

# Installation Instructions

## Control panel MB-Secure



P00180-02-0G0-13

2019-06-22

EMBSC.00.0V09.xx

Subject to change  
without notice



## Contents

<b>1</b>	<b>General information</b>	<b>4</b>
1.1	Possible applications	5
1.2	Control panel types	5
1.3	Control panel version bundles	6
1.4	Types of housings (options)	6
1.5	Options for control panel configuration	7
<b>2</b>	<b>Control panel design</b>	<b>8</b>
2.1	Control panel in the ZG 20	8
2.2	Control panel in the ZG 2	8
2.3	Control panel in the ZG 3.1	9
2.4	Control panel in the ZG 4	9
2.5	Computer/connection PCB	10
2.5.1	Directly connectible Modulbus/RS-485 reader	12
2.5.2	Connectable ASSA Aperio Communication Hub (ASSA Aperio)	13
2.6	Extension modules	14
2.6.1	MB-Secure Siren Module (item no.013920)	14
2.6.2	AWUG DS 6700 / DS 6750 (item no. 057864 / 057865)	16
2.6.3	AWUG DS 7700 (Part No. 057651.20)	18
<b>3</b>	<b>Installation</b>	<b>20</b>
3.1	Mounting	20
3.2	Power supply	20
3.3	Installation in 19"- Cabinet/housing (third-party products)	21
3.4	Installing power supply unit and battery in housing ZG20	21
3.5	Installing the tear-off monitoring contact	21
3.6	Current consumption of control panel components, detectors and/or users	22
3.7	Calculation of accumulator capacity	23
3.8	Connection of multiple power supply/charger units	23
3.9	Grounding/Shielding	24
3.9.1	Connect to earth line and leave earthing bridge closed	24
3.9.2	Connect to earth line and open earthing bridge	24
3.9.3	Connect to own system earth and leave earthing bridge closed	24
3.10	Lines	25
3.10.1	Cables to signalling devices	25
3.10.2	BUS lines	25
3.10.3	Sample cable calculation for users	30
3.11	Special notes on installation and planning	32
3.12	Main zone extension via IB2 in remote housing (as per VdS)	33
<b>4</b>	<b>Start-up procedure</b>	<b>34</b>
4.1	Preparations before start-up	34
4.2	Programming of BUS users	34
4.2.1	BUS-2 users	34
4.2.2	BUS-1 users	34
4.3	Initial start-up procedure	35
4.4	Starting operation with video function	35
<b>5</b>	<b>Maintenance</b>	<b>36</b>
5.1	General	36
5.2	One man revision	36
5.3	Walk test	36
5.4	Calling-up event memory	36
5.5	Firmware updates	37
5.6	Cleaning and maintenance	37
<b>6</b>	<b>Specifications</b>	<b>38</b>
<b>7</b>	<b>Connection diagrams</b>	<b>39</b>
7.1	Connection of MB-Secure Siren module	39
7.2	Connection of compact alarm unit and PCL	40
7.3	General connection of alarm detectors "Z-wiring"	41
7.4	Connection IDENT-KEY IK3-evaluation unit 023312.17	42
7.5	Connecting an electromechanical blocking element (019030.20/019033)	43
7.6	Connection diagram of transmission device DS 6700/DS 6750 (057864/057865)	44
7.7	Connection diagram of transmission device DS 7700 (057651.20)	45
7.8	Connection diagram of Computer/Connection PCB	46
7.9	Connection to power supply / charger unit 013950/013960 according to VdS guidelines	47
7.10	Connection to power supply / charger unit 013970	48
<b>8</b>	<b>General Public License</b>	<b>49</b>

**Symbols used in this documentation:****Warning sign**

Indicates danger for man and/or machine. If this is not heeded, man and/or machine may be at risk.

The level of hazard is indicated by the warning word:

**Caution!**

Risk of damage to material properties and the environment.

**Warning!**

Potential danger which may cause slight or medium injury or substantial damage to material properties.

**Danger!**

Potential danger which may cause serious injuries or even mortal injuries.



Indicates important information on a particular topic, a procedure and other important information.



Indicates important information for installation.



Notes on programming/installation in accordance with VdS guidelines.



Notes concerning European standards.

**Safety instructions**

- \* Please read these instructions carefully and thoroughly before you install the intruder alarm control panel and switch the power on. They contain important notes on installation, programming and operation.
- \* The control panel is produced using the latest technology. Operate the control panel only
  - in accordance with the instructions and
  - when it is technically perfect and has been correctly installed in accordance with the specifications.
- \* The manufacturer is not liable for damage caused by incorrect use.
- \* Keep the accompanying documents and system-specific notes in a safe place.
- \* Installation, programming and maintenance/repair work may only be carried out by authorized specialist staff.
- \* Soldering work should be carried out solely with a temperature-controlled soldering iron which is electrically insulated from the mains.
- \* Both VDE safety regulations and the regulations of the local electricity supplier should be heeded.

**Danger:**

The system must not be used in environments with explosion hazards or in rooms with vapors capable of damaging metal or plastics.



All soldering and connection work inside the system must be performed only when the unit is in a voltage-free state.

# 1 General information

## 1.1 Possible applications

MB-Secure control units are designed to set up small to large security systems in private and commercial properties. They meet VdS Security Class C guidelines as well as EN50131 Grade 3.

The standard model of the control panels includes the following features.

	<b>MB-Secure 1000</b>	<b>MB-Secure 2000</b>	<b>MB-Secure 3000</b>	<b>MB-Secure 4000</b>	<b>MB-Secure 5000</b>	<b>MB-Secure 6000</b>
Detector groups	8	16	48	128	512	2048
Main zones/Doors	1	2	4	16	64	256
Analog inputs	4	4	4	4	4	4
BUS-2 users	256	256	256	256	256	256
BUS-1 users	1200	1200	1200	1200	1200	1200
Users	16	32	64	128	512	1024
Room/Timezones	4	8	16	32	64	256
Macros	10	20	30	50	250	1000

## 1.2 Control panel types

<b>MB-Secure 1000</b>	- Computer/connection PCB	<b>Item no. 013820</b>
<b>MB-Secure 2000</b>	- Computer/connection PCB	<b>Item no. 013830</b>
<b>MB-Secure 3000</b>	- Computer/connection PCB	<b>Item no. 013840</b>
<b>MB-Secure 4000</b>	- Computer/connection PCB	<b>Item no. 013850</b>
<b>MB-Secure 5000</b>	- Computer/connection PCB	<b>Item no. 013860</b>
<b>MB-Secure 6000</b>	- Computer/connection PCB	<b>Item no. 013870</b>
<b>MB- Secure motherboard</b>		<b>Item no. 013810</b>
	- Computer/connection PCB without specified performance	
<b>MB- Secure 1000 basic license</b>		<b>Item no. 059510</b>
<b>MB-Secure 2000 basic license</b>		<b>Item no. 059520</b>
<b>MB-Secure 3000 basic license</b>		<b>Item no. 059530</b>
<b>MB-Secure 4000 basic license</b>		<b>Item no. 059540</b>
<b>MB-Secure 5000 basic license</b>		<b>Item no. 059550</b>
<b>MB-Secure 6000 basic license</b>		<b>Item no. 059560</b>

The license offering is constantly being expanded. Please refer to our website or our product catalogue for further information.

## 1.3 Control panel version bundles



With bundles (013821, 013822, 013831, 013832, 013833), where the power supply/charger unit 013970 is used, only an approval to VdS class A is possible, for the system created with it.

- |   |                        |
|---|------------------------|
| <p><b>MB-Secure 1000 starter bundle</b></p> <ul style="list-style-type: none"> <li>- Computer/connection PCB MB-Secure 1000, Item no. 013820</li> <li>- Control panel housing ZG20, Item no. 013730</li> <li>- Power supply/charger unit 12 V / 18 Ah, Item no. 013970</li> <li>- LED operating unit, Item no. 013000</li> </ul>  | <b>Item no. 013821</b> |
| <p><b>MB-Secure 1000 starter bundle siren module</b></p> <ul style="list-style-type: none"> <li>- Computer/connection PCB MB-Secure 1000, Item no. 013820</li> <li>- Siren module MB-Secure, Item no. 013920</li> <li>- Control panel housing ZG20, Item no. 013730</li> <li>- Power supply/charger unit 12 V / 18 Ah, Item no. 013970</li> <li>- LED operating unit, Item no. 013000</li> </ul>  | <b>Item no. 013822</b> |
| <p><b>MB-Secure 2000 starter bundle LED</b></p> <ul style="list-style-type: none"> <li>- Computer/connection PCB MB-Secure 2000, Item no. 013830</li> <li>- Siren module MB-Secure, Item no. 013920</li> <li>- Control panel housing ZG20, Item no. 013730</li> <li>- Power supply/charger unit 12 V / 18 Ah, Item no. 013970</li> <li>- LED operating unit, Item no. 013000</li> </ul>   | <b>Item no. 013831</b> |
| <p><b>MB-Secure 2000 starter bundle LCD</b></p> <ul style="list-style-type: none"> <li>- Computer/connection PCB MB-Secure 2000, Item no. 013830</li> <li>- Siren module MB-Secure, Item no. 013920</li> <li>- Control panel housing ZG20, Item no. 013730</li> <li>- Power supply/charger unit 12 V / 18 Ah, Item no. 013970</li> <li>- LCD operating unit, Item no. 013001</li> </ul>   | <b>Item no. 013832</b> |
| <p><b>MB-Secure 2000 starter bundle LCD plus transmission device</b></p> <ul style="list-style-type: none"> <li>- Computer/connection PCB MB-Secure 2000, Item no. 013830</li> <li>- Siren module MB-Secure, Item no. 013920</li> <li>- Control panel housing ZG20, Item no. 013730</li> <li>- Power supply/charger unit 12 V / 18 Ah, Item no. 013970</li> <li>- LCD operating unit, Item no. 013001</li> <li>- DS 7700 transmission device, Item no. 057651.20</li> </ul>               | <b>Item no. 013833</b> |
| <p><b>MB-Secure 2000 starter bundle LCD plus transmission device, KI. C</b></p> <ul style="list-style-type: none"> <li>- Computer/connection PCB MB-Secure 2000, Item no. 013830</li> <li>- Siren module MB-Secure, Item no. 013920</li> <li>- Control panel housing ZG20, Item no. 013730</li> <li>- Power supply/charger unit 12 V / 17 Ah, Item no. 010686.10</li> <li>- LCD operating unit, Item no. 013001</li> <li>- DS 7700 transmission device, Item no. 057651.20 1.4</li> </ul> | <b>Item no. 013834</b> |

## 1.4 Types of housings (options)

- |  |                        |
|--|------------------------|
| <p><b>Housing ZG20 for MB-Secure</b></p> <ul style="list-style-type: none"> <li>- Housing dimensions: W 460 mm x H 382 mm x D 85 mm</li> <li>- max. space for battery: W 190 mm x H 170 mm x D 80 mm</li> </ul>  | <b>Item no. 013730</b> |
| <p><b>Housing ZG2 for MB-Secure</b></p> <ul style="list-style-type: none"> <li>- Housing dimensions: W 350 mm x H 300 mm x D 152 mm</li> <li>- max. space for battery: W 185 mm x H 180 mm x D 90 mm</li> </ul>  | <b>Item no. 013740</b> |
| <p><b>Housing ZG3.1 for MB-Secure</b></p> <ul style="list-style-type: none"> <li>- Housing dimensions: W 500 mm x H 300 mm x D 210 mm</li> <li>- Place for 2 options and power supply unit;</li> <li>- max. space for battery: W 335 mm x H 185 mm x D 127 mm</li> </ul> | <b>Item no. 013750</b> |

<b>Housing ZG4 for MB-Secure</b>	<b>Item no. 013760</b>
<ul style="list-style-type: none"> <li>- Housing dimensions: W 580 mm x H 640 mm x D 300 mm</li> <li>- Place for 8 options and power supply unit;</li> <li>- max. space for battery: W 565 mm x H 280 mm x D 180 mm</li> </ul>	
<b>19"- Front panel 6HE for MB-Secure</b>	<b>Item no. 013770</b>
<b>Back panel assembly plate</b>	<b>Item no. 013106</b>
<ul style="list-style-type: none"> <li>Mounting plate for individual back panel installation in 19" housings (outside products).</li> <li>Is provided by default in housings ZG 4, ZG 5 and ZG 6.</li> <li>Dimensions: W 574 mm x H 634 mm x D 10 mm</li> </ul>	
<b>19"- Dummy plate 6 HE, light gray</b>	<b>Item no. 013108</b>
<ul style="list-style-type: none"> <li>Plate for individual expansion of 19"-Housings (third-party products).</li> </ul>	
<b>19"- Dummy plate 3 HE, light gray</b>	<b>Item no. 013109</b>
<ul style="list-style-type: none"> <li>Plate for individual expansion of 19"-Housings (third-party products).</li> </ul>	
<b>19"- Dummy plate 6 HE, signal gray</b>	<b>Item no. 013118</b>
<ul style="list-style-type: none"> <li>Plate for individual expansion of 19"-Housings (third-party products).</li> </ul>	
<b>19"- Dummy plate 3 HE, signal gray</b>	<b>Item no. 013119</b>
<ul style="list-style-type: none"> <li>Plate for individual expansion of 19"-Housings (third-party products).</li> </ul>	
<b>Housing ZG10 for optional expansion</b>	<b>Item no. 050051</b>
<ul style="list-style-type: none"> <li>- Housing dimensions: 310 mm x 340 mm x 81,5 mm</li> <li>- max. battery space 1 x 3,4 Ah</li> </ul>	

## 1.5 Options for control panel configuration

The following are the options that can be used, depending on the housing dimensions and system specifications.

<b>Power supply/charger unit 12 V DC / 17 Ah</b>	<b>Item no. 010686.01</b>
<b>Power supply/charger unit 12 V DC / 32 Ah</b>	<b>Item no. 010690.01</b>
<b>Power supply/charger unit 12 V DC / 40 Ah</b>	<b>Item no. 010690.02</b>
<b>Power supply/charger unit 12 V DC / 80 Ah</b>	<b>Item no. 012168</b>
<b>Power supply/charger unit 12 V DC / 130 Ah</b>	<b>Item no. 012170</b>
<b>Power supply/charger unit 12 V DC / 26 Ah</b>	<b>Item no. 013950</b>
<b>Power supply/charger unit 12 V DC / 52 Ah</b>	<b>Item no. 013960</b>
<b>Power supply/charger unit 12 V DC / 18 Ah</b>	<b>Item no. 013970</b>
<b>MB-Secure Siren module</b>	<b>Item no. 013920</b>
<b>BUS-1 IB2 Converter</b>	<b>Item no. 013925</b>
<b>IB2 1to4 Bus Expander</b>	<b>Item no. 013930</b>
<b>IB2 16 I/O Expander</b>	<b>Item no. 013940.10</b>
<b>Relay module</b>	<b>Item no. 013941</b>

### Transmission devices

<b>Transmission device DS 6700</b>	<b>Item no. 057864</b>
<b>Transmission device DS 6750</b>	<b>Item no. 057865</b>
<b>Transmission device DS 7700</b>	<b>Item no. 057651.20</b>

### Accessories

<b>USB Desktop reader</b>	<b>Item no. 023360</b>
<b>Distributor block</b>	<b>Item no. 050019</b>
<b>Power supply noise filter</b>	<b>Item no. 050510</b>
<b>Fixing strap for batteries</b>	<b>Item no. 055280</b>
<b>Lock insert, keyed alike</b>	<b>Item no. 028050</b>
<ul style="list-style-type: none"> <li>for housing ZG 2 and ZG 3.1</li> </ul>	
<b>Lock insert, keyed individual</b>	<b>Item no. 028051</b>
<ul style="list-style-type: none"> <li>for housing ZG 2 and ZG 3.1, with building up according to VdS</li> </ul>	

## 2 Control panel design



The MB-Secure PCBs are compatible for installation in the following control panel housings:

MB-Secure original control panel housing: 013730, 013740, 013750, 013760  
 Replacement of MB-Classic PCBs: 012911, 013201.10, 013202.10, 013106, 013203.10,  
 013204.10, 013222.10, 013223.10

Use in other housings is not recommended because the fixing points differ and correct grounding cannot be guaranteed.



If the energy supply of the intrusion alarm control panel is not an integrated part of it, then it has to be installed directly adjacent to the intrusion alarm control panel (without space in between). It should not be possible to tamper with the connecting cables without causing mechanical damage to the housing.

**VdS guidelines 2311**

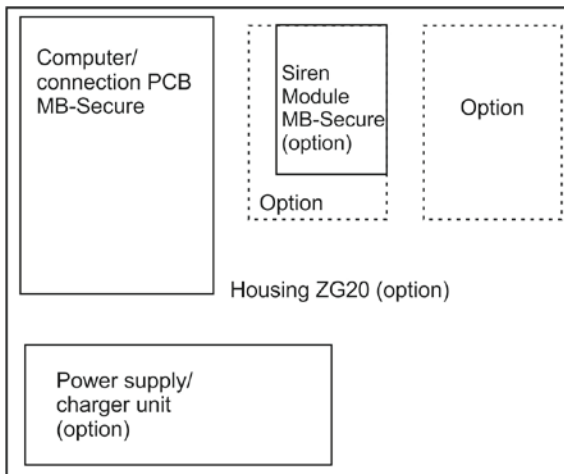


Starting from approximately the first quarter of 2016 the doors of housings ZG 2 (item no. 013740) and ZG 3.1 (item no. 013750) will be supplied with an opening for installing a lock insert. An individually keyed lock insert (part. no. 028051) should be used for VdS-compliant installations.



Please note the max. battery capacity information of each used power supply and the max. space for battery of the respective housing.

