

Remote-I/O-System u-remote UR67

I/O-Modules IP67 Multiprotocol

Manual

Let's connect.



UR67-MP-HP-16DI-12-60M	2426270000
UR67-MP-HP-16DO-12-60M	2426280000
UR67-MP-HP-8DIDO-12-60M	2426290000
UR67-MP-HP-16DIO-12-60M	2512840000



UR67-MP-78-16DI-12-60M	2426300000
UR67-MP-78-16DO-12-60M	2426310000
UR67-MP-78-8DIDO-12-60M	2426320000
UR67-MP-78-16DIO-12-60M	2512830000

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1 About this documentation

1.1 Symbols and notes

The safety notices in this documentation are designed according to the severity of the danger.

	DANGER Imminent danger to life! Notes with the signal word "Danger" warn you of situations that will result in serious injury or death if you do not follow the instructions given in this manual.
--	--

	WARNING Possible danger to life! Notes with the signal word "Warning" warn you of situations that may result in serious injury or death if you do not follow the instructions given in this manual.
--	---

	CAUTION Risk of injury! Notes with the signal word "Caution" warn you of situations that may result in injury if you do not follow the instructions given in this manual.
--	---

ATTENTION Material damage! Notes with the signal word "Attention" warn you of hazards that may result in material damage.	
---	--



Text next to this arrow are notes that are not relevant to safety, but provide important information about proper and effective work procedures.

The situation-dependent safety notices may contain the following warning symbols:

Symbol	Meaning
	Warning against dangerous electrical voltage
	Warning against electrostatically charged components
	Warning against hot surfaces
	Warning against automatic startup
	Observe the documentation

- All instructions can be identified by the black triangles next to the text.
- Lists are marked with a tick.



Female connections with sockets are illustrated using empty circles.



Male connections with pins are illustrated using filled circles.

1.2 Complete documentation



The documentation is intended for trained electricians who are familiar with national and international laws, provisions and standards.



All documents can also be downloaded from the [Weidmüller website](#).

1.3 Standard data structure



All information about the structure of data (e.g. process data and parameters) refers to the standard data format settings in the module parameters. These are shown in the Motorola format.

1.4 Software releases described

The present manual describes the following firmware releases:

Firmware releases

Order No.	Module	Release
2426270000	UR67-MP-HP-16DI-12-60M	F10017
2426280000	UR67-MP-HP-16DO-12-60M	F10017
2426290000	UR67-MP-HP-8DIDO-12-60M	F10017
2512840000	UR67-MP-HP-16DIO-12-60M	F10017
2426300000	UR67-MP-78-16DI-12-60M	F10017
2426310000	UR67-MP-78-16DO-12-60M	F10017
2426320000	UR67-MP-78-8DIDO-12-60M	F10017
2512830000	UR67-MP-78-16DIO-12-60M	F10017

Device description files

Fieldbus protokoll	Release
EtherNet/IP	1.0
PROFINET	20190830
EtherCAT	1.2

Language files Webserver

Language	Release	Availability
Deutsch	01.00.00	On delivery
Englisch	01.00.00	On delivery
Chinesisch	01.00.00	On delivery

2 Safety

This chapter includes general safety instructions on handling the UR67 modules. Specific safety instructions for specific tasks and situations are given at the appropriate places in the documentation.



All work may only be carried out by trained electricians who are familiar with the safety standards that apply to automation technology.



The documentation must be stored in such a way that it is accessible to operating staff at all times.

2.1 General safety notice

When working during ongoing operations, the emergency stop mechanisms must not be made ineffective. If faults connected to a u-remote product cannot be rectified, the product in question must be sent to Weidmüller. Weidmüller assumes no liability if the module is tampered with! All connected devices must comply with the requirements set out in EN 61558-2-4 and EN 61558-2-6. Only cables and accessories that meet the requirements and provisions regarding safety, electromagnetic compatibility and, if necessary, telecommunications terminal equipment, as well as the specifications, may be installed. Information on the specific cables and accessories that are permitted to be installed is provided in this manual or can be requested from Weidmüller.

Electrostatic Discharge

u-remote products can be damaged or destroyed by electrostatic discharge. When handling the products, the necessary safety measures against electrostatic discharge (ESD) according to IEC 61340-5-1 and IEC 61340-5-2 must be observed. The packing and unpacking as well as the installation and disassembly of a device may only be carried out by qualified personnel.

Fusing

The operator must set up the equipment so that it is protected against overloading. The upstream fuse must be designed so that it does not exceed the maximum load current. The maximum permissible load current can be found in the technical data. The operator must decide whether additional surge protection is required according to IEC 62305. Voltages that exceed ± 30 V may cause the destruction of the modules. A power supply with secure isolation must be used.

Earthing (functional earth FE)

Every UR67-MP module is equipped with an earth connection, with the connection point labelled "XE". Further information is available in chapter 5.

Shielding

Shielded lines are to be connected with shielded plugs in compliance with the relevant standard.

2.2 Intended use

The UR67-MP modules are decentral input and output devices in an EtherNet/IP, PROFINET or EtherCAT network. The products are designed for use in industrial automation and may only be used within the scope of the stated technical specifications. The devices to be connected must comply with the requirements set out in EN 61558-2-4 and EN 61558-2-6.

The industrial environment is labelled as such to ensure that consumers are not directly connected to the public low-voltage network. Additional measures must be taken for use in the home, and in the business and commercial sectors.

For UL applications, the following restrictions also apply:

- use only in enclosed areas
- use only at heights of less than 2,000 m
- max. pollution degree II

Any intervention in the products hardware or software other than described in this manual may only be realised by Weidmüller.

Malfunction-free operation is only guaranteed if the housing is fully assembled. Observance of the documentation is also part of the intended use.

2.3 Legal notice

The UR67-series products comply with the EU Directive 2014/30/EU (EMC Directive).

Components of the following free software products are integrated into the modules:

Component	License	Link
jQuery	MIT	https://github.com/jquery/jquery/blob/master/LICENSE.txt
jQuery-custom-Select	MIT	https://github.com/jquery/jquery/blob/master/LICENSE.txt
jQuery-i18n	MIT	https://github.com/jquery/jquery/blob/master/LICENSE.txt
jQuery-over-scroll	MIT	https://github.com/jquery/jquery/blob/master/LICENSE.txt
jQuery-ui	MIT	https://github.com/jquery/jquery/blob/master/LICENSE.txt
JSZip	MIT	https://github.com/Stuk/jszip/blob/master/LICENSE.markdown
md5 (as part of CryptoJS)	MIT	https://code.google.com/archive/p/crypto-js/wikis/License.wiki
snap-svg	Apache license 2.0	https://github.com/adobe-webplatform/Snap.svg/blob/master/LICENSE
underscore	MIT	https://github.com/jashkenas/underscore/blob/master/LICENSE

3 System overview



UR67-MP-HP-X (2426270000, 2426280000, 2426290000, 2512840000)



UR67-MP-78-X (2426300000, 2426310000, 2426320000, 2512830000)

u-remote IP67 modules for Ethernet/IP, PROFINET and EtherCAT

The UR67-MP modules are multiprotocol modules that communicate via EtherNet/IP, PROFINET or EtherCAT. The required protocol is selected on the module using the rotary switch.

The fully encapsulated metal housing means that the modules comply with degree of protection IP67.

The output current is up to 2 A per channel.

The modules with output functionality support a fail-safe function, which can be used to set how a channel configured as an output is to respond to impaired or interrupted fieldbus communication.

The UR67-MP modules differ in terms of their I/O functionality and connections for the power supply.

All connections are colour and mechanically coded:

- 2 × power supply connections (grey):
 - UR67-MP-HP-xx: M12, L-coded, 5-pole
 - UR67-MP-78-xx: 7/8", 5-pole
- 2 × fieldbus networks (green): M12, D-coded, 4-pole
- 8 × I/O connections (black): M12, A-coded, 5-pole

Each I/O connection is assigned two status LEDs which change colour and the frequency at which they flash is according to the status of the respective connection (see Section 12).

Module designation	Order number	Power supply connection	Number of digital inputs	Number of digital outputs
UR67-MP-HP-16DI-12-60M	2426270000	M12	16	0
UR67-MP-HP-16DO-12-60M	2426280000	M12	0	16
UR67-MP-HP-8DIDO-12-60M	2426290000	M12	8	8
UR67-MP-HP-16DIO-12-60M	2512840000	M12	max. 16 (configurable)	max. 16 (configurable)
UR67-MP-78-16DI-12-60M	2426300000	7/8"	16	0
UR67-MP-78-16DO-12-60M	2426310000	7/8"	0	16
UR67-MP-78-8DIDO-12-60M	2426320000	7/8"	8	8
UR67-MP-78-16DIO-12-60M	2512830000	7/8"	max. 16 (configurable)	max. 16 (configurable)

3.1 Fieldbus features

MAC addresses

Each module has a unique MAC address allocated by the manufacturer and which cannot be changed by the user. The MAC address is printed on the module.

Integrated Ethernet switch

The integrated Ethernet switch with two connections enables the creation of different topologies:

- Ethernet/IP: ring or line topology
- PROFINET: ring or line topology
- EtherCAT: line topology

Ethernet/IP product features

The UR67-MP modules support the following Ethernet/IP functions:

- Device Level Ring protocol (DLR) for simple ring topologies in accordance with the Ethernet/IP specification.
- QuickConnect for quick start-up

PROFINET product features

The UR67-MP modules support the PROFINET IO device IRT (Isochronous Real-Time). This means that process data can be transferred in real time.

The UR67-MP modules support the following PROFINET functions:

- DCP: for the automatic allocation of IP addresses
- Fast start-up for prioritised start-up
- Device replacement without interchangeable medium / PG for the replacement of devices without re-configuration
- LLDP for the detection of devices in the vicinity (neighbouring device detection)
- MRP for the implementation of redundant PROFINET networks without additional switches
- SNMP for the monitoring of network components

EtherCAT product features

The UR67-MP modules support the following mailbox protocols:

- Ethernet over EtherCAT (EoE): for accessing the web server function
- CANopen over EtherCAT (CoE): for transmitting process, diagnostic and parameter data
- File access over EtherCAT (FoE): for firmware updates

Alarm and diagnostic messages

The modules offer expanded Ethernet/IP, PROFINET and EtherCAT alarm and diagnostic messages.

Device description files

A device description file is needed for the configuration and parameterisation of the module in the engineering tool.

- Ethernet/IP: EDS file
- PROFINET: GSDML file
- EtherCAT: ESI file



You can download the current device description files from the [Weidmüller website](#).

Configurable process data for 16DIO modules

With the UR67-MP-XX-16DIO modules, you can parameterise the process data mapping and the data direction of the channels. In doing so, the existing devices are replaced by UR67-MP-XX-16DIO modules without changing the mapping or process data.

For simplified commissioning, the device-describing files contain pre-configured module profiles.

Module profile	Description
16DI/DO	16 combined inputs and outputs
8DI/DO	8 combined inputs and outputs (only pin 4)
16DI	16 inputs
8DI	8 inputs (only pin 4)
16DO	16 outputs
8DO	8 outputs (only pin 4)
8DI/8DO	8 inputs, 8 outputs

3.2 Web server

The web server can be used to display the UR67-MP module on a connected PC. This allows you to execute the following functions for test purposes or during commissioning or service work:

- Query the module status
- Display and change the module parameters
- Retrieve diagnostic information
- Operate the module in Force mode for testing purposes

A description of the web server can be found in Chapter 13.

3.3 Galvanic isolation



If you use modules with galvanic isolation together with modules without galvanic isolation, the galvanic isolation of these modules is cancelled out.

For some modules, the output power circuit is galvanically isolated from the system current path with the sensor supply:

Module designation	Galvanic isolation
UR67-MP-HP-16DI-12-60M	yes
UR67-MP-HP-16DO-12-60M	yes
UR67-MP-HP-8DIDO-12-60M	yes
UR67-MP-HP-16DIO-12-60M	no
UR67-MP-78-16DI-12-60M	yes
UR67-MP-78-16DO-12-60M	yes
UR67-MP-78-8DIDO-12-60M	yes
UR67-MP-78-16DIO-12-60M	no

3.4 Accessories

Protective caps

Degree of protection IP67 is only achieved when the module is fully installed. Therefore, all connections not being used must be fitted with protective caps.

Size	Usage	Protective cap	Order No.
M12	Sensor connection	SAI-SK M12	9456050000
M12	Bus-out, power-out	SAI-SK-M12-UNI	2330260000
M12	Bus-in, power-in	SAI-SK M12 connector	1781520000
7/8"	Power-out	SAI-7/8-SK-P-F	1422760000
7/8"	Power-in	SAI-7/8-SK-P-M	2007270000

Markers

Module and connection markers are available to label equipment. All of the markers can be printed using the Weidmüller PrintJet ADVANCED (Order No. 1324380000).

Module	Markers	Order No.
UR67-MP-xx-xxx-60M	ESG-M8/20 MC NE WS	1027290000

Cables and connections

In order to select suitable cables, we recommend referring to Weidmüller Catalogue 8 or the Product Configurator on the [Weidmüller website](#).

4 Module descriptions

4.1 UR67-MP-HP-16DI-12-60M and UR67-MP-78-16DI-12-60M



Left: UR67-MP-HP-16DI-12-60M input module (Order No. 2426270000)
Right: UR67-MP-78-16DI-12-60M input module (Order No. 2426300000)

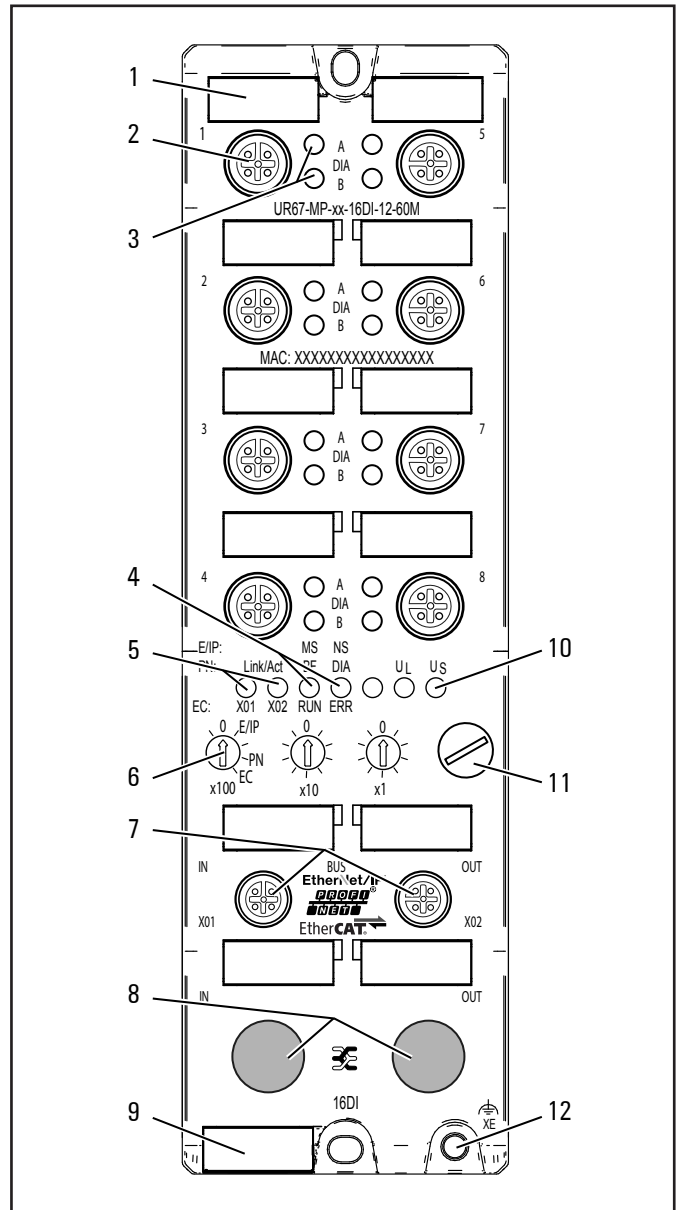
Each module has eight connections (M12, 5-pole, A-coded) for signal lines as well as connections for the fieldbus (M12, 4-pole, D-coded). The power supply is connected via 5-pole, L-coded M12 or 7/8" connections.

The UR67-MP-xx-16DI-12-60M modules have 16 digital inputs (sourcing output).

Diagnostic and status LEDs

LED	Display	Meaning
U_s	green/red	System/sensor power supply status
1 to 8 A	yellow/red	Channel A status
1 to 8 B	white/red	Channel B status
Lnk/Act X01	green/ yellow	Connection/X01 connection activity
Lnk/Act X02	green/ yellow	Connection/X02 connection activity
MS/BF/RUN	green/red	Module status (Ethernet/IP)
		Bus status (PROFINET)
		current status (EtherCAT)
NS/DIA/ERR	green/red	Network status (Ethernet/IP)
		Diagnosis indicator (PROFINET)
		Error display (EtherCAT)

LED displays, error messages, see section 12.5



Product details for UR67-MP-HP-16DI-12-60M and UR67-MP-78-16DI-12-60M

- 1 Marker connection 1
- 2 I/O connection 1
- 3 Status LED connection 1, channel A/channel B
- 4 Fieldbus and module status LEDs
- 5 Lnk/Act status LEDs
- 6 Rotary switch (for setting the protocol)
- 7 Fieldbus connection
- 8 M12 or 7/8" power supply connection
- 9 Module marker
- 10 Power supply status LED (U_s system/sensor power supply)
- 11 Micro-USB port (not to be used by the customer)
- 12 Earth connection (M4 thread)

4.2 UR67-MP-HP-16DO-12-60M and UR67-MP-78-16DO-12-60M



Left: Output module UR67-MP-HP-16DO-12-60M (Order No. 2426280000)

Right: Output module UR67-MP-78-16DO-12-60M (Order No. 2426310000)

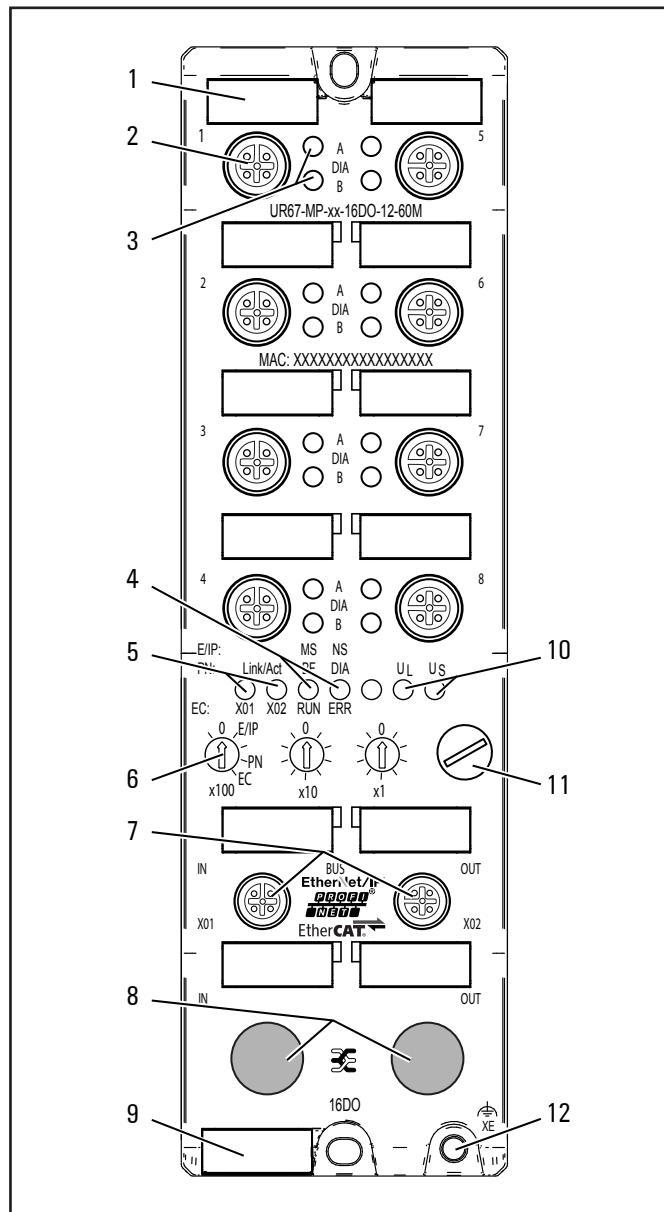
Each module has eight connections (M12, 5-pole, A-coded) for signal lines as well as connections for the fieldbus (M12, 4-pole, D-coded). The power supply is connected via 5-pole, L-coded M12 or 7/8" connections.

The UR67-MP-xx-16DO-12-60M modules have 16 digital outputs (sourcing output).

Diagnostic and status LEDs

LED	Display	Meaning
U_L	green/red	Actuator supply status
U_S	green/red	System/sensor power supply status
1 to 8 A	yellow/red	Channel A status
1 to 8 B	white/red	Channel B status
Lnk/Act X01	green/ yellow	Connection/X01 connection activity
Lnk/Act X02	green/ yellow	Connection/X02 connection activity
MS/BF/RUN	green/red	Module status (Ethernet/IP)
		Bus status (PROFINET)
		current status (EtherCAT)
NS/DIA/ERR	green/red	Network status (Ethernet/IP)
		Diagnosis indicator (PROFINET)
		Error display (EtherCAT)

LED displays, error messages, see section 12.5



Product details for UR67-MP-HP-16DO-12-60M and UR67-MP-78-16DO-12-60M

- 1 Marker connection 1
- 2 I/O connection 1
- 3 Status LED connection 1, channel A/channel B
- 4 Fieldbus and module status LEDs
- 5 Lnk/Act status LEDs
- 6 Rotary switch (for setting the protocol)
- 7 Fieldbus connection
- 8 M12 or 7/8" power supply connection
- 9 Module marker
- 10 Power supply status LED (U_L actuator power supply, U_S system/sensor power supply)
- 11 Micro-USB port (not to be used by the customer)
- 12 Earth connection (M4 thread)

4.3 UR67-MP-HP-8DIDO-12-60M and UR67-MP-78-8DIDO-12-60M



Left: Input/Output module UR67-MP-HP-8DIDO-12-60M (Order No. 2426290000)
Right: Input/Output module UR67-MP-78-8DIDO-12-60M (Order No. 2426320000)

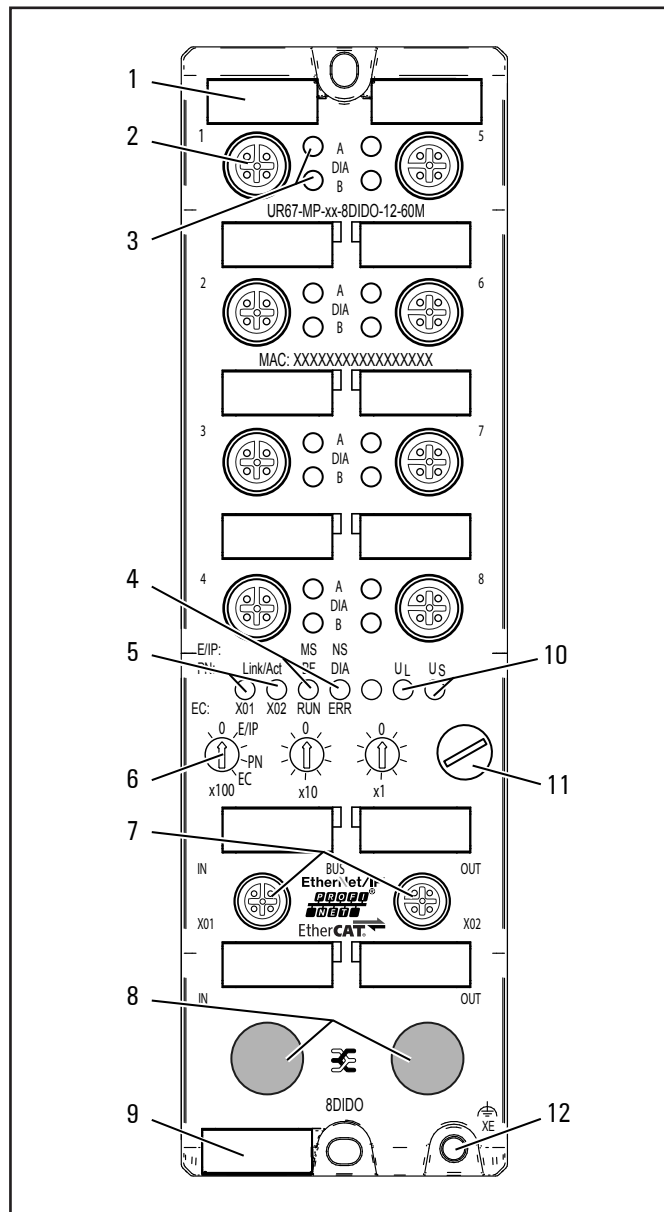
Each module has eight connections (M12, 5-pole, A-coded) for signal lines as well as connections for the fieldbus (M12, 4-pole, D-coded). The power supply is connected via 5-pole, L-coded M12 or 7/8" connections.

The UR67-MP-xx-8DIDO-12-60M modules have 8 digital inputs and 8 digital outputs (sourcing output).

