Connection of detectors
Apollo

User Manual

Contents

1 Introduction

1.1 General

This User Manual provides the authorized installer with the information necessary for installation, connection and commissioning of fire detectors of make Apollo, on the Fire Detection Control Panels BC06, BC016, BC216 and BC600.

1.1.1 Types of symbols

Especially important sections of text in this User Manual are indicated with symbols. The following symbols are used:

Means DANGER! Ignoring these directions can result in danger to life and health.

Means **ATTENTION!** Ignoring these tips can result in system malfunctions or damage to property.

Means **TIP!** Here the text contains explanatory notes which can make the installation, connection and commissioning easier for you and/or which are supposed to enhance your understanding of how things are connected.

Means that the country-specific and/or the site-specific requirements of the **DEVICE** and/or **SYSTEM APPROVALS** of the fire detection system must be observed.

Means that in case of ignoring this passage in the text, binding **European Standards** can be violated and therefore perhaps the device must not be used within the EU.

1.1.2 Important tips

Fire detection systems and devices, respectively, must always be planned, installed and put into operation by specialists who are trained on a continuous basis. The specific specialist training on the functions of the fire detection control panel and the fire detectors that are connected to it must be provided by Labor Strauss Sicherungsanlagenbau GmbH Wien (LST) or by persons expressly authorized by LST for this purpose.

The present manual does not provide any information concerning the expert planning or design of a fire detection system. It replaces neither the installer's required technical qualification nor his or her specific training.

Prior to opening the housing of the fire detection control panel or of a BCnet sectional control panel, switch off the mains power and ensure that it is not switched back on! When the housing is open and mains power is connected, certain components carrying voltage at levels that are life threatening are exposed! The protective covering for these components should never be removed.

When working on the fire detection control panel and when handling components, observe the usual protective measures for discharging static electricity charges: Before and during the work being performed on the printed circuit boards, static charges from your body must be reliably discharged by touching an earthed piece of metal. Mains-operated tools (e.g., soldering irons) must absolutely be equipped with protective earthing or be expressly approved for use on installations that are static-sensitive. The usual **protective insulation is not sufficient**.

During installation, maintenance and servicing, observe the applicable laws, standards and guidelines on the installation and maintenance of fire detection systems!

If a conventional zone gets disabled, all detectors that are connected to it are put out of action. In this case, alarms can not be detected.

2 CONVENTIONAL TECHNOLOGY

2.1 General

This chapter applies to Labor Strauss fire detection control panels which are equipped with a conventional detector interface.

Basically, every detector is a normally open contact which, in the event of activation of the detector, increases the quiescent current of the detector zone by connecting a resistor R.

Under certain conditions, this part of the document can be used for the following control panels:

- Series BC600 - The 5.6kOhm end-of-line resistor / 1kOhm alarm resistor must be parameterised.
- Series BC216 - A 5.6kOhm end-of-line resistor has to be used.
- Series BC016 - The 5.6kOhm end-of-line resistor must be parameterised.
- Series BC06 - The 5.6kOhm end-of-line resistor must be parameterised. In the case of the BC06 it is not possible to use address modules.

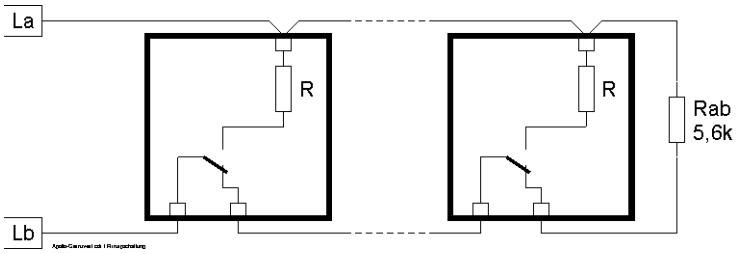
If the used end-of-line element differs from the one mentioned above, the connection has to be adapted. All explanations and drawings shown here refer to an end-of-line element of 5.6kOhm.

If a conventional zone gets disabled, all detectors that are connected to it are put out of action. In this case, alarms can not be detected.

2.1.1 Installation of detectors

See the installation instructions for your country.

2.1.2 Schematic circuit diagram of a detector zone



Rab end-of-line resistor in the last detector

R alarm resistor

2.1.3 Conditions of zones

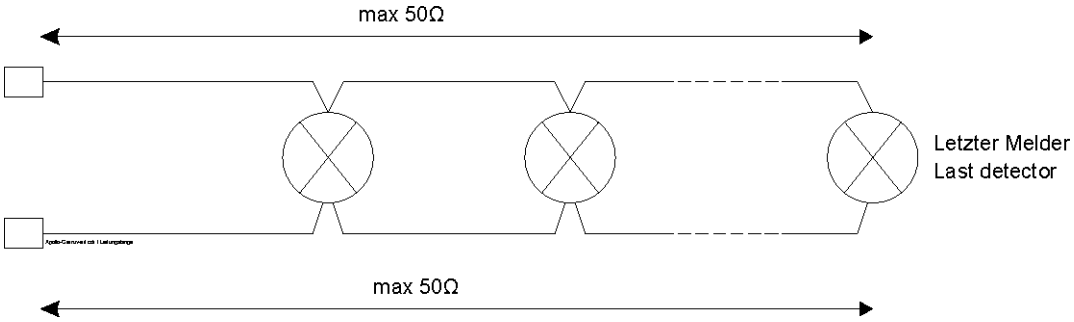
To evaluate the condition of a detector zone, the line current is sensed. The measured value is processed by the microcontroller and the corresponding condition of the zone is determined. For the threshold values for alarm, wire breakage and short circuit, please refer to the documentation of the fire detection control panels.

To perform a reset of a conventional detector, the corresponding detector zone has to be disabled for at least 8 seconds.

2.1.4 Cable requirements

The line resistance of the conventional detection line must not exceed 50 Ohms per wire.

When using a 0.5mm² wire, this corresponds to a distance of approx. 1400m.



2.2 Connection of manual call points

The following manual call points can be connected to a conventional detector interface of the fire detection control panel:

Description	Type
Manual Call Point Series HFM/HM	HxM/x/11/xx
Manual Call Point Series HFM/HM – 1 auxiliary contact	HxM/x/12/xx
Manual Call Point Series HME	HME/FFFF/11/TT/LL/x
Manual Call Point Series HME – 1 auxiliary contact	HME/FFFF/12/TT/LL/x
Manual Call Point/Red/Standard	UNI3021C
Manual Call Point Series C31	C31

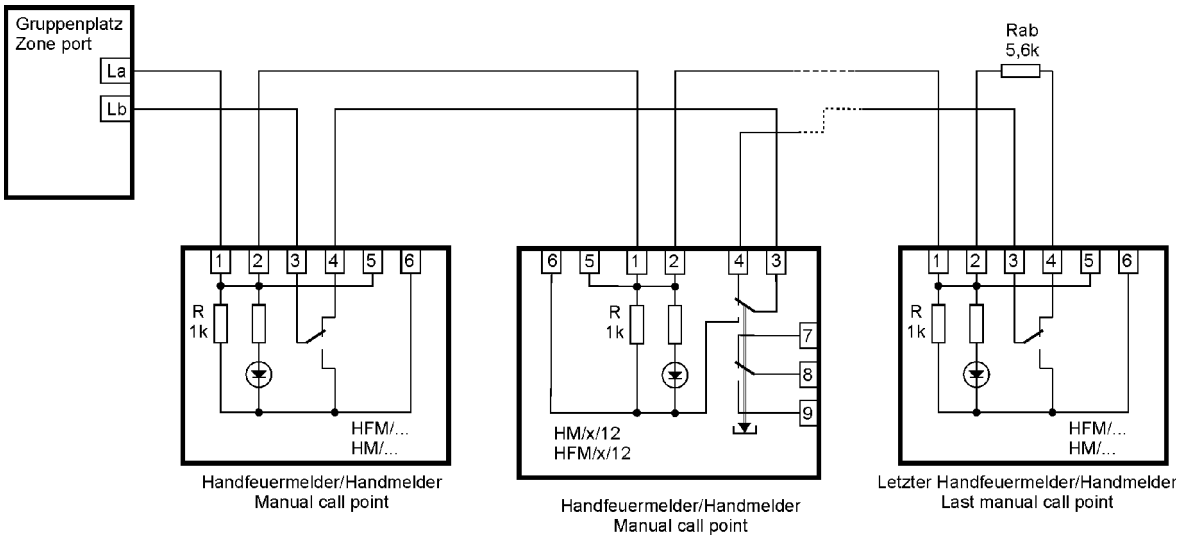
Each manual call point has a built-in alarm resistor (R = 1kOhm/0.35W). In the last manual call point, an end-of-line resistor (Rab = 5.6kOhm) has to be installed.

The end-of-line element can be changed in the parameter setup of the Fire Detection Control Panel (BC06/BC016/BC600). The factory setting is Rab = 5.6kOhm.

All diodes that are not denoted are of type 1N4004.

2.2.1 Connection of HFM/HM

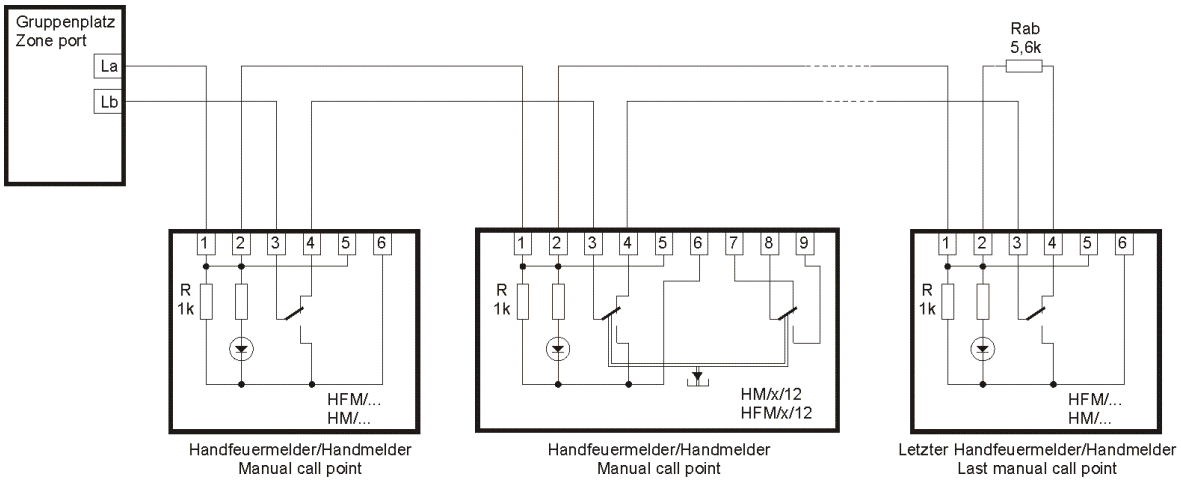
Old version of the manual call points HFM/HM



Old manual call points HM/HFM/x/12 can be distinguished from new ones by means of the following characteristics: at the top left of the componentry, old manual call points HM/HFM/x/12 have a terminal strip with 4 terminals (1 through 4), new ones have a terminal strip with 6 terminals (1 through 6).

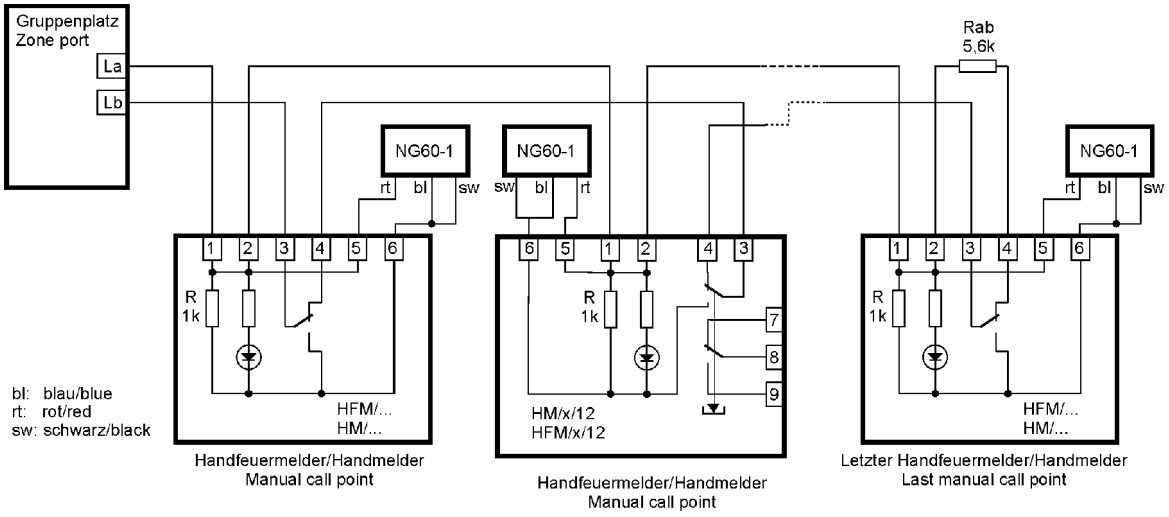
Connecting the mains voltage 230VAC to the change-over contacts 7, 8 and 9 is only permissible for the type HM/HFM/x/12/xx/N (with N standing for mains voltage)! It differs from the type HM/HFM/x/12/xx in that it has additional covers for the insulation of the mains voltage. The instructions on the safe use, which can be found in the enclosed packet, must be strictly observed!

New version of the manual call points HFM/HM

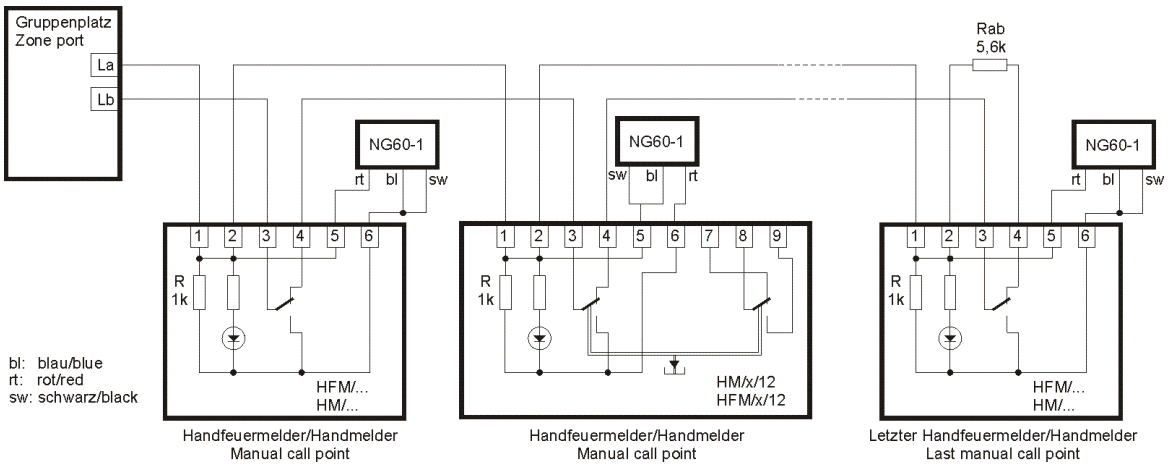


2.2.1.1 Connection of HFM/HM with individual Address Module NG60-1

Old version of the manual call points

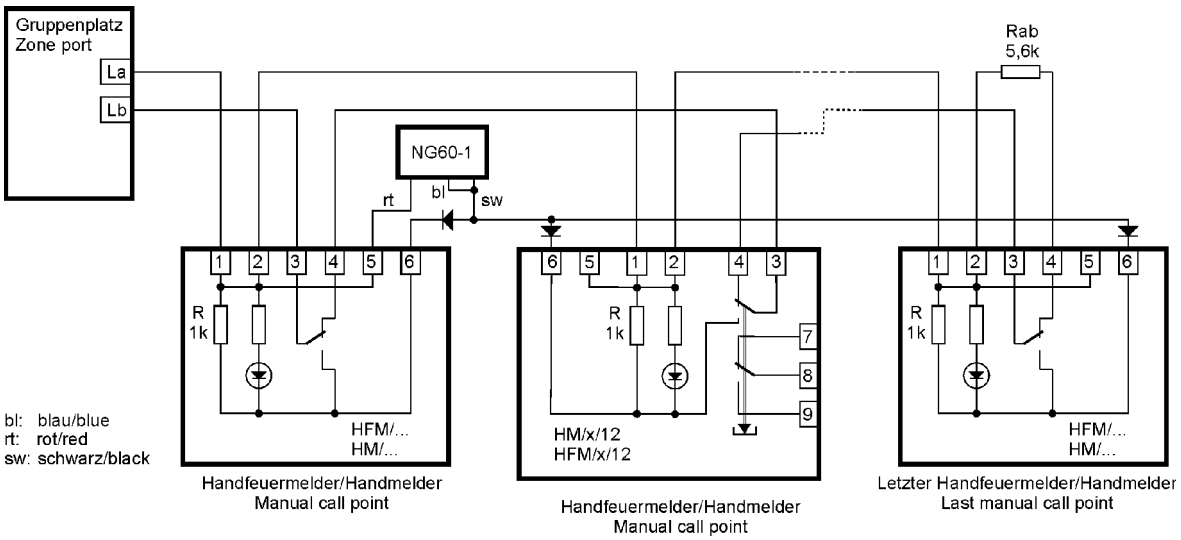


New version of the manual call points

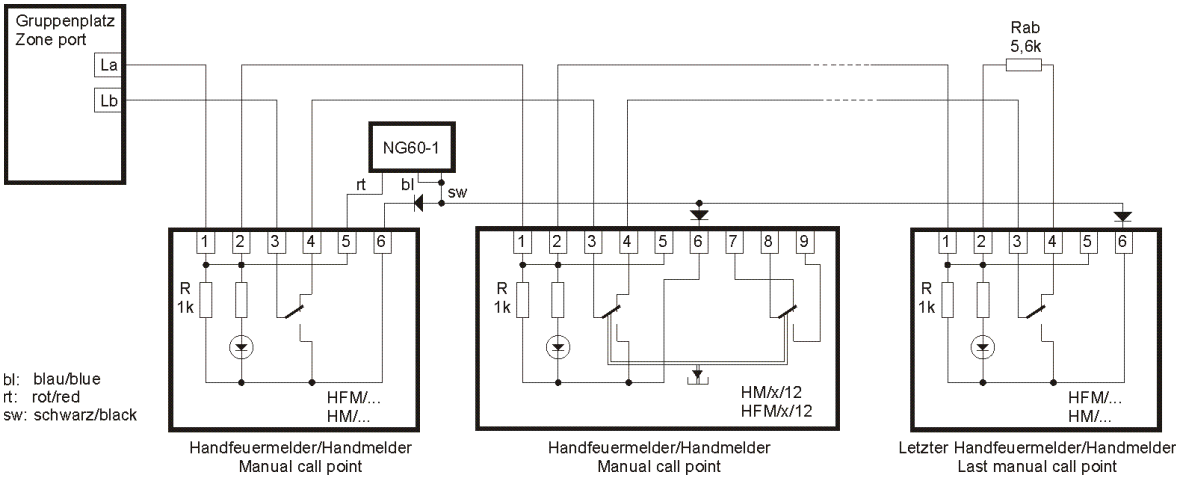


2.2.1.2 Connection of HFM/HM with Address Module NG60-1 – sum indication

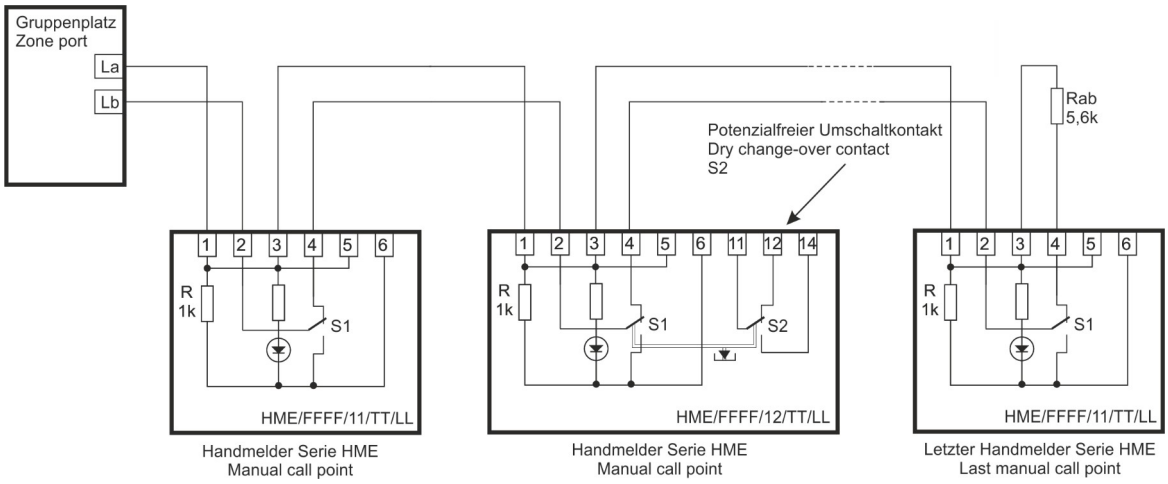
Old version of the manual call points



New version of the manual call points



2.2.2 Connection of Manual Call Points Series HME

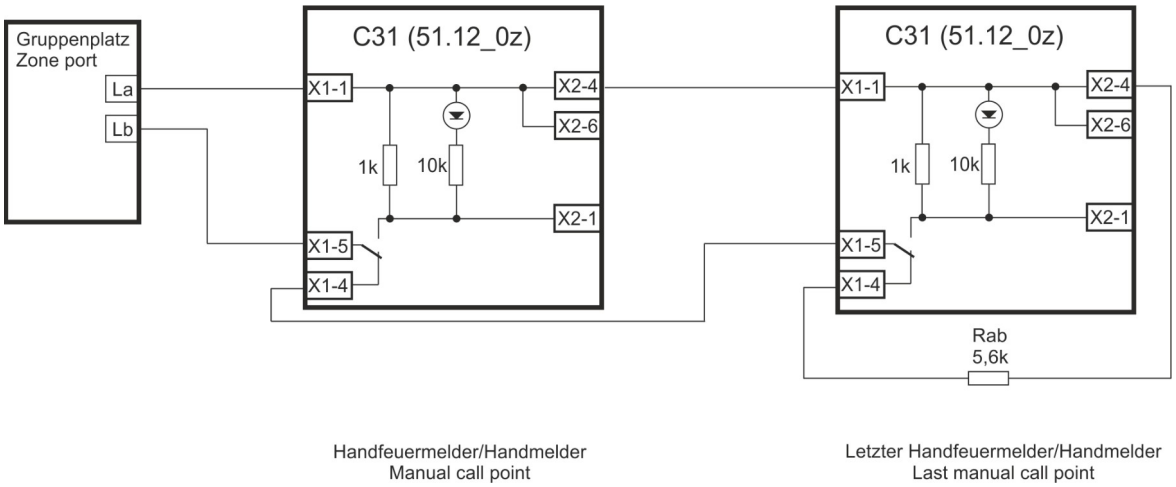


Connecting the mains voltage 230VAC to the change-over contacts 11, 12 and 14 is only permissible for the type HME/FFFF/12/TT/LL/N (with N standing for mains voltage)! It differs from the type HME/FFFF/12/TT/LL in that it has additional covers for the insulation of the mains voltage. The instructions on the safe use, which can be found in the enclosed packet, must be strictly observed!

Address modules are connected to the Manual Call Points Series HME in the same way as to the Manual Call Points Series HFM/HM. The connection of these manual call points is shown in Chapters 2.2.1.1 and 2.2.1.2.

2.2.3 Connection of a C31

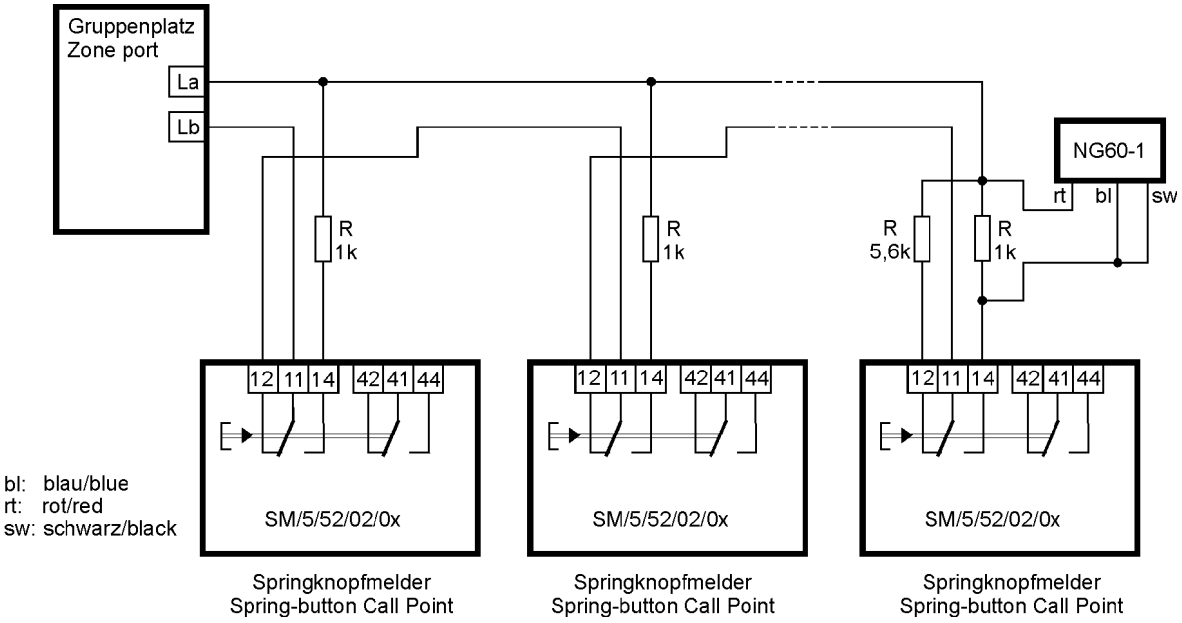
The alarm resistor has already been installed. The end-of-line resistor has to be connected to the terminals of the C31.