### 2.1 Control panel in the ZG 20



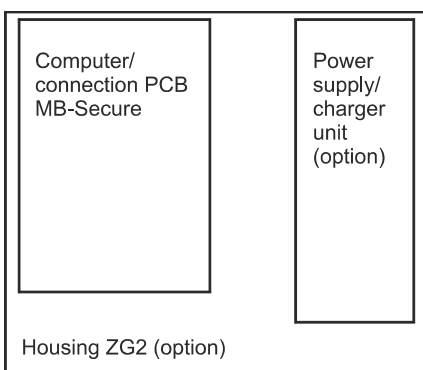
Emergency power supply

Max. space for battery: W 190 mm x H 170 mm x D 80 mm



**According to VdS guidelines the batteries are to be secured using a fixing strap (055280). Please refer to chapter 3.4 Installing power supply unit and battery in housing ZG20.**

### 2.2 Control panel in the ZG 2



Emergency power supply

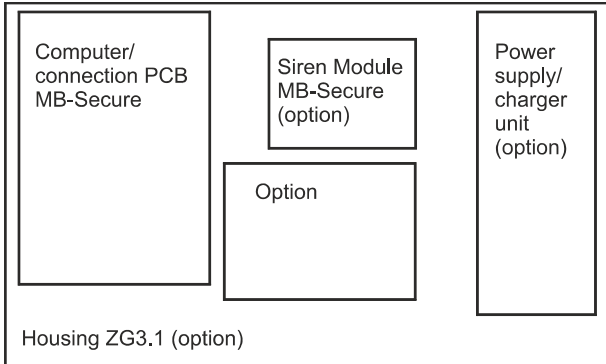
Max. space for battery: W 185 mm x H 180 mm x D 90 mm



**According to VdS guidelines the batteries are to be secured using a fixing strap (055280).**



## 2.3 Control panel in the ZG 3.1



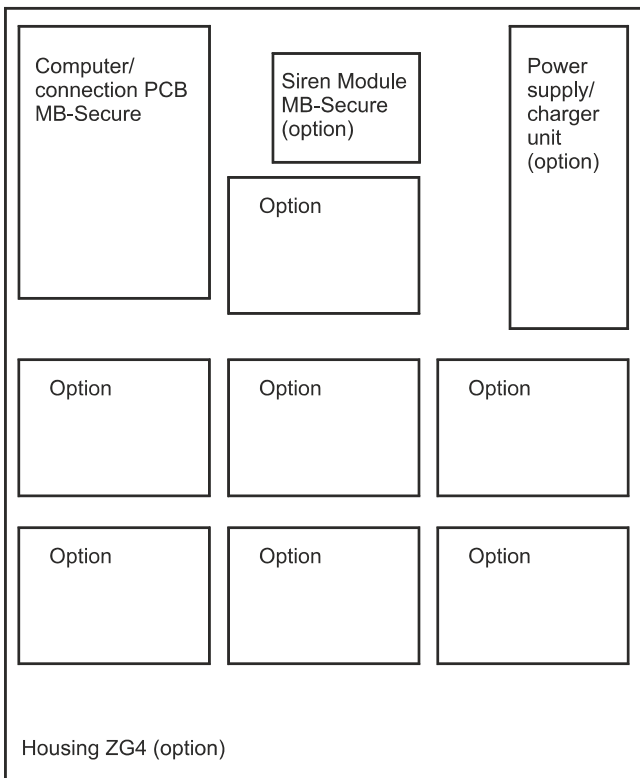
### Emergency power supply

Max. space for battery: W 335 mm x H 185 mm x D 127 mm.



According to VdS guidelines the batteries are to be secured using a fixing strap (055280).

## 2.4 Control panel in the ZG 4



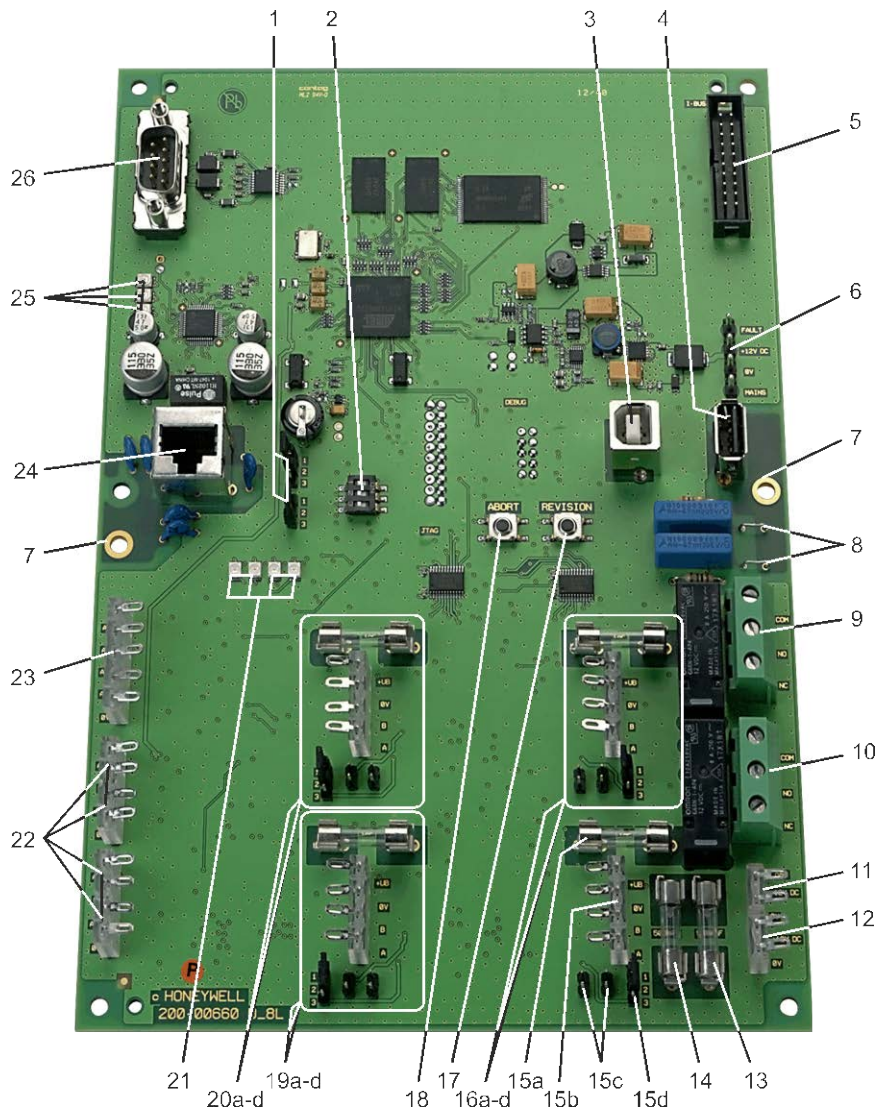
### Emergency power supply

Max. space for battery: W 565 mm x H 280 mm x D 180 mm.

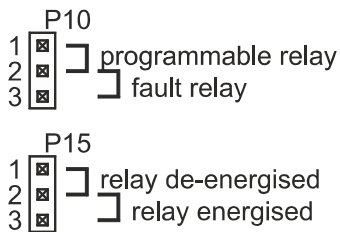


According to VdS guidelines the batteries are to be secured using a fixing strap (055280).

## 2.5 Computer/connection PCB



1 = Jumper programming switching behavior relay 2



2 = DIP switches

Switches	Setting OFF	Setting ON
S1	Manual release via TouchCenter Tuxedo / TouchCenter Plus for access with IQ PanelControl or macro function	Permanent release for access with IQ PanelControl
S2	Factory use; setting OFF must not be changed	
S3	Normal Mode	Reset Mode* - Configuration does not get loaded - IP address comes from DHCP

\* = For detailed information on using the Reset Mode, see the operating manual "IQ PanelControl for MB-Secure", Chapter "Help -> Password unknown".

- 3 = USB device port (currently only for factory use)
- 4 = USB host port (Firmware update and USB stick as video data storage)
- 5 = Connector for connection cable to I-BUS users (in preparation)
- 6 = Power supply/charger unit connection
- 7 = Contact area for ground connection to mounting bottom
- 8 = Grounding bridges
- 9 = Relay 2 screw terminals (Switching capacity max. 8 A / 250 V AC, 5 A / 30 V DC min. 10 mA / 5 V DC)
- 10 = Relay 1 screw terminals (Switching capacity max. 8 A / 250 V AC, 5 A / 30 V DC min. 10 mA / 5 V DC)
- 11 = Fine-wire fuse 5 x 20 mm terminal for external load 1 (max. 500 mA)
- 12 = Fine-wire fuse 5 x 20 mm terminal for external load 2 (max. 500 mA)
- 13 = Fuse for external load 1 connection (0.5 AF)
- 14 = Fuse for external load 2 connection (0.5 AF)
- 15 a-d = BUS-2 / IB2 / Modulbus / RS-485 / ASSA Aperio terminal programming jumpers (Controller 2)  
(Exclusive wired connection: data bus connection)
- 15 a = Fine-wire fuse 5 x 20 mm max. 500 mA (operating voltage controller)
- 15 b = Connection (BUS-2 branch / IB2 controller/RS-485 interface)

Terminal	Operating mode BUS-2	Operating mode IB2 / Modulbus / RS-485 ASSA Aperio
+UB	+ U_B (max. 1 A)	+U_B
0 V	0 V	0 V
B	not used ( <b>Connection must not be used</b> )	B (D-)
A	Data	A (D+)

- 15 c = Jumper for terminating resistors RS-485 interface  
Jumper set → terminating resistors active  
Either **both** jumpers must be set, or none!
- 15 d = Programming jumpers - operating mode Port  
Jumpers 1 - 2 set → Operating mode BUS-2  
Jumpers 2 - 3 set → Operating mode IB2/ RS-485\* (\* not currently available)
- 16 a-d = BUS-2 / IB2 / Modulbus / RS-485 / ASSA Aperio terminal programming jumpers (Controller 1)  
(Exclusive wired connection: data bus connection)
- 17 = "REVISION" key; If programmed using IQ Panel Control, all alarm notifications within this main zone are cleared when the revision button is pressed.



This clearing is necessary to return the control panel to the alarm state and close the control unit housing again following maintenance for example. Procedure:

- Press the revision button
- Close the control panel door within 30 seconds.
- The clearing operation takes place. The control panel is in the alarm state.

- 18 = "ABORT" key; process data (main zone conditions etc.) are stored in the Flash EPROM.  
The "ABORT" key must be pressed before the control panel can be switched powerless.
- 19 a-d = BUS-2 / IB2 / Modulbus / RS-485 / ASSA Aperio terminal programming jumpers (Controller 4)  
(Exclusive wired connection: data bus connection)
- 20 a-d = BUS-2 / IB2 / Modulbus / RS-485 / ASSA Aperio terminal programming jumpers (Controller 3)  
(Exclusive wired connection: data bus connection)
- 21 = LED status information (from left to right)
  - LED 7 (yellow): Initialization in progress
  - LED 3 (green): Blinking → - Not programmed
  - Permanent On → - Operation/ Initialization successful, programmed
  - LED 6 (yellow): Revision mode (in preparation)
  - LED 4 (green): Blinking → - Firmware update in progress
  - Permanent On → - Abort active (after the "ABORT" key is pressed, the LED will remain lit till the operating voltage can be disconnected.
- 22 = Analog inputs; the inputs are equipped with clearing transistors for automatic storing detectors.  
The end-of-line resistance as well as the sensitivity can be programmed for each input. (Exclusive wired connection: direct connection)
- 23 = Programmable outputs; active 12 V DC / 50 mA
- 24 = Ethernet connection RJ 45, 10/100

25 = LEDs Ethernet (from top to bottom)

LED 1 (green):	Blinking	->	Data transfer active
	Permanent On	->	Ethernet connection ok
LED 2 (green):	Permanent Off	->	Data transfer rate 10 MBit/sec
	Permanent On	->	Data transfer rate 100 MBit/sec
LED 5 (yellow):	Permanent Off	->	Transfer mode half-duplex
	Permanent on	->	Transfer mode full-duplex

26 = Serial interface RS-232

Interface to connect transmission device DS 6700/DS 6750/DS 7700.

**VdS**

Based on VdS specifications, a system failure (processor fault/total power failure) must be signaled through an external alarm. This can be realized using Relay 2, which needs to be appropriately programmed via programming connection P10 (fault relay) and P15 (relay opening). In normal operation the relay is energized; the relay opens on system fault or power failure.

A separately routed BUS line has to be used for each protection sector for BUS 2 subscribers.

**VdS guidelines 2311**

**EN**

All control panel interfaces comply with the requirements according to EN 50131 Grade 3 in relation to response in case of failure of periodic communication with <60 s to prevent the positive drive and <100 s to tamper or fault.

Messages are recognized within 200 ms and indicated within 10 seconds.

### 2.5.1 Directly connectible Modibus/RS-485 reader

The following table shows an excerpt which readers can currently be connected directly to the Modibus/RS-485 controller.

For a complete list of usable readers, see the MB-Secure control panel Product Information.

Item no.	Name
023320	IDENT-KEY IK3 Proximity reader with keypad
023322.99	IK3 reader "Accentric" without keypad
023330	proX2-reader without keypad (Siedle design)
023342	proX2-reader with keypad (Siedle design)
026422	MIFARE reader "Accentric" without keypad
026423	MIFARE reader "Accentric" with keypad
027669	proX reader "Insertic" with keypad
027672.10	MIFARE DESFire EV1 Insertic reader without keypad
027673.10	MIFARE DESFire EV1 Insertic reader with keypad
027676.10	LEGIC advant Insertic reader without keypad
027677.10	LEGIC advant Insertic reader with keypad
027910	luminAXS proX reader, RS485 without keypad
027913	luminAXS MIFARE DESFire reader, RS485 and Clock/Data without keypad
027912	luminAXS proX reader, RS485 with 2 keys
027915	luminAXS MIFARE DESFire reader, RS485 and Clock/Data with 2 keys
027911	luminAXS proX reader, RS485 with 16 keys
027914	luminAXS MIFARE DESFire reader, RS485 and Clock/Data with 16 keys
027916	LEGIC reader Insertic Touch, without keypad
027917	LEGIC reader Insertic Touch RS485, with 12 keys

## 2.5.2 Connectable ASSA Aperio Communication Hub (ASSA Aperio)

The MB-Secure control panel as of V09 and corresponding licensing, manages cylinders/door fittings belonging to the ASSA Aperio system. This system is a wireless, networked access control system for doors on which wiring is not required or possible.

- For requirements and procedure, please refer to the original documentation for the ASSA Aperio system.
- The cylinder/fitting is mounted in accordance with the original documentation.

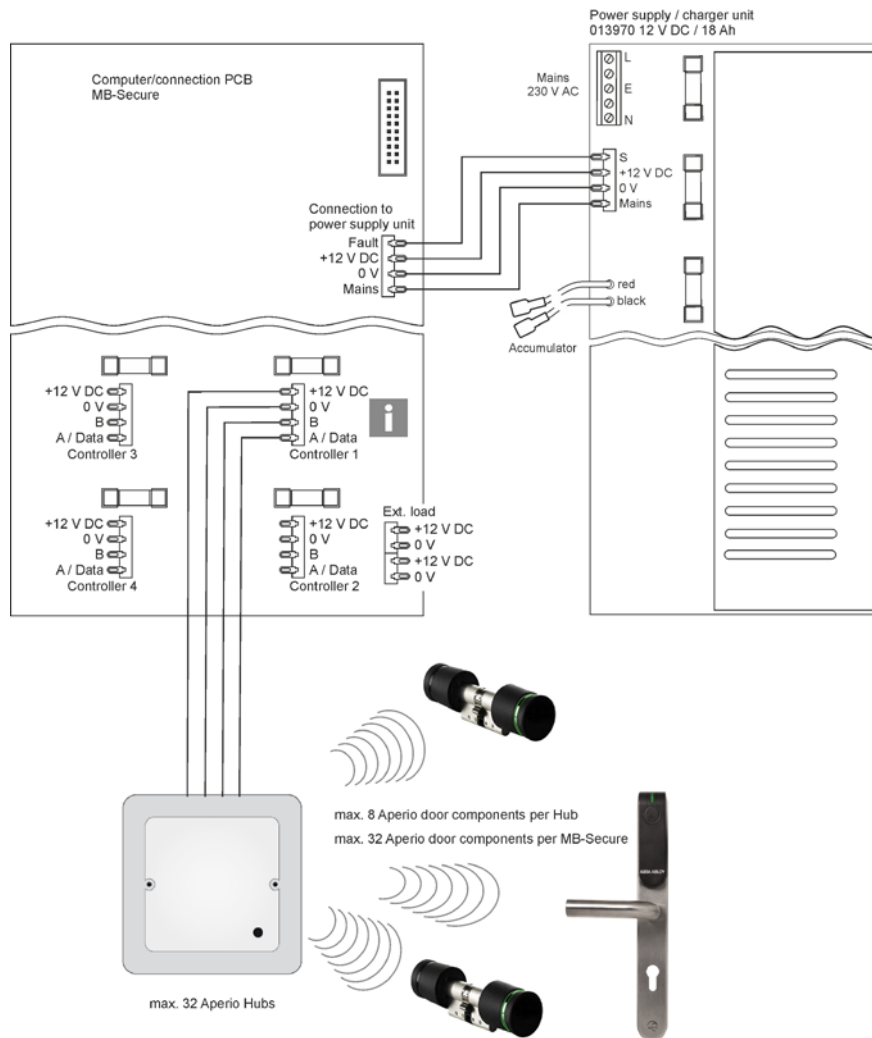
The ID-card is used as an ID-data carrier for the person and simultaneously as a data transmission medium for access information.

The HUB is used for communication between MB-Secure and the door components. It is connected directly to the Modulbus RS-485 of MB-Secure. A maximum of 32 Aperio hubs can be connected to one controller terminal (pay attention to current consumption!). The hub is responsible for wireless communication with the Aperio door components. A maximum of 8 ASSA Aperio door components can be connected per RS-485 HUB.



The ASSA Aperio system is commissioned using programming software (PAP tool), which is available as a free download on the Honeywell homepage and the Assaably homepage. A wireless dongle is required to commission the hardware (it acts as a license key for the building). The dongle establishes the radio link between the computer on which the PAP tool is running and the radio components. Once the base configuration has been created, the wireless dongle and computer with the PAP tool are no longer required.

