	Service Motor Starts
			Byte[47].1	Service Output Turns
			Byte[47].2	Monitor Relay
			Byte[47].3	Control Fail
20	NAMURMaintenanceAlarmData	Bitfield	Byte[47].4	Actuator Fail
		Ditricia	Byte[47].5	Comms Fail
			Byte[47].6	Hardware Option Fail
			Byte[47].7	Partial Stroke Error
			Byte[48].0	Valve Error
			Byte[48].1	Actuator Stalled
			Byte[48].2	Position Limp Home
			Byte[48].3	End of Travel Move
			Byte[48].4	Network Card Fault
			Byte[48].5	Customer Power Supply Fail
			Byte[48].6	Valve Travel Time
			Byte[48].7	Wrong Direction Detected
			Byte[49].all	Reserved
			Byte[50].0	Battery Low
			Byte[50].1	Local Control Fault
			Byte[50].2	Power Fault
			Byte[50].3	Thermostat
			Byte[50].4	Service Contactor
			Byte[50].5	Service Due
			Byte[50].6	Service Hi Hi Trip
			Byte[50].7	Service Hi Trip
			Byte[51].0	Service Motor Starts
			Byte[51].1	Service Output Turns
			Byte[51].2	Monitor Relay
			Byte[51].3	Control Fail
21	NAMURStatusAlarmData	Bitfield	Byte[51].4	Actuator Fail
			Byte[51].5	Comms Fail
			Byte[51].6	Hardware Option Fail
			Byte[51].7	Partial Stroke Error
			Byte[52].0	Valve Error
			Byte[52].1	Actuator Stalled
			Byte[52].2	Position Limp Home
			Byte[52].3	End of Travel Move
			Byte[52].4	Network Card Fault
			Byte[52].5	Customer Power Supply Fail
			Byte[52].6	Valve Travel Time
			Byte[52].7	Wrong Direction Detected

Parameter Number	Parameter Name	Data Type	Index	Bit Description (For detailed information see Bitfield and Parameter table)
			Byte[54].0	Byte0_AbccCommsFault
			Byte[54].1	Byte0_EEPROMFault
			Byte[54].2	Byte0_AbccCfgGetErr
			Byte[54].3	Byte0_FtpEnabled
			Byte[54].4	Byte0_AbccCfgSetErr
			Byte[54].5	Byte0_EthLink10MbpsPort1
			Byte[54].6	Byte0_ControlContention
2.4	Not and Charles 1	Distinct of	Byte[54].7	Byte0_CANFault
24	NetworkStatus1	Bitfield	Byte[55].0	Byte1_CommsPresent
			Byte[55].1	Byte1_WriteError
			Byte[55].2	Byte1_HWConfigLinkActive
			Byte[55].3	Byte1_DatalogDownloadFail
			Byte[55].4	Byte1_EthLink100MbpsPort1
			Byte[55].5	Reserved
			Byte[55].6	Reserved
			Byte[55].7	Byte1_AbccCfgOutOfSync
			Byte[56].0	Byte2_EthLink10MbpsPort2
	NetworkStatus2		Byte[56].1	Byte2_EthLink100MbpsPort2
			Byte[56].2	Reserved
			Byte[56].3	Reserved
25		Bitfield	Byte[56].4	Reserved
			Byte[56].5	Reserved
			Byte[56].6	Reserved
			Byte[56].7	Reserved
			Byte[57].all	Reserved
26	Not and State - 2	Distint.	Byte[58].all	Reserved
26	NetworkStatus3	Bitfield	Byte[59].all	Reserved
27	NetworkStatus	Distinud	Byte[60].all	Reserved
27	NetworkStatus4	Bitfield	Byte[61].all	Reserved
			Byte[62].0 to Byte[62].3	TargetPort
			Byte[62].4 to Byte[62].7	Start Port
			Byte[63].0 to Byte[63].3	Last Good Port
28	MulitportStatus1	Bitfield	Byte[63].4	Stuck Between Ports
			Byte[63].5	Moving Clockwise
			Byte[63].6	Moving AntiClockwise
			Byte[63].7	Reserved
			Byte[64].0 to Byte[64].6	Target Port Position
29	MulitportStatus2	Bitfield	Byte[64].7	Degree Of Rotation MSB
			Byte[65].all	Degree Of Rotation LSB
20	M. dita ant Ctatura	Bitfield	Byte[66].all	Current Position
30	MulitportStatus3	RITTIEIG	Byte[67].all	Count To Nearest Port MSB
21	NA. dita ant Ctatura 4	D:#f:#I#	Byte[68].all	Count To Nearest Port LSB
31	MulitportStatus4	Bitfield	Byte[69].all	Reserved
32	MultiportNearestPort	Unsigned Int	Byte[70].all to Byte[71].all	

6.2.2 Consuming data (Assem150)

Parameter Number	Parameter Name	Data Type	Index	Bit Description (For detailed information see Bitfield and Parameter table)
			Byte[0].0	Open
			Byte[0].1	Close
			Byte[0].2	Stop
			Byte[0].3	ESD
			Byte[0].4	PartialStroke
			Byte[0].5	Reserved
			Byte[0].6	HandAuto
22	DigitalControl	Bitfield	Byte[0].7	Reserved
22		Dirielu	Byte[1].0	Reserved
			Byte[1].1	Reserved
			Byte[1].2	Reserved
			Byte[1].3	Reserved
			Byte[1].4	Reserved
			Byte[1].5	Reserved
			Byte[1].6	Reserved
			Byte[1].7	PositionEnable
23	DesiredPosition	Unsigned Int	Byte[2],Byte[3]	Position Control
			Byte[4].0 to Byte[4].7	SetResetRelays
33	SetResetRelays	Pitfield	Byte[5].0 to Byte[5].7	SetResetRelays
33	seineseinelays	Bitfield	Byte[6].0 to Byte[6].7	SetResetRelays
			Byte[7].0 to Byte[7].7	SetResetRelays

