

Keeping the World Flowing for Future Generations

PROFINET option card

Technical manual

Compatible with IQ3 Pro and IQT3 Pro actuators





The PROFINET option 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 PROFINET option module may be referred to as the module, the PROFINET option card, the option card or the card.

Note 2:

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

PROFINET 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	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	PROFINET protocol firmware	Webpage
v103 version	v103	v2.08	v1.03
v104 version	v104	v2.10	v1.04

The GSDML file associated with the PROFINET option card can be downloaded from the PI website at: https://www.profibus.com/rotork-ethernet-actuator

Ethernet option card	GSDML file name	
v103 version	GSDML-V2.44-Rotork Controls Ltd-Rotork Ethernet Actuator-20240306.xml	
v104 version	GSDML-V2.45-Rotork Controls Ltd-Rotork Ethernet Actuator-20241105.xml	

The GSDML file refers to a graphics file containing the Rotork icon: "GSDML-0125-0033-RotorkIcon.bmp". The GSDML files (in ZIP files) are also available for download from www.rotork.com:

Ethernet option card	GSDML ZIP file name
v103 version	IQ3-IQT3 Pro PROFINET GSDML v103.zip
v104 version	IQ3-IQT3 Pro PROFINET GSDML v104.zip

Note 3:

This manual assumes a pre-existing level of knowledge of using the actuator that the PROFINET 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 with the actuator. Manuals can be downloaded from the Rotork website. This manual also assumes intermediate knowledge of the PROFINET protocol and networks.

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Acronyms and abbreviations

Comms	Communications
DCS	Data Concentrator System
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DV	Desired Value (Positioning)
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
ESD	Electrostatic Discharge
GSDML	General Station Description Markup Language
HTTP	HyperText Transfer Protocol
iAM	Intelligent Asset Management
Ю	Input/Output
IP	Internet Protocol
LED	Light Emitting Diode
MAC	Media Access Control
MRP	Media Redundancy Protocol
PI	PROFIBUS & PROFINET International
PCBA	Printed Circuit Board Assembly
PLC	Programmable Logic Controller
SCADA	Supervisory Control And Data Acquisition
SNMP	Simple Network Management Protocol
ТСР	Transport Control Protocol
UDP	User Datagram Protocol

1 Introduction

This document gives instructions for commissioning the PROFINET option card.

1.1 **PROFINET**

The Ethernet actuator fitted with a PROFINET option card is certified by PI following conformance testing by an accredited PI Test Laboratory (PITL). Rotork can be found as a licensed vendor on the PI website. The GSDML file associated with the PROFINET option card can be downloaded from the Rotork PI product page at https://www.profibus.com/rotork-ethernet-actuator.

The option card is a PROFINET Conformance Class B (CC-B) device, with SNMP, System Redundancy S2, and MRP supported.

System redundancy ensures continuous operation by using multiple connections to a device in case of failure. In PROFINET, redundancy can be implemented in several configurations. The PROFINET option card supports S2 functionality, enabling a device to connect to two PROFINET IO Controllers: a primary and a backup. If the primary controller fails, the backup immediately takes over without causing any network interruptions. This functionality requires IO Controllers that support S2.

The option card has two connections, either 2 x RJ45 or 2 x M12, supporting auto crossover and full duplex transmission speed of 100Mbps.

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

- Ring (including Media Redundancy Protocol MRP)
- Star
- Line

The card 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 at all times 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.

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: PROFINET 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 or 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

2.5 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 PROFINET menu on the actuator display or the availability of the webpages.



Fig 4: PROFINET option card LED positions

LED	Appearance	Meaning
System Fault	Off	Not initialised, or no problem detected
System Fault	Red	One or more of the following: – Diagnostic event(s): Diagnostic event(s) present – Exception error: Option card network module in EXCEPTION state, Ethernet MAC held in reset. – FATAL event: Major internal error if Bus Fault LED is also red
Bus Fault	Off	No problem
Bus Fault	Red	One or more of the following: - Station Name error: Station Name is not set - IP address error: IP address is not set - Configuration error: Expected Identification differs from Real Identification - Online (STOP): Connection with IO Controller established, but IO Controller is in STOP state or IO data is BAD - Connection error: No connection with IO Controller - FATAL event: Major internal error if System Fault LED is also red
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 how the Industrial Ethernet protocols available on Rotork products fit into the OSI 7-layer model:



3.2 Network topology

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



Fig 5: Common network topologies

Media Redundancy Protocol (MRP) is also supported. MRP is a PROFINET-specific protocol designed to minimise network downtime by providing redundancy.

3 Industrial Ethernet

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.

At the actuator, several options exist:

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 1MΩ 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 a PROFINET option card leaves the factory with the following default settings:

Host Name:	н н	SNMP Read-Only Community String:	"public"
DHCP Enabled:	Disabled	SNMP Read/Write Community String:	"private"
Domain Name:	0.0	Port 1 Network Speed:	Full Duplex 100Mbps
IP Address:	0.0.0.0	Port 2 Network Speed:	Full Duplex 100Mbps
Subnet Mask:	0.0.0.0	Command Filter Delay (ms):	250
Gateway Address:	0.0.0.0	FTP Enabled:	Disabled
Primary DNS server:	0.0.0.0	Webpage Admin Password:	ROTACT
Secondary DNS server:	0.0.0.0	Webpage Engineer Password:	ROTORK
Station Name:	нн		

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 IO Controller could be writing desired position to parameter 23, DesiredPosition, every 32 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 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 PROFINET. Note that this option appears only when the option card is fitted.



You have now reached the **PROFINET** menu.

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.



1/13	IP Address	This is the IP address of the actuator and should follow your normal address sequence for your network. Use the \bigcirc and \bigcirc keys to edit the values, as you would for changing tags and passwords on other actuator menus. Use the \bigcirc and \bigcirc keys to move between characters.
2/13	IP Netmask	This is usually set to 255.255.255.0, unless required otherwise by your Ethernet network.
3/13	Default Gateway	This should be set to 0.0.0.0, unless you are using a gateway.
4/13	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.
5/13	MAC	Base MAC address of the option card.
6/13	Port1 MAC	Port 1 MAC address of the option card.
7/13	Port2 MAC	Port 2 MAC address of the option card.
8/13	Eth1 Link	Indicates whether Ethernet link is present on Port 1.
9/13	Eth2 Link	Indicates whether Ethernet link is present on Port 2.
10/13	Bus Fault	Indicates whether there is a PROFINET Bus Fault with the option card. See Section 2.5 Option card LEDs for description of Bus Fault.
11/13	System Fault	Indicates whether there is a PROFINET System Fault with the option card. See Section 2.5 Option card LEDs for description of System Fault.
12/13	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.
13/13	FTP	Indicates whether FTP is enabled and remote control of the actuator is disabled.

4.3 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 whather 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 page.

	rot	Drk°	
	Module Overview		
	Module Identity	Rotork Ethernet Actuator	
	Network Type	PROFINET	
	Serial Number	Demo IQ3 Pro	
	Uptime	1.0.2 0 days, 0h:14m:34s	
	Log	g In	
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Click on the Log In button. You will be prompted to enter the username and password.

ro	tor k	×
U	Sername Admin	
P	assword	-
	Submit	

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.

4.3.1 Overview

MODULE	Module Overview	
Overview	Module Identity	Rotork Ethernet Actuator
Information	Network Type	PROFINET
Parameters	Serial Number	Demo IQ3 Pro
NETWORK	Web Interface Version	1.0.2
Status and Alarms	Uptime	0 days, 0h:15m:47s
IP Configuration		
SERVICES		
Remote Control		
Data Log		
LogOff		

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:

Information 4.3.2

MODULE	Module Information	
Overview	Actuator Type	IQ3 Pro
Information	Actuator Tag	EoC
Parameters	Ethernet Port Status	Connected
NETWORK	Ethernet Port Traffic	Port 1
Status and Alarms	Communication Status	Active
IP Configuration	Software Versions	
SERVICES	Main Board	v128 (134)
SERVICES	UI Board	v207 (61)
Remote Control	Ethernet Option Card	v102 (3095)
Data Log		
LogOff		

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

4.3.3 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.