Diagnostic and status LEDs

LED	Display	Meaning
U_L	green/red	Actuator supply status
U_S	green/red	System/sensor power supply status
1 to 8 A	yellow/red	Channel A status
1 to 8 B	white/red	Channel B status
Lnk/Act X01	green/ yellow	Connection/X01 connection activity
Lnk/Act X02	green/ yellow	Connection/X02 connection activity
		Module status (Ethernet/IP)
MS/BF/RUN	green/red	Bus status (PROFINET) current status (EtherCAT)
		Network status (Ethernet/IP)
NS/DIA/ERR	green/red	Diagnosis indicator (PROFINET) Error display (EtherCAT)

LED displays, error messages, see section 12.5



Product details for UR67-MP-HP-8DIDO-12-60M and UR67-MP-78-8DIDO-12-60M

- 1 Marker connection 1
- 2 I/O connection 1
- 3 Status LED connection 1, channel A/channel B
- 4 Fieldbus and module status LEDs
- 5 Lnk/Act status LEDs
- 6 Rotary switch (for setting the protocol)
- 7 Fieldbus connection
- 8 M12 or 7/8" power supply connection
- 9 Module marker
- 10 Power supply status LED (U_L actuator power supply, U_S system/sensor power supply)
- 11 Micro-USB port (not to be used by the customer)
- 12 Earth connection (M4 thread)

4.4 UR67-MP-HP-16DIO-12-60M and UR67-MP-78-16DIO-12-60M



Left: Input/Output module UR67-MP-HP-16DIO-12-60M (Order No. 2512840000)

Right: Input/Output module UR67-MP-78-16DIO-12-60M (Order No. 2512830000)

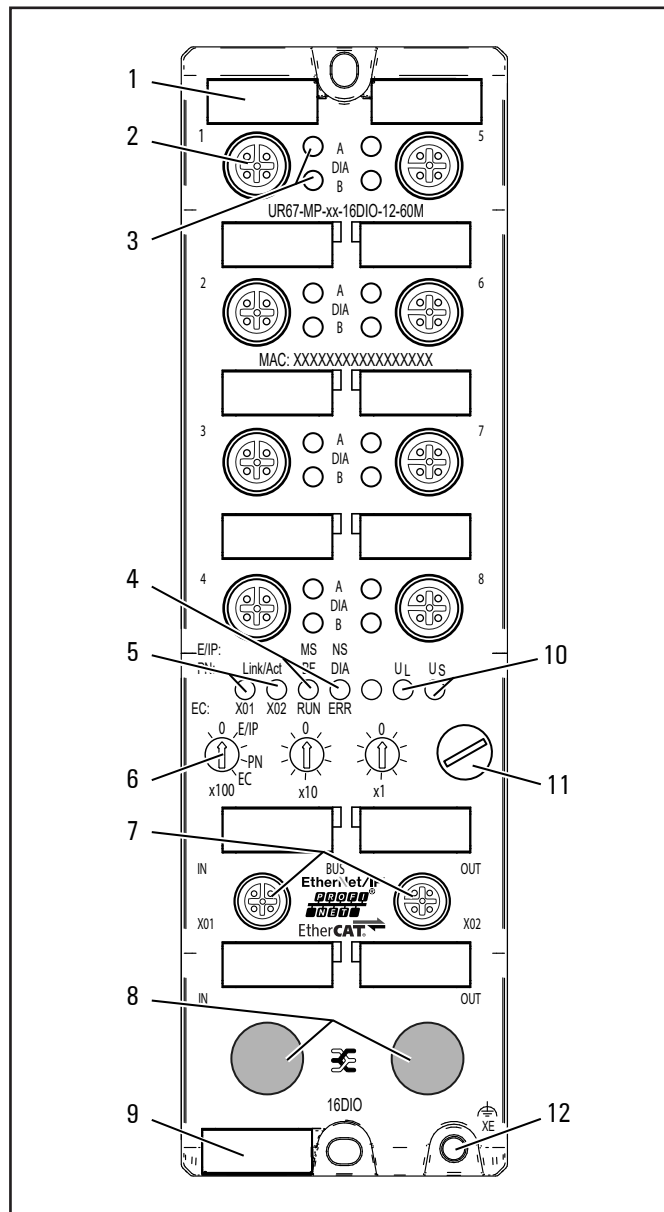
Each module has eight connections (M12, 5-pole, A-coded) for signal lines as well as connections for the fieldbus (M12, 4-pole, D-coded). The power supply is connected via 5-pole, L-coded M12 or 7/8" connections.

The UR67-MP-xx-16DIO-12-60M modules have 16 configurable digital inputs and outputs (sourcing output).

Diagnostic and status LEDs

LED	Display	Meaning
U_L	green/red	Actuator supply status
U_S	green/red	System/sensor power supply status
1 to 8 A	yellow/red	Channel A status
1 to 8 B	white/red	Channel B status
Lnk/Act X01	green/ yellow	Connection/X01 connection activity
Lnk/Act X02	green/ yellow	Connection/X02 connection activity
MS/BF/RUN	green/red	Module status (Ethernet/IP)
		Bus status (PROFINET)
		current status (EtherCAT)
NS/DIA/ERR	green/red	Network status (Ethernet/IP)
		Diagnosis indicator (PROFINET)
		Error display (EtherCAT)

LED displays, error messages, see section 12.5

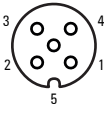


Product details for UR67-MP-HP-16DIO-12-60M and UR67-MP-78-16DIO-12-60M

- 1 Marker connection 1
- 2 I/O connection 1
- 3 Status LED connection 1, channel A/channel B
- 4 Fieldbus and module status LEDs
- 5 Lnk/Act status LEDs
- 6 Rotary switch (for setting the protocol)
- 7 Fieldbus connection
- 8 M12 or 7/8" power supply connection
- 9 Module marker
- 10 Power supply status LED (U_L actuator power supply, U_S system/sensor power supply)
- 11 Micro-USB port (not to be used by the customer)
- 12 Earth connection (M4 thread)

4.5 Connection assignments

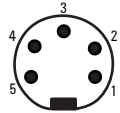
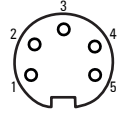
I/O connections (black):

M12, A-coded	16DI	16DO	8DIDO	16DIO
	1	+24 V U _S	n.c.	+24 V U _{S/L}
	2	DI _B	DO _B	DI _B /DO _B
	3	GND U _S	GND U _L	GND U _{S/L}
	4	DI _A	DO _A	DI _A /DO _A
	5	FE	FE	FE

ATTENTION

For the system/sensor power supply and the actuator power supply, only use power supplies that conform to PELV (Protective Extra Low Voltage) or SELV (Safety Extra Low Voltage) requirements. Power supplies in accordance with EN 61558-2-6 (transformer) or EN 60950-1 (switched-mode power supply) meet these requirements.

Power supply connection (grey)

M12, 5-pole, L-coded	Signal	Role
 OUT	1	+24 V U _S
	2	GND U _L
	3	GND U _S
 IN	4	+24 V U _L
	5	FE (PE)
7/8"	Signal	Role
	1	GND U _L
	2	GND U _S
	3	FE (PE)
	4	+24 V U _S
	5	+24 V U _L

Ethernet/IP, PROFINET, EtherCAT (green)

M12, 4-pole, D-coded	Signal	Role
	1	TD+
	2	RD+
	3	TD-
	4	RD-

ATTENTION

Product can be destroyed!

► Never place the power supply (24 V DC) on the signal or data lines.

4.6 Technical Data

Technical data

Bus system	
Protocol	Ethernet/IP, PROFINET, EtherCAT
Vendor name (Ethernet/IP)	1015
Product type (for Ethernet/IP)	Number: 7 String: General Purpose Discrete I/O
Product code (Ethernet/IP)	34000 (UR67-MP-78-16DI-12-60M) 34001 (UR67-MP-78-16DO-12-60M) 34002 (UR67-MP-78-8DIDO-12-60M) 34006 (UR67-MP-78-16DIO-12-60M) 34003 (UR67-MP-HP-16DI-12-60M) 34004 (UR67-MP-HP-16DO-12-60M) 34005 (UR67-MP-HP-8DIDO-12-60M) 34007 (UR67-MP-HP-16DIO-12-60M)
VendorID (PROFINET)	0x0134 hex
DeviceID (PROFINET)	0x18C6 hex
Vendor ID (EtherCAT)	0x00000230 hex
Product code (EtherCAT)	0xE763D70 (UR67-MP-78-16DI-12-60M) 0xE764158 (UR67-MP-78-16DO-12-60M) 0xE764540 (UR67-MP-78-8DIDO-12-60M) 0x95C6BE30 (UR67-MP-78-16DIO-12-60M) 0xE7631B8 (UR67-MP-HP-16DI-12-60M) 0xE7635A0 (UR67-MP-HP-16DO-12-60M) 0xE763988 (UR67-MP-HP-8DIDO-12-60M) 0x95C6E540 (UR67-MP-HP-16DIO-12-60M)
EDS file (Ethernet/IP)	WM_xx_Vz_z_z_yyyymmdd.eds
GSDML file (PROFINET)	GSDML-Vx.x-WH-UR67-yyyymmdd.xml
ESI file (EtherCAT)	Weidmueller-UR67-DigitalIO.xml
Data transmission rate	100 Mbps full duplex
Transmission method	100BASE-TX
Auto-negotiation	Supported
Addressing type (EtherCAT)	Auto-incremental addressing, fixed addressing
Cycle time (EtherCAT)	min. 250 µs
Ethernet protocols supported	ICMP, ARP, DHCP, HTTP, TCP/ IP, BOOTP, beacon-based DLR (Ethernet/IP) ICMP, ARP, LLDP, DCP, HTTP, TCP/ IP, SNMP, MRP (PROFINET) ICMP, ARP, HTTP, TCP/IP (EtherCAT)
Switch functionality	Integrated, 2 connections RT and IRT are supported (PROFINET)
Autocrossing	Supported
Connection	M12, 4-pole, D-coded

- 1) In the case of inductive loads in utilisation category DC13 (in acc. with EN 60947-5-1), the outputs can operate with currents of 1.6 A and a frequency of 1 Hz.
- 2) The total current of connection groups 1 and 2, 3 and 4, 5 and 6, and 7 and 8 must not exceed 6.5 A in each case.
- 3) Technically possible and approved on the following conditions: looped system/sensor power supply U_s max. 2.5 A; minimum cross-section of power supply cable: $5 \times 1.0 \text{ mm}^2$; max. ambient temperature 40°C (104°F)
- 4) The degree of protection IP 69 is achieved exclusively from modules with an M12 power supply connection (UR67-MP-HP-xxx-12-60M).

Technical data

Inputs	
Channel type	NO contact, sourcing output
Input wiring	Type 3 in acc. with IEC 61131-2
Rated input voltage	24 V DC
Input current at 24 V DC	typically 5 mA
Short-circuit-proof	yes
Status indicator	Yellow LED (channel A), white LED (channel B)
Diagnosis indicator	Red LED for every M12 socket
Connection	M12, 5-pole, A-coded
Outputs	
Channel type	NO contact, sourcing output
Output wiring	typically 2 A in acc. with IEC 61131-2
Output current per channel ¹⁾	
Signal status "1"	max. 2 A ²⁾
Signal status "0"	max. 1 mA (specification as per standard)
Signal level of the outputs	
Signal status "1"	min. ($U_L - 1$ V)
Signal status "0"	max. 2 V
Output current per module	9 A, see derating curve (see section 4.7)
Short-circuit-proof	yes
Overload-proof	yes
Status indicator	Yellow LED (channel A), white LED (channel B)
Diagnosis indicator	Red LED, for each channel
Connection	M12 socket, 5-pole, A-coded
Electronics/sensor system supply	
Rated voltage U_S	24 V DC (SELV/PELV)
Voltage range	24 V DC $\pm$ 25%
Current-carrying capacity U_S	UR67-MP-78-xx: max. 9 A (12 A ³⁾) UR67-MP-HP-xx: max. 16 A
Electronics current consumption	typically 95 mA at 24 V typically 120 mA at 30 V
Sensor system voltage	min. ($U_S - 1.5$ V)
Sensor system current consumption	max. 200 mA per connection (at T_a 30°C)
Reverse polarity protection	yes
Operating display (U_S)	Green/red LED
Connection	7/8" plug and socket, 5-pole (UR67-MP-78-X) M-12, 5-pole, L-coded (UR67-MP-HP-X)

1) In the case of inductive loads in utilisation category DC13 (in acc. with EN 60947-5-1), the outputs can operate with currents of 1.6 A and a frequency of 1 Hz.

2) The total current of connection groups 1 and 2, 3 and 4, 5 and 6, and 7 and 8 must not exceed 6.5 A in each case.

3) Technically possible and approved on the following conditions: looped system/sensor power supply U_S max. 2.5 A; minimum cross-section of power supply cable: 5 x 1.0 mm²; max. ambient temperature 40°C (104°F)

4) The degree of protection IP 69 is achieved exclusively from modules with an M12 power supply connection (UR67-MP-HP-xxx-12-60M).

Technical data

Actuator power supply	
Rated voltage U_L	24 V DC (SELV/PELV)
Voltage range	24 V DC $\pm$ 25%
Current-carrying capacity U_L	UR67-MP-78-xx: max. 9.0 A (12 A ³⁾) UR67-MP-HP-xx: max. 16 A
Potential isolation	yes
Undervoltage threshold	typically 18 V
Undervoltage detection delay	< 20 ms
Reverse polarity protection	yes
Actuator power display (U_L)	Green/red LED
Connection	7/8" plug and socket, 5-pole (UR67-MP-78-X) M-12, 5-pole, L-coded (UR67-MP-HP-X)
General data	
Type of protection	when screwed in: IP 65, IP 67, IP 69 ⁴⁾
Ambient temperature	-20°C to +70°C
Humidity	max. 98% (at U_L : 80%)
Weight	500 g (UR67-MP-HP-X) 520 g (UR67-MP-78-X)
Enclosure material	Die-cast zinc, matt nickel surface
Vibration resistance – vibration	15 g / 5 ... 500 Hz
Vibration resistance – impact	50 g/11 ms
Tightening torques	
M4 mounting screw	1 Nm
M4 earth connection	1 Nm
M12 plug-in connector	0.5 Nm
Approvals and standards	
cULus	UL 508
EMC	EN 61000-6-2:2005/AC:2005, EN 61000-6-4:2007/A1:2001

1) In the case of inductive loads in utilisation category DC13 (in acc. with EN 60947-5-1), the outputs can operate with currents of 1.6 A and a frequency of 1 Hz.

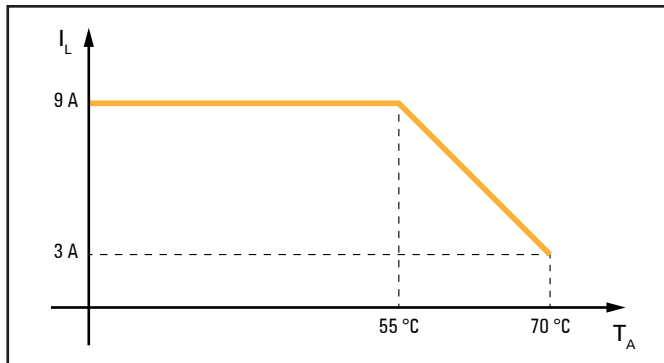
2) The total current of connection groups 1 and 2, 3 and 4, 5 and 6, and 7 and 8 must not exceed 6.5 A in each case.

3) Technically possible and approved on the following conditions: looped system/sensor power supply U_S max. 2.5 A; minimum cross-section of power supply cable: 5 x 1.0 mm²; max. ambient temperature 40°C (104°F)

4) The degree of protection IP 69 is achieved exclusively from modules with an M12 power supply connection (UR67-MP-HP-xxx-12-60M).

4.7 Derating

The permissible total output current depends on the ambient temperature.



Derating: Total output current I_L via ambient temperature T_A

5 Installation and wiring

	WARNING
	Dangerous contact voltage! ▶ All installation and wiring work must be carried out with the power supply disconnected. ▶ Make sure that the place of installation has been disconnected from the power supply!

	CAUTION
	Hot surface! The device can become very hot when in operation. ▶ Allow the device to cool down before touching it!

5.1 Preparing for installation

Make sure that the permitted environmental conditions for installation and operation are observed (see technical data).

Installation dimensions

The installation dimensions are provided in the installation drawings on the following pages.

Unpacking the delivery

- ▶ Please check the delivery for completeness and transport damage.
- ▶ Please report any transport damage immediately to the respective transport company.

	ATTENTION
	The product can be destroyed by electrostatic discharge! u-remote products can be destroyed by electrostatic discharge. ▶ Make sure that persons and work equipment are sufficiently earthed!

- ▶ Unpack all of the parts.
- ▶ Dispose of all packaging in accordance with the local disposal guidelines. The cardboard packaging can be sent for paper recycling.

5.2 Installing a module

The installation surface must be level.

- ▶ Drill the holes for the fixings (for the drilling dimensions, see the installation drawings on the following pages).
- ▶ Attach each module with two screws and a washer (in accordance with DIN EN ISO 7089).
- ▶ Observe the screw dimension and tightening torques indicated (see technical data).

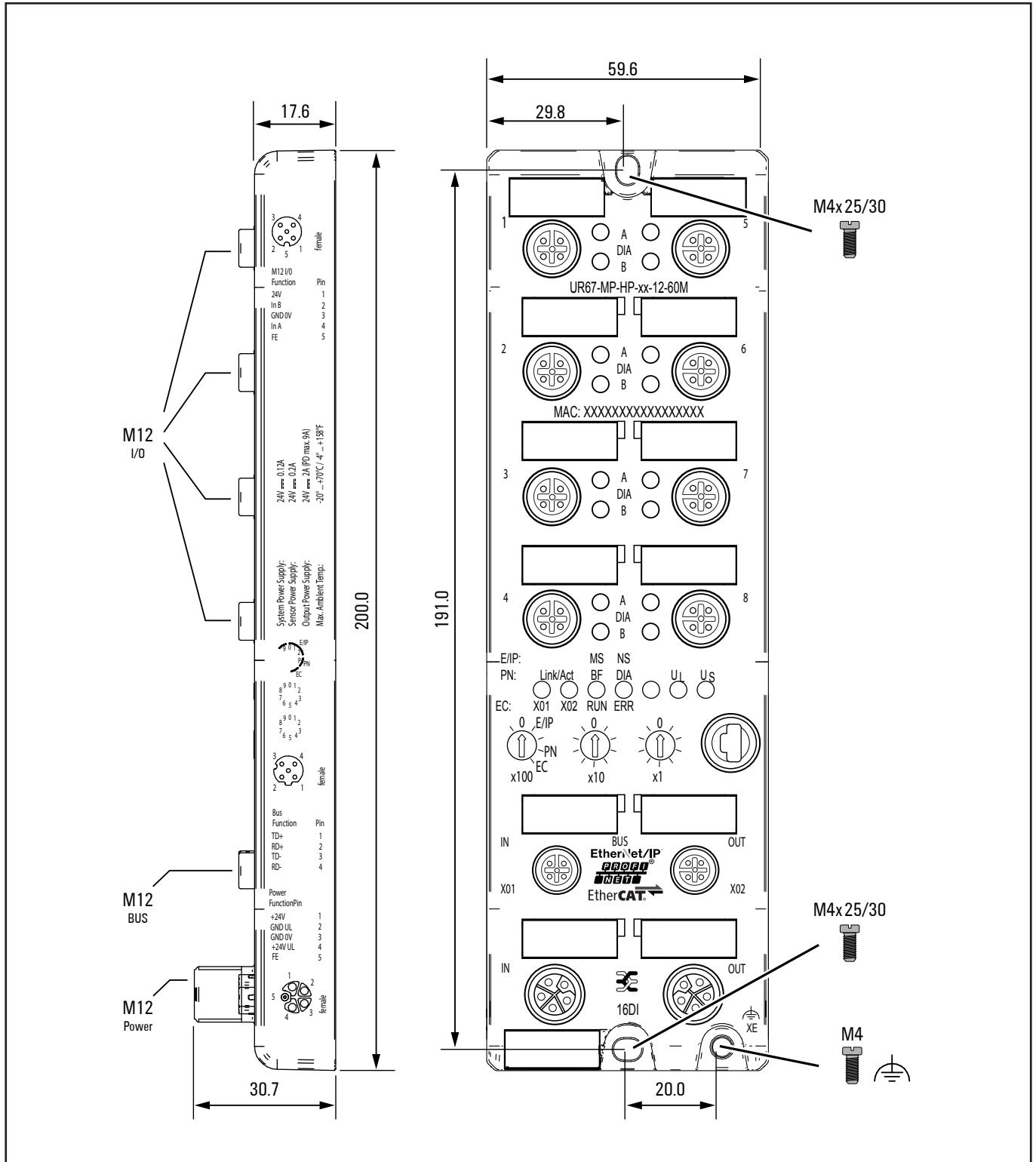
5.3 Earthing the module

The module must be earthed in order to discharge interference currents and for EMC stability.

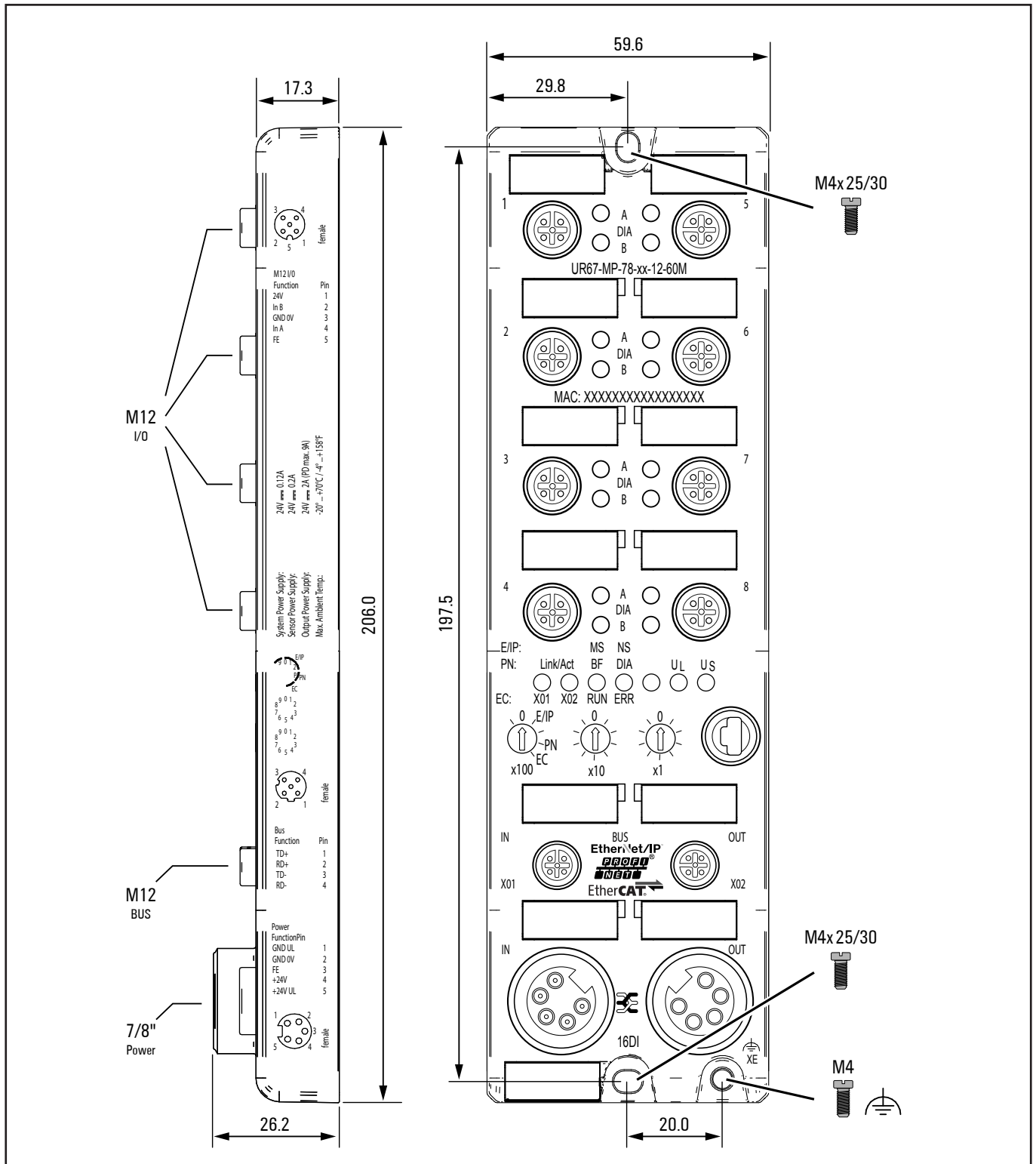
- ▶ Connect the XE earth connection to the reference earth via a low-impedance connection (see installation drawing).

If the mounting surface is earthed, you can produce the connection directly with a mounting screw.

If the installation surface is not earthed, use an earthing strap or a suitable cable with cable lug!



Installation dimensions UR67-MP-HP-16DI-12-60M, UR67-MP-HP-16DO-12-60M, UR67-MP-HP-8DIDO-12-60M, UR67-MP-HP-16DIO-12-60M



Installation dimensions UR67-MP-78-16DI-12-60M, UR67-MP-78-16DO-12-60M, UR67-MP-78-8DIDO-12-60M, UR67-MP-78-16DIO-12-60M

5.4 Attaching the marker

The module and all ports can be labelled using markers.

- ▶ Press the labelled marker into the corresponding fixture opening.
- ▶ To remove a marker, lever it out carefully using a screwdriver (2.5 or 3 mm).

5.5 Wiring

	WARNING
	Dangerous contact voltage! ▶ All installation and wiring work must be carried out with the power supply disconnected. ▶ Make sure that the place of installation has been disconnected from the power supply!

Once the module has been mechanically installed, the wiring can be carried out in accordance with the wiring plan.

Element	Torque
M12 plug-in connectors	0.5 Nm
M12 protective cap	0.5 Nm

- 

Ensure compliance with the minimum permissible cable bending radius.
- 

All unused ports must be sealed with protective caps in order to achieve protection class IP67.
- 

At ambient temperatures hotter than 55°C:

 - ▶ Use cables with a cross-section of 2.5 mm² for the power supply.
- 

For UL applications:

 - ▶ Use only UL-certified cables with appropriate ratings (CYJV or PVVA).
 - ▶ Use temperature-resistant cables:
 - UR67-MP-xx-16DI-12-60M: up to 85°C
 - UR67-MP-xx-16DO-12-60M: up to 96°C
 - UR67-MP-xx-8DIDO-12-60M: up to 96°C
 - UR67-MP-xx-16DIO-12-60M: up to 96°C

5.6 Insulation test

Insulation tests must always be carried out before each commissioning and in accordance with the respective national provisions.