6.3 Bitfields

Index	Data Name	Bit Name	Bit Mask	Description
				Digital Input 1: Reports the status of the contact connected to the actuator hard-wired
		Byte0_DI1	0x0001	Open terminal. The input can be used to control the actuator or simply to report the status of a plant feedback signal. The function is set in the Auxiliary Input Mask parameter which determines whether the bit is reported as true (1) for a closed contact or an open contact and whether the input controls the actuator or not. Note that the input is always reported even when it is also controlling the actuator. For details on the Auxiliary Input mask, please refer to the description in PUBO02-040.
		Byte0_DI2	0x0002	Digital Input 2: Reports the status of the contact connected to the actuator hard-wired Close terminal. The input can be used to control the actuator or simply to report the status of a plant feedback signal. The function is set in the Auxiliary Input Mask parameter which determines whether the bit is reported as true (1) for a closed contact or an open contact and whether the input controls the actuator or not. Note that the input is always reported even when it is also controlling the actuator. For details on the Auxiliary Input mask, please refer to the description in PUBO02-040.
1	StatusData1	Byte0_DI3	0x0004	Digital Input 3: Reports the status of the contact connected to the actuator hard-wired Stop / Maintain terminal. The input can be used to control the actuator or simply to report the status of a plant feedback signal. The function is set in the Auxiliary Input Mask parameter which determines whether the bit is reported as true (1) for a closed contact or an open contact and whether the input controls the actuator or not. Note that the input is always reported even when it is also controlling the actuator. For details on the Auxiliary Input mask, please refer to the description in PUB002-040.
		Byte0_DI4	0x0008	Digital Input 4: Reports the status of the contact connected to the actuator hard-wired ESD terminal. The input can be used to control the actuator or simply to report the status of a plant feedback signal. The function is set in the Auxiliary Input Mask parameter which determines whether the bit is reported as true (1) for a closed contact or an open contact and whether the input controls the actuator or not. Note that the input is always reported even when it is also controlling the actuator. For details on the Auxiliary Input mask, please refer to the description in PUBO02-040.
		Byte0_DI5	0x0010	Digital Input 5 to Digital Input 8: These bits report the status of the contact connected to
		Byte0_DI6	0x0020	the optional actuator hard-wired Digital Inputs 5 to 8.
		Byte0_DI7	0x0040 0x0080	These are ignored if the optional digital input card for contacts S5 to S8 is not fitted.
		Byte0_DI8 Byte1_R9	0x0080	Relay 9 Status to Relay 12 Status: These bits report the status of relays 9 to 12 (S contacts 9
		Byte1_R10	0x0200	to 12).
		Byte1_R11	0x0400	These are ignored if the optional digital input card for relays S9 to 12 is not fitted.
		Byte1_R12	0x0800	3
		Byte1_DI9	0x1000	Digital Input 9 to Digital Input 12: These bits report the status of the signal connected to
		Byte1_DI10	0x2000	the optional actuator hard-wired Digital Inputs 9 to 12 (if fitted).
		Byte1_Dl11		
		Byte2_S1	0x0000	Relay 1 Status to Relay 8 Status: These bits report the status of relays 1 to 8 (S contacts 1
		Byte2_S2	0x0002	to 8).
		Byte2_S3	0x0004	
		Byte2_S4	8000x0	
		Byte2_S5	0x0010	
		Byte2_S6	0x0020	
		Byte2_S7 Byte2_S8	0x0040 0x0080	
		Byte3_MRUN	0x0080	Motor Running: True (1) when the actuator is attempting to run the motor.
2	StatusData2	Byte3_MOP	0x0200	Moving Open: True (1) when the actuator is moving to the open position.
2	StatusData2	Byte3_MCL	0x0400	Moving Close: True (1) when the actuator is moving to the closed position.
		Byte3_CLT	0x0800	Close Limit Reached: True (1) when the actuator is at the closed limit.
		Byte3_OLT	0x1000	Open Limit Reached: True (1) when the actuator is at the open limit.
		Byte3_COLMOV	0x2000	Column Moving: True (1) when actuator the centre column is rotating.
		Byte3_RSEL	0x4000	Remote Selected: True (1) when the actuator three position remote / local stop / local selector is in the Remote position. The selector must be in this position for control using the option card to be permitted.
		Byte3_LOCAL	0x8000	Local Selected: True (1) when the actuator three position remote / local stop / local selector is in the Local position. Remote control of the actuator is not possible when the selector is in this position.
		Byte4_LSTOP	0x0001	Local Stop Selected: The actuator three position selector passes from Local to Remote or Remote to Local through the Local Stop position. The switch can also be placed in Local Stop. When the switch is in the Local Stop position this bit will be true (1). Remote control of the actuator is not possible when the selector is in this position.
		Byte4_LTEST	0x0002	Reserved.
		Byte4_TTC	0x0004	Torque Trip Open Active: True (1) when the actuator has torqued off in the open direction.
		Byte4_TTA Byte4_SM	0x0008 0x0010	Torque Trip Close Active: True (1) when the actuator has torqued off in the close direction. Reserved.
		Dy CC4_JIVI	0,0010	Interrupter Timer Active: True (1) when the interrupter timer is active. The Interrupter Timer
		Byte4_ITA	0x0020	in the can be used over part or the entire actuator stroke to slow down the effective speed of valve travel.
3	StatusData3	Byte4_MIT	0x0040	Motion Inhibit timer Active: True (1) when the Motion Inhibit timer is active. The Motion Inhibit Timer is used in position control to prevent the actuator from exceeding its prescribed number of starts per hour, or to reduce the effects of hunting during closed loop control.
		Byte4_SMT	0x0080	Stopped Mid Travel: True (1) when the actuator has stopped in mid travel (i.e. not at the closed or open limit).
		Byte5_ESD	0x0100	ESD Active: True (1) when an ESD is active.
		Byte5_PSA	0x0200	Partial Stroke in Progress: True (1) when a partial stroke test is active.
		Byte5_PHSEQ	0x0400	Phase Sequence is True (1) when the phase sequence is positive.
		Byte5_LocalRun	0x0800	Reserved.
		Byte5_SpareStatus4	0x1000	Reserved.
		Byte5_PSP Byte5_PowerMode	0x2000 0x4000	Partial Stroke Passed: True (1) when a partial stroke test completed successfully. Reserved.
		Byte5_PositionerActive	0x4000 0x8000	Positioner Active: True (1) when the actuator moving due to a position command.
	I.	5) tc5_i OsitiOnei Active	0,0000	. Soldone. Active. True (1) when the actuator moving due to a position command.

