

Assembly and Operating Instructions

DOM RF NetManager

EDV-Nr. ##### / 0 / gb / 01.08 / Version 1.0

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Product Description

Thanks to the connection of the DOM Protectors to the DOM RF NetManager by radio, you can integrate the DOM Protector[®] into your network without any cables, and thus without having to make any alterations to the door. The DOM RF NetManager also enables the online connection of the DOM Protector by Ethernet.

The DOM Protector[®] is connected to the DOM RF NetManager via a radio interface. Der DOM RF NetManager will be integrated into your network via Ethernet. The DOM ELS software (4.1 or later, with online module) enables quick and easy configuration of the DOM RF NetManager.

The connection of the DOM RF NetManager by Ethernet also offers you further advantages:

- Fast transmission of programming data to the DOM Protector[®] and of events from the DOM Protector[®].
- Supplying of power to the DOM RF NetManager possible without additional cabling, using PoE (**P**ower **o**ver **E**thernet).
- 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
- Expanded functioning through the use of the two inputs and of the output e.g. as door contact, external releasing, activation of the permanently-shut mode, alarm warnings etc.

You principally need one DOM RF NetManager per DOM Protector[®] in order to enjoy all benefits of the Ethernet connection.

Scope of Supply

DOM RF NetManager
RF Online-Card
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 RF 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 RF NetManager for a longer period of time before assembly, store all components dry and dust-free in the original packaging.



Caution! Damage caused through inexperienced 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 inexperienced assembly.



Caution! DOM RF NetManager must not be used in explosion-endangered areas.



Caution! Electrostatic discharging may cause damage to material. The DOM RF 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 RF 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 RF NetManager.



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



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



Note! For structural reasons, the DOM RF NetManager should not be firmly attached but only plugged in. Please note that the cabling may separate the DOM RF 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 RF 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).



Note! Covers of switchboxes should not contain any metal. A switchbox with DOM RF NetManager should not be covered with metallic furniture or objects. The range of the radio connection can be greatly reduced.

Connection Layout DOM RF 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 and/or input		
4	RxD RS232 and/or input		
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)	Wire7 (white/brown) + Wire 8 (brown)
11	SPB Ethernet PoE	Wire 4 (blue) + Wire 5 (white/blue)	Wire 4 (blue) + Wire 5 (white/blue)
12	Output		
13	Output		

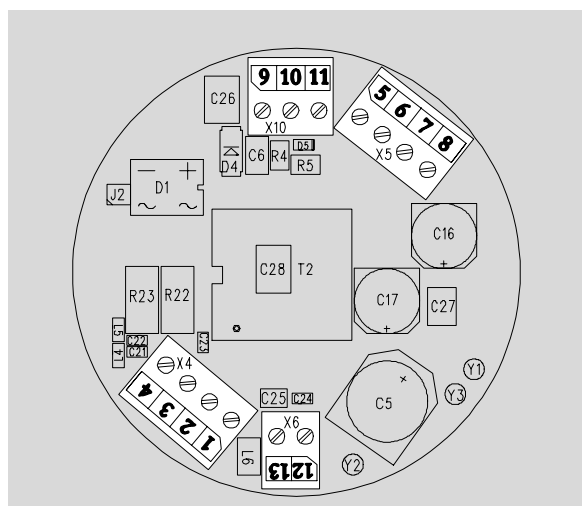


Fig.: Component Side

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.

Installation with Ethernet Connection

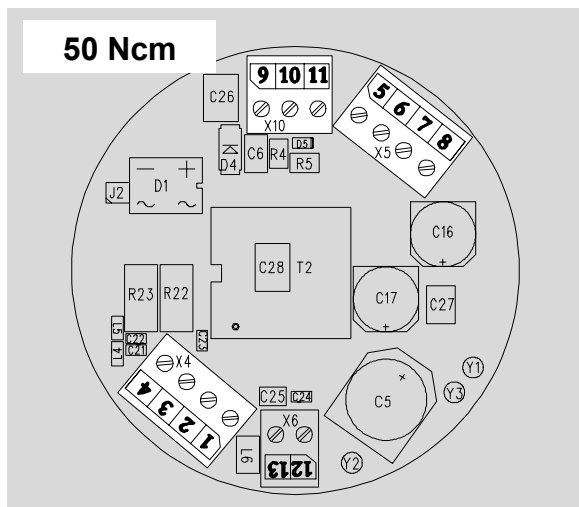


Fig.: Component Side

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 RF 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 RF NetManager to socket.



