

Assembly and operating instructions

DOM NetManager

EDV-Nr. 351684 / 0 / gb / 07.06 / Version 1.1

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Product Description

The DOM NetManager enables to on-line connect the control units DOM ((o)) butler, DOM AccessManager and ELS-P via Ethernet (optional).

You can furthermore integrate the LSE read and control unit, the MFS multifunctional control unit as well as the 999 online cylinder via DOM NetManager into your network.

The RS232 interface connects the remote devices to the DOM NetManager which will be integrated into your network via Ethernet. The DOM ELS software (3.0 or later, with online module) enables quick and easy configuration of the DOM NetManager.

The Ethernet connection offers numerous advantages:

- Fast data transfer (push-and-pull processing)
- Energy transfer through PoE (Power-over-Ethernet) is available
- Use of standard devices (switch, hub, repeater) for bus extension
- Use of existing networks (WAN)
- No rental charges or licence fees
- Standard for all DOM products and applications (office, factory, home)
- Interface to devices of other manufacturers

You principally need one DOM NetManager per remote device in order to enjoy all benefits of the Ethernet connection. You can furthermore configure the DOM NetManager as a Com server and integrate existing M-bus tracks.

Interface adapters for remote devices without RS232 interface are directly available from DOM. These adapters allow the network integration and on-line management of all on-line compatible DOM ELS devices via DOM NetManager.

Scope of Supply

NetManager

PVC tube

Assembly Instructions for hardware

Your Safety

Always comply with the instructions and security statements!

In this assembly instructions, several sections are marked by graphical symbols.

Please memorise the graphical symbols and their meanings:



Caution! This symbol marks a danger note and/or refers to an action that may cause damage to the DOM NetManager or other objects.



Note! This symbol refers to useful information on assembly or operation.

Important Notes



Caution! Material damage caused through incorrect storage. If you store DOM NetManager for a longer period of time before assembly, store all components dry and dust-free in the original packaging.



Caution! Damage caused through inexpert assembly. Please read these instructions completely and carefully before assembly and taking into operation. Follow the instructions step by step. The manufacturer accepts no liability for damage resulting from an inexpert assembly.



Caution! DOM ((o)) butler must not be used in explosion-endangered areas.



Caution! Electrostatic discharging may cause damage to material. The DOM NetManager comprises non-insulated contacts. Always make sure that such contacts are sufficiently earthed while assembling (e.g. with earthing strip).

Assembly

Proceed in the described order and pay attention to the notes and illustrations.



Caution! Material damage caused through a too strong tightening of screwed connections. Always comply with the specified torques.



Caution! If you connect a remote device to the DOM NetManager, you must follow the assembly and operating instructions for such device.



Caution! The Ethernet cable must always be connected to the system. Please make sure that the connecting device is properly insulated (e.g. with PVC shield), failure to do so may result in short circuit.



Caution! The circuit boards are firmly attached to each other. Never attempt to separate those boards as such action may cause the destruction of DOM NetManager.



Note! Always connect the shield of the RS232 cable on one side in order to prevent external EMV interference.



Note! The DOM NetManager can be mounted on commercially available outlet sockets (Ø 60 mm, depth 63 mm)



Note! For structural reasons, the DOM NetManager should not be firmly attached but only plugged in. Please note that the cabling may separate the DOM NetManager from the socket. The wire should therefore only project 6 cm from the socket.



Note! The twisted pair of Ethernet Rx₊ and Tx₊ cables should remain in such state up to the connecting terminal at the DOM NetManager!



Note! Ethernet cables may be of two different standards for wire colours (EIA/TIA-T568A or EIA/TIA-T568B). You must connect the wires accordingly, depending on the cable you are using (Please note the table on p. 6).

Connection Layout DOM NetManager

Pin	Signal	Ethernet Standard EIA/TIA-T568A	Ethernet Standard EIA/TIA-T568B
1	$U_{ext} = +12V$ DC output or 12V – 24V DC input		
2	GND (for Power and RS232)		
3	TxD RS232		
4	RxD RS232		
5	Tx+ Ethernet	Wire 1 (white/green)	Wire 1 (white/orange)
6	Tx- Ethernet	Wire 2 (green)	Wire 2 (orange)
7	Rx+ Ethernet	Wire 3 (white/orange)	Wire 3 (white/green)
8	Rx- Ethernet	Wire 6 (orange)	Wire 6 (green)
9	Shield Ethernet		
10	SPA Ethernet PoE	Wire 7 (white/brown) + Wire 8 (brown)	Wire 7 (white/brown) + Wire 8 (brown)
11	SPB Ethernet PoE	Wire 4 (blue) + Wire 5 (white/blue)	Wire 4 (blue) + Wire 5 (white/blue)
12	M-BUS , bus connection 1 (keyed)		
13	M-BUS , bus connection 2 (keyed)		