Index	Data Name	Bit Name	Bit Mask	Description
				Slow Mode Active: True (1) when slow mode is active. Applicable to IQT actuators only. In
		Byte6_SlowModeActive	0x0001	positioning mode, when the IQT actuator approaches its setpoint the motor automatically switches to 'slow mode' and the actuator runs at a lower speed. This allows any developed inertia to be dissipated and a better positional accuracy to be achieved without overshoot. Please refer to PUB002-040 for further details.
		Byte6_SpareStatus1	0x0002	Reserved.
4	StatusData4	Byte6_SpareStatus2	0x0002	Neser ved.
		Byte6_SpareStatus3	0x0008	
		Byte6_SpareStatus4	0x0010	
		Byte6_SpareStatus5	0x0020	
		Byte6_SpareStatus6	0x0040	
		Byte6 SpareStatus7	0x0080	
		Byte0_EEPROM	0x0001	EEPROM checksum error : True (1) when there is a configuration error.
		Byte0_THERM	0x0002	Thermostat Tripped: If the temperature of the motor windings rises above the thermostat trip value, the thermostat contact will open, and this signal will be present (1). There are no adjustments for the temperature at which the thermostat trip operates. The motor will be stopped if the thermostat trips. Only once the motor has cooled down and the thermostat has reset itself can a new Remote, Network Host or Local command to move the actuator be carried out.
		Byte0_VOBS	0x0004	Valve Obstructed: True (1) if the actuator stops in mid travel when not expected to do so after receiving a command to move. The bit will remain true (1) until the actuator position changes by 2% or more.
		Byte0_VJAM	0x0008	Valve Jammed: True (1) if the actuator is stationary at the end of travel and fails to move away from the seat of the valve when expected to do so. The bit will remain true (1) until the actuator position changes by 2% or more.
		Byte0_MAN	0x0010	Manual Movement: True (1) when the actuator is moved by the handwheel away from the last position.
		Byte0_MCLG	0x0020	Manual Movement in close direction: True (1) when the actuator is moved by the handwheel away from the last position in the close direction.
_		Byte0_MOPG	0x0040	Manual Movement in open direction: True (1) when the actuator is moved by the handwheel away from the last position in the open direction.
5	AlarmData1	Byte0_MCL	0x0080	Manual movement moved valve to close position: True (1) when the actuator is moved by the handwheel to the closed limit.
		Byte1_MOP	0x0100	Manual movement moved valve to open position: True (1) when the actuator is moved by the handwheel to the open limit.
		Byte1_EOT	0x0200	End of travel movement: True (1) when movement after the actuator has reached its limit occurs.
		Byte1_STALL	0x0400	Actuator has stalled: True (1) when the actuator is trying to operate, but there is no centre column motion.
		Byte1_MR	0x0800	Monitor Relay: True (1) when actuator remote control is not available. The actuator Monitor Relay status is a composite signal for several alarms. See PUB002-040 for details.
		Byte1_WD	0x1000	Reserved. Battery Low: The status of the internal battery is monitored, and should it fall below a
		Byte1_BL	0x2000	critical level this signal will become true (1). The battery is used to power the circuits used to keep track of the valve position when the actuator mains power is switched off. This battery is used only when the actuator has no power feed, and the valve is moved.
		Byte1_BF	0x4000	Battery flat: The status of the internal battery is monitored, and should it fall below a critical level this signal will become true (1). The battery is used to power the circuits used to keep track of the valve position when the actuator mains power is switched off. This battery is used only when the actuator has no power feed, and the valve is moved.
		Byte1_EEU	0x8000	EEPROM Updated: True (1) when the configuration of the actuator has been updated.
		Byte2_DU	0x0001	Datalogger Updated: True (1) when the datalogger in the actuator has been updated.
		Byte2_GA	0x0002	General Alarm: True (1) when any alarm is detected, including battery low or flat, valve alarm, actuator alarm, control alarm, valve obstructed or jammed (torque tripped) or monitor relay (not available for remote control).
		Byte2_VA	0x0004	Valve Alarm: True (1) when the actuator has tripped on torque in any direction in mid travel or on the limit (when not set to torque off on limit) or when the actuator has stalled. Actuator Alarm: True (1) when any of the actuator alarm are set, these include: Phase loss,
		Byte2_AA	0x0008	thermostat tripped, local controls fail, position sensor fail, torque sensor fail, power loss inhibit enabled and active, EEPROM Error, local signal in remote, position loss fail.
		Byte2_NWKF	0x0010	Network Card Fault: True (1) when a fault is being indicated by the option card. It is caused by one or more of the following conditions: • Network card configuration error • Remote Hand Station error
	AlarmDate 3	Byte2_PSE	0x0020	Battery charger communications error Partial Stroke Error: True (1) when an error occurs when requesting or operating a partial stroke strok
6	AlarmData2	Byte2_COCT	0x0040	stroke test. For example, the partial stroke cannot complete as the unit is at the wrong limit. Control Contention: True (1) when there is contention in control, if more than one actuator control bit is active.
		Byte2_MF	0x0080	Mains Fail: True (1) when there is a power supply failure.
		Byte3_COMMS	0x0100	Comms Loss: True (1) if communication is lost between the option card and actuator, or if
		Byte3_COIVIVIS Byte3_LOP	0x0100	one or more CIP Class 1 or Class 3 connections have been lost. Loss of Phase: True (1) if a phase is lost in a three-phase actuator.
		Byte3_24VDC	0x0400	24VDC Customer fault: True (1) if the 24V supply from the actuator (customer supply) has a fault.
		Byte3_CA	0x0800	Control Alarm: True (1) if an ESD is active or an Interlock active and inhibiting the actuator.
		Byte3_PSF	0x1000	Position Sensor Fault: True (1) if the position sensor (encoder) is in alarm.
		Byte3_TSF	0x2000	Torque Sensor Fault: True (1) if the torque sensor is in alarm.
		Byte3_TTM	0x4000	Torque Tripped Mid-Travel: True (1) if the actuator has tripped on torque when it is mid travel and not at a limit position.
		Byte3_LSH	0x8000	Local control signal held active when in remote : True (1) if the local control knob is held in the open of close position for an extended period, when in remote.
		Byte4_FS	0x0001	Reserved.
7	AlarmData3	Byte4_TPL	0x0002	Reserved.
		Byte4_TPH	0x0004	Reserved.
	1	Byte4_MA	0x0008	Maintenance Alert: True (1) when maintenance action is required.