MODULE			
Overview			
Information	# Name	Value	🜔 Refresh
Parameters	1 StatusData1	0x0000	
NETWORK	2 StatusData2	0×000C	
Status and Alarms	2 Olald3Dala2		
IP Configuration	3 StatusData3	0x0081	
SERVICES	4 StatusData4	0x0000	
Remote Control	5 AlarmData1	0x0800	
Data Log LogOff	6 AlarmData2	0x0001	
-	7 AlarmData3	0x0000	
	8 AlarmData4	0x0001	
	9 DigitalControlIndication	0x0000	
	10 DesiredPositionIndication	0	
	11 Position	5000	

4.3.4 Status and Alarms

MODULE
Overview
Information
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

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

LogOff

4.3.5 Control Alarms

IODULE	Control Alarms		
Verview	Control Alarm	Inactive	Active
formation	Valve Travel Time Alarm	Inactive	O Active
arameters	Auxiliary Override Alarm	Inactive	O Active
ETWORK	Stall	Inactive	Active
tatus and Alarms	End of Travel Timer Alarm	Inactive	Active
Control Alarms	Valve Alarm	Inactive	Active
Hardware Status	Actuator Alarm	Inactive	Active
Hardwired Status	Actualor Alarm		
Local Control Status	Partial Stroke Fall		
Network Status	Control Contention	• Inacuve	Active
Position Status	Communication / Signal Loss Alarm	Inactive	Active
Power Status			
Relay Status			
Iorque Status			
Configuration			
IERVICES			

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

4.3.6 Hardware Status

Data Log LogOff

MODULE	Hardware Status		
Overview	NAMUR Maintenance Needed	Inactive	Active
Information	NAMUR Out of Specification	Inactive	 Active
Parameters	NAMUR Function Check	Inactive	O Active
NETWORK	NAMUR Failure	Inactive	Active
Status and Alarms	Critical Fault	Inactive	Active
Control Alarms			Astive
Hardware Status	Non Critical Fault	Inactive	Active
Hardwired Status	Vibration Alarm	Inactive	Active
Local Control Status	Thermostat Alarm	Inactive	 Active
Network Status	EEPROM Error	Inactive	Active
Position Status			
Power Status			
Relay Status			
Torque Status			
IP Configuration			
SERVICES			
Remote Control			
Data Log			

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

4.3.7 Hardwired Status

LogOff

Remote Control Data Log LogOff

MODULE	Digital Input Status		
Overview	Digital Input 1 (Remote Open)	• Low	 High
nformation	Digital Input 2 (Remote Close)	• Low	 High
arameters	Digital Input 3 (Remote Maintain)	Low	O High
ETWORK	Digital Input 4 (Remote ESD)	Elow	High
atus and Alarms	Digital Input 5 (Close Interlock)	Low	⊖ High
 Control Alarms Hardware Status 	Digital Input 6 (Open Interlock)	• Low	High
Hardwired Status	Input Function Status		
Local Control Status	Open Interlock	Low	O High
Network Status	Close Interlock	Eow	 High
Position Status	Network Disable	○ Low	High
Power Status			
Relay Status			
Torque Status			
Configuration			
ERVICES			

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

4.3.8 Local Control Status

MODULE	Local Control Status		
Overview	Remote Control	Inactive	Active
Information	Local Control	Inactive	Active
Parameters	Local Stop	O Inactive	Active
NETWORK	Local Command While in Remote	No Error	C Error
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 shows the status of the local control switch, as detailed in PUB002-040.

4.3.9 Network Status



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

4.3.10 Position Status

MODULE	Position Calibration		
Overview	Position (%)	50.0%	
Information	Position Raw Units	5000	
Parameters	Position Status		
NETWORK	Motor Operating	Inactive	Active
Status and Alarms	Motor Operating		
Control Alarms	Ouput Moving		Active
Hardware Status	Stopped Mid Travel	Inactive	Active
Hardwired Status	Moving Open	Inactive	 Active
Local Control Status	Moving Closed	Inactive	 Active
Network Status	Closed Limit	Inactive	 Active
Position Status	Open Limit	Inactive	O Active
Power Status	Movement Inhibited by Interrupter Timer	Inactive	O Active
Relay Status	Movement Inhibited by Motion Inhibit Timer	Inactive	O Active
Torque Status	Partial Stroke Operation	Inactive	Active
IP Configuration	Position Sensor Fault	Inactive	O Active
Remote Control	Manual Operation	Inactive	O Active
Data Log	Manual Movement Close	Inactive	O Active
LogOff	Manual Movement Open	Inactive	Active
-	Manual Movement to Closed Limit	Inactive	O Active
	Manual Movement to Open Limit	Inactive	Active

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

4.3.11 Power Status

MODULE	Power Supply Status		
Overview	Actuator Loss of Phase	Inactive	Active
Information	24VDC Supply Failure	Inactive	 Active
Parameters	Mains Supply Failure	Inactive	Active
NETWORK	Battery Low	Inactive	Active
Status and Alarms	Battony Elat	Inactive	Active
Control Alarms	Dattery Flat		
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 shows the status of the power supply, as detailed in PUB002-040.

4.3.12 Relay Status

MODULE	Relay Status		
Overview	Monitor Relay - Remote Control	 Available 	Inhibited
Information	Relay 1	Inactive	O Active
Parameters	Relay 2	Inactive	O Active
NETWORK	Relay 3	O Inactive	Active
Status and Alarms	Relay 4	Inactive	Active
Control Alarms	Polov 5	Inactive	Active
Hardware Status	Delay 3		
Hardwired Status	Relay 6	C IIIdciive	Active
Local Control Status	Relay 7	Inactive	Active
Network Status	Relay 8	Inactive	O Active
Position Status	Relay 9	Inactive	Active
Power Status	Relay 10	Inactive	Active
Relay Status	Relay 11	Inactive	Active
Torque Status	Relay 12	Inactive	Active
IP Configuration	1000y 12		
SERVICES			
Description of the state of the			

Data Log LogOff

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.

4.3.13 Torque Status

MODULE	Torque Values		
Overview	Torque (%)	30	
Information	Raw Torque	300	
Parameters	Torque Status		
NETWORK	Stopped On Torque Mid Travel	Inactive	Active
Status and Alarms			Anthre
Control Alarms	Stopped On Torque Clockwise		Active
Hardware Status	Stopped On Torque Anti-Clockwise	Inactive	 Active
Hardwired Status	Torque Sensor Fault	Inactive	Active
Local Control Status	Valve Obstructed	Inactive	Active
Network Status	Valve Jammed	Inactive	Active
Position Status			
Power Status			
Relay Status			
Torque Status			
IP Configuration			
SERVICES			
Remote Control			

Data Log LogOff

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

4.3.14 IP Configuration

MODULE	IP Configuration	
Overview	DHCP	Disabled V
Information	IR Addrose	12 107 64 5
Parameters	II Address	10.101.04.0
NETWORK	Subnet Mask	255.255.192.0
Status and Alarms		
Control Alarms	Gateway Address	0.0.00
Hardware Status		
Hardwired Status	Host Name	
Local Control Status		
Network Status	Domain name	
Position Status		
Power Status	DNS Server #1	0.0.0.0
Relay Status		
Torque Status	DNS Server #2	0.0.0.0
IP Configuration		
SERVICES		Save settings
Remote Control		Save settings
Data Log		
LogOff		
	Ethernet Configuration	
	Port 1	Auto 🗸
	Port 2	Auto 🗸
		Save settings

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.

4.3.15 Remote Control

MODULE	Digital Control		
Overview	Open		Set
Information	Close		Set
Parameters	Otar		Cat
NETWORK	Stop		Sei
Status and Alarms	Partial Stroke		Set
Control Alarms	Desition Control		
Hardware Status	Position Control		
Hardwired Status	Position		Enable
Local Control Status	Position		
Network Status	Position (%)	50.0%	
Position Status	Position Raw Units	5000	
Power Status			
Relay Status			
Torque Status			
IP Configuration			
SERVICES			
Remote Control			
Data Log			
LogOff			

This allows you to control the actuator remotely.

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

4.3.16 Data Log

MODULE Data Log Manag	iement
Deta Log Mariag	
Information	
Parameters	Compile Data Log
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.

4.4 Using Insight 2 to set up the PROFINET 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.

Insight 2 Login		\times						
Please er	Insight 2 Login Please enter your priviledge level and password							
Privilege Level	User ~							
Password	•••••							
Remember me	Login Cancel							

- 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.

[
🗧 Insight 2	-	×
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Discover Devices		
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Insight 2 File Connection Security Tools Help Insight 2 Discovering devices. Pla	sso wit.	×
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Insight 2 File Connection Security Tools Help Mode we × BUJETOOTH Insight 2 Discovering devices. Pte	sso wolt.	×
file Connection Security Tools Help insight 2 insight 2 insight 2 insight 2 insight 2 Discovaring devices. Pla		×
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Insight 2 File Connection Security Tools Help Help → ★ Greener Greener BUUETOOTH	aso wait.	×

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 PROFINET 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.