	ATTENTION
	The product can be destroyed as a result of excessive test voltage! Please observe the following during insulation tests: – The test voltage within a channel must not exceed 30 V between 24 V and GND!* – A max. test voltage of 500 V can be applied to all other connection points.

* We recommend connecting 24 V and GND at the power supply plug.

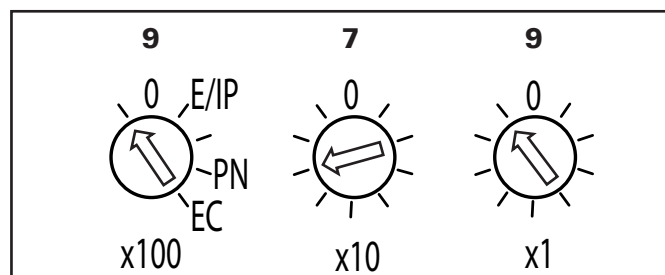
5.7 Restoring factory settings using the rotary switch

The module's factory settings can be restored via the rotary switch. The protocol settings can be reset in the same way.

 The **Factory settings** web server function does not reset the protocol settings.

- ▶ Turn the left rotary switch ("x100") to the value "9".
- ▶ Turn the middle rotary switch ("x10") to the value "7".
- ▶ Turn the right rotary switch ("x1") to the value "9".
- ▶ Switch the power supply off and back on again 10 seconds later.

The module is reset to factory settings.



Restoring factory settings using the rotary switch

5.8 Setting the fieldbus protocol

The fieldbus protocol and the module behaviour in the network are set using the rotary switch. The module adopts and saves these settings the next time the power supply is switched back on.



The fieldbus protocol can only be changed after the module has been reset to factory settings.



Any changes made to the position of the rotary switch only take effect once the power supply has been switched off and back on again. Wait at least ten seconds before switching the power supply back on to ensure the changes take effect.

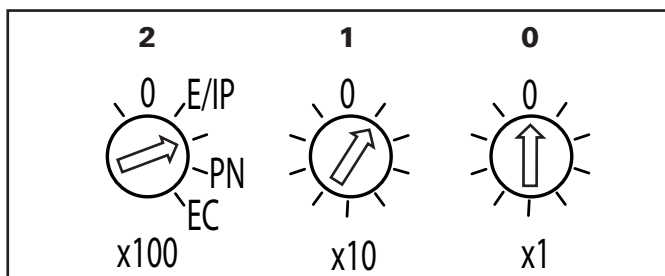


Only use DHCP/BOOTP if a relevant server is in the network that can assign the network parameters to the module.

- ▶ Restore the factory settings using the rotary switch (see Section 5.7).
- ▶ Turn the left rotary switch ("x100") to a value from 0 to 4.
- ▶ Turn the middle rotary switch ("x10") to a value from 0 to 9.
- ▶ Turn the right switch ("x1") to a value from 0 to 9.
- ▶ Switch the power supply off and back on again 10 seconds later.

The module adopts the new settings.

If you make an invalid setting, the BF/MS/RUN LED will flash red three times.



Example: Setting the value of "210" (IP address 192.168.1.210 for Ethernet/IP)

The following table shows the possible rotary switch settings.

Setting	Protocol	Description
000	Ethernet/IP	The previously saved network settings are used. When in the delivered condition, the network parameters are requested via DHCP/BOOTP.
001 to 254	Ethernet/IP	The last octet of the IP address is overwritten with the set value (192.168.1.XXX).
255 to 298	Ethernet/IP	The network parameters are requested via DHCP/BOOTP, but are not saved.
299	Ethernet/IP	The factory settings for the IP address are used (192.168.1.1).
300 to 399	PROFINET	Network parameters are allocated via DCP.
400 to 499	EtherCAT	Network parameters are allocated via the engineering tool.
900 to 999 (Exception: 979)	-	Invalid setting
979	-	Restoring factory settings

6 Commissioning with Ethernet/IP

	WARNING!
	Manipulation of the controller! During commissioning, the system may be manipulated to such an extent that can result in risks to life and material damage. ► Make sure that system components cannot start up unintentionally!
	CAUTION
	Hot surface! The device can become very hot when in operation. ► Allow the device to cool down before touching it!

The procedures applied during commissioning depend on which fieldbus protocol has been chosen and which controller is being used.

The description in this section uses the commissioning of Studio 5000 Logix Designer from Rockwell Automation in online operation as an example.

6.1 Requirements

Before you start the commissioning work, the following requirements must be fulfilled.

- The controller must be in operation.
- The UR67 modules must be completely installed and wired up.
- The controller and all UR67 modules must be connected via Ethernet, and a PC/laptop must be likewise connected using the controller software.
- The module must be set to Ethernet/IP with a unique IP address using the rotary switch (see Section 5.8).
- The power supply must be turned on.

6.2 Installing the EDS file

All of the module variants are described in files named **WM_xx_Vz_z_z_yyyymmdd.eds**. (where **xx** stands for the ten-digit module order number, **z_z_z** for the software version, and **yyymmdd** for the file issue date). All EDS files are grouped together in an archive file named **IP67_GSDML_EDS_ESI_Weidmueller.zip**.

- Open the Studio 5000 software.
- Download and unpack the archive file from the [Weidmüller website](#).
- In the **Tools** menu within the Studio 5000 software, select the **EDS Hardware Installation Tool** option
- Follow the installation wizard.

6.3 Connecting a module to the Ethernet/IP network

- Open the Studio 5000 software.
- Create a new project or open an existing project.

If the communication path for the controller is out-of-date or has not been specified, this must be specified before establishing the first connection.

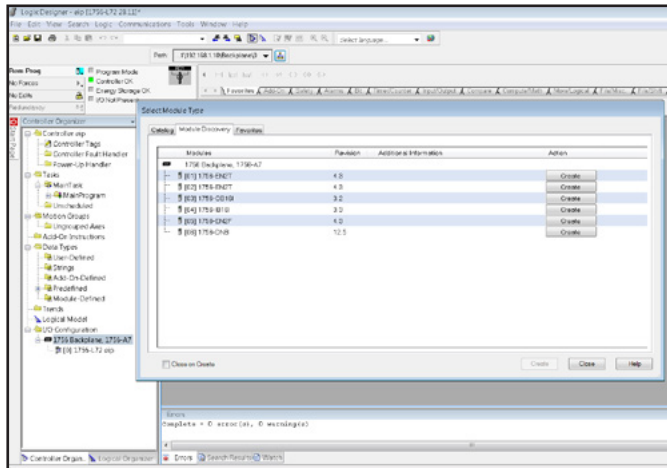
- Click on the **Connections** menu and select **Who Active**.
- In the **Who Active** dialogue box, select the controller used.
- Establish a connection to the controller (**Go Online**).

If your project does not match the project on the controller, load your project onto the controller (**Download**) or transfer the project from the controller to Studio 5000 (**Upload**). The controller must be in programming mode in both cases.



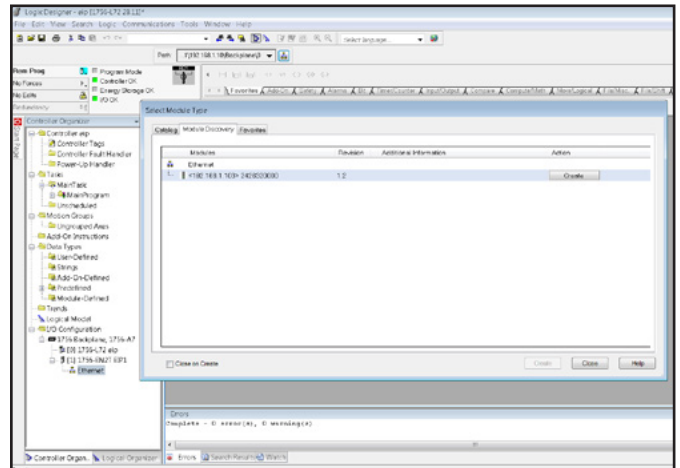
All projects downloaded from Studio 5000 to the controller irrevocably overwrite any projects saved on the controller.

- Use the mouse to right-click on **I/O Configuration/...** in the Controller Organiser or the **Backplane** subfolder.
 - Click on **Discover Modules**.
- The **Select Module Type** window opens.



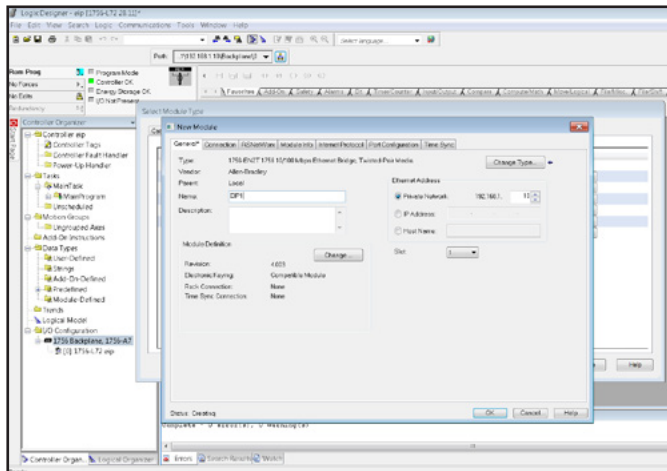
Selecting the Ethernet/IP interface

► Select the required Ethernet/IP interface and click on **Create**.
The **New Module** window opens.



Selecting the module

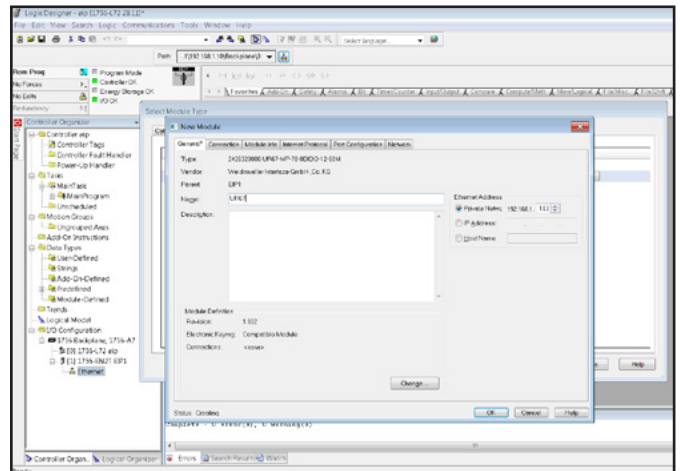
► Select the required UR67-MP module and click on **Create**.
The **New Module** window opens.



Configuring the Ethernet/IP interface

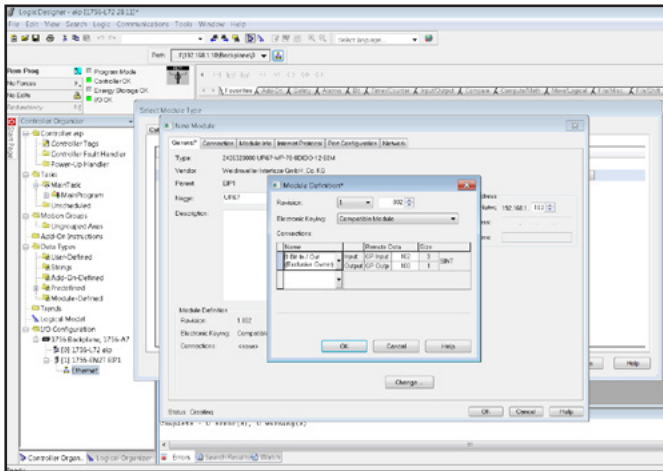
► Enter a name for the interface and define the required IP address settings.
► Click on **OK**.
The Ethernet/IP interface is created in the **Controller Organizer**.

► In the **Controller Organizer**, right-click on **Ethernet** in the Ethernet/IP interface that you have just created.
► Click on **Discover Modules**.
The **Select Module Type** window opens.



Entering the module name

► Enter a name for the module.
► Click on **Change**.
The **Module Definition** window opens.



Selecting the connection type

- Select the connection.

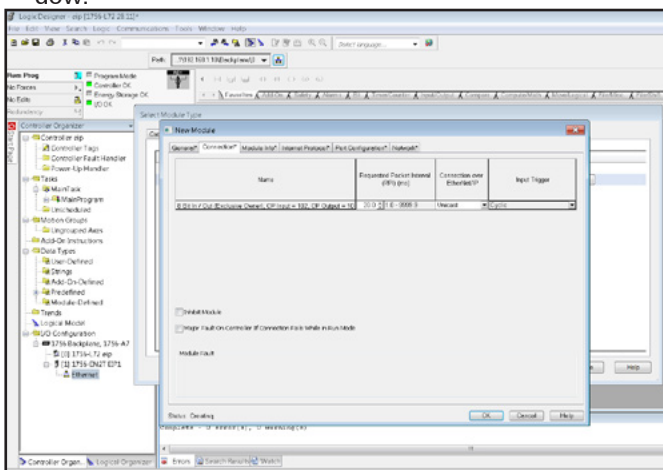


The connection type determines which process and diagnostic data is provided by the module (see. Section 6.4).

- Click on **OK**.

The **Module Definition** window is closed.

- Click on the **Connections** tab in the **New Module** window.



Connections tab

- Set the Requested Packet Interval (RPI) and the form of communication (unicast or multicast) and confirm by clicking on **OK**.

The RPI selected must be greater than 1 ms.

6.4 Connections and assembly object

The UR67 MP modules support the connection types Exclusive Owner, Input Only and Listen Only.

Exclusive Owner

- Select the Exclusive Owner connection type for independent connections, which are to be used to transfer both input and output data.

An Exclusive Owner connection is independent of all other connections. A UR67-MP module can only accept an Exclusive Owner connection.

The Exclusive Owner connection type is available solely for modules with output functionality (UR67-MP-xx-16DO-12-60M, UR67-MP-xx-8DIDO-12-60M, UR67-MP-xx-16DIO-12-60M).

Input Only

- Select the Input Only connection type for independent connections which are to be used to solely transfer input data.

An Input Only connection is independent of all other connections. A UR67-MP module can accept multiple Input Only connections.

The Input Only connection type is available for all modules.

Listen Only

- Select the Listen Only connection type for dependent connections which are to be used to solely transfer input data.

A Listen Only connection is dependent on other connections that are not of the Listen Only type. If the last connection on which a Listen Only connection is dependent is terminated, this Listen Only connection will likewise be terminated. A UR67-MP module can accept multiple Listen Only connections.

The Listen Only connection type is available for all modules

Select the instance ID of the assembly object to decide whether the module also adds diagnostic data to the process data.

UR67-MP-xx-16DI-12-60M

Connection	Connection type	Diagnostics	Instance ID	Length
16 Bit In + Dia	Input Only	yes	Input: 101	4 bytes
			Output: 193	0 bytes
			Configuration: 105	2 bytes
16 Bit In	Input Only	no	Input: 102	3 bytes
			Output: 193	0 bytes
			Configuration: 105	2 bytes
16 Bit In + Dia	Listen Only	yes	Input: 101	4 bytes
			Output: 192	0 bytes
			Configuration: -	-
16 Bit In	Listen Only	no	Input: 102	3 bytes
			Output: 192	0 bytes
			Configuration: -	-

UR67-MP-xx-16DO-12-60M

Connection	Connection type	Diagnostics	Instance ID	Length
16 Bit Out + Dia	Exclusive Owner	yes	Input: 101	7 bytes
			Output: 100	2 bytes
			Configuration: 105	66 bytes
16 Bit Out	Exclusive Owner	no	Input: 102	3 bytes
			Output: 100	2 bytes
			Configuration: 105	66 bytes
16 Bit Out + Dia	Input Only	yes	Input: 101	7 bytes
			Output: 193	0 bytes
			Configuration: 105	66 bytes
16 Bit Out	Input Only	no	Input: 102	3 bytes
			Output: 193	0 bytes
			Configuration: 105	66 bytes
16 Bit Out + Dia	Listen Only	yes	Input: 101	7 bytes
			Output: 192	0 bytes
			Configuration: -	-
16 Bit Out	Listen Only	no	Input: 102	3 bytes
			Output: 192	0 bytes
			Configuration: -	-

UR67-MP-xx-8DIDO-12-60M

Connection	Connection type	Diagnostics	Instance ID	Length
8 Bit In / Out +Dia	Exclusive Owner	yes	Input: 101	6 bytes
			Output: 100	1 bytes
			Configuration: 105	34 bytes
8 Bit In / Out	Exclusive Owner	no	Input: 102	3 bytes
			Output: 100	1 bytes
			Configuration: 105	34 bytes
8 Bit In / Out +Dia	Input Only	yes	Input: 101	6 bytes
			Output: 193	0 bytes
			Configuration: 105	34 bytes
8 Bit In / Out	Input Only	no	Input: 102	3 bytes
			Output: 193	0 bytes
			Configuration: 105	34 bytes
8 Bit In / Out +Dia	Listen Only	yes	Input: 101	6 bytes
			Output: 192	0 bytes
			Configuration: -	-
8 Bit In / Out	Listen Only	no	Input: 102	3 bytes
			Output: 192	0 bytes
			Configuration: -	-

UR67-MP-xx-16DIO-12-60M**16DI/DO module profile**

Connection	Connection type	Diagnostics	Instance ID	Length
16DI/DO + DIA	Exclusive Owner	yes	Input: 101	7 bytes
			Output: 100	2 bytes
			Configuration: 110	130 bytes
16DI/DO	Exclusive Owner	no	Input: 102	3 bytes
			Output: 100	2 bytes
			Configuration: 110	130 bytes
16DI/DO + DIA (Even DI/DO bytes)	Exclusive Owner	yes	Input: 108	8 bytes
			Output: 100	2 bytes
			Configuration: 110	130 bytes
16 DI/DO + DIA (Default Config) ¹	Exclusive Owner	yes	Input: 101	7 bytes
			Output: 100	2 bytes
			Configuration: 117	0 bytes
16DI/DO + DIA	Input Only	yes	Input: 101	7 bytes
			Output: 193	0 bytes
			Configuration: 110	130 bytes
16DI/DO	Input Only	no	Input: 102	3 bytes
			Output: 193	0 bytes
			Configuration: 110	130 bytes
16DI/DO + DIA (Even DI/DO bytes)	Input Only	yes	Input: 108	8 bytes
			Output: 193	0 bytes
			Configuration: 110	130 bytes

1) No parameters are transferred with this connection.

8DI/DO module profile

Connection	Connection type	Diagnostics	Instance ID	Length
8DI/DO + DIA	Exclusive Owner	yes	Input: 104	6 bytes
			Output: 103	1 bytes
			Configuration: 111	130 bytes
8DI/DO	Exclusive Owner	no	Input: 105	2 bytes
			Output: 103	1 bytes
			Configuration: 111	130 bytes
8DI/DO + DIA	Input Only	yes	Input: 104	6 bytes
			Output: 193	0 bytes
			Configuration: 111	130 bytes
8DI/DO	Input Only	no	Input: 105	2 bytes
			Output: 193	0 bytes
			Configuration: 111	130 bytes

16DI module profiles

Connection	Connection type	Diagnostics	Instance ID	Length
16DI + DIA	Input Only	yes	Input: 101	7 bytes
			Output: 193	0 bytes
			Configuration: 112	66 bytes
16DI	Input Only	no	Input: 102	3 bytes
			Output: 193	0 bytes
			Configuration: 112	66 bytes

8DI module profiles

Connection	Connection type	Diagnostics	Instance ID	Length
8DI + DIA	Input Only	yes	Input: 104	6 bytes
			Output: 193	0 bytes
			Configuration: 113	66 bytes
8DI	Input Only	no	Input: 105	2 bytes
			Output: 193	0 bytes
			Configuration: 113	66 bytes

16DO module profiles

Connection	Connection type	Diagnostics	Instance ID	Length
16DO + DIA	Exclusive Owner	yes	Input: 106	5 bytes
			Output: 100	2 bytes
			Configuration: 114	130 bytes
16DO	Exclusive Owner	no	Input: 107	1 byte
			Output: 100	2 bytes
			Configuration: 114	130 bytes

8DO module profiles

Connection	Connection type	Diagnostics	Instance ID	Length
8DO + DIA	Exclusive Owner	yes	Input: 106	5 bytes
			Output: 103	1 bytes
			Configuration: 115	130 bytes
8DO	Exclusive Owner	no	Input: 107	1 byte
			Output: 103	1 byte
			Configuration: 115	130 bytes

8DI/8DO module profiles

Connection	Connection type	Diagnostics	Instance ID	Length
8DI/8DO + DIA	Exclusive Owner	yes	Input: 104	6 bytes
			Output: 103	1 bytes
			Configuration: 116	130 bytes
8DI/8DO	Exclusive Owner	no	Input: 105	2 bytes
			Output: 103	1 byte
			Configuration: 116	130 bytes
8DI/8DO + DIA	Input Only	yes	Input: 104	6 bytes
			Output: 193	0 bytes
			Configuration: 116	130 bytes
8DI/8DO	Input Only	no	Input: 105	2 bytes
			Output: 193	0 bytes
			Configuration: 116	130 bytes

Generic DI module profiles

Connection	Connection type	Diagnostics	Instance ID	Length
Generic 16DI + DIA	Listen Only	yes	Input: 101	7 bytes
			Output: 192	0 bytes
			Configuration: -	-
Generic 16DI	Listen Only	no	Input: 102	3 bytes
			Output: 192	0 bytes
			Configuration: -	-
Generic 16DI + DIA (Even DI/DO bytes)	Listen Only	yes	Input: 108	8 bytes
			Output: 192	0 bytes
			Configuration: -	-
Generic 8DI + DIA	Listen Only	yes	Input: 104	6 bytes
			Output: 192	0 bytes
			Configuration: -	-
Generic 8DI	Listen Only	no	Input: 105	2 bytes
			Output: 192	0 bytes
			Configuration: -	-

6.5 Initial connection parameter settings

The configuration tools produced by other controller manufacturers may also request that users enter other parameters in order to set up a communication connection between the I/O scanner and the module.

UR67-MP-xx16DI-12-60M with diagnostics

General	
Transport type	Input Only
Trigger mode	Cyclic
Requested Packet Interval (RPI)	Minimum 1 ms
Output data (O→T) connection parameters	
Real-time transfer format	Heartbeat
Connection type	POINT2POINT
Assembly instance ID	193
Data type	USINT
Data size	1 byte
Data length	0 bytes
Input data (T→O) connection parameters	
Real-time transfer format	Connection is pure data and modeless
Connection type	MULTICAST
Assembly instance ID	101
Data type	USINT
Data size	1 byte
Data length	4 bytes

UR67-MP-xx16DO-12-60M with diagnostics

General	
Transport type	Exclusive Owner
Trigger mode	Cyclic
Requested Packet Interval (RPI)	Minimum 1 ms
Output data (O→T) connection parameters	
Real-time transfer format	32-bit run/idle header
Connection type	POINT2POINT
Assembly instance ID	100
Data type	USINT
Data size	1 byte
Data length	2 bytes
Input data (T→O) connection parameters	
Real-time transfer format	Connection is pure data and modeless
Connection type	MULTICAST
Assembly instance ID	101
Data type	USINT
Data size	1 byte
Data length	7 bytes

UR67-MP-xx-8DIDO-12-60M with diagnostics

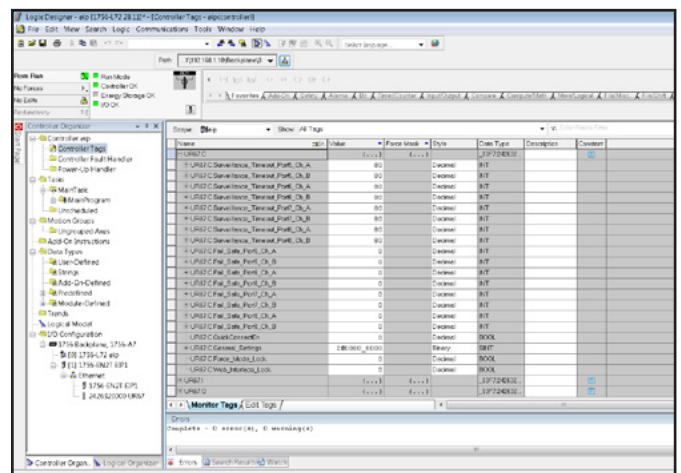
General	
Transport type	Exclusive Owner
Trigger mode	Cyclic
Requested Packet Interval (RPI)	Minimum 1 ms
Output data (O→T) connection parameters	
Real-time transfer format	32-bit run/idle header
Connection type	POINT2POINT
Assembly instance ID	100
Data type	USINT
Data size	1 byte
Data length	1 byte
Input data (T→O) connection parameters	
Real-time transfer format	Connection is pure data and modeless
Connection type	MULTICAST
Assembly instance ID	101
Data type	USINT
Data size	1 byte
Data length	6 bytes

UR67-MP-xx-16DIO-12-60M with 16DI/DO profile and diagnostics

General	
Transport type	Exclusive Owner
Trigger mode	Cyclic
Requested Packet Interval (RPI)	Minimum 1 ms
Output data (O→T) connection parameters	
Real-time transfer format	32-bit run/idle header
Connection type	POINT2POINT
Assembly instance ID	100
Data type	USINT
Data size	1 byte
Data length	2 bytes
Input data (T→O) connection parameters	
Real-time transfer format	Connection is pure data and modeless
Connection type	MULTICAST
Assembly instance ID	101
Data type	USINT
Data size	1 byte
Data length	7 bytes

6.6 Parameterising the module with Ethernet/IP

► In the Controller Organiser, switch to **.../Controller Tags**. The controller tags for the parameters bear the name of the module, followed by ":C", the parameter name, the connection code and the PIN.



Controller tags

► Enter the required parameter values for each output channel.

A detailed description of the individual parameters and their availability can be found in Section 6.9 and Section 6.10.

6.7 Parameterising the process data structure for 16DIO modules



WARNING!

Unexpected controller behaviour!
Actuators and sensors can be activated or deactivated unintentionally when you incorrectly parameterise the process data structure.