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



Note! The various possible ways of using the inputs and outputs are conveyed in special training sessions by DOM Sicherheitstechnik, and are not described in this manual.

Connection to Power Supply

For the power supply of the DOM RF NetManager you have three options.

Pin	Signal	Ethernet Standard EIA/TIA-T568A	Ethernet Standard EIA/TIA-T568B
1	$U_{\text{ext}} =$ +12V DC output 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 DOM RF 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 RF NetManager energy supply via external source

If you want to supply the DOM RF 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.

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 RF NetManager!

Pin	Signal	Ethernet Standard	Ethernet Standard
		EIA/TIA-T568A	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 DOM RF 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.

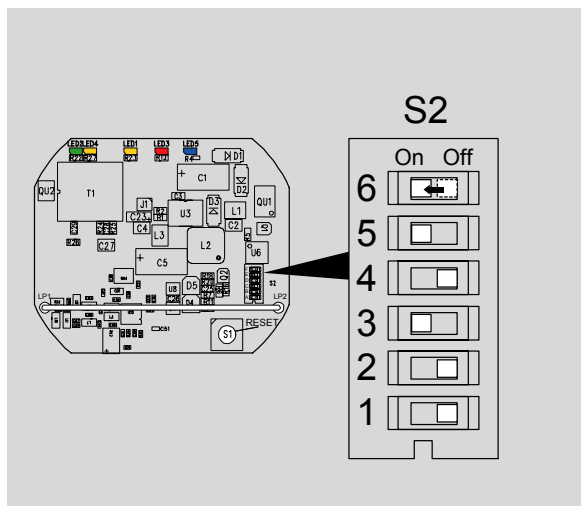
Configuration via RS232 interface

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

DOM RF NetManager connected to PC (RS232)	
DOM RF NetManager	RS232 Sub-D plug
Clamp 2	Pin 5: GND
Clamp 3	Pin 2: RxD
Clamp 4	Pin 3: TxD
Switches 3, 5 and 6 to S2	On
Switches 2 and 4 to S2	Off



Caution! Always disconnect the DOM RF NetManager from the power supply before you alter the switch positions to S2.



In its condition as supplied to the customer the switches 3 and 5 are switched on (On) and the switches 1, 2, 4 and 6 closed (Off).

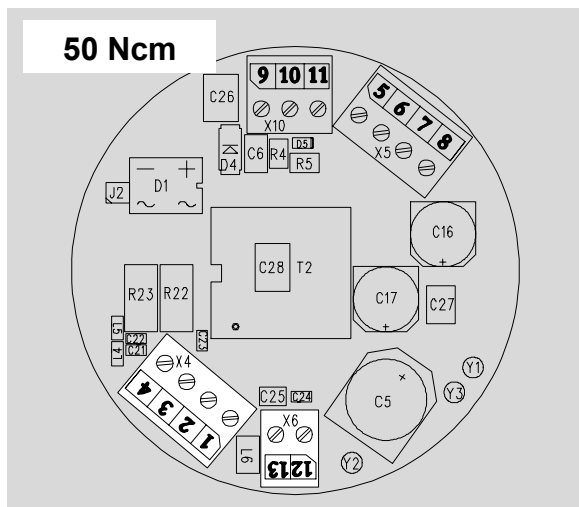
In order to activate the RS232 mode, you must also switch the switch 6 to On and restart the DOM RF NetManager.

Fig.: DIP Switch S2



Note! If you set the switches 2 and 4 to On, then the terminals 3 and 4 are switched as inputs. In this case, you must accordingly set the switches 3, 5 and 6 to Off and re-starting is necessary. (see also Figure on page 12).

Installation without Ethernet Connection



1. Carefully remove the clamps before connecting the wires.
2. Loosen the clamping bolt.



Note! The various possible ways of using the inputs and outputs are conveyed in special training sessions by DOM Sicherheitstechnik, and are not described in this manual.

Fig.: Component Side

3. Connect the inputs and outputs used.
4. For the power supply, connect the plus pole to terminal 1 and the minus pole to terminal 2.