🗧 Insight 2	- 🗆 X
File Connection Security Tools Help	
$\cong \boxtimes \boxtimes \oplus \to \leftarrow \times$	
 FG3 SCOOD32821 UNRACOWN FG3 SCOOD32821 UNRACOWN SCOOD32820 UNRACOWN SMULATOR 101 SIMULATOR SMULATOR 100 SIMULATOR SMULATOR BOX SMUST SGR BOX DEMO IG3 PRO EOC FG1 SI3 Bluetooth Setting Tool 	Insight 2 - Actuator Login X Printee L. User V Passe. Login Ca.
Offine	Insight 2 Login - User

6. Insight 2 fetches the online configuration.

🗧 Insight 2			-		\times
File Connection Security Tools He	elp				
			r	ot	ori
	Insight 2 Fetching online configurat	ions. Please weit.			
< >>	•				
Online : IQ3P DEMO IQ3 PRO EOC (via Bluetooth)	Actuator Login : User	Insight 2 Login : User			

7. Once the configuation is retrieved from the actuator, expand Option Cards and select PROFINET.



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.

Insight 2				>	<
	This action will ov PRO EOC. Do yo	verwrite the current configuration of IQ3 u want to continue?	BP DE	MO IQ3	
		Yes		No	
	Insight 2		×		
		Configuration data saved successfully!			

5 Diagnostics

5.1 Channel diagnostic alarms

The option card issues Channel Diagnostic Alarm(s) with Channel Error Type ERROR when one or more of the following is true:

- Parameter #17 NAMURFailureAlarmData has non-zero value
- Parameter #18 NAMUROutOfSpecAlarmData has non-zero value
- Parameter #19 NAMURFunctionCheckAlarmData has non-zero value
- Parameter #20 NAMURMaintenanceAlarmData has non-zero value
- Byte0_CANFault bit (0x0080) in Parameter #24 NetworkStatus1 is set, which indicates that there is a communication fault between the option card and actuator control board

6.1 Parameter overview table

This table gives an overview of the parameters. See Section 6.2 for bitfield descriptions, 6.3 for enumeration descriptions, and PUB002-040 for detailed parameter descriptions, where required. All cyclic data can also be accessed via Read / Write record requests. Record data can be accessed by using slot 0, subslot 1, and the index of the data.

Index	Data Name	Data Type	Data Size (octets)	Data Access	Description
					Cyclic Data
1	StatusData1	Bitfield	2	Read	StatusData1 to StatusData4: Actuator general status signals.
2	StatusData2	Bitfield	2	Read	
3	StatusData3	Bitfield	2	Read	
4	StatusData4	Bitfield	2	Read	
5	AlarmData1	Bitfield	2	Read	AlarmData1 to AlarmData4: Actuator general Alarm signals.
6	AlarmData2	Bitfield	2	Read	
7	AlarmData3	Bitfield	2	Read	
8	AlarmData4	Bitfield	2	Read	
9	DigitalControlIndication	Bitfield	2	Read	Digital control: This is a read only version of the digital control parameter (index 22).
10	DesiredPositionIndication	Unsigned int	2	Read	Position control: This is a read only version of the position control parameter (index 23). Value in 100ths of %, range 0 (0.00%) to 10000 (100.00%). Multiport/Multiset actuator: Value in 10s of port number. Range 10 (port 1) to 160 (port 16).
11	Position	Unsigned int	2	Read	Position feedback in 100ths of a %. Range 0 (0.00%) to 10000 (100.00%). Will calibrate to limited range position if configured.
12	TorqueOrThrust	Signed int	2	Read	Instantaneous torque in 10ths of a %. Range 0 (0.0%) to 1200 (120.0%).
13	Temperature	Signed int	2	Read	Internal temperature of the actuator: Signed value with units of 0.1 degrees Celsius.
14	Analogueinput1	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%).
15	Analogueinput2	Unsigned int	2	Read	Analogue input 2: only applicable to actuators capable of additional analogue input cards. Range 0 (0.00%) to 10000 (100.00%).
16	NAMURAlarmDataAllMasked	Bitfield	4	Read	NAMUR 107 status and alarm data for all four failure levels (as masked in parameters 34 to 37). Data bits are defined in the Bitfields table, and more details can be found in publication PUR002-040.
17	NAMURFailureAlarmData	Bitfield	4	Read	NAMUR 107 status and alarm data for Failure only (as masked in parameter NAMURFailureDataMask, no. 34). Data bits are defined in the Bitfields table, and more details can be found in publication PIIB002-040.
18	NAMUROutofSpecAlarmData	Bitfield	4	Read	NAMUR 107 status and alarm data for out of specification only (as masked in parameter NAMUROutOfSpecDataMask, no. 35). Data bits are defined in the Bitfields table, and more details can be found in publication PUB002-040.
19	NAMURFunctionCheckAlarmData	Bitfield	4	Read	NAMUR 107 status and alarm data for function check only (as masked in parameter NAMURFunctionCheckDataMask, no. 36). Data bits are defined in the Bitfields table, and more details can be found in publication PUB002-040.
20	NAMURMaintenanceAlarmData	Bitfield	4	Read	NAMUR 107 status and alarm data for Maintenance only (as masked in parameter NAMURMaintenanceDataMask, no.37). Data bits are defined in the Bitfields table, and more details can be found in publication PUB002-040.
21	NAMURStatusAlarmData	Bitfield	4	Read	NAMUR 107 all status and alarm data (regardless of the masks in parameters 34 to 37). 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 command register for the actuator. Writing here will cause movement if the actuator is available for remote control.
23	DesiredPosition	Unsigned int	2	Read / Write	Position control : Positional command register for the actuator. Value in 100ths of %. Range 0 (0.00%) 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).
					Multiport/Multiset actuator: Value in 10s of port number. Range 10 (port 1) to 160 (port 16).
24	NetworkStatus1	Bitfield	2	Read	NetworkStatus1 to NetworkStatus4: Option card status.
25	NetworkStatus2	Bitfield	2	Read	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
26	NetworkStatus3	Bitfield	2	Read	
27	NetworkStatus4	Bitfield	2	Read	
28	MultiportStatus1	Bitfield	2	Read	Multiport status. See Bitfields table for detailed description.
29	MultiportStatus2	Bitfield	2	Read	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
30	MultiportStatus3	Bitfield	2	Read	
31	MultiportStatus4	Bitfield	2	Read	
32	MultiportNearestPort	Unsigned int	2	Read	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.
33	SetResetRelays	Bitfield	4	Read / Write	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). Bits 9 to 17, resets relays 1 to 9 respectively (value 1 resets relay, value 0 does nothing).
353	MultiportTargetPort	Unsigned int	2	Read	Multiport Target Port: 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.
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° – Port 2 = 120° – Port 2 = 240°
					Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport. Acyclic Data
34	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.
35	NAMUROutOfSpecDataMask	Bitfield	4	Read / Write	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.
36	NAMURFunctionCheckDataMask	Bitfield	4	Read / Write	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.
37	NAMURMaintenanceDataMask	Bitfield	4	Read / Write	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.