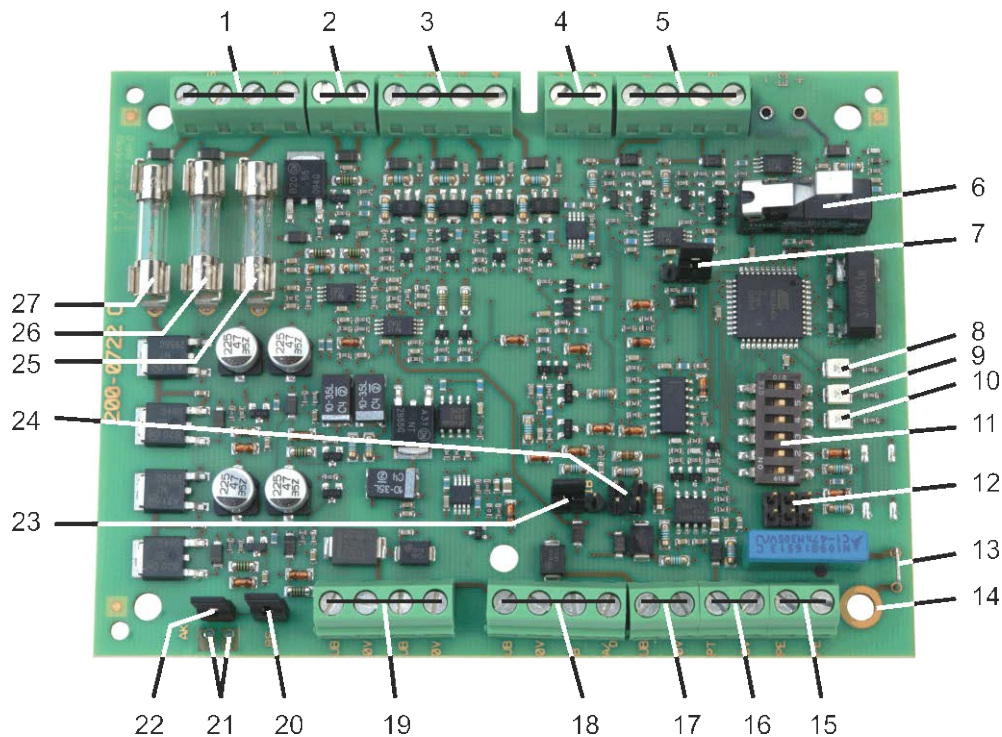
The door data and the assigned door date (relating to the cylinder/door fittings) can then be accepted by the IQ PanelControl.



Please pay attention to the installation information for the RS-485 wiring in chapter 3.10.2.

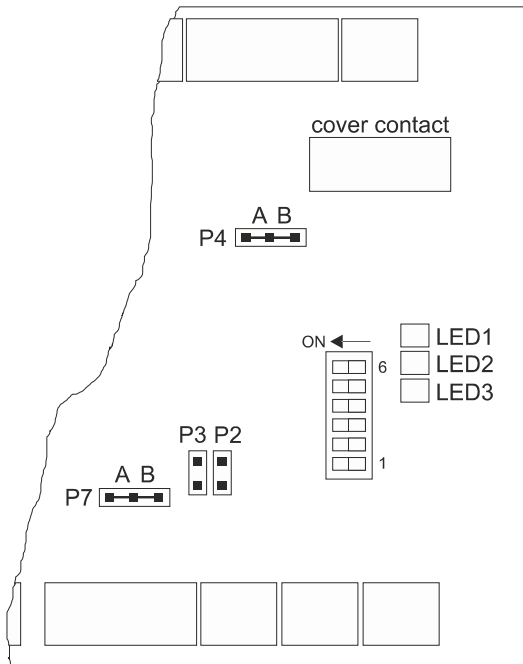
## 2.6 Extension modules

### 2.6.1 MB-Secure Siren Module (item no.013920)



- 1 = Connection Sirens 1 and 2; acoustic signaling device 048700/048720 (PCL) or 160455.10/160456.10\* (intrusion/hold-up alarm)
- 2 = Flash lamp connection
- 3 = Outputs A1 to A4 12 V/50 mA
- 4 = 0 V connections for outputs A1 to A4
- 5 = Analog inputs 1 and 2, clearable
- 6 = Cover contact
- 7 = Programming jumper P4; selection 048700/048720 or 160455.10/160456.10\*
- 8 = LED 1 (to be used in-house only)
- 9 = LED 2 (to be used in-house only)
- 10 = LED 3 (to be used in-house only)
- 11 = BUS address programming switch
- 12 = To be used in-house only
- 13 = Grounding bridges (see chapter Grounding)
- 14 = Contact area for ground connection (PE) to the mounting bottom
- 15 = BUS wire shields. **Important: Direct connection to the contact area for ground connection**
- 16 = Connection for potential separation module 026595.10
- 17 = BUS supply voltage, additional connection in case of increased number of wires
- 18 = BUS-2/RS-485 connection (RS-485 in preparation) (Exclusive wired connection: data bus connection)
- 19 = Supply voltage for module
- 20 = Drill protection connection. If not used, terminate via jumper
- 21 = Connection points for tear-off protection
- 22 = Programming jumper tear-off protection; if tear-off protection is used, jumper not set
- 23 = Programming jumper P7; BUS interface operating mode BUS-2/RS-485 (RS-485 in preparation)
- 24 = Programming jumper P2/P3; terminating resistors RS-485 (RS-485 in preparation)
- 25 = fine-wire fuse 5 x 20 mm Si1 Flash lamp, 1 AF
- 26 = fine-wire fuse 5 x 20 mm Si2 Siren 1, 0.5 AF
- 27 = fine-wire fuse 5 x 20 mm Si3 Siren 2, 0.5 AF

**2.6.1.1 Programming jumpers/Monitoring resistors**



Programming jumpers

P2/P3 terminating resistors RS-485

P2/P3 connected: Terminating resistors active

P2/P3 not connected: Terminating resistors inactive

Programming connection P4 signalling device type

Position A: Signalling device 160455.10/160456.10\*

Position B: Signalling device 048700/048720



Monitoring resistors

If signaling device 160455.10/160456.10\* is connected, the following monitoring resistors in the signaling device must be changed

R1 10k -> 4k7

R2 4k7 -> 12k1

R3 0R -> 12k1

The corresponding resistors can be found in the accessories pouch for the MB-Secure Siren module.

Programming connection P7 interface-operating mode

Position A: Interface-operating mode BUS-2

Position B: Interface-operating mode RS-485  
(in preparation)



Signalling devices 160455.10/160456.10 must not be used in systems according to VdS.

**2.6.2 AWUG DS 6700 / DS 6750** (item no. 057864 / 057865)

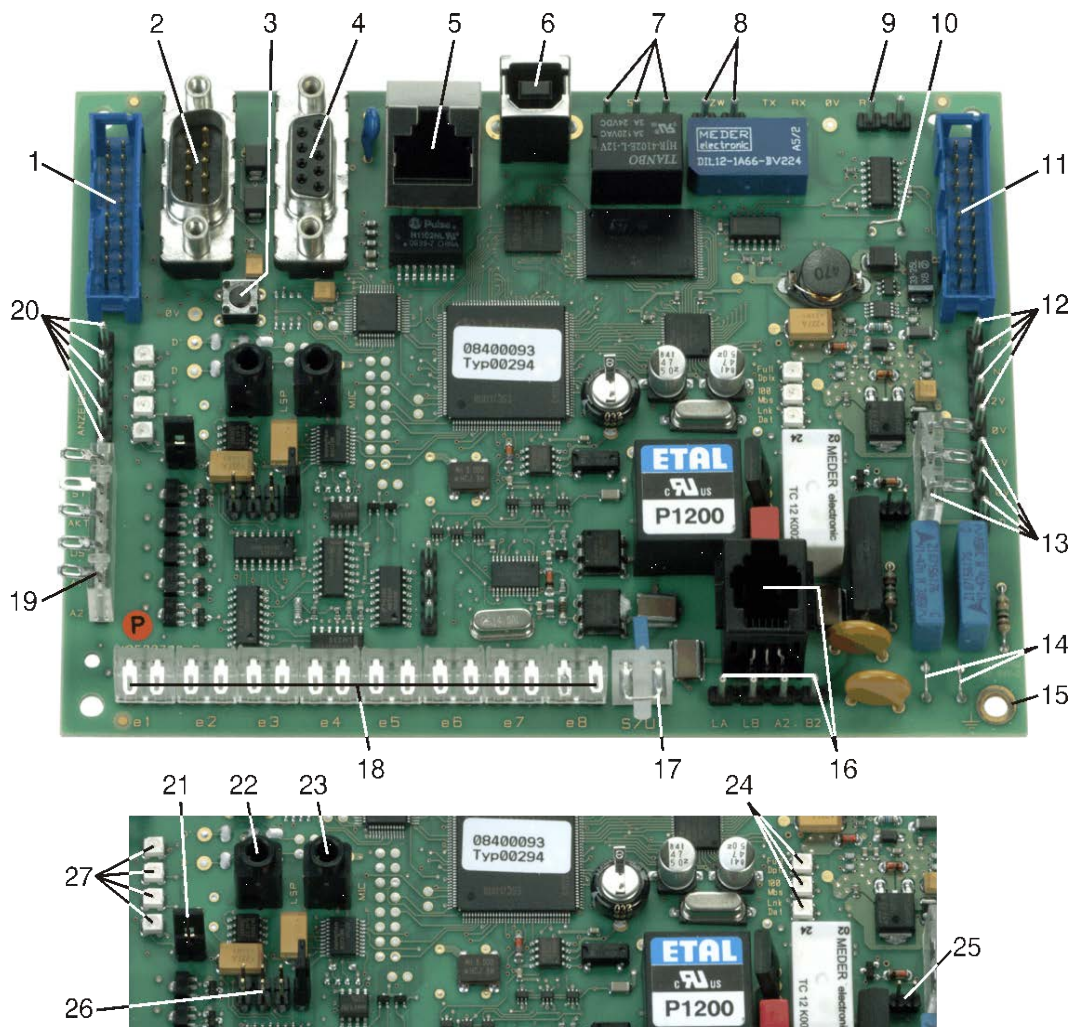
Automatic transmission device with modem function and connection technology for PSTN (analog telephone network) as well as Ethernet connection technology. Can be integrated via the serial interface.

Up to 100 transmission channels, 40 control inputs for the control panel as well as 100 function groups for Contact ID\* are available.

Programming of the DS 6700 / DS 6750 is carried out completely with IQ PanelControl.

**VdS** Systems designed according to VdS class C have to be operated with an integrated transmission device ( via serial interface).

**i** Operation of a DS 6700 / DS 6750 transmission device in combination with the MB-Secure control panel (firmware version V07.xx) firmware version V08 or higher for the transmission device is absolutely necessary.



- 1 = \* PlugDiagram AWUG DS 6700 / DS 6750 connection for cable (I-BUS)
- 2 = \* V.24-interface for RFW
- 3 = Reset button
- 4 = Serial S1 (RS-232) for connecting to the serial interface of the MB-Secure computer/connection PCB (Exclusive wired connection: data bus connection)
- 5 = Ethernet connection RJ 45, 10/100
- 6 = USB port, v1.1
- 7 = \* Output "signaling"
- 8 = \* Positive drive
- 9 = \* Output "resuscitation" for RFW



- 10 = \* Wire bridges for connecting/disconnecting +U\_B within I-BUS
- 11 = \* Plug for connection cable (I-BUS) to the next module
- 12 = Power supply unit connection points
- 13 = \* BUS-2 connection points
- 14 = Grounding bridges (see chapter Grounding/shielding)
- 15 = Contact area for shield connection to the mounting bottom
- 16 = Analog telephone connection
- 17 = Connection points armed/disarmed

**Input "armed/disarmed" has to be permanent connected with 0 V" (solder in bridge)!**

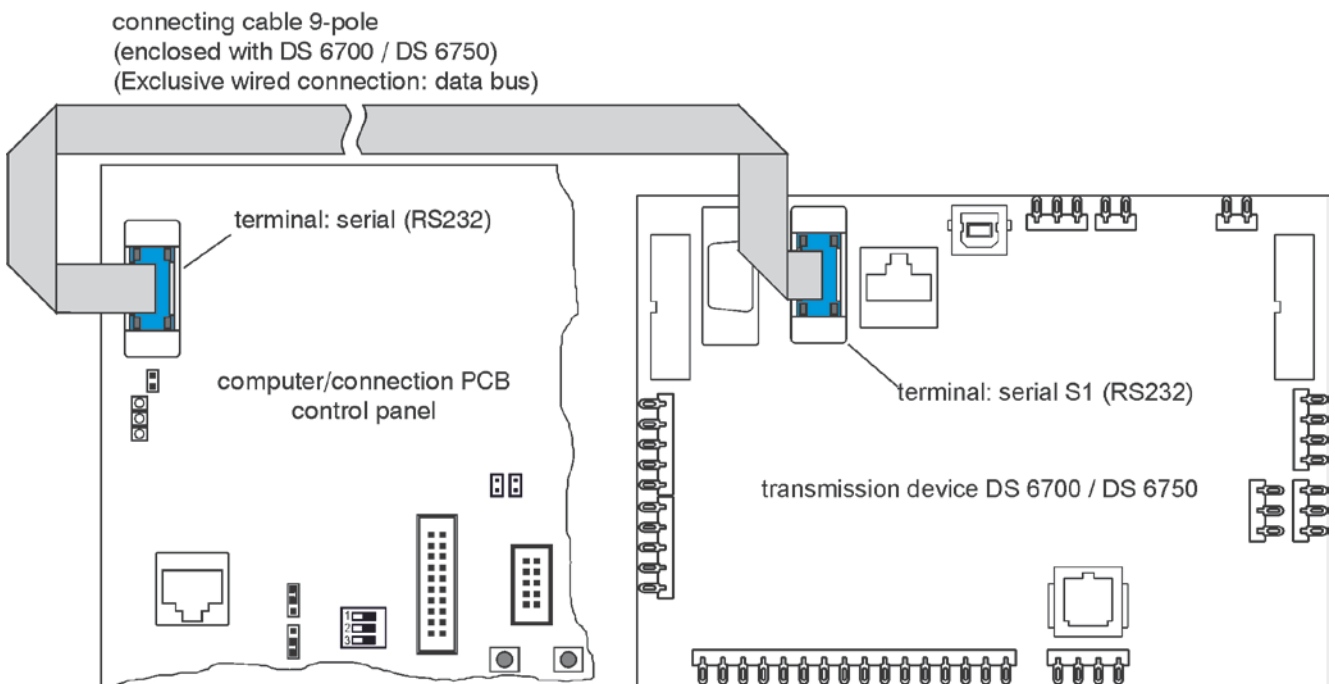
- 18 = \* Input channels e1 - e8
- 19 = \* Semiconductor-outputs parallel indicators
- 20 = \* Connection for indicator PCB
- 21 = Jumper J5
- 22 = Headphone connector socket
- 23 = Microphone connector socket
- 24 = LEDs Ethernet status
- 25 = Jumper J6
- 26 = Jumper J1 to J4
- 27 = LEDs Device status

\* = Not relevant for MB-Secure applications.



When connecting via the serial interface, at most 1 module can be used for each control panel. You can find detailed information about connection and configuration in the installation instructions for DS 6700 / DS 6750.

### 2.6.2.1 Connection of transmission device DS 6700/DS 6750 to MB-Secure computer/connection PCB



The 9-pole connection cable (computer PCB <-> transmission device) must be screwed with the PCBs on both ends.

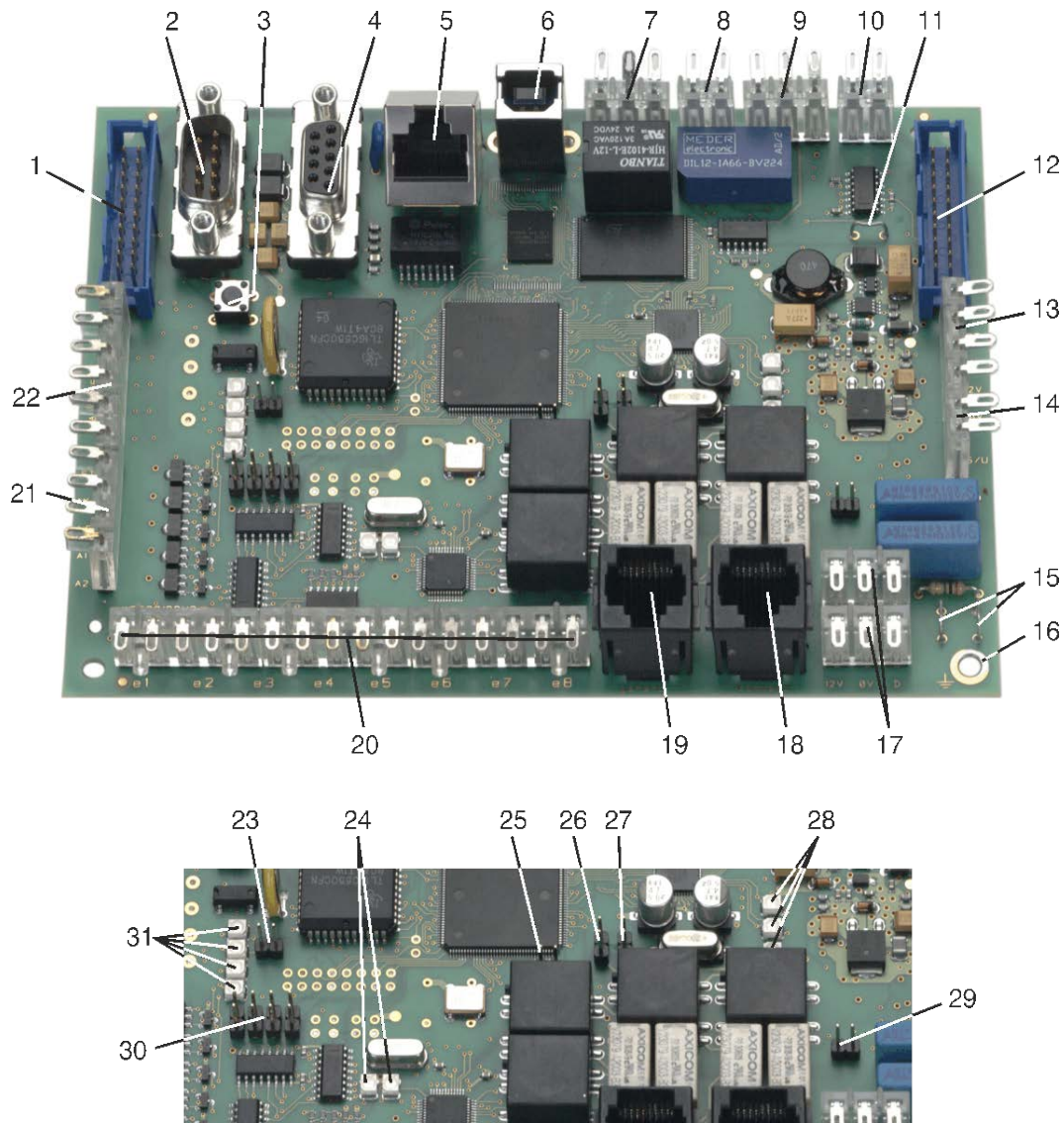
### 2.6.3 AWUG DS 7700 (Part No. 057651.20)

Automatic transmission device with modem function and ISDN connection technology as well as TCP/IP connection technology. Can be integrated via serial interface. Up to 100 transmission channels and 40 control inputs are available for transmission.