Syral_Criscafault Dyral_Criscafault Dyral_Criscaf	Index	Data Name	Bit Name	Bit Mask	Description
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ByteS_NamurFailure ByteS_NamurFailure Asmure Function Check: True (1) if the Failure level Namur alarm has tripped. Namure Failure True (1) if the Failure level Namur alarm has tripped. Namure Failure True (1) if the Failure level Namur alarm has tripped. Namure Failure True (1) if the Failure level Namur alarm has tripped. Namure Failure True (1) if the Failure level Namur alarm has tripped. Namure Failure True (1) if the Failure level Namura alarm has tripped. Namure Failure True (1) if the Failure level Namura alarm has tripped. Namure Failure True (1) if the Failure level Namura alarm has tripped. Namure Failure True (1) if the Failure level Namura alarm has tripped. Namure Failure True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function. Network Disable Active: True (1) if there is a fault in the Closed Loop Control function.			Ryte5 NamurQutOfSpec	0×2000	
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Bytes_SpareAlarm2			Byte6_NetDisableActive	0x0001	
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PartialControllindication Stop Ox0004 Stop: True (1) when the actuator is being commanded into the close direction. (indication ONLY).			,		Open: True (1) when the actuator is being commanded into the open direction. (indication
PositionEnable Posi			Open	0x0001	ONLY).
PolytialControllindication Close Dox			'		Multiport/Multiset: increments port number.
DigitalControlIndication Stop					
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Stop					Multiport/Multiset: Decrements port number
PartialStroke DigitalControllindication PartialStroke DigitalStroke			Stop	0x0004	
PartialStroke Dx0010 PartialStroke: True (1) when the actuator is being commanded to perform a Partial Stroke. (indication ONLY).	9	DigitalControlIndication		-	
No.					
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HandAuto Discription PositionEnable Discription Discription PositionEnable Discription			NoLongerUsed	0x0020	
PositionEnable PositionEnable Dys8000 PositionEnable: True (1) when the actuator is enabled to be commanded to an intermediate position using Position control Parameter. (indication ONLY). Byte0_BatteryLowFlat Dyx00000001 Byte0_LocalControlFault Dyx00000002 Byte0_PowerFault Dyx00000004 Byte0_ServiceContactor Dyx00000001 Byte0_ServiceCountactor Dyx00000001 Byte0_ServiceCounter Dyx00000001 Byte0_ServiceCounter Dyx00000001 Byte0_ServiceCounter Dyx000000001 Dyx00000000 Byte0_ServiceHilTrip Dyx000000000 Dyx00000000 Dyx0000000 Dyx00000000 Dyx00000000 Dyx00000000 Dyx0000000 Dyx00000000 Dyx0000000 Dyx00000000 Dyx0000000 Dyx00000000 Dyx0000000 Dyx0000000 Dyx00000000 Dyx00000000 Dyx0000000 Dyx00000000 Dyx00000000 Dyx00000000 Dy			HandAuto	0x0040	
PositionEnlaide			HariuAuto	0,0040	
Byte0_BatteryLowFlat			PositionEnable	0x8000	
Byte0_LocalControlFault					
Byte0_PowerFault					
Byte0_ServiceContactor 0x00000008 Thermostat.					
Byte0_ServiceContactor					
SyteO_ServiceDue 0x00000020 Service due.					
Byte0_ServiceHiTrip					
Syte0_ServiceHiTrip 0x00000080 Hi torque alarm.					
Byte1_ServiceMotorStarts 0x00000100 Motor starts					
NamurAllMaskedAlarmData NamurFailureAlarmData NamurFnucCheckAlarmData NamurFnucCheckAlarmData NamurSatusAlarmData NamurStatusAlarmData					
NamurFailureAlarmData					
NamurGeckAlarmData NamurStatusAlarmData NamurStatus					
NamurFuncCheckAlarmData NamurSatusAlarmData NamurStatusAlarmData NamurSt					
NamurMaintenanceAlarmData NamurStatusAlarmData Namu					
NamurStatusAlarmData				-	
Byte1_Introductor					
Byte2_ValveError 0x00010000 Valve obstructed. Byte2_ActuatorStalled 0x00020000 Motor stalled. Byte2_Post.impHome 0x00040000 Position limp home. Byte2_EOT 0x00080000 End travel move. Byte2_NWRKFault 0x0010000 Network card fault. Byte2_VVTCcustSupplyFail 0x00200000 Customer power supply failure. Byte2_VVT 0x00400000 Valve travel time.					
Byte2_ActuatorStalled 0x00020000 Motor stalled. Byte2_PosLimpHome 0x00040000 Position limp home. Byte2_EOT 0x00080000 End travel move. Byte2_NWRKFault 0x00100000 Network card fault. Byte2_24VDCCustSupplyFail 0x00200000 Customer power supply failure. Byte2_VVT 0x00400000 Valve travel time.					
Byte2_PosLimpHome 0x00040000 Position limp home. Byte2_EOT 0x00080000 End travel move. Byte2_NWRKFault 0x00100000 Network card fault. Byte2_24VDCCustSupplyFail 0x0020000 Customer power supply failure. Byte2_VVT 0x00400000 Valve travel time.					
Byte2_EOT 0x00080000 End travel move. Byte2_NWRKFault 0x00100000 Network card fault. Byte2_24VDCCustSupplyFail 0x00200000 Customer power supply failure. Byte2_VVT 0x00400000 Valve travel time.					
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Byte2_24VDCCustSupplyFail 0x00200000 Customer power supply failure. Byte2_VVT 0x00400000 Valve travel time.					
Byte2_VVT 0x00400000 Valve travel time.					
bytes_vvioligencesionial oxoboboboo vviolig direction detected.			Byte2_WrongDirectionFail		