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
38	LossOfCommsTimeout	Unsigned int	2	Read / Write	LossOfCommsTimeoutConfiguration: Configuration for action on loss of signal timeout. Time, in milliseconds, after communications with the option card have been lost, that the configured action on loss of signal will take place.
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
40	CommsLostPosition	Unsigned int	2	Read / Write	7 – Go to position 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. Range 0 (0 00%) to 10000 (100 00%)
41	FunctionOfS1	Enumeration	1	Read / Write	FunctionOfS1 to FunctionOfS12: If fitted, configuration for relays 1 to 12 action. See Enumerations
42	FunctionOfS2	Enumeration	1	Read / Write	table for values (FunctionOfS1 to S12). Relays S1 to S4 are supplied with an actuator by default.
43	FunctionOfS3	Enumeration	1	Read / Write	Relays S5 to S12 are optional. They can be configured to provide communication to external devices.
44	FunctionOfS4	Enumeration	1	Read / Write	For example, they can signal that a partial stroke is active or 24V power supply is lost. Please refer to
45	FunctionOfS5	Enumeration	1	Read / Write	PUB002-040 for details.
46	FunctionOfS6	Enumeration	1	Read / Write	
40	FunctionOfS7	Enumeration	1	Read / Write	
47	FunctionOfS8	Enumeration	1	Read / Write	
40	FunctionOfSQ	Enumeration	1	Road / Write	
50	Function Of \$10	Enumeration	1	Road / Write	
50 E1	Function Of \$11	Enumeration	1	Read / Write	
51	FunctionOf512	Enumeration	1	Read / Write	
52	FUNCTIONUS 12	Enumeration	1	Read / Write	ContentTura 61 to ContentTura 612. If fitted, configuration for value 1 to 12 content tura. Malues
53	ContactTypeST	Enumeration	1	Read / Write	Contact ypes 1 to Contact ypes 12: If fitted, configuration for relays 1 to 12 contact type, values:
54	ContactTypeSZ	Enumeration	1	Read / Write	0 – Normally Closed contact
55	ContactTypeS3	Enumeration	1	Read / Write	1 – Normally Open contact
56	ContactTypeS4	Enumeration	1	Read / Write	
57	ContactTypeS5	Enumeration	1	Read / Write	
58	ContactTypeS6	Enumeration	1	Read / Write	
59	ContactTypeS7	Enumeration	1	Read / Write	
60	ContactTypeS8	Enumeration	1	Read / Write	
61	ContactTypeS9	Enumeration	1	Read / Write	
62	ContactTypeS10	Enumeration	1	Read / Write	
63	ContactTypeS11	Enumeration	1	Read / Write	
64	ContactTypeS12	Enumeration	1	Read / Write	
65	PositionTripS1	Unsigned int	2	Read / Write	PositionTripS1 to PositionTripS12: If fitted, configuration for relays 1 to 12 when function type
66	PositionTripS2	Unsigned int	2	Read / Write	'intermediate position' is selected. Range 0 (0.0%) to 1000 (100.0%).
67	PositionTripS3	Unsigned int	2	Read / Write	
68	PositionTripS4	Unsigned int	2	Read / Write	
69	Position TripS5	Unsigned int	2	Read / Write	
/0	Position I ripS6	Unsigned int	2	Read / Write	
62	ContactTypeS10	Enumeration	1	Read / Write	
63	ContactTypeS11	Enumeration	1	Read / Write	
64	ContactTypeS12	Enumeration	1	Read / Write	
65		Unsigned int	2	Read / Write	
67	PositionTripS2	Unsigned int	2	Read / Write	
67	PositionTrip53	Unsigned int	2	Read / Write	
68	PositionTrip54	Unsigned int	2	Read / Write	
70	PositionTripSS	Unsigned int	2	Read / Write	
70	PositionTripS7	Unsigned int	2	Read / Write	
71	PositionTripS7	Unsigned int	2	Read / Write	
72	PositionTrinSQ		2	Read / Write	
73	Position Trip 59	Unsigned Int	2	Read / Write	
74		Unsigned int	2	Read / Write	
75	PositionTring12		2	Road / Write	
77	ETPEnabled		∠ 1	Road	ETPEnabled: Indicates whether File Transfer Protocol is enabled on the entire cord
78	DefaultHardWireLinkEnabled	Enumeration	1	Read	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 applies and applies and applies that the link is place.
70	Networklintime	Unsigned int	Λ	Read	uerault link in place. If the default link is inserted, option card configurations are set to default values.
80	FieldIntefaceType	Enumeration	1	Read	FieldIntefaceType: Indicates which Ethernet industrial protocol is in use. Value is fixed to 51 for PROFINET.
81	OptionNumber	Unsigned int	2	Read	OptionNumber: Internal inter-board communications reference (CAN slot number).
82	CloseContactorCount	Unsigned int	4	Read	CloseContactorCount: Indicates the number of times the actuator has been operated in the Close direction.
83	OpenContactorCount	Unsigned int	4	Read	OpenContactorCount: indicates the number of times the actuator has been operated in the Open direction. NumberOfContactorSwitches: Indicates the number of times the actuator has been operated in
84 85	NumberOfContactorSwitches ClosingTorqueAt0Pct	Unsigned int	4	Read Read	closingTorqueAt0Pct to ClosingTorqueAt100Pct: Instantaneous Torque log - closing. Indicates the
86	ClosingTorgueAt1Pct	Unsigned int	2	Read	average value of the closing torque at each percentage position. Range 0 (0%) to 120 (120%).
87	ClosingTorgueAt2Pct	Unsigned int	2	Read	
88	ClosingTorqueAt3Pct	Unsigned int	2	Read	
89	ClosingTorqueAt4Pct	Unsigned int	2	Read	
90	ClosingTorqueAt5Pct	Unsigned int	2	Read	
91	ClosingTorqueAt6Pct	Unsigned int	2	Read	
92	ClosingTorqueAt7Pct	Unsigned int	2	Read	
93	ClosingTorqueAt8Pct	Unsigned int	2	Read	
94	ClosingTorqueAt9Pct	Unsigned int	2	Read	
95	ClosingTorqueAt10Pct	Unsigned int	2	Read	
96	ClosingTorgueAt11Pct	Unsigned int	2	Read	

Index	Data Name	Data Type	Data Size (octets)	Data Access	Description
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	2	Read	
100	ClosingTorqueAt15Pct	Unsigned int	2	Read	
101	ClosingTorqueAt16Pct	Unsigned int	2	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	-
110	ClosingTorqueAt24Pct	Unsigned int	2	Read	
111	ClosingTorqueAt25Fct	Unsigned int	2	Read	
117	ClosingTorqueAt27Pct	Unsigned int	2	Read	
112	ClosingTorqueAt27Pct	Unsigned int	2	Read	
114		Unsigned int	2	Read	
115		Unsigned int	2	Read	
116	ClosingTorqueAt30Fct	Unsigned int	2	Read	
117	ClosingTorqueAt32Pct	Unsigned int	2	Read	
118	ClosingTorqueAt33Pct	Unsigned int	2	Read	
119	ClosingTorqueAt34Pct	Unsigned int	2	Read	
120	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	
127	ClosingTorqueAt42Pct	Unsigned int	2	Read	
128	ClosingTorqueAt43Pct	Unsigned int	2	Read	
129	ClosingTorqueAt44Pct	Unsigned int	2	Read	
130	ClosingTorqueAt45Pct	Unsigned int	2	Read	
131	ClosingTorqueAt46Pct	Unsigned int	2	Read	-
132	ClosingTorqueAt47Pct	Unsigned int	2	Read	-
133	ClosingTorqueAt48Pct	Unsigned int	2	Read	-
134	ClosingTorqueAt49Pct	Unsigned int	2	Read	-
135	ClosingTorqueAt50Pct	Unsigned int	2	Read	-
130	Closing TorqueAt5 IPct	Unsigned int	2	Read	
137	ClosingTorqueAt52Pct	Unsigned int	2	Read	
120	ClosingTorqueAt53FCt	Unsigned int	2	Read	
140	ClosingTorqueAt54FCt	Unsigned int	2	Read	
140	ClosingTorqueAt56Pct	Unsigned int	2	Read	
147	ClosingTorqueAt57Pct	Unsigned int	2	Read	
143	ClosingTorqueAt58Pct	Unsigned int	2	Read	
144	ClosingTorqueAt59Pct	Unsigned int	2	Read	
145	ClosingTorgueAt60Pct	Unsigned int	2	Read	
146	ClosingTorqueAt61Pct	Unsigned int	2	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	ClosingTorqueAt69Pct	Unsigned int	2	Kead	
155	ClosingTorqueAt70Pct	Unsigned int	2	Read	
156	ClosingTorqueAt/1Pct	Unsigned int	2	Kead	
15/	ClosingTorqueAt/2Pct	Unsigned int	2	Kead	
158		Unsigned int	2	Road	
159	ClosingTorqueAt75Pct	Unsigned Int	2	Read	
161	ClosingTorqueAt76Pct	Unsigned int	2	Read	
167	ClosingTorqueAt77Pct	Unsigned int	2	Read	
163	ClosingTorqueAt78Pct	Unsigned int	2	Read	
164	ClosingTorqueAt79Pct	Unsigned int	2	Read	
165	ClosingTorqueAt80Pct	Unsigned int	2	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	ClosingTorqueAt89Pct	Unsigned int	2	Read	
175	ClosingTorqueAt90Pct	Unsigned int	2	Read	
176	ClosingTorqueAt91Pct	Unsigned int	2	Read	
177	ClosingTorqueAt92Pct	Unsigned int	2	Read	
178	(IosinaToraueAt93Pct	Unsigned int	2	Read	