Programming of the DS 7700 is carried out completely with IQ PanelControl.

**VdS** Systems designed according to VdS category C have to be operated with an integrated transmission device ( via serial interface).

**i** Operation of a DS 7700 transmission device in combination with the control panel MB-Secure (firmware version V07.xx) requires firmware version V10 or higher for the transmission device is absolutely necessary.



1 = \* Plug for connection (I-BUS)

cable

2 = \* V.24 interface for RFW 4000

3 = Reset button

4 = Serial S1 (RS-232) for connecting to the serial interface of the MB-Secure computer/connection PCB (Exclusive wired connection: data bus connection)

5 = RJ 45 Ethernet connection, 10/100

6 = USB port, v1.1

7 = \* Output "signaling"

8 = \* Positive drive

- 9 = \* Serial S1 (TTL level)
- 10 = \* Output "resuscitation" for RFW 2000
- 11 = \* Wire bridge for connecting/disconnecting +U\_B within I-BUS
- 12 = \* Plug for connection cable (I-BUS) to the next module
- 13 = Power supply unit connection points
- 14 = Connection points armed/disarmed

**Input "armed/disarmed" has to be permanent connected with 0 V" (solder in bridge)!**

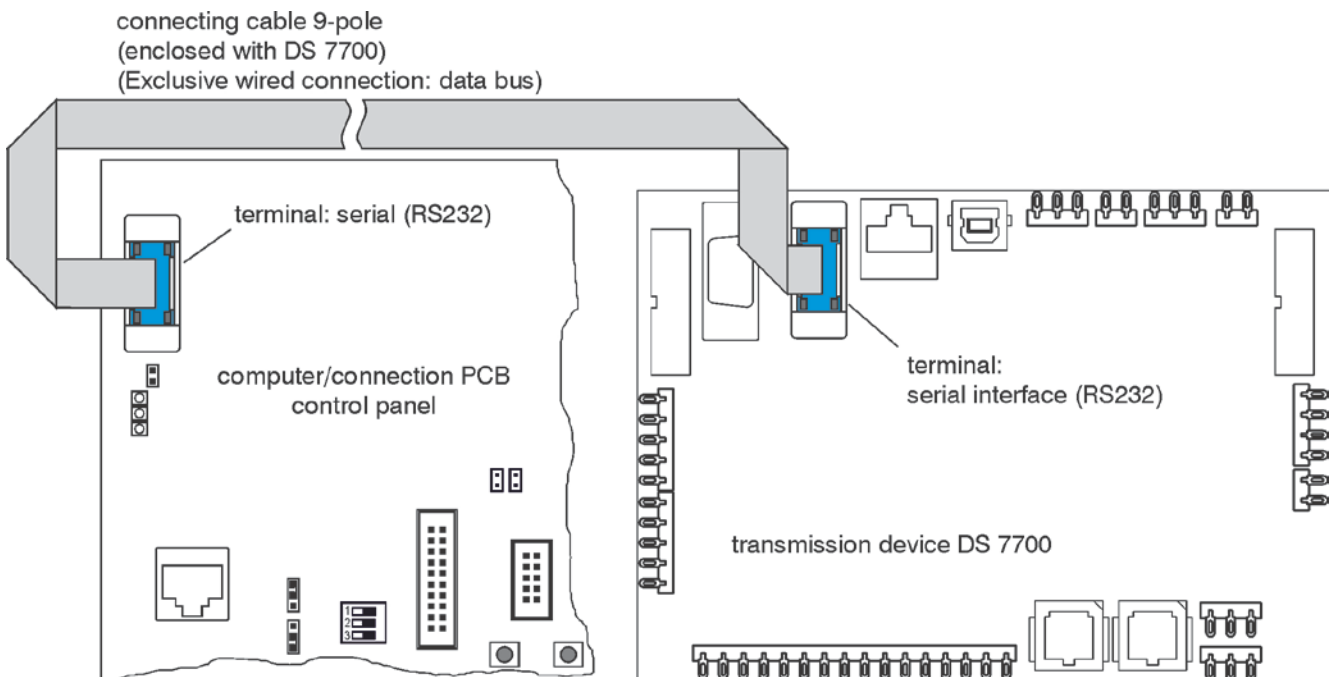
- 15 = Grounding bridge (See Chapter Grounding/shielding)
- 16 = Contact area for shield connection to the mounting bottom
- 17 = \* BUS-2 connection points
- 18 = ISDN connection (connection to NT)
- 19 = ISDN connection (S<sub>0</sub> BUS for further end units)
- 20 = \* Input channels e1 - e8
- 21 = \* Semiconductor outputs for parallel indicators
- 22 = \* Connection for indicator PCB
- 23 = Jumper J5
- 24 = LEDs ISDN status
- 25 = Jumper J7
- 26 = Jumper J8
- 27 = Jumper J9
- 28 = LEDs Ethernet status
- 29 = Jumper J10
- 30 = Jumper J1 to J4
- 31 = LEDs Device status

\* = Not relevant for MB-Secure applications.



When connecting via the serial interface, at most 1 module can be used for each control panel. You can find detailed information about connection and configuration in the installation instructions for DS 7700.

### 2.6.3.1 Connection of transmission device DS 7700 to computer PCB



The 9-pole connection cable (computer PCB <-> transmission device) must be screwed with the PCBs on both ends.

## 3 Installation

Also see brochure "Electrical installation of hazard detection devices " (no. P03061-15-000-XX).

### 3.1 Mounting

The device is intended for wall mounting. The housing (option) consists of a back panel and a detachable housing rack with front door (not ZG20 and ZG4).

For installation, first attach the back panel without rack and front door at the appropriate location and install the PCBs and power supply/charger units. After the PCBs are wired, the housing rack can be attached and screwed onto the back panel.

The location where the control panel is installed should meet the following conditions:

- \* must be inside the protection zone
- \* must be within the internal areas of the building
- \* must be easily accessible
- \* must not be exposed to any unusual environmental conditions, e.g. aggressive vapors, high humidity etc.
- \* must be at eye level
- \* must not be visible from outside
- \* must be sturdy enough to ward off attempts to tear it off
- \* there must be sufficient distance to nearby machinery
- \* must be on the interior wall of the protection zone - intrusion monitoring may be necessary if installation is possible only on the external wall

Lead-seal the screws after installing and placing into operation.

### 3.2 Power supply

The power supply must be connected to the mains via a separate fuse (meter box, sub-distribution). No loads external to the system should be connected to this circuit. The power supply can also be connected to a circuit meant exclusively for the internal lighting systems of the zones to be monitored.

If the operator's mains circuit is equipped with a fault-current safety switch (FI switch), the power supply must be assigned its own FI switch capable of carrying overload current.

The fuse and the FI switch should be located within the protection zone.

If the power supply of the intrusion detector control panel is not part of the control panel, it should be installed (mutually screwed) right next to the control panel (without any gap). It must be impossible to reach the connection lines without mechanical damaging the housing.

For intruder alarm systems with multiple power supply devices, fault signals from each power supply device must be indicated on the intruder alarm control panel. A central indicator will suffice only if the individual power supply units have their own fault indicator.

A battery room is permitted only if it is included in the monitoring.

The batteries provided with the power supply must be VdS-approved. If batteries are connected in parallel, only the same type of batteries of the same age must be used.

If the mains fail, uninterrupted and unrestricted operation of the IDS must be ensured for a minimum of 60 hours (VdS Class C) using batteries. Before these 60 hours elapse, the alarm signalling units should have an operational capacity of at least 60 seconds. The battery capacity required must be determined when the IDS is in detection-ready state by measuring the current consumption in the armed and disarmed state. In a disarmed system, the power consumption of the fault display(s) and one detector group display, or 10% of the detector group displays if there are more than 10 detector groups, must also be taken into account. Group displays that can be displayed only via a locking test key need not be considered. The higher current consumption in each case is decisive in the design of the battery capacity.

If Intruder alarm systems also display fault signals optically or acoustically in armed mode (allowed only for displays outside the protection zone), the power consumption of these displays must also be taken into account. In addition, VDE guidelines and local public utility regulations must be complied with.

### 3.3 Installation in 19"- Cabinet/housing (third-party products)

If possible, assembly plates item no. 013106 should be used, since modules can be fixed without difficulty in using them.

In addition, these assembly plates have appropriate clamps for a proper installation of the cable shields. For more on this, see the chapter Grounding/shielding.

The following points must be kept in mind in the selection and installation of the 19" housing:

- \* Option of installing the back panel assembly plates item no. 013106
- \* Option of installing monitoring contact for the door (cover contacts)
- \* Electrically conductive connection of all metallic housing parts to one another
- \* Option to lead-seal the locking mechanism(s)

In addition, for VdS systems, the relevant VdS guidelines must be complied with!

### 3.4 Installing power supply unit and battery in housing ZG20.

One of the three mounting screws for the housing ZG20 is behind the power supply / charger and therefore the housing must first be mounted on the wall.

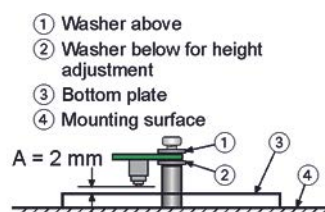
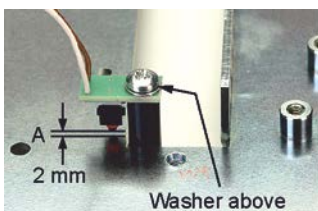
Then the power supply / charger 013970 is to be attached in the lower left section of the housing using the three screws provided for this purpose.

In order to attach the battery, the mounting bracket provided for this must first be removed. Then two adhesive strips are to be attached to the bottom of the battery. With these, the battery can now be placed centered under the mounting bracket on the floor of the housing. A distance of at least 5 mm should be maintained from the right edge of the housing. After applying manual pressure to fix the adhesion, the mounting bracket can be placed in its final position for attachment.

Then the power supply / charger can be connected according to the installation wiring instructions.

### 3.5 Installing the tear-off monitoring contact

**EN** According to European standards, tear-off monitoring contacts have to be installed in Class 3 devices.



Spacers and the board with the breakaway protection switch are screwed to the mounting surface as shown. The distance "A" between the switch and the back of the housing is approx. 2 mm and must be adjusted with washers if necessary.

### 3.6 Current consumption of control panel components, detectors and/or users



The current values specified are approximate values. The values specified for Active Mode are maximum values - e.g. with LED displays, relays pulled in. The exact total power consumption must be determined by measurement!

Device	Current consumption at rest / active/max.	Number	Total current
MB-Secure control panel/basic current	See technical specifications	1	
IB2 Bus extension	65 mA		
IB2 16 I/O extension	See technical data		
BUS-1 IB2 converter	30 mA / max. 1 A per branch		
MB-Secure Siren module (013920)	55 mA / 1.1 A		
Flash lamp	See technical specifications		
Sirens	See technical specifications		
BUS-2/BUS-1 IDENTLOC-EU	9 mA / 9 mA / per LED 3 mA		
IDENTLOC sensor (standard range) (mid. range) (max. range)	≤5.5 mA ≤10 mA ≤15.5 mA		
BUS-2/BUS-1 DUO-I/O module (010120)	5 mA / 45 mA		
BUS-2/BUS-1 4DG/2O module (010130.10)	5 mA / 13 mA		
BUS-2 16-MG blocking/display module (012542) / per LED	25 mA / 5 mA		
BUS-2 16-MG display module (012548) / per LED	25 mA / 5 mA		
LED keypad (013000)	20 mA / max. 90 mA		
LCD keypad (013001)	20 mA / max. 100 mA		
BUS-2 Comfort Touch Color operating unit (012575.10)	170 mA / 540 mA		
BUS-2 TouchCenter Tuxedo graphical operating unit (013002)	160 mA / max. 310 mA		
BUS-2 TouchCenter Plus graphical operating unit (013003/004/005)	140 mA / max. 260 mA		
BUS-2 motion detector SCM 3000	3 mA / 8 mA		
BUS-2/BUS-1 motion detector Viewguard DUAL AM (033442.20)	4.6 mA / 8.6 mA		
BUS-2/BUS-1 motion detector Viewguard DUAL (033443.20)	4.6 mA / 8.6 mA		
BUS-2/BUS-1 motion detector Viewguard PIR AM (033432.20)	0.6 mA / 4.6 mA		
BUS-2/BUS-1 motion detector Viewguard PIR (033332.20)	0.6 mA / 4.6 mA		
BUS-2/BUS-1 smoke detector base module (062090)	3 mA		
BUS-2 5-input module (013130.10)	6 mA / 46 mA		
BUS-2 5-output module (013131.10)	7 mA / 350 mA		
BUS-2 2-relay 2 detector group module (041220)	5 mA / 45 mA		
BUS-2/BUS-1 2 Detector group module, s.m. (010135.10)	5 mA / 9 mA		
BUS-2/BUS-1 1 Detector group module, s.m. (010134.10)	5 mA / 7 mA		
BUS-2 Sounder/flasher with 2 inputs (044500)	4 mA / 80 mA		
IDENT-KEY BUS-2 evaluation unit (023312.17)	15 mA / 45 mA (max.) + peripheral		
Door controller module (023350.10)	15 mA / 45 mA (max.) + peripheral		
IDENT-KEY IK3 operating unit (023320)	15 mA / 50 mA		
IDENT-KEY IK3 operating unit (023322)	11 mA / 50 mA		
BUS-2/BUS-1 Block lock module, s.m. (010134.10)	5 mA / 13 mA (+ outputs 100 mA)		
Transmission device DS 7700 (057651.10)	160 mA / 220 mA		
Transmission device DS 6700 (057864) / DS 6750 (057865)	135 mA / 155 mA (without Ethernet) 150 mA / 170 mA (with Ethernet)		
RF BUS-2 wireless receiver (015600)	15 mA		

### 3.7 Calculation of accumulator capacity

To calculate the accumulator capacity required, the overall system current consumption must be known. The current consumption is determined by measuring consumption with accumulator(s) connected when there is no power supply.

For systems of VdS Class C, a bridging time of 60 hours is prescribed in the case of power failure.

For a current consumption of 250 mA, for example, the required accumulator capacity is calculated as follows:

$$60 \text{ hours} \times 250 \text{ mA} = 15 \text{ Ah.}$$

Accumulator capacity selected:  $2 \times 10 \text{ Ah} = 20 \text{ Ah.}$



If sirens or a flash lamp, for example, are used as signaling devices, allowance can be made for the “reserve energy” to activate the signaling device by increasing the total current consumption by 1 mA. With this, we have following calculation:

$$60 \text{ hours} \times 251 \text{ mA} = 15.06 \text{ Ah.}$$

The accumulator capacity selected remains sufficient.

### 3.8 Connection of multiple power supply/charger units

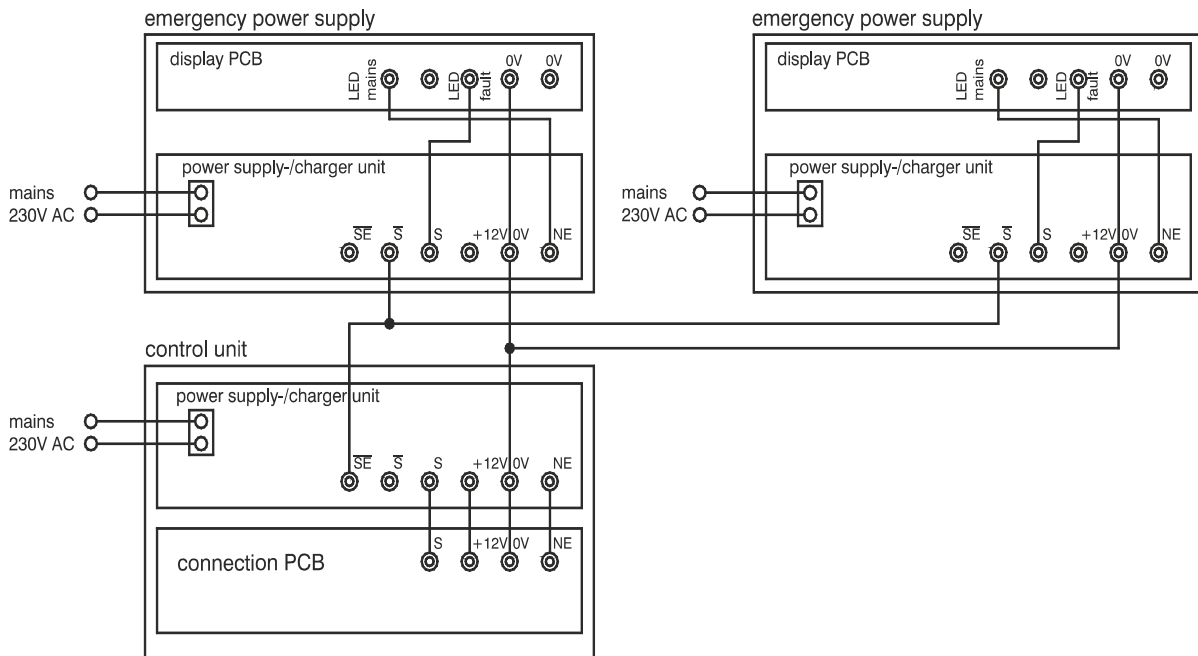


Diagram Multiple power supply units



Please note that when multiple power supply/charger units are connected together, the operating voltage can be variably high in case of power failure, since accumulator voltage charging is temperature dependent. This can lead to an undesired flow of current to control and signal lines. Therefore, only external devices that are electrically isolated from the operating voltage should be used.

## 3.9 Grounding/Shielding

To protect against electromagnetic interference coupling such as occurs when electronic devices are switched on and off, shielded cables must be installed and a suitable shielding circuit must be provided.

Care must be taken to connect the cable shields in the distributor sockets in such a way that they are not in contact with other potentials. All shields in the control panel and in the main distributor should be joined by as short a route as possible to one point.

(Earthing/shielding connector, see below)

The following variants are available for additional shield wiring:

### 3.9.1 Connect to earth line and leave earthing bridge closed

The brass rail (shield terminal block) at the cable inlet serve as a point of support to connect earth lines and cable shields.

The earthing bridge (on PCBs) creates a capacitive coupling between the earth line and the reference potential of the system operating voltage.