Handfeuermelder/Handmelder
Manual call point

Letzter Handfeuermelder/Handmelder
Last manual call point

2.3 Connection of the Spring-button Call Point SM/5/52/02/0x



2.4 Connection of automatic detectors

2.4.1 Automatic detectors Series 65

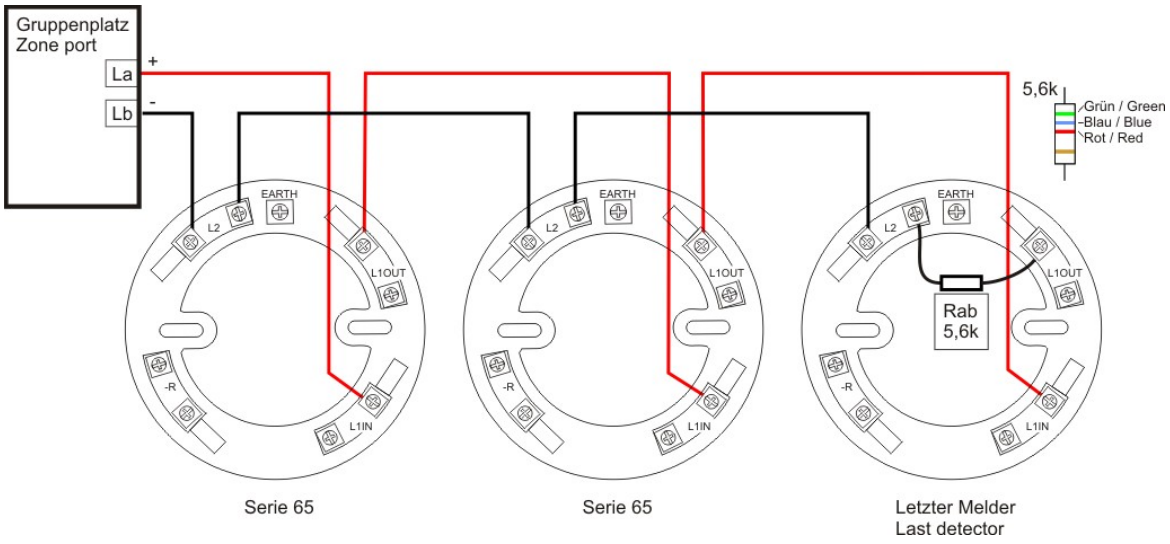
The following fire detectors can be connected to a conventional detector interface of the fire detection control panel:

Description	Type	max. number per detector zone	EN 54-5 Class
Ionisation Smoke Detector	55000-217	32	
Optical Smoke Detector	55000-317	32	
Thermal RoR Detector	55000-122	32	A1R - 57°C
Thermal RoR Detector	55000-127	32	BR - 78°C
Thermal RoR Detector	55000-132	32	CR - 90°C
Thermal Max Detector	55000-137	32	CS - 90°C

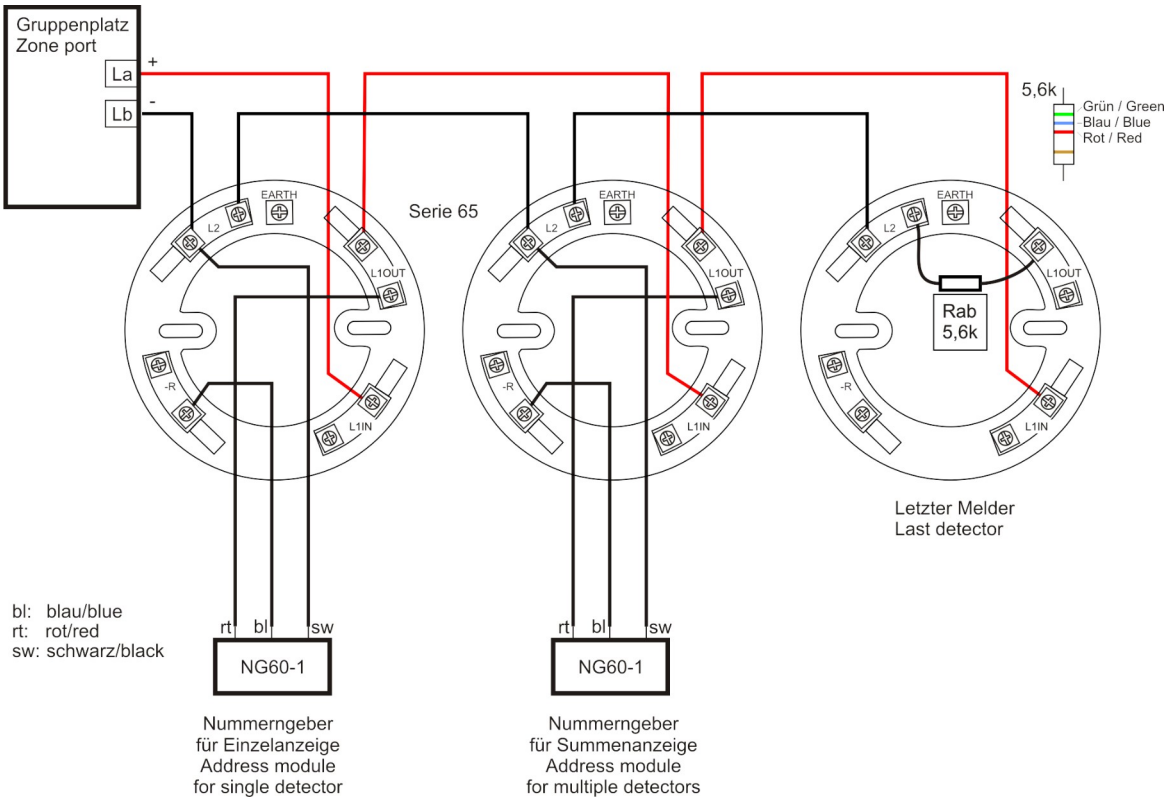
2.4.1.1 Arrangement of wires in Detector Base 45681-200 or 45681-251

Strip the insulation just as short as the terminal requires for connection. In the last detector an end-of-line resistor has to be connected between "L1" and "L2".

2.4.1.2 Connection

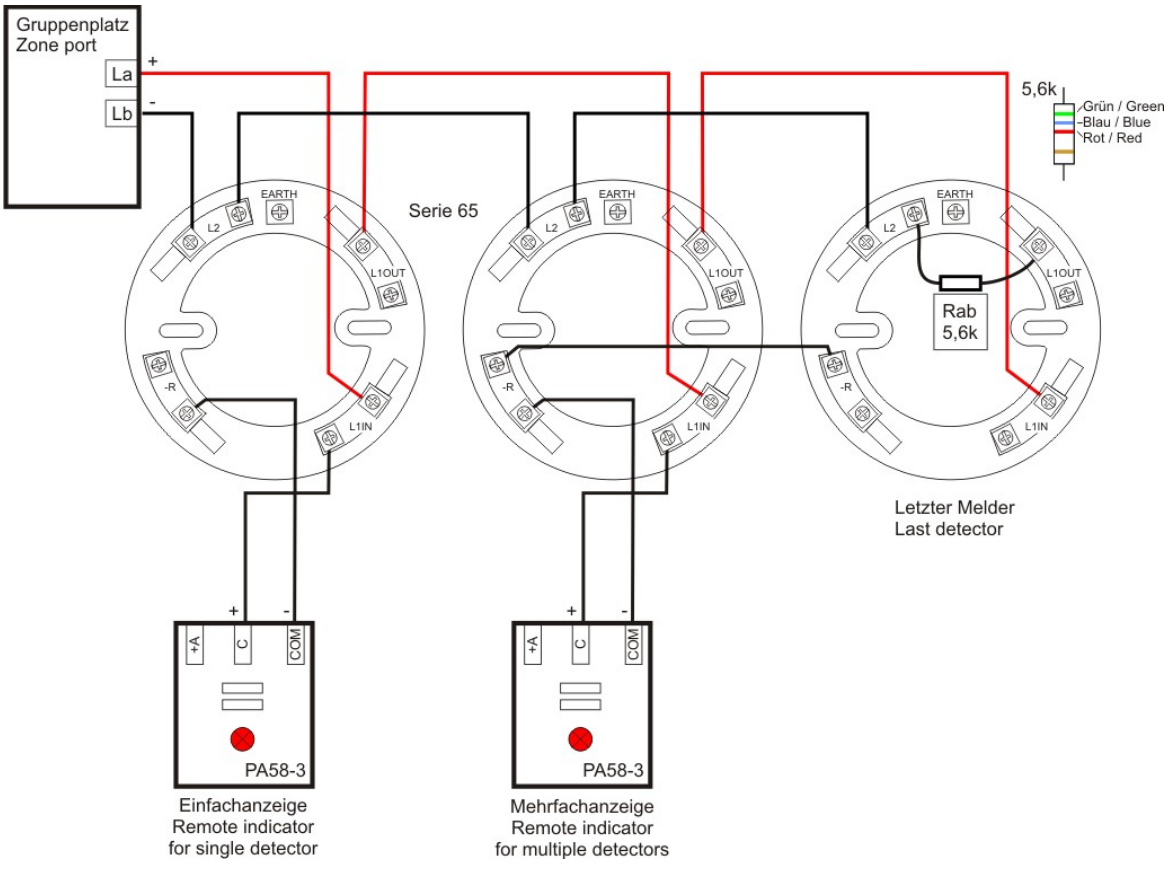


2.4.1.3 Connection of detectors with Address Module NG60-1

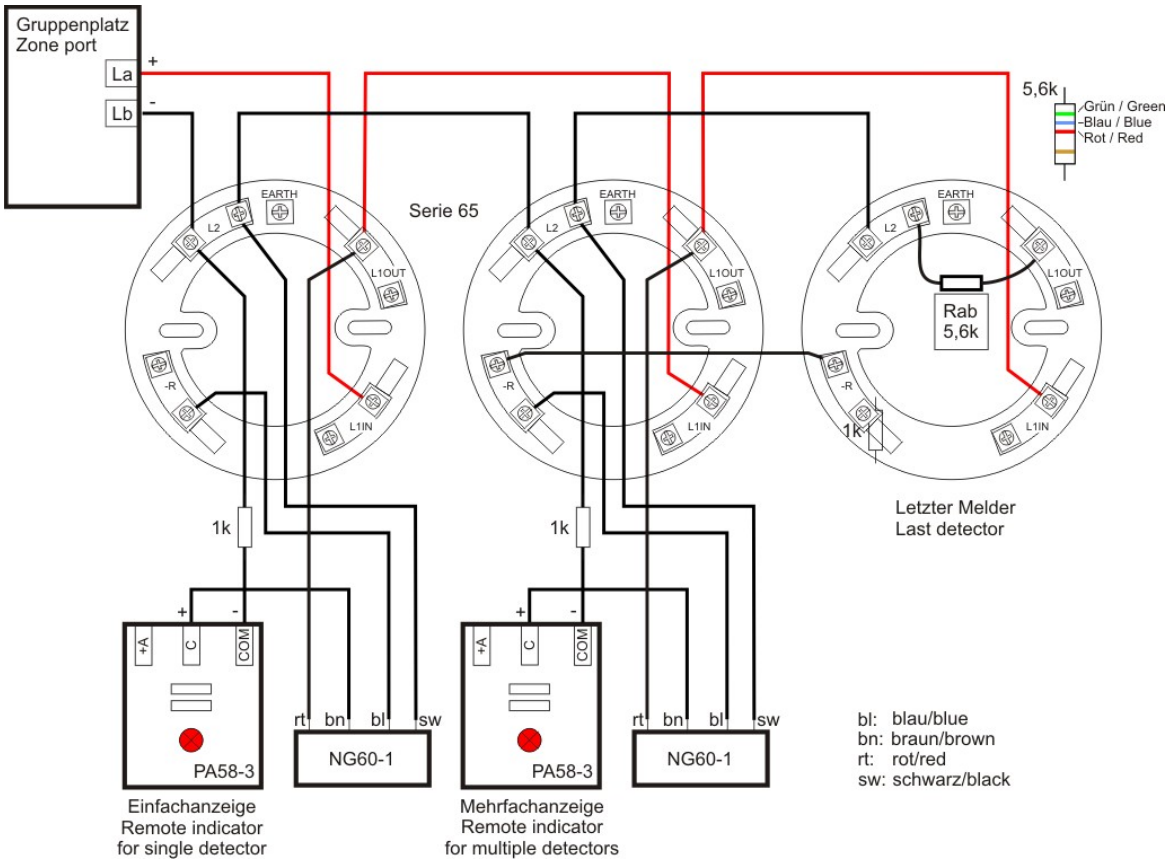


If an address module is connected to more than one detector, the address module will transmit the set number to the control panel when **one** detector is activated.

2.4.1.4 Connection of detectors with Remote Indicator PA58-1 or PA58-3



2.4.1.5 Connection of detectors with Remote Indicator PA58-1 or PA58-3 and Address Module NG60-1



If an address module is connected to more than one detector, the address module will be activated in the alarm condition **of one** of these detectors and will transmit the set number to the control panel.

2.4.2 Automatic detectors Series ORBIS

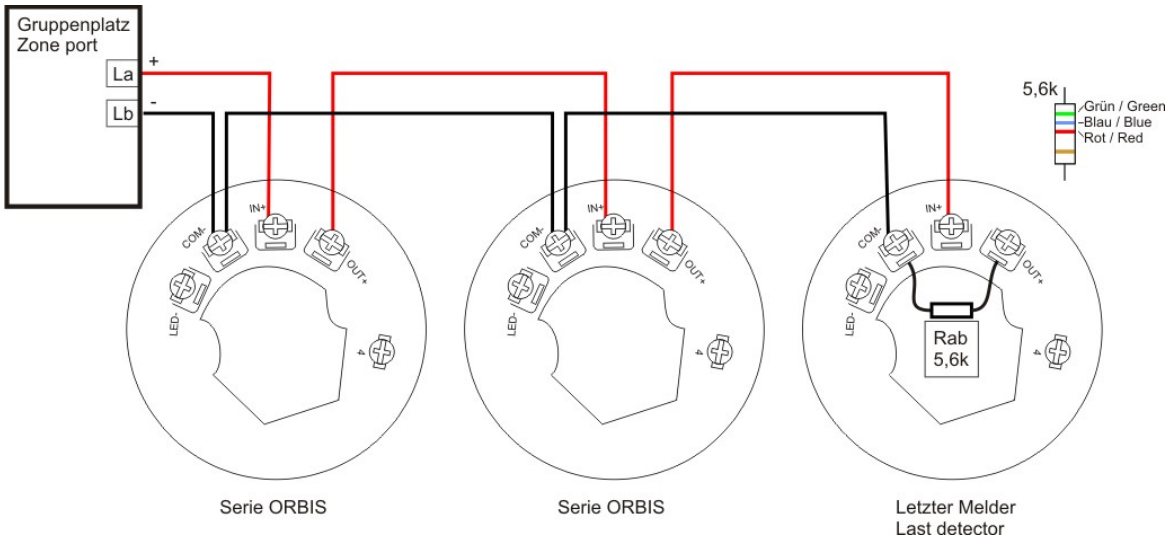
The following fire detectors can be connected to a conventional detector interface of the fire detection control panel:

Description	Type	max. number per detector zone	EN 54-5 Class
Optical Smoke Detector	OP-12001	32	
Optical-Thermal Detector	OH-13001	32	
Thermal RoR Detector	HT-11001	32	A1R - 57°C
Thermal Max Detector	HT-11002	32	A2S - 61°C
Thermal RoR Detector	HT-11003	32	BR - 75°C
Thermal Max Detector	HT-11004	32	BS - 75°C
Thermal RoR Detector	HT-11005	32	CR - 90°C
Thermal Max Detector	HT-11006	32	CS - 90°C

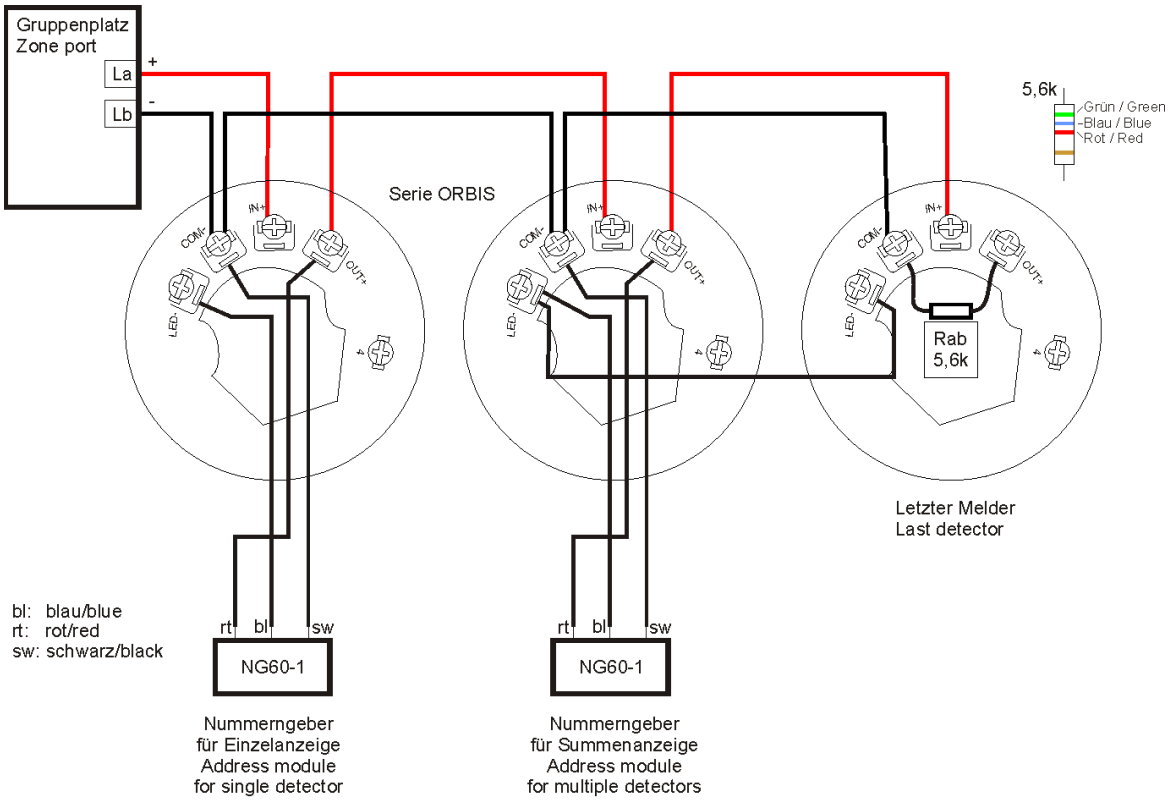
2.4.2.1 Arrangement of wires in Detector Base MB-00001

Strip the insulation just as short as the terminal requires for connection. In the last detector an end-of-line resistor has to be connected between "OUT+" and "COM-".

2.4.2.2 Connection

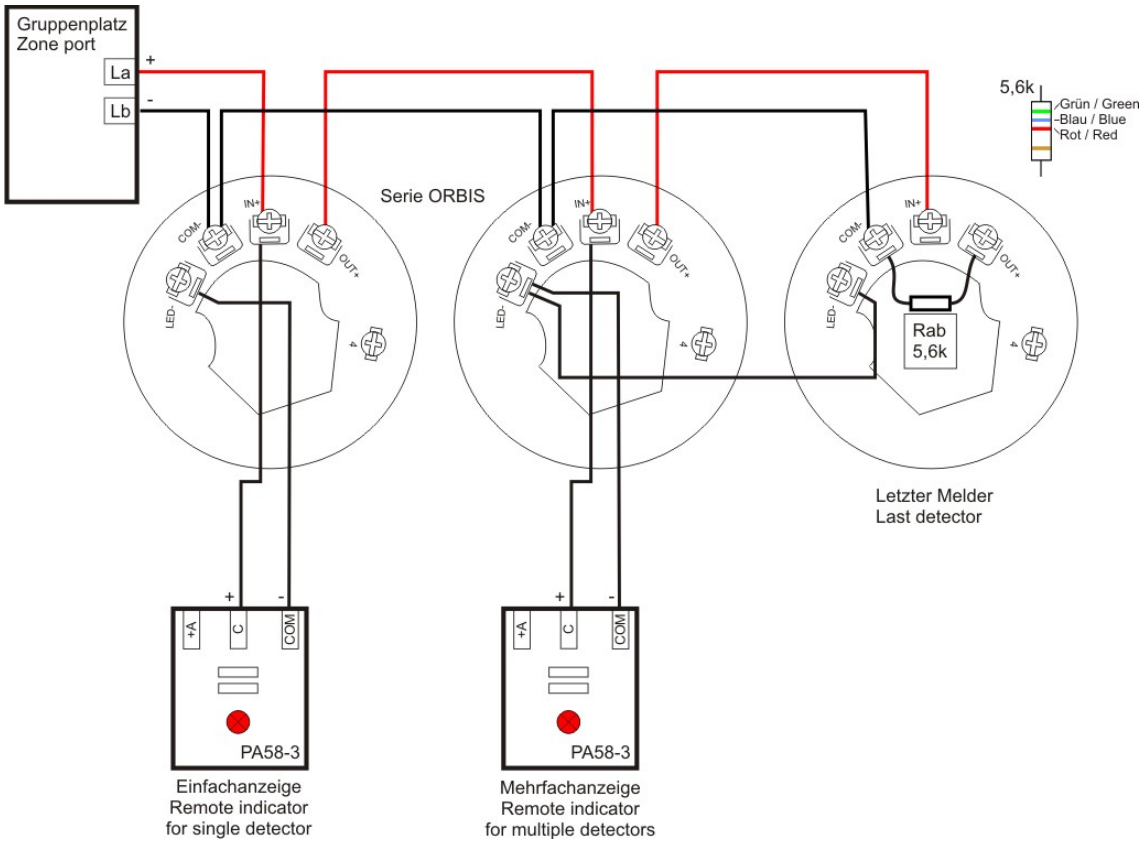


2.4.2.3 Connection of detectors with Address Module NG60-1

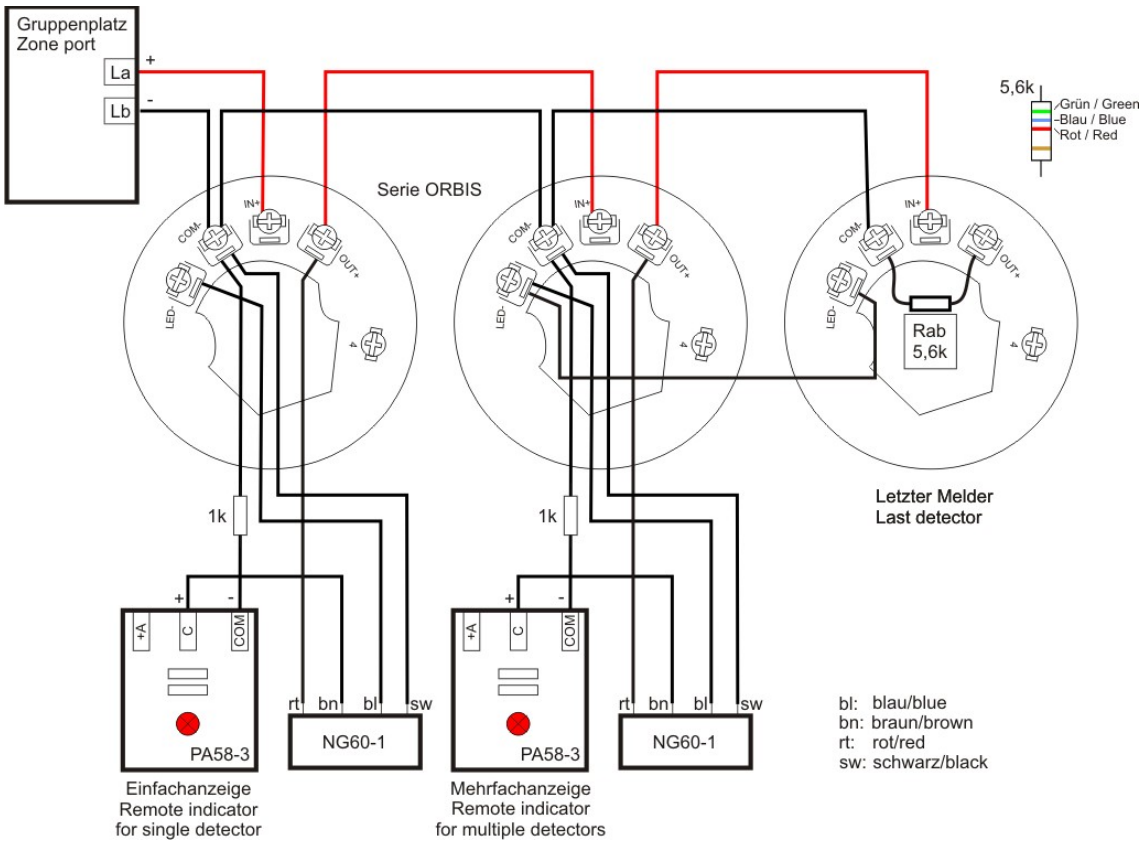


If an address module is connected to more than one detector, the address module will be activated in the alarm condition **of one** of these detectors and will transmit the number of the detector to the control panel.

2.4.2.4 Connection of detectors with Remote Indicator PA58-1 or PA58-3

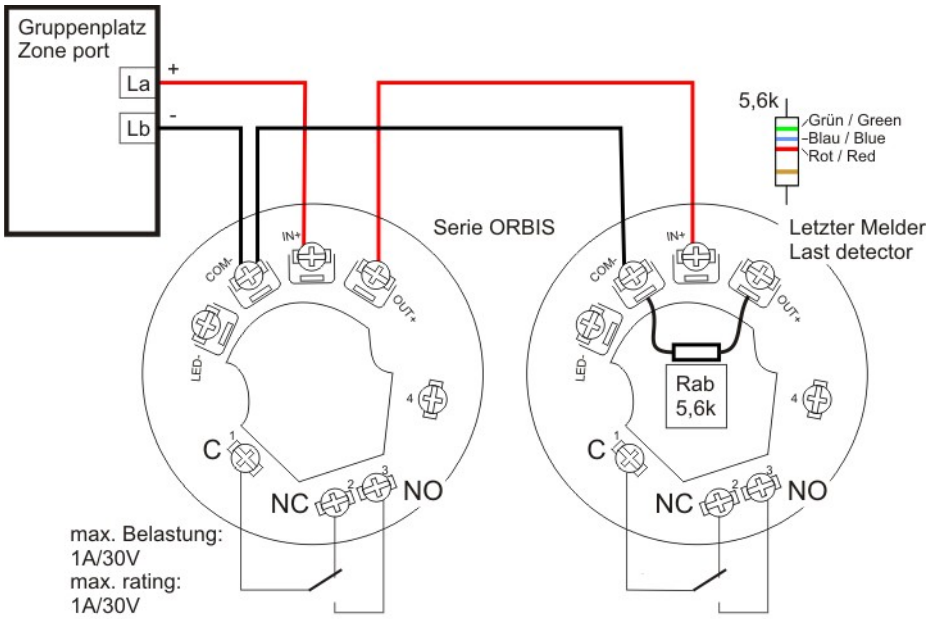


2.4.2.5 Connection of detectors with Remote Indicator PA58-1 or PA58-3 and Address Module NG60-1



If an address module is connected to more than one detector, the address module will be activated in the alarm condition **of one** of these detectors and will transmit the number of the detector to the control panel.