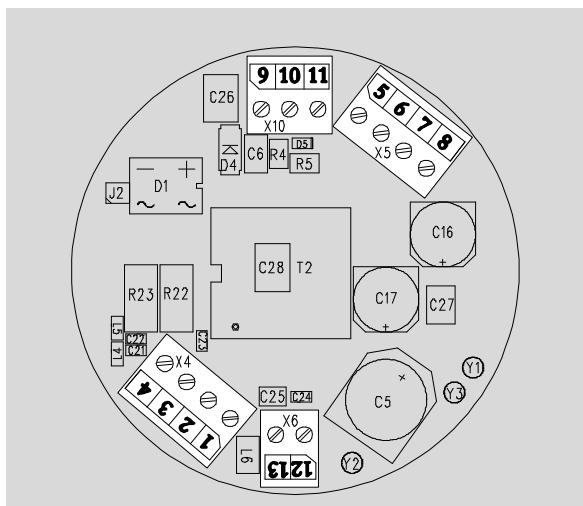


Fig.: Component Side

There are four connecting clamps on the component side.

The contact pins are numbered (1 to 13) in order to facilitate the allocation of clamps.



Caution! Do not tighten the screws of the connectors as long as the connectors are plugged in. They might damage the contact pins.

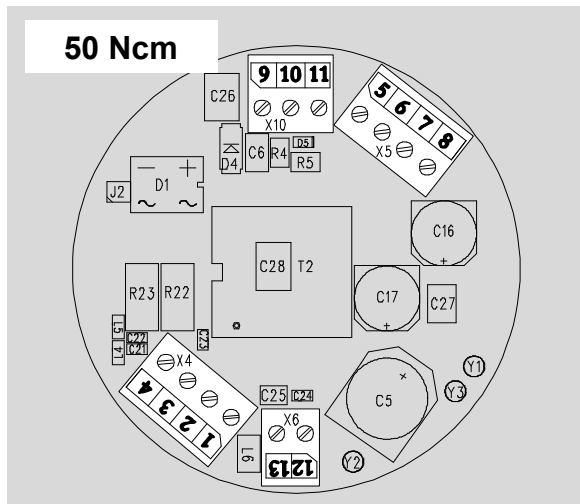


Fig.: Component Side

1. Carefully remove the clamps before connecting the wires.
 2. Loosen the clamping bolt.
 3. Remove 60 mm of the Ethernet cable insulation.
 4. Untwist the shield and twist approx. two thirds of the wires into one strand.
 5. Cover the entire strand with PVC. Make sure that the PVC tube completely covers all wires.
6. Connect the Ethernet cable shield to clamp 9 of the DOM NetManager. Use suitable wire end jackets without collar if necessary.
 7. Remove the metal shielding foil.
 8. Remove 5 mm of the insulation from each wire which is to be used for installation.
 9. Use suitable wire end jackets if necessary.
 10. Connect the wires according to the following instructions:
 11. Tighten the connecting clamps (max. 50 Ncm).
 12. Re-attach the clamps to their allocated outlet.
 13. Insert cable and DOM NetManager to socket.



Caution! The circuit boards must not be separated when removing the DOM NetManager from the socket.

Connection to Power Supply

There are four options for connection to power supply.

Pin	Signal	Ethernet Standard EIA/TIA-T568A	Ethernet Standard EIA/TIA-T568B
1	$U_{\text{ext}} =$ +12V DC out or 12V – 24V DC input		
2	GND (for Power and RS232)		
5	Tx+ Ethernet	Wire 1 (white/green)	Wire 1 (white/orange)
6	Tx- Ethernet	Wire 2 (green)	Wire 2 (orange)
7	Rx+ Ethernet	Wire 3 (white/orange)	Wire 3 (white/green)
8	Rx- Ethernet	Wire 6 (orange)	Wire 6 (green)
9	Shield Ethernet		
10	SPA Ethernet PoE	Wire 7 (white/brown) + Wire 8 (brown)	Wire 7 (white/brown) + Wire 8 (brown)
11	SPB Ethernet PoE	Wire 4 (blue) + Wire 5 (white/blue)	Wire 4 (blue) + Wire 5 (white/blue)

Option 1: mid-span device (e.g. PoE injector)

If PoE is used via mid-span device, the Ethernet cable wires 7 and 8 must be connected to clamp 10 of the NetManager and wires 4 as well as 5 to clamp 11.

Option 2: end-span device (e.g. PoE switch)

If a PoE end-span device is used, the energy input to the data busses is carried out via clamps 5 to 8 (wires 1, 2, 3, 6). Clamps 10 and 11 are not used.

Option 3: DOM NetManager energy supply via external source

If you want to supply the DOM NetManager from an external power source (12 V – 24 V DC), connect clamp 1 to the positive pole and clamp 2 to the negative pole. Note! You may use the same source for power supply to the remote device.

Option 4: DOM NetManager power supply via remote device

If the remote is supplied from an external power source, you may connect the DOM NetManager to the remote device's positive pole to clamp 1 and the negative pole to clamp 2.

Connecting the Remote Device

The remote devices are connected to the DOM NetManager via the RS232 interface. This requires clamps 1 to 4.

Pin	Signal	DOM NetManager
1	U_{ext}	= +12V DC output or 12V – 24V DC input
2	GND	(for Power and RS232)
3	TxD	RS232
4	RxD	RS232

DOM ((o)) butler

Please connect as follows depending on whether the DOM ((o)) butler control unit is the power supply for DOM NetManager:

DOM ((o)) butler supplies DOM NetManager	
DOM NetManager	DOM ((o)) butler
Clamp 1	To Clamp 7
Clamp 2	To Clamp 8
Clamp 3	To Clamp 10
Clamp 4	To Clamp 9

DOM NetManager supplies DOM ((o)) butler	
DOM NetManager	DOM ((o)) butler
Clamp 1	To Clamp 18
Clamp 2	To Clamp 8
Clamp 3	To Clamp 10
Clamp 4	To Clamp 9

DOM ELS 999R

If the DOM NetManager is to be supplied from the 999R on-line cylinder, the DOM NetManager must be connected to the ELS-RS232 bus connector of the corresponding cylinder:

DOM ELS 999R as remote device	
DOM NetManager	ELS-RS232 bus connector
Clamp 1	To Clamp 12 V
Clamp 2	To Clamp GND
Clamp 3	To Clamp RxD
Clamp 4	To Clamp TxD

DOM LSE

If a DOM LSE control unit is to be supplied by the DOM NetManager, the NetManager must be connected to a bus master. The DOM NetManager may then be supplied from either PoE or an external power source.

DOM LSE as remote device	
DOM NetManager	A3 / A1000 bus master
Clamp 2	To Clamp GND
Clamp 3	To Clamp RxD
Clamp 4	To Clamp TxD

DOM MFS

The connection of the NetManager to a multifunctional control unit (MCU) requires the RS232 interface adapter which is available from DOM.

DOM MFS as remote device	
DOM NetManager	RS232 interface adapter
Clamp 1	To Clamp 12 V
Clamp 2	To Clamp GND
Clamp 3	To Clamp RxD
Clamp 4	To Clamp TxD

DOM AccessManager

Please connect as follows depending on whether the DOM AccessManager control unit is the power supply for DOM NetManager:

DOM AccessManager supplies DOM NetManager	
DOM AccessManager	DOM NetManager
Clamp 1	To Clamp 3
Clamp 2	To Clamp 4
Clamp 9 ^{x1}	To Clamp 2
Clamp 10	To Clamp 1

X1: and the bridge to clamp 3

DOM NetManager supplies DOM AccessManager	
NetManager	DOM AccessManager
Clamp 1	To Clamp 7
Clamp 2	To Clamp 8 ^{x1}
Clamp 3	To Clamp 1
Clamp 4	To Clamp 2

X1: and the bridge to clamp 3

Connecting the Network



Note! The twisted pair of Ethernet Rx₊ and Tx₊ cables should remain in such state up to the connecting terminal at the DOM NetManager!

Pin	Signal		Ethernet Standard EIA/TIA-T568A	Ethernet Standard EIA/TIA-T568B
5	Tx+	Ethernet	Wire 1 (white/green)	Wire 1 (white/orange)
6	Tx-	Ethernet	Wire 2 (green)	Wire 2 (orange)
7	Rx+	Ethernet	Wire 3 (white/orange)	Wire 3 (white/green)
8	Rx-	Ethernet	Wire 6 (orange)	Wire 6 (green)
9	Shield	Ethernet		
10	SPA	Ethernet PoE	Wire 7 (white/brown) + Wire 8 (brown)	Wire 7 (white/brown) + Wire 8 (brown)
11	SPB	Ethernet PoE	Wire 4 (blue) + Wire 5 (white/blue)	Wire 4 (blue) + Wire 5 (white/blue)

Data transfer is principally carried out at clamps 5 to 8.



Note! Ethernet cables may be of two different standards for wire colours (EIA/TIA-T568A or EIA/TIA-T568B). You must connect the wires accordingly, depending on the cable you are using.



Note! PoE via mid-span device (PoE injector) requires additionally connecting the Ethernet cable wires 7 and 8 to NetManager clamp 10 and Ethernet cable wires 4 as well as 5 to clamp 11.



Note! If you have chosen a PoE end-span device (PoE switch) for data transmission, the data busses are also supplied at clamps 5 to 8 (wires 1, 2, 3, 6). Clamps 10 and 11 are not used. You may, however, connect wires 4, 5, 7 and 8 to the clamps 10 and 11 for insulation purposes if such wires are not used otherwise within the network wiring.

M-Bus Function

The M-bus interface may also be used for deploying the DOM NetManager for existing M-bus systems. This furthermore enables the connection of other devices (e.g. DOM AccessManager) to existing M-bus tracks.

Pin	Signal
12	M-BUS , bus track 1 (keyed)
13	M-BUS , bus track 2 (keyed)

Configuration via RS232 interface

If the network parameters are not to be transmitted via a Ethernet interface, you may alternatively configure the DOM NetManager via the RS232 interface. The DOM NetManager may also be supplied via PoE or an external power source.

This mode is enabled by keeping the reset button pressed, when the device is switched on, until LED1 und LED3 alternatingly flash at 1Hz (Fig. S1, page 14). The DOM NetManager is running in RS232 configuration mode until you restart the device by pressing the reset button and/or switching the device on/off.

DOM NetManager connected to PC (RS232)	
NetManager	RS232 Sub-D plug
Clamp 2	Pin 5: GND
Clamp 3	Pin 2: RxD
Clamp 4	Pin 3: TxD

Programming and managing using software

The DOM NetManager allows the on-line management of not only the 999R on-line cylinder, the LSE and the MFS but also the DOM ((o)) butler, DOM AccessManager as well as the ELS-P control units (optional).

The DOM NetManager is equipped with an Ethernet interface which allows data transfer to a PC or laptop computer.

The management of remote devices via DOM NetManager requires ELS software 3.0 (or later) with on-line module. This allows the management and programming of DOM ((o)) butler and ELS systems. You can manage ID transmitters, transponders, authorisations as well as other functions which are only accessible via software.

Other functions include:

- ◆ Reading-out of the event memory
- ◆ Assigning of time zones as authorisation for closing
- ◆ Input and output configuration via SPS
- ◆ Configuration of other parameters (e.g. time windows, on/off signals)
- ◆ Individually delete lockup facilities

In addition, the use of the software offers more convenience and clarity for the management of larger systems, compared to the use of the master ID transponder, or MID-Card und Program-Card.



Note! The programming and the administration of DOM NetManager with the ELS software is described in the respective manual for the software.

Start-Up

After connecting the remote device to the DOM NetManager and the Ethernet cable to the network, you can start the DOM NetManager.

Please adhere to the following instructions:

1. Enable power supply.

At first, the orange LED flashes (approx. 1Hz) while the red LED is lit.

Status: power on	LED orange	LED red
NetManager not yet configured		

The DOM NetManager was started and can now be configured with the ELS software.

Status Reports and Order of Signals

After successful configuration (see software manual), you can on-line manage the remote device which is connected to the DOM NetManager.



Note! Please try to memorise the following order of signals in order to be able to identify the DOM NetManager as well as remote device modes at all times.

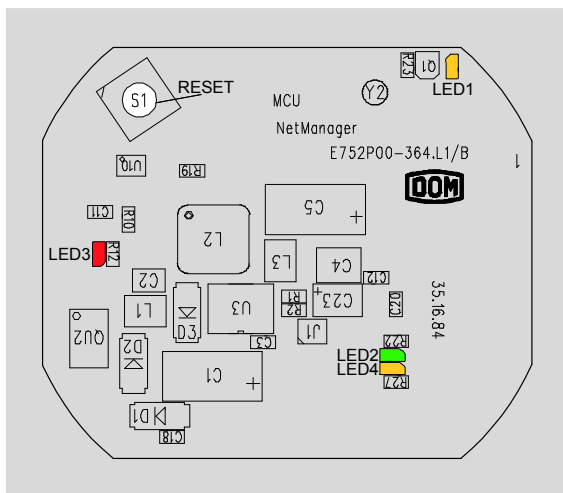


Fig: Upper circuit board

There are four LEDs for visualisation of the mode on the upper circuit board.

LED1 (orange) indicates the data transfer between DOM NetManager and remote device (RS232).

LED2 (green) indicates that the DOM NetManager is connected to the network.



LED3 (red) indicates data transfer between DOM NetManager and PC (Ethernet).

LED4 (orange) indicates transfer of general data within the network, other than data from DOM NetManager.

Connection and Data Transfer


The DOM NetManager displays the different modes as follows:

The orange and red LEDs are lit as long as the DOM NetManager has not been activated in the ELS software.


Status: configuration complete	LED1 orange	LED3 red
Connection between PC and remote device is ok.		

If the DOM NetManager is activated through the ELS software, both LEDs may flash regardless whether there is data transfer between PC, DOM NetManager and remote device.



The orange LED flashes (approx. 1Hz) as soon as the DOM NetManager is activated through the ELS software.

Status: configuration complete	LED1 orange
Data transfer remote device (RS232)	

The red LED flashes while data is transmitted and as soon as the DOM NetManager is activated through the ELS software.

Status: configuration complete	LED3 red
Data transfer PC (Ethernet)	

The orange LED flashes when data are transmitted within the network, regardless of the DOM NetManager. The green LED is lit as soon as the DOM NetManager is connected to the network.

Status: configuration complete	LED4 orange	LED2 green
The NetManager ist connected to the network.		


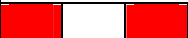
Troubleshooting

If there are problems with data transfer, you may monitor the LEDs' signal order in order to track down an error.



Status Reports

The DOM NetManager indicates errors as follows:



The orange LED is lit, the red LED flashes (approx. 1Hz).

Status:	LED1 orange	LED3 red
Device connection error, PC connection ok		



The orange LED is lit, the red LED flashes (approx. 2.5Hz).

Status:	LED1 orange	LED3 red
PC connection error, device connection ok		

The orange LED is lit, the red LED flashes (approx. 10Hz).

Status:	LED1 orange	LED3 red
PC and device connection error		

Both the orange and the red LED flash (approx. 10Hz).

Status:	LED1 orange	LED3 red
Hardware error DOM NetManager		

Reset Function

The reset function (see p. 14 fig. S1) allows to revert to earlier configuration levels.



Note! Disable the DOM NetManager through the ELS-Software before pushing the reset button in order to be able to clearly identify the LEDs' signal order.

Level 1: Press reset button for less than 3 seconds

Pressing the reset button for less than 3 seconds will cause a restart. It is similar to an interruption of power supply. IP address and remote devices with encoding remain in the DOM NetManager. The LEDs will switch back to their restart configuration. Both the orange and the red LED will be lit afterwards.

Status: configuration complete	LED1 orange	LED3 red
Reset button is pressed (< 3 secs)		
After releasing reset button		

Level 2: Press reset button between 3 to 6 seconds

Pressing the reset button between 3 to 6 seconds will delete the remote device with encoding from the DOM NetManager. The IP address, however, remains. Both the orange and the red LED flash (approx. 1Hz). Afterwards, the orange LED flashes (approx. 1Hz) while the red LED is lit.

Status: configuration complete	LED1 orange	LED3 red
Reset button is pressed (< 3 secs)		
Reset button is pressed (3 to 6 secs)		
After releasing reset button		

Level 3: Press reset button for more than 6 seconds

Pressing the reset button for more than 6 seconds will delete the remote device with encoding as well as the IP address from the DOM NetManager. The DOM NetManager needs re-configuring. The orange LED flashes at approx. 10Hz, while the red LED is flashes at approx. 0.5Hz. Afterwards, the orange LED flashes (approx. 0.5Hz) while the red LED is lit.

Status:	LED1 orange	LED3 red
Reset button is pressed (3 secs)		
Reset button is pressed (3 to 6 secs)		
Reset button is pressed (6 to 9 secs)		
After releasing reset button		

Maintenance

The DOM NetManager does not require maintenance.

Storage/Maintenance

If the DOM NetManager is to be stored for a prolonged period of time before assembly or after use, store it dry and dust-free in the original packaging.



Caution! Material damage caused through the use of aggressive cleaners. Do not use any aggressive cleaners, graphite or oil. Only use a slightly moist and soft leather cloth without detergent for cleaning the socket lid.

Disposal


Please note that DOM NetManager partially consists of electronic components that have to be disposed of in a specific way. Always comply with all customary provisions for the protection of the environment when disposing of them.

You can also send the components of your DOM NetManager in the original packaging back to the manufacturer.

Technical Data



Note! The indicated technical data represent the latest status. Technical modifications reserved.

Power supply (alternative):	<table border="1"> <tr> <td>U_{ext} (Clamp 1-4 (1)):</td> <td>12 – 24V DC ± 10%</td> </tr> <tr> <td>Power over Ethernet PD (IEEE802.3af):</td> <td>44 – 57V DC</td> </tr> <tr> <td>M-BUS (Clamp 12-13)</td> <td>30 – 40 V DC</td> </tr> </table>	U _{ext} (Clamp 1-4 (1)):	12 – 24V DC ± 10%	Power over Ethernet PD (IEEE802.3af):	44 – 57V DC	M-BUS (Clamp 12-13)	30 – 40 V DC						
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Power over Ethernet PD (IEEE802.3af):	44 – 57V DC												
M-BUS (Clamp 12-13)	30 – 40 V DC												
Power supply U_{ext} from PoE:	<table border="1"> <tr> <td>Initial Voltage:</td> <td>U_{ext} = 12V DC ± 5%</td> </tr> <tr> <td>VSWR:</td> <td>U_{ext,ripple} < 250mV</td> </tr> <tr> <td>Max. thermal current load:</td> <td>I_{ext} < 500mA</td> </tr> <tr> <td>Pulse current load:</td> <td>I_{ext,peak} < 850mA</td> </tr> <tr> <td>Loading time:</td> <td>t_{ext,peak} < 1s</td> </tr> <tr> <td>Efficiency (with P_{ext} = 5W):</td> <td>η ≈ 80%</td> </tr> </table>	Initial Voltage:	U _{ext} = 12V DC ± 5%	VSWR:	U _{ext,ripple} < 250mV	Max. thermal current load:	I _{ext} < 500mA	Pulse current load:	I _{ext,peak} < 850mA	Loading time:	t _{ext,peak} < 1s	Efficiency (with P _{ext} = 5W):	η ≈ 80%
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Max. thermal current load:	I _{ext} < 500mA												
Pulse current load:	I _{ext,peak} < 850mA												
Loading time:	t _{ext,peak} < 1s												
Efficiency (with P _{ext} = 5W):	η ≈ 80%												
Power intake:	<table border="1"> <tr> <td>U_{ext} = 12V ... 24V DC</td> <td>I_{ext} < 50 mA</td> </tr> <tr> <td>PoE (with I_{ext} = 0mA):</td> <td>I_{PoE} < 15 mA</td> </tr> <tr> <td>M-BUS:</td> <td>I_{MBUS} < 15 mA</td> </tr> </table>	U _{ext} = 12V ... 24V DC	I _{ext} < 50 mA	PoE (with I _{ext} = 0mA):	I _{PoE} < 15 mA	M-BUS:	I _{MBUS} < 15 mA						
U _{ext} = 12V ... 24V DC	I _{ext} < 50 mA												
PoE (with I _{ext} = 0mA):	I _{PoE} < 15 mA												
M-BUS:	I _{MBUS} < 15 mA												
Data input with power failure:	Configuration parameters												
Ethernet interface:	<table border="1"> <tr> <td>10BASE-TX Ethernet (IEEE802.3) with 10 MBit: Clamp 5-8: Tx+ (5), Tx- (6), Rx+ (7), Rx-(8) Clamp 9-11 Shield (9), SPA (10), SPB (11)</td> </tr> <tr> <td>Cable length max. 100m</td> </tr> <tr> <td>Cable type (STP): CAT5 (recommended), CAT5e, CAT6</td> </tr> </table>	10BASE-TX Ethernet (IEEE802.3) with 10 MBit: Clamp 5-8: Tx+ (5), Tx- (6), Rx+ (7), Rx-(8) Clamp 9-11 Shield (9), SPA (10), SPB (11)	Cable length max. 100m	Cable type (STP): CAT5 (recommended), CAT5e, CAT6									
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Cable length max. 100m													
Cable type (STP): CAT5 (recommended), CAT5e, CAT6													
RS232 interface: to ELS device or to PC configuration	<table border="1"> <tr> <td>Clamp 1-4: RxD (4) , TxD (3) and GND (2)</td> </tr> <tr> <td>Cable length max. 15m (EIA standard)</td> </tr> <tr> <td>Recommended cable type: LIYCY 4×0.14</td> </tr> <tr> <td>Attach shield on one side only.</td> </tr> <tr> <td>Baud rates: 4.8, 9.6, 19.2, 38.4 and 57.6kBaud</td> </tr> </table>	Clamp 1-4: RxD (4) , TxD (3) and GND (2)	Cable length max. 15m (EIA standard)	Recommended cable type: LIYCY 4×0.14	Attach shield on one side only.	Baud rates: 4.8, 9.6, 19.2, 38.4 and 57.6kBaud							
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Baud rates: 4.8, 9.6, 19.2, 38.4 and 57.6kBaud													
M-BUS interface:	<table border="1"> <tr> <td>Clamp 12-13, keyed.</td> </tr> <tr> <td>For operating at ELS-O-DBM/R bus master only</td> </tr> <tr> <td>Cable length / cable type according to ELS-O-DBM/R bus master specification (max. 1000m)</td> </tr> </table>	Clamp 12-13, keyed.	For operating at ELS-O-DBM/R bus master only	Cable length / cable type according to ELS-O-DBM/R bus master specification (max. 1000m)									
Clamp 12-13, keyed.													
For operating at ELS-O-DBM/R bus master only													
Cable length / cable type according to ELS-O-DBM/R bus master specification (max. 1000m)													
Temperatures:	<table border="1"> <tr> <td>To operate:</td> <td>0 °C to + 55 °C</td> </tr> <tr> <td>To store:</td> <td>-20 °C bis + 80 °C</td> </tr> </table>	To operate:	0 °C to + 55 °C	To store:	-20 °C bis + 80 °C								
To operate:	0 °C to + 55 °C												
To store:	-20 °C bis + 80 °C												
Relative humidity:	20% to 99% R.H. (without condensation effects)												
Protection type:	Depending on installation conditions, at least IP10												
Protection class:	III: Max. 60V DC or 42V AC _{peak} according to EN60950												
Approvals:	 In conformity with EMV												
Assembly:	<table border="1"> <tr> <td>In socket Ø60×42 mm or connection box Ø60×63 mm (recommended!) according to DIN VDE 0606, DIN VDE 0471, DIN IEC 695</td> </tr> </table>	In socket Ø60×42 mm or connection box Ø60×63 mm (recommended!) according to DIN VDE 0606, DIN VDE 0471, DIN IEC 695											
In socket Ø60×42 mm or connection box Ø60×63 mm (recommended!) according to DIN VDE 0606, DIN VDE 0471, DIN IEC 695													
Measurements	<table border="1"> <tr> <td>Ø = 55mm, depth = 27 mm</td> </tr> <tr> <td>Upper circuit board: 42mmx50mm with Ø_{max} = 55mm</td> </tr> </table>	Ø = 55mm, depth = 27 mm	Upper circuit board: 42mmx50mm with Ø _{max} = 55mm										
Ø = 55mm, depth = 27 mm													
Upper circuit board: 42mmx50mm with Ø _{max} = 55mm													
Weight:	Approx. 0,048kg												

Warranty

The limitation period for the customer's rights is twelve months after the delivery of the delivery item to the customer. The statutory periods of limitation shall remain valid for claims for damages on the part of the customer for other reasons than defects of the delivery item as well as with regard to the customer's rights in the case of a fraudulent concealment of defects or wilfully caused defects. The limitation provisions of § 479 German Civil Code shall remain unaffected.

Should you have any questions that are not answered by the information contained in these assembly and operating instructions, please contact one of the branch offices in your country directly.

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