In general, this circuit offers the best protection against wireline faults and faults that occur due to cable shield discharges. However, it should be adopted only if PE and N are installed separately (modern earthing) and the earth line is guaranteed not to cause low or high-frequency signals.

### 3.9.2 Connect to earth line and open earthing bridge

The brass rail (shield terminal block) at the cable inlet serve as a point of support for connecting the earth line and cable shields.

The capacitive coupling to the reference potential of the system operating voltage is broken by the open earthing bridge (on PCBs). In some cases, this circuit is installed when the earth line is itself prone to faults, and there is the danger of faults being transmitted to the system through capacitive coupling.

### 3.9.3 Connect to own system earth and leave earthing bridge closed

The brass rail (shield terminal block) at the cable inlet serve as a point of support for connecting the earth line and cable shields. It should be connected to a new system earth that has to be set up.

For a very heavily loaded earth line, this is the only option to prevent interference on the cable shields.

Note: VDE 0800 Part 2 July 1980 Edition  
VDE 0800 Part 2 AI Draft November 1982



### 3.10 Lines

All DC connections must be made using shielded telephone cables J-Y(ST)Y / J-H(ST)H. These are installation cables based on VDE 0815, with a static shield for telephone, measurement and signal transmission. They are suited for installation in dry and humid plants and factories, with surface or flush mounting, as well as outdoors using fixed laying. The inner wires are made of copper with a diameter of 0.6 mm or 0.8 mm. Internally, two cables are stranded into one pair of wires.

#### 3.10.1 Cables to signalling devices

Cable cross-sections in the installation of signalling devices are based on cable length and current consumption. The maximum total resistance of the cable should be max.3 Ohm.

This gives us the following cable lengths:

(Distance control panel - signalling device)

Cross-section	Number of wires 0.6 mm = 0.28 mm <sup>2</sup>	Max. cable length
0.75 mm <sup>2</sup>	3	64 m
1.00 mm <sup>2</sup>	4	85 m
1.50 mm <sup>2</sup>	6	128 m
2.50 mm <sup>2</sup>	9	214 m

#### 3.10.2 BUS lines

Cables for the 3-wire bus systems have the following functions:

+12 V DC wire	→	Power supply for BUS users
0 V wire	→	Return cable/reference potential for BUS users
Data cable / A / B	→	Data exchange
U <sub>E</sub> cable	→	Additional cable for supply of power to BUS users with high power consumption

In designing cable cross-section areas for +12 V DC and 0 V, the current consumption of the users connected must be the starting point. Besides the base power for users, the "switching current" sometimes required, such as the "all-or-nothing relay" or block magnet release must also be taken into account.

The operating voltage to users must not go below 10 V DC even in the case of emergency power. This means that a maximum loss of potential of 0.5 V DC (accumulator voltage = 10.5 V DC) is permissible. For modules with higher current consumption, such as block lock, switch module etc., it is therefore advantageous or necessary to install a separate cable (U<sub>E</sub>) or a cable with a larger cross-section up to the control panel.

#### Interference factors

Several influences can have a disruptive effect on bus lines:

- line-related interferences
- capacitive/inductive interferences
- HF interferences

These disruptive influences can be avoided by ensuring the following:

- Do not operate loads with heavy current consumption on the BUS operating voltage, instead feed the operating voltage via separate supply lines.

- Do not install any cables with interferences pulses in parallel with the BUS cables.
- Maintain the minimum distance from high current cables running in parallel, in accordance with VDE guidelines.
- Install according to VDE guidelines (VDE 0800 Part 4).
- Only use cables and wires shielded against HF interference (J-Y(ST)Y or J-H(ST)H).
- For the data cable, only **one** wire must be used respectively along the entire length of the cable. The second wire must be set to 0 V.



#### Installation guidelines BUS-2 and BUS-1

The following framework conditions must be complied with in the installation of BUS cables:

- Only use the specified cable type – J-Y(ST)Y / J-H(ST)H.
- Control lines or lines to signal devices should not be fed into the same cable as the BUS wires.
- The data line should have a maximum line resistance of 65  $\Omega$ .
- In designing the cable cross-sections from +12 V DC and 0 V, care must be taken to ensure that the maximum loss of potential does not exceed 0.5 V DC.
- The maximum cable length between the control panel and the farthest BUS user is 1000 meters.
- For bus data cables, the 2nd wire in the respective pair of wires must always be laid to 0 V.
- Always increase the cable cross-section for +12 V DC and 0 V using complete pairs of wires so that one wire is always connected to +12V DC and the second wire to 0 V.
- U\_ext. = additional line for power supply to BUS users with higher power consumption needs.
- Separate the wires from the shielding only to the extent required. Keep the shield connection as short as possible. See the chart (shield connection) below.

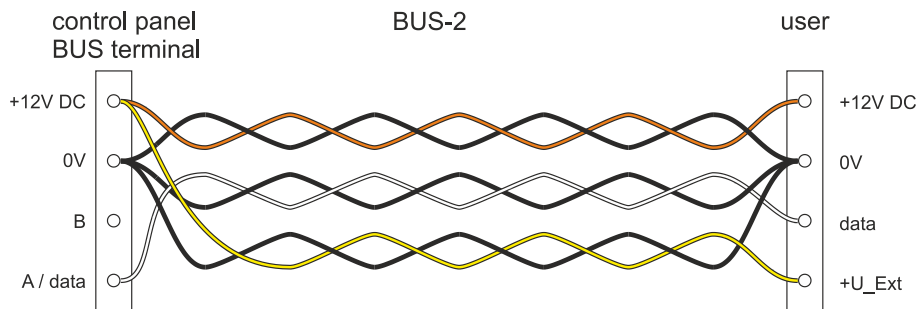
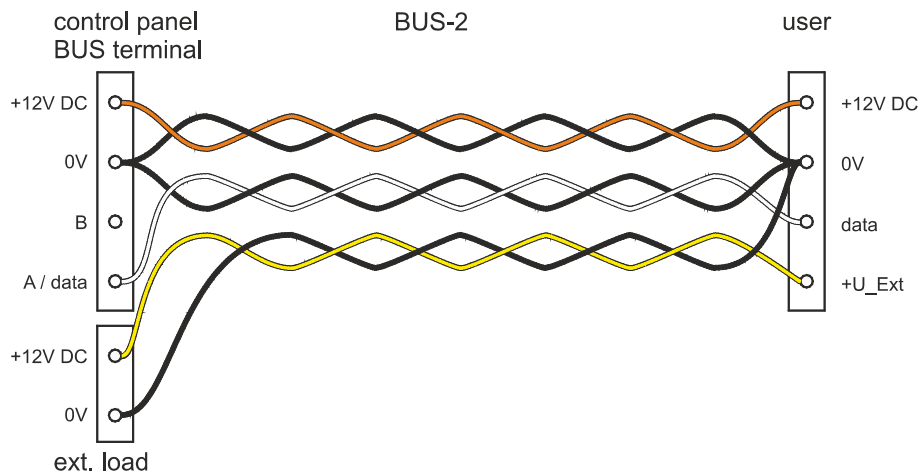


#### Special notes on BUS-2 and BUS-1 installation

- For the data cable, only **one** wire must be used respectively along the entire length of the cable. The second cable must be set to 0 V.
- The maximum line length between the control panel and the farthest BUS-2 user is 1000 meters.

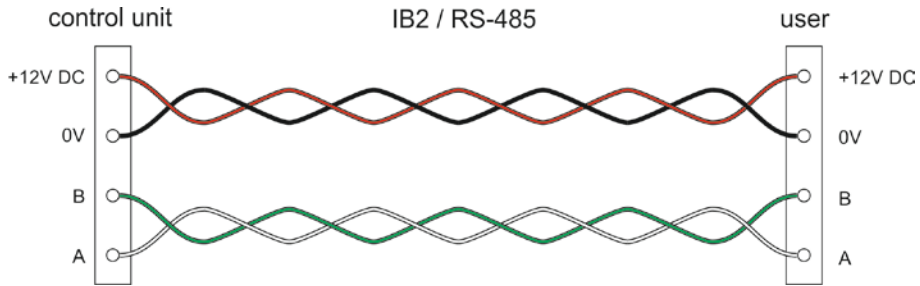


You can find a detailed explanation of the installation in our brochure "Electrical installation of hazard detection systems". (P03061-15-000-XX)

Connection BUS-2 / BUS-1 UserConnection BUS-2 User with alternate U\_ext-feedSpecial information regarding IB2 topology

- Utilization of cables J-Y(ST)Y, J-H(ST)H, J-2Y(ST)Y.
- Cable diameter 0.6 mm and 0.8 mm.
- Different cables should not be used together.
- Star quad can be used (J-2Y(ST)Y).
- Maximum line length 2000 m in total
- The control panel can occupy any position on the BUS.
- Terminating resistors (120 Ohm) have always to be placed at the end of the lines.
- 1 intermediate branch is permitted; it must not exceed 40 m in length.
- Supply lines to the participants must not exceed 5 m.

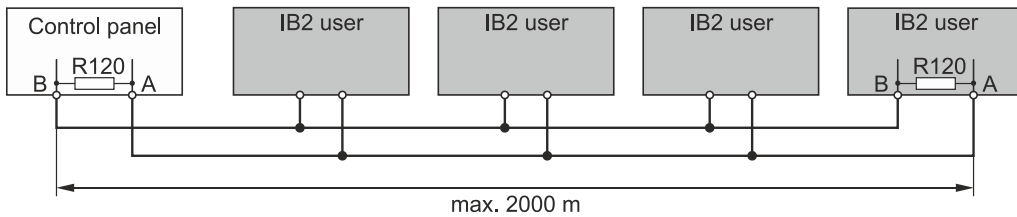
Connection of IB2 / Modulbus/RS-485 User



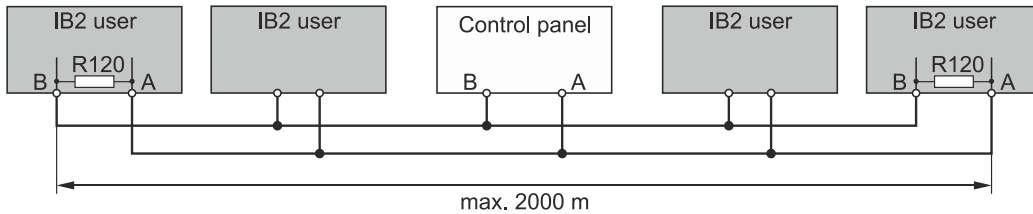
Terminating resistors and line lengths IB2

If the controllers are operated in IB2 mode, the terminating resistors on the computer/connection PCB of the control panel and the connection PCB of the BUS users are to be set as follows. Likewise the maximum line lengths are to be observed.

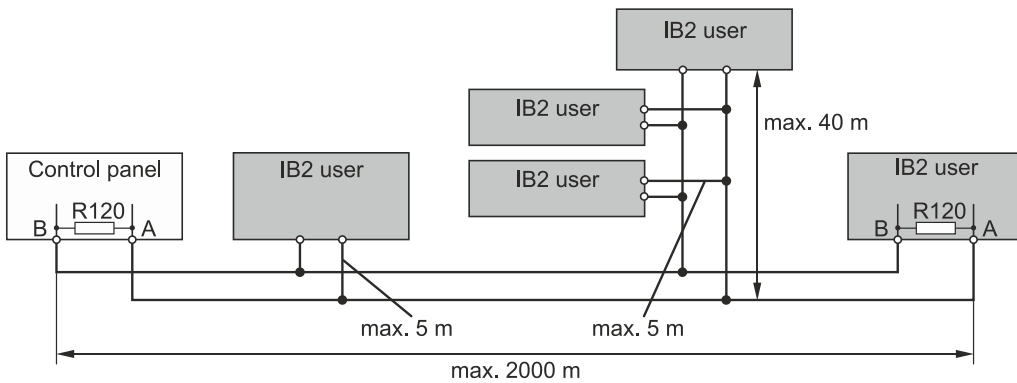
- The control panel is located at the start of the BUS line



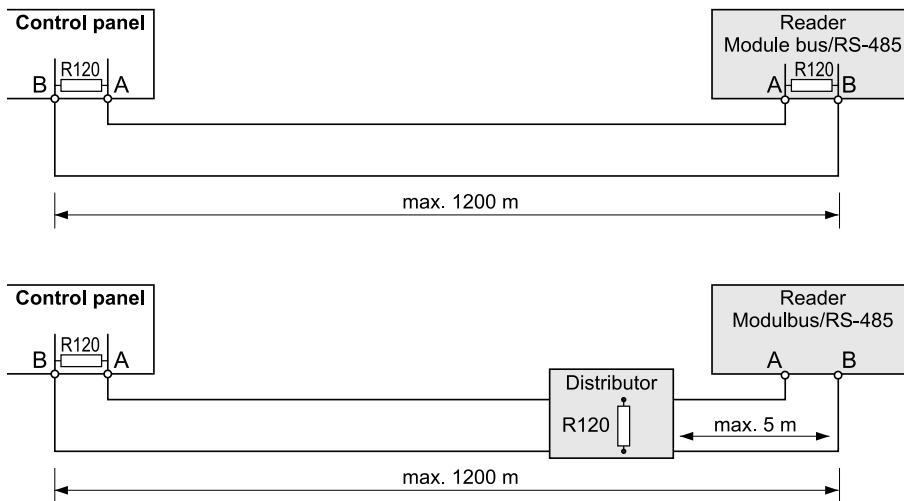
- The control panel is not the start or end point of the BUS line



- General line lengths

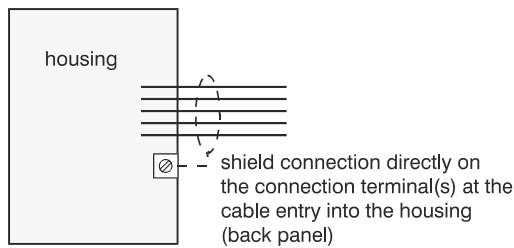


Terminating resistors and line lengths of Modbus/RS-485

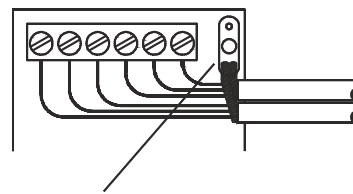


Shield connection

Shield connection



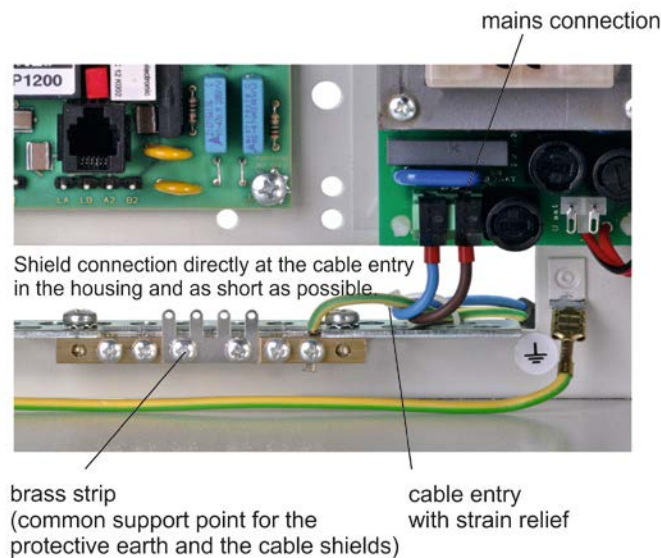
control panel (earthed metal housing)



shield connection as short as possible

user (if plastic housing)

Picture of the shielding connection terminal (example)



### 3.10.3 Sample cable calculation for users

Assumption: The cable length to be installed is approximately 150 meters. Users connected to a BUS connection require a maximum current of 150 mA. The installation should be performed using telephone cable (cable diameter 0.6 mm = 0.28 mm<sup>2</sup>). The max. loss of potential is 0.5 V DC. A telephone cable is a copper cable with a conductivity of k (Kappa) 56 m/Ωmm<sup>2</sup>.

#### Calculation of line resistance

R<sub>L</sub> = Line resistance

U<sub>V</sub> = max. permissible voltage drop

I = Current consumption of all BUS users on a BUS connection (branch).

$$R_L = \frac{U_V}{I} = \frac{0.5 V}{150 mA} = 3.3 \Omega$$

#### Calculation of cross-section required

A = wire cross section per connection

R<sub>L</sub> = line resistance (+12 V DC and 0 V total)

k = specific conductance value of copper

L = cable lengths

$$A = \frac{2L}{R \times k} = \frac{2 \times 150m}{\left( 3.3 \Omega \times 56 \frac{m}{\Omega \times mm^2} \right)} = 1.62 mm^2$$

#### Determination of number of wires

$$Number\ of\ wires = \frac{1.62 mm^2}{0.28 mm^2} = 5.78$$

This means that 6 wires are required in parallel for each connection (+12V DC and 0V).

The required number of wires per connection (+12V DC and 0V) can also be easily determined on the basis of the following diagram.

The "pointer" refers to the sample calculation. According to the calculation, the vertical pointer at the point of intersection shows 150 mA/150 m or just below 6 wires of diameter 0.6 mm or more than 3 wires of diameter 0.8 mm. Rounded up to whole wires, this comes to 6 wires with a wire diameter of 0.6 mm or 4 wires with a wire diameter of 0.8 mm, as yielded by the calculation.