Pin	Signal
1	$U_{\text{ext}} = +12\text{V DC output or } 12\text{V} - 24\text{V DC input}$
2	GND (for Power and RS232)

5. Remove 5 mm of the insulation from each wire which is to be used for installation.
6. Use suitable wire end jackets if necessary.
7. Connect the wires according to the following instructions:
8. Tighten the connecting clamps (max. 50 Ncm).
9. Re-attach the clamps to their allocated outlet.
10. Insert cable and DOM RF NetManager to socket.



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

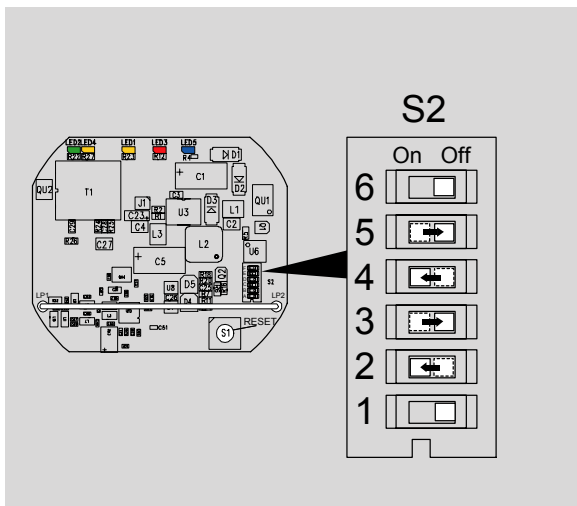
Dip Switch Setting

In order to activate the inputs and outputs on the DOM RF NetManager, you must adapt the dip switch setting.

Activating The Inputs And Outputs	
DOM RF NetManager	RS232 Sub-D plug
Switch 2 and 4 to S2	On
Switch 1, 3, 5 and 6 to S2	Off



Caution! Always disconnect the DOM RF NetManager from the power supply before you alter the switch positions to S2.



In the condition as supplied to the customer, the switches 3 and 5 are switched (On) and the switches 1, 2, 4 and 6 are closed (Off).

In order to activate the inputs and outputs, you must set the switches 3 and 5 to Off, set the switches 2 and 4 to On, and restart the DOM RF NetManager.




Fig.: DIP Switch S2

Start-Up

After you have connected the DOM RF NetManager, you can put the DOM RF NetManager into operation.

Enable power supply.

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

Status: power on	LED orange		LED red
DOM RF NetManager not yet configurated			

Der DOM RF NetManager was started.

You should now carry out the assigning between DOM Protector[®] and DOM RF NetManager.

DOM Protector® and DOM RF NetManager

With the DOM RF NetManager you receive an RF Online-Card, with which you carry out the assigning between a DOM Protector® and the DOM RF NetManager. To do this, you first install the RF Online-Card on the DOM Protector®, like a programme card.

If a radio connection is created between the DOM Protector® and the DOM RF NetManager, the assigning is thereby completed.

Otherwise, in order to carry out the assigning, you must once again hold the RF Online-Card in front of the outside knob of the corresponding DOM Protector at a later point in time when there is an existing radio connection.

Installing RF Online-Card/ Assigning DOM Protector®












You will require the Master-Card of the DOM Protector, which you have already installed on the DOM Protector® and the RF Online-Card that you would like to install.

Proceed as follows:

1. Hold the Master-Card briefly flat-side-forward a short distance in front of the outside knob of the DOM Protector: The DOM Protector® flashes green twice to confirm that the Master Card has been shown.
2. After this, “show” the RF Online-Card that is to be installed. The DOM Protector® flashes green three times to confirm that the RF Online-Card has been shown.

The programming procedure is completed after a pause of 5 seconds or by showing the Master-Card.

Installing RF Online-Card

							
5 seconds waiting and/or							












If a radio connection is created between the DOM Protector® and the DOM RF NetManager, the assigning has been completed and you can then test the quality of the radio connection between the DOM Protector® and DOM RF NetManager.



Note! If no radio connection was produced during the installation of the RF Online-Card, you must once again hold the RF Online-Card in front of the outside knob of the DOM Protector when there is an existing radio connection, in order to carry out an assignation.

Assigning DOM Protector®

Hold the RF Online-Card flat-side-forward a small distance in front of the outside knob of the DOM Protector:

				If a radio connection was created
				
				If a radio connection was <u>not</u> created

Testing the Quality of the Radio Connection

















You will require the RF Online-Card that you have already installed on the DOM Protector®.