Index	Data Name	Data Type	Data Size (octets)	Data Access	Description
179	ClosingTorqueAt94Pct	Unsigned int	2	Read	ClosingTorqueAt0Pct to ClosingTorqueAt100Pct: Instantaneous Torque log – closing. Indicates the
180	ClosingTorqueAt95Pct	Unsigned int	2	Read	average value of the closing torque at each percentage position. Range 0 (0%) to 120 (120%).
181	ClosingTorqueAt96Pct	Unsigned int	2	Read	
182	ClosingTorqueAt97Pct	Unsigned int	2	Read	
183	ClosingTorqueAt98Pct	Unsigned int	2	Read	
184	ClosingTorqueAt99Pct	Unsigned int	2	Read	
185	ClosingTorqueAt100Pct	Unsigned int	2	Read	
186	OpeningTorgueAt0Pct	Unsigned int	2	Read	OpeningTorgueAt0Pct to OpeningTorgueAt100Pct: Instantaneous Torgue log – opening. Indicates
187	OpeningTorgueAt1Pct	Unsigned int	2	Read	the average value of the opening torque at each percentage position. Range 0 (0%) to 120 (120%).
188	OpeningTorqueAt2Pct	Unsigned int	2	Read	
189	OpeningTorqueAt3Pct	Unsigned int	2	Read	
190	OpeningTorgueAt4Pct	Unsigned int	2	Read	
191	OpeningTorgueAt5Pct	Unsigned int	2	Read	
192	OpeningTorgueAt6Pct	Unsigned int	2	Read	
193	OpeningTorgueAt7Pct	Unsigned int	2	Read	
194	OpeningTorqueAt8Pct	Unsigned int	2	Read	
195	OpeningTorqueAt9Pct	Unsigned int	2	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	Unsigned int	2	Read	
200	OpeningTorqueAt15Pct	Unsigned int	2	Read	
207	OpeningTorqueAt16Pct	Unsigned int	2	Read	
202	OpeningTorqueAt17Pct	Unsigned int	2	Read	
203	OpeningTorqueAt18Pct	Unsigned int	2	Read	
205	OpeningTorqueAt19Pct	Unsigned int	2	Read	
205	OpeningTorqueAt20Pct	Unsigned int	2	Read	
200	OpeningTorqueAt21Pct	Unsigned int	2	Read	
207	OpeningTorqueAt22Pct	Unsigned int	2	Read	
200	OpeningTorqueAt22Pct	Unsigned int	2	Read	
209	OpeningTorqueAt24Pct	Unsigned int	2	Read	
210	OpeningTorqueAt25Pct	Unsigned int	2	Read	
217	OpeningTorqueAt26Pct	Unsigned int	2	Read	
212	OpeningTorqueAt27Pct	Unsigned int	2	Read	
213	OpeningTorqueAt28Pct	Unsigned int	2	Read	
214		Unsigned int	2	Read	
215		Unsigned int	2	Read	
217	OpeningTorqueAt31Pct	Unsigned int	2	Read	
218	OpeningTorqueAt32Pct	Unsigned int	2	Read	
219	OpeningTorqueAt33Pct	Unsigned int	2	Read	
220	OpeningTorqueAt34Pct	Unsigned int	2	Read	
221	OpeningTorqueAt35Pct	Unsigned int	2	Read	
222	OpeningTorqueAt36Pct	Unsigned int	2	Read	
223	OpeningTorgueAt37Pct	Unsigned int	2	Read	
224	OpeningTorqueAt38Pct	Unsigned int	2	Read	
225	OpeningTorqueAt39Pct	Unsigned int	2	Read	
226	OpeningTorqueAt40Pct	Unsigned int	2	Read	
227	OpeningTorqueAt41Pct	Unsigned int	2	Read	
228	OpeningTorqueAt42Pct	Unsigned int	2	Read	
229	OpeningTorqueAt43Pct	Unsigned int	2	Read	
230	OpeningTorqueAt44Pct	Unsigned int	2	Read	
231	OpeningTorqueAt45Pct	Unsigned int	2	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	Unsigned int	2	Read	
237	OpeningTorqueAt51Pct	Unsigned int	2	Read	
238	OpeningTorqueAt52Pct	Unsigned int	2	Read	
239	OpeningTorqueAt53Pct	Unsigned int	2	Read	
240	OpeningTorqueAt54Pct	Unsigned int	2	Read	
241	OpeningTorqueAt55Pct	Unsigned int	2	Read	
242	OpeningTorqueAt56Pct	Unsigned int	2	Read	
243	OpeningTorqueAt57Pct	Unsigned int	2	Read	
244	OpeningTorqueAt58Pct	Unsigned int	2	Read	
245	OpeningTorqueAt59Pct	Unsigned int	2	Read	
246	OpeningTorqueAt60Pct	Unsigned int	2	Read	
247	OpeningTorqueAt61Pct	Unsigned int	2	Read	
248	OpeningTorqueAt62Pct	Unsigned int	2	Read	
249	OpeningTorqueAt63Pct	Unsigned int	2	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	OpeningTorqueAt68Pct	Unsigned int	2	Read	
255	OpeningTorqueAt69Pct	Unsigned int	2	Read	
256	OpeningTorqueAt70Pct	Unsigned int	2	Read	
257	OpeningTorqueAt71Pct	Unsigned int	2	Read	
258	OpeningTorqueAt72Pct	Unsigned int	2	Read	
259	OpeningTorqueAt73Pct	Unsigned int	2	Kead	-
260	OpeningTorqueAt74Pct	Unsigned int	2	Read	
261	Upening ForgueAt / 5Pct	Unsigned int	2	Kead	

Index	Data Name	Data Type	Data Size (octets)	Data Access	Description
262	OpeningTorqueAt76Pct	Unsigned int	2	Read	OpeningTorqueAt0Pct to OpeningTorqueAt100Pct: Instantaneous Torque log – opening. Indicates
263	OpeningTorqueAt77Pct	Unsigned int	2	Read	the average value of the opening torque at each percentage position. Range $0(0\%)$ to 120 (120%).
264	OpeningTorqueAt78Pct	Unsigned int	2	Read	
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	OpeningTorgueAt84Pct	Unsigned int	2	Read	
271	OpeningTorqueAt85Pct	Unsigned int	2	Read	
272	OpeningTorqueAt86Pct	Unsigned int	2	Read	
273	OpeningTorqueAt87Pct	Unsigned int	2	Read	
274	OpeningTorgueAt88Pct	Unsigned int	2	Read	
275	OpeningTorgueAt89Pct	Unsigned int	2	Read	
276	OpeningTorgueAt90Pct	Unsigned int	2	Read	
277	OpeningTorgueAt91Pct	Unsigned int	2	Read	
278	OpeningTorgueAt92Pct	Unsigned int	2	Read	
279	OpeningTorqueAt93Pct	Unsigned int	2	Read	
280	OpeningTorqueAt94Pct	Unsigned int	2	Read	
281	OpeningTorqueAt95Pct	Unsigned int	2	Read	
287		Unsigned int	2	Read	
202		Unsigned int	2	Read	
205		Unsigned int	2	Read	
285		Unsigned int	2	Read	
205	OpeningTorqueAt39Fct	Unsigned int	2	Read	
200	ActuatorTag	Char	2	Read () Mrite	ActuatorTage The sustemars Value Tag can be entered in here for reference
207	ActuatorTupo	Enumeration	52	Read / Write	Actuator Type: Value 26 - 102Pro-value 27 - 102TPro
288	ActuatorType	Char	10	Read	Actuator Type: Value 26 – IQSPro, Value 27 – IQSPro.
289	Actuator Senainumber	Char	10	Read	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	Char	24	Read	SolidStateStarterModuleSerialNumber: Manufacturer data. Serial Number for the solid-state starter
	SerialNumber				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	
515	Eirmwarel Ingradeover	Cridi		licad	Firmwarel IngradeoverNetworkEnable: Used to initiate the firmware upgrade of the network module
320	NetworkEnable	Enumeration	1	Read / Write	Firmware file is required to be loaded first via FTP. Writing 1 initiates upgrade. FileLoadStatus: Status parameter for data log and config file compilation.
321	FileLoadStatus	Enumeration	1	Read / Write	 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.
					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. FileLoadProgress: Progress parameter for data log and config file compilation. Range 0 to 100,
322	FileLoadProgress	Unsigned int	2	Read	Indicating % complete. Used by option card webpages ONLY. DataLogTimestamp: Data log and configuration date and time.
323	DataLogTimestamp	Char	16	Read / Write	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	Read / Write	Maximum Range: Maximum span for positioning in 100ths %.
326	Deadband	Unsigned int	2	Read / Write	Deadband: Deadband range in both directions whilst positioning in 100ths %.
327	Hysteresis	Unsigned int	2	Read / Write	Hysteresis: Hysteresis range in both directions whilst positioning in 100ths %.
328	IOT3SlowModeSpeed	Unsigned int	2	Read / Write	Slow Mode: Speed setting for operation near limits, percentage of rated speed.