Determining the cross-section at a voltage drop of 0.5 Volt

line length

(operating voltage-) maximum current

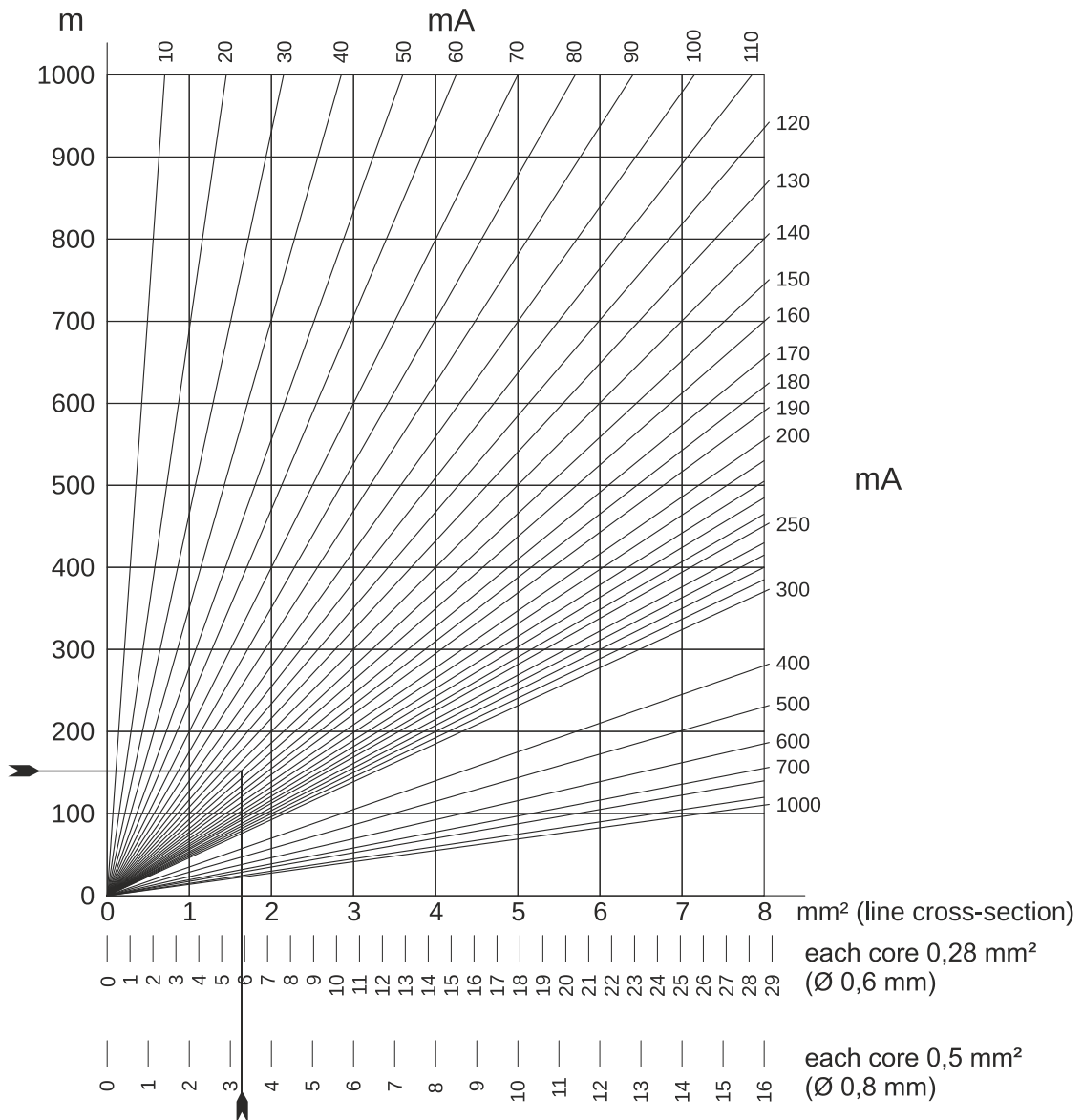


Diagram Determining the cross-section/number of wires

### 3.11 Special notes on installation and planning

#### Software version IDENT-KEY evaluation unit 023312.10 / door controller module for MB 023350

To operate a IDENT-KEY IK3 evaluation unit or a access control BUS-2 door module in conjunction with the MB-Secure control panel, the evaluation unit or door controller module must compulsorily be at software version **V12** or higher.

#### Software versions for "Centralized Authorization " mode (number of IDENT-KEY ID data carriers >1024)

When "Centralized Authorization " mode is used, software version **V13** or higher is mandatory for the BUS-2 user IDENT-KEY IK3 evaluation unit and Door controller module. BUS-2 user Doorguard must be configured with software version **V03.04** or higher.

#### Transmission devices

The transmission devices must be at adjacent firmware versions.

DS 6700 / DS 6750	from V08
DS 7700	from V10



Systems in VdS Class C must be operated with an integrated transmission device. The transmission device must be located inside the control panel and installed with it.

Remote queries of the DSxx are not allowed according to VdS.

The connection between the control panel and the transmission device is made via the serial interface or via relay. When using the DSxx, we recommend the serial interface. When using another transmission device, the absence of feedback must be guaranteed. Additional relay assemblies may have to be installed.

#### Door opening contacts

In the case of doors that have an arming device, the door opening contacts must be installed using the same terminal card as that used for the block lock. This means that if a block lock is operated by a BUS-1 module, the corresponding door contact must also be connected via a BUS module.

#### BUS-2 operating units

A maximum of 10 operating units can be connected to each BUS-2 Controller.

#### Firmware

In principle, the latest firmware for individual users in each case must be used so that all new functional enhancements can be utilized. Firmware updates are device-dependent. You can find the relevant information in the documentation of the respective device.

#### IB2 users

- Up to 10 IB2 users per BUS branch
- Maximum of 10 interface modules 013930 per control panel
- Maximum of 40 I/O modules 013940 per control panel

Module / Parameter	max. per MB-Secure	max. per BUS-2 branch	max. per IB2-branch
IB2 branch	4	-	-
IB2 user	40	-	10
BUS-2 branch (by use of max.10 item of 013930 IB2 Bus extensions)	43	-	-
BUS-2 user	1200	64	-
BUS-1 user	1200	63	-
013930 IB2 1to4 Bus expansion	10	-	10
TouchCenter Tuxedo (013002ff)	50	10	-
RF user	256	-	-
RF panic button	32	-	-






## 4 Start-up procedure

### 4.1 Preparations before start-up

The operation of the control panel requires operating and display elements that provide information about the current status of the system and allow the operator or installer to gain access to system functions.

 In contrast to normal mode, the control panel may be programmed only via a PC/laptop using the "IQ PanelControl" software (via Ethernet). After programming, no connection to the network is allowed.

### 4.2 Programming of BUS users

#### 4.2.1 BUS-2 users

The individual users have a 6 way programming switch to configure user addresses between 0 and 63.

Connections on the computer/connection PCB are mutually isolated BUS-2 connections with separate fuses. The maximum number of BUS-2 users on each connection is 64.

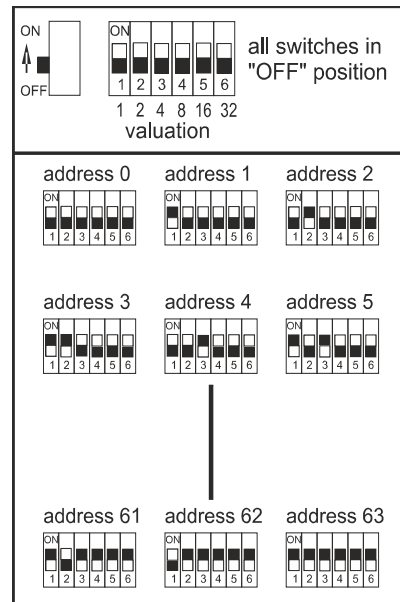


Diagram BUS-2 programming switch


#### 4.2.2 BUS-1 users


The individual users have a 6-way programming switch to configure user addresses between 1 and 63.

**An address of 0 must not be set!**

The maximum of 1200 connectable BUS-1 users per system are distributed to the BUS branches of the BUS-1 IB2 converters to be used. The maximum number of BUS-1 users at each of these connections is 63. This means that addresses from 1 to 63 must be set for each BUS branch, although "gaps" may be permitted in the addresses.

The connections on the BUS-1 IB2 converter are mutually isolated and separately fused BUS-1 connections.

 You will find further details and connection information in the mounting and connection instructions "MB-Secure BUS-1 IB2 Converter" (P00183-10-002-xx).

 Operating, door and wireless modules and IDENTLOC evaluating units are operated via several BUS addresses. Please observe the mounting and connection instructions for the respective modules.

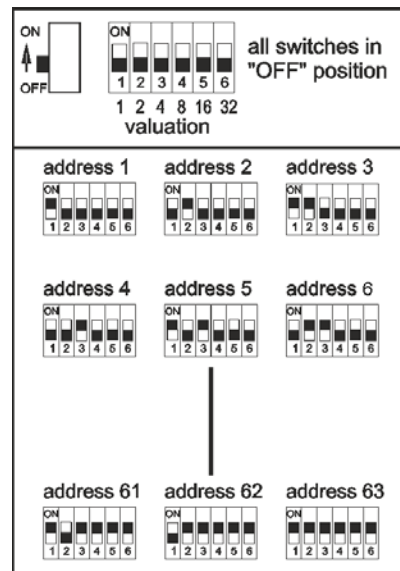


Diagram BUS-1 programming switch

### 4.3 Initial start-up procedure

All system components must have been properly installed. Measure all lines from the connection to the control panel in order to detect any line interruptions or short circuits. Ensure that there is no earth fault. Cover contacts of system components and the control panel must be closed. (Simulate cover contacts of the control panel, possibly using a shorting bar, or keep closed using a magnet). If programmed with tamper monitoring, flash lamps and sirens must be correctly installed.

BUS user addressing must have been correctly performed.

To place the unit into electrical operation, proceed as follows:

- \* Disconnect the computer/connection PCB from the power supply/charger unit.
  - \* Switch on the power supply.
  - \* Measure the battery charging voltage at the battery connection cable (+13.8V DC).
  - \* If need be, set the battery charging voltage (see description, power supply/charger unit).
  - \* Connect the battery(ies).
  - \* Reconnect the power supply/charger unit to the connection PCB.
  - \* The control panel goes through its boot procedure. The four "Status information" LEDs light statically for around 30 seconds.
- The green LED (2nd from the left) indicates successful termination of the boot and initialization process:
- |           |    |                                     |
|-----------|----|-------------------------------------|
| Blinking  | -> | Not programmed                      |
| Steady on | -> | Operation/initialization successful |
- \* The connection between the control panel and the PC/laptop is created via Ethernet. A crosslink cable (direct connection) can be used, or the control panel and PC are on a network.
  - \* Launch IQ PanelControl on the PC/laptop and carry out the programming.  
You can find detailed information on programming with IQ PanelControl in the user manual "IQ PanelControl for MB-Secure".

### 4.4 Starting operation with video function

As of software version IQ Control Panel V04.4X and panel firmware V04.4X and the appropriate license Video Integration IP (item no. 059810) IP cameras can save records to the control panel. As data storage for this an USB flash drive has to be used, which is plugged into the USB master port on the MB-Secure connection PCB. We recommend using a USB flash drive with 32GB.



- The used USB flash drive must be formatted in the USB port of the MB-Secure connection PCB via the Service-Interface.  
While formatting is in progress, this is displayed in the Service-Interface. After formatting the standard view "USB" is displayed again.
- Connect the USB stick to the USB port of the control panel connection PCB or remove it from there only in de-energized state. Alternatively, the USB stick can be enabled via the service interface (Button "Unmount") before removing it.

## 5 Maintenance

### 5.1 General

The control panel must be maintained in accordance with the appropriate guidelines. Maintenance is required at least once a year. We recommend maintenance in accordance with VDE 0833. This alone will ensure operational readiness of the system.

### 5.2 One man revision

In preparation.

### 5.3 Walk test

The walk test mode of the detector is enabled by activating the "Walk test" input on the detector. Access to the walk test mode is possible via the LED operating unit 013000/LCD operating unit 013001 (relevant programmed key) as well as the graphic operating unit 013002.

This function activates an output which was defined at "Main zones->Walk test->...".

Operating unit 013000/013001:

Press programmed key.

Operating unit 013002:

Other functions → Test → Start walk test

### 5.4 Calling-up event memory

Event memory with time with up to 30000 events.

Can be displayed on graphic operating unit 013002. The event memory can also be displayed or printed using the IQ PanelControl programming software.

**EN** According to the European standard, an additional event log has to be configured, in which up to 500 EN-50131 relevant events can be stored. The event log can be displayed using the graphical operating unit 013002. This event log is located in the non-volatile memory area.

## 5.5 Firmware updates

Firmware updates should be performed only by trained technical personnel. Please watch out for static discharge!

We always recommend loading the latest version of the firmware in the control panel. This is available for free download on our Internet site.

A USB stick is used for updates. The stick used must be formatted in the FAT32 format and the update file "MB\_Update\_Vxx.xx" must be placed in the root folder of the USB stick.



### Important

- There must be only **1** update file in the root directory of the **USB** stick ever.
- It is recommended to use a **USB** stick containing only the update file. Otherwise, there may be problems with the recognition of the **USB** stick.



If the **USB** master connector is used with a **USB** stick for video data storage, the stick may only be removed if the control unit's power is off.

Likewise, after firmware update, the **USB** stick must be reinserted while the control panel is switched off.



Before a firmware update is performed, it is essential to read out the current system configuration from the control panel with IQ PanelControl and to save to the database. After the firmware update is completed, the system configuration must be converted and restored to the control panel.

Procedure for Update:

- \* Place the USB stick with the latest firmware file in the USB host port of the computer/connection PCB.
- \* Press the Abort key.  
The four "Status information" LEDs light steadily for 2 seconds. Press the abort key once again during this time.
- \* The control panel resets itself.
- \* The green LED (left) lights up for approx. 2 sec.
- \* After approx. 40 seconds, the green LED (right) flashes for approx. 80 seconds.  
When the green LED (to the right) becomes steady (on or off), data has been successfully copied to the control panel.
- \* Take out the USB stick.
- \* After around 1 min., the yellow LED (to the left) lights steadily
- \* Following BUS initialization, the green LED lights up (2nd from left) and the yellow LED goes off (left).  
If the green LED (2nd from the left) flashes, there is no or no compatible parameterization in the control panel.
- \* The control panel update procedure is complete.

## 5.6 Cleaning and maintenance

When cleaning, do not use any corrosive liquids or liquids that dissolve synthetic materials such as petrol, turpentine, thinners etc. Sharp cleaning materials can destroy or discolor the surfaces.

Do not use cleansing agents that work on a mechanical basis, e.g. liquid abrasive cleaners, scouring sponge. Clean with a soft damp cloth. Use clear water only.

## 6 Specifications

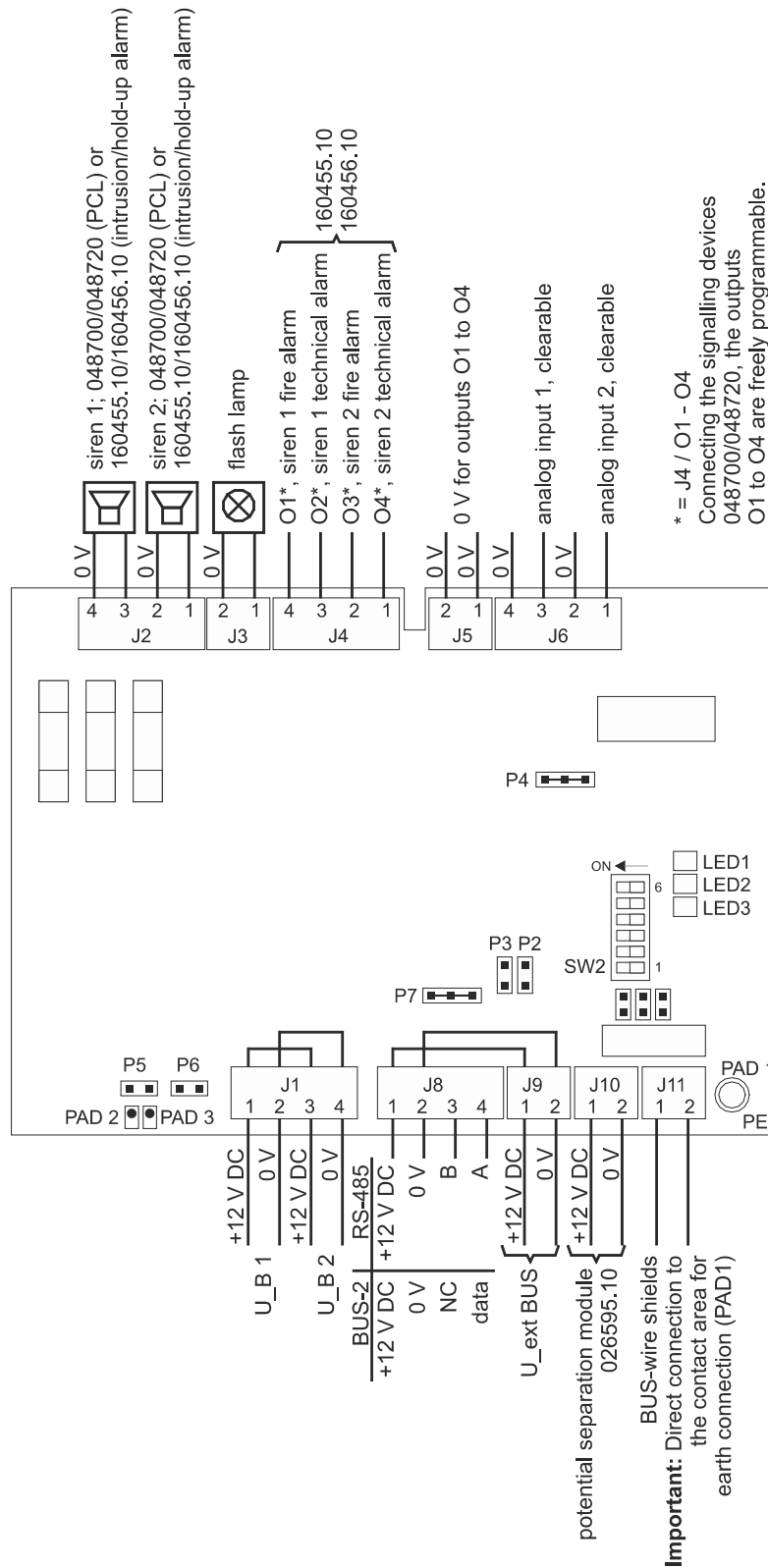
Rated operating voltage	12 V DC
Operating voltage range	10.5 V to 15 V DC
Detector group voltage (terminal works as input)	8 V DC
Current consumption at rated voltage	
- disarmed group connections open	200 mA
- Ethernet operation (additional)	30 mA
- per group connection (with 12.1 kΩ closed)	1 mA
- relay	45 mA
Environmental class according to VdS	II
Environmental class according to EN 50131-1	Class II
Operating temperature range	- 5 °C to +45 °C
Storage temperature range	-25 °C to +70 °C
Relative humidity	max. 93% non-condensing
<b>Optional control panel housing</b>	
Dimensions W x H x D in mm	
- ZG 20	460 x 382 x 85
- ZG 2	350 x 300 x 152
- ZG 3.1	500 x 300 x 210
- ZG 4	580 x 640 x 300
Weight (without options)	
- ZG20	around 5 kg
- ZG2	around 8 kg
- ZG3.1	around 13 kg
- ZG4 (without 19" front panels)	around 28 kg
Color	
- Housing	traffic white (similar to RAL 9016)
- Front	light gray (similar to RAL 7035)
Protection class based on EN 60529	IP30
<b>Approvals</b>	
- VdS Approval no:	G114025 Class C
- EN Conformity:	according EN 50131-3:2010-02 Grade 3
- SES Conformity:	SES-EMA-RL-T2:2010-08

## 7 Connection diagrams

### 7.1 Connection of MB-Secure Siren module

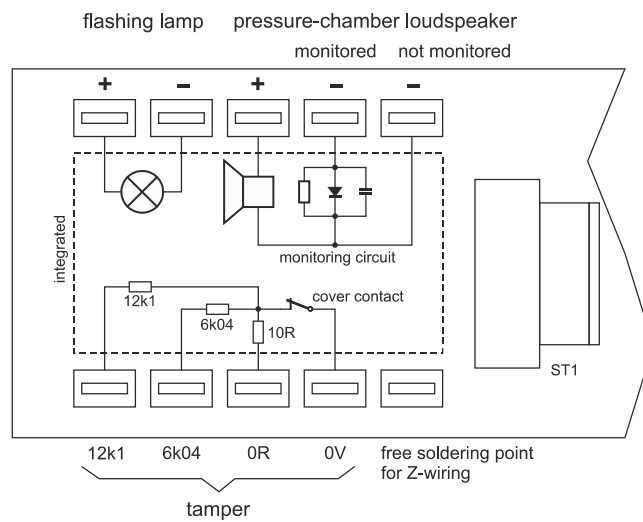


Connection and activation of signaling devices 160455.10/160456.10, in preparation



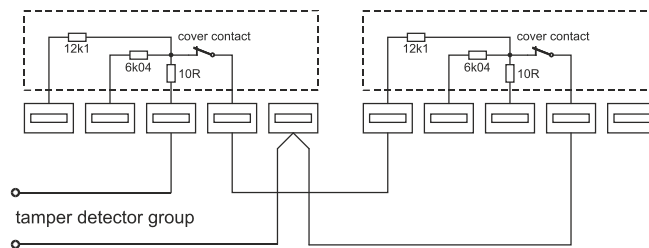
## 7.2 Connection of compact alarm unit and PCL

item no. 048 700  
item no. 048 720



The cover contact inside the housing and the cover contact at the connection PCB are incorporated in series.