Hold the RF Online-Card flat-side-forward a small distance in front of the outside knob of the DOM Protector:

The quality of the radio connection is confirmed by a light on the DOM Protector® flashing green, orange or red twenty times and by flashing of the blue LED on the DOM RF NetManager.

The absence of a radio connection is confirmed by a light flashing red twice.

Testing of the Radio Connection

					...		quality good
					...		quality satisfactory
					...		quality poor
							no radio connection



Note! If the DOM Protector® flashes red twice, repeat the checking of the radio connection.

Deleting RF Online-Card

You will require a Master-Card and the RF Online-Card that you wish to delete.

Proceed as follows:

1. Hold the Master-Card twice briefly flat-side-forward a short distance in front of the outside knob. The showing of the card is each time confirmed by a green light flashing twice.
2. Afterwards, show the RF Online-Card to be deleted. The showing of the RF Online-Card is confirmed by a light flashing red three times.

The programming procedure is completed after a pause of 5 seconds or by showing the Master-Card.

Deleting RF Online-Card



Note! The various possible ways of using the inputs and outputs are conveyed in special training sessions by DOM Sicherheitstechnik, and are not described in this manual. In the framework of the training you have received an additional document in which you can find the necessary information for configuring the inputs and outputs.

Programming and Managing using Software

The DOM RF NetManager allows the on-line management of the DOM Protector[®] online.

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

The management of the DOM Protector[®] via DOM RF NetManager requires ELS software 4.1 (or later) with on-line module. This allows the management and programming of DOM Protector[®]. You can manage transponders and 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
- ◆ Deletion of individual, no-longer-available closing media

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 Master-Card und Program-Card.



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



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

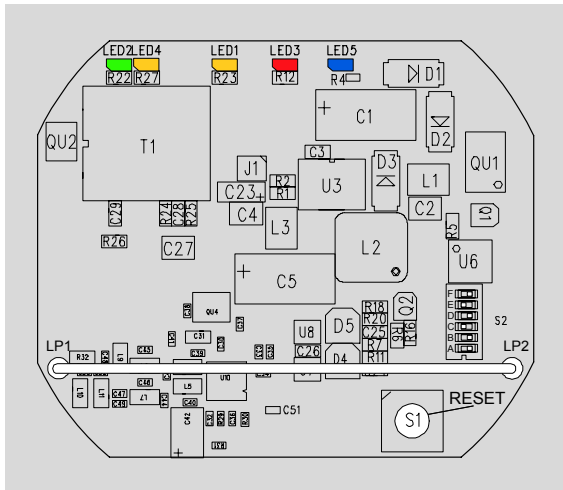


Fig: Upper circuit board

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

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

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

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



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

LED5 (blue) shows data transmission on the radio link.

Connection and Data Transfer


The DOM RF NetManager displays the different modes as follows:

The orange and red LEDs are lit as long as the DOM RF 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 RF NetManager is activated through the ELS software, both LEDs may flash regardless whether there is data transfer between PC, DOM RF NetManager and remote device.



The orange light diode flashes as soon as data from the ELS software is sent to the remote device via the DOM RF NetManager.

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


The red light diode flashes at the moment the data is transmitted to the PC, as soon as the DOM RF NetManager is activated in 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 RF NetManager. The green LED is lit as soon as the DOM RF NetManager is connected to the network.

Status: configuration complete	LED4 orange	LED2 green
DOM RF NetManager ist connected to network.		

The blue light diode flashes at the moment of the data transmission to the radio interface, as soon as a radio connection has been created.

Status: Configuration Completed	LED5 blue
data communication terminal (radio interface)	



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 RF 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 RF NetManager		

Reset Function

The reset function (see p. 19 fig. S1) allows to revert to earlier configuration levels.



Note! Disable the DOM RF 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 RF 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 RF NetManager. The IP address, however, remains. Both the orange and the red LED flash (approx. 1Hz). You can now assign another (or the same) DOM Protector to the DOM RF NetManager by showing the RF Online-Card. 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 RF NetManager. The DOM RF 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 RF NetManager does not require maintenance.