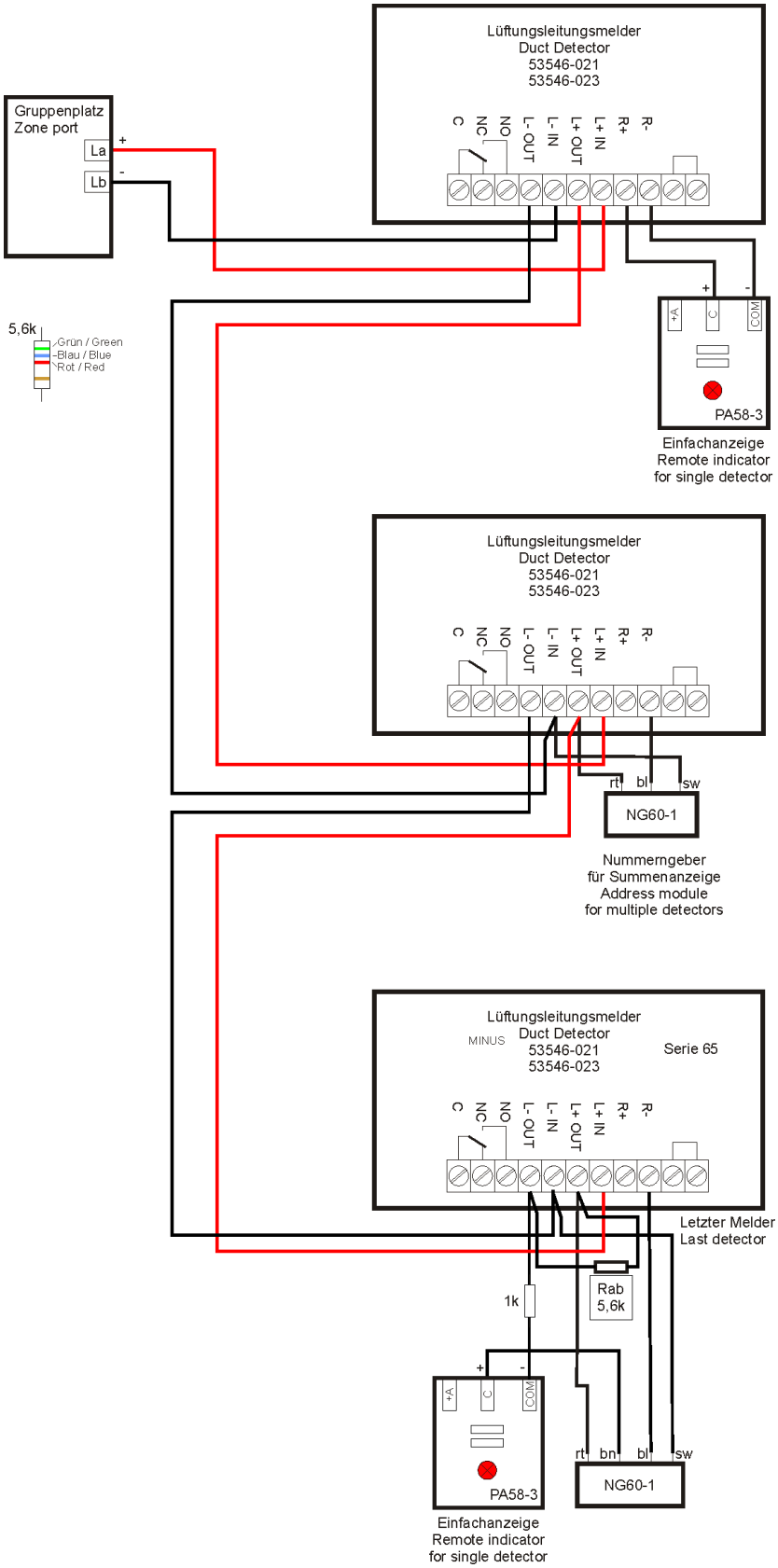
2.4.2.6 Connection of detectors with Detector Relay Bases RB-10004



If the supply voltage of the detector base is less than 24VDC, the functioning of the change-over contact in the Detector Relay Base RB-10004 can not be guaranteed.

2.4.3 Connection of Duct Detectors 53546-021 and 53546-023

The Duct Detector Housing 53546-021 contains a Series 65 base and may be used with an optical detector or an ionisation detector. The Duct Detector Housing 53546-023 contains a Series Orbis base and allows the use of optical detectors. Both duct detector housings are provided with dry relay contacts.



2.5 Intrinsically safe detection circuits

An intrinsically safe electric circuit can be created using the
- Safety Barrier ES58-2 (with galvanic isolation) or the
- Zener Barrier Z978.

The following fire detectors have been designed for use in the hazardous area:
- Optical Smoke Detector OP-52027
- Optical-Thermal Detector OH-53027
- Thermal Detector HT-51145 (A1R)
- Thermal Detector HT-51157 (A1S)
- Thermal Detector HT-51147 (A2S)
- Thermal Detector HT-51149 (BR)
- Thermal Detector HT-51151 (BS)
- Thermal Detector HT-51153 (CR)
- Thermal Detector HT-51155 (CS)
- Optical Smoke Detector SLR-E-IS
- Optical Smoke Detector SOC-E-IS
- Thermal Detectors 6295 and 6296.

Due to the galvanic isolation between the hazardous area and the safe area, earth faults can not be detected in the hazardous area if the Safety Barrier ES58-2 is used.

In intrinsically safe circuits, the Address Module NG60-1 (individual detector identification) can not be connected.

Permissible number of Optical Smoke Detectors SLR-E-IS	20
Permissible number of Optical Smoke Detectors SOC-E-IS	8
Permissible number of Thermal Detectors 6295 / 6296	32
Permissible number of Manual Call Points Ex dC31	20
Permissible number of Series ORBIS I.S. detectors	28
max. capacitance IIA (IIB)	880nF (330nF)
max. inductance IIA (IIB)	33.6mH (12.6mH)
max. ratio inductance/resistance IIA (IIB)	440µH/Ohm (165)
Connection of Remote Indicators PA58-1	possible
Detector identification (address module)	not possible
Earth fault can be indicated on the FDCP [1)]	yes
Dimensions ES58-2 (W × H × D)	120 × 160 × 90 (mm)
Enclosure for Safety Barrier 29600-239 (W × H × D)	125 × 180 × 130 (mm)

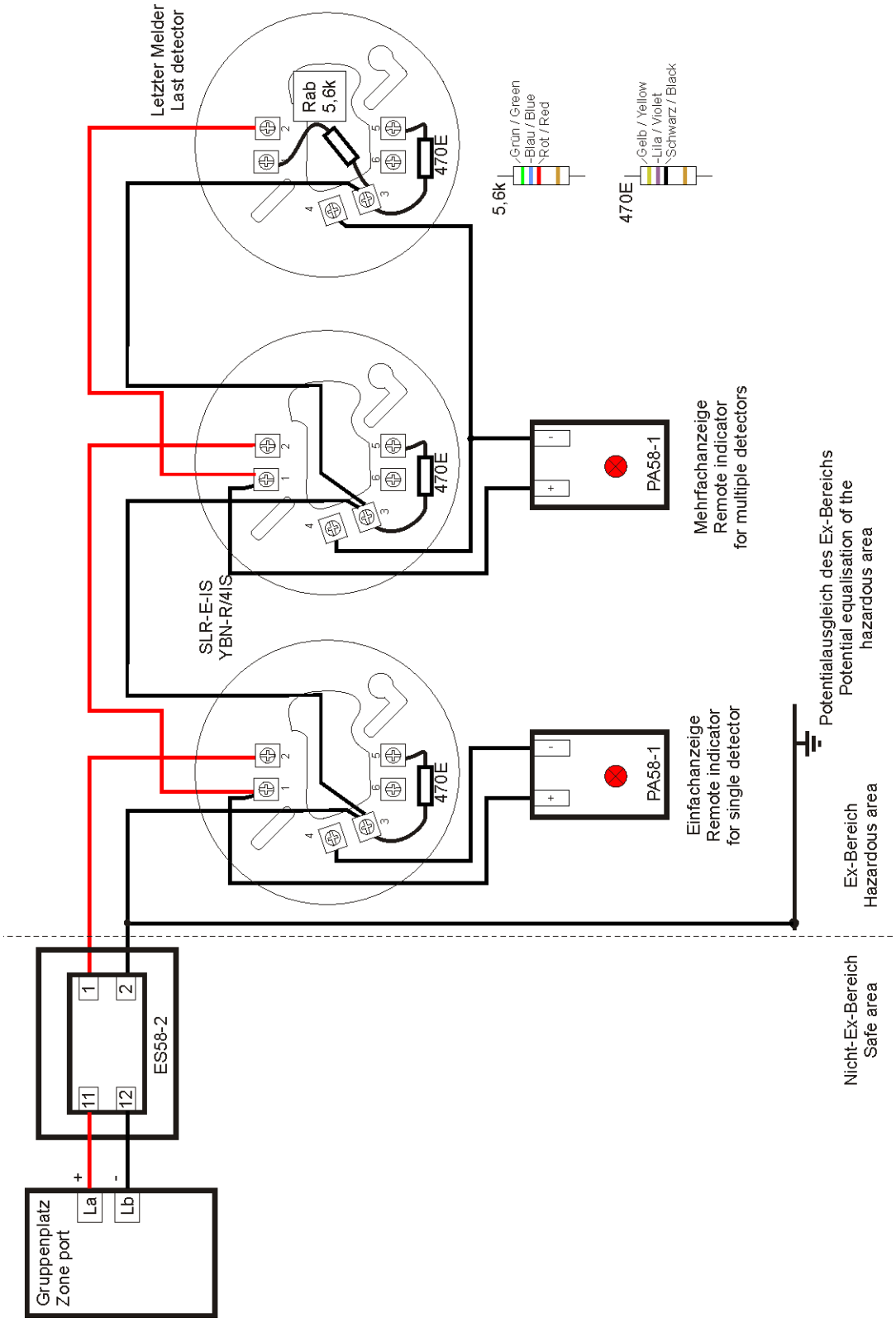
1) However, if the Safety Barrier ES58-2 is used, it is not possible to detect earth faults in the hazardous area.

Basically, detectors in the hazardous area and detectors in safe areas can be combined in one detector zone.

Detectors in the hazardous area must always be connected at the end of the detector line. Behind such areas you must not connect detectors designed for safe areas.

The safety barrier must be installed outside the hazardous area.

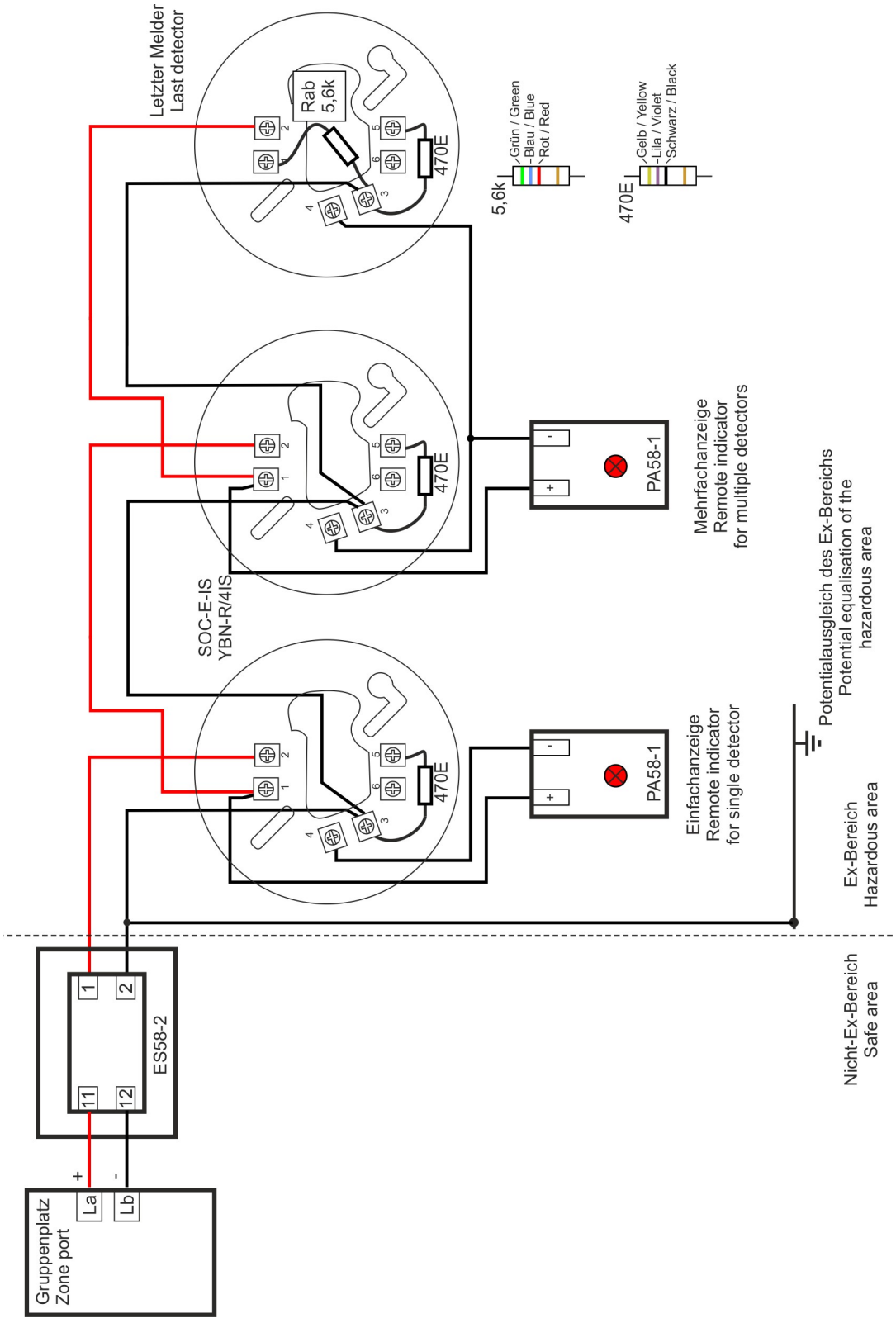
2.5.1 Optical Smoke Detector SLR-E-IS with ES58-2



A short circuit at the output of the ES58-2 (terminals 1 / 2) will be evaluated as alarm.

The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

2.5.2 Optical Smoke Detector SOC-E-IS with ES58-2



A short circuit at the output of the ES58-2 (terminals 1 / 2) will be evaluated as alarm.

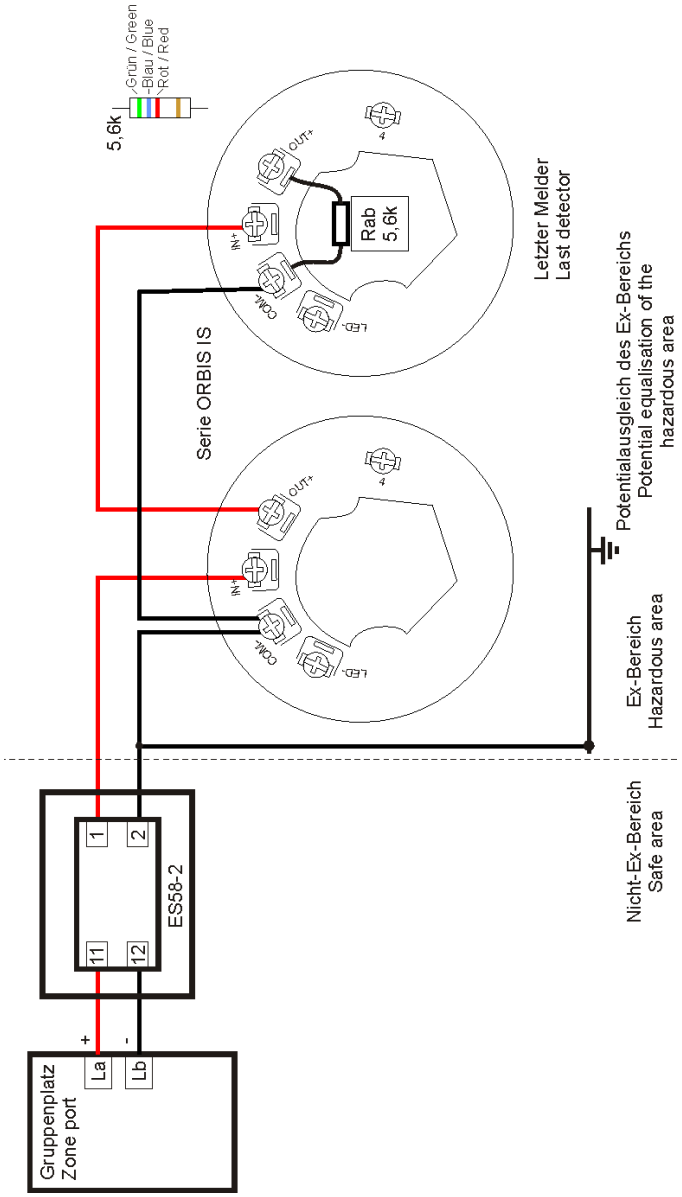
The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

2.5.3 Automatic detectors Series Orbis I.S.

The connection shown below applies to the following detectors:

- Optical Smoke Detector OP-52027
- Optical-Thermal Detector OH-53027
- Thermal Detector HT-51145 (A1R)
- Thermal Detector HT-51157 (A1S)
- Thermal Detector HT-51147 (A2S)
- Thermal Detector HT-51149 (BR)
- Thermal Detector HT-51151 (BS)
- Thermal Detector HT-51153 (CR)
- Thermal Detector HT-51155 (CS)

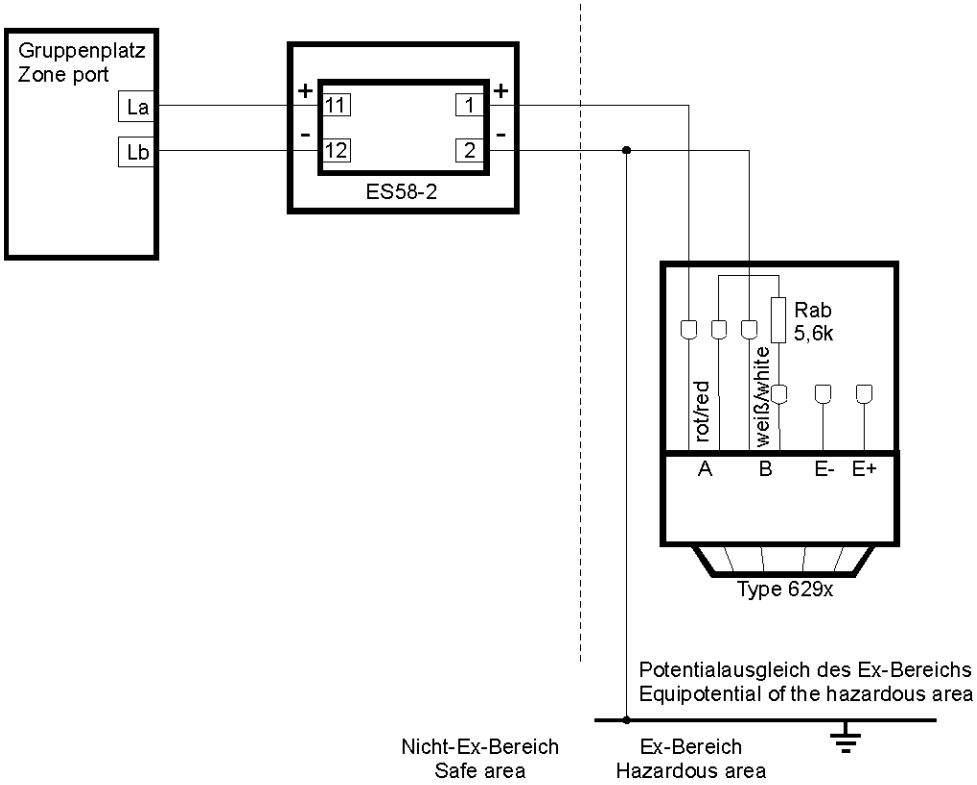
In the hazardous area, up to 28 detectors may be connected. For the connection of the ORBIS I.S. detectors, the Detector Base MB-50018 is needed.



A short circuit at the output of the ES58-2 (terminals 1 / 2) will be evaluated as alarm.

The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

2.5.4 Thermal Detectors 6295 and 6296 with Safety Barrier ES58-2



The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

A short circuit at the output of the ES58-2 (terminals 1 / 2) will be evaluated as alarm.

2.5.5 Detectors without energy storage – contact detectors

Fire detectors and display devices without energy storage (capacitors, inductors, power sources, etc.) can be used virtually without restriction and without identification in accordance with Section 12 of DIN EN 50020 in intrinsically safe circuits. For this purpose the Zener Barrier Z978 or the Safety Barrier ES58-2 is used.

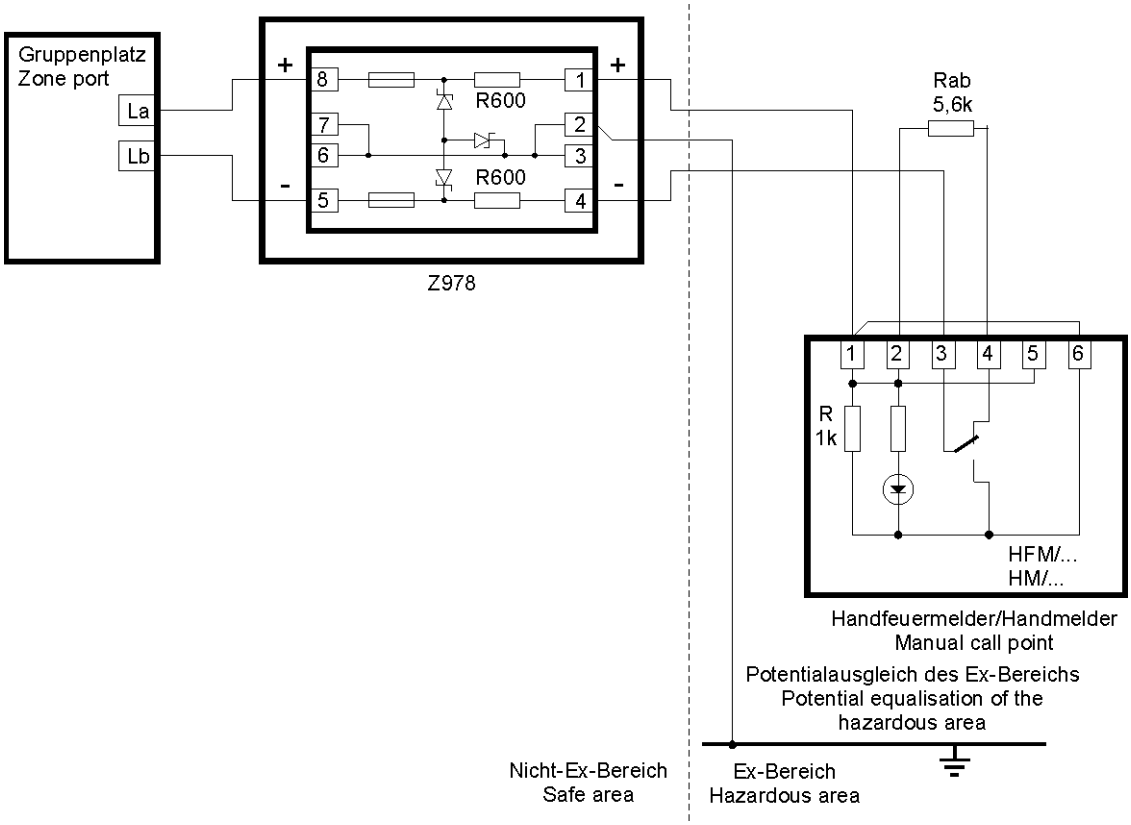
Therefore the thermal detectors and manual call points listed below can also be used in hazardous areas.

Description	Type	max. number per detecter zone
Manual Call Point/Red/Conv	HFM/3/11/xx	32
Manual Call Point (others)	HFM/3/12/xx	32
Manual Call Point/Blue/Conv/Hausalarm	HM/5/11/02/xx	32
Manual Call Point/Yellow/Conv/Lösch.	HM/1/11/05/xx	32
Manual Call Point/Blue/Conv/Stop	HM/5/11/18/xx	32
Manual Call Point/Yellow/Conv/Handausl	HM/1/11/17/xx	32
Manual Call Point (others)	HM/x/11/xx/xx	32
Manual Call Point (others)	HM/x/12/xx	32
Manual Call Point Series HME	HME/FFFF/11/TT/LL/x	32
Manual Call Point Series HME, 1 aux conn.	HME/FFFF/12/TT/LL/x	32
Manual Call Point/Red/Standard	UNI3021C	32
Thermal Max Detector	SWM-1KL-57	32
Thermal Max Detector	SWM-1KL-80	32
Thermal Max Detector	SWM-1KL-100	32
Thermal Max Detector	SWM-1KL-140	32

2.5.5.1 Manual call point with Zener Barrier Z978

This drawing gives a fundamental description of the connection. Since two 600 Ohm resistors are integrated into the safety barrier, the 1kOhm alarm resistor has to be bypassed by connecting terminal 1 to terminal 6 at the manual call point. If a different manual call point is used, its connection may differ from the connection diagram shown below.

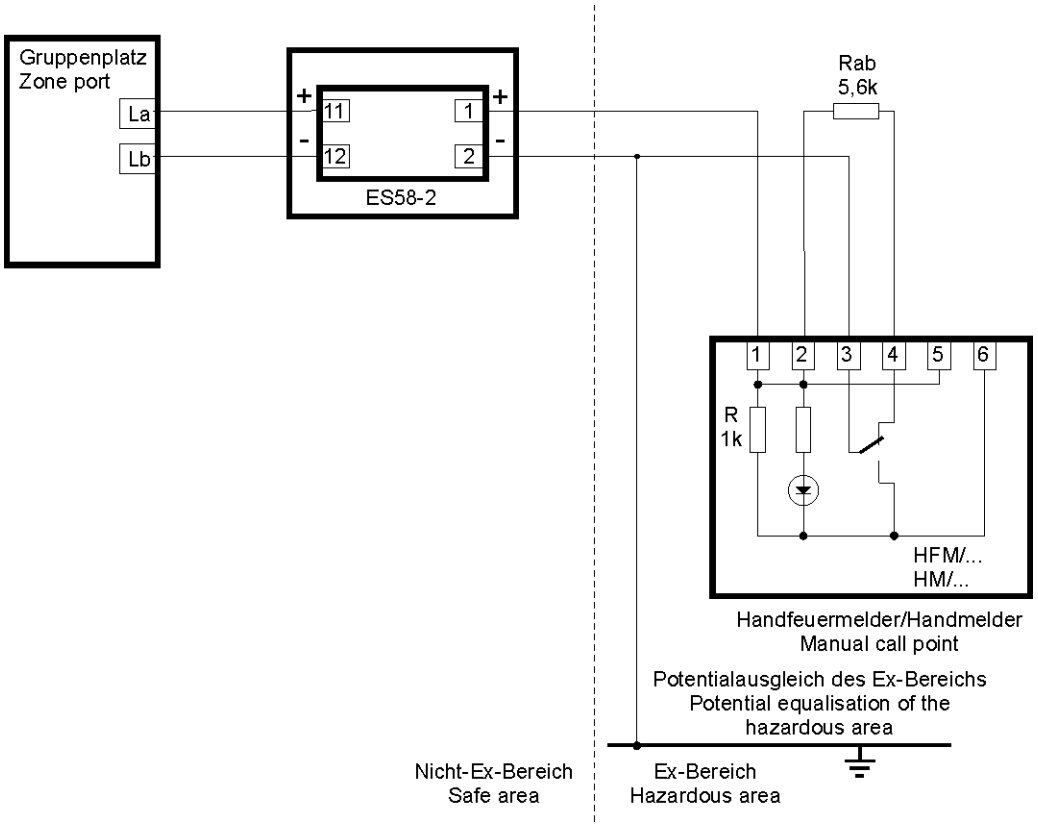
An alarm is activated by a very low resistance connection between the output terminals of the safety barrier.