### Connecting the tamper DG in Z-wiring



The end-of-line resistor of the tamper detector group (12k1) has to be placed in the last user.

When it is arranged as a stitch wiring each user has to be terminated with a 6k04 resistor.

**Diagram** Connection diagram of compact alarm unit and PCL in the protective housing



### 7.3 General connection of alarm detectors "Z-wiring"

- Z-contacts → Detectors that are powered by an external voltage source and are looped into the detector group using a zero potential relay contact, and simple contacts without external power supply, e.g. magnetic contacts.
- Z-Sensors → Detectors that draw their supply voltage from the voltage of the detector group. When a detector is activated, the detector group voltage is loaded such that the control panel can carry out an evaluation.

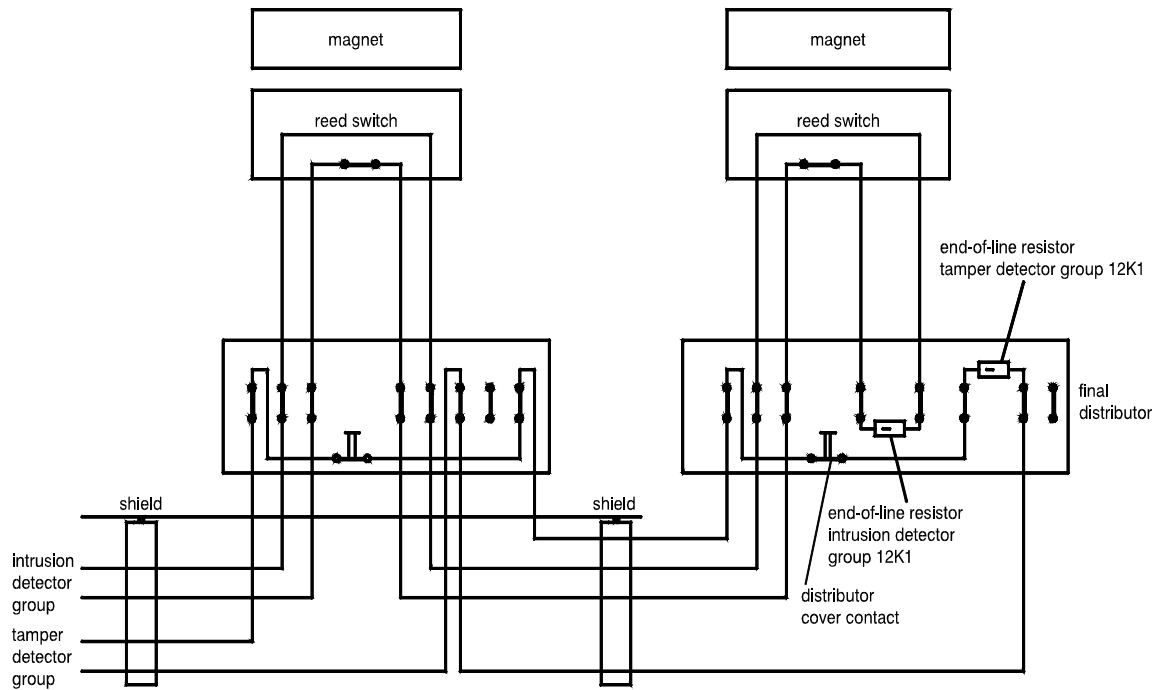


Diagram Wiring diagram for magnet contacts

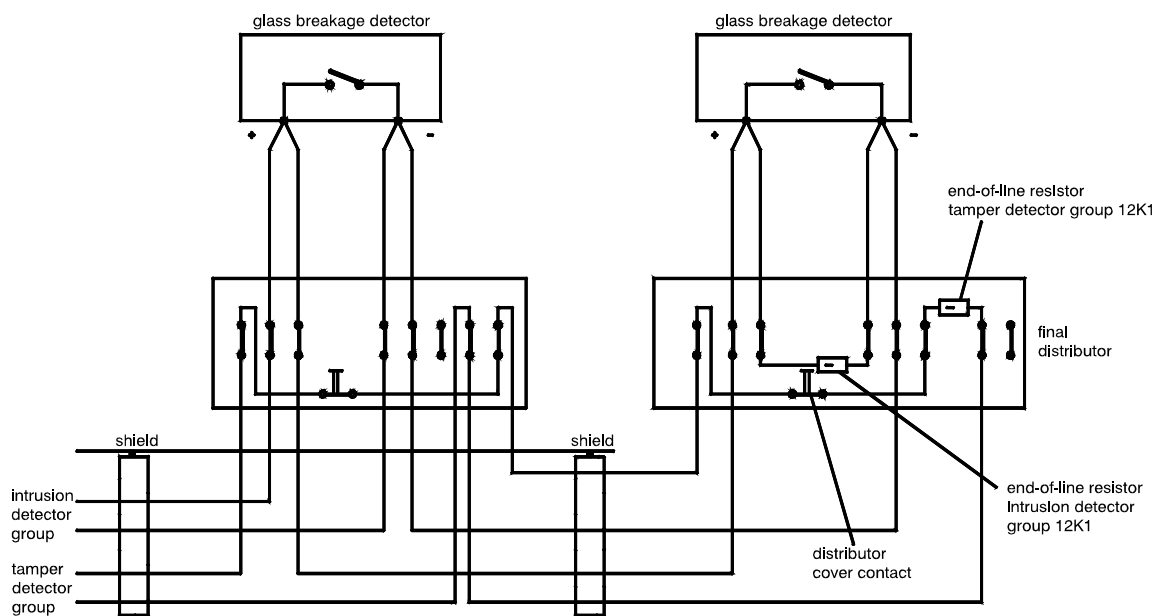
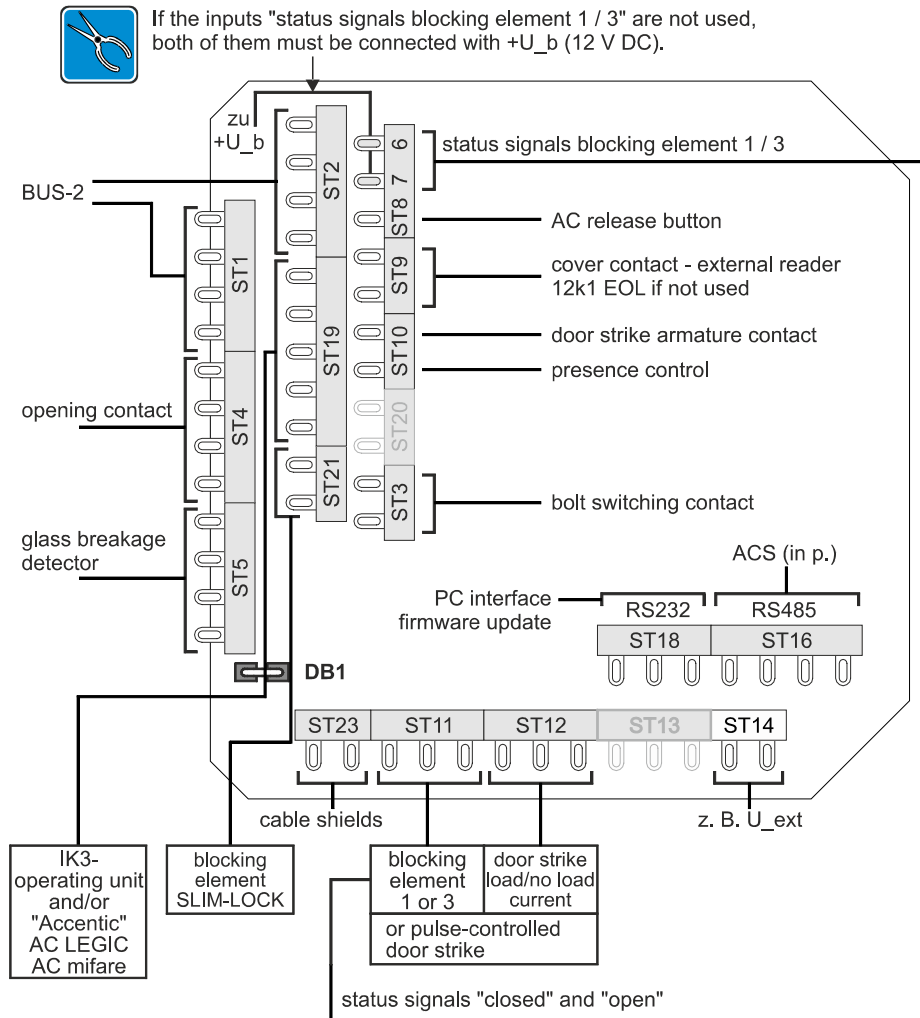


Diagram Wiring diagram for glass breakage detector

## 7.4 Connection IDENT-KEY IK3-evaluation unit 023312.17



Connector ST14 is no real output. The connector is a free soldering terminal and can be used, for instance, to tap U\_ext. Here, the control panel must supply U\_ext at the customer's premises.

You can find detailed information on the connection of individual components to the evaluation unit in the Mounting and Connection Instructions "IDENT-KEY IK3-evaluation unit 023312.10".

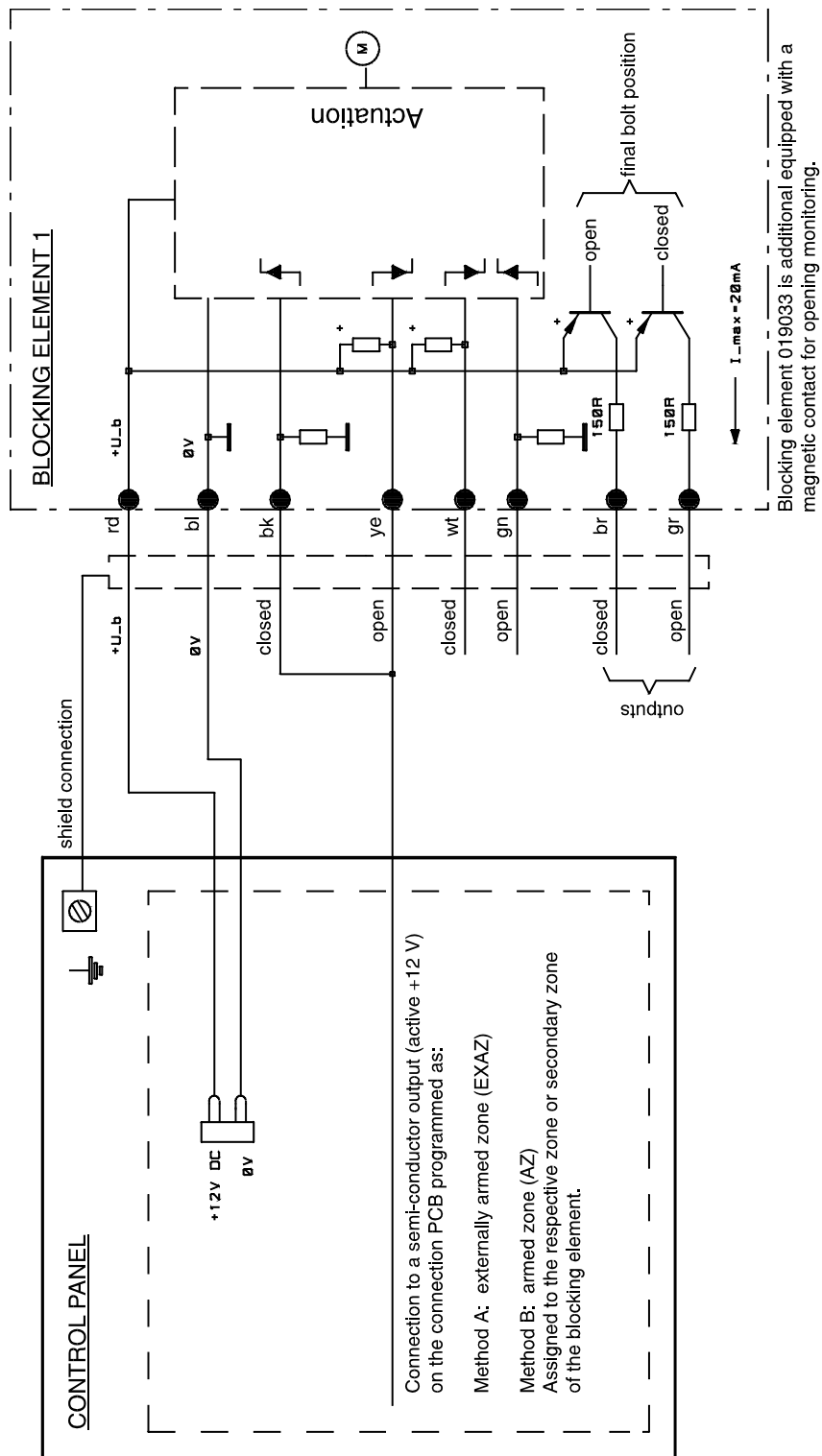


To operate an IDENT-KEY IK3-evaluation unit with the MB-Secure control panel, the evaluation unit must be mandatory at software version **V12** or higher.

### Operating mode "Centralized Authorization" (number of IDENT-KEY ID data carriers >1024)

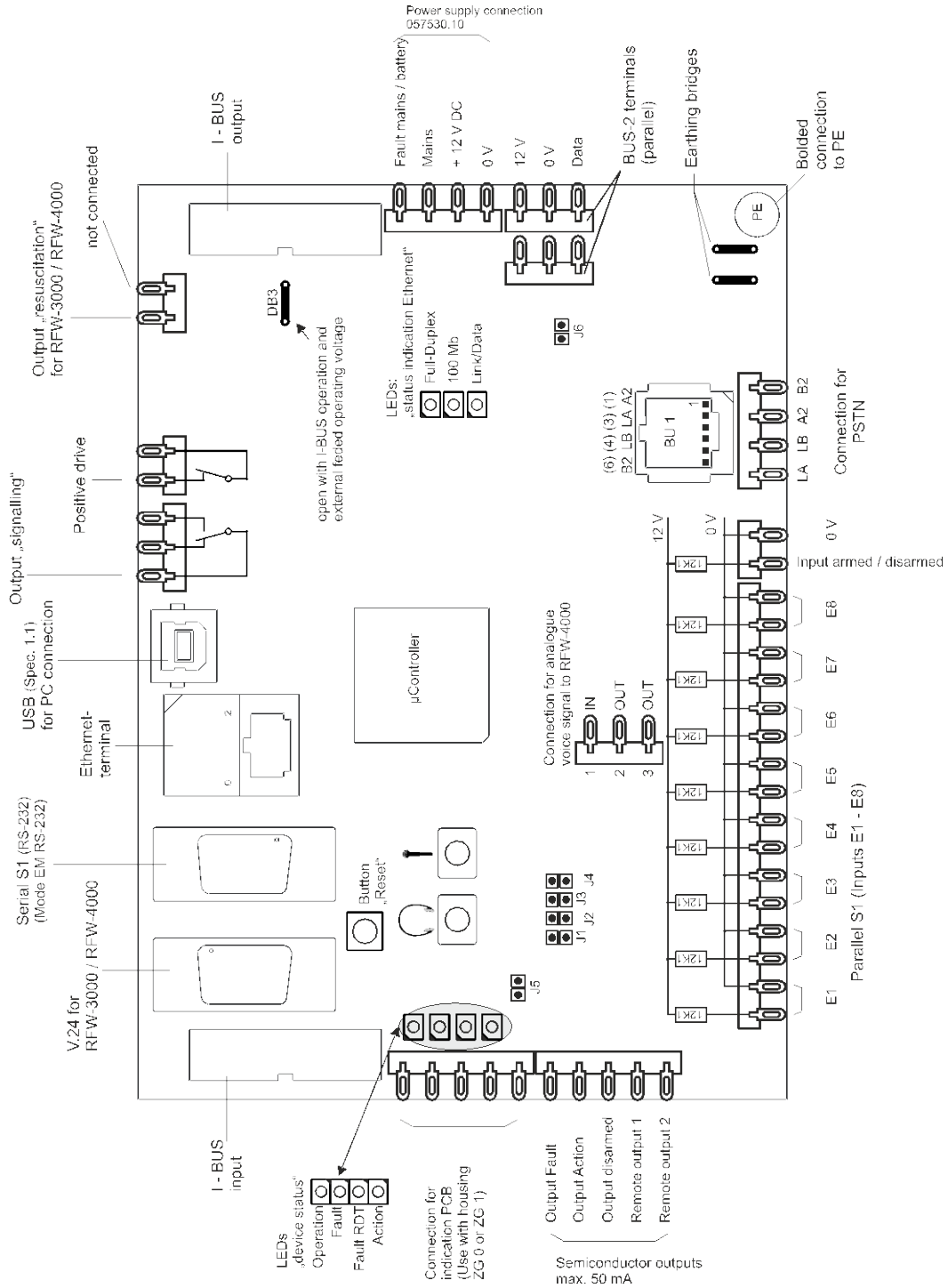
When "Centralized Authorization" mode is used, software version **V13** or higher is mandatory for the BUS-2 user IDENT-KEY IK3 evaluation unit.