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
329	MotionInhibitTimeMs	Unsigned int	4	Read / Write	MIT: Motion Inhibit Timer in ms.
330	ManualMovementTravel	Unsigned int	2	Read / Write	Manual Movement: Movement required to generate manual movement indication in 100ths %.
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 obsel 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
					ESD Action: Sets the programmed action to be performed when the ESD is active.
					0 – Close
340	EsdAction	Enumeration	1	Read / Write	1 – Stop 2 – Onen
					3 – Off
					4 – Reserved
					ESD Contact: Sets the contact type for the ESD
341	EsdContact	Enumeration	1	Read / Write	0 – Normally closed
					1 – Normally open
					ESD Override Interlock: Sets whether the ESD can override an interlock signal.
342	EsdOverrideInterlock	Enumeration	1	Read / Write	0 – No
					I – Yes FSD Override Thermostat: Sets whether the FSD can over ride an interlock signal
343	EsdOverrideThermostatTrip	Enumeration	1	Read / Write	
					1 – Yes
					ESD Override Local Stop: Sets whether the ESD can over ride a Local Stop signal.
344	EsdOverrideLocalStop	Enumeration	1	Read / Write	0 – No 1. Voc
					ESD Override Interrupter Timer: Sets whether the ESD can over ride the Interrupter Timer.
345	EsdOverrideInterruptTimer	Enumeration	1	Read / Write	0 – No
					1 – Yes
					Interlocks Mode: Indicates which mode the interlocks will operate in.
346	InterlocksInputMode	Enumeration	1	Read	0 – Interlocks disabled 1 – Interlocks enabled
					2 – Conditional control enabled
					3 – Partial stroke on open interlock
247	Internation of Ctortin of insit	Faurantian	1	Deed (Mite	Interrupter Timer Start Point: Sets the limit (open/closed) that the interrupter timer is to operate at.
347	InterruptTimerStartingLimit	Enumeration		Read / Write	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
250	InterruptTimerPosition	Unsigned int	2	Deed (Mite	Interrupter Timer Position Open: Sets the position in the Open direction which the function will
550	OpenDirection	Unsigned Int	2	Redu / Write	operate in 100ths percent.
351	CloseDirection	Unsigned int	2	Read / Write	operate in 100ths percent.
252	ApploguelpoutMinMax	Enumeration	1	Road / Mirito	Analogue Input Span: Writing to this parameter will set up the span for the analogue input. A value of
552	Analogueinputiviiniviax	Enumeration		Redu / Write	need to be applied to the input prior to sending the command.
255	MultiportNumPorte	Uncigned int	2	Road	Mulitiport Number of Ports: Indicates the number of ports set up in a Multiport actuator.
555	Multipol thumports	Unsigned int	2	neau	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information about Multiport.
		D16 11	-		Mulitiport Active Ports: Allows the set ports to the deactivated. 16 Bit field representing 16 ports (see
356	MultiportActivePorts	Bittield	2	Read / Write	UIL HEIUS). DIL Value I means port active, a U means port inactive.
					Multiport Current Backlash: This value is used to remove backlash in the system when operating in
357	MultiportCurrentBacklash	Signed int	2	Read	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.
350	MultiportDirection	Enumeration	1	Read	Value 0 - Bidirectional-no wrap, 1 - Clockwise only. 2 - Anti-clockwise only. 3 - Bidirectional-wrap
359			· · · · ·		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 Bitfields

Index	lex Data Name Bit Name		Bit Mask	Description
		Byte0_DI1	0x0001	Digital Input 1: Reports the status of the contact connected to the actuator hard-wired 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 PUB002-040.
	StatusData1	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 PUB002-040.
1		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 PUB002-040.
		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	These are ignored if the optional digital input card for contacts S5 to S8 is not fitted.
		Byte0_DI8	0x0080	······································
		Byte1_R9	0x0100	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	
		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_DI11	0x4000	
		Byte1_DI12	0x8000	
		Byte2_S1	0x0001	Relay 1 Status to Relay 8 Status: These bits report the status of relays 1 to 8 (S contacts 1
		Byte2_52	0x0002	(6.8).
		Byte2_55	0x0004	
		Byte2_54	0x0010	
		Byte2_S5	0x0020	
		Byte2_S7	0x0040	
		Byte2 S8	0x0080	
		Byte3_MRUN	0x0100	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	2 5/3/03/2/3/2	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: Irue (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	0x0008	Torque Trip Close Active: True (1) when the actuator has torqued off in the close direction.
		Byte4_SM	0x0010	Reserved.
3	StatusData3	Byte4_ITA	0x0020	Interrupter Timer Active: True (1) when the interrupter timer is active. The Interrupter Timer in the can be used over part or the entire actuator stroke to slow down the effective speed of valve travel.
		Byte4_MIT	0x0040	Motion Inhibit timer Active: Irue (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
		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 PHSEO	0x0400	Phase Sequence is True (1) when the phase sequence is positive.
		Byte5 LocalRun	0x0800	Reserved.
		Byte5_SpareStatus4	0x1000	Reserved.
		Byte5_PSP	0x2000	Partial Stroke Passed: True (1) when a partial stroke test completed successfully.
		Byte5_PowerMode	0x4000	Reserved.
		Byte5_PositionerActive	0x8000	Positioner Active: True (1) when the actuator moving due to a position command.

Index	Data Name	Bit Name	Rit Mask	Description
Index	Data Nallie	Bit Name	DICIVIASK	Description
		Byte6_SlowModeActive	0x0001	Slow Mode Active: True (1) When slow mode is active. Applicable to [0] actuators only. In positioning mode, when the IQT actuator approaches its septoint 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 PLROD-2040 for further details.
		Byte6 SpareStatus1	0x0002	Reserved
4	StatusData4	Byte6_SpareStatus7	0x0002	neserveu.
		Byte0_SpareStatus2	0x0004	
		Byteo_sparestatuss	0x0008	
		Byte6_SpareStatus4	0x0010	
		Byte6_SpareStatus5	0x0020	
		Byte6_SpareStatus6	0x0040	
		Byte6_SpareStatus7	0x0080	
		Byte0_EEPROM Byte0_THERM	0x0001	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 change 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 value 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. Actuator has stalled: True (1) when the actuator is taking to approach, but there is no control.
		Byte1_STALL	0x0400	column motion.
		Byte1_MR	0x0800	Relay status is a composite signal for several alarms. See PUB002-040 for details.
		byter_wb	0,1000	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 fail 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	Ux8000	EEPROM Updated: Irue (1) when the contiguration of the actuator has been updated.
		Byte2_DU	0x0001	Datalogger Updated: True (1) when the datalogger in the actuator has been updated. General Alarm: True (1) when any alarm is detected, including battery low or flat, valve
	AlarmData2	Bytez_GA	0x0002	alarm, actuator alarm, control alarm, valve obstructed or jammed (torque tripped) or monitor relay (not available for remote control).
		Byte2_VA	0x0004	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
		D. 4-2. DC5	0.0020	Battery charger communications error Partial Stroke Error: True (1) when an error occurs when requesting or operating a partial
6		Byte2_PSE	0x0020	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
		5,02_0001	0,00+0	control bit is active.
		Byte2_MF	0x0080	Mains Fail: True (1) when there is a power supply failure. Comms Loss: True (1) if communication is lost between the option card and actuator, or if
		BATE3_COMM2	UXU100	one or more CIP Class 1 or Class 3 connections have been lost.
		Byte3_LOP	0x0200	Loss of Phase: True (1) if a phase is lost in a three-phase actuator. 24VDC Customer fault: True (1) if the 24V supply from the actuator (customer supply) has a
		Byte3_CA	0x0400	fault. 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.
		Rvte4 MA	0x0008	Maintenance Alert: True (1) when maintenance action is required