- ▶ Check the parameterised process data structure before you transfer the parameters to the device!

Parameterising the data direction of the channels

If you are using a UR67-MP-xx-16DIO-12-60M module, you can parameterise the data direction of the individual channels.

- ▶ Select the module profile 16DI/DO if you are adding the module for configuration.

If you want to parameterise the channel as a bi-directional input and output:

- ▶ Set the "Process Data Direction" parameter of the associated channel to 0.

If you want to parameterise the channel as an input:

- ▶ Set the "Process Data Direction" parameter of the associated channel to 1.

If you want to parameterise the channel as an output:

- ▶ Set the "Process Data Direction" parameter of the associated channel to 2.

The default setting and the permitted value range of the parameter depend on the selected module profile.

Process Data Direction (default settings)

Channel	16DI/DO	8DI/DO	16DI	8DI	16DO	8DO	8DI/8DO
1-A	0	0	1	1	2	2	1
1-B	0	0	1	1	2	2	1
2-B	0	0	1	1	2	2	1
2-B	0	0	1	1	2	2	1
3-A	0	0	1	1	2	2	1
3-B	0	0	1	1	2	2	1
4-A	0	0	1	1	2	2	1
4-B	0	0	1	1	2	2	1
5-A	0	0	1	1	2	2	2
5-B	0	0	1	1	2	2	2
6-A	0	0	1	1	2	2	2
6-B	0	0	1	1	2	2	2
7-A	0	0	1	1	2	2	2
7-B	0	0	1	1	2	2	2
8-A	0	0	1	1	2	2	2
8-B	0	0	1	1	2	2	2

0: input and output, 1: only input, 2: only output

Parameterising process data mapping

You can assign a position in the respective process data to each physical input bit and each physical output bit. For bi-directional channels, the assignment applies in both the input and the output direction.

If you would like to assign a new bit position to the process data bits of a new channel:

- ▶ Set the "IO Mapping" parameter of the associated channel to the required bit position.

If you want to deactivate the channel:

- ▶ Set the "IO Mapping" parameter of the associated channel to "255".

The default setting and the permitted value range of the parameter depend on the selected module profile.

IO Mapping (default settings)

Channel	16DI/DO	8DI/DO	16DI	8DI	16DO	8DO	8DI/8DO
1-A	0	0	0	0	0	0	0
1-B	1	255	1	255	1	255	1
2-B	2	1	2	1	2	1	2
2-B	3	255	3	255	3	255	3
3-A	4	2	4	2	4	2	4
3-B	5	255	5	255	5	255	5
4-A	6	3	6	3	6	3	6
4-B	7	255	7	255	7	255	7
5-A	8	4	8	4	8	4	0
5-B	9	255	9	255	9	255	1
6-A	10	5	10	5	10	5	2
6-B	11	255	11	255	11	255	3
7-A	12	6	12	6	12	6	4
7-B	13	255	13	255	13	255	5
8-A	14	7	14	7	14	7	6
8-B	15	255	15	255	15	255	7

0 to 15: bit position in the process data (input data or output data)
255: deactivated

6.8 Setting up QuickConnect

With QuickConnect, there is less than 500 ms between switching on a device and establishing the Ethernet/IP communication.

To use QuickConnect, the following requirements must be met:

- The network must have a star topology or a line topology. Ring topologies are not permitted.
- The device must have a static IP address. DHCP/BOOTP is not supported.

If you use QuickConnect, the following parameters for the Ethernet interface are fixed and cannot be changed:

- Transmission speed 100 Mbit/s.
- Full duplex connection.
- Autonegotiation deactivated.
- Auto MDI-X deactivated.

You can activate QuickConnect via the configuration assembly instance.

- Set the QuickConnect parameter to 1.

Alternatively you can activate QuickConnect during runtime via the TCP/IP interface object. The change requires the device to be restarted.

- CIP Class ID: 0xF5
- Attributes: 0x0C
- Value: 0x01



For details on QuickConnect, refer to document ENET-AT001C-ENP from Rockwell Automation. You can download the document from the Rockwell Automation website.

6.9 Configuration assembly instance

You can define the parameters with the configuration assembly instance. A detailed description of the individual parameters and their availability can be found in Section 6.10.

Structure of the configuration assembly instance

The structure and length of the configuration assembly instance depend on the module used or the module profile used.

UR67-MP-xx-16DI-12-60M (assembly ID 105)

	Parameter	Connection	Channel	Values
Word 0	General Settings, QuickConnect	-	-	see below

UR67-MP-xx-16DO-12-60M (assembly ID 105)

	Parameter	Connection	Channel	Values
Word 0	Surveillance Timeout	Connection 1	A (Pin 4)	0 to 255
Word 1	Surveillance Timeout	Connection 1	B (Pin 2)	0 to 255
Word 2	Surveillance Timeout	Connection 2	A (Pin 4)	0 to 255
...	...	...	...	...
Word 13	Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
Word 14	Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
Word 15	Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
Word 16	Fail Safe	Connection 1	A (Pin 4)	0 to 2
Word 17	Fail Safe	Connection 1	B (Pin 2)	0 to 2
Word 18	Fail Safe	Connection 2	A (Pin 4)	0 to 2
...	...	...	...	...
Word 29	Fail Safe	Connection 7	B (Pin 2)	0 to 2
Word 30	Fail Safe	Connection 8	A (Pin 4)	0 to 2
Word 31	Fail Safe	Connection 8	B (Pin 2)	0 to 2
Word 32	General Settings, QuickConnect	-	-	see below

UR67-MP-xx-8DIDO-12-60M (assembly ID 105)

	Parameter	Connection	Channel	Values
Word 0	Surveillance Timeout	Connection 5	A (Pin 4)	0 to 255
Word 1	Surveillance Timeout	Connection 5	B (Pin 2)	0 to 255
Word 2	Surveillance Timeout	Connection 6	A (Pin 4)	0 to 255
...	...	...	...	...
Word 5	Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
Word 6	Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
Word 7	Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
Word 8	Fail Safe	Connection 5	A (Pin 4)	0 to 2
Word 9	Fail Safe	Connection 5	B (Pin 2)	0 to 2
Word 10	Fail Safe	Connection 6	A (Pin 4)	0 to 2
...	...	...	...	...
Word 13	Fail Safe	Connection 7	B (Pin 2)	0 to 2
Word 14	Fail Safe	Connection 8	A (Pin 4)	0 to 2
Word 15	Fail Safe	Connection 8	B (Pin 2)	0 to 2
Word 16	General Settings, QuickConnect	-	-	see below

**UR67-MP-xx-16DIO-12-60M with module profile 16DI/DO
(assembly ID 110)**

Parameter	Connection	Channel	Values
Word 0 Surveillance Timeout	Connection 1	A (Pin 4)	0 to 255
Word 1 Surveillance Timeout	Connection 1	B (Pin 2)	0 to 255
Word 2 Surveillance Timeout	Connection 2	A (Pin 4)	0 to 255
...	...	...	...
Word 13 Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
Word 14 Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
Word 15 Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
Word 16 Fail Safe	Connection 1	A (Pin 4)	0 to 2
Word 17 Fail Safe	Connection 1	B (Pin 2)	0 to 2
Word 18 Fail Safe	Connection 2	A (Pin 4)	0 to 2
...	...	...	...
Word 29 Fail Safe	Connection 7	B (Pin 2)	0 to 2
Word 30 Fail Safe	Connection 8	A (Pin 4)	0 to 2
Word 31 Fail Safe	Connection 8	B (Pin 2)	0 to 2
Word 32 General Settings, QuickConnect	-	-	see below
Word 33 Process Data Direction	Connection 1	A (Pin 4)	0 to 2
Word 34 Process Data Direction	Connection 1	B (Pin 2)	0 to 2
Word 35 Process Data Direction	Connection 2	A (Pin 4)	0 to 2
...	...	...	...
Word 46 Process Data Direction	Connection 7	B (Pin 2)	0 to 2
Word 47 Process Data Direction	Connection 8	A (Pin 4)	0 to 2
Word 48 Process Data Direction	Connection 8	B (Pin 2)	0 to 2
Word 49 IO Mapping	Connection 1	A (Pin 4)	0 to 15, 255
Word 50 IO Mapping	Connection 1	B (Pin 2)	0 to 15, 255
Word 51 IO Mapping	Connection 2	A (Pin 4)	0 to 15, 255
...	...	...	...
Word 62 IO Mapping	Connection 7	B (Pin 2)	0 to 15, 255
Word 63 IO Mapping	Connection 8	A (Pin 4)	0 to 15, 255
Word 64 IO Mapping	Connection 8	B (Pin 2)	0 to 15, 255

**UR67-MP-xx-16DIO-12-60M with module profile 8DI/DO
(assembly ID 111)**

Parameter	Connection	Channel	Values
Word 0 Surveillance Timeout	Connection 1	A (Pin 4)	0 to 255
Word 1 Surveillance Timeout	Connection 1	B (Pin 2)	0 to 255
Word 2 Surveillance Timeout	Connection 2	A (Pin 4)	0 to 255
...	...	...	...
Word 13 Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
Word 14 Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
Word 15 Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
Word 16 Fail Safe	Connection 1	A (Pin 4)	0 to 2
Word 17 Fail Safe	Connection 1	B (Pin 2)	0 to 2
Word 18 Fail Safe	Connection 2	A (Pin 4)	0 to 2
...	...	...	...
Word 29 Fail Safe	Connection 7	B (Pin 2)	0 to 2
Word 30 Fail Safe	Connection 8	A (Pin 4)	0 to 2
Word 31 Fail Safe	Connection 8	B (Pin 2)	0 to 2
Word 32 General Settings, QuickConnect	-	-	see below
Word 33 Process Data Direction	Connection 1	A (Pin 4)	0 to 2
Word 34 Process Data Direction	Connection 1	B (Pin 2)	0 to 2
Word 35 Process Data Direction	Connection 2	A (Pin 4)	0 to 2
...	...	...	...
Word 46 Process Data Direction	Connection 7	B (Pin 2)	0 to 2
Word 47 Process Data Direction	Connection 8	A (Pin 4)	0 to 2
Word 48 Process Data Direction	Connection 8	B (Pin 2)	0 to 2
Word 49 IO Mapping	Connection 1	A (Pin 4)	0 to 7, 255
Word 50 IO Mapping	Connection 1	B (Pin 2)	0 to 7, 255
Word 51 IO Mapping	Connection 2	A (Pin 4)	0 to 7, 255
...	...	...	...
Word 62 IO Mapping	Connection 7	B (Pin 2)	0 to 7, 255
Word 63 IO Mapping	Connection 8	A (Pin 4)	0 to 7, 255
Word 64 IO Mapping	Connection 8	B (Pin 2)	0 to 7, 255

UR67-MP-xx-16DIO-12-60M with module profile 16DI (assembly ID 112)

	Parameter	Connection	Channel	Values
Word 0	General Settings, QuickConnect	-	-	see below
Word 1	Process Data Direction	Connection 1	A (Pin 4)	1
Word 2	Process Data Direction	Connection 1	B (Pin 2)	1
Word 3	Process Data Direction	Connection 2	A (Pin 4)	1
...	...	...	...	...
Word 14	Process Data Direction	Connection 7	B (Pin 2)	1
Word 15	Process Data Direction	Connection 8	A (Pin 4)	1
Word 16	Process Data Direction	Connection 8	B (Pin 2)	1
Word 17	IO Mapping	Connection 1	A (Pin 4)	0 to 15, 255
Word 18	IO Mapping	Connection 1	B (Pin 2)	0 to 15, 255
Word 19	IO Mapping	Connection 2	A (Pin 4)	0 to 15, 255
...	...	...	...	...
Word 30	IO Mapping	Connection 7	B (Pin 2)	0 to 15, 255
Word 31	IO Mapping	Connection 8	A (Pin 4)	0 to 15, 255
Word 32	IO Mapping	Connection 8	B (Pin 2)	0 to 15, 255

UR67-MP-xx-16DIO-12-60M with module profile 8DI (assembly ID 113)

	Parameter	Connection	Channel	Values
Word 0	General Settings, QuickConnect	-	-	see below
Word 1	Process Data Direction	Connection 1	A (Pin 4)	1
Word 2	Process Data Direction	Connection 1	B (Pin 2)	1
Word 3	Process Data Direction	Connection 2	A (Pin 4)	1
...	...	...	...	...
Word 14	Process Data Direction	Connection 7	B (Pin 2)	1
Word 15	Process Data Direction	Connection 8	A (Pin 4)	1
Word 16	Process Data Direction	Connection 8	B (Pin 2)	1
Word 17	IO Mapping	Connection 1	A (Pin 4)	0 to 7, 255
Word 18	IO Mapping	Connection 1	B (Pin 2)	0 to 7, 255
Word 19	IO Mapping	Connection 2	A (Pin 4)	0 to 7, 255
...	...	...	...	...
Word 30	IO Mapping	Connection 7	B (Pin 2)	0 to 7, 255
Word 31	IO Mapping	Connection 8	A (Pin 4)	0 to 7, 255
Word 32	IO Mapping	Connection 8	B (Pin 2)	0 to 7, 255

UR67-MP-xx-16DIO-12-60M with module profile 16DO (assembly ID 114)

	Parameter	Connection	Channel	Values
Word 0	Surveillance Timeout	Connection 1	A (Pin 4)	0 to 255
Word 1	Surveillance Timeout	Connection 1	B (Pin 2)	0 to 255
Word 2	Surveillance Timeout	Connection 2	A (Pin 4)	0 to 255
...	...	...	...	...
Word 13	Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
Word 14	Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
Word 15	Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
Word 16	Fail Safe	Connection 1	A (Pin 4)	0 to 2
Word 17	Fail Safe	Connection 1	B (Pin 2)	0 to 2
Word 18	Fail Safe	Connection 2	A (Pin 4)	0 to 2
...	...	...	...	...
Word 29	Fail Safe	Connection 7	B (Pin 2)	0 to 2
Word 30	Fail Safe	Connection 8	A (Pin 4)	0 to 2
Word 31	Fail Safe	Connection 8	B (Pin 2)	0 to 2
Word 32	General Settings, QuickConnect	-	-	see below
Word 33	Process Data Direction	Connection 1	A (Pin 4)	2
Word 34	Process Data Direction	Connection 1	B (Pin 2)	2
Word 35	Process Data Direction	Connection 2	A (Pin 4)	2
...	...	...	...	...
Word 46	Process Data Direction	Connection 7	B (Pin 2)	2
Word 47	Process Data Direction	Connection 8	A (Pin 4)	2
Word 48	Process Data Direction	Connection 8	B (Pin 2)	2
Word 49	IO Mapping	Connection 1	A (Pin 4)	0 to 15, 255
Word 50	IO Mapping	Connection 1	B (Pin 2)	0 to 15, 255
Word 51	IO Mapping	Connection 2	A (Pin 4)	0 to 15, 255
...	...	...	...	...
Word 62	IO Mapping	Connection 7	B (Pin 2)	0 to 15, 255
Word 63	IO Mapping	Connection 8	A (Pin 4)	0 to 15, 255
Word 64	IO Mapping	Connection 8	B (Pin 2)	0 to 15, 255

UR67-MP-xx-16DIO-12-60M with module profile 8DO (assembly ID 115)

	Parameter	Connection	Channel	Values
Word 0	Surveillance Timeout	Connection 1	A (Pin 4)	0 to 255
Word 1	Surveillance Timeout	Connection 1	B (Pin 2)	0 to 255
Word 2	Surveillance Timeout	Connection 2	A (Pin 4)	0 to 255
...	...	...	...	...
Word 13	Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
Word 14	Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
Word 15	Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
Word 16	Fail Safe	Connection 1	A (Pin 4)	0 to 2
Word 17	Fail Safe	Connection 1	B (Pin 2)	0 to 2
Word 18	Fail Safe	Connection 2	A (Pin 4)	0 to 2
...	...	...	...	...
Word 29	Fail Safe	Connection 7	B (Pin 2)	0 to 2
Word 30	Fail Safe	Connection 8	A (Pin 4)	0 to 2
Word 31	Fail Safe	Connection 8	B (Pin 2)	0 to 2
Word 32	General Settings, QuickConnect	-	-	see below
Word 33	Process Data Direction	Connection 1	A (Pin 4)	2
Word 34	Process Data Direction	Connection 1	B (Pin 2)	2
Word 35	Process Data Direction	Connection 2	A (Pin 4)	2
...	...	...	...	...
Word 46	Process Data Direction	Connection 7	B (Pin 2)	2
Word 47	Process Data Direction	Connection 8	A (Pin 4)	2
Word 48	Process Data Direction	Connection 8	B (Pin 2)	2
Word 49	IO Mapping	Connection 1	A (Pin 4)	0 to 7, 255
Word 50	IO Mapping	Connection 1	B (Pin 2)	0 to 7, 255
Word 51	IO Mapping	Connection 2	A (Pin 4)	0 to 7, 255
...	...	...	...	...
Word 62	IO Mapping	Connection 7	B (Pin 2)	0 to 7, 255
Word 63	IO Mapping	Connection 8	A (Pin 4)	0 to 7, 255
Word 64	IO Mapping	Connection 8	B (Pin 2)	0 to 7, 255

UR67-MP-xx-16DIO-12-60M with module profile 8DI/8DO (assembly ID 116)

	Parameter	Connection	Channel	Values
Word 0	Surveillance Timeout	Connection 1	A (Pin 4)	0 to 255
Word 1	Surveillance Timeout	Connection 1	B (Pin 2)	0 to 255
Word 2	Surveillance Timeout	Connection 2	A (Pin 4)	0 to 255
...	...	...	...	...
Word 13	Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
Word 14	Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
Word 15	Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
Word 16	Fail Safe	Connection 1	A (Pin 4)	0 to 2
Word 17	Fail Safe	Connection 1	B (Pin 2)	0 to 2
Word 18	Fail Safe	Connection 2	A (Pin 4)	0 to 2
...	...	...	...	...
Word 29	Fail Safe	Connection 7	B (Pin 2)	0 to 2
Word 30	Fail Safe	Connection 8	A (Pin 4)	0 to 2
Word 31	Fail Safe	Connection 8	B (Pin 2)	0 to 2
Word 32	General Settings, QuickConnect	-	-	see below
Word 33	Process Data Direction	Connection 1	A (Pin 4)	1 to 2
Word 34	Process Data Direction	Connection 1	B (Pin 2)	1 to 2
Word 35	Process Data Direction	Connection 2	A (Pin 4)	1 to 2
...	...	...	...	...
Word 46	Process Data Direction	Connection 7	B (Pin 2)	1 to 2
Word 47	Process Data Direction	Connection 8	A (Pin 4)	1 to 2
Word 48	Process Data Direction	Connection 8	B (Pin 2)	1 to 2
Word 49	IO Mapping	Connection 1	A (Pin 4)	0 to 7, 255
Word 50	IO Mapping	Connection 1	B (Pin 2)	0 to 7, 255
Word 51	IO Mapping	Connection 2	A (Pin 4)	0 to 7, 255
...	...	...	...	...
Word 62	IO Mapping	Connection 7	B (Pin 2)	0 to 7, 255
Word 63	IO Mapping	Connection 8	A (Pin 4)	0 to 7, 255
Word 64	IO Mapping	Connection 8	B (Pin 2)	0 to 7, 255

General Settings parameter and QuickConnect parameter

General Settings, QuickConnect

MSB									LSB							
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	-	DOR	-	-	RDO	RUL	WIL	FML	QuickConnect (values: 0, 1)							

Abbreviation	Meaning
DOR	Digital Out Restart Mode
RDO	Report DO Fault without UL
RUL	Report UL Supply Voltage Fault
WIL	Web Interface Locked
FML	Force Mode Locked

6.10 Adjustable parameters with Ethernet/IP

“Digital-Out Restart Mode” parameter

This parameter defines the behaviour of the outputs following a channel error or an actuator supply error.

False (0)

Channel diagnostics is reset after an output reset.

True (1)

The output automatically restarts after a failure/error.

“Report DO Fault without UL” parameter

Diagnostics can be activated or deactivated via this parameter for controlling an output and defective actuator supply.

False (0)

The diagnostics are deactivated.

True (1)

The diagnostics are activated.

“Report UL Supply Voltage Fault” parameter

Diagnostics can be activated via this parameter as a result of an actuator supply fault.

False (0)

The diagnostics are deactivated.

True (1)

The diagnostics are activated.

“Web Interface Locked” parameter

This parameter can be used to lock the web server application.

False (0)

The web server application is not locked.

True (1)

The web server application is locked.

“Force Mode Locked” parameter

This parameter can be used to lock the force mode on the web server application.

False (0)

The force mode of the web server application is not locked.

True (1)

The force mode of the web server application is locked.

“Quick Connect” parameter

This parameter activates QuickConnect.

False (0)

QuickConnect is deactivated.

True (1)

QuickConnect is activated.

“Surveillance Timeout” parameter

This parameter is used to set the delay time for output monitoring. The delay time starts after the state of the output has been changed. Once this period of time has expired, the output is monitored and error states are reported as diagnoses. If the output is permanently switched on or off, the monitoring time is 100 ms.

0 to 255 (default: 80)

The monitoring of the output begins with 0 to 255 ms following the change of a channel state.

“Fail Safe” parameter

This parameter is used to set the behaviour of the associated output in the event of disrupted fieldbus communication.

Set Low (0)

The output is inactive in the event of disrupted fieldbus communication.

Set High (1)

The output is active in the event of disrupted fieldbus communication.

Hold Last (2)

The output is held at the last value in the event of disrupted fieldbus communication.

“Process Data Direction” parameter

This parameter is used to set the data direction of the channel.

Input/Output (0)

The channel functions as a bi-directional input and output.

Input (1)

The channel functions as an input.

Output (2)

The channel functions as an output.

“IO Mapping” parameter

This parameter is used to set the position of the physical process data bits of the channel in the process data telegrams. For bi-directional channels, the assignment applies in both the input and the output direction.

0 to 15

The physical process data bit of the channel is in position 0 to 15 of the process data.

255

The channel is deactivated.

7 Commissioning with PROFINET

	WARNING!
	Manipulation of the controller! During commissioning, the system may be manipulated to such an extent that can result in risks to life and material damage. ▶ Make sure that system components cannot start up unintentionally!
	CAUTION
	Hot surface! The device can become very hot when in operation. ▶ Allow the device to cool down before touching it!

The procedures applied during commissioning depend on which fieldbus protocol has been chosen and which controller is being used.

The description in this section uses commissioning with the Siemens SIMATIC Manager Step7 as an example. (V5.5 SP2 and higher).

7.1 Requirements

Before you start the commissioning work, the following requirements must be fulfilled:

- The controller must be in operation.
- The UR67 modules must be completely installed and wired up.
- The controller and all UR67 modules must be connected via Ethernet, and a PC/laptop must be likewise connected using the controller software.
- The module must be set to PROFINET using the rotary switch (see Section 5.8).
- The power supply must be turned on.

7.2 Installing a GSDML file

The naming convention for GSDML files always follows this pattern: GSDML_V2.33-WI-UR67-yyyymmdd.xml. The date in the file name (dd.mm.yyyy) indicates the version of the GSDML file and helps to determine whether you are already using the latest version.

- ▶ Download the files describing the device from the [Weidmüller website](#).



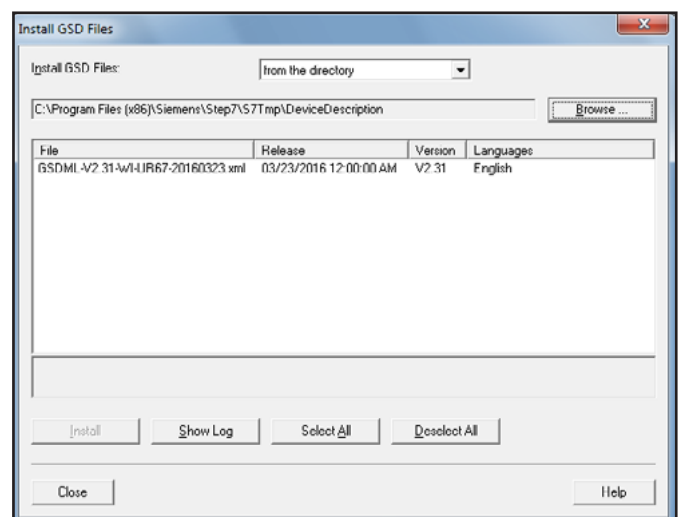
- ▶ Store the supplied bitmap files for visualising the modules in the same folder as the GSDML file.



- ▶ Projects must not be open in the hardware configuration tool while the GSDML file is being installed!
- ▶ Close any open projects before installing the GSDML files!

- ▶ Start SIMATIC Manager.
- ▶ In the hardware configuration tool, navigate to **Options/Install GSD File**.
- ▶ Select the directory in which you have stored the file describing the device.

The available files are displayed.



Selecting the GSDML file

- ▶ Select the file that you would like to install.
- ▶ Click on **Install**.
- ▶ When the installation is complete, click on **Close**.
- ▶ Update the device catalogue via **Options/Update Catalog**.

The UR67 MP modules associated with the current file describing the device are now listed in the device catalogue.

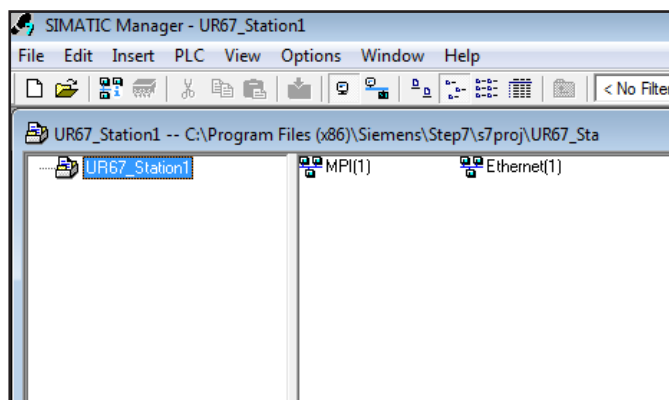
7.3 Connecting a module to the PROFINET network

- ▶ To set up a new project, click on **File/New** in SIMATIC Manager.