## 7.5 Connecting an electromechanical blocking element (019030.20/019033)

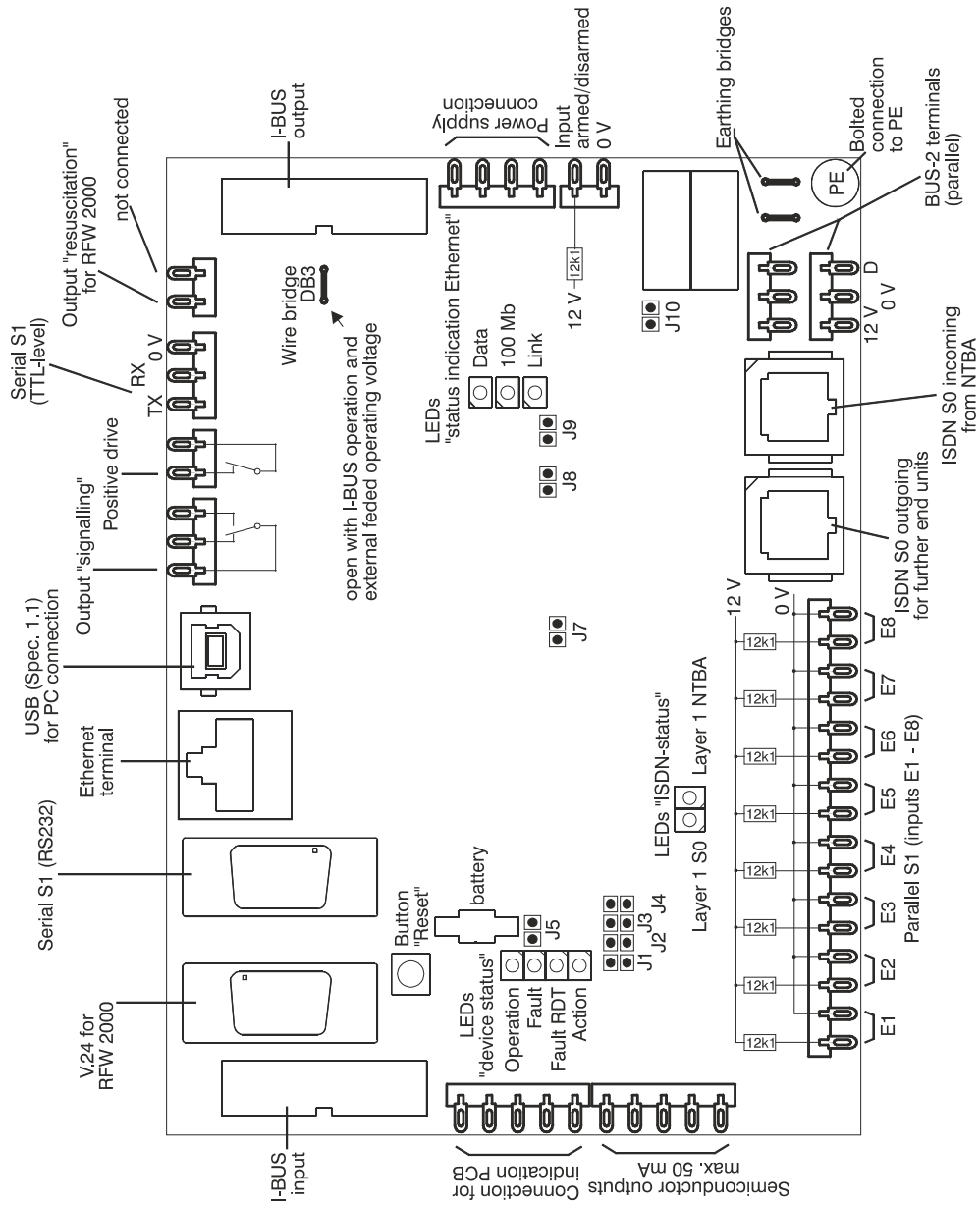


**Diagram** Connection of an electromechanical blocking element

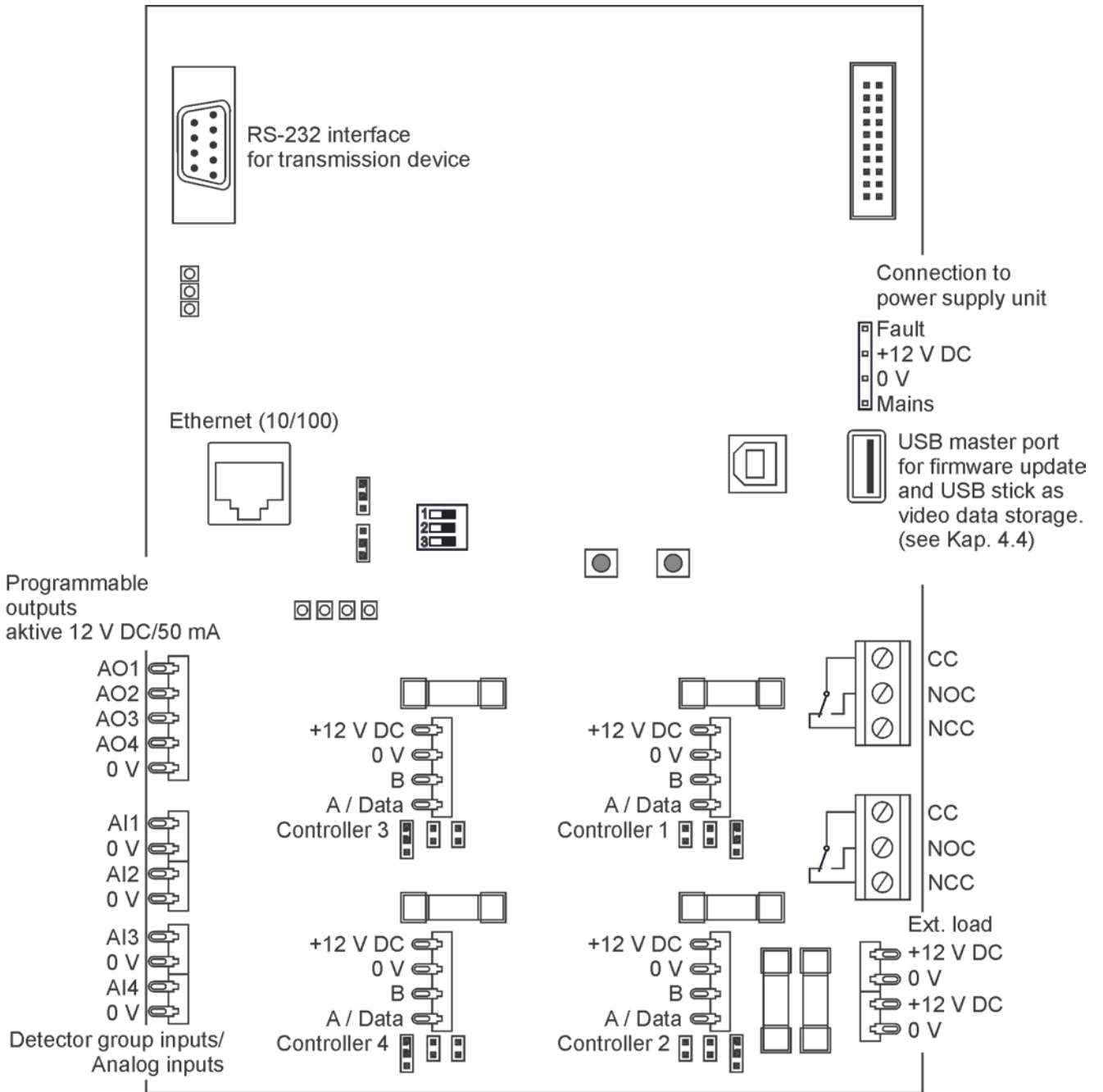
## 7.6 Connection diagram of transmission device DS 6700/DS 6750 (057864/057865)



## 7.7 Connection diagram of transmission device DS 7700 (057651.20)



## 7.8 Connection diagram of Computer/Connection PCB

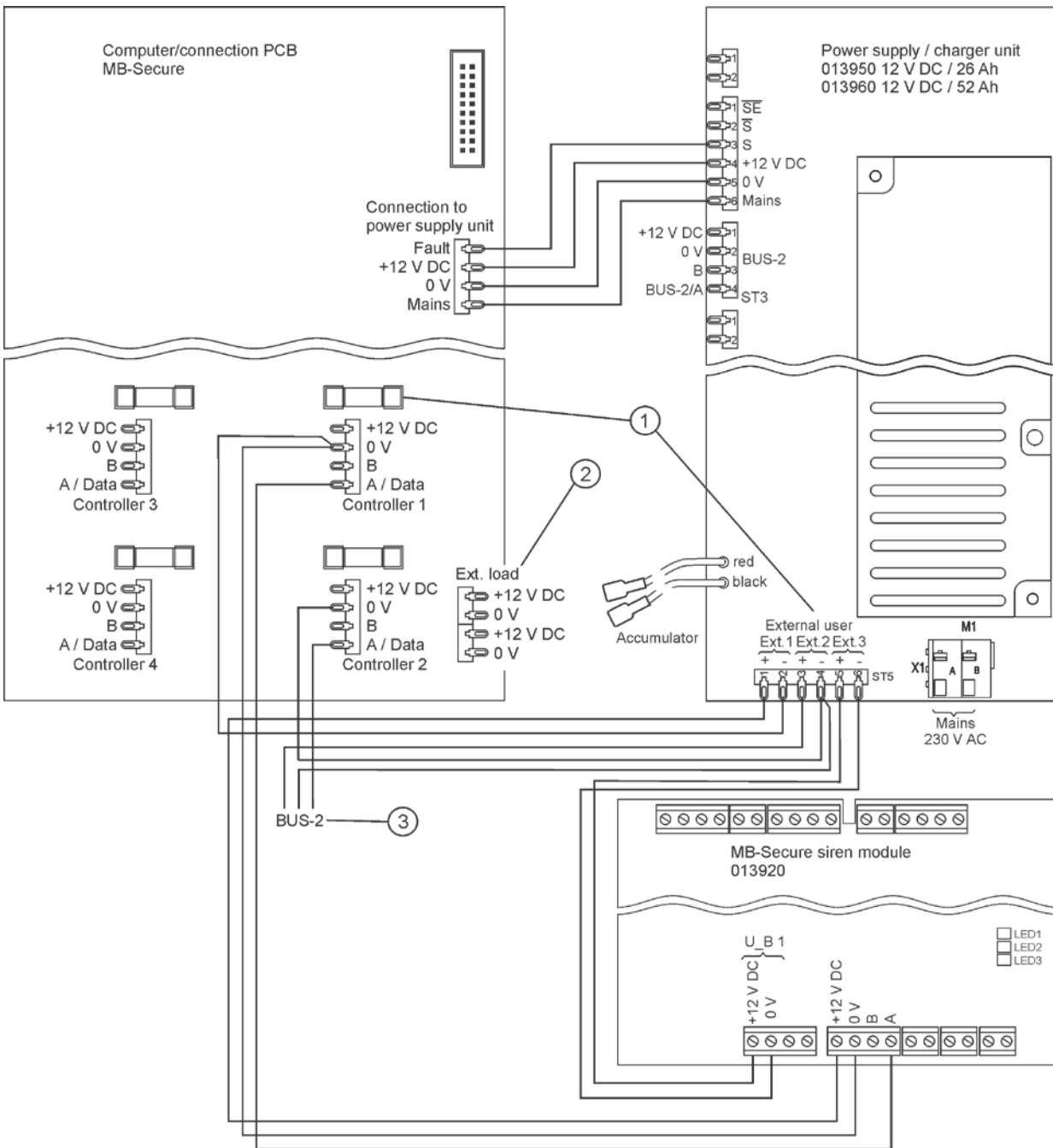


Connection diagram of Computer/connection PCB



**Controllers 1 - 4**  
For BUS-2 operation, connection B should not be used.

## 7.9 Connection to power supply / charger unit 013950/013960 according to VdS guidelines



**for 1**

The operating voltage of the individual bus branches has to be supplied via the "external load" connections on the power supply unit. In addition, the fuse for the corresponding bus branch is to be removed on the computer/connection PCB.

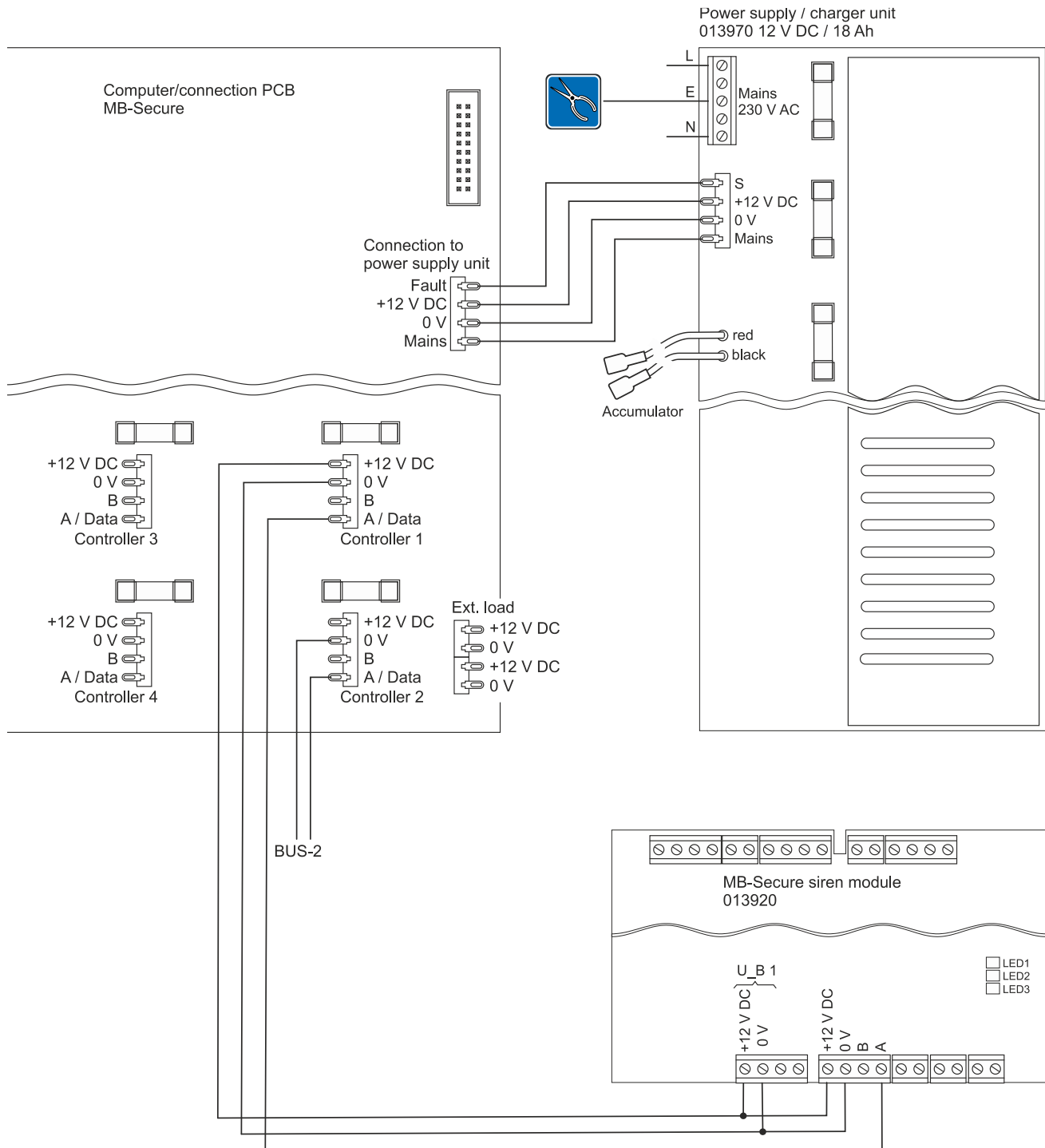
**for 2**

The "external load" connection on the computer/connection PCB may not exit the housing. It can be used to connect a transmission device inside the housing for example.

**for 3**

A separately routed BUS branch has to be used for each protection area for BUS 2 users.

## 7.10 Connection to power supply / charger unit 013970



### Protective earthing

When the power supply unit 013970 is mounted in a metal housing, a conductive connection must be established between the protective earth connection (E) of the power supply unit and the housing. The main connection of the protective conductor must be installed at the correspondingly marked terminal.



## 8 General Public License

### Open Source Software

The product MB-Secure contains Open Source-Components from separate not-for-profit organizations without any affiliation to Honeywell.

If Honeywell distributes any of these free software programs to you, Honeywell wants you to know, that you were granted a license to that software under the terms of the Open Source Definition or Free Software Definition.

The Licenses allow you to freely copy, modify and redistribute that software and no other statement or documentation from Honeywell, including any End User License Agreement, places any additional restrictions on what you may do with that software.

Honeywell hereby offers to make available to any third party, upon request, those elements of the software for the period of three years after the date of purchase of this product.

Honeywell provides you the complete corresponding source code of the Open Source-Components on the following address:

<https://security.honeywell.com/opensource/>

**NOTICE:** The software binary supplied with this product contains Honeywell copyrighted material which cannot be copied or distributed without written authorization from Honeywell.

**Honeywell Commercial Security**  
Novar GmbH  
Johannes-Mauthe-Straße 14  
72458 Albstadt, Germany  
[www.security.honeywell.com](http://www.security.honeywell.com)

P00180-02-0G0-13  
2019-06-22  
© 2019 Novar GmbH

**Honeywell**