Index	Data Name	Bit Name	Bit Mask	Description
illuex	Data Name	Open	0x0001	Open: Set this bit true (1) to command the actuator into the open direction.
		Close	0x0001	Close: Set this bit true (1) to command the actuator into the open direction.
		Stop	0x0004	Stop: Set this bit true (1) to command the actuator to Stop.
		ESD	0x0008	ESD: Set this bit true (1) to command the actuator to perform an ESD.
22	DigitalControl	PartialStroke	0x0010	PartialStroke: Set this bit true (1) to command the actuator to perform a Partial Stroke.
		HandAuto	0x0040	HandAuto: Set this bit true (1) to allow the actuator to be controlled by a secondary control
		PositionEnable	0x8000	source (e.g. in folomatic case, to allow remote operation). PositionEnable: Set this bit true (1) to enable the actuator to be commanded into an intermediate position using Position control Parameter.
		Byte0_AbccCommsFault	0x0001	AbccCommsFault: True (1) if the option card is failing to communicate with its internal
		Byte0_EEPROMFault	0x0001	network module. EEPROMFault: True (1) when a fault is detected in the EEPROM of the option card.
		Byte0_AbccCfgGetErr	0x0004	AbccCfgGetErr: True (1) when a network related configuration shown on the user interface board or Insight2 is incorrect, for example IP address, subnet mask, hostname, etc.
		Byte0_FtpEnabled	0x0008	FtpEnabled: Set if FTP is enabled on the option card.
		Byte0_AbccCfgSetErr	0x0010	AbccCfgSetErr: True (1) if a network config item set via the user interface board or Insight2
		Byte0_EthLink10MbpsPort1	0x0020	is not successfully set. EthLink10MbpsPort1: True (1) when there is a 10 Mbps Ethernet link on port 1.
		Byte0_ControlContention	0x0040	ControlContention: True (1) if the option card detects control contention in the parameter DigitalControl (instance 22). If control contention is detected, the option card will not execute the received digital control content control content in the property of the property control content in the parameter of the
		Byte0_CANFault	0x0080	the received digital control command. CANFault: True (1) if there is a communication fault between the actuator and option card.
24	NetworkStatus1	Byte1_CommsPresent	0x0100	CommsPresent: True (1) if one or more CIP (Class 1 or Class 3) connections have been opened
		Byte1_WriteError	0x0200	towards the option card. WriteError: True (1) if the last write command to the DesiredPosition parameter is rejected
		Byte1_HWConfigLinkActive	0x0400	because the value is out of range. HWConfigLinkActive: True (1) if the default HW configuration link (CF1) on the PCB
		,		assembly is inserted when the option card is booted.
		Byte1_DatalogDownloadFail	0x0800	DatalogDownloadFail: True (1) if the last data log download failed.
		Byte1_EthLink100MbpsPort1	0x1000 0x2000	EthLink100MbpsPort1: True (1) when there is a 100 Mbps Ethernet link on port 1. Reserved.
		Byte1_Reserved5 Byte1_Reserved6	0x2000 0x4000	Reserved.
		byte i_neservedo	0.4000	AbccCfgOutOfSync: True (1) when a network related configuration shown on the user
		Byte1_AbccCfgOutOfSync	0x8000	interface board or Insight2 is potentially incorrect, for example IP address, subnet mask, hostname, etc. This occurs when option card is booting, or a new configuration value is being set.
		Byte2_EthLink10MbpsPort2	0x0001	EthLink10MbpsPort2: True (1) when there is a 10 Mbps Ethernet link on port 2.
		Byte2_EthLink100MbpsPort2	0x0002	EthLink100MbpsPort2: True (1) when there is a 100 Mbps Ethernet link on port 2.
		Byte2_Reserved2	0x0004	Reserved.
25	Not and Charles	Byte2_Reserved3	0x0008	
25	NetworkStatus2	Byte2_Reserved4 Byte2_Reserved5	0x0010 0x0020	
		Byte2_Reserved6	0x0040	-
		Byte2_Reserved7	0x0080	
		Byte3_Reserved	0xFF00	
26	NetworkStatus3	Byte4_Reserved	0x00FF	
20	Networkstatass	Byte5_Reserved	0xFF00	
27	NetworkStatus4	Byte6_Reserved Byte7_Reserved	0x00FF 0xFF00	
		Byte0_Nibble0_TargetPort	0x000F	Mulitiport Target Port: 4 bit value representing the target port that the unit is commanded to. A '1' needs to be added to the value returned to get the correct port.
				Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
		Puton Nibble 1 Ctarthant	٥٠٥٥٢٥	Mulitiport Start Port: 4 bit value representing the port that the unit started from. A '1' needs to be added to the value returned to get the correct port.
		Byte0_Nibble1_StartPort	0x00F0	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
		Byte1_Nibble0_LastGoodPort	0x0F00	Mulitiport Last Good Port: 4 bit value representing the last port the unit passed through. A '1' needs to be added to the value returned to get the correct port.
28	MultiportStatus1	,		Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
		Byte1_Bit4_ StuckBetweenPorts	0x1000	Mulitiport Stuck between Ports: Indicates if the actuator is not moving and the current position does not match any port position i.e. the actuator is between ports.
		StuckbetweeliPOItS		Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
		Puto 1 Dist Manife of Landard	02000	Mulitiport Moving Clockwise: Indicates if the unit is moving in the clockwise direction.
		Byte1_Bit5_MovingClockwise	0x2000	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
				Mulitiport Moving Anti-Clockwise: Indicates if the unit is moving in the anti-clockwise
		Byte1_Bit6_ MovingAntiClockwise	0x4000	direction. Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
		Byte1_Bit7_Reserved	0x8000	Reserved.
				Mulitiport Target Port: Percent value representing the target port that the unit is
		Byte2_Bit0To6_ TargetPortPosition	0x007F	commanded to. Range 0-100% reflecting 0-360 degrees. 7 bits of byte utilised.
29	MultiportStatus2	rargetrortrosition		Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
		Byte2_Bit7_	0x0080	Mulitiport Degree Of Rotation: 9 bit value representing the degrees of rotation (0-360).
		DegreeOfRotationMSB		Requires the actuator to be a Multiport build, refer to PUB002-221 for more information
		Byte3_DegreeOfRotationLSB	0xFF00	about Multiport.