Index	Data Nama	Dit Name	Dit Maale	Description
index	Data Name	bit Name	DILIVIASK	
			0x0010	Critical Fault: True (1) if a product-specific critical fault has been detected. Conditions
				Include:
				Thermostat active
		Byte4 CriticalEault		Phase lost
		Byte4_CriticalFault		RHS Local selected
				Position sensor fault
				Position loss inhibit active
				UIB comms error
				Non-critical fault: True (1) if a product specific non-critical fault has been detected. Conditions
				include:
				Valve obstructed
				Motor stalled
				Option detection error
		Byte4_NonCriticalFault	0x0020	ESD active
	AlarmData3			Close or open interlock active
				Battery flat
7				Battery low
,	, iumbatas			Partial stroke fail
				Customer supply fail
		Byte4 TestFailed	0×0040	Reserved
		Byte4_DeenIntlkActive	0x0080	Open Interlock Active: True (1) if an Open Interlock is active and is inhibiting the actuator
		Bytes CloseIntlkActive	0x0000	Close Interlock Active: True (1) if a Close Interlock is active and is inhibiting the actuator.
		Byte5_CloseInticActive	0x0100	Vibration convice alarm: True (1) if the configurable vibration convice alarm is active
			0x0200	Vibration service diarm. mue (1) in the computable vibration service diarm is active.
		byleo_vvi	0X0400	valve mavel time exceeded: mue (1) if the configurable Valve Travel Time alarm is active.
		Byte5_AUXOR	0x0800	Auxiliary Override Alarm: True (1) if the configurable auxiliary inputs mask value results in
				an auxiliary input overriding control.
		Byte5_NamurMaintenance	0x1000	Namur Maintenance: Irue (1) if the Maintenance level Namur alarm has tripped.
				iviore details can be found in publication PUB002-040.
		Byte5 NamurOutOfSpec	0x2000	Namur Out of Specification: True (1) if the Out of Specification level Namur alarm has
		,		tripped. More details can be found in publication PUB002-040.
		Byte5 NamurEunctionCheck	0x4000	Namur Function Check: True (1) if the Function Check level Namur alarm has tripped.
		bytes_numur uneuoneneek	074000	More details can be found in publication PUB002-040.
		Byte5 NamurFailure	0x8000	Namur Failure: True (1) if the Failure level Namur alarm has tripped.
		bytes_Namanalare	0,0000	More details can be found in publication PUB002-040.
		Byte6 NetDisableActive	0x0001	Network Disable Active: True (1) if control via the option card is being disabled by the
		byteo_netbisuble/tenve	00001	Network disable feature.
	AlarmData4	Byte6_CLCFaultAlarm	0x0002	Closed Loop Control fault: True (1) if there is a fault in the Closed Loop Control function.
		Byte6_SpareAlarm2	0x0004	Reserved.
8		Byte6_SpareAlarm3	0x0008	
		Byte6_SpareAlarm4	0x0010	
		Byte6 SpareAlarm5	0x0020	
		Byte6 SpareAlarm6	0x0040	
		Byte6 SpareAlarm7	0x0080	
				Open: True (1) when the actuator is being commanded into the open direction. (indication
		Open	0×0001	ONLY).
		Open	0,0001	A defense of the defense of the second second base
				Multiport/Multiset: increments port number.
				Close: True (1) when the actuator is being commanded into the close direction. (indication
		Close	0x0002	UNLY).
				Multiport/Multiset: Decrements port number.
		Stop	0x0004	Stop: True (1) when the actuator is being commanded to Stop. (indication ONLY).
9	DigitalControlIndication	ESD	0x0008	ESD: True (1) when the actuator is being commanded to perform an ESD. (indication ONLY).
		D. I. ICI. I	0.0040	PartialStroke: True (1) when the actuator is being commanded to perform a Partial Stroke.
		PartialStroke	0x0010	(indication ONLY).
		NoLongerUsed	0x0020	Reserved.
			0.0000	HandAuto: True (1) when the actuator is being controlled via a secondary control source
		HandAuto	0x0040	(e.g. in folomatic case, to allow remote operation).
				PositionEnable: True (1) when the actuator is enabled to be commanded to an intermediate
		PositionEnable	0008x0	position using Position control Parameter. (indication ONLY).
		Byte0 BatteryLowFlat	0x00000001	Battery low.
		Byte0 LocalControlFault	0x00000002	Local control fault.
		Byte0_PowerFault	0x00000004	Mains failure.
		Byte0 Thermostat	0x0000004	Thermostat
		Byte0_ServiceContactor	0x00000010	Service contactor
		Byte0_ServiceContactor	0x00000010	
		Byte0_ServiceDue	0x00000020	
		Byte0_ServiceHIHITrip	0x00000040	n n wique alatti.
		ByteU_ServiceHiTrip	0800000080	Hi torque alarm.
16 17		Byte1_ServiceMotorStarts	UXUUUUU0100	
	NamurAllMaskedAlarmData	Byte1_ServiceOutputTurns	0x00000200	I otal turns.
	NamurFailureAlarmData	Byte1_MonitorRelay	0x00000400	Monitor relay.
18	NamurOutofSpecAlarmData	Byte1_ControlFail	0x00000800	Control failure.
19	NamurFuncCheckAlarmData	Byte1_ActuatorFail	0x00001000	Actuator failure.
20	NamurMaintenanceAlarmData	Byte1_CommsFail	0x00002000	Comms loss.
21	NamurStatusAlarmData	Byte1_HardwareOptionFail	0x00004000	Option not detected.
		Byte1_PartialStrokeError	0x0008000	Partial stroke failure.
		Byte2 ValveError	0x00010000	Valve obstructed.
		Byte2 ActuatorStalled	0x00020000	Motor stalled.
		Byte2 Posl impHome	0x00040000	Position limp home.
		Byte2_FOT	0x00080000	End travel move
		Byte2 NW/RKFault	0x00100000	Network card fault
		Ruto2 24V/DCCustSupplutail	0x00200000	Customer power supply failure
		Bute2_24VUCCUS(SUPPlyFall	0x00200000	Value travel time
		Byte2_VVI	0x00400000	Valve travel time.
		byte2_vvrongDirectionFail	00000800000	wrong unection aetected.

Index	Data Name	Rit Name	Rit Mask	Description
macx		Onen	0x0001	Open: Set this bit true (1) to command the actuator into the open direction
		Close	0x0007	Close: Set this bit true (1) to command the actuator into the close 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.
22	DigitalControl	NoLongerUsed	0x0020	Reserved.
		HandAuto	0×0040	HandAuto: Set this bit true (1) to allow the actuator to be controlled by a secondary control
		TialiuAuto	0,0040	source (e.g. in folomatic case, to allow remote operation).
		PositionEnable	0x8000	PositionEnable: Set this bit true (1) to enable the actuator to be commanded into an
				Byte0 AbccCommsFault: True (1) if the option card is failing to communicate with its
		Byte0_AbccCommsFault	0x0001	internal network module.
		Byte0_EEPROMFault	0x0002	Byte0_EEPROMFault: True (1) when a fault is detected in the EEPROM of the option card.
		Byte0 AbccCfaGetErr	0x0004	Byte0_AbccCfgGetErr: True (1) when a network related configuration shown on the user
		Dute0_fibecergoeten	0.0000	interface board or Insight2 is incorrect, for example IP address, subnet mask, hostname, etc.
		Byteu_FtpEnabled	0x0008	Byte0_FtpEnabled: Set IT FTP is enabled on the option card. Byte0_AbccCfgSetErr: True (1) if a network config item set via the user interface board or
		Byte0_AbccCfgSetErr	0x0010	Insight2 is not successfully set.
		Byte0_EthLink10MbpsPort1	0x0020	Byte0_EthLink10MbpsPort1: True (1) when there is a 10 Mbps Ethernet link on port 1.
				Byte0_ControlContention: True (1) if the option card detects control contention in the
		Byte0_ControlContention	0x0040	parameter DigitalControl (instance 22). If control contention is detected, the option card will not execute the received digital control command
				Byte0 CANEault: True (1) if there is a communication fault between the actuator and option
		Byte0_CANFault	0x0080	card.
		Byte1_CommsPresent	0x0100	Byte1_CommsPresent: True (1) if one or more PROFINET IO connections are established.
		Byte1 WriteError	0x0200	Byte1_WriteError: True (1) if the last write command to the DesiredPosition parameter is
24		, _		rejected because the value is out of range. Byte1 HWConfigLinkActive: True (1) if the default HW/ configuration link (CE1) on the PCB
24	NetworkStatus1	Byte1_HWConfigLinkActive	0x0400	assembly is inserted when the option card is booted.
		Byte1_DatalogDownloadFail	0x0800	Byte1_DatalogDownloadFail: True (1) if the last data log download failed.
		Byte1_EthLink100MbpsPort1	0x1000	Byte0_EthLink100MbpsPort1: True (1) when there is a 100 Mbps Ethernet link on port 1.
				Byte1_BusFault: True (1) if any of the following is true:
				IO device name is not set IO device IP address is not set
		Byte1_BusFault	0x2000	Expected ID differs from Real ID
				IO Controller is in STOP state or IO data is BAD
				No connection with IO controller
				FATAL event if system fault is also set Byte1 SystemEault: True (1) if any of the following is true:
		D to 1 Contractor It		Diagnostic event(s) is present
		Byte I_SystemFault	0x4000	IO device is in EXCEPTION state
				FATAL event if bus fault is also set
			0x8000	user interface board or Insight2 is potentially incorrect. for example IP address, subnet mask.
		Byte1_AbccCfgOutOfSync		hostname, etc. This occurs when option card is booting, or a new configuration value is being
				set.
		Byte2_EthLink10MbpsPort2	0x0001	Byte2_EthLink10MbpsPort2: Irue (1) when there is a 10 Mbps Ethernet link on port 2.
		Byte2_EthEnk roombpsronz	0x0002	Bytez_tritink roombpsroitz. The (1) when there is a roombps themet link on port z.
		Byte2_Reserved3	0x0008	
25	NetworkStatus2	Byte2_Reserved4	0x0010	
		Byte2_Reserved5	0x0020	
		Byte2_Reserved6	0x0040	-
		Byte2_Reserved7	0x0080	-
		Byte3_Reserved	0xFF00	
26	NetworkStatus3	Byte5 Reserved	0x6011	
77	NotworkStature4	Byte6_Reserved	0x00FF	
27	INELWOIKSIdlus4	Byte7_Reserved	0xFF00	
				Mulitiport Target Port: 4 bit value representing the target port that the unit is commanded
		Byte0_Nibble0_TargetPort	0x000F	to. A T 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
				Mulitiport Start Port: 4 bit value representing the port that the unit started from. A '1'
		D. t. O. Nikklad, Chard David	0.0050	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.
				Mulitiport Last Good Port: 4 bit value representing the last port the unit passed through.
		Byte1_Nibble0_LastGoodPort	0x0F00	A 'l' 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
28	MultiportStatus1			Mulitiport Stuck between Ports: Indicates if the actuator is not moving and the current
		Byte1_Bit4	0. 1005	position does not match any port position i.e. the actuator is between ports.
		StuckBetweenPorts	0x1000	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information
				about Multiport.
				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.
		Byte1 Bit6	0x4000	direction.
		MovingAntiClockwise		Requires the actuator to be a Multiport build, refer to PUR002-221 for more information
				about Multiport.
		Byte1_Bit7_Reserved	0x8000	Reserved.