The “New Project” window opens.

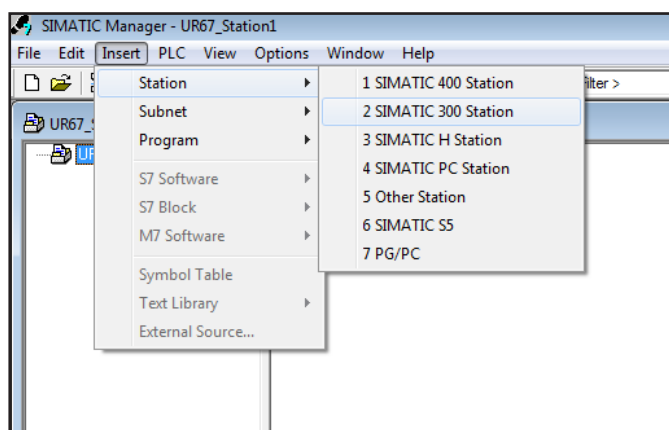
- ▶ Enter a name for the new project (e.g. UR67_Station1) and click on **OK**.

The new project is displayed in SIMATIC Manager.



Creating a new project

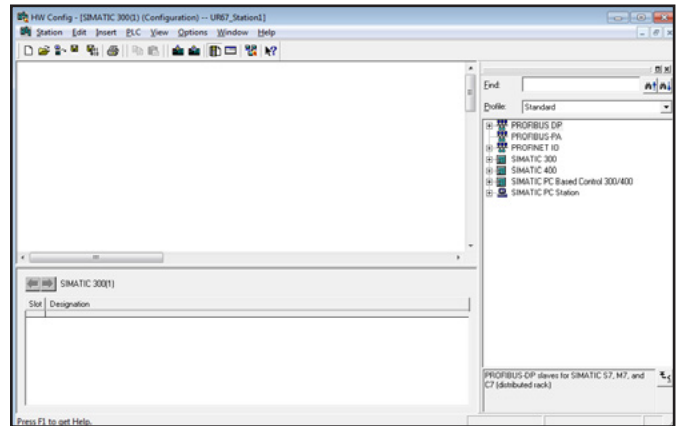
- ▶ Select the project in SIMATIC Manager.
- ▶ Select the controller type via **Insert/Station** (e.g. SIMATIC 300).



Inserting a station

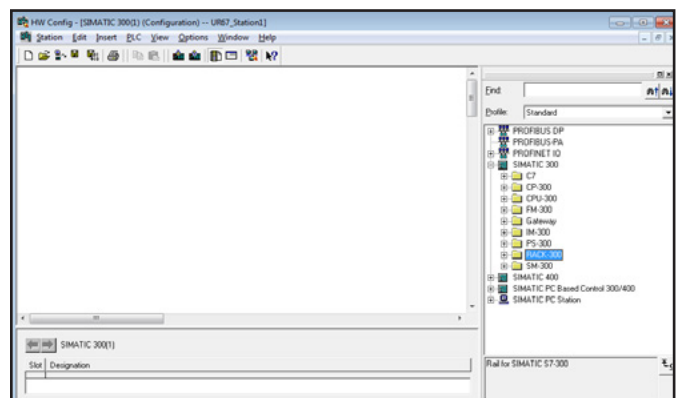
- ▶ Double-click on the project name so that the station (SIMATIC 300) is displayed below in the directory tree.
- ▶ Click on the station (SIMATIC 300).
- ▶ Double-click **Hardware** on the right-hand side of the window.

The hardware configuration tool (**HW Config**) opens.



Hardware configurator

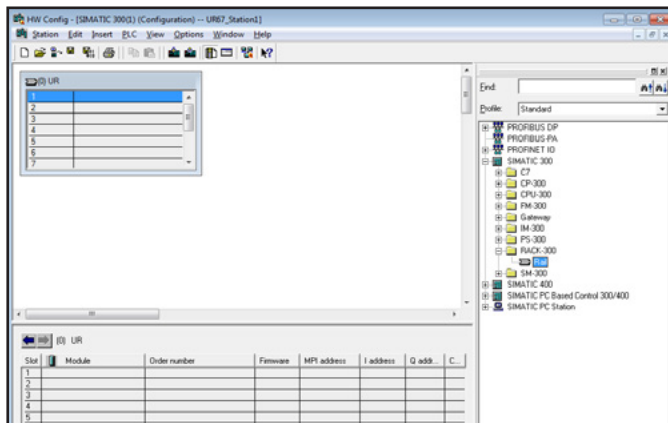
- ▶ The device catalogue is displayed on the right-hand side of this window. If this does not occur, open the catalogue via **View/Catalog**.
- ▶ In the device catalogue, select the mounting rail in use (e.g. SIMATIC 300/RACK-300).



Selecting a mounting rail

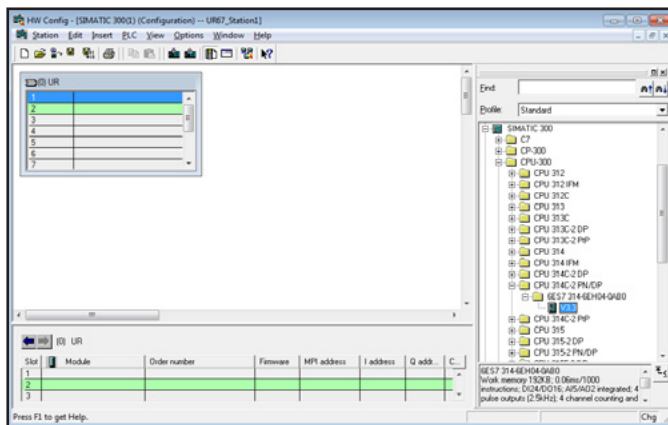
- ▶ Double-click on the mounting rail or drag it to the left-hand side of the window using the mouse.

The mounting rail (UR) is displayed with the open positions.



Mounting rail with open positions

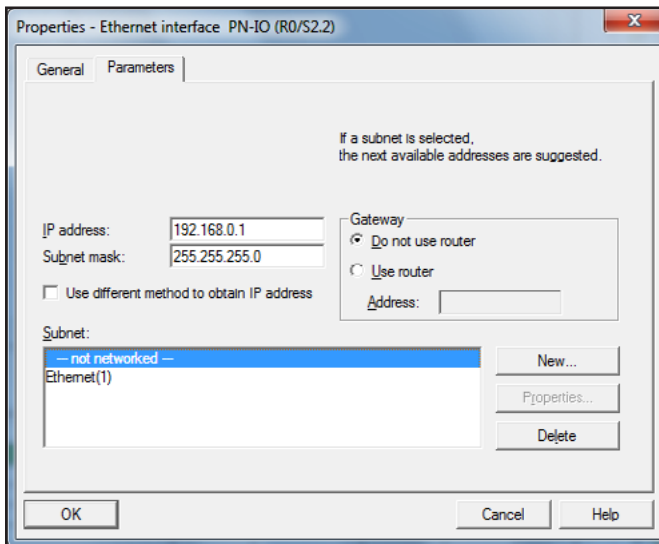
- ▶ Click on the second line of the **UR** table.
- ▶ From the catalogue, select the controller in use and its version (inscription on the controller, e.g. 314-GEH04-...).



Selecting the controller version

- ▶ Double-click on the respective version, or use the mouse to drag it to the second position in the table on the left-hand side of the window.

The **Properties - Ethernet interface** window opens.

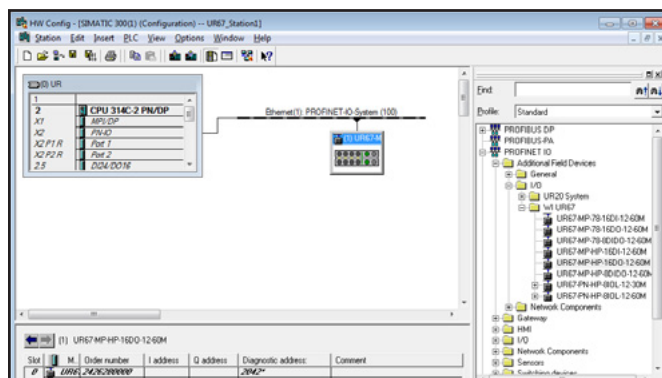


Ethernet interface properties

- ▶ Enter the designated IP address and the subnet mask for the controller.
 - ▶ Click on **New**.
- The **Properties – New subnet Industrial Ethernet** window opens.

- ▶ Enter a name for the subnet and confirm by clicking on **OK**.
- ▶ Select the new subnet in the **Properties – Ethernet interface** window and confirm by clicking on **OK**.
- ▶ Click on the network line in the configuration window.
- ▶ In the device catalogue, select the module under **PROFINET IO/Other field devices/ I/O /WI UR67**.
- ▶ Double-click on the module or drag it to the exact subnet line.

The module is inserted in the subnet.



Connecting the UR67-MP module

7.4 Changing the module profile for 16DIO modules

If you are using a UR67-MP-xx-16DIO-12-60M module, you can select different module profiles. A module profile determines the input and output functionality of the module.

- ▶ Delete the submodule in plug-in station 1.
- ▶ Insert the required module profile from the hardware catalogue in plug-in station 1.

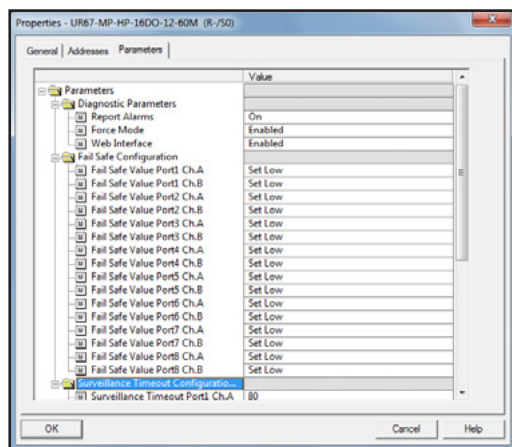
7.5 Parameterising the module with PROFINET

- In the hardware configuration tool, double-click on plug-in station 0.

The **Properties...** window opens.

- Select the **Parameters** tab.

A list of all module parameters is displayed.



Parameterising the module

- ▶ Click on the parameter that you would like to change and amend the setting as required.
- ▶ Use this method to edit all of the parameters that you would like to change.
- ▶ Save the settings by clicking on **OK**.

A detailed description of the individual parameters and their availability can be found in Section 7.15.



All settings only take effect once they have been loaded into the component/controller.

7.6 Parameterising process data mapping with 16DIO modules

You can assign a position in the respective process data to each physical input bit and each physical output bit. For bi-directional channels, the assignment applies in both the input and the output direction.

If you would like to assign a new bit position to the process data bits of a new channel:

- Set the “IO Mapping Configuration” parameter of the associated channel to the required bit position.

If you want to deactivate the channel:

- Set the "IO Mapping Configuration" parameter of the associated channel to "Not used".

The default setting of the parameter depends on the selected module profile.

IO Mapping Configuration (default settings)

Channel	16DI/DO	8DI/DO	16DI	8DI	16DO	8DO	8DI/8DO
1-A	IQ 0.0	IQ 0.0	I 0.0	I 0.0	Q 0.0	Q 0.0	I 0.0
1-B	IQ 0.1	-	I 0.1	-	Q 0.1	-	I 0.1
2-B	IQ 0.2	IQ 0.1	I 0.2	I 0.1	Q 0.2	Q 0.1	I 0.2
2-B	IQ 0.3	-	I 0.3	-	Q 0.3	-	I 0.3
3-A	IQ 0.4	IQ 0.2	I 0.4	I 0.2	Q 0.4	Q 0.2	I 0.4
3-B	IQ 0.5	-	I 0.5	-	Q 0.5	-	I 0.5
4-A	IQ 0.6	IQ 0.3	I 0.6	I 0.3	Q 0.6	Q 0.3	I 0.6
4-B	IQ 0.7	-	I 0.7	-	Q 0.7	-	I 0.7
5-A	IQ 1.0	IQ 0.4	I 1.0	I 0.4	Q 1.0	Q 0.5	Q 0.0
5-B	IQ 1.1	-	I 1.1	-	Q 1.1	-	Q 0.1
6-A	IQ 1.2	IQ 0.5	I 1.2	I 0.5	Q 1.2	Q 0.4	Q 0.2
6-B	IQ 1.3	-	I 1.3	-	Q 1.3	-	Q 0.3
7-A	IQ 1.4	IQ 0.6	I 1.4	I 0.6	Q 1.4	Q 0.6	Q 0.4
7-B	IQ 1.5	-	I 1.5	-	Q 1.5	-	Q 0.5
8-A	IQ 1.6	IQ 0.7	I 1.6	I 0.7	Q 1.6	Q 0.7	Q 0.6
8-B	IQ 1.7	-	I 1.7	-	Q 1.7	-	Q 0.7

I X.Y: byte X, bit Y of input data

Q X.Y: byte X, bit Y of output data

IQ X.Y: byte X, bit Y of input data and output data

- : deactivated

7.7 Assigning an IP address to a module

You can assign an IP address to a module in order to access the web server, for example.

- In the device manager select **PLC/Ethernet/Edit Ethernet node**.

Editing Ethernet nodes

- Enter the MAC address of the module or click on **Browse** to look for all connected nodes. The MAC address is printed on the module.

- Select the required module and click on **OK**.

The MAC address of the module will appear in the **MAC address** field.

- Compare the MAC address with the MAC address on the module.

- Select **Use IP parameters**.
- Enter the required **IP address** and **subnet mask**.
- Click on **Assign IP Configuration**.

Entering an IP address and subnet mask

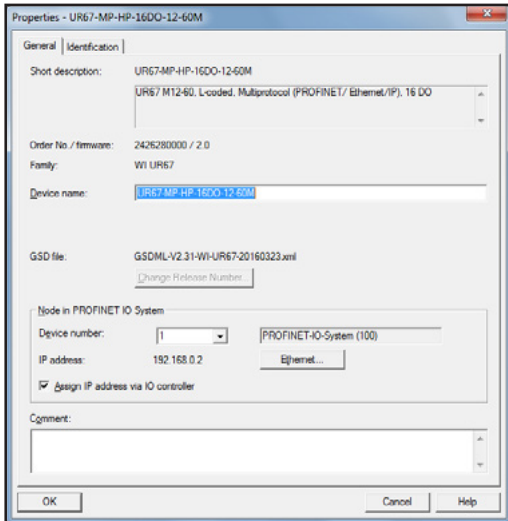


These settings are sent directly to the devices.

7.8 Viewing and changing device names

PROFINET devices are addressed in PROFINET via a unique device name. These names can be freely assigned; however, they can only be used once in the network.

- Double-click on the module. The **Properties...** window opens.



Module properties



The device name must match the name that has been assigned to the module.

- ▶ Change the device names as required.
- ▶ Check whether the displayed IP address is correct and whether the controller and module are in the same Ethernet subnet.
- ▶ Confirm the settings by clicking **OK**.

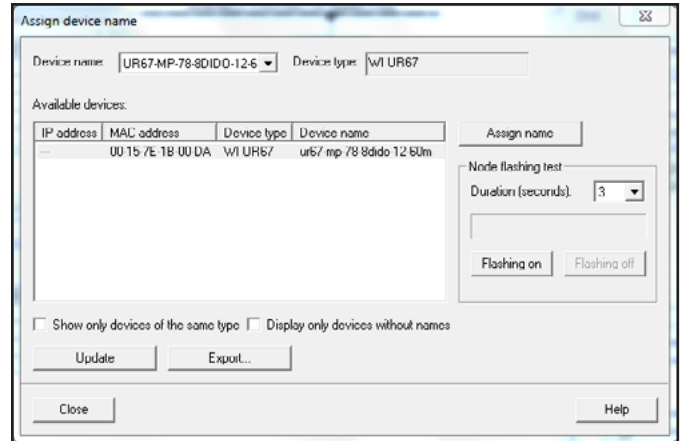


All settings only take effect once they have been loaded into the component/controller.

7.9 Assigning a device name to a UR67-MP module

To assign a device name to a module, the PC must be connected to the module via a PROFINET connection.

- ▶ Select the module.
- ▶ Open the dialogue box **PLC/Ethernet/Assign device name**.



Assigning a device name

- ▶ Select the UR67-MP module required.
- ▶ Click on **Assign Name**.
- ▶ Close the dialogue box.

7.10 Setting up fast start-up

With fast start-up, there is less than 500 ms between switching on a device and the first exchange of process data.

The device must be connected to the PROFINET network to set up fast start-up.

Activate fast start-up for the module:

- ▶ In the hardware configuration tool, double-click on plug-in station X1.
- ▶ Select the **General** tab.
- ▶ Activate **prioritised start-up**.
- ▶ Confirm the settings by clicking on **OK**.

Parameterise the fieldbus connections:

- ▶ In the hardware configuration tool, double-click on plug-in station X1P1.
- ▶ Select the **Options** tab.
- ▶ Under **Transmission medium / duplex**, select **TP 100 Mbps full duplex**.
- ▶ Activate **Disable autonegation**.
- ▶ Repeat the procedure for plug-in station X1P2.



For devices that are connected to the module via the fieldbus connections, autonegation must also be disabled and 100 Mbps full duplex must be activated.

7.11 Configuring the topology

The PROFINET network topology must be configured. Plan the connection of the PROFINET port for the individual devices.

- ▶ In the hardware configuration tool, double click on the PROFINET port of a device whose connection you want to configure.
- ▶ Switch to the **Topology** tab.
- ▶ In the **Partner Port** menu, select the port for the neighbouring device and confirm by clicking on **OK**.
- ▶ Repeat this process until all of the connections have been configured.

Alternatively, you can configure the topology using the SIMATIC Topology Editor.

7.12 Setting up device replacement without interchangeable medium/PG

The UR67-MP modules support the "Device replacement without interchangeable medium/PG" function. Modules in a PROFINET network can be exchanged for identical modules without having to reassign the device name using a programming device. The IO controller assigns the exchanged module the device name based on the configured topology and the real neighbour relationships determined by the IO devices.

The "Device replacement without interchangeable medium/PG" function can be used if the following requirements are met:

- The IO controller must support "Device replacement without interchangeable medium/PG".
- The neighbouring PROFINET devices of the module to be exchanged must support the "Device replacement without interchangeable medium/PG" function.
- The function must be activated for the IO controller.
- The PROFINET network topology must be configured.
- The substitute device must be set to the factory settings.



If the user intends to use the "Device replacement without interchangeable medium/PG" function, the substitute device must be reset to its factory settings before being swapped in.

You can configure "Device replacement without interchangeable medium/PG" in STEP 7.

- ▶ In the hardware configuration tool, double-click on the PROFINET IO port (**PN-IO**) for the controller in order to open the **Properties – PN-IO...** window.

- ▶ Activate Support device exchange without interchangeable medium and close the window by clicking on **OK**.

7.13 Setting up MRP

With the UR67-MP modules, redundant PROFINET communication can be achieved with a ring topology and no need for additional switches. In this instance, an MRP redundancy manager closes the ring, detects individual outages and sends data packages via the redundant path in the event of an error.

To use MRP, the following requirements must be met:

- All devices must support MRP.
- The devices must only be connected via the ring ports – a meshed topology is not permitted.
- The ring must contain a maximum of 50 devices.
- All of the devices must have the same redundancy domains.
- A prioritised start-up (PSU) is not permitted.
- The automatic network setting must be used on all devices.

Configure a device as a redundancy manager:

- ▶ In the hardware configuration tool, double click on the PROFINET port of a device that you want to configure as a redundancy manager.
- ▶ Switch to the **Media redundancy** tab.
- ▶ In the **Domain** menu, select the required redundancy domains.
- ▶ In the **Role** menu, select the **Manager (Auto)** option.
- ▶ In the **Ring port 1** and **Ring port 2** menus, select the ring ports.
- ▶ Switch to the **IO cycle** tab.
- ▶ Set the update time.
- ▶ Set the response monitoring time. The response monitoring time must be longer than the reconfiguration time (typically 200 ms).
- ▶ Confirm the settings by clicking on **OK**.

Configure all other devices as redundancy clients:

- ▶ In the hardware configuration tool, double click on the PROFINET port of a device that you want to configure as a redundancy client.
- ▶ Switch to the **Media redundancy** tab.
- ▶ In the **Domain** menu, select the redundancy domain for the redundancy manager.
- ▶ In the **Role** menu, select the **Client** option.
- ▶ Switch to the **IO cycle** tab.
- ▶ Set the update time.

- ▶ Set the response monitoring time. The response monitoring time must be longer than the reconfiguration time (typically 200 ms).
- ▶ Confirm the settings by clicking on **OK**.
- ▶ Repeat the procedure for all devices in the ring.

7.14 Simple Network Management Protocol (SNMP)

The UR67 MP modules support the objects listed in the PROFINET specification in accordance with the SNMP v1 protocol standard. This includes objects from RFC 1213 MIB-II (system group and interfaces group) and from LLDP-MIB.

The community strings are:

- Read Community: public
- Write Community: private

7.15 Adjustable parameters with PROFINET

“Report Alarms” parameter

Diagnostics can be activated via this parameter.

On

The diagnostics are activated.

Off

The diagnostics are deactivated.

“Report Alarm UL” parameter

Diagnostics can be activated via this parameter as a result of an actuator supply fault.

Enabled

The diagnostics are activated.

Disabled

The diagnostics are deactivated.

Parameter “Report UL Supply Voltage Fault”

Diagnostics can be activated or deactivated via this parameter for controlling an output and defective actuator supply.

On

The diagnostics are activated.

Off

The diagnostics are deactivated.

“Force mode” parameter

This parameter can be used to lock the force mode on the web server application.

Enabled

The force mode of the web server application is not locked.

Disabled

The force mode of the web server application is locked.

“Web interface” parameter

This parameter can be used to lock the web server application.

Enabled

The web server application is not locked.

Disabled

The web server application is locked.

“Digital-Out Restart Mode” parameter

This parameter defines the behaviour of the outputs following a channel error or an actuator supply error.

Automatic Restart after Failure

The output automatically restarts after a failure/error.

Restart after Output Reset

Channel diagnostics is reset after an output reset.

“Fail Safe” parameter

This parameter is used to set the behaviour of the associated output in the event of disrupted fieldbus communication.

Set Low

The output is inactive in the event of disrupted fieldbus communication.

Set High

The output is active in the event of disrupted fieldbus communication.

Hold Last

The output is held at the last value in the event of disrupted fieldbus communication.

“Surveillance Timeout Configuration” parameter

This parameter is used to set the delay time for output monitoring. The delay time starts after the state of the output has been changed. Once this period of time has expired, the output is monitored and error states are reported as diagnoses. If the output is permanently switched on or off, the monitoring time is 100 ms.

0 to 255 (default: 80)

The monitoring of the output begins with 0 to 255 ms following the change of a channel state.

“IO Mapping Configuration” parameter

This parameter is used to set the position of the physical process data bits of the channel in the process data.

IN Byte 0 to 1 / Bit 0 to 7

The physical input bit of the channel is in Byte 0 to 1 Bit 0 to 7 of the associated process input data.

OUT Byte 0 to 1 / Bit 0 to 7

The physical output bit of the channel is in Byte 0 to 1 Bit 0 to 7 of the process output data.

IN/OUT Byte 0 to 1 / Bit 0 to 7

The physical process data bit of the channel is in Byte 0 to 1 Bit 0 to 7 of the process data.

Not used

The channel is deactivated.

8 Commissioning with EtherCAT

	WARNING!
	Manipulation of the controller! During commissioning, the system may be manipulated to such an extent that can result in risks to life and material damage. ▶ Make sure that system components cannot start up unintentionally!

	CAUTION
	Hot surface! The device can become very hot when in operation. ▶ Allow the device to cool down before touching it!

The procedures applied during commissioning depend on which fieldbus protocol has been chosen and which controller is being used.

The description in this section uses the commissioning of TwinCAT 3 from Beckhoff Automation as an example.

8.1 Requirements

Before you start the commissioning work, the following requirements must be fulfilled.

- The controller must be in operation.
- The UR67 modules must be completely installed and wired up.
- The controller and UR67 module must be connected via Ethernet, and a PC/laptop must also be connected.
- The module must be set to EtherCAT using the rotary switch (see Section 5.8).
- The power supply must be turned on.

8.2 Installing an ESI file

- ▶ Download and unzip the archive file from the [Weidmüller website](#).
- ▶ Copy the ESI file into the TwinCAT installation folder (e.g. C:\TwinCAT\3.1\Config\Io\EtherCAT)
- ▶ Restart TwinCAT.

The UR67-MP modules will now be available in the hardware catalogue.

8.3 Connecting a module to the EtherCAT network

- ▶ Open TwinCAT 3.
- ▶ Create a new project.
- ▶ Switch to **Solution Explorer**.
- ▶ Under **I/O**, right-click on **Devices**.
- ▶ Select **Scan...**

An EtherCAT master will be added. You may need to choose from several devices.

- ▶ Right-click on the EtherCAT master.
- ▶ Select **Scan...**

The UR67 MP module will be added. You may need to choose from several devices.

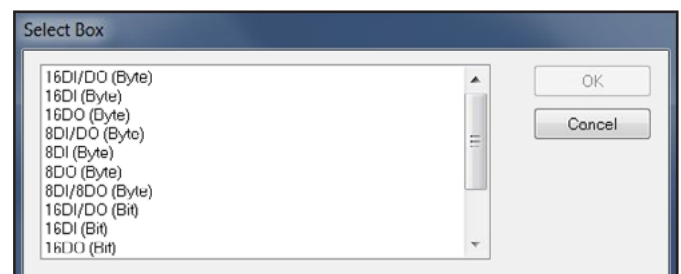


The EtherCAT station alias of the module is set to 0 in the factory settings. For TwinCAT, it is not used by default.

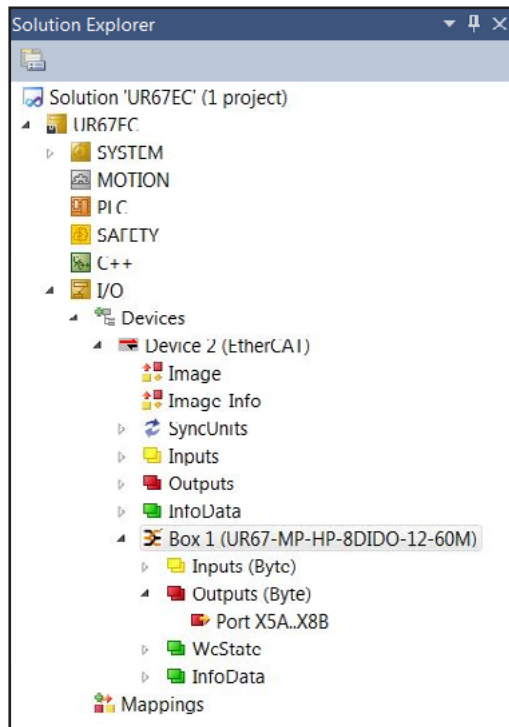
If you are using the configuration software of a different manufacturer, you may need to assign a separate EtherCAT station alias to each module before commissioning. The station alias will be permanently stored in the module until the next factory reset. Please observe the instructions of the controller manufacturer.

If you add a UR67-MP-xx-16DIO-12-60M module:

- ▶ Select the required module profile in the Select Box dialogue box.



Select module profile



Adding a module in Solution Explorer

8.4 Setting an IP address for EoE protocols

To use the web server function, an IP address must be set for the module.

- Switch to **EtherCAT**.
- Click on **Advanced Settings**.

The Advanced Settings dialogue box will open.

- Click on **Mailbox/EoE**.
- Select **Virtual Ethernet Port**.
- Select **IP Port**.
- Select **IP Address**.

- Enter the required network parameters in the fields.
- Click on **OK** to close the dialogue box.

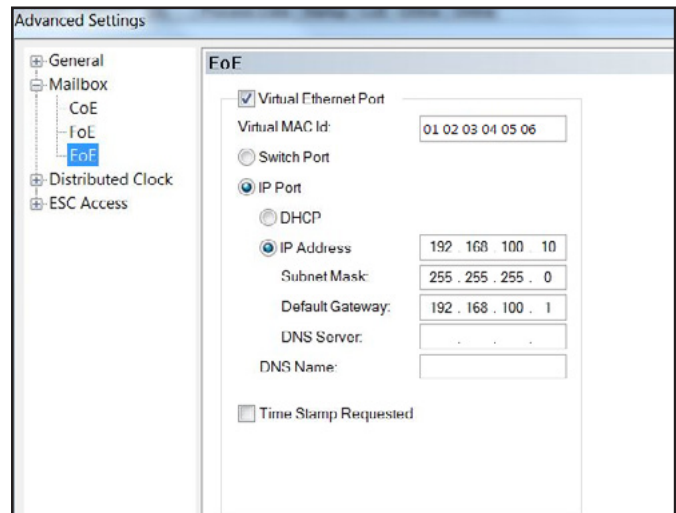
You can now use the web server function.



You may need to install an Ethernet loopback adapter on the host system of TwinCAT runtime. Please observe the instructions of the controller manufacturer.



The modules are set to DHCP at the factory.

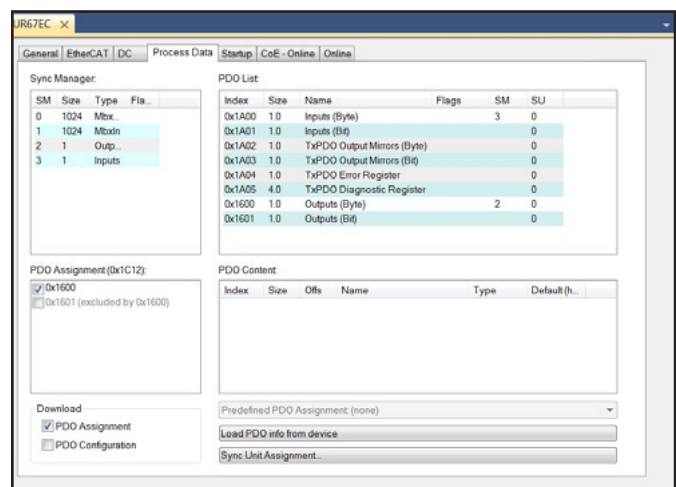


Advanced Settings dialogue box

8.5 Selecting Process Data

- Switch to **Process Data**.
- In the **Sync Manager** field, select **Inputs**.
- In the **PDO Assignment** field, select the required PDOs for input data.
- In the **Sync Manager** field, select **Outputs**.
- In the **PDO Assignment** field, select the required PDOs for output data.

A detailed description of the individual PDOs can be found in Section 11.

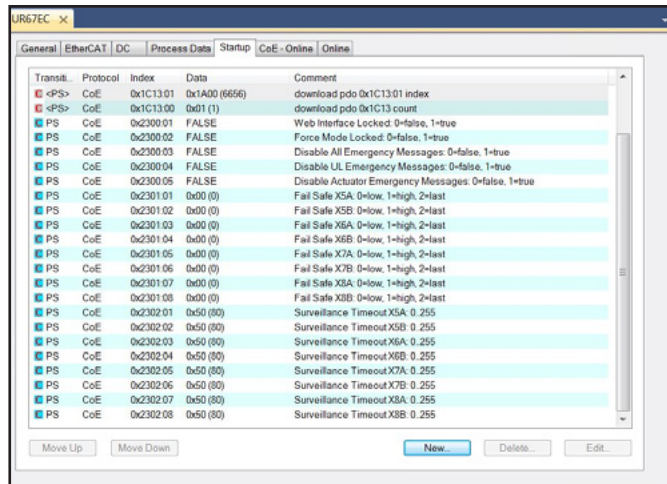


Process Data tab

8.6 Parameterising a module with EtherCAT

- Switch to **Startup**.

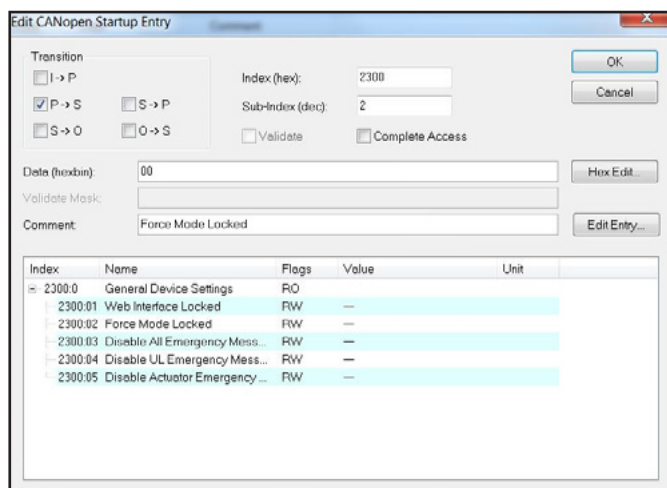
The current parameter setting is displayed.



Startup tab

You can edit the parameter setting.

- Double-click on the parameter you want to edit. The Edit dialogue box will open.
- Enter a new value for the parameter in the **Data** field.



Edit CANopen startup entry dialogue box



Service Data Objects (SDO) can only be written during startup. SDOs can not be written during operation.

8.7 Parameterising the process data structure for 16DIO modules

WARNING!

Unexpected controller behaviour!

Actuators and sensors can be activated or deactivated unintentionally when you incorrectly parameterise the process data structure.

- Check the parameterised process data structure before you transfer the parameters to the device!

Parameterising the data direction of the channels

If you are using a UR67-MP-xx-16DIO-12-60M module, you can parameterise the data direction of the individual channels.

- Select the module profile 16DI/DO if you are adding the module for configuration.

If you want to parameterise the channel as a bi-directional input and output:

- Set the "IO Direction Configuration" parameter of the associated channel to "0".

If you want to parameterise the channel as an input:

- Set the "IO Direction Configuration" parameter of the associated channel to "1".

If you want to parameterise the channel as an output:

- Set the "IO Direction Configuration" parameter of the associated channel to "2".

The default setting of the parameter depends on the selected module profile.

IO Direction Configuration (default settings)

Index (bit)	Channel	16DI/DO	8DI/DO	16DI	8DI	16DO	8DO	8DI/8DO
0x2303:01	1-A	0	0	1	1	2	2	1
0x2303:02	1-B	0	0	1	1	2	2	1
0x2303:03	2-B	0	0	1	1	2	2	1
0x2303:04	2-B	0	0	1	1	2	2	1
0x2303:05	3-A	0	0	1	1	2	2	1
0x2303:06	3-B	0	0	1	1	2	2	1
0x2303:07	4-A	0	0	1	1	2	2	1
0x2303:08	4-B	0	0	1	1	2	2	1
0x2303:09	5-A	0	0	1	1	2	2	2
0x2303:0A	5-B	0	0	1	1	2	2	2
0x2303:0B	6-A	0	0	1	1	2	2	2
0x2303:0C	6-B	0	0	1	1	2	2	2
0x2303:0D	7-A	0	0	1	1	2	2	2
0x2303:0E	7-B	0	0	1	1	2	2	2
0x2303:0F	8-A	0	0	1	1	2	2	2
0x2303:10	8-B	0	0	1	1	2	2	2

0: input and output, 1: only input, 2: only output

IO Mapping Configuration (default settings)

Index (bit)	Channel	16DI/DO	8DI/DO	16DI	8DI	16DO	8DO	8DI/8DO
0x2304:01	1-A	0	0	0	0	0	0	0
0x2304:02	1-B	1	255	1	255	1	255	1
0x2304:03	2-B	2	1	2	1	2	1	2
0x2304:04	2-B	3	255	3	255	3	255	3
0x2304:05	3-A	4	2	4	2	4	2	4
0x2304:06	3-B	5	255	5	255	5	255	5
0x2304:07	4-A	6	3	6	3	6	3	6
0x2304:08	4-B	7	255	7	255	7	255	7
0x2304:09	5-A	8	4	8	4	8	4	0
0x2304:0A	5-B	9	255	9	255	9	255	1
0x2304:0B	6-A	10	5	10	5	10	5	2
0x2304:0C	6-B	11	255	11	255	11	255	3
0x2304:0D	7-A	12	6	12	6	12	6	4
0x2304:0E	7-B	13	255	13	255	13	255	5
0x2304:0F	8-A	14	7	14	7	14	7	6
0x2304:10	8-B	15	255	15	255	15	255	7

0 to 15: bit position in the process data telegram (input data or output data)
255: deactivated

Parameterising process data mapping

You can assign a position in the respective process data to each physical input bit and each physical output bit. For bi-directional channels, the assignment applies in both the input and the output direction.

If you would like to assign a new bit position to the process data bits of a new channel:

- Set the "IO Mapping Configuration" parameter of the associated channel to the required bit position.

If you want to deactivate the channel:

- Set the "IO Mapping Configuration" parameter of the associated channel to "255".

The default setting of the parameter depends on the selected module profile.

8.8 Firmware updates with FoE

Firmware updates with FoE are possible under the following conditions:

- The controller supports FoE.
- FoE is set up.
- The module is in pre-op status.

- ▶ Download the latest firmware from the Weidmüller web-site.

You can launch the firmware update from TwinCAT 3.

- ▶ Switch to **Online**.
- ▶ In the **File Access over EtherCAT** field, click on **Download**.
- ▶ Select the firmware update from Weidmüller.
- ▶ Check that the file name in the String field has the correct file extension and add the file extension **.zip** if necessary.
- ▶ Click on **OK** to transfer the file.
- ▶ Once the file has been successfully transferred, restart the module to install the firmware update.

Once restarted, the update file will be unzipped and the old firmware will be replaced by the new version. During the update, the unlabelled LED will flash red.

Following the successful installation, the U_S and U_L LEDs will flash green twice. The module will then restart to complete the firmware update.

8.9 Adjustable parameters with EtherCAT

Parameters: module settings

Index (bit)	Parameter	Values
0x2300:01	Web Interface Locked	0 = false, 1 = true
0x2300:02	Force Mode Locked	0 = false, 1 = true
0x2300:03	Disable All Emergency Messages	0 = false, 1 = true
0x2300:04	Disable UL Emergency Messages	0 = false, 1 = true
0x2300:05	Disable Actuator Emergency Messages	0 = false, 1 = true
0x2300:06	-	
0x2300:07	Automatic Output Restart After Failure	0 = false, 1 = true

Parameters: UR67-MP-xx-16DO-12-60M

Index (bit)	Parameter	Connection	Channel	Values
0x2301:01	Surveillance Timeout	Connection 1	A (Pin 4)	0 to 255
0x2301:02	Surveillance Timeout	Connection 1	B (Pin 2)	0 to 255
0x2301:03	Surveillance Timeout	Connection 2	A (Pin 4)	0 to 255
...	...	...	...	...
0x2301:0E	Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
0x2301:0F	Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
0x2301:10	Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
0x2302:01	Fail Safe	Connection 1	A (Pin 4)	0 to 2
0x2302:02	Fail Safe	Connection 1	B (Pin 2)	0 to 2
0x2302:03	Fail Safe	Connection 2	A (Pin 4)	0 to 2
...	...	...	...	...
0x2302:0E	Fail Safe	Connection 7	B (Pin 2)	0 to 2
0x2302:0F	Fail Safe	Connection 8	A (Pin 4)	0 to 2
0x2302:10	Fail Safe	Connection 8	B (Pin 2)	0 to 2

Parameters: UR67-MP-xx-8DIO-12-60M

Index (bit)	Parameter	Connection	Channel	Values
0x2301:01	Surveillance Timeout	Connection 5	A (Pin 4)	0 to 255
0x2301:02	Surveillance Timeout	Connection 5	B (Pin 2)	0 to 255
0x2301:03	Surveillance Timeout	Connection 6	A (Pin 4)	0 to 255
...	...	...	...	...
0x2301:06	Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
0x2301:07	Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
0x2301:08	Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
0x2302:01	Fail Safe	Connection 5	A (Pin 4)	0 to 2
0x2302:02	Fail Safe	Connection 5	B (Pin 2)	0 to 2
0x2302:03	Fail Safe	Connection 6	A (Pin 4)	0 to 2
...	...	...	...	...
0x2302:06	Fail Safe	Connection 7	B (Pin 2)	0 to 2
0x2302:07	Fail Safe	Connection 8	A (Pin 4)	0 to 2
0x2302:08	Fail Safe	Connection 8	B (Pin 2)	0 to 2

Parameters: UR67-MP-xx-16DIO-12-60M

Index (bit)	Parameter	Connection	Channel	Values
0x2301:01	Surveillance Timeout	Connection 1	A (Pin 4)	0 to 255
0x2301:02	Surveillance Timeout	Connection 1	B (Pin 2)	0 to 255
0x2301:03	Surveillance Timeout	Connection 2	A (Pin 4)	0 to 255
...	...	...	...	...
0x2301:0E	Surveillance Timeout	Connection 7	B (Pin 2)	0 to 255
0x2301:0F	Surveillance Timeout	Connection 8	A (Pin 4)	0 to 255
0x2301:10	Surveillance Timeout	Connection 8	B (Pin 2)	0 to 255
0x2302:01	Fail Safe	Connection 1	A (Pin 4)	0 to 2
0x2302:02	Fail Safe	Connection 1	B (Pin 2)	0 to 2
0x2302:03	Fail Safe	Connection 2	A (Pin 4)	0 to 2
...	...	...	...	...
0x2302:0E	Fail Safe	Connection 7	B (Pin 2)	0 to 2
0x2302:0F	Fail Safe	Connection 8	A (Pin 4)	0 to 2
0x2302:10	Fail Safe	Connection 8	B (Pin 2)	0 to 2
0x2303:01	IO Direction Configuration	Connection 1	A (Pin 4)	0 to 2
0x2303:02	IO Direction Configuration	Connection 1	B (Pin 2)	0 to 2
0x2303:03	IO Direction Configuration	Connection 2	A (Pin 4)	0 to 2
...	...	...	...	...
0x2303:0E	IO Direction Configuration	Connection 7	B (Pin 2)	0 to 2
0x2303:0F	IO Direction Configuration	Connection 8	A (Pin 4)	0 to 2
0x2303:10	IO Direction Configuration	Connection 8	B (Pin 2)	0 to 2
0x2304:01	IO Mapping Configuration	Connection 1	A (Pin 4)	0 to 15, 255
0x2304:02	IO Mapping Configuration	Connection 1	B (Pin 2)	0 to 15, 255
0x2304:03	IO Mapping Configuration	Connection 2	A (Pin 4)	0 to 15, 255
...	...	...	...	...
0x2304:0E	IO Mapping Configuration	Connection 7	B (Pin 2)	0 to 15, 255
0x2304:0F	IO Mapping Configuration	Connection 8	A (Pin 4)	0 to 15, 255
0x2304:10	IO Mapping Configuration	Connection 8	B (Pin 2)	0 to 15, 255



The “Timeout” and “Fail Safe” parameters are only available for output channels. Observe the parameterised data direction of the channel.

“Web Interface Locked” parameter

This parameter can be used to lock the web server application.

False (0)

The web server application is not locked.

True (1)

The web server application is locked.

“Force Mode Locked” parameter

This parameter can be used to lock the force mode on the web server application.

False (0)

The force mode of the web server application is not locked.

True (1)

The force mode of the web server application is locked.

“Disable All Emergency Messages” parameter

This parameter can be used to deactivate all emergency messages.

False (0)

The emergency messages are activated.

True (1)

The emergency messages are deactivated.

“Disable UL Emergency Messages” parameter

You can use this parameter to deactivate all emergency messages as a result of an actuator supply error.

False (0)

The emergency messages are activated.

True (1)

The emergency messages are deactivated.

“Disable Actuator Emergency Messages” parameter

You can use this parameter to deactivate all emergency messages as a result of a channel error.

False (0)

The emergency messages are activated.

True (1)

The emergency messages are deactivated.

“Automatic Output Restart After Failure” parameter

This parameter defines the behaviour of the outputs following a channel error or an actuator supply error.

False (0)

The output remains inactive after an error.

True (1)

The output automatically restarts after a failure/error.

“Surveillance Timeout” parameter

This parameter is used to set the delay time for output monitoring. The delay time starts after the state of the output has been changed. Once this period of time has expired, the output is monitored and error states are reported as diagnoses. If the output is permanently switched on or off, the monitoring time is 100 ms.

0 to 255 (default: 80)

The monitoring of the output begins with 0 to 255 ms following the change of a channel state.

“Fail Safe” parameter

This parameter is used to set the behaviour of the associated output in the event of disrupted fieldbus communication.

Set Low (0)

The output is inactive in the event of disrupted fieldbus communication.

Set High (1)

The output is active in the event of disrupted fieldbus communication.

Hold Last (2)

The output is held at the last value in the event of disrupted fieldbus communication.

“IO Direction Configuration” parameter

This parameter is used to set the data direction of the channel.

Input/Output (0)

The channel functions as a bi-directional input and output.

Input (1)

The channel functions as an input.

Output (2)

The channel functions as an output.

“IO Mapping Configuration” parameter

This parameter is used to set the position of the physical process data bits of the channel in the process data telegrams. For bi-directional channels, the assignment applies in both the input and the output direction.

0 to 15

The physical process data bit of the channel is in position 0 to 15 of the associated process data telegrams.

255

The channel is deactivated.

9 Process data with EtherNet/IP

The length of the input data varies depending on whether channel-related diagnostic data is being transferred. The diagnostic data supplements the process input data.

9.1 UR67-MP-xx-16DI-12-60M process data

Assembly instance ID 101: input data with diagnosis

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A
Byte 2	MHME	0	0	0	0	MI-SCS	0	MI-LVS
Byte 3	SCS-8	SCS-7	SCS-6	SCS-5	SCS-4	SCS-3	SCS-2	SCS-1

Assembly instance ID 102: input data without diagnosis

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A
Byte 2	MHME	0	0	0	0	MI-SCS	0	MI-LVS

9.2 UR67-MP-xx-16DO-12-60M process data

Assembly instance ID 100: output data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

Assembly instance ID 101: input data with diagnosis

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A
Byte 2	MHME	0	0	0	MI-SCA	0	MI-LVA	MI-LVS
Byte 3	0	0	0	0	0	0	0	0
Byte 4	0	0	0	0	0	0	0	0
Byte 5	CE-4-B	CE-4-A	CE-3-B	CE-3-A	CE-2-B	CE-2-A	CE-1-B	CE-1-A
Byte 6	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A

Assembly instance ID 102: input data without diagnosis

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A
Byte 2	MHME	0	0	0	MI-SCA	0	MI-LVA	MI-LVS

9.3 UR67-MP-xx-8DIDO-12-60M process data

Assembly instance ID 100: output data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

Assembly instance ID 101: input data with diagnosis

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A
Byte 2	MI-ME	0	0	0	MI-SCA	MI-SCS	MI-LVA	MI-LVS
Byte 3	0	0	0	0	SCS-4	SCS-3	SCS-2	SCS-1
Byte 4	0	0	0	0	0	0	0	0
Byte 5	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A

Assembly instance ID 102: input data without diagnosis

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A
Byte 2	MI-ME	0	0	0	MI-SCA	MI-SCS	MI-LVA	MI-LVS

9.4 UR67-MP-xx-16DIO-12-60M process data

The tables illustrate the default mapping of the UR67-MP-xx-16DIO-12-60M modules. You can parameterise the process data mapping (see Section 6.7).

Assembly instance ID 100: 16 bit output data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

Assembly instance ID 101: 16 bit input data with diagnosis

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A
Byte 2	MI-ME	0	0	0	MI-SCA	MI-SCS	MI-LVA	MI-LVS
Byte 3	SCS-8	SCS-7	SCS-6	SCS-5	SCS-4	SCS-3	SCS-2	SCS-1
Byte 4	0	0	0	0	0	0	0	0
Byte 5	CE-4-B	CE-4-A	CE-3-B	CE-3-A	CE-2-B	CE-2-A	CE-1-B	CE-1-A
Byte 6	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A

Assembly instance ID 102: 16 bit input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A
Byte 2	MI-ME	0	0	0	MI-SCA	MI-SCS	MI-LVA	MI-LVS

Assembly instance ID 103: 8 bit output data, not for 8DIDO

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A

Assembly instance ID 103: 8 bit output data, only for 8DIDO

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

Assembly instance ID 104: 8 bit input data with diagnosis, not for 8DIDO

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A
Byte 1	MI-ME	0	0	0	MI-SCA	MI-SCS	MI-LVA	MI-LVS
Byte 2	SCS-8	SCS-7	SCS-6	SCS-5	SCS-4	SCS-3	SCS-2	SCS-1
Byte 3	0	0	0	0	0	0	0	0
Byte 4	CE-4-B	CE-4-A	CE-3-B	CE-3-A	CE-2-B	CE-2-A	CE-1-B	CE-1-A
Byte 5	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A

Assembly instance ID 104: 8 bit input data with diagnosis, only for 8DIDO

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	MHME	0	0	0	MI-SCA	MI-SCS	MHLVA	MI-LVS
Byte 2	SCS-8	SCS-7	SCS-6	SCS-5	SCS-4	SCS-3	SCS-2	SCS-1
Byte 3	0	0	0	0	0	0	0	0
Byte 4	CE-4-B	CE-4-A	CE-3-B	CE-3-A	CE-2-B	CE-2-A	CE-1-B	CE-1-A
Byte 5	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A

Assembly instance ID 105: 8 bit input data, not for 8DIDO

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A
Byte 1	MHME	0	0	0	MI-SCA	MI-SCS	MHLVA	MI-LVS

Assembly instance ID 105: 8 bit input data, only for 8DIDO

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	MHME	0	0	0	MI-SCA	MI-SCS	MHLVA	MI-LVS

Assembly instance ID 106: 0 bit input data with diagnosis

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	MHME	0	0	0	MI-SCA	MI-SCS	MHLVA	MI-LVS
Byte 1	SCS-8	SCS-7	SCS-6	SCS-5	SCS-4	SCS-3	SCS-2	SCS-1
Byte 2	0	0	0	0	0	0	0	0
Byte 3	CE-4-B	CE-4-A	CE-3-B	CE-3-A	CE-2-B	CE-2-A	CE-1-B	CE-1-A
Byte 4	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A

Assembly instance ID 107: 0 bit input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1	MHME	0	0	0	MI-SCA	MI-SCS	MHLVA	MI-LVS

Assembly instance ID 108: 16 bit input data with diagnosis, padding byte

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte 1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A
Byte 2	MHME	0	0	0	MI-SCA	MI-SCS	MHLVA	MI-LVS
Byte 3	SCS-8	SCS-7	SCS-6	SCS-5	SCS-4	SCS-3	SCS-2	SCS-1
Byte 4	0	0	0	0	0	0	0	0
Byte 5	CE-4-B	CE-4-A	CE-3-B	CE-3-A	CE-2-B	CE-2-A	CE-1-B	CE-1-A
Byte 6	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A
Byte 7	0	0	0	0	0	0	0	0

9.5 Legend

Abbreviation	Meaning
1-A to 8-A	Actual value (for input data) / target value (for output data) channel A (pin 4), connection 1 to 8
1-B to 8-B	Actual value (for input data) / target value (for output data) channel B (pin 2), connection 1 to 8
MHME	Module information - internal module error
MI-SCA	Module information - actuator short circuit
MI-SCS	Module information - sensor short circuit
MHLVA	Module information - actuator low voltage
MI-LVS	Module information - system/sensor low voltage
SCS-1 to 8	Sensor short circuit at connection 1 to 8
CE-1-A to CE-8-A	Channel error on channel A (pin 4) at connection 1 to 8
CE-1-B to CE-8-B	Channel error on channel B (pin 2) at connection 1 to 8

10 Process data with PROFINET

10.1 UR67-MP-xx-16DI-12-60M process data

Input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte n+1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

10.2 UR67-MP-xx-16DO-12-60M process data

Input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte n+1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

Output data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte n+1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

10.3 UR67-MP-xx-8DIDO-12-60M process data

Input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte n+1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

Output data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

10.4 UR67-MP-xx-16DIO-12-60M process data

16DIO module profile

Input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte n+1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

Output data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte n+1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

8DIO module profile

Input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A

Output data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A

16DI module profile

Input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte n+1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

8DI module profile

Profil 8DI: Input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A

16DO module profile

Profil 16DO: Output data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A
Byte n+1	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

8DO module profile

Profil 8DI: Input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A

8DIDO module profile

Input data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	4-B	4-A	3-B	3-A	2-B	2-A	1-B	1-A

Output data

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte n	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

10.5 Legend

Abbreviation	Meaning
1-A to 8-A	Actual value (for input data) / target value (for output data) channel A (pin 4), connection 1 to 8
1-B to 8-B	Actual value (for input data) / target value (for output data) channel B (pin 2), connection 1 to 8

11 Process data with EtherCAT

Process data is transmitted as PDOs in byte format or bit format. Input process data can be supplemented with diagnostic data.

11.1 UR67-MP-xx-16DI-12-60M process data

0x1A00 TxPDO mapping (byte)

Index	Type	Length	Data					
0x6000:01	USINT	1 bytes	1-A to 4-B					
0x6000:02	USINT	1 bytes	5-A to 8-B					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6000:01	4-B	4-A	3-A	3-B	2-B	2-A	1-B	1-A
0x6000:02	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1A01 TxPDO mapping (bit)

Index	Type	Length	Data	Index	Type	Length	Data
0x6020:01	BIT	1 bit	1-A	0x6020:09	BIT	1 bit	5-A
0x6020:02	BIT	1 bit	1-B	0x6020:0A	BIT	1 bit	5-B
0x6020:03	BIT	1 bit	2-A	0x6020:0B	BIT	1 bit	6-A
0x6020:04	BIT	1 bit	2-B	0x6020:0C	BIT	1 bit	6-B
0x6020:05	BIT	1 bit	3-A	0x6020:0D	BIT	1 bit	7-A
0x6020:06	BIT	1 bit	3-B	0x6020:0E	BIT	1 bit	7-B
0x6020:07	BIT	1 bit	4-A	0x6020:0F	BIT	1 bit	8-A
0x6020:08	BIT	1 bit	4-B	0x6020:10	BIT	1 bit	8-B

0x1A04 TxPDO error register

Index	Type			Length			Data	
0 x 1001	USINT			1 bytes			Error	
Error	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
No error	0	0	0	0	0	0	0	0
MI-SCS	0	0	0	0	0	0 ¹⁾	1	1
MI-LVS	0	0	0	0	0	1	0 ¹⁾	1
MI-FC	1	0	0	0	0	0 ¹⁾	0 ¹⁾	1
MI-ME	1	0	0	0	0	0 ¹⁾	0 ¹⁾	1

1) Can be 1, if more than one error is active

0x1A05 TxPDO diagnostic register

Index	Type		Length			Data		
0 x 2001	UDINT		4 bytes			Diagnostics		
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1	MI-ME	MI-FC	0	0	0	MI-SCS	0	MI-LVS
Byte 2	SCS-8	SCS-7	SCS-6	SCS-5	SCS-4	SCS-3	SCS-2	SCS-1
Byte 3	0	0	0	0	0	0	0	0
Byte 4	0	0	0	0	0	0	0	0

11.2 UR67-MP-xx-16DO-12-60M process data

0x1600 RxPDO mapping (byte)

Index	Type	Length	Data					
0x6200:01	USINT	1 bytes	1-A to 4-B					
0x6200:02	USINT	1 bytes	5-A to 8-B					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6200:01	4-B	4-A	3-A	3-B	2-B	2-A	1-B	1-A
0x6200:02	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1601 RxPDO mapping (bit)

Index	Type	Length	Data	Index	Type	Length	Data
0x6220:01	BIT	1 bit	1-A	0x6220:09	BIT	1 bit	5-A
0x6220:02	BIT	1 bit	1-B	0x6220:0A	BIT	1 bit	5-B
0x6220:03	BIT	1 bit	2-A	0x6220:0B	BIT	1 bit	6-A
0x6220:04	BIT	1 bit	2-B	0x6220:0C	BIT	1 bit	6-B
0x6220:05	BIT	1 bit	3-A	0x6220:0D	BIT	1 bit	7-A
0x6220:06	BIT	1 bit	3-B	0x6220:0E	BIT	1 bit	7-B
0x6220:07	BIT	1 bit	4-A	0x6220:0F	BIT	1 bit	8-A
0x6220:08	BIT	1 bit	4-B	0x6220:10	BIT	1 bit	8-B

0x1A02 TxPDO output mirrors (byte)

Index	Type	Length	Data					
0x2200:01	USINT	1 bytes	1-A to 4-B					
0x2200:02	USINT	1 bytes	5-A to 8-B					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x2200:01	4-B	4-A	3-A	3-B	2-B	2-A	1-B	1-A
0x2200:02	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1A03 TxPDO output mirrors (bit)

Index	Type	Length	Data	Index	Type	Length	Data
0x2220:01	BIT	1 bit	1-A	0x2220:09	BIT	1 bit	5-A
0x2220:02	BIT	1 bit	1-B	0x2220:0A	BIT	1 bit	5-B
0x2220:03	BIT	1 bit	2-A	0x2220:0B	BIT	1 bit	6-A
0x2220:04	BIT	1 bit	2-B	0x2220:0C	BIT	1 bit	6-B
0x2220:05	BIT	1 bit	3-A	0x2220:0D	BIT	1 bit	7-A
0x2220:06	BIT	1 bit	3-B	0x2220:0E	BIT	1 bit	7-B
0x2220:07	BIT	1 bit	4-A	0x2220:0F	BIT	1 bit	8-A
0x2220:08	BIT	1 bit	4-B	0x2220:10	BIT	1 bit	8-B

0x1A04 TxPDO error register

Index	Type			Length			Data	
0 x 1001	USINT			1 bytes			Error	
Error	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
No error	0	0	0	0	0	0	0	0
MI-SCA	0	0	0	0	0	0 ¹⁾	1	1
MI-LVS	0	0	0	0	0	1	0 ¹⁾	1
MI-LVA	0	0	0	0	0	1	0 ¹⁾	1
MI-FC	1	0	0	0	0	0 ¹⁾	0 ¹⁾	1
MIHME	1	0	0	0	0	0 ¹⁾	0 ¹⁾	1

1) Can be 1, if more than one error is active

0x1A05 TxPDO diagnostic register

Index	Type		Length			Data		
0 x 2001	UDINT		4 bytes			Diagnostics		
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1	MIHME	MI-FC	0	0	MI-SCA	0	MI-LVA	MI-LVS
Byte 2	0	0	0	0	0	0	0	0
Byte 3	CE-4-B	CE-4-A	CE-3-B	CE-3-A	CE-2-B	CE-2-A	CE-1-B	CE-1-A
Byte 4	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A

11.3 UR67-MP-xx-8DIDO-12-60M process data

0x1600 RxPDO mapping (byte)

Index	Type			Length			Data	
0x6200:01	USINT			1 bytes			5-A to 8-B	
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6200:01	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1601 RxPDO mapping (bit)

Index	Type	Length	Data
0x6220:01	BIT	1 bit	5-A
0x6220:02	BIT	1 bit	5-B
0x6220:03	BIT	1 bit	6-A
0x6220:04	BIT	1 bit	6-B
Index	Type	Length	Data
0x6220:05	BIT	1 bit	7-A
0x6220:06	BIT	1 bit	7-B
0x6220:07	BIT	1 bit	8-A
0x6220:08	BIT	1 bit	8-B

0x1A00 TxPDO mapping (byte)

Index	Type			Length			Data	
0x6000:01	USINT			1 bytes			1-A to 4-B	
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6000:01	4-B	4-A	3-A	3-B	2-B	2-A	1-B	1-A

0x1A01 TxPDO mapping (bit)

Index	Type	Length	Data
0x6020:01	BIT	1 bit	1-A
0x6020:02	BIT	1 bit	1-B
0x6020:03	BIT	1 bit	2-A
0x6020:04	BIT	1 bit	2-B
Index	Type	Length	Data
0x6020:05	BIT	1 bit	3-A
0x6020:06	BIT	1 bit	3-B
0x6020:07	BIT	1 bit	4-A
0x6020:08	BIT	1 bit	4-B

0x1A02 TxPDO output mirrors (byte)

Index	Type			Length			Data	
0x2200:01	USINT			1 bytes			5-A to 8-B	
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x2200:01	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1A03 TxPDO output mirrors (bit)

Index	Type	Length	Data
0x2220:01	BIT	1 bit	5-A
0x2220:02	BIT	1 bit	5-B
0x2220:03	BIT	1 bit	6-A
0x2220:04	BIT	1 bit	6-B
Index	Type	Length	Data
0x2220:09	BIT	1 bit	7-A
0x2220:0A	BIT	1 bit	7-B
0x2220:0B	BIT	1 bit	8-A
0x2220:0C	BIT	1 bit	8-B

0x1A04 TxPDO error register

Index	Type			Length			Data	
0 x 1001	USINT			1 bytes			Error	
Error	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
No error	0	0	0	0	0	0	0	0
MI-SCS	0	0	0	0	0	0 ¹⁾	1	1
MI-SCA								
MHLVS	0	0	0	0	0	1	0 ¹⁾	1
MHLVA	0	0	0	0	0	1	0 ¹⁾	1
MI-FC	1	0	0	0	0	0 ¹⁾	0 ¹⁾	1
MHME	1	0	0	0	0	0 ¹⁾	0 ¹⁾	1

1) Can be 1, if more than one error is active.

1) Can be 1, if more than one error is active.

0x1A05 TxPDO diagnostic register

Index	Type		Length			Data		
0 x 2001	UDINT		4 bytes			Diagnostics		
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1	MIHME	MI-FC	0	0	MI-SCA	MI-SCS	MI-LVA	MI-LVS
Byte 2	0	0	0	0	SCS-4	SCS-3	SCS-2	SCS-1
Byte 3	0	0	0	0	0	0	0	0
Byte 4	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A

11.4 UR67-MP-xx-16DIO-12-60M process data

The tables illustrate the default mapping of the UR67-MP-xx-16DIO-12-60M modules. You can parameterise the process data mapping (see Section 8.7).

Module profile 16DI/DO

0x1A00 TxPDO mapping (byte)

Index	Type	Length	Data					
0x6000:01	USINT	1 bytes	1-A to 4-B					
0x6000:02	USINT	1 bytes	5-A to 8-B					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6000:01	4-B	4-A	3-A	3-B	2-B	2-A	1-B	1-A
0x6000:02	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1A01 TxPDO mapping (bit)

Index	Type	Length	Data
0x6020:01	BIT	1 bit	1-A
0x6020:02	BIT	1 bit	1-B
0x6020:03	BIT	1 bit	2-A
0x6020:04	BIT	1 bit	2-B
0x6020:05	BIT	1 bit	3-A
0x6020:06	BIT	1 bit	3-B
0x6020:07	BIT	1 bit	4-A
0x6020:08	BIT	1 bit	4-B
Index	Type	Length	Data
0x6020:09	BIT	1 bit	5-A
0x6020:0A	BIT	1 bit	5-B
0x6020:0B	BIT	1 bit	6-A
0x6020:0C	BIT	1 bit	6-B
0x6020:0D	BIT	1 bit	7-A
0x6020:0E	BIT	1 bit	7-B
0x6020:0F	BIT	1 bit	8-A
0x6020:10	BIT	1 bit	8-B

0x1600 RxPDO mapping (byte)

Index	Type	Length	Data					
0x6200:01	USINT	1 bytes	1-A to 4-B					
0x6200:02	USINT	1 bytes	5-A to 8-B					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6200:01	4-B	4-A	3-A	3-B	2-B	2-A	1-B	1-A
0x6200:02	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1601 RxPDO mapping (bit)

Index	Type	Length	Data
0x6220:01	BIT	1 bit	1-A
0x6220:02	BIT	1 bit	1-B
0x6220:03	BIT	1 bit	2-A
0x6220:04	BIT	1 bit	2-B
0x6220:05	BIT	1 bit	3-A
0x6220:06	BIT	1 bit	3-B
0x6220:07	BIT	1 bit	4-A
0x6220:08	BIT	1 bit	4-B
Index	Type	Length	Data
0x6220:09	BIT	1 bit	5-A
0x6220:0A	BIT	1 bit	5-B
0x6220:0B	BIT	1 bit	6-A
0x6220:0C	BIT	1 bit	6-B
0x6220:0D	BIT	1 bit	7-A
0x6220:0E	BIT	1 bit	7-B
0x6220:0F	BIT	1 bit	8-A
0x6220:10	BIT	1 bit	8-B

Module profile 8DI/DO

0x1A10 TxPDO mapping (byte)

Index	Type	Length	Data					
0x6000:01	USINT	1 bytes	1-A to 8-A					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6000:01	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A

0x1A11 TxPDO mapping (bit)

Index	Type	Length	Data
0x6020:01	BIT	1 bit	1-A
0x6020:02	BIT	1 bit	2-A
0x6020:03	BIT	1 bit	3-A
0x6020:04	BIT	1 bit	4-A
Index	Type	Length	Data
0x6020:05	BIT	1 bit	5-A
0x6020:06	BIT	1 bit	6-A
0x6020:07	BIT	1 bit	7-A
0x6020:08	BIT	1 bit	8-A

0x1610 RxPDO mapping (byte)

Index	Type	Length	Data					
0x6200:01	USINT	1 bytes	1-A to 8-A					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6200:01	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A

0x1611 RxPDO mapping (bit)

Index	Type	Length	Data
0x6220:01	BIT	1 bit	1-A
0x6220:02	BIT	1 bit	2-A
0x6220:03	BIT	1 bit	3-A
0x6220:04	BIT	1 bit	4-A
Index	Type	Length	Data
0x6220:05	BIT	1 bit	5-A
0x6220:06	BIT	1 bit	6-A
0x6220:07	BIT	1 bit	7-A
0x6220:08	BIT	1 bit	8-A

Module profile 16DI

0x1A00 TxPDO mapping (byte)

Index	Type	Length	Data					
0x6000:01	USINT	1 bytes	1-A to 4-B					
0x6000:02	USINT	1 bytes	5-A to 8-B					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6000:01	4-B	4-A	3-A	3-B	2-B	2-A	1-B	1-A
0x6000:02	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1A01 TxPDO mapping (bit)

Index	Type	Length	Data	Index	Type	Length	Data
0x6020:01	BIT	1 bit	1-A	0x6020:09	BIT	1 bit	5-A
0x6020:02	BIT	1 bit	1-B	0x6020:0A	BIT	1 bit	5-B
0x6020:03	BIT	1 bit	2-A	0x6020:0B	BIT	1 bit	6-A
0x6020:04	BIT	1 bit	2-B	0x6020:0C	BIT	1 bit	6-B
0x6020:05	BIT	1 bit	3-A	0x6020:0D	BIT	1 bit	7-A
0x6020:06	BIT	1 bit	3-B	0x6020:0E	BIT	1 bit	7-B
0x6020:07	BIT	1 bit	4-A	0x6020:0F	BIT	1 bit	8-A
0x6020:08	BIT	1 bit	4-B	0x6020:10	BIT	1 bit	8-B

Module profile 8DI

0x1A10 TxPDO mapping (byte)

Index	Type		Length				Data	
0x6000:01	USINT		1 bytes				1-A to 8-A	
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6000:01	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A

0x1A11 TxPDO mapping (bit)

Index	Type	Length	Data	Index	Type	Length	Data
0x6020:01	BIT	1 bit	1-A	0x6020:05	BIT	1 bit	5-A
0x6020:02	BIT	1 bit	2-A	0x6020:06	BIT	1 bit	6-A
0x6020:03	BIT	1 bit	3-A	0x6020:07	BIT	1 bit	7-A
0x6020:04	BIT	1 bit	4-A	0x6020:08	BIT	1 bit	8-A

Module profile 16DO

0x1600 RxPDO mapping (byte)

Index	Type	Length	Data					
0x6200:01	USINT	1 bytes	1-A to 4-B					
0x6200:02	USINT	1 bytes	5-A to 8-B					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6200:01	4-B	4-A	3-A	3-B	2-B	2-A	1-B	1-A
0x6200:02	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1601 RxPDO mapping (bit)

Index	Type	Length	Data	Index	Type	Length	Data
0x6220:01	BIT	1 bit	1-A	0x6220:09	BIT	1 bit	5-A
0x6220:02	BIT	1 bit	1-B	0x6220:0A	BIT	1 bit	5-B
0x6220:03	BIT	1 bit	2-A	0x6220:0B	BIT	1 bit	6-A
0x6220:04	BIT	1 bit	2-B	0x6220:0C	BIT	1 bit	6-B
0x6220:05	BIT	1 bit	3-A	0x6220:0D	BIT	1 bit	7-A
0x6220:06	BIT	1 bit	3-B	0x6220:0E	BIT	1 bit	7-B
0x6220:07	BIT	1 bit	4-A	0x6220:0F	BIT	1 bit	8-A
0x6220:08	BIT	1 bit	4-B	0x6220:10	BIT	1 bit	8-B

Module profile 8DO

0x1610 RxPDO mapping (byte)

Index	Type			Length			Data	
0x6200:01	USINT			1 bytes			1-A to 8-A	
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6200:01	8-A	7-A	6-A	5-A	4-A	3-A	2-A	1-A

0x1611 RxPDO mapping (bit)

Index	Type	Length	Data	Index	Type	Length	Data
0x6220:01	BIT	1 bit	1-A	0x6220:05	BIT	1 bit	5-A
0x6220:02	BIT	1 bit	2-A	0x6220:06	BIT	1 bit	6-A
0x6220:03	BIT	1 bit	3-A	0x6220:07	BIT	1 bit	7-A
0x6220:04	BIT	1 bit	4-A	0x6220:08	BIT	1 bit	8-A

Module profile 8DI/8DO

0x1A10 TxPDO mapping (byte)

Index	Type	Length	Data					
0x6000:01	USINT	1 bytes	1-A to 4-B					
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6000:01	4-B	4-A	3-A	3-B	2-B	2-A	1-B	1-A

0x1A11 TxPDO mapping (bit)

Index	Type	Length	Data	Index	Type	Length	Data
0x6020:01	BIT	1 bit	1-A	0x6020:05	BIT	1 bit	3-A
0x6020:02	BIT	1 bit	1-B	0x6020:06	BIT	1 bit	3-B
0x6020:03	BIT	1 bit	2-A	0x6020:07	BIT	1 bit	4-A
0x6020:04	BIT	1 bit	2-B	0x6020:08	BIT	1 bit	4-B

0x1610 RxPDO mapping (byte)

Index	Type		Length				Data	
0x6200:01	USINT		1 bytes				5-A to8-A	
Index	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0x6200:01	8-B	8-A	7-B	7-A	6-B	6-A	5-B	5-A

0x1611 RxPDO mapping (bit)

Index	Type	Length	Data	Index	Type	Length	Data
0x6220:01	BIT	1 bit	5-A	0x6220:05	BIT	1 bit	7-A
0x6220:02	BIT	1 bit	5-B	0x6220:06	BIT	1 bit	7-B
0x6220:03	BIT	1 bit	6-A	0x6220:07	BIT	1 bit	8-A
0x6220:04	BIT	1 bit	6-B	0x6220:08	BIT	1 bit	8-B

Diagnostics

0x1A04 TxPDO error register

Index	Type			Length			Data	
0x1001:01	USINT			1 bytes			Error	
Error	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
No error	0	0	0	0	0	0	0	0
MI-SCS	0 ¹⁾	0	0	0	0	0 ¹⁾	1	1
MI-SCA								
MI-LVS	0 ¹⁾	0	0	0	0	1	0 ¹⁾	1
MI-LVA	0 ¹⁾	0	0	0	0	1	0 ¹⁾	1
MI-PRM	1	0	0	0	0	0 ¹⁾	0 ¹⁾	1
MI-FC	1	0	0	0	0	0 ¹⁾	0 ¹⁾	1
MIHME	1	0	0	0	0	0 ¹⁾	0 ¹⁾	1

1) Can be 1, if more than one error is active

1) Can be 1, if more than one error is active

0x1A05 TxPDO diagnostic register

Index	Type			Length			Data	
0x2001:01	UDINT			4 bytes			Diagnostics	
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1	MIHME	MI-FC	MI-PRM	0	MI-SCA	MI-SCS	MI-LVA	MI-LVS
Byte 2	SCS-8	SCS-7	SCS-6	SCS-5	SCS-4	SCS-3	SCS-2	SCS-1
Byte 3	CE-4-B	CE-4-A	CE-3-B	CE-3-A	CE-2-B	CE-2-A	CE-1-B	CE-1-A
Byte 4	CE-8-B	CE-8-A	CE-7-B	CE-7-A	CE-6-B	CE-6-A	CE-5-B	CE-5-A

11.5 Legend

Abbreviation	Meaning
1-A to 8-A	Actual value (for input data) / target value (for output data) channel A (pin 4), connection 1 to 8
1-B to 8-B	Actual value (for input data) / target value (for output data) channel B (pin 2), connection 1 to 8
MHME	Module information - internal module error
MI-SCA	Module information - actuator short circuit
MI-SCS	Module information - sensor short circuit
MI-LVA	Module information - actuator undervoltage
MI-LVS	Module information - system/sensor undervoltage
MI-PRM	Module information - parameter error
MI-FC	Module information - force active
SCS-1 to 8	Sensor short circuit at connection 1 to 8
CE-1-A to CE-8-A	Channel error on channel A (pin 4) at connection 1 to 8
CE-1-B to CE-8-B	Channel error on channel B (pin 2) at connection 1 to 8

12 Diagnostics

12.1 Descriptions of errors

Channel error

Channel errors are discrepancies between the target value set by a control unit and the actual value of an output channel. In the event of a short circuit or overload, the output drivers likewise signal a channel error.

Target value	Actual value	Comment
On	On	Ok, no diagnostic message
Off	Off	Ok, no diagnostic message
On	Off	Short circuit/overload Channel LED: red Diagnostic message Channel is blocked after troubleshooting
Off	On	Voltage feedback Channel LED: red and yellow/white Diagnostic message Channel is not blocked after troubleshooting



Should a channel error occur, all of the activated output channels are blocked on the affected connection. Inactivated channels are not blocked.

Blocked channels are deactivated and remain deactivated until they are reset via the control unit.

A delay time ("Surveillance Timeout") can be configured using the "Surveillance Timeout" parameter. Once this period of time has expired, the output is monitored and error states are reported as diagnoses. When an output channel is in a static state (switched permanently on or off), the delay time is 100 ms. A detailed description can be found in Section 7.6 "Parameter settings".

Sensor short circuit

Pin 1 supplies a monitored 24 V potential for the sensor power supply to every I/O connection with input functionality.

In the event of a sensor short circuit, a voltage error is reported. Both channel LEDs for the affected connection light up red.

System/sensor power supply error

ATTENTION

Make sure that the power supply voltage for the system/sensor power supply does not fall below 18 V DC when taking the measurement at the furthest-away participant.

The voltage value of the system/sensor power supply is monitored globally. If the voltage falls below 18 V or exceeds 30 V, an error message is generated and the U_s LED lights up red. The error message does not affect the outputs.

Actuator power supply error

The voltage value of the actuator power supply for modules with output functionality is monitored globally. If the voltage falls below 18 V or exceeds 30 V, an error message is generated and the U_L LED lights up red.



Should an actuator power supply error occur, all of the activated output channels are blocked. Inactivated channels are not blocked.

Blocked channels are deactivated and remain deactivated until they are reset via the control unit.



In the event that a channel is blocked, diagnostics (channel error) will be initiated for every active output channel once the supply voltage returns to a normal level.

- In order to prevent the diagnostic messages from being displayed, deactivate all output channels via the control unit as soon as an undervoltage is detected.

A fixed delay time of 300 ms is preconfigured from actuator power supply diagnoses. Once this period of time has expired, the actuator power supply is monitored and error states are reported as diagnoses.

12.2 EtherNet/IP diagnoses

Diagnostic information supplement the input process data. Byte 2 provides module-related diagnostic data. The subsequent bytes provide channel-related diagnostic data. A detailed description can be found in Chapter 9.

Diagnosis	Bits set	
	Module-related	Channel-related
Channel error	where applicable MI-SCA	CE-1-A/B to CE-8-A/B
Sensor short circuit	MI-SCS	SCS-1 to 8
System/sensor power supply error	MI-LVS	-
Actuator power supply error	MI-LVA	where applicable CE-1-A/B to CE-8-A/B

12.3 PROFINET diagnoses



- Activate the “Report Alarms” parameter when parameterising the modules in order to transfer diagnostic messages via PROFINET.

When the module detects an error, an alarm message is triggered. The modules support diagnostic alarms.

An alarm is triggered for an upcoming event as well as an event coming to an end.

Alarm evaluation depends on the PROFINET IO controller used.

Alarm evaluation in STEP 7

In Step 7, the processing of the user program (OB1) is interrupted by triggering a diagnostic alarm and an error organisation block (error OB) is called up.

Cause of the alarms	Called up error OB	
Peripheral error (short circuit/overload, wire breakage, undervoltage)	OB82	Diagnostics alarm
Complete system outage	OB86	Subrack failure



If the error OB called up is not available in the CPU, the CPU enters the STOP operating status.

The error OB called up and its start information already provide information about the cause and type of the error. Detailed information about the error is provided in the respective error OB when the SFB 54 RALRM system module

is called up. The SFB 54 module also has to be called up in every error OB.

In OB1, diagnostic data sets can be called up with SFB52 RDREC via their data set number.

Structure of the diagnostic data sets

- Block version: 0x0101
- USI (User Structure Identifier): 0x8000

Error type	Reference	ChannelNumber	ChannelErrorType
Undervoltage in sensor or actuator power supply	Module	0x8000	0x0002
Sensor short circuit	I/O connection	0x0001-0x0008 Number of the I/O connection	0x0102
Actuator short circuit	Channel A of an I/O connection	0x0001-0x0008 Number of the I/O connection	0x0100
Actuator short circuit	Channel B of an I/O connection	0x0001-0x0008 Number of the I/O connection	0x0101

12.4 EtherCAT diagnostics

Diagnostic information supplements the input process data. The PDO 0x1001 delivers module-related diagnostic data. The PDO 0x2001 delivers module-related and channel-related diagnostic data. A detailed description can be found in Chapter 11.

The modules can also send emergency notifications to the master if an error is detected.

- Select “All Emergency Notifications” when parameterising the modules to enable emergency notifications.

Structure of an emergency notification

Byte 1 to 2	Byte 3	Byte 4 to 7	Byte 8
Emergency error code	Error register	Diagnostic register	Empty

Emergency error code	Description
0x0000	No error
0x2300	Sensor short circuit Actuator short circuit
0x3100	System/sensor power supply error
0x3300	Actuator power supply error
0xF000	Forcing active
0xFF00	Internal device error
0xFF01	Parameter error (only for UR67-MP-xx-16DIO-12-60M)

The error register corresponds to the content of the PDO 0x1001 of the module. The diagnostic register corresponds to the content of the PDO 0x2001 of the module.

12.5 LED indicators and troubleshooting

LED	Display	Description	Recommended action
General			
U_L	Green	Actuator voltage OK	-
	Red	Actuator voltage < 18 V or > 30 V	Check supply voltage
	Off	No actuator power supply	Check supply voltage, check power supply cable
U_s	Green	System/sensor voltage OK	-
	Red	System/sensor voltage < 18 V or > 30 V	Check supply voltage
	Off	No system/sensor power supply	Check supply voltage, check power supply cable
1 to 8 A	Yellow	Channel A status "on"	-
	Red	Peripheral error (sensor or actuator overload/short circuit)	Check peripheral equipment for short circuit or overload
	Off	Channel A status "off" or not connected	Check cable connected to peripheral equipment
1 to 8 B	White	Channel B status "on"	-
	Red	Peripheral error (sensor or actuator overload/short circuit)	Check peripheral equipment for short circuit or overload
	Off	Channel B status "off" or not connected	Check cable connected to peripheral equipment
X01 Lnk/Act	Green	Connected to next X01 participant, link detected	-
	Yellow flashing	Data being exchanged with another participant	-
	Off	No connection to X01	Check connection to next X01 participant
X02 Lnk/Act	Green	Connected to next X02 participant, link detected	-
	Yellow flashing	Data being exchanged with another participant	-
	Off	No connection to X02	Check connection to next X02 participant
With Ethernet/IP			
MS	Green	Device operational	-
	Green flashing	Device operational but not configured	-
	Red	Critical and non-correctable error	-
	Red flashing	Minor, correctable error	Check configuration, read out diagnostic message, check LEDs of I/O connections
	Alternating red-green flashing	Device running self-test	-
	Off	Device switched off	Check supply voltage
NS	Green	Connected: at least one existing connection	-
	Green flashing	Not connected, IP address available	Check fieldbus cable, check PLC configuration
	Red	Duplicate IP address	Check IP address or assign via DHCP
	Red flashing	Connection timeout or connection interrupted	Check fieldbus cable, check PLC configuration
	Alternating red-green flashing	Device running self-test	-
	Off	Device switched off or no IP address assigned	Check supply voltage, check IP address

LED	Display	Description	Recommended action
With PROFINET			
BF	Red	No connection to fieldbus	Check fieldbus cable, check PLC configuration
	Red flashing (2 Hz)	No data being exchanged	-
	Off	Connected to control unit	-
DIA	Red	Watchdog timeout, diagnosis available, system error	Check configuration, read out diagnostic message, check LEDs of I/O connections
	Red flashing (2 Hz, 3 sec)	DCP signal service triggered via bus	-
	Off	No diagnosis available	-
With EtherCAT			
RUN	Green	Status: OPERATIONAL	-
	Green flashing briefly	Status: SAFE-OPERATIONAL	-
	Green flashing	Status: PRE-OPERATIONAL	-
	Off	Status: INIT	-
	Green flickering	Device starting up or status: BOOTSTRAP	-
ERR	Red	Critical error in module	-
	Red flickering	Start-up error	-
	Red flashing	Configuration error	Check configuration, check that the ESI file is up to date
	Red flashing briefly	Local error or unsolicited status change	-
	Red flashes briefly twice	Watchdog error	Compare master cycle time with watchdog time
	Off	No error	-

13 Web server

The web server is used to display the UR67 module on a connected PC. This allows you to do the following for test purposes or during commissioning or service work:

- Query the module status
- Display and change the module parameters
- Access diagnostic information
- Operate the module in Force mode for testing purposes

13.1 Connecting and starting up the web server

Requirements:

Web browser

The web server can be used with the following web browsers:

- Mozilla Firefox 4.0 or higher
- Google Chrome 9.0 or higher
- Opera 10.61 or higher
- Microsoft Internet Explorer 9, 10 and 11

Screen resolution

When working with the web server, we recommend using a screen resolution of 1280 x 800 or higher, but at least 1024 x 768. The operator front-end is displayed optimally when the browser window is maximised.

Starting up the web server

The module must be completely assembled and supplied with power.

- Make sure that the PC and the module are connected via Ethernet.



The modules are distributed with the IP address 0.0.0.0. A free IP address must be assigned to the module, before you can use the web server (e.g. via an engineering tool). The PC and the module must be in the same subnet.

- Open one of the browsers listed above.
- In the address line, enter the IP address of the module.

The web server will then be started up. The connected module will be displayed.



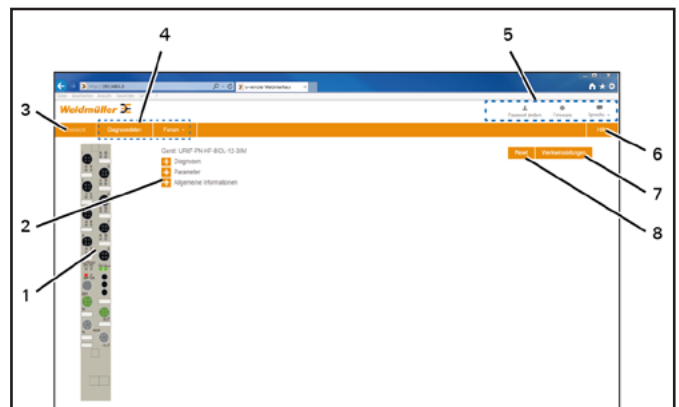
If the web server does not start up:

- Clear the browser cache. Deleting only the history is not a sufficient measure in this instance.
- Restart the web server.
- Check the module IP address and whether the right subnet has been selected.

13.2 Getting to know and arranging the web server

Module overview

The overview page is displayed every time the web server is started up.



Overview page with operating elements

- 1 Module detailed view
- 2 Show or hide details
- 3 Access to overview page
- 4 Access to web server functions
- 5 Menu bar
- 6 Open help dialogue box
- 7 Reset the module to factory settings
- 8 Restart the web server

You can access the overview page at any time by clicking **Overview**.

Operating instructions

Single mouse clicks (left mouse button) are sufficient for operating the web server. Some areas of the interface are mouse-sensitive, i.e. they change when the cursor is moved over these areas and without clicking the mouse ("mouse-over").



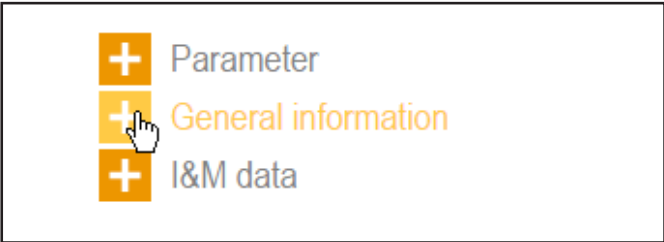
When the cursor changes to this icon, the user is expected to click the mouse.



When the cursor changes to this icon, you can move the screen view by pressing and holding the left mouse button while moving the mouse.

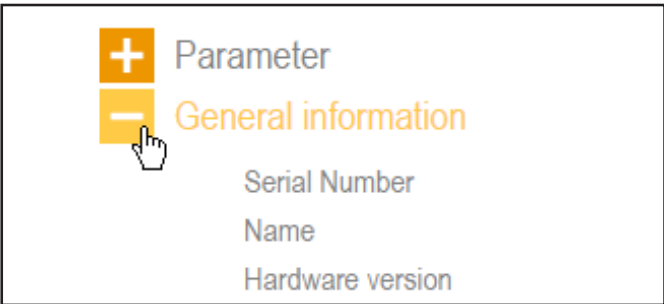
Show or hide content

All entries that are marked with a square plus symbol can be opened and the content displayed with a single mouse click.



Showing content

Conversely, content can be hidden by clicking on the square minus symbol.



Hiding content

Tracking changes

Any settings changed will be marked with a green symbol.

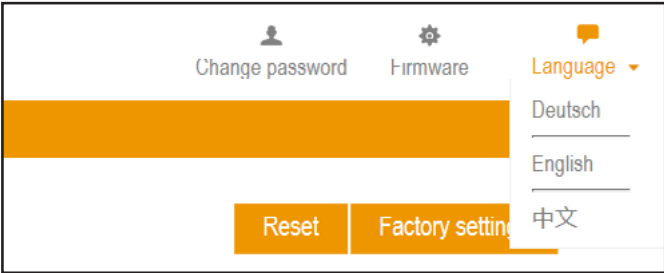


Changes marked with symbol

In this state, you can revert each individual change that has not yet been accepted by the module back to its original setting. All changes are only accepted when you click on **Apply changes**. All changes are reset when you click on **Restore**. Once you have applied or restored the changes, the markers will be removed.

Setting the language

► To change the language, click on **Language** in the menu bar and then on the required setting.



Setting the language

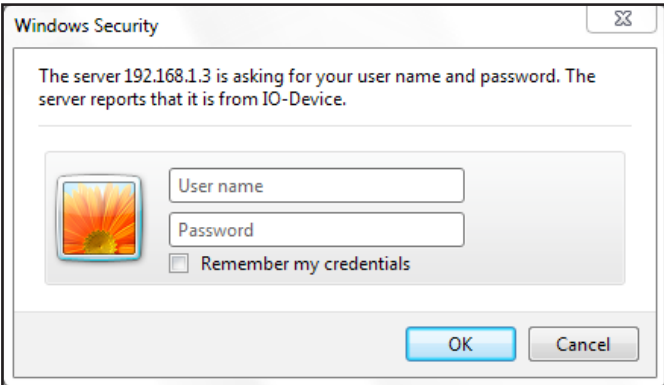
Entering a password

Access to the following functions is restricted by means of password protection:

- Changing parameters
- Operating the module in Force mode
- Downloading firmware updates
- Changing a password

Users without a user ID have read-only rights, but no write access. They cannot use the specified functions. A password is requested the first time an attempt is made in a session to access these functions.

► Enter the username and password and confirm by clicking on **OK**



Entering the username and password

In the original state as at delivery, the login credentials are as follows:

User name: **admin**
Password: **Detmold**



In order to prevent unauthorised access, the login details must be changed when setting up the web server. The local data security provisions must subsequently be observed.

Once you have successfully entered the username and password, you will not have to do it again for the same session. You cannot log out.



To prevent unauthorised access, make sure to always close the browser once you have finished working and when you leave your workstation for a short period of time.

Changing the password

- Click on **Change password**.

The "Change password window opens. You may be prompted beforehand to enter your username and password.

The "Change password" dialog box has an orange header. It contains the following fields and buttons:

- Current login: User name: admin
- New login: (empty text box)
- New password: (empty text box)
- Repeat new password: (empty text box)
- Buttons: Change password, Cancel

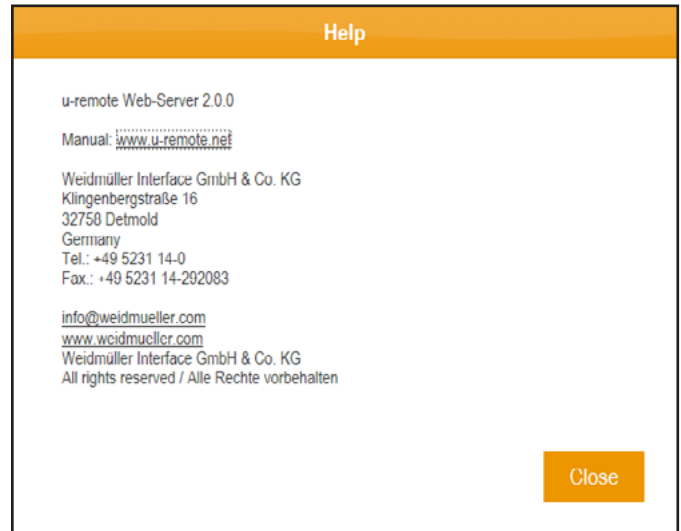
Change password

The new password must contain at least three characters and is case-sensitive.

- Enter a new password.
- Re-enter the password and click on **Change password**.

Documentation

- Click on **Help**.

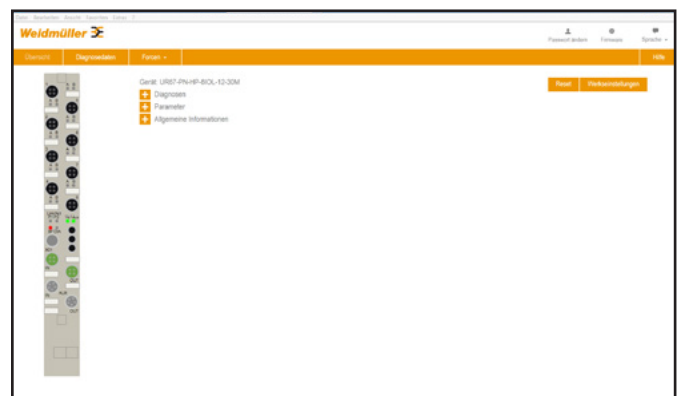


Help dialogue box

- Click on the link to open the Weidmüller website. You will be connected to the Weidmüller website in a new browser window.

13.3 Module settings and diagnostics

- Open the overview page.



Overview page

Here you can:

- Access and change module parameters
- Display diagnoses
- Show general information on the module
- Change a password
- Reset changes
- Reset the module to factory settings



Module settings can only be accessed when Force mode is not enabled.



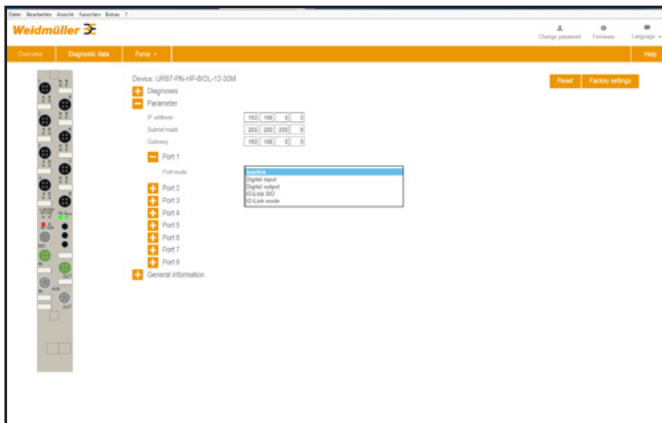
Status data can be displayed at any time regardless of the fieldbus connection. Any changes to settings can only be saved when the fieldbus is not active.

Accessing and editing parameters

- Open the overview page.
- Click on **Parameter**.

The parameters are displayed.

For parameters that can be edited, you can enter the changes in the respective entry field or choose alternative settings from a dropdown menu.



Accessing and editing module parameters

- Enter the required changes.
Each change is labelled with a green symbol until it has been applied.

- Click on **Apply changes** to save the changes.

All changes are only accepted when you click on **Apply changes**. All changes are reset when you click on **Restore**. The changes are then transferred to the module and the green labels removed.

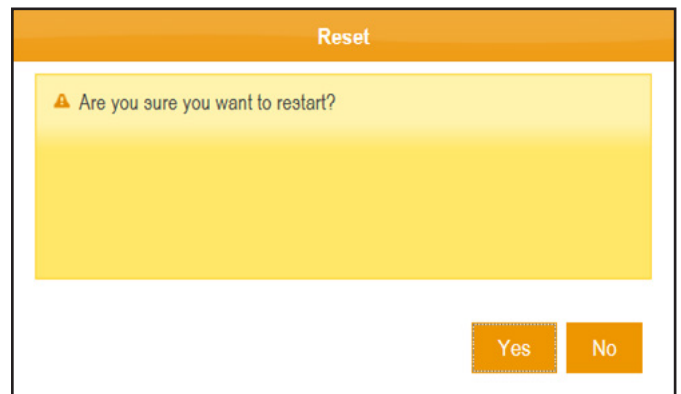
Resetting the web server

Performing a reset allows you to undo all the changes that have been made since the last time that the web server was started up.



The module is restarted during the reset process!
All data that is not protected against power failure is reset.

- Open the overview page.
- Click on **Reset** and then on **Yes**.



Restarting the web server and module

The module and the web server are restarted.

Resetting the module to factory settings

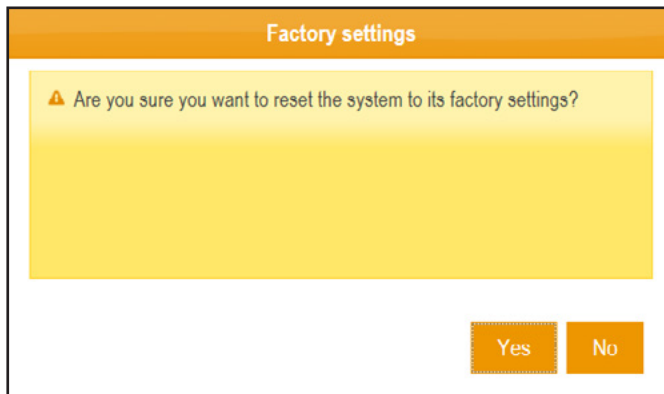
This function allows you to reset the module to its original state upon delivery. The following data is reset as part of this process:

- All module parameters
- Login data and password protection
- Changes to module parameters that have been saved in the module



The module is restarted during the reset process!

- Open the overview page.
- Click on **Factory settings** and then on **Yes**.



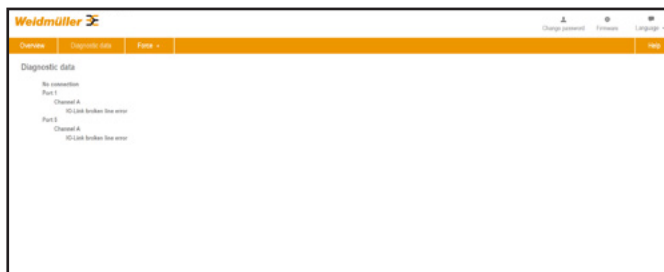
Resetting the module to factory settings

The module and the web server are restarted. The module will once again be in the same state as it was when it was initially delivered.

Displaying diagnostic data

► Click on **Diagnostic data**.

All of the current diagnostic messages are displayed.



Display of diagnostic data

13.4 Web server in Force mode

Enabling Force mode

WARNING!

Manipulation of the control unit!

In Force mode, the system may be manipulated to such an extent that life-threatening personal injury and damage to materials may occur.

Only use Force mode if you are very familiar with the connected system and know at all times the consequences that your actions will have!



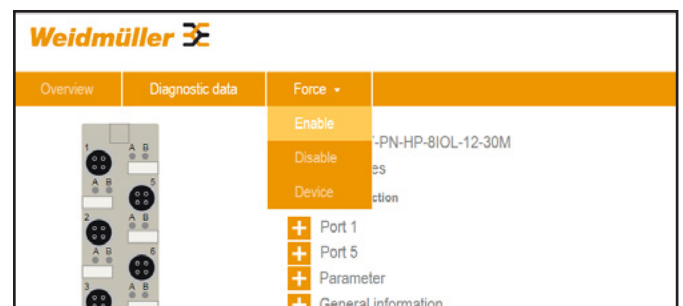
If Force mode is enabled when the fieldbus is connected, a diagnostic alarm is triggered. Depending on the parameterised alarm behaviour, output process data may continue to be transferred by the PLC and processed by the module for all unforced output channels. All of the forced output channels ignore the process data and proceed exclusively according to the forced values. Input process data is always transferred regardless of whether it is simulated through forced operations or has been imported via physical inputs.



If Force mode is enabled without a fieldbus connection being established, the fieldbus interface will be deactivated for the duration of forced operations. A new fieldbus connection may only be established again once Force mode has been terminated.

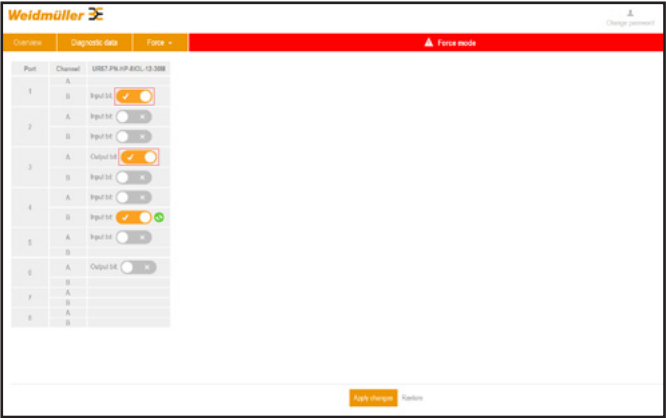
Force mode allows you to carry out functional tests or pre-configure the module prior to commissioning, even if sensors or actuators have not yet been connected. To do so, you must change the operating mode of the web server.

► Click on **Force** and **Enable**.



Enabling Force mode

The web server is now in Force mode, which can be identified by the red bar. Forced channels can be identified by a red border.



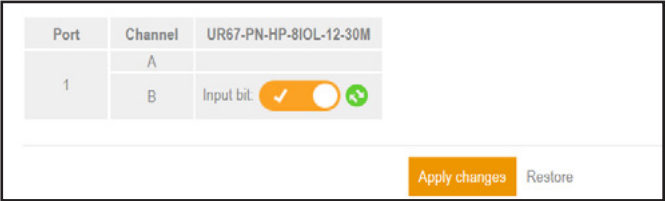
Display in Force mode



Force mode is terminated when the connection between the web server and the module is interrupted.

Forcing channels

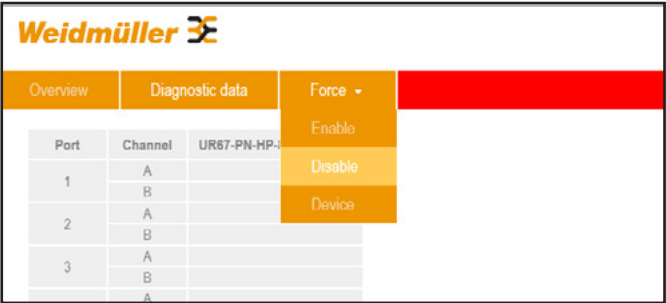
- To force a channel, click on the slider button and then on **Apply changes**.



Forcing a channel

Disabling Force mode

- To disable Force mode, click on **Force** and **Disable**.



Disabling Force mode

The station is put back into the status it was in prior to forced operations.

13.5 Updating firmware



A firmware update cannot be reversed. The old firmware in the module is overwritten.

- Download the current firmware for the components to be updated from the [Weidmüller website](#).

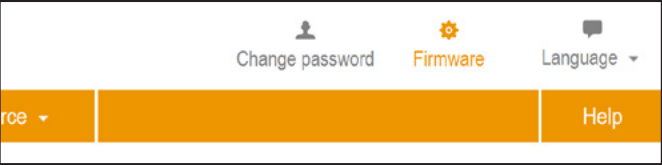
Firmware files have the “bsc” file extension. The file for the UR67-MP modules, for example, is named UR67-MP-00XX.bsc.



- Make sure that the power supply is not interrupted during the firmware update.
- Do not make any changes to the module during the firmware update.

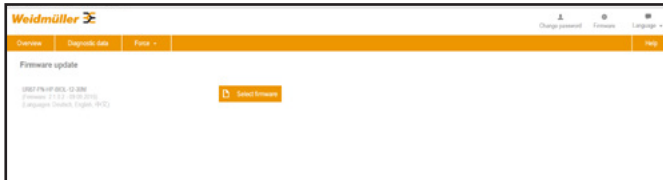
You cannot access the module via the web server while the firmware files are being loaded.

- To carry out a firmware update, click on **Firmware** in the menu bar.



Firmware update menu

The name of the firmware is displayed along with the version that is currently being run.



Updating firmware

- Click on **Select firmware**.
- Select the firmware file from the storage location on your computer and click **Open**.
- Click on **Update now**.

The firmware is updated. Once the update has finished, you will be prompted to restart the coupler.

- Click **Reset**.
- Wait until the coupler has restarted and the station overview is displayed in the web server.



If the web server does not restart, delete the temporary browser data (clear the cache; deleting only the history is not a sufficient measure in this instance) and try to access the web server again.

14 Disassembly and disposal

	WARNING
	Dangerous contact voltage! ▶ All installation and wiring work must be carried out with the power supply disconnected. ▶ Make sure that the place of installation has been disconnected from the power supply!

	CAUTION
	Hot surface! The module can become very hot when in operation (over 60 °C). ▶ Allow the module to cool before touching it.

14.1 Disassembling the u-remote module

- ▶ Remove all cables and lines.
- ▶ Unscrew the mounting screws on the module.
- ▶ Please observe the instructions for proper disposal.

14.2 Disposing of the u-remote module

	ATTENTION
	Products in the u-remote series are subject to WEEE (EU Directive 2012/19 EU), which regulates the collection and recycling of electrical and electronic equipment. ▶ Make sure that disassembled products are properly disposed of!

When all u-remote products reach the end of their life cycle, you can return them to Weidmüller, and we will arrange for their proper disposal. This also applies to countries outside the European Union.

- ▶ Please pack the products properly and send them to your responsible distributor.

You can find the address of your respective country representative on the [Weidmüller website](#).

Weidmüller – Your Partner in Industrial Connectivity

As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Industrial Connectivity.

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