Note: Indices 28 to 31 are reserved and 324 onwards are not available on v103 firmware

Index	Data Name	Bit Name	Bit Mask	Description
				Mulitiport Current Position: Percent value representing the units current position (0-100%)
30	MultiportStatus3	Byte4_CurrentPosition	0x00FF	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
		Byte5_ CountToNearestPortMSB	0xFF00	Mulitiport Count to Nearest Port: 16 bit value representing the encoder count to the nearest port (0-360).
31	MultiportStatus4	Byte6_ CountToNearestPortLSB	0x00FF	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
		Byte0_Set_Relays	0x000000FF	SetResetRelays: Bit map to control the Relays.
		Byte1_Set_Relays	0x0000FF00	Bits 0-7 set relays 1-8 respectively
33	SetResetRelays	Byte2_Reset_Relays	0x00FF0000	Bits 8-15 set relays 9-16 respectively
		Byte3_Reset_Relays	0xFF000000	Bits 16-23 reset relays 1-8 respectively Bits 24-31 reset relays 9-16 respectively
		Byte0_BatteryLowFlat	0x00000001	See description for instances 16 to 21 in Bitfields Table.
		Byte0_LocalControlFault	0x00000002	
		Byte0_PowerFault	0x00000004	
		Byte0_Thermostat	0x00000008	
		Byte0_ServiceContactor	0x00000010	
		Byte0_ServiceDue	0x00000020	
		Byte0_ServiceHiHiTrip	0x00000040	
		Byte0_ServiceHiTrip	0x00000080	
		Byte2_ServiceMotorStarts	0x00000100	
		Byte1_ServiceOutputTurns	0x00000200	
34	NAMURFailureDataMask	Byte1 MonitorRelay	0x00000400	
35	NAMUROutOfSpecDataMask	Byte1_ControlFail	0x00000800	
36	NAMURFunctionCheckDataMask	Byte1_ActuatorFail	0x00001000	
37	NAMURMaintenanceDataMask	Byte1 CommsFail	0x00002000	
		Byte1_HardwareOptionFail	0x00004000	
		Byte1_PartialStrokeError	0x00008000	
		Byte1_ValveError	0x00010000	
		Byte2 ActuatorStalled	0x00020000	
		Byte2 PosLimpHome	0x00040000	
		Byte2_EOT	0x00080000	
		Byte2_NWRKFault	0x00100000	
		Byte2_24VDCCustSupplyFail	0x00200000	
		Byte2_VVT	0x00400000	
		Byte2_WrongDirectionFail	0x00800000	
		Byte0_AuxMaskCmd	0x00FF	Reserved.
		Byte1_DigInput1RmtOpen	0x0100	DI1 Remote Open: Command type, 0 - Digital input, 1 - Remote Open.
224		Byte1_DigInput2RmtClose	0x0200	DI2 Remote Close: Command type, 0 - Digital input, 1 - Remote close.
331	AuxInputTypeMask	Byte1_DigInput3RmtMaint	0x0400	DI3 Remote Maintain: Command type, 0 - Digital input, 1 - Remote maintain.
		Byte1_DigInput4RmtEsd	0x0800	DI4 Remote ESD: Command type, 0 - Digital input, 1 - Remote ESD.
		Byte1_Nib1_AuxMaxCmd	0xF000	Reserved.
		Byte0_AuxMaskNormOpen	0x00FF	Reserved.
		Byte1_DigInput1NormOpen	0x0100	DI1 Remote Open: Contact type, 0 - Normally closed, 1 - Normally open.
		Byte1_DigInput2NormOpen	0x0200	DI2 Remote Close: Contact type, 0 - Normally closed, 1 - Normally open.
332	AuxInputContactStateMask	Byte1_DigInput3NormOpen	0x0400	DI3 Remote Maintain: Contact type, 0 - Normally closed, 1 - Normally open.
		Byte1_DigInput4NormOpen	0x0800	DI1 Remote ESD: Contact type, 0 - Normally closed, 1 - Normally open.
		Byte1_Nib1_	0xF000	Reserved.
		AuxMaxNormOpen	UXFUUU	
		Byte0_Port9	0x0001	Set if port 9 is active.
		Byte0_Port10	0x0002	Set if port 10 is active.
		Byte0_Port11	0x0004	Set if port 11 is active.
		Byte0_Port12	0x0008	Set if port 12 is active.
		Byte0_Port13	0x0010	Set if port 13 is active.
		Byte0_Port14	0x0020	Set if port 14 is active.
		Byte0_Port15	0x0040	Set if port 15 is active.
250	Multiport Activo Parts	Byte0_Port16	0x0080	Set if port 16 is active.
356	MultiportActivePorts	Byte1_Port1	0x0100	Set if port 1 is active.
		Byte1_Port2	0x0200	Set if port 2 is active.
		Byte1_Port3	0x0400	Set if port 3 is active.
		Byte1_Port4	0x0800	Set if port 4 is active.
		Byte1_Port5	0x1000	Set if port 5 is active.
		Byte1_Port6	0x2000	Set if port 6 is active.
		Byte1_Port6 Byte1_Port7	0x2000 0x4000	Set if port of stactive.

Note: Indices 28 to 31 are reserved and 324 onwards are not available on v103 firmware

6.4 Enumerations

Instance	Data Name	Enum Name	Enum Value	Description
		None	0	
		ClosedLimit	1	Closed limit position (exact).
		OpenLimit	4	Open limit position (exact).
		MotorRunning Closing	5	Motor running. Travelling in the close direction – motor or handwheel.
		Opening	6	Travelling in the close direction – motor or handwheel.
		Moving	7	Travelling – motor or handwheel.
		MidTravelStall	8	Not a limit, motor energised – no output movement detected.
		Stall	10	Motor has stalled.
		LocalStop	14	Red Control knob set to STOP.
		LocalControlEn	15	Red Control knob set to Local.
		RemoteControlEn	16	Red Control knob set to Remote.
		ControlAlarm	17	ESD signal and/or interlock active.
		ESDActive	18	ESD signal applied.
		OpenInterlock	19	Open Interlock active.
		ClosedInterlock Interlock	20	Open Interlock active.
		ManOverride	24	Open and/or closed interlock active. Handwheel operation.
		MotThermostat	30	Motor Thermostat has tripped.
		PStrokePass	31	Partial stroke completed.
		PStrokeFail	32	Partial stroke not completed.
		Monitor	33	Monitor relay de-energised.
		MidTravel	34	Not at Closed or Open limits.
		BluetoothConnected	35	Bluetooth is connected.
		EndPosition	36	Either at Closed or Open limit positions.
		IntermediatePosition	37	Not at Closed or Open limits.
		TorqueTripClosing	38	Torque trip closing – any position.
		TorqueTripOpening	39	Torque trip opening – any position.
		TorqueTrip	40	Torque trip closing or opening – any position.
		TorqueTripMidTravel PhaseLoss	41	Torque trip mid-travel, closing or opening. 3-phase only – monitored phase 3 lost.
		Cust24VFail	43	Internal 24VDC supply failed (Terminals 4 & 5).
		ActuatorAlarm	44	Internal fault detected.
		ValveAlarm	45	On torque trip mid-travel or motor stall condition.
		BatteryLow	46	Battery low.
4.1	Franctice OfC1	BatteryFlat	47	Battery discharged or missing.
41 42	FunctionOfS1 FunctionOfS2	Blinker	48	Travelling (make/break at 1 second intervals).
43	FunctionOfS3 FunctionOfS4	DigitalOutput	49	Network option controlled.
44		PStrokeActive	50	Partial stroke underway.
45	FunctionOfS5	Maintenance	51	Scheduled maintenance due.
46	FunctionOfS6 FunctionOfS7 FunctionOfS8 FunctionOfS9 FunctionOfS10	HiTorqueAlarm	52	Set Hi torque value reached.
47 48		HiHiTorqueAlarm	53 54	Set Hi-Hi torque value reached.
49		OddParity	55	Set when count of relays set is and odd value.
50		Source1NetworkCommsLoss Source2NetworkCommsLoss	56	Communication failure with option 1 card. Communication failure with option 2 card.
51	FunctionOfS11	NamurMaintenance	57	A NAMUR maintenance condition is active.
52	FunctionOfS12	NamurOutOfSpec	58	A NAMUR out of specification condition is active.
		NamurFunctionCheck	59	A NAMUR function check condition is active.
		NamurFailure	60	A NAMUR failure condition is active.
		OverModulation	66	Starts per hour has been exceeded.
		MotorInhibit	67	Motor is inhibited.
		LossOfHMI	74	HMI will not be lit up.
		MaintainFeedback	75	Open/Close signals are maintained.
		GeneralAlarm	80	Anything which constitutes an alarm from the 'function' list triggers this alarm.
		BatBackupAvailable	81	For battery backup only: Checks availability of battery, checks if battery is charged.
		BatBackupControlling BatBackupCharging	93	For battery backup only: battery is in control. For battery backup only: battery is charging.
		ClosedLoopControlFail	94	Closed Loop Control failure - due to loss of Setpoint or Feedback signal.
		TorqueOrLimitClose	95	The close position is at its torque limit.
		TorqueOrLimitOpen	96	The open position is at its torque limit.
		LocalClose	97	A local close control has been activated.
		LocalOpen	98	A local open control has been activated.
		Reserved	99	·
		Reserved	100	
		Reserved	101	
		Reserved	102	
		Multiportport1	103	Port Position 1 reached.
		Multiportport2	104	Port Position 2 reached.
		Multiportport3	105	Port Position 3 reached.
		Multiportport4	106	Port Position 4 reached.
		Multiportport5	107	Port Position 5 reached.
		Multiportport6	108	Port Position 7 reached
		Multiportport7	109	Port Position 7 reached.
		Multiportport8 Multiportport9	110	Port Position 8 reached. Port Position 9 reached.
		Multiportport9 Multiportport10	112	Port Position 9 reached.
		Multiportport11	113	Port Position 11 reached.
		Multiportport12	114	Port Position 11 reached.
		Multiportport13	115	Port Position 13 reached.
	I .			
		Multiportport14	116	Port Position 14 reached.
		Multiportport14 Multiportport15	116	Port Position 14 reached. Port Position 15 reached.

Note: Enum values 99 onwards not available for v103 EOC firmware

6.5 Parameter instance attributes

Attribute	Name	Access	Туре	Description
1	Parameter Value	Get / Set	Specified in attributes 4, 5, and 6.	Actual value of parameter. This attribute is read-only if bit 4 of Attribute #4 is true.
2	Link Path Size	Get	USINT	0x0007 (Size of link path in bytes).
3	Link Path	Get	Packed EPATH	0x 20 A2 25 nn nn 30 05 Path to the object where this parameter's value is retrieved.
4	Descriptor	Get	WORD	Bit Contents O Supports settable path (N/A). Supports enumerated strings. Supports scaling (N/A). Supports scaling links (N/A). Read only parameter. Monitor parameter (N/A). Supports extended precision scaling (N/A).
5	Data Type	Get	USINT	Data type code.
6	Data Size	Get	USINT	Number of bytes in parameter value.
7	Parameter Name String	Get	SHORT_STRING	Name of the parameter, truncated to 16 chars.
8	Units String	Get	SHORT_STRING	"" (default string).
9	Help String	Get	SHORT_STRING	
10	Minimum Value	Get	See attribute 5.	Minimum value of the parameter.
11	Maximum Value	Get	See attribute 5.	Maximum value of the parameter.
12	Default Value	Get	See attribute 5.	Default value of the parameter.
13	Scaling Multiplier	Get	UINT	0x0001
14	Scaling Divisor	Get	UINT	
15	Scaling Base	Get	UINT	
16	Scaling Offset	Get	INT	0x0000
17	Multiplier Link	Get	UINT	
18	Divisor Link	Get	UINT	
19	Base Link	Get	UINT	
20	Offset Link	Get	UINT	
21	Decimal Precision	Get	USINT	0x00

Notes



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