The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

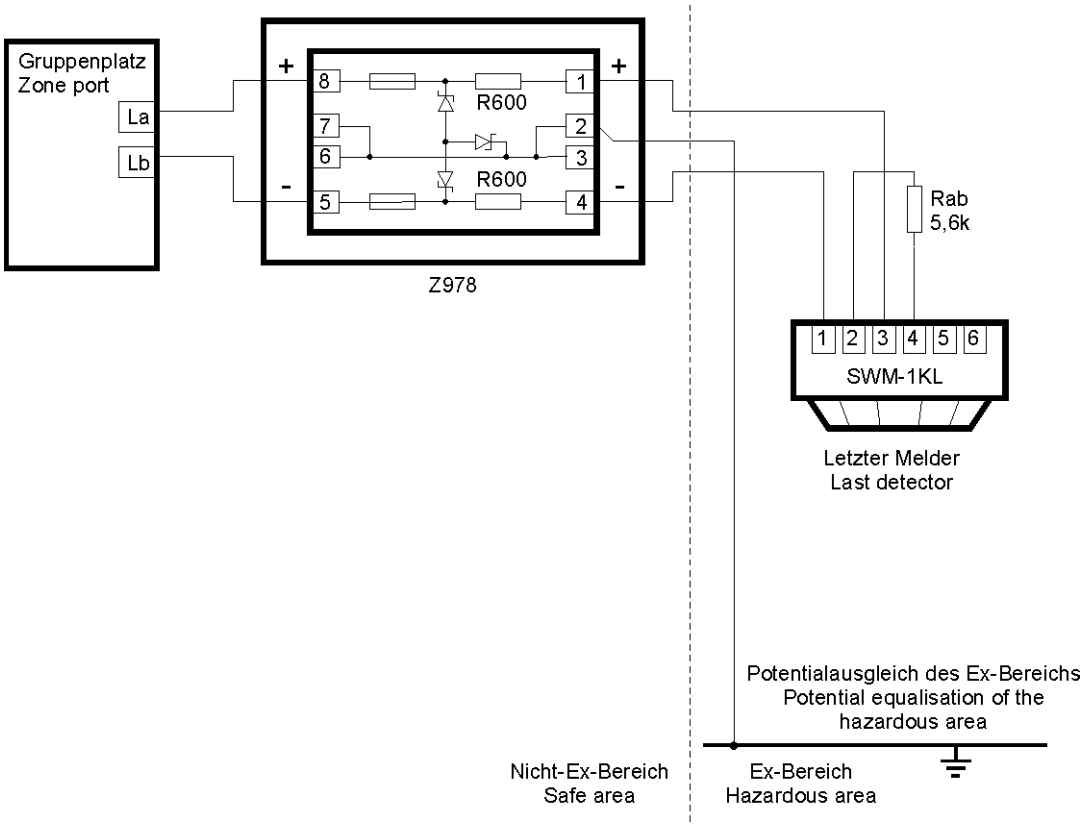
A short circuit at the output of the Z978 (terminals 1 / 4) will be evaluated as alarm.

2.5.5.2 Manual call point with Safety Barrier ES58-2



The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

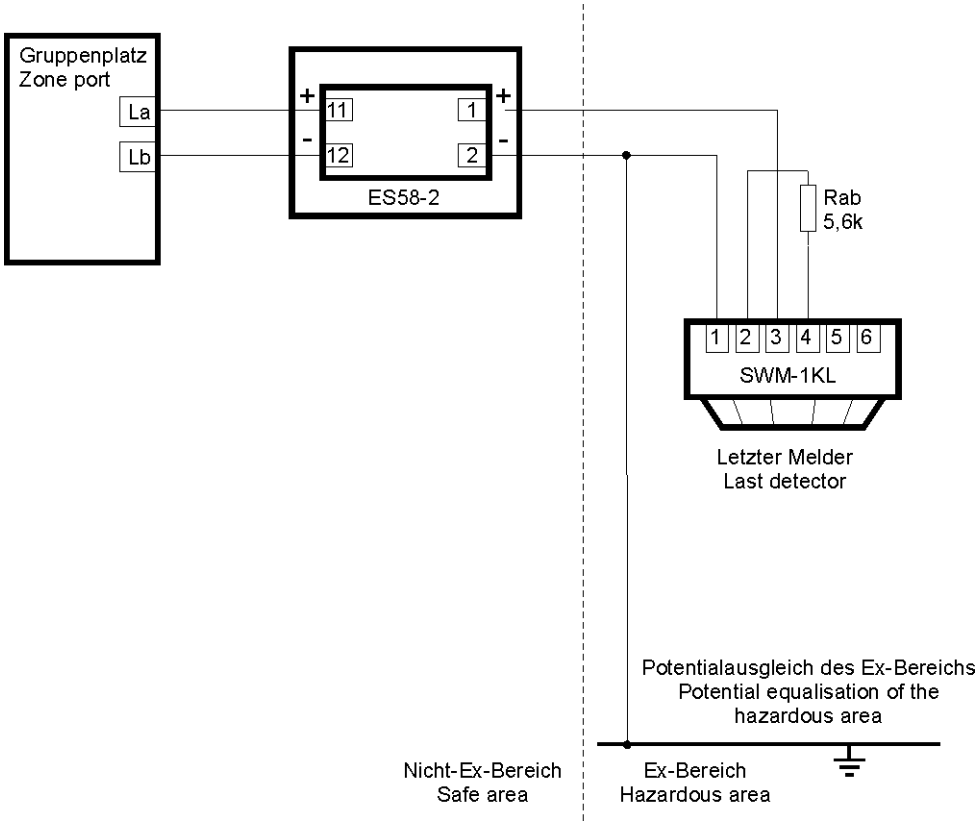
2.5.5.3 Thermal max detector with Zener Barrier Z978



The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

A short circuit at the output of the Z978 (terminals 1 / 4) will be evaluated as alarm.

2.5.5.4 Thermal max detector with Safety Barrier ES58-2



The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

2.6 Manual call points for hazardous areas

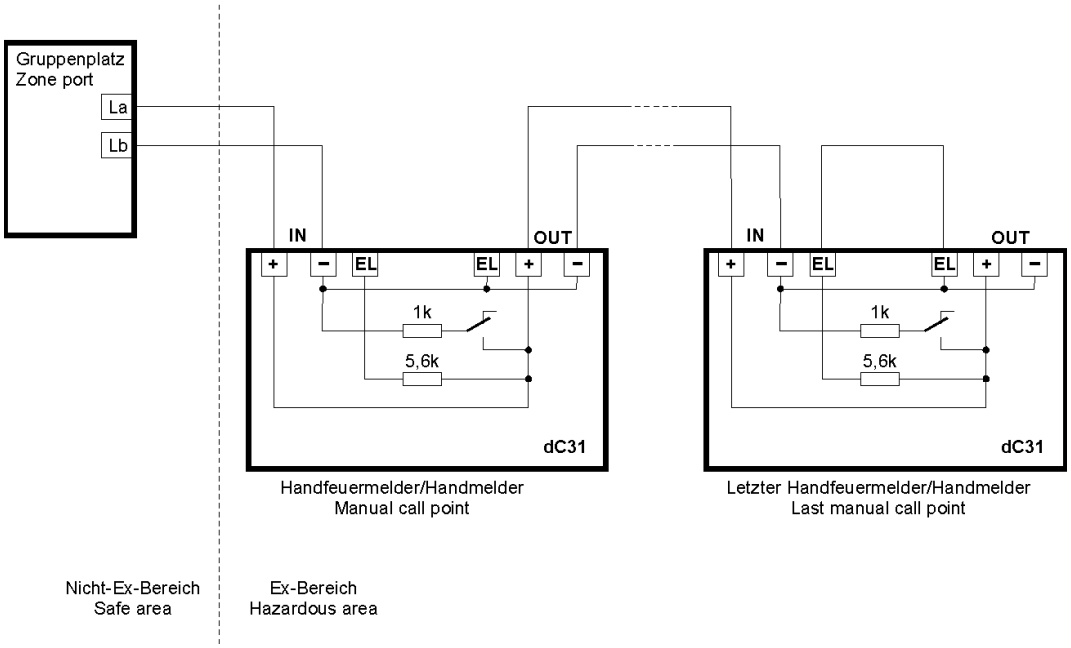
Thanks to the types of protection "increased safety", "encapsulation" and "protection by enclosures", the Manual Call Point Ex dC31 can be used without the Safety Barrier ES58-2 or the Zener Barrier Z978.

Description	Type	max. number per detector zone
Manual Call Point	Ex dC31	20

2.6.1 Manual Call Point Ex dC31

When ordering this manual call point, you have to specify the resistance values (alarm and end-of-line resistor) of this detector, because they are sealed within the detector housing and can not be changed at a later stage.

The installation in the hazardous area has to comply with EN 60079 because the energy in the supply line is not limited by a safety barrier.



The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

2.7 Flame detectors for hazardous areas

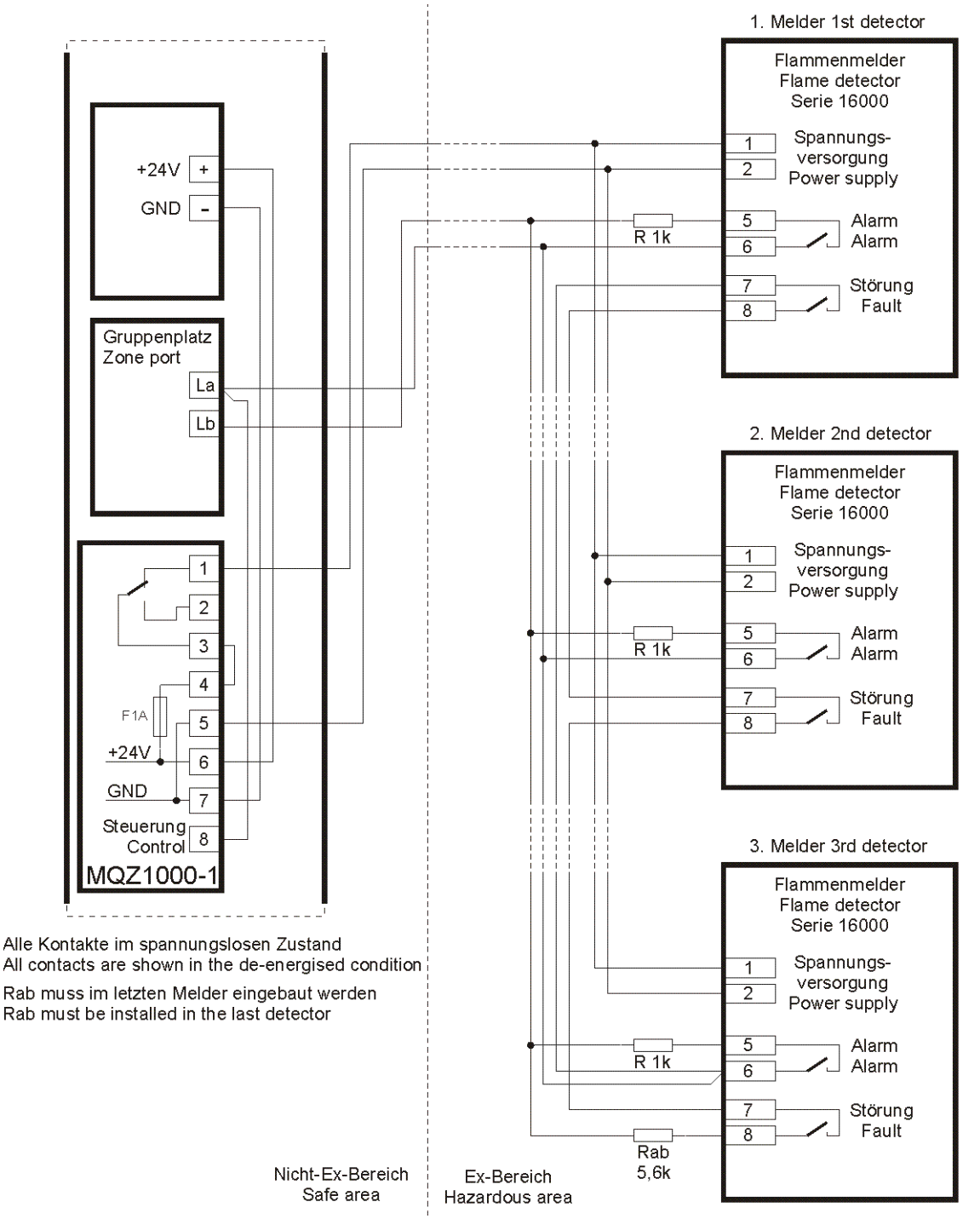
Thanks to the ignition protection class "flameproof enclosure", the following flame detectors can be used without a safety barrier or zener barrier.

Type	EN 54-10 Class 1
16511	IR2
16519	IR3
16521	UV/IR2

SW6	SW7	Response time
0	0	8s
1	0	4s
0	1	2s
1	1	1s

By means of the DIP switches, the detector can be adjusted to the various operating conditions. The switches 6 and 7 allow you to change the response time.

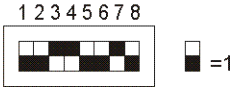
2.7.1 Flame Detectors Series 16000



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

Rab muss im letzten Melder eingebaut werden
Rab must be installed in the last detector

Einstellung des DIP Schalters in jedem Melder
DIP switch setting in each detector

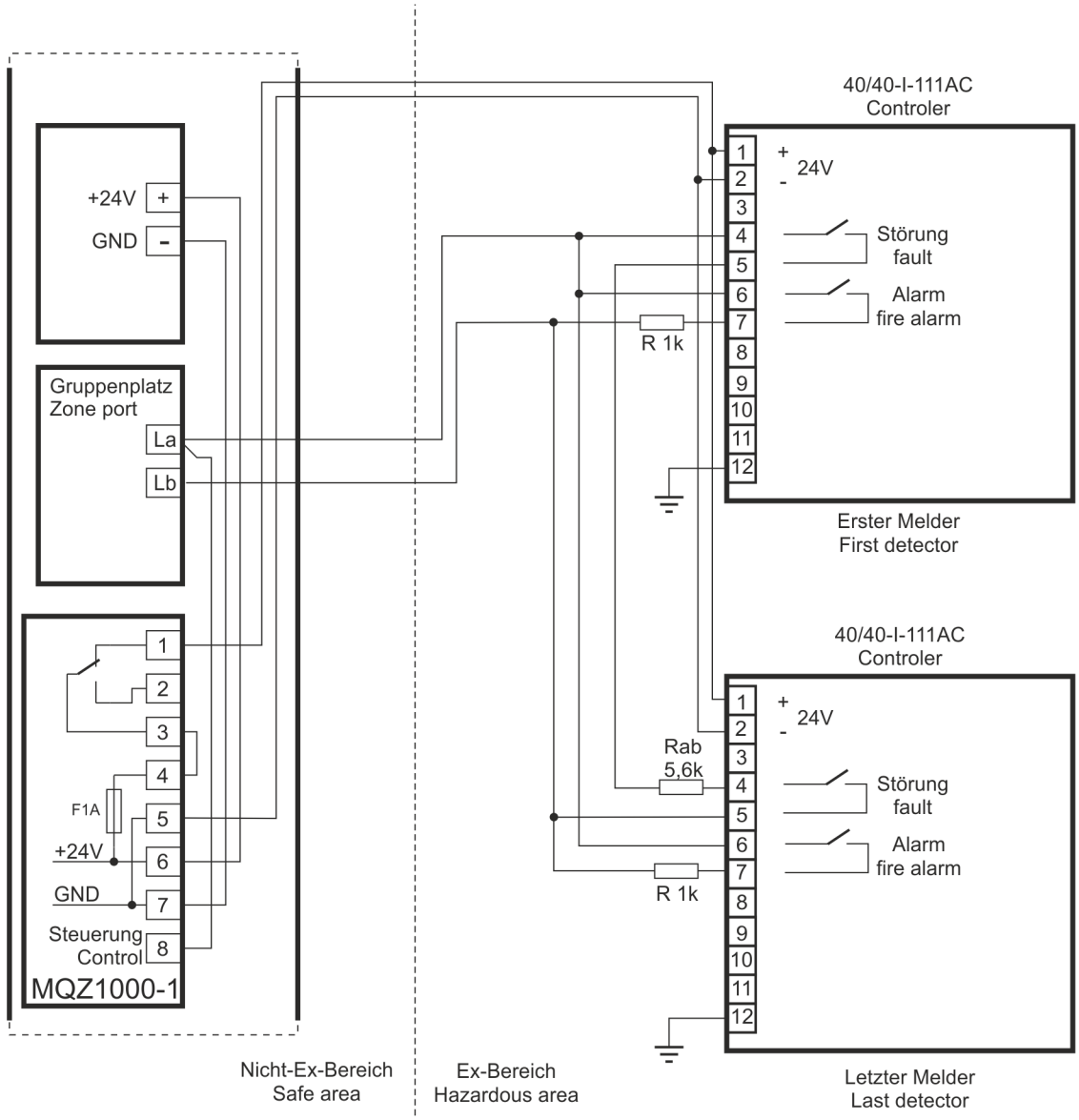


The installation in the hazardous area has to comply with EN 60079 because the energy in the line is not limited by barriers.

2.7.2 Flame Detector 40/40-I-111AC

Thanks to the ignition protection class "flameproof enclosure", the following flame detectors can be used without a safety barrier or zener barrier.

An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone).



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

Rab muss im letzten Melder eingebaut werden
Rab must be installed in the last detector

The installation in the hazardous area has to comply with EN 60079 because the energy in the line is not limited by barriers.

2.8 Connection of wireless detectors

Before wireless detectors can be used, you have to install an RF interface.

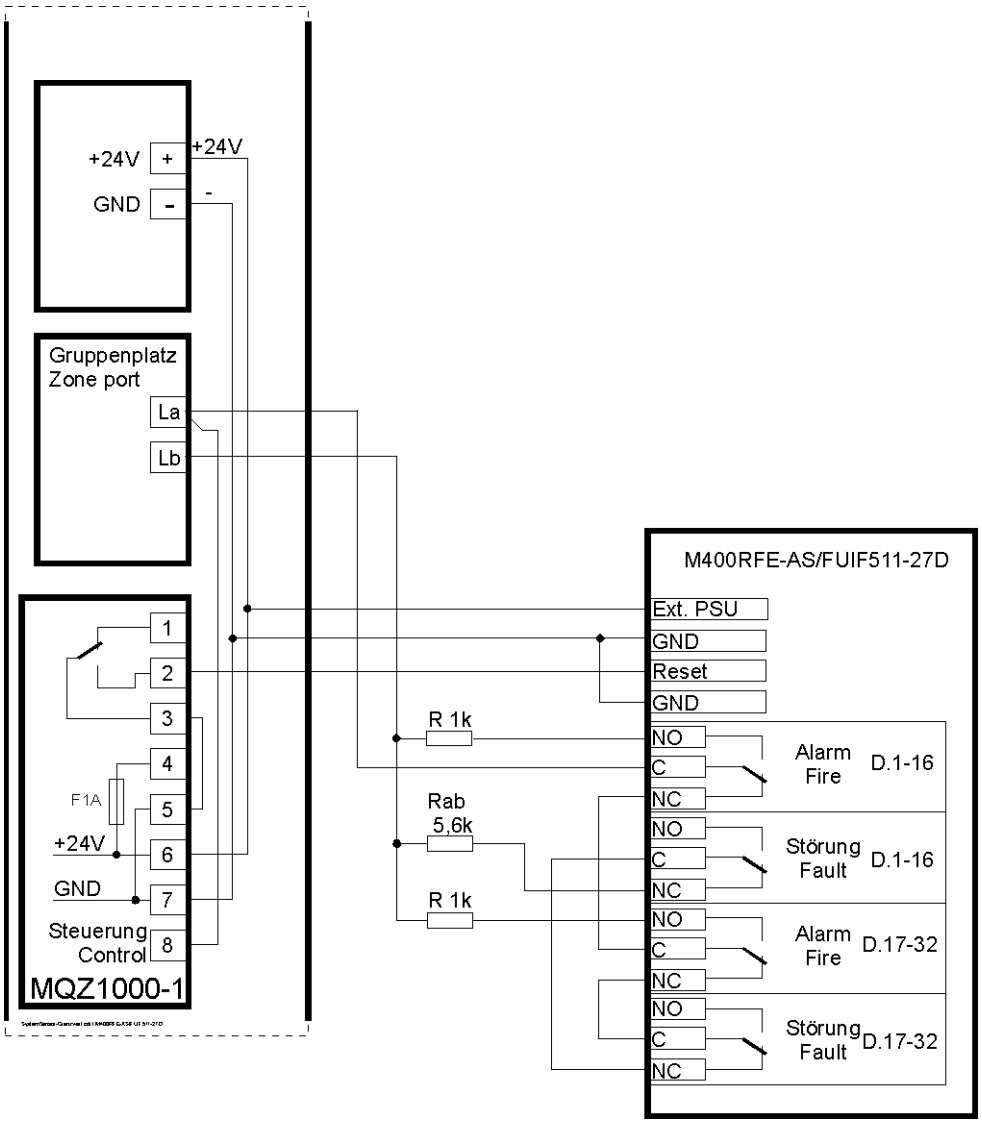
2.8.1 RF Interface FUIF511-27D

2.8.1.1 Notes

For information on how to link the wireless detectors to the RF interface, please refer to the documentation of the RF interface.

Observe the maximum number of detectors that are supported per RF interface.

2.8.1.2 Connection



2.8.2 Connection of Series FI700/RF / FI720/RF wireless detectors

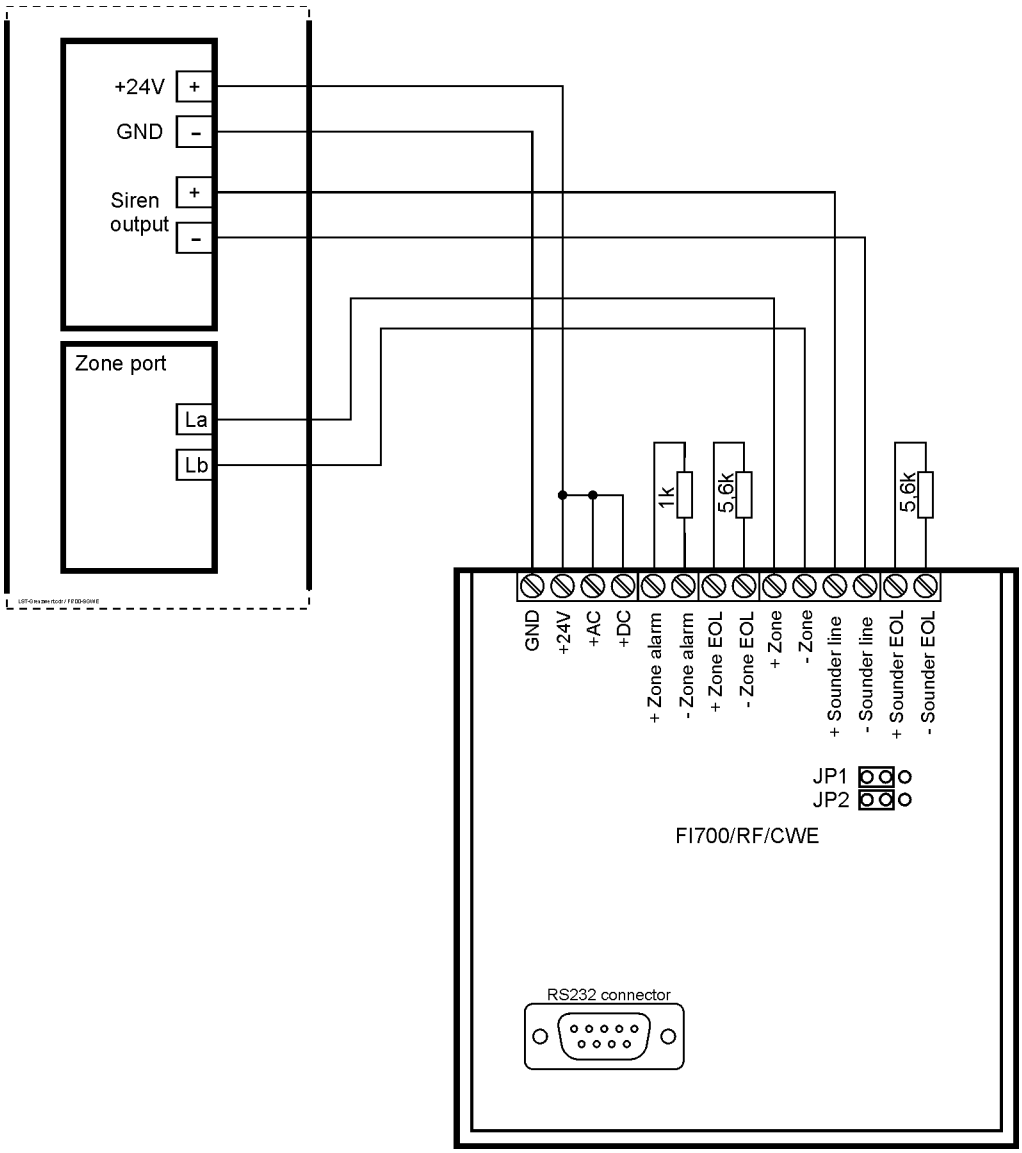
In order to be able to use wireless detectors, you first have to install an RF interface. Also see the User Manual "Wireless fire detection systems FI700/RF and FI720/RF".

2.8.2.1 Notes

For information on how to link the wireless detectors to the RF interface, please refer to the documentation of the RF interface.
Please note that a maximum of 32 detectors are supported per RF interface.

2.8.2.2 Connection

The following connection applies to the RF Interfaces FI700/RF/CWE and FI720/RF/CWE.

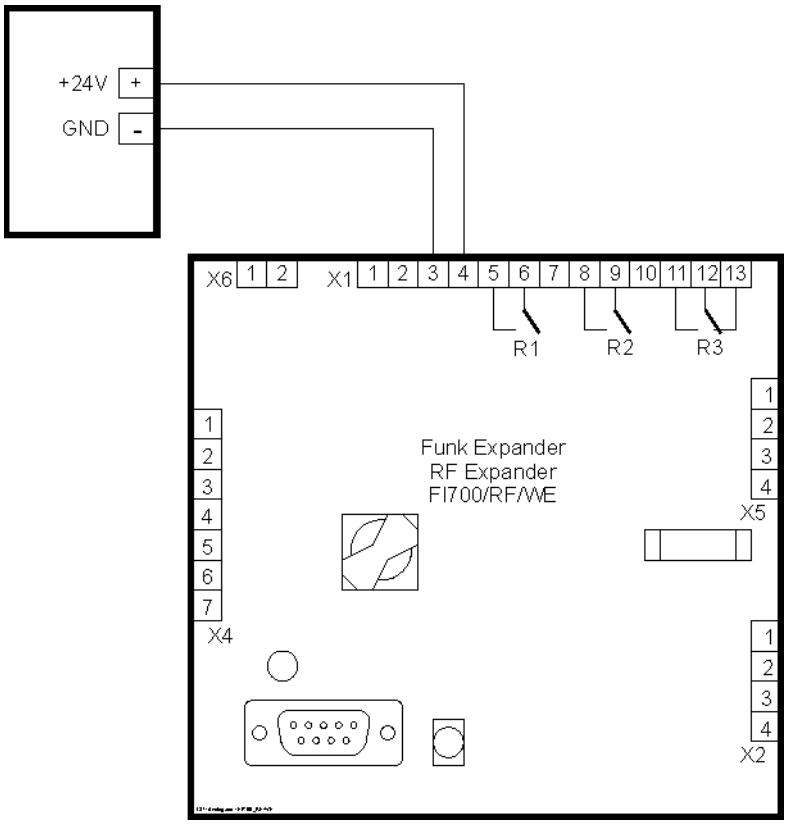


Make sure that the polarity of the connection to the zone port is correct. If the polarity of this connection is not correct, the fire alarm can not be reset. The fire alarm is reset by removing the voltage from the CWE terminals 'Zone'.

If a voltage that is higher than 9V is present on the CWE terminals 'Sounder line' and if the polarity is correct, the parameterised wireless alarming devices will be activated. If a voltage that is lower than 9V is present on the terminals in question, the alarming devices will be inactive.

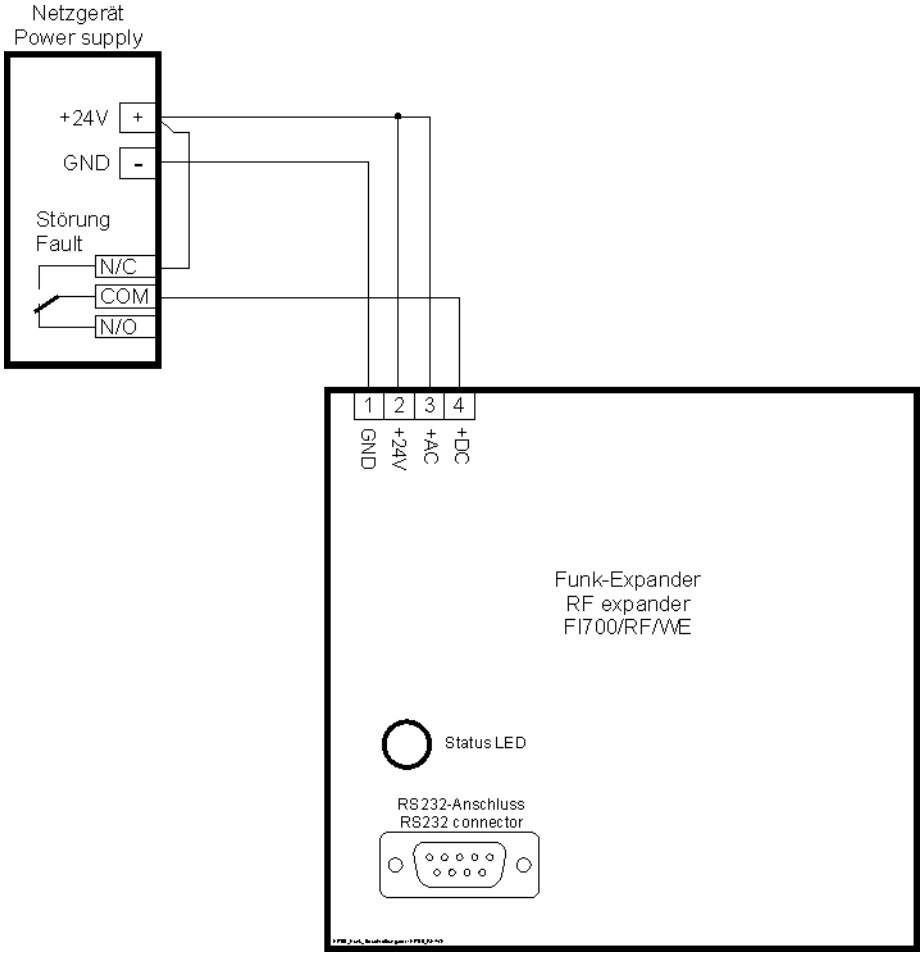
If the RF interface is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

2.8.2.3 RF Expander FI700/RF/WE – old version



If the expander is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

2.8.2.4 RF Expander FI700/RF/WE – new version – and RF Expander FI720/RF/WE



If the expander is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

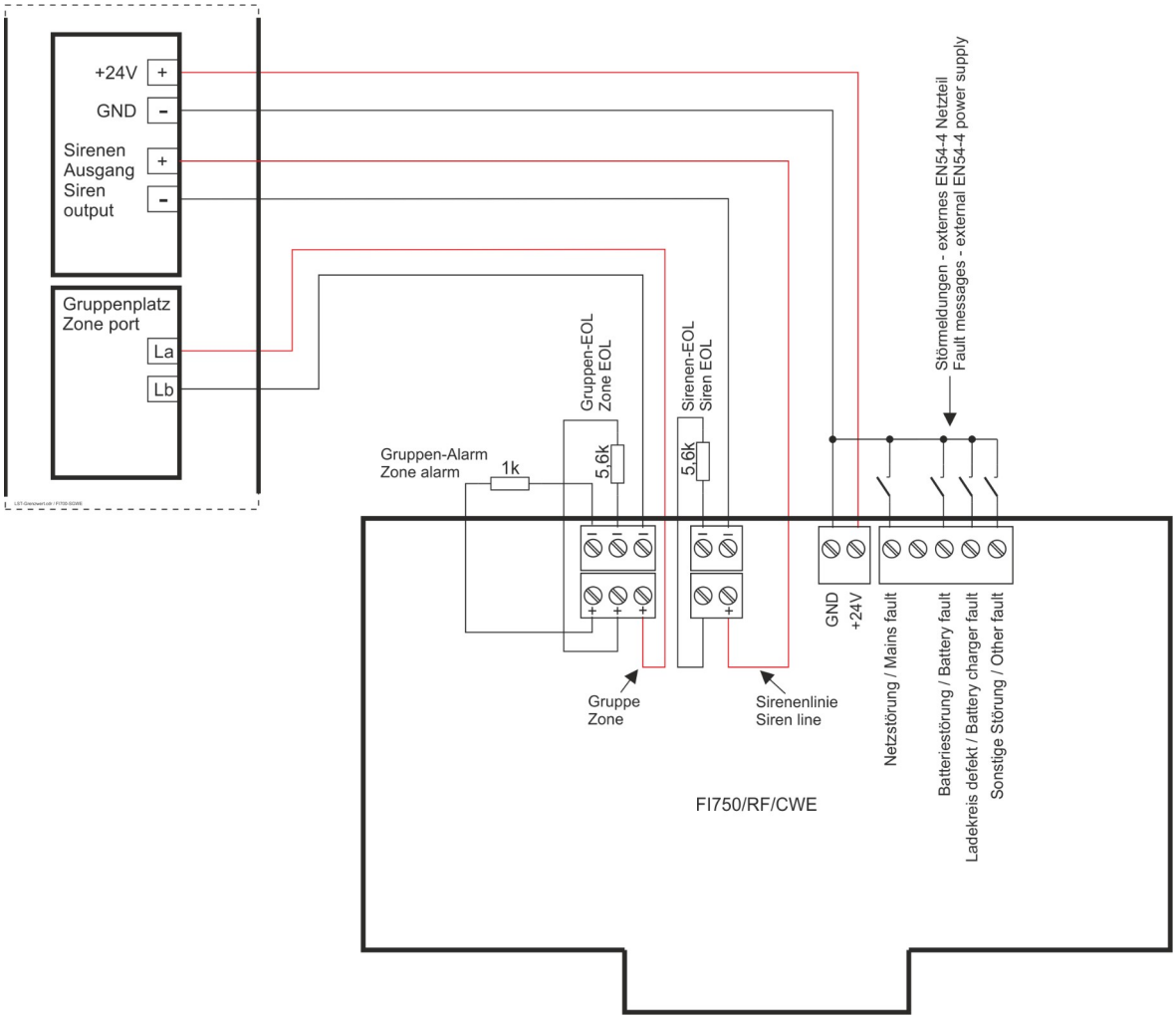
2.8.3 Connection of Series FI750/RF wireless detectors

Before wireless detectors can be used, you have to install an RF interface.

Notes

- For information on how to link the wireless detectors to the RF interface, please refer to the documentation of the RF interface.
- Please note that a maximum of 32 detectors are supported per RF interface.

Connection

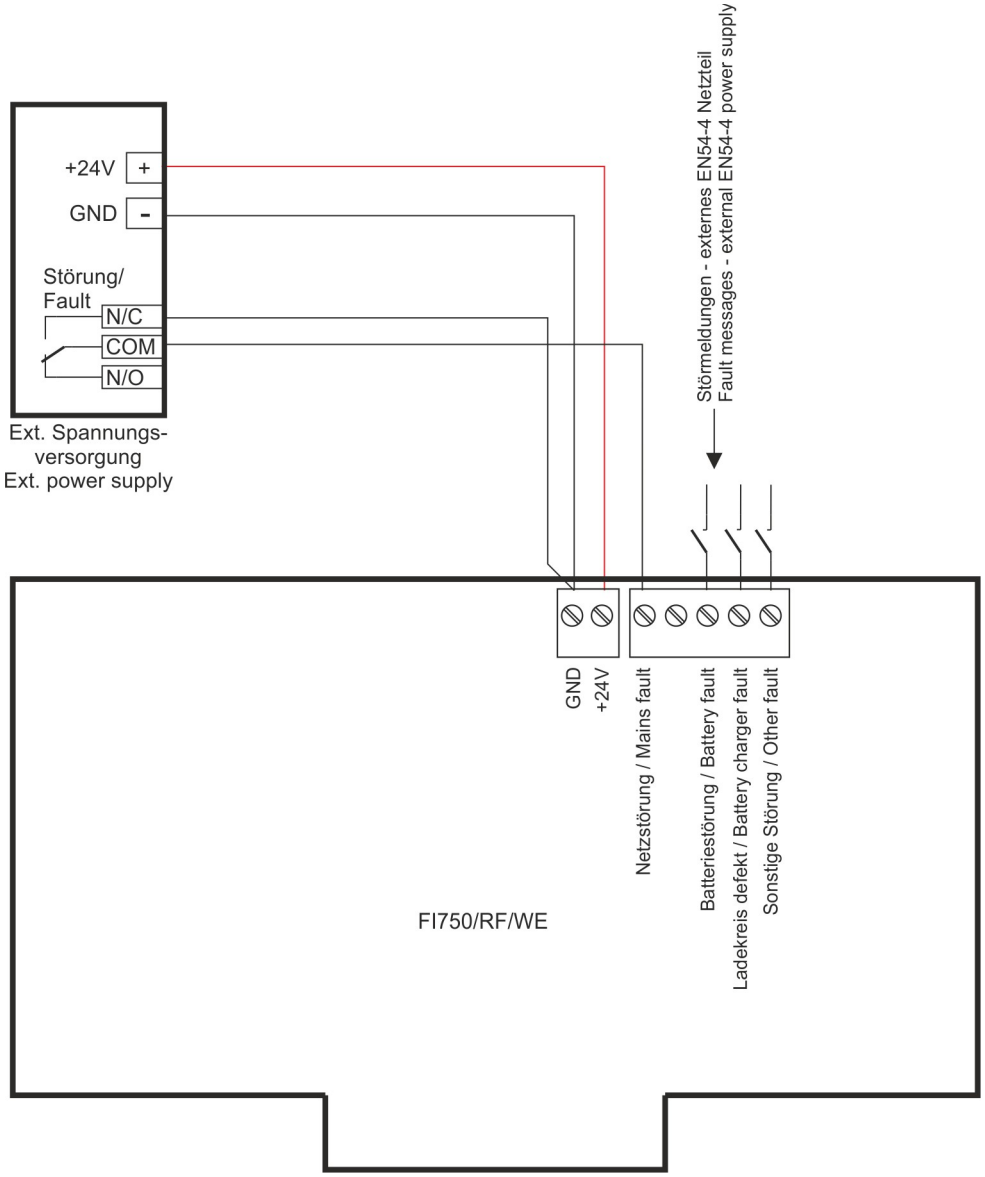


The "Fault messages – external power supply" can be set to "Open," "Low" or "Disabled" by means of the RF interface configuration software. These fault messages only need to be used if an external power unit is used.

2.8.3.1 RF Expander FI750/RF/WE

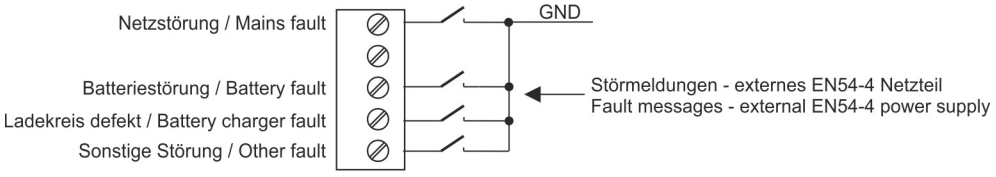
If you want to extend the range of the RF system FI750/RF, you can use the RF Expander FI750/RF/WE.

Connection



In this example, the common fault contact of the power unit has been routed to the "Mains fault" input of the FI750/RF/WE. With this connection, the handling of the input for the "Mains fault" has to be set to "Open".

If the power unit fault messages are to be evaluated more finely, you can use the inputs that are available on the FI750/RF/WE.



2.9 Connection of special detectors

2.9.1 Flame Detector Series 16000

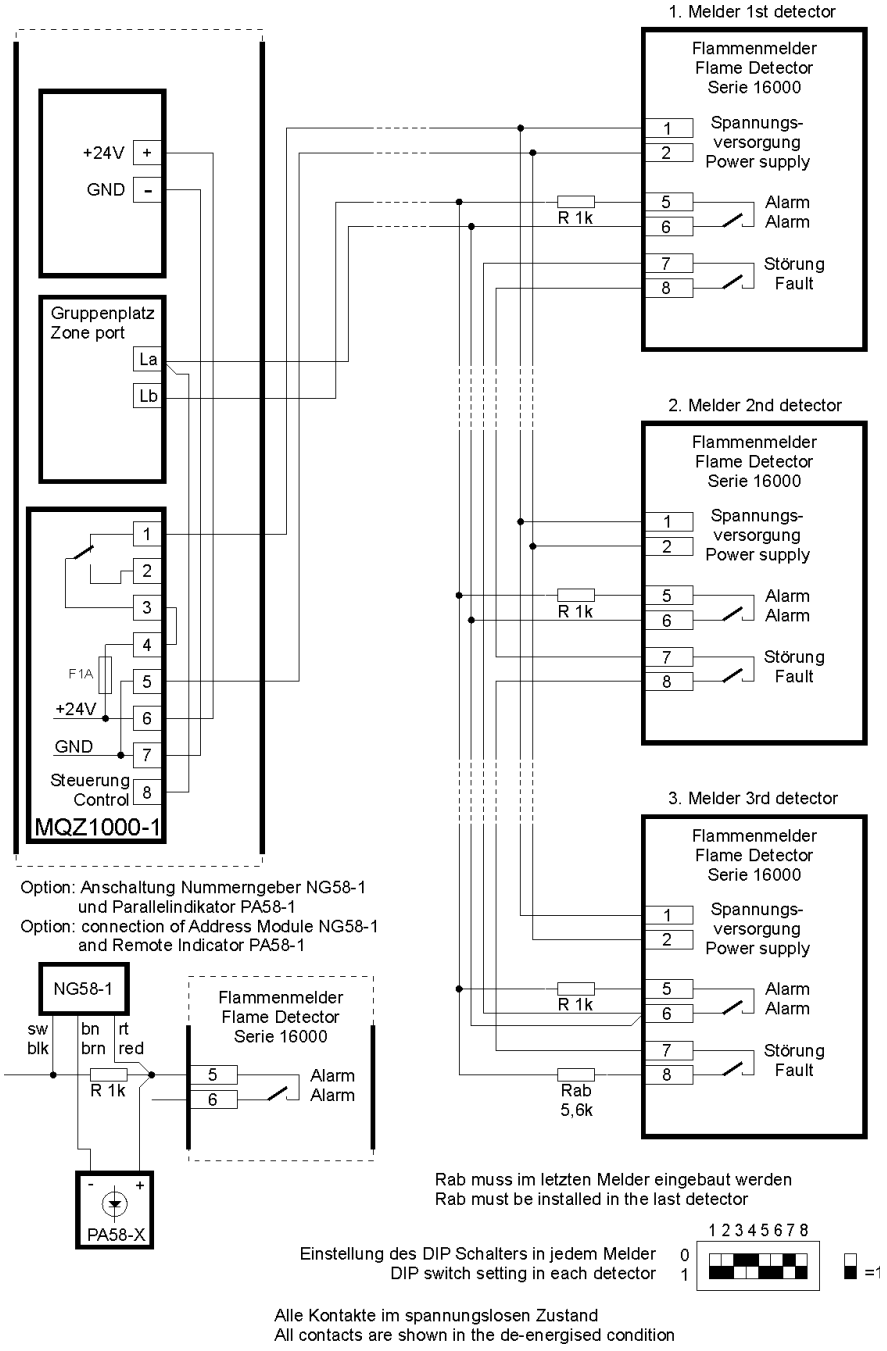
2.9.1.1 Settings

The detector can be adapted to different operating conditions by means of the DIP switches. The response time can be changed with the switches 6 and 7.

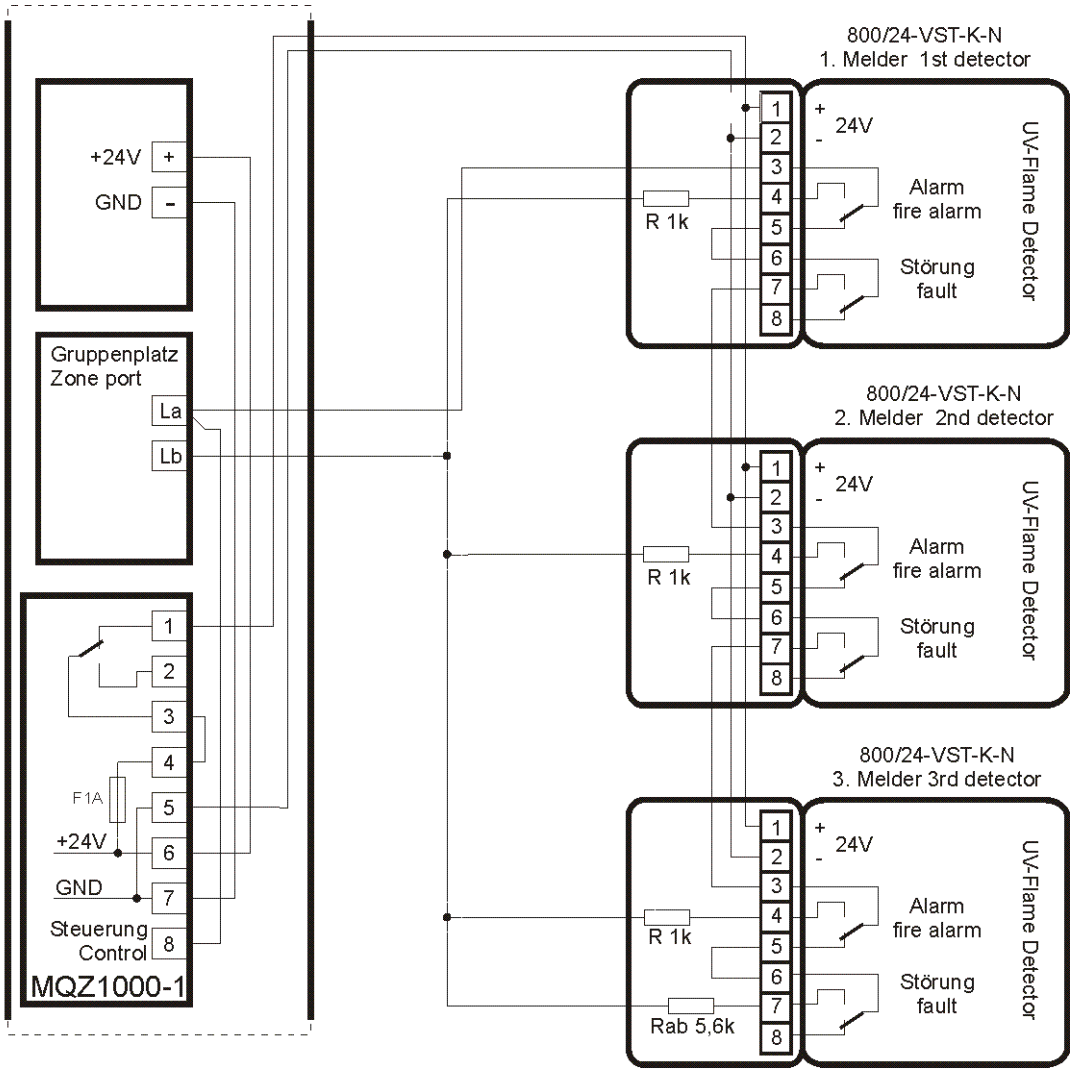
Type	EN 54-10 Class 1
16581	IR2
16589	IR3
16591	UV/IR2

SW6	SW7	Response time
0	0	8s
1	0	4s
0	1	2s
1	1	1s

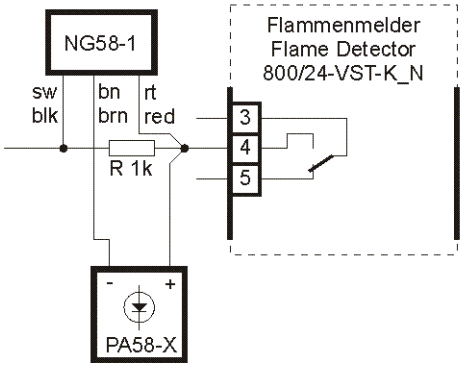
2.9.1.2 Connection



2.9.2 Flame Detector 800/24-VST-K-N



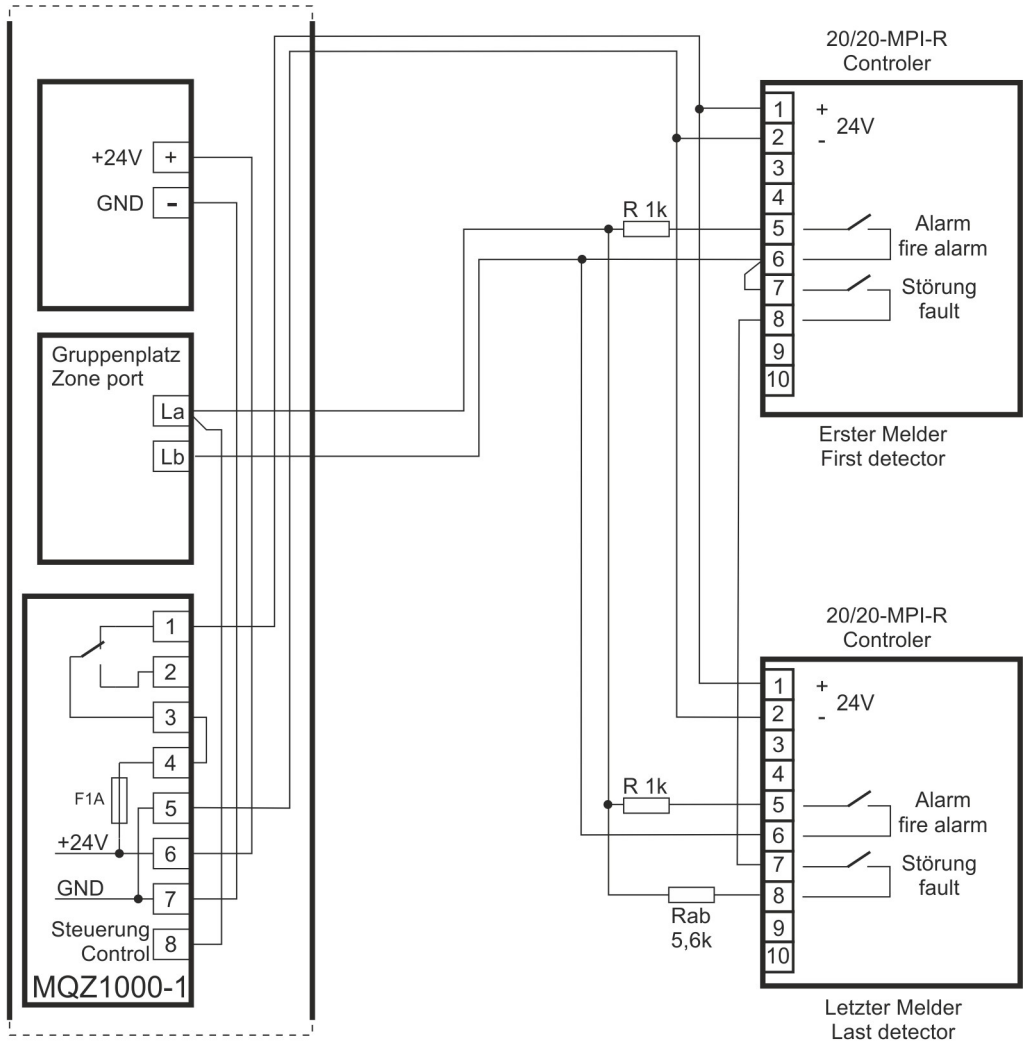
Option: Anschaltung Nummerngeber NG58-1
und Parallelindikator PA58-1
Option: connection of Address Module NG58-1
and Remote Indicator PA58-1



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

Rab muss im letzten Melder eingebaut werden
Rab must be installed in the last detector

2.9.3 Flame Detector 20/20-MPI-R

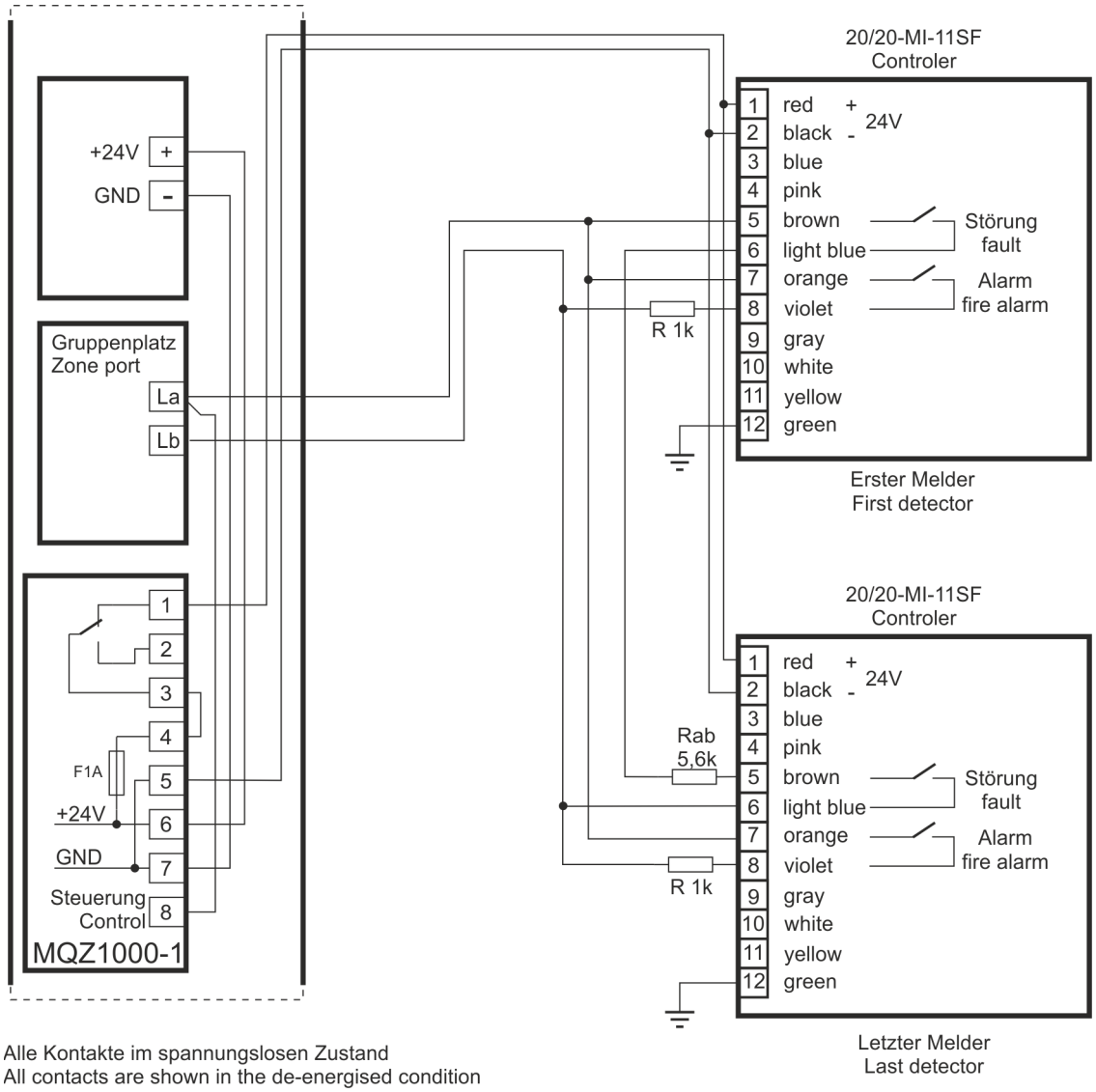


Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

Rab muss im letzten Melder eingebaut werden
Rab must be installed in the last detector

An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone).

2.9.4 Flame Detector 20/20-MI-11SF



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

Rab muss im letzten Melder eingebaut werden
Rab must be installed in the last detector

An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone).

2.9.5 Flame Detector FMX5000 IR

2.9.5.1 Notes

Only one detector may be connected to one detector zone. Furthermore, the end-of-line resistor of the conventional line must have 3.3kOhm. For further information in this regard, please refer to the manufacturer's documentation.

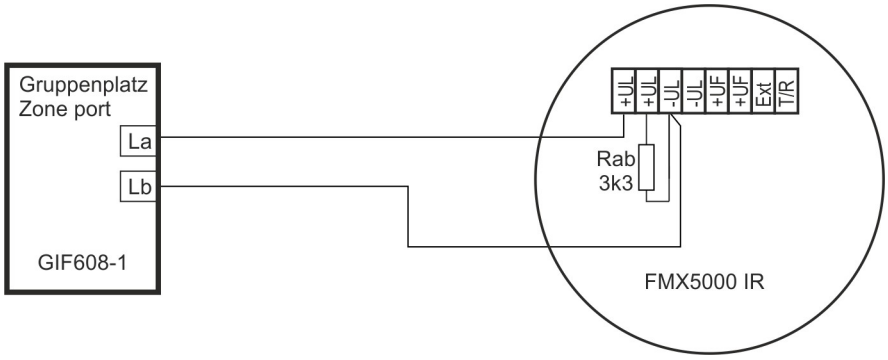
The detector is powered by the detector zone and signals its condition through the 2 lines:

- Alarm line (latching, can be reset by de-energising the detector zone)
- Fault line (optional, separate detector zone required)

If a fault line is used, the following is to be taken into account:

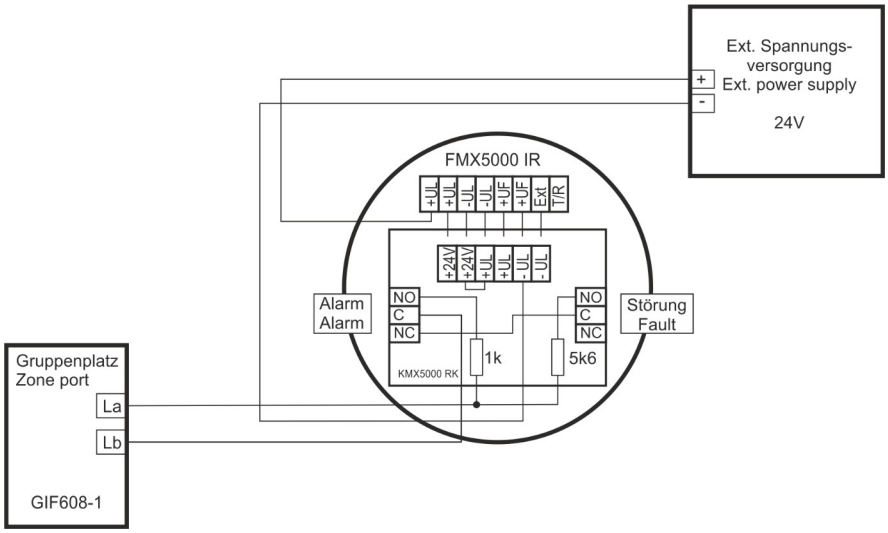
- Upon disablement of the alarm line, the fault line will be activated.
- In the case of alarm verification of the alarm line, the fault line will be activated while the alarm line is disabled.

2.9.5.2 Connection 1



Make sure that the connection cable is sufficiently temperature-resistant.
You must not connect more than one detector to a detector zone with Rab=3.3kΩ. Detector zones with Rab=5.6kΩ or Cab=47µF are not suitable. Therefore the device is only compatible with the BC016 and the BC600 (GIF608-1).

2.9.5.3 Connection 2



Make sure that the connection cable is sufficiently temperature-resistant.
You must not connect more than one detector to a detector zone with Rab=3.3kΩ. Detector zones with Rab=5.6kΩ or Cab=47µF are not suitable. Therefore the device is only compatible with the BC016 and the BC600 (GIF608-1).

2.9.6 Flame Detector FMX5000 UV

2.9.6.1 Notes

Only one detector may be connected to one detector zone. Furthermore, the end-of-line resistor of the conventional line must have 3.3kOhm. For further information in this regard, please refer to the manufacturer's documentation.

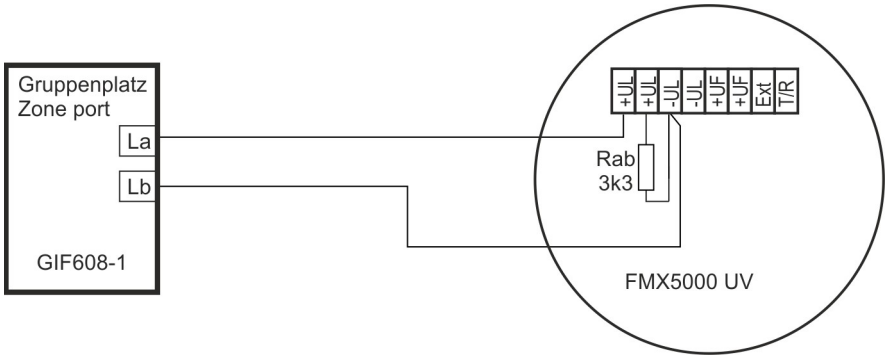
The detector is powered by the detector zone and signals its condition through the 2 lines:

- Alarm line (latching, can be reset by de-energising the detector zone)
- Fault line (optional, separate detector zone required)

If a fault line is used, the following is to be taken into account:

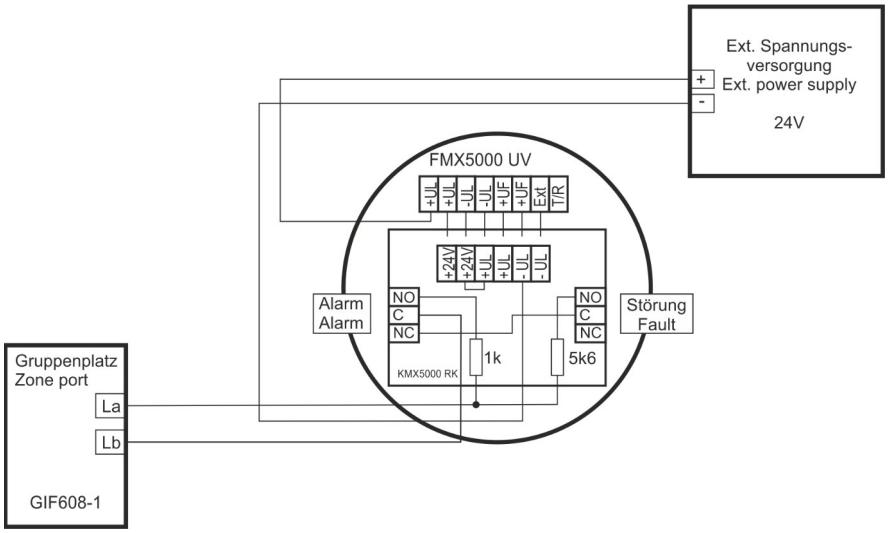
- Upon disablement of the alarm line, the fault line will be activated.
- In the case of alarm verification of the alarm line, the fault line will be activated while the alarm line is disabled.

2.9.6.2 Connection 1



Make sure that the connection cable is sufficiently temperature-resistant.
You must not connect more than one detector to a detector zone with Rab=3.3kΩ. Detector zones with Rab=5.6kΩ or Cab=47µF are not suitable. Therefore the device is only compatible with the BC016 and the BC600 (GIF608-1).

2.9.6.3 Connection 2



Make sure that the connection cable is sufficiently temperature-resistant.
You must not connect more than one detector to a detector zone with Rab=3.3kΩ. Detector zones with Rab=5.6kΩ or Cab=47µF are not suitable. Therefore the device is only compatible with the BC016 and the BC600 (GIF608-1).

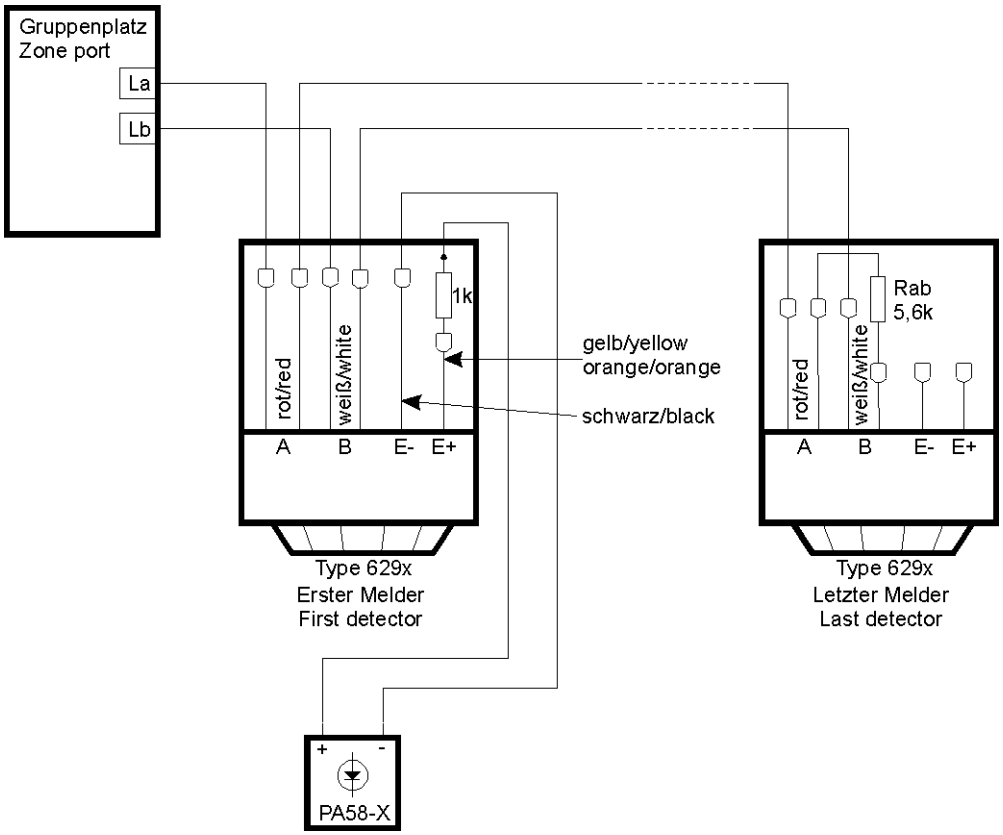
2.9.7 Thermal Detectors 6295, 6296, 6297 and 6298

2.9.7.1 Notes

A maximum of 32 detectors may be connected to a conventional detector zone.

Type	EN 54-5 Class
6295	57°C – A2S
6296	72°C – B2
6297	87°C – CS
6298	117°C – ES

2.9.7.2 Connection



Make sure that the temperature resistance of the connection cable is sufficient.

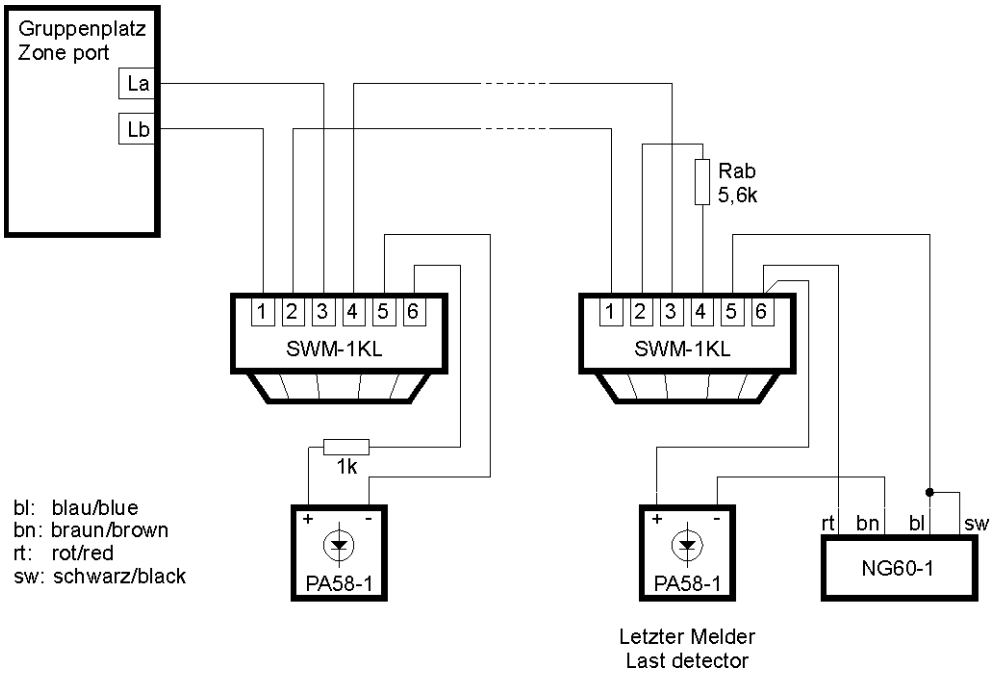
2.9.8 Thermal Max Detector SWM-1KL

2.9.8.1 Notes

The number of detectors of a zone is not limited since only a thermally controlled, normally open contact (bimetallic strip) is used. (Quiescent current of the detector = 0mA).

The connection below can be used for the 57°C, the 80°C and the 100°C version.

2.9.8.2 Connection



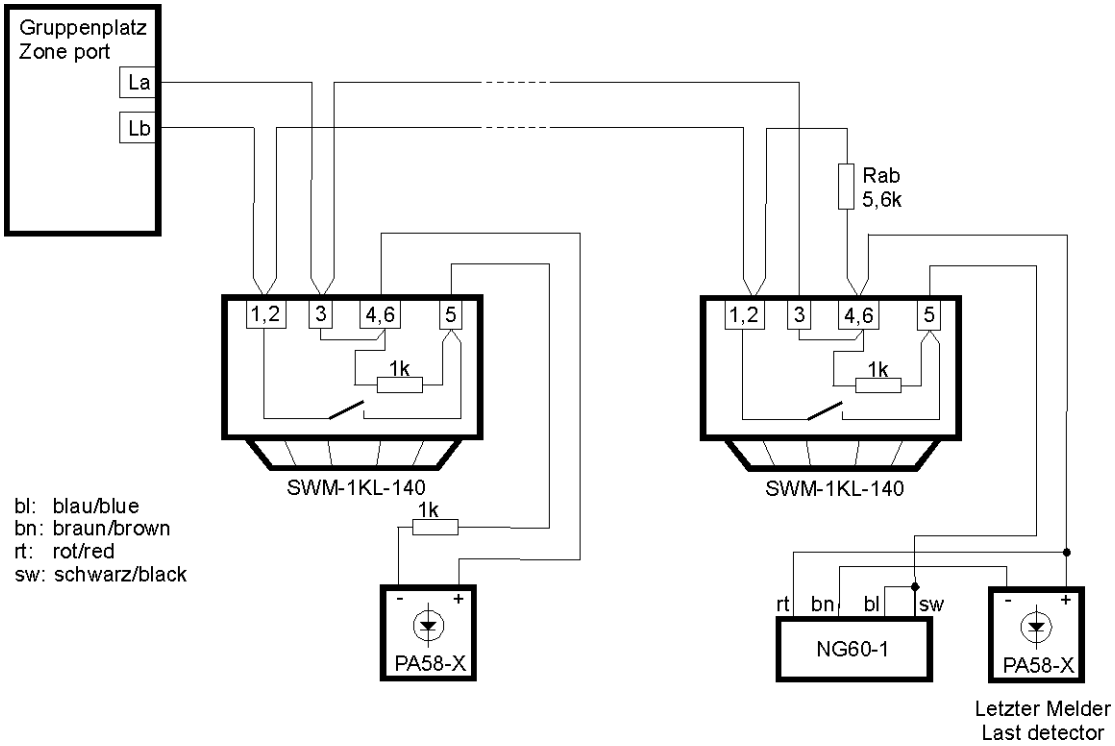
Make sure that the temperature resistance of the connection cable is sufficient.

2.9.9 Thermal Max Detector SWM-1KL-140

2.9.9.1 Note

The integrated resistor has to be replaced by a 1kOhm resistor.

2.9.9.2 Connection



Make sure that the temperature resistance of the connection cable is sufficient.

2.9.10 Thermal detector HT-27121-275

2.9.10.1 Notes

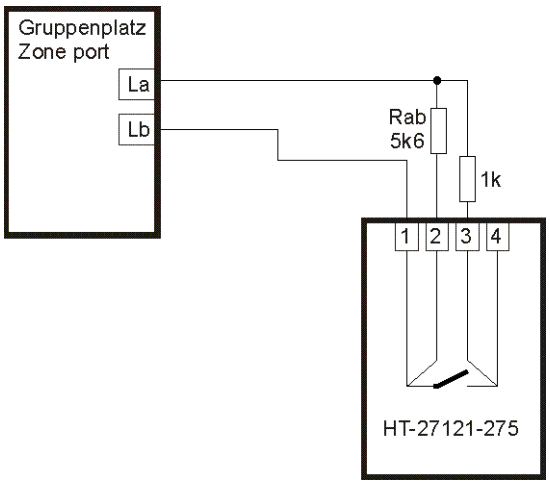
The number of detectors of a zone is not limited since only a thermally controlled, normally open contact (bimetallic strip) is used. (Quiescent current of the detector = 0 mA).

This detector activates at 135°C (275°F) and does not have a light emitting diode.

This connection also applies analogously to the following detectors, because they also do not have a light emitting diode:

Type	Alarm temperature	
27121-0-225	107°C	
27121-0-275	135°C	LST Art. No. 242170
27121-0-325	162°C	
27121-0-360	182°C	
27121-0-450	232°C	
27121-0-600	315°C	
27121-0-725	385°C	

2.9.10.2 Connection



Make sure that the connection cable is sufficiently temperature-resistant.

2.9.11 Heat detector WMX5000 FS

2.9.11.1 Notes

Only one detector may be connected to one detector zone. Furthermore, the end-of-line resistor of the conventional line must have 3.3kOhm. The WMX5000 is a high temperature detector whose alarm threshold can be selected (with DIP switches in the base – for further information in this regard, please refer to the manufacturer's documentation).

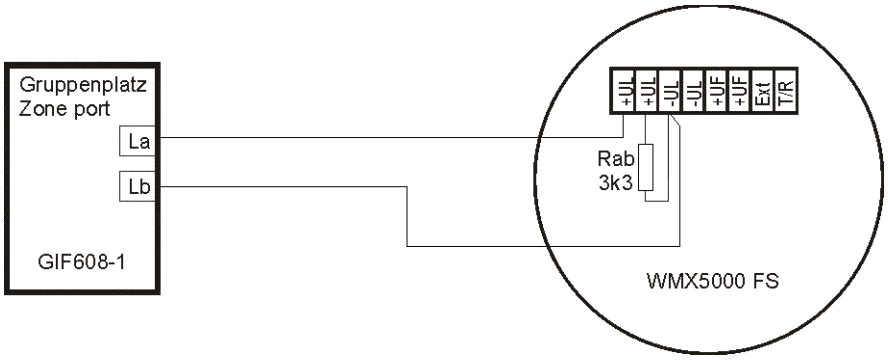
The detector is powered by the detector zone and signals its condition through the 2 lines:

- Alarm line (latching, can be reset by de-energising the detector zone)
- Fault line (optional, separate detector zone required)

If a fault line is used, the following is to be taken into account:

- Upon disablement of the alarm line, the fault line will be activated.
- In the case of alarm verification of the alarm line, the fault line will be activated while the alarm line is disabled.

2.9.11.2 Connection

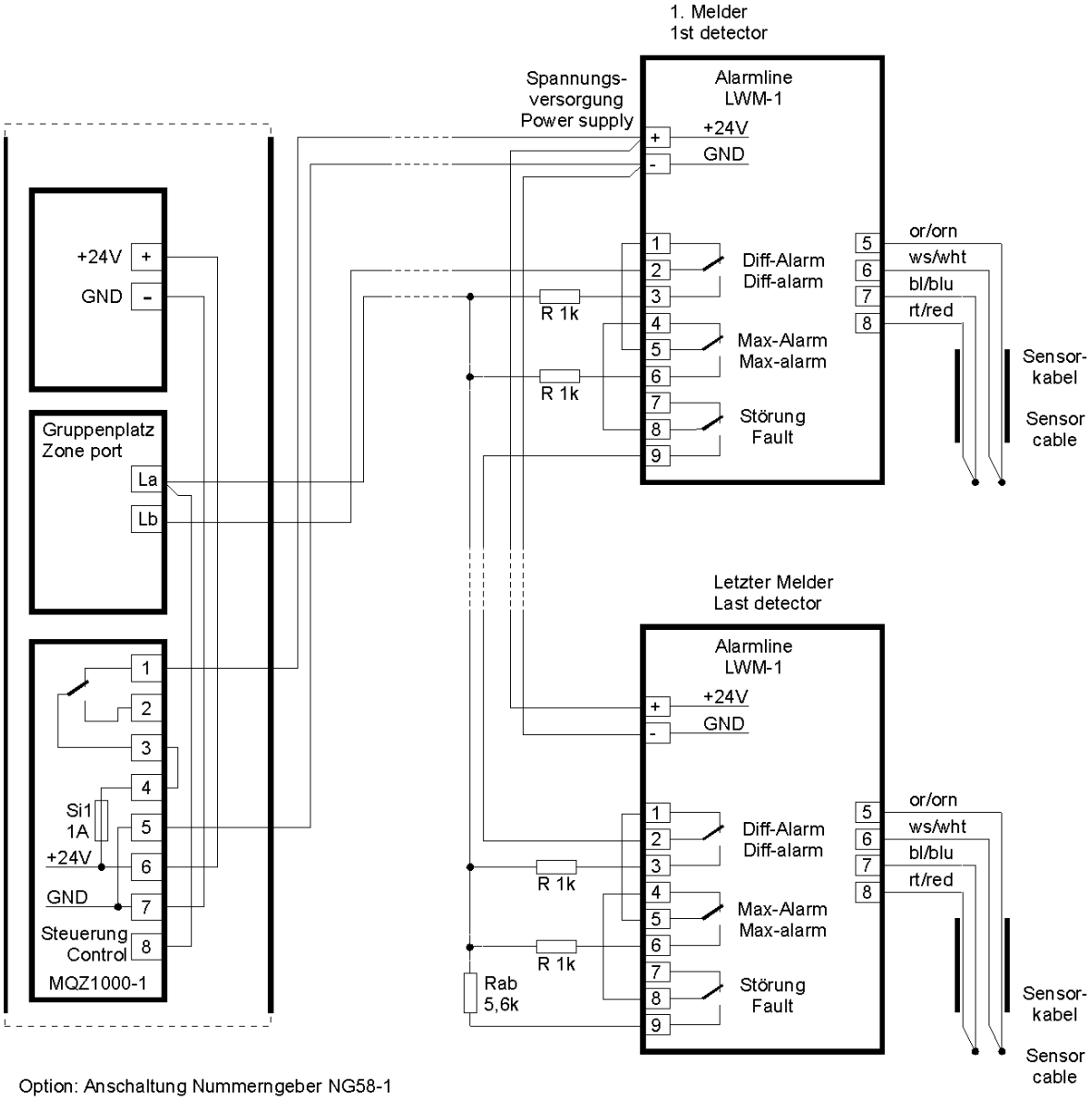


Make sure that the connection cable is sufficiently temperature-resistant.
You must not connect more than one detector to a detector zone with Rab = 3.3kΩ. Detector zones with Rab = 5.6kΩ or Cab = 47µF are not suitable. Therefore the device is only compatible with the BC016 and the BC600 (GIF608-1).

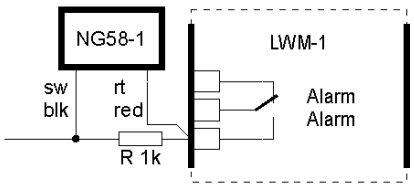
2.10 Linear detectors

2.10.1 Linear Heat Detector Unit LWM-1

For the evaluation of the temperature, a special sensor cable is connected to the Linear Heat Detector Unit Alarmline LWM-1.



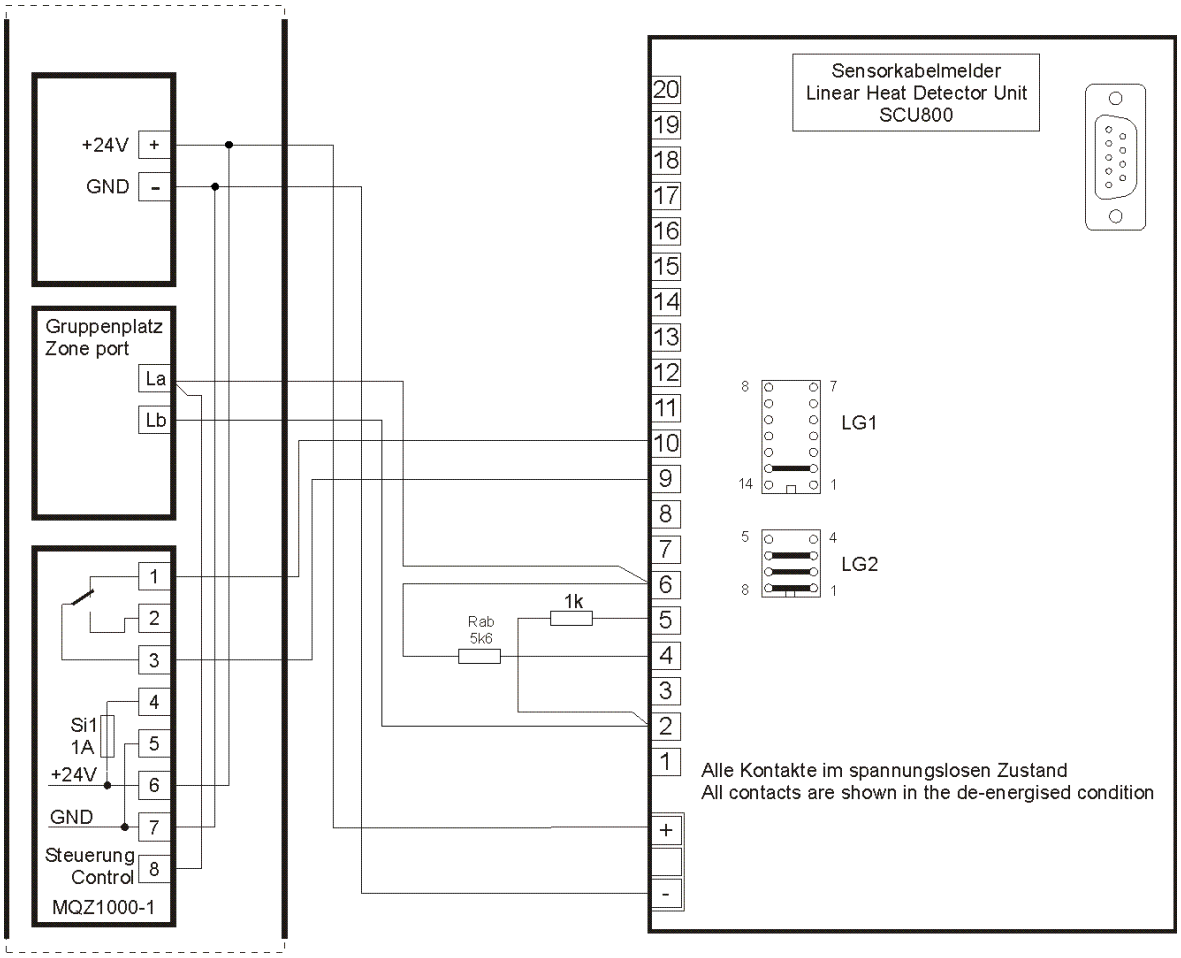
Option: Anschaltung Nummerngeber NG58-1
Option: connection of Address Module NG58-1



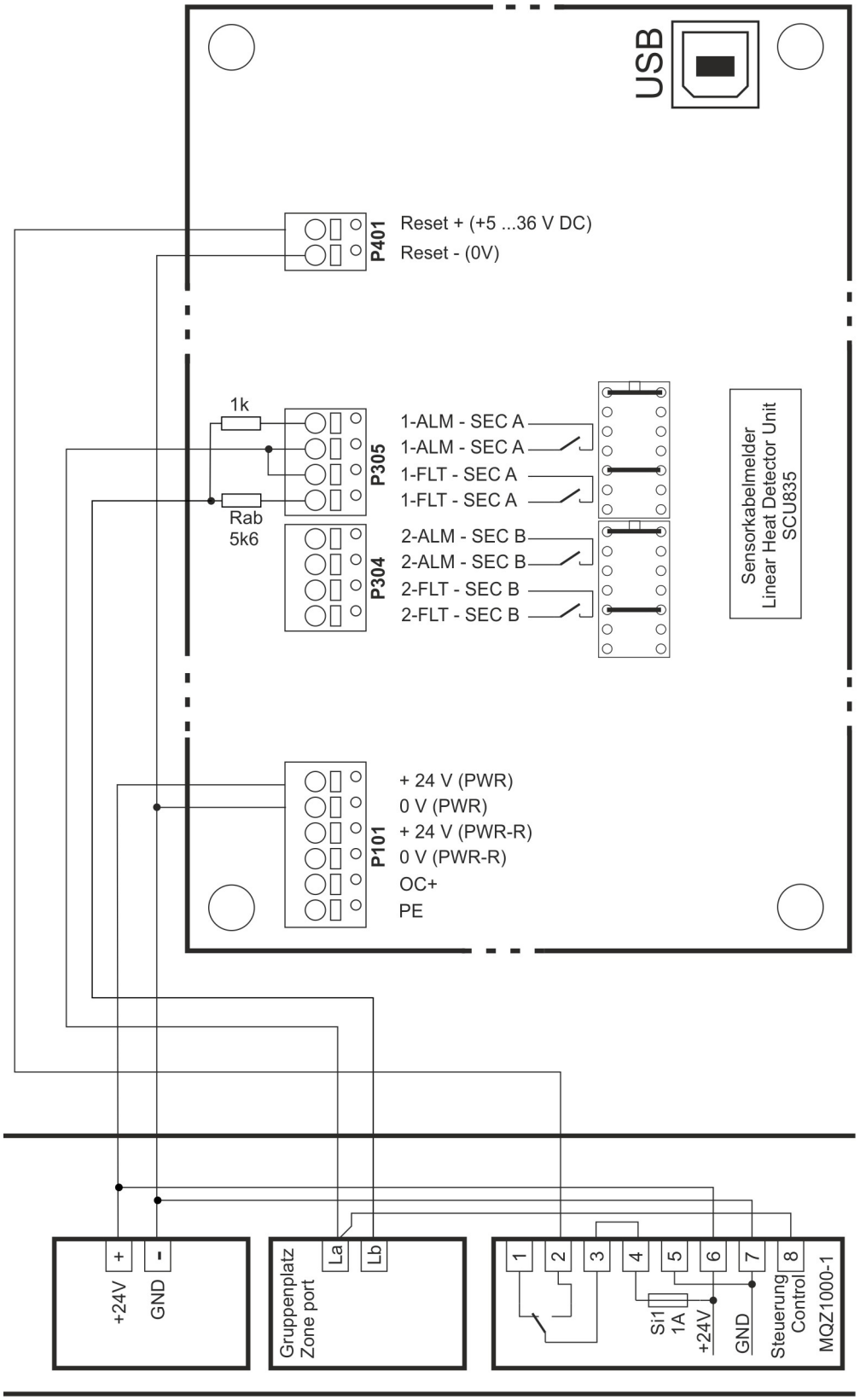
Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

Rab muss im letzten Melder eingebaut werden
Rab must be installed in the last detector

2.10.2 Linear Heat Detector Unit SCU800

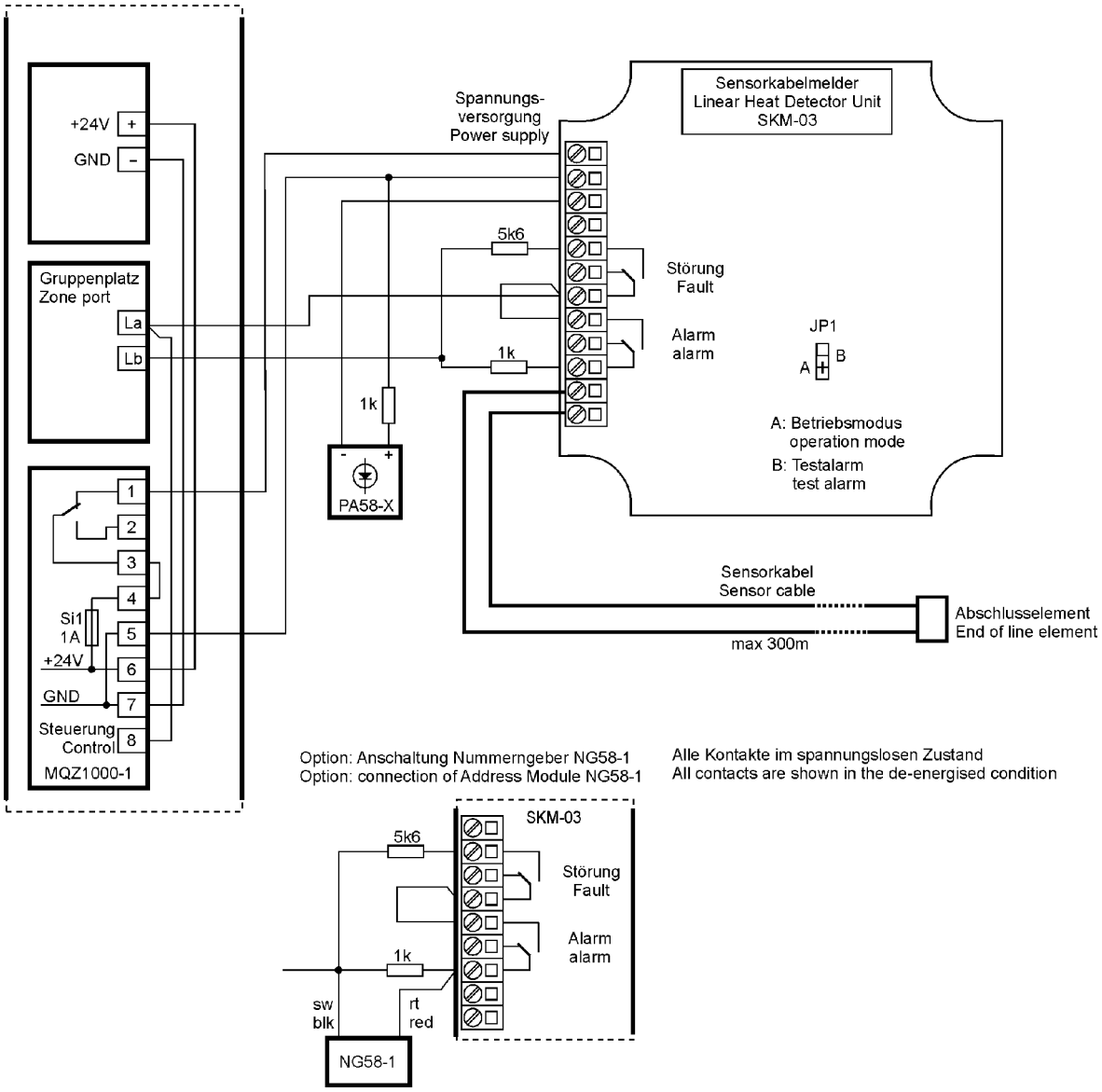


2.10.3 Linear Heat Detector Unit SCU835

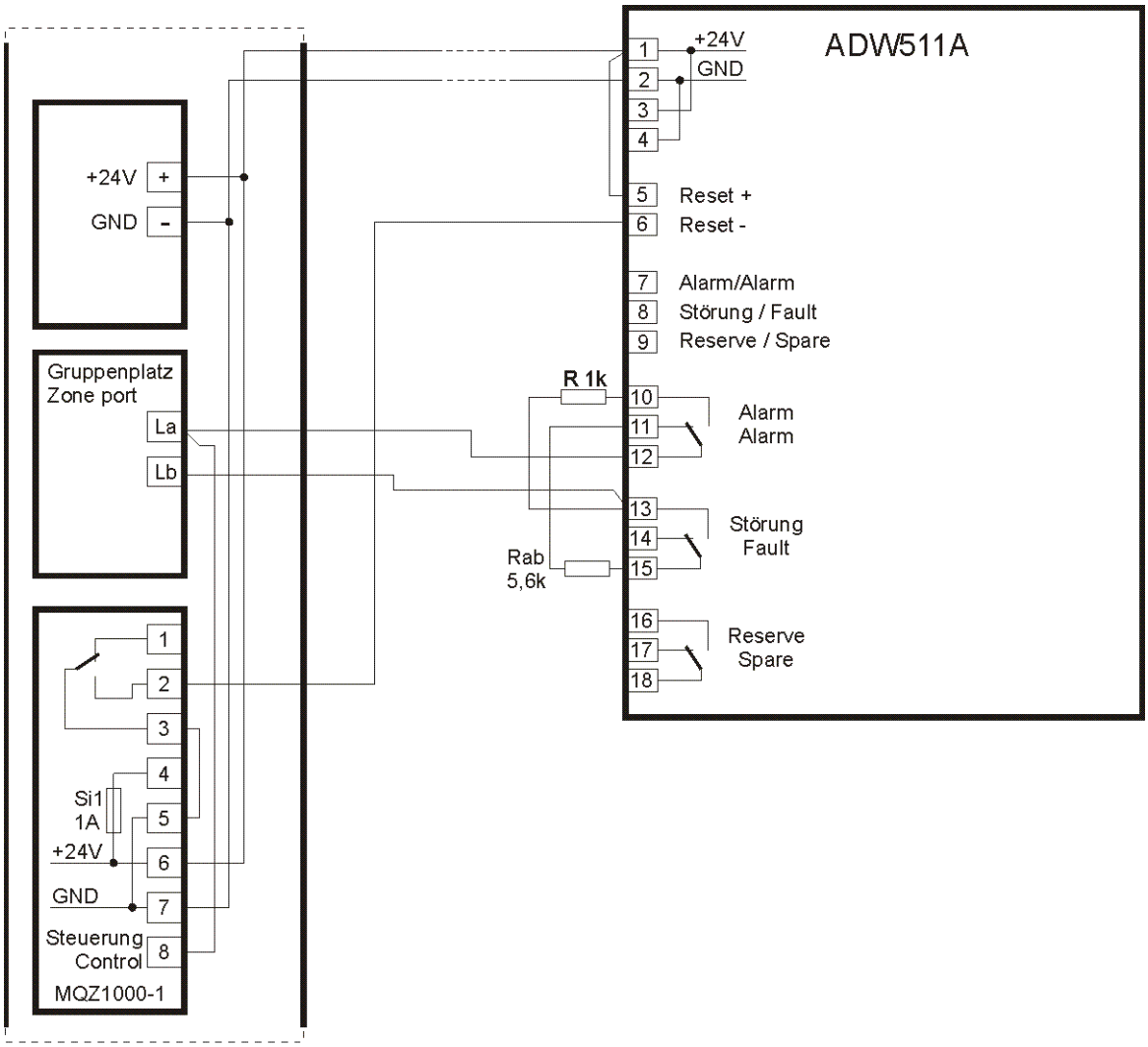


All contacts are shown in the de-energised condition.
Alarm reset is done via "Contol panel reset"

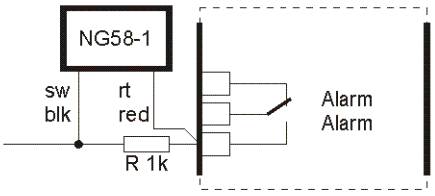
2.10.4 Linear Heat Detector Unit SKM-03



2.10.5 Linear Heat Detector Unit ADW511A



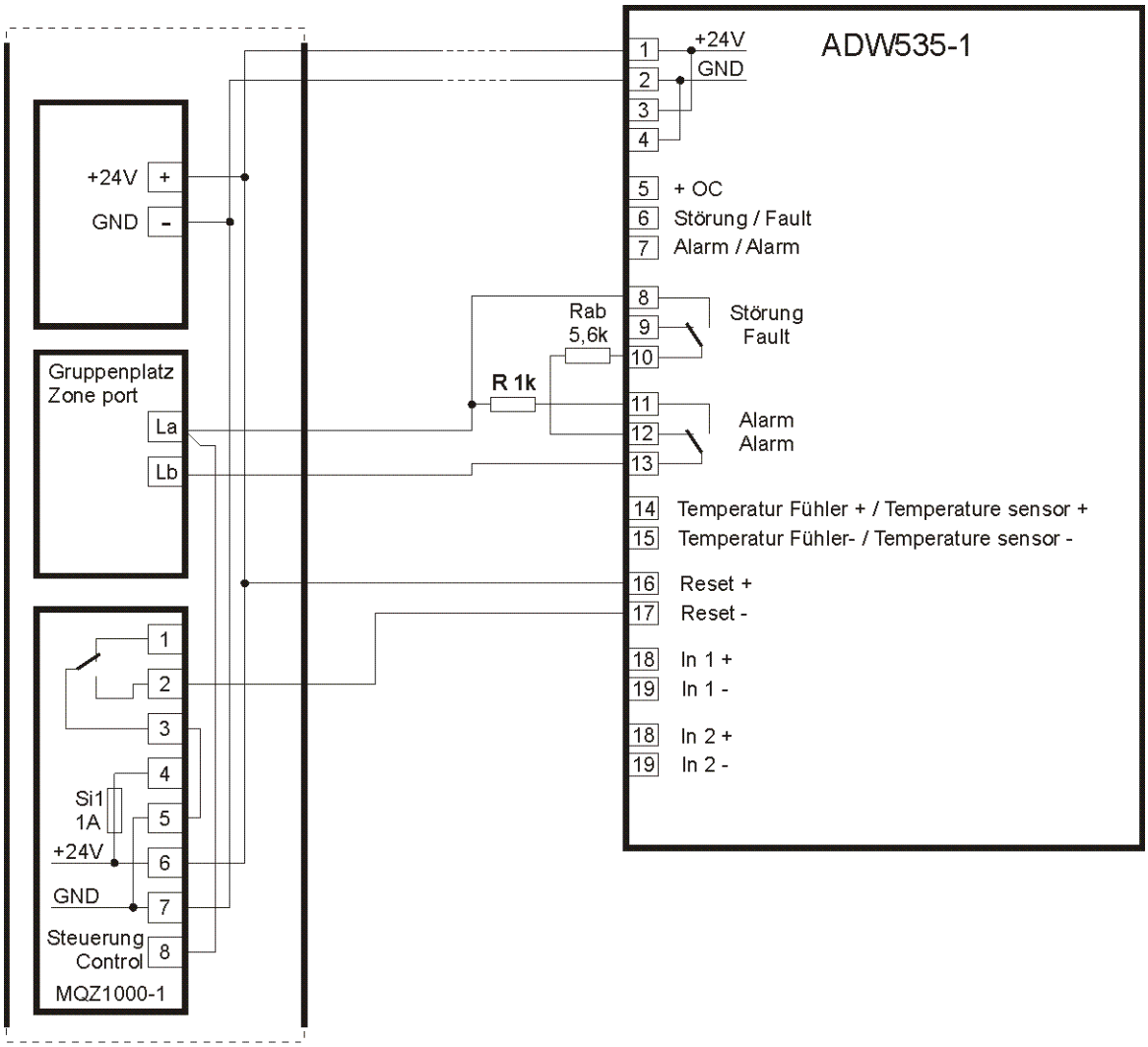
Option: Anschaltung Nummerngeber NG58-1
Option: connection of Address Module NG58-1



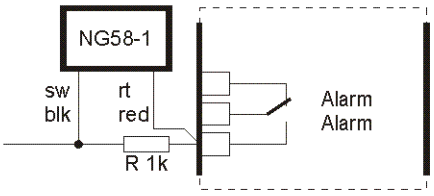
Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

Rab muss im letzten Melder eingebaut werden
Rab must be installed in the last detector

2.10.6 Linear Heat Detector Unit ADW535-1



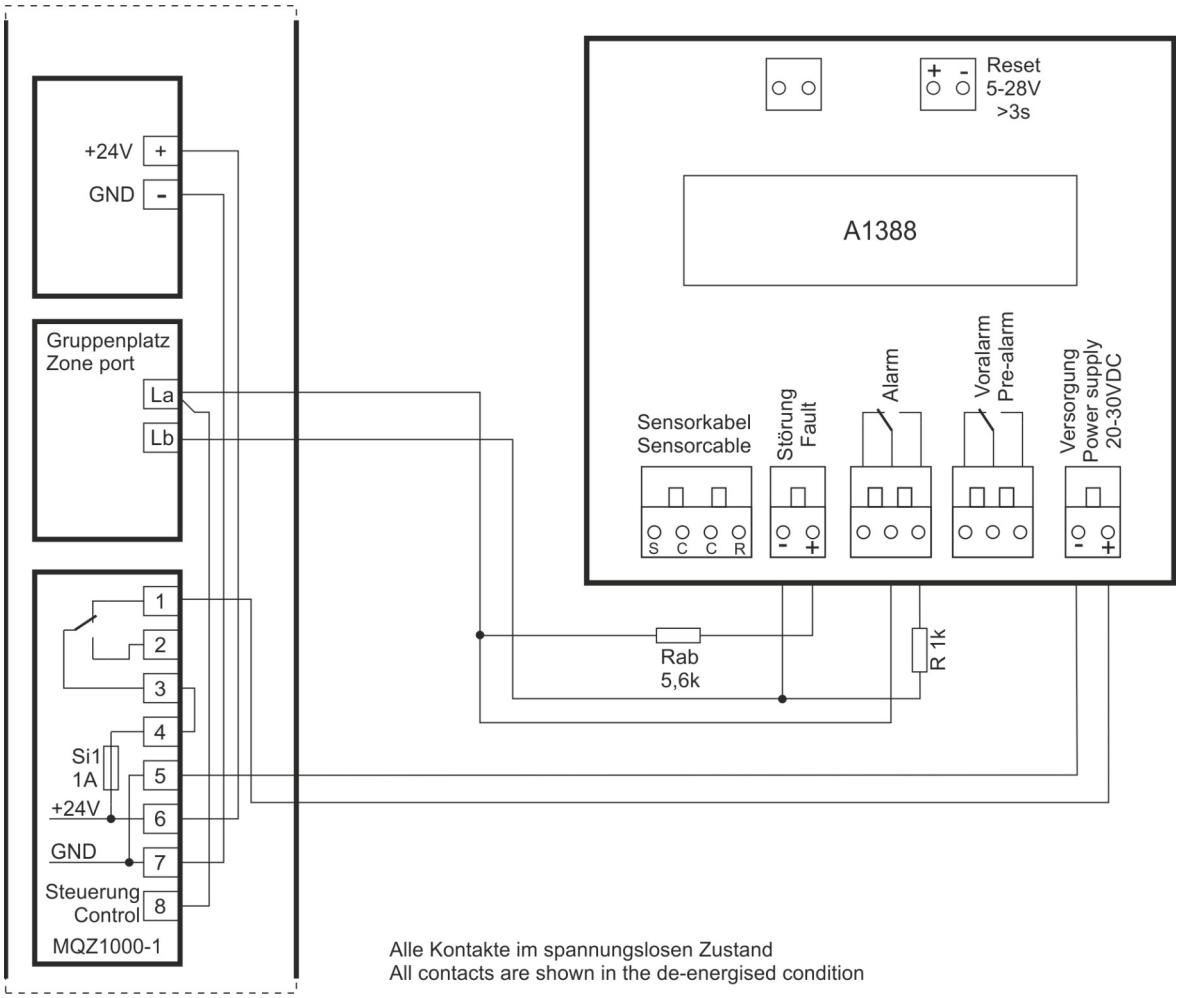
Option: Anschaltung Nummerngeber NG58-1
Option: connection of Address Module NG58-1



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

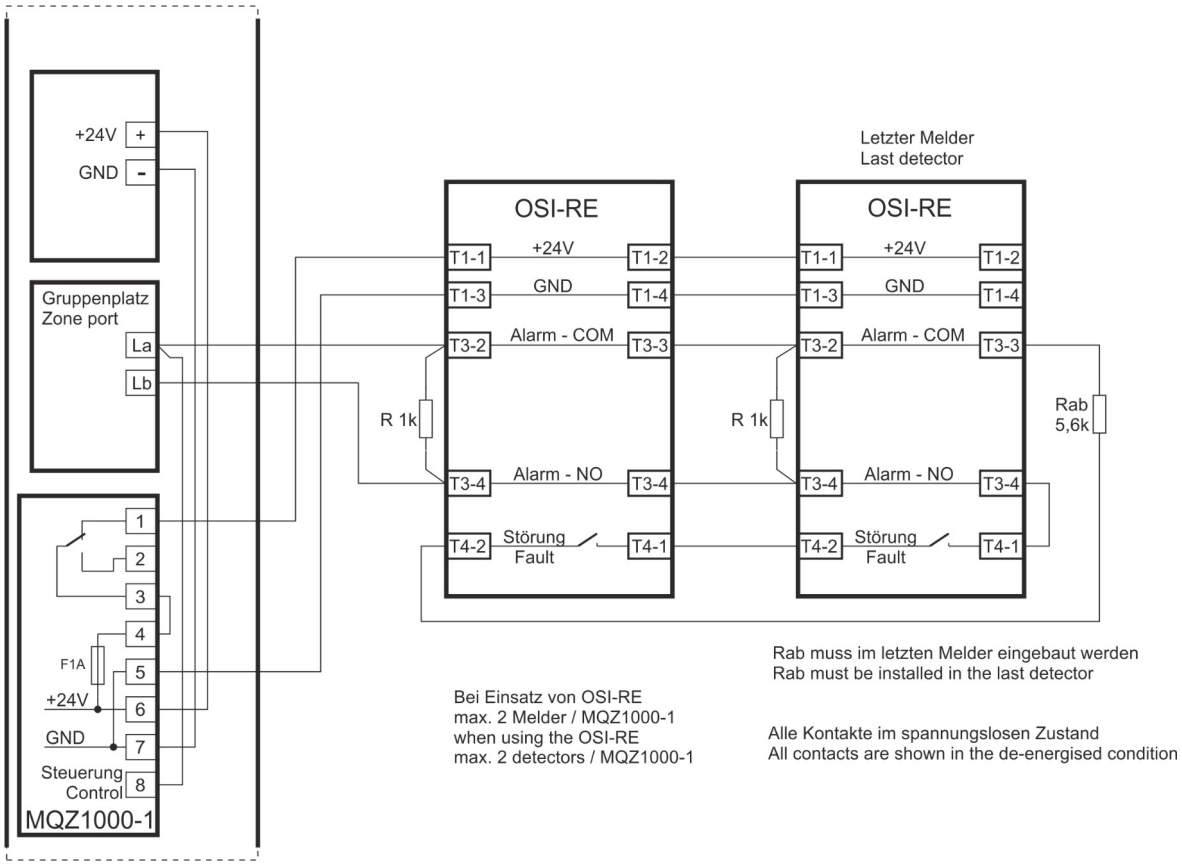
Rab muss im letzten Melder eingebaut werden
Rab must be installed in the last detector

2.10.7 Linear Heat Detector Unit A1388

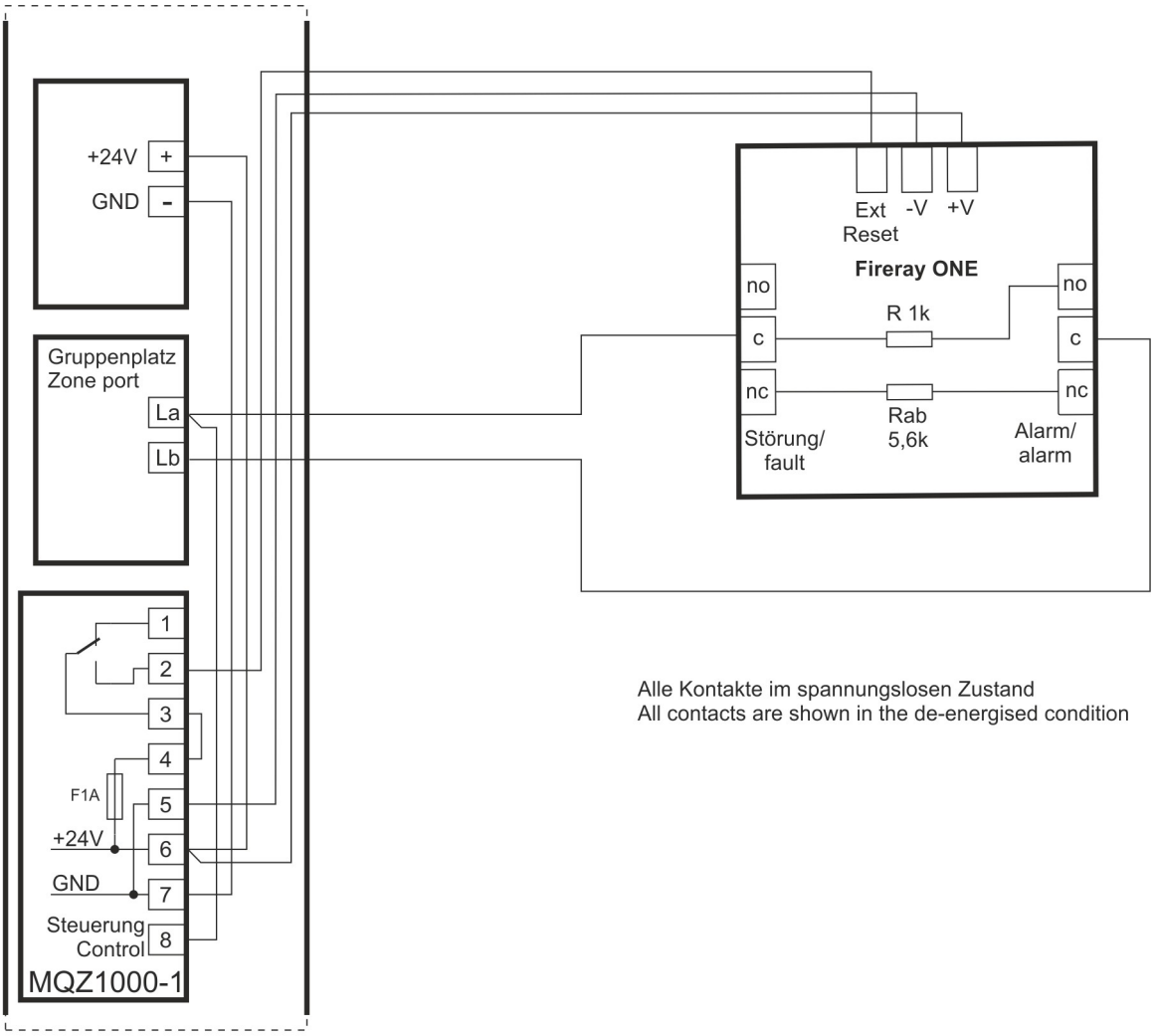


Only one A1388 may be connected to a conventional zone port. The detector reset must be performed via a voltage reset. The polarity of the wiring must be observed. The wiring of the sensor cable can be found in the product manual.

2.10.8 Beam Smoke Detector – OSI-RE

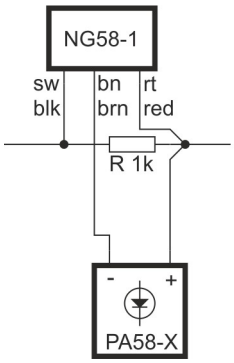


2.10.9 Beam Smoke Detector – Fireray ONE



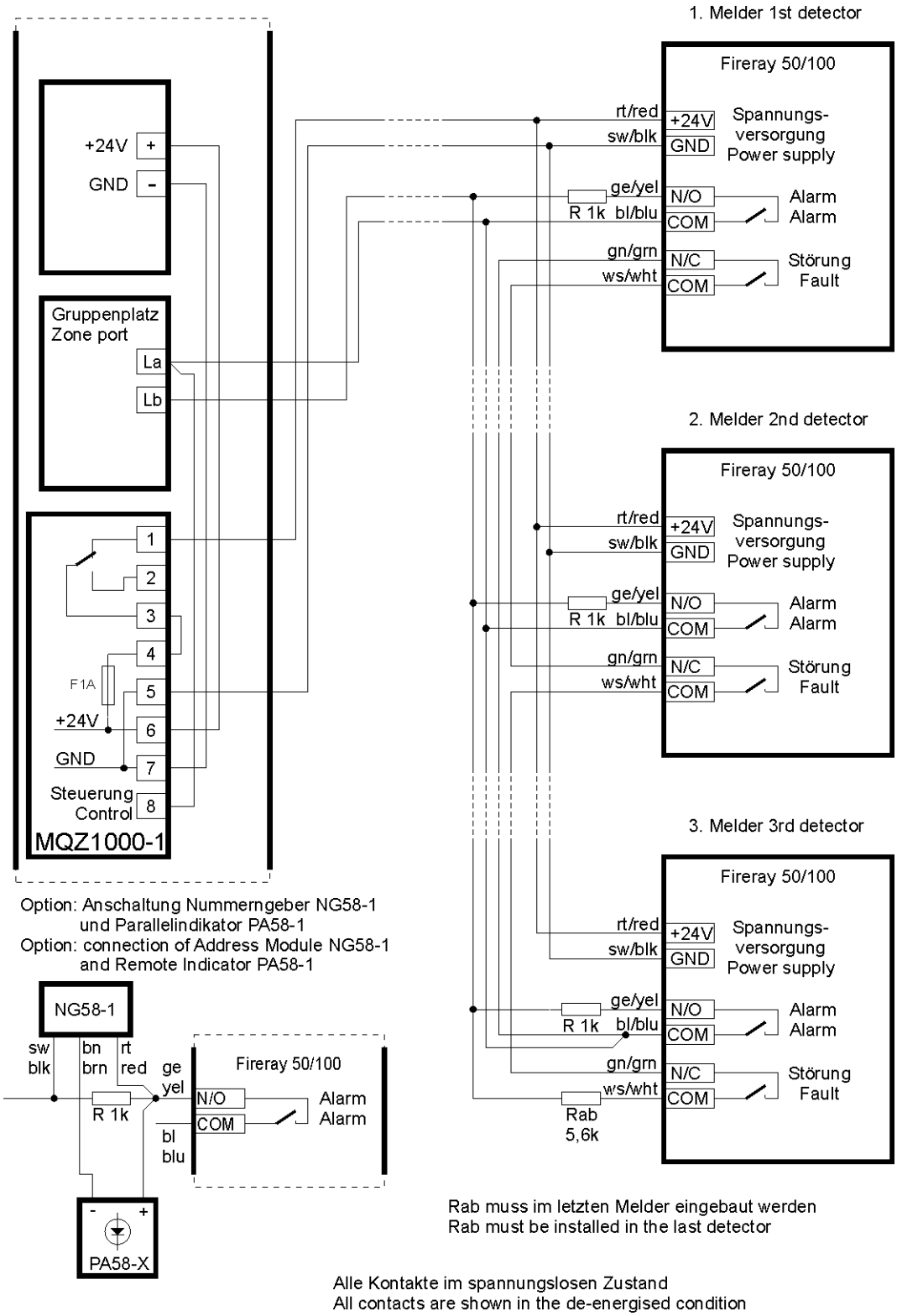
Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

Option: Anschaltung Nummerngeber NG58-1
und Parallelindikator PA58-1
Option: connection of Address Module NG58-1
and Remote Indicator PA58-1



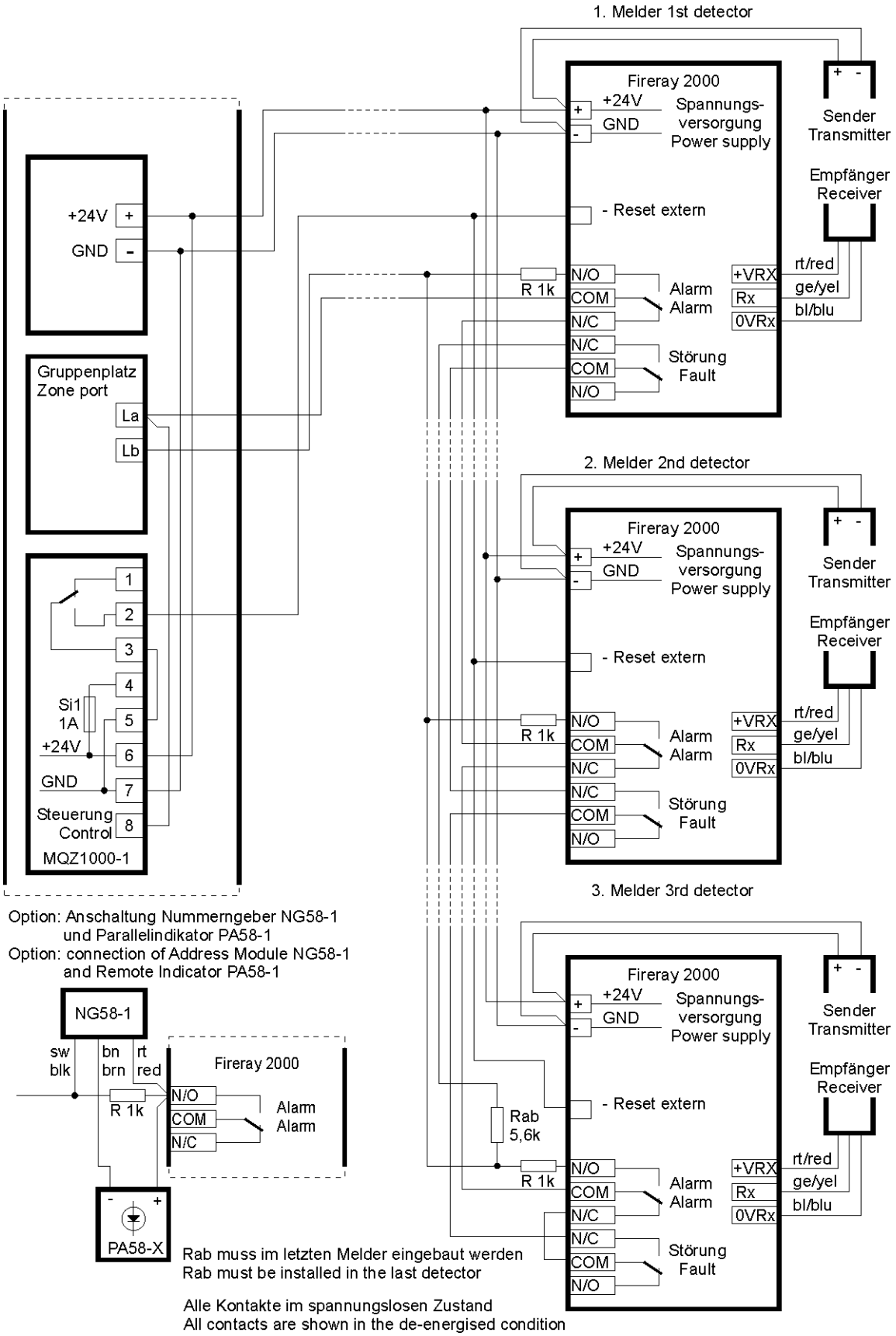
An alarm verification according to EN 54-2 Type A (in the case of the BC600, it is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone) is only permissible if the detector is reset via the Ext RESET input of the detector – see the drawing.

2.10.10 Beam Smoke Detector FR50/100



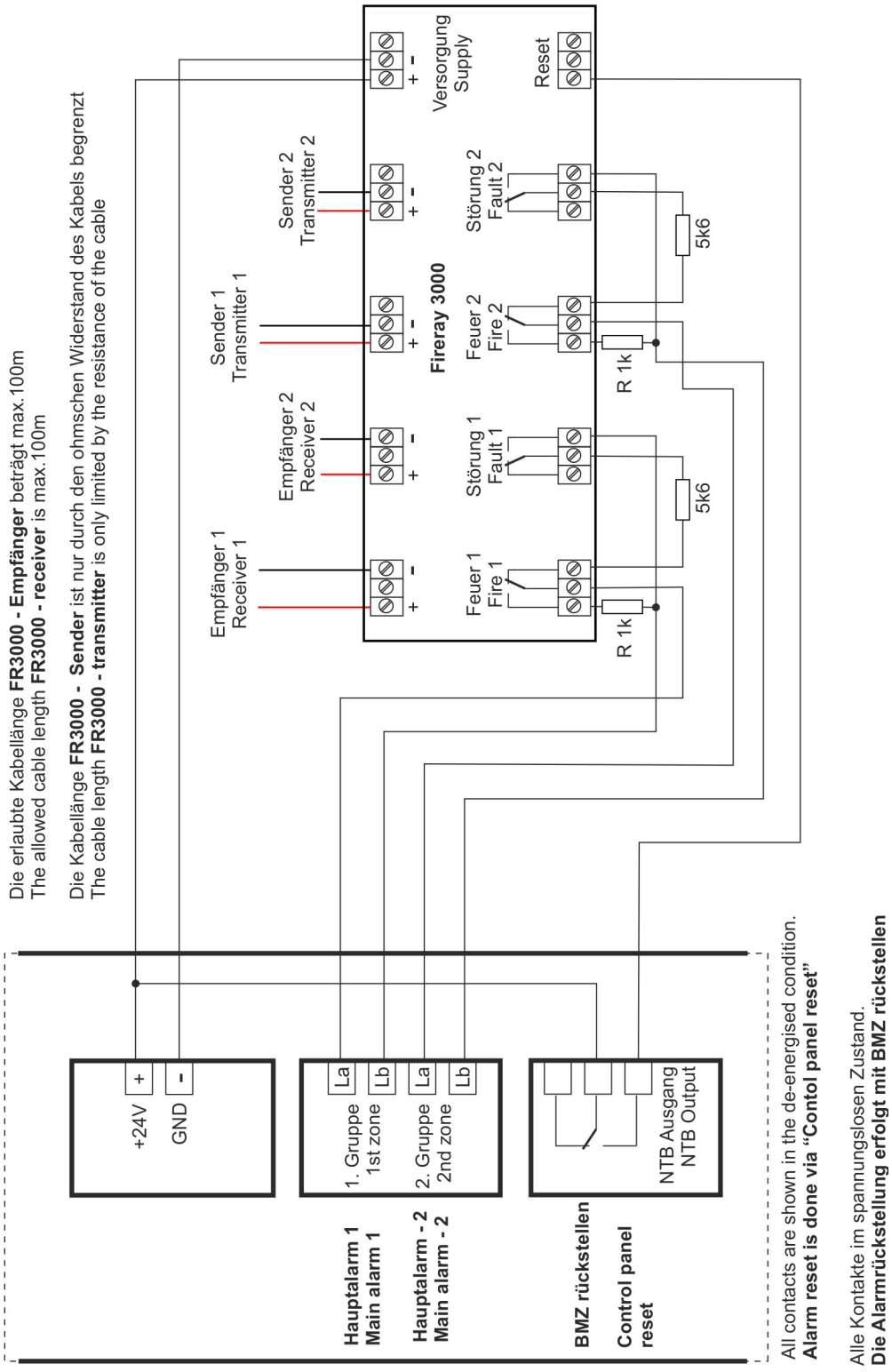
Please note that if the detector zone is disabled, all detectors of this zone are no longer working! An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone).

2.10.11 Beam Smoke Detector FR2000



Please note that if the detector zone is disabled, all detectors of this zone are no longer working! An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone).

2.10.12 Beam Smoke Detector FR3000



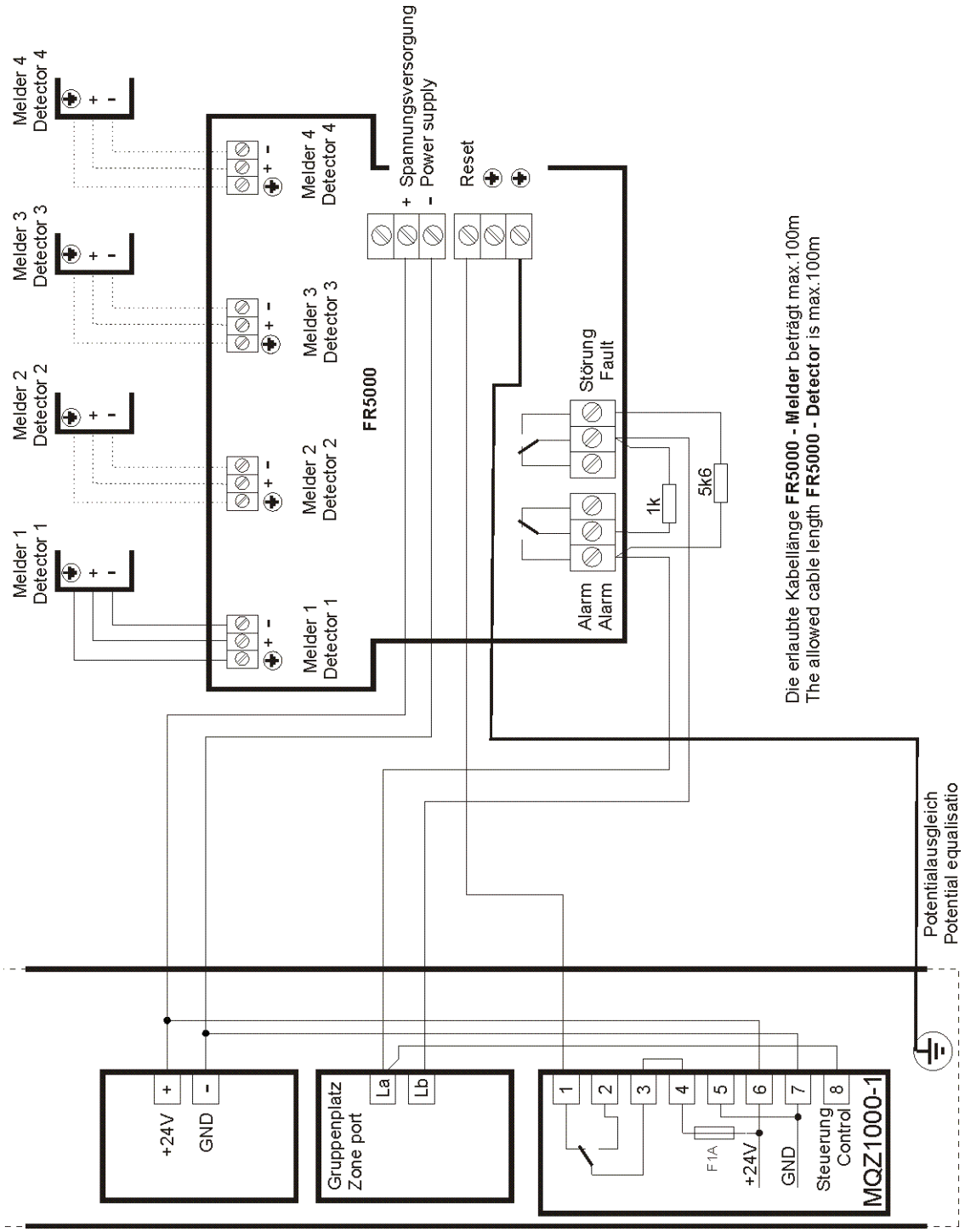
2.10.13 Beam Smoke Detector FR5000

There are two versions of the Beam Smoke Detector FR5000. The old version allows you to connect 4 detectors, and the new version has 2 detector lines with separate alarm relays.

Distinguishing features

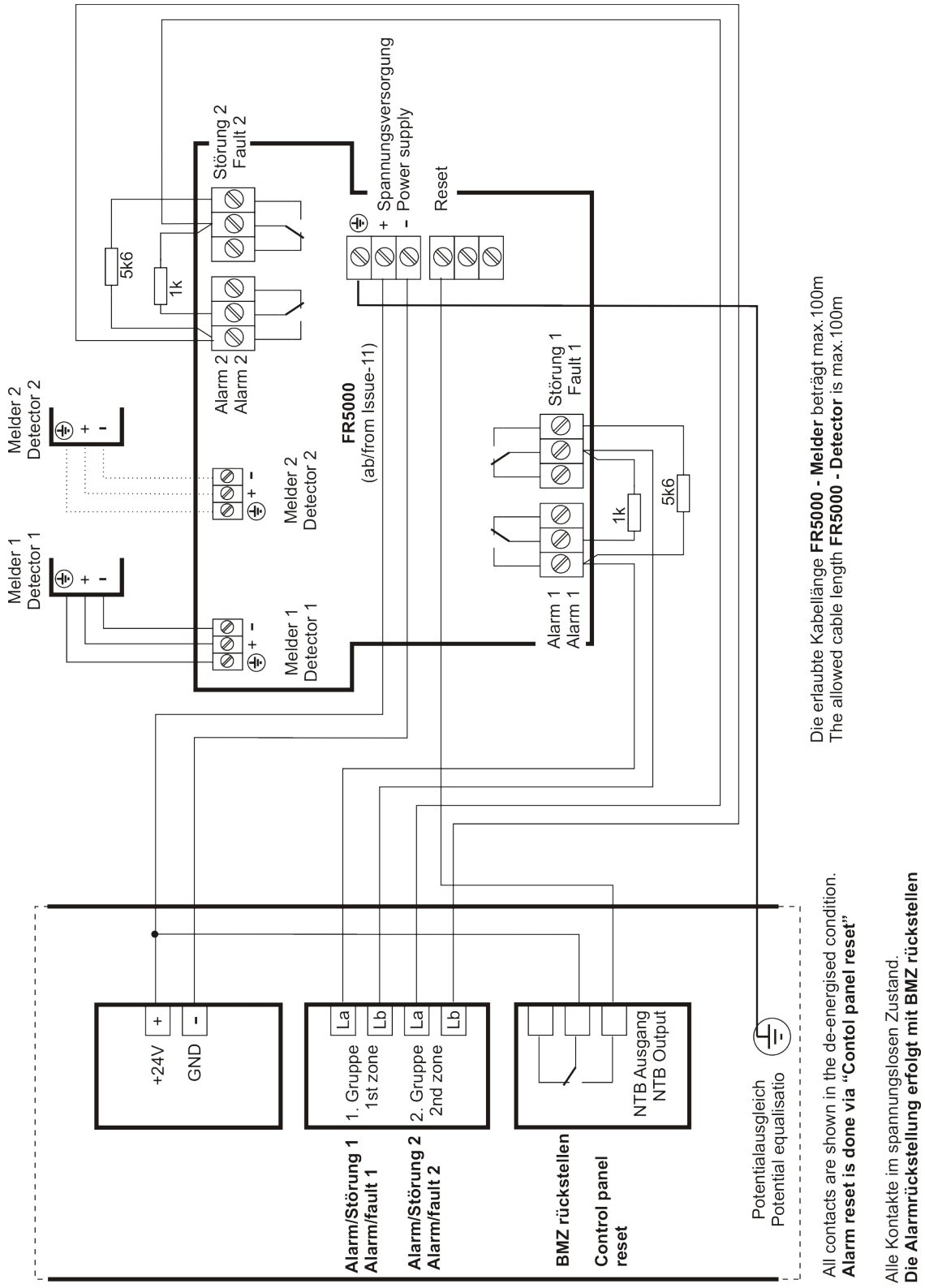
- Packaging: on the packaging of the new version of the FR5000 there is the note "Issue-11".
- Number of LEDs: the new version has 3 LEDs, the old version has 5 LEDs.

2.10.13.1 Old version



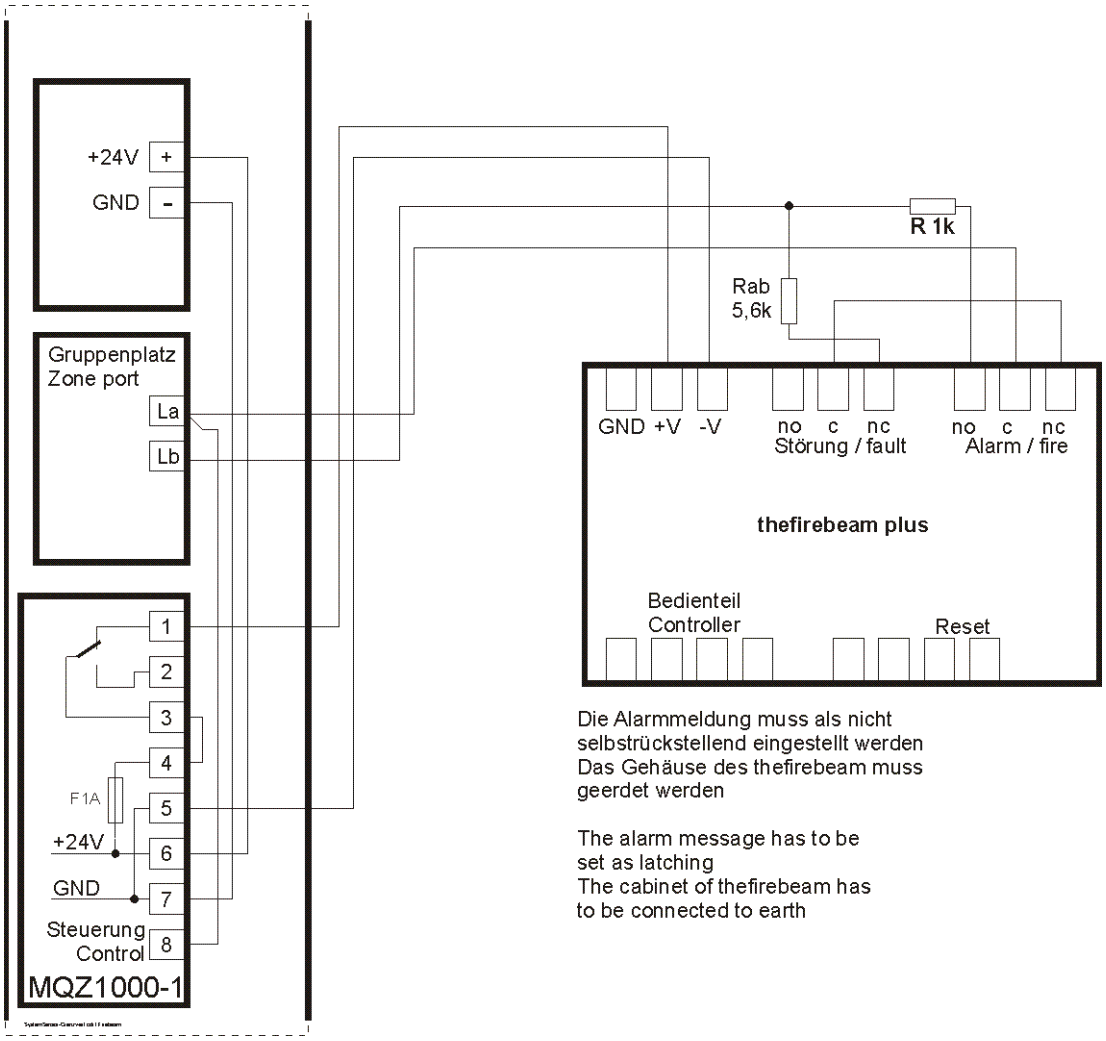
Please note that if the detector zone is disabled, the messages of the FR5000 will not be evaluated. Therefore, the detectors 1 through 4 must be used in the same fire area.

2.10.13.2 New version



Please note that if the detector zone is disabled, the messages of the FR5000 will not be evaluated. Therefore, the detectors 1 through 4 must be used in the same fire area.

2.10.14 Beam Smoke Detector Thefirebeam plus