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

Indox	Index Dete News Dit News		Bit Mack	Description
muex	Data Name	Dit Name	DICIVIDSK	
		Byte2_Bit0To6_	0x007F	MULTIPORT Larget Port: Percent value representing the target port that the unit is
				commanded to. Range U-100% reflecting U-360 degrees. 7 bits of byte utilised.
		TargetPortPosition		Requires the actuator to be a Multiport build, refer to PUB002-221 for more information
29 MultiportStatus2				about Multiport.
		Byte2_Bit7_	0x0080	Mulitiport Degree Of Rotation: 9 bit value representing the degrees of rotation (0-360).
		DegreeOfRotationMSB	0,0000	Requires the actuator to be a Multiport build, refer to PUB002-221 for more information
		Byte3_DegreeOfRotationLSB	0xFF00	about Multiport.
				Mulitiport Current Position: Percent value representing the units current position (0-100%).
		Byte4 CurrentPosition	0x00FF	Requires the actuator to be a Multiport build, refer to PLIB002-221 for more information
30	MultiportStatus3	,		about Multiport
		Byte5		Mulitiport Count to Nearest Port: 16 bit value representing the encoder count to the
		CountToNearestPortMSB	0xFF00	nearest port (0-360)
		Byte6		Descrives the estructor to be a Multinest build refer to DUD002 221 for more information
31	MultiportStatus4	CountToNearestPortLSB	0x00FF	shout Multiport
		PuteQ Set Relays	0,0000000	SotBasetBalayer Bit man to control the Balaye
		Byte0_Set_Relays	0x000000FF	Settesettelays. Bit map to control the kelays.
22	CotPorotPolour	Byte 2 Bosot Bolovs	0x0000FF00	Bits 0-7 set relays 1-8 respectively
33	Selkeselkelays	Bytez_Reset_Relays	0x00FF0000	Bits 8-15 set relays 9-16 respectively
		Byte3_Reset_Relays	0xFF000000	Bits 16-23 reset relays 1-8 respectively
		Dista O. Distance di su cliat	0.00000001	Bits 24-31 reset relays 9-16 respectively
		Byte0_BatteryLowFlat	0x00000001	see description for instances to to 21 in Bitneids Table.
		Byte0_LocalControlFault	0x00000002	
		Byte0_PowerFault	0x00000004	
		Byte0_Inermostat	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	NAMURIVIAINTENANCEDATAIVIASK	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.
331	AuxInputTypeMask	Byte1_DigInput2RmtClose	0x0200	DI2 Remote Close: Command type, 0 - Digital input, 1 - Remote close.
		Byte1_DigInput3RmtMaint	UXU400	Dis kemote Maintain: Command type, U - Digital input, 1 - Remote maintain.
		Byte1_Diginput4KmtEsd	00800	Deserved.
		Byte1_NID1_AUXMaxCmd	UXF000	Reserved.
		Byteu_AuxiviaskivormOpen	UXUUFF	Neserveu.
		Byte1_Diginput1NormOpen	0x0100	DI Remote Open: Contact type, U - Normally closed, 1 - Normally open.
222	AuvinputContactStateMask	Byte1_Diginput2NormOpen	UXU2UU	DIZ REMOLE CIOSE: Contact type, U - Normally closed, 1 - Normally open.
>3Z	AuxInputContactStateMask	Byte1_Diginput3NormOpen	0x0400	Dis Remote Maintain: Contact type, U - Normally closed, 1 - Normally open.
		Byte1_Diginput4NormOpen	00800	Di remote ESD: Contact type, 0 - Normally closed, 1 - Normally open.
			0xF000	הכיבו ויפט.
		Buten Porta	0x0001	Set if port 9 is active
		Byte0_rort3	0x0001	Set if port 10 is active.
		Byte0_Port11	0x0002	Set if port 11 is active.
		Byte0_Port12	0x0004	Set if port 17 is active.
		Byte0_FOIL12	0x0000	Set if port 12 is active.
		Byte0_FOILIS	0x0010	Set if port 14 is active.
		Byte0_POIL14	0x0020	Set if port 14 is delive.
		Byte0_PUILID	0x0040	Set if port 15 is delive.
356	MultiportActivePorts	Byte0_PUILID	0x0080	Set if port 1 is active.
		Byte1_FUILI	0x0100	Set if port 2 is active
		Buto1 Port2	0x0200	Set if port 2 is active
		Buto1 Port4	0x0400	Set if port 4 is active
		Byte1_POIL4	0x0800	Set if port 5 is active.
		Byte1_FUILD	0x1000	Set if port 6 is active
		Buto1 Port7	0x2000	Set if port 7 is active
		Byte1_FOIL7	0x4000	Set if port 7 is active.
		Dytet_ruito	000000	Jet il port o is delive.

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

6.3 Enumerations

Instance	Data Name	Enum Name	Enum Value	Description
		None	0	
		ClosedLimit	1	Closed limit position (exact).
		OpenLimit MaterPupping	2	Open limit position (exact).
		Closing	4	Travelling in the close direction – motor or handwheel
		Opening	6	Travelling in the open 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.
		RemoteControlEn	15	Red Control knob set to Local.
		ControlAlarm	17	ESD signal and/or interlock active.
		ESDActive	18	ESD signal applied.
		OpenInterlock	19	Open Interlock active.
		ClosedInterlock	20	Open Interlock active.
		ManOverride	21	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 RhustoothConnected	34	Not at Closed or Open limits.
		EndPosition	36	Fither 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.
		Phasel oss	41	2 phase only monitored phase 2 lost
		Cust24VFail	42	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.
41	FunctionOfS1	BatteryFlat	47	Battery discharged or missing.
42	FunctionOfS2	Blinker	48	Traveiling (make/break at 1 second intervals).
43	FunctionOfS3	PStrokeActive	50	Partial stroke underway.
44	FunctionOfS5	Maintenance	51	Scheduled maintenance due.
46 47 48 49 50	FunctionOfS6	HiTorqueAlarm	52	Set Hi torque value reached.
	FunctionOfS7	HiHiTorqueAlarm	53	Set Hi-Hi torque value reached.
	FunctionOfS9	OddParity	54	Set when count of relays set is and odd value.
	FunctionOfS10	Source I Network CommsLoss	55	Communication failure with option 1 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 Motorlabilit	66	Starts per hour has been exceeded.
		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	82	For battery backup only: battery is in control.
			93	For battery backup only: battery is charging.
		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	102	
		Multiportport1	103	Port Position 1 reached.
		Multiportport2	104	Port Position 2 reached.
		Multiportport3	105	Port Position 3 reached.
		wultiportport4	106	Port Position 5 reached
		Multiportport6	108	Port Position 6 reached.
		Multiportport7	109	Port Position 7 reached.
		Multiportport8	110	Port Position 8 reached.
	-	Multiportport9	111	Port Position 9 reached.
		Multiportport10	112	Port Position 10 reached
		Multiportport12	113	Port Position 11 reached
	-	Multiportport13	114	Port Position 13 reached.
		Multiportport14	116	Port Position 14 reached.
		Multiportport15	117	Port Position 15 reached.
		Multiportport16	118	Port Position 16 reached.

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

Notes



Notes

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