Storage/Maintenance

If the DOM RF 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 RF 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 RF 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 (alternatively):
Supply voltage U_{ext} for external applications from Power over Ethernet:**

U_{ext} (clamp 1-4 (1)):	12 – 24V DC \pm 10%
Power over Ethernet PD (IEEE802.3af):	44 – 57V DC
output voltage:	$U_{ext} = 12V$ DC \pm 5%
ripple:	$U_{ext,ripple} < 250mV$
supply current (thermal):	$I_{ext} < 500mA$
supply current (peak):	$I_{ext,peak} < 850mA$
peak time:	$t_{ext,peak} < 1s$
efficiency ($P_{ext} = 5W$):	$\eta \approx 80\%$

Current consumption:

$U_{ext} = 12V \dots 24V$ DC	$I_{ext} < 50$ mA
PoE ($I_{ext} = 0mA$):	$I_{PoE} < 15$ mA

Data preservation after power failure:

configuration parameters are preserved
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Ethernet interface:

10BASE-TX Ethernet according IEEE802.3 with 10 MBit: clamp 5-8: Tx+ (5), Tx- (6), Rx+ (7), Rx-(8) clamp 9-11 screen (9), SPA (10), SPB (11) maximum cable length 100m cable type (STP): CAT5 (recommended) or higher
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Radio interface:

proprietary RF interface:	
frequency:	868 MHz
data rate:	180 kBit/s
typical range inside building:	3m
(not guaranteed, depending on location, antenna, etc.)	
antenna: internal loop antenna	

RS232 interface:

for setting configuration parameters from the PC

clamp 2-4: RxD (4) , TxD (3) and GND (2)
maximum cable length 15m (EIA-Norm)
recommended cable type: LIYCY 4 × 0,14
connect screen one-sided
data rate: 38.4kBaud

Inputs:


clamp 2-4: 2 inputs for potential-free switches: input 1 clamp 4 \rightarrow 2 (input connected to GND) input 2 clamp 3 \rightarrow 2 (input connected to GND) maximum cable length 20m maximum resistivity 10 Ω

Output:

clamp 12-13: 1 potential-free switching semi conductor output (normally open):	
electrical strength:	40 V AC/DC
current carrying capacity:	0,5A AC/DC
on resistance R_{ON}	$< 7\Omega$

Operating switches:

S1: switch-key for resetting IP parameters
S2: configuration switch
S2-1: reserved (free)
S2-2: clamp 4 = input 1
S2-3: clamp 4 = RS232 Rx
S2-4: clamp 3 = input 2
S2-5: clamp 3 = RS232 Tx
S2-6: activation of RS232 configuration mode
Caution: S2-2/S2-3 and S2-4/S2-5 must be switched mutually (clamp 3/4 either RS232 or input 2 / input 1)

Temperature range	operating: 0 °C to + 55 °C stocking: -20 °C to + 80 °C
Relative humidity:	20% to 99% (no condensation)
IP code:	depending on assembly conditions, minimum IP10 interior operation only
Protection class:	III: max. 60V DC or 42V AC _{peak} according to EN 60950
Approvals:	 EMC, R&TTE
Assembly:	in-wall mounting with flush box Ø60 × 63 mm according to DIN VDE 0606, DIN VDE 0471, DIN IEC 695
Size:	Ø = 55mm, depth = 35 mm upper PCB: 42mm x 50mm with Ø _{max} = 55mm
Weight:	approx. 0,060kg
Communication protocols:	TCP, UDP, ARP
TCP connections:	- non permanent TCP connections - Event oriented link connection and disconnection TCP Client: Port 9601 (PUSH) ELS Software MultiLine: 9601 ... 9608 (PUSH) TCP Server: Port 19000 (configuration) Port 19004 (service)
UDP connections:	UDP Server: Port 19011 (configuration, broadcasts) Port 10002 (device communication, 1:1) (PULL)
Encryption:	AES (Advanced Encryption Standard): individual, random 128-Bit key for each NetManager
Bandwidth use / network traffic per RF NetManager:	<ul style="list-style-type: none"> • approx. 700 Bytes / event (TCP) • approx. 360 Bytes / TCP test (every 10 seconds) • approx. 80 Bytes / authorisation (UDP) • < 3,1 MBytes total data volume / day¹ • < 0,07kbps average bandwidth use¹

These data correspond to the actual development status and are subject to change at any time without notice.

¹ Above specified values are under the presumption, that the end device of the RF NetManager generates one event per 10 minutes at maximum and includes a changing of 100 authorizations per day. Amount of data includes all other data like time stamps, date and so on, which are normally synchronised in an online access control system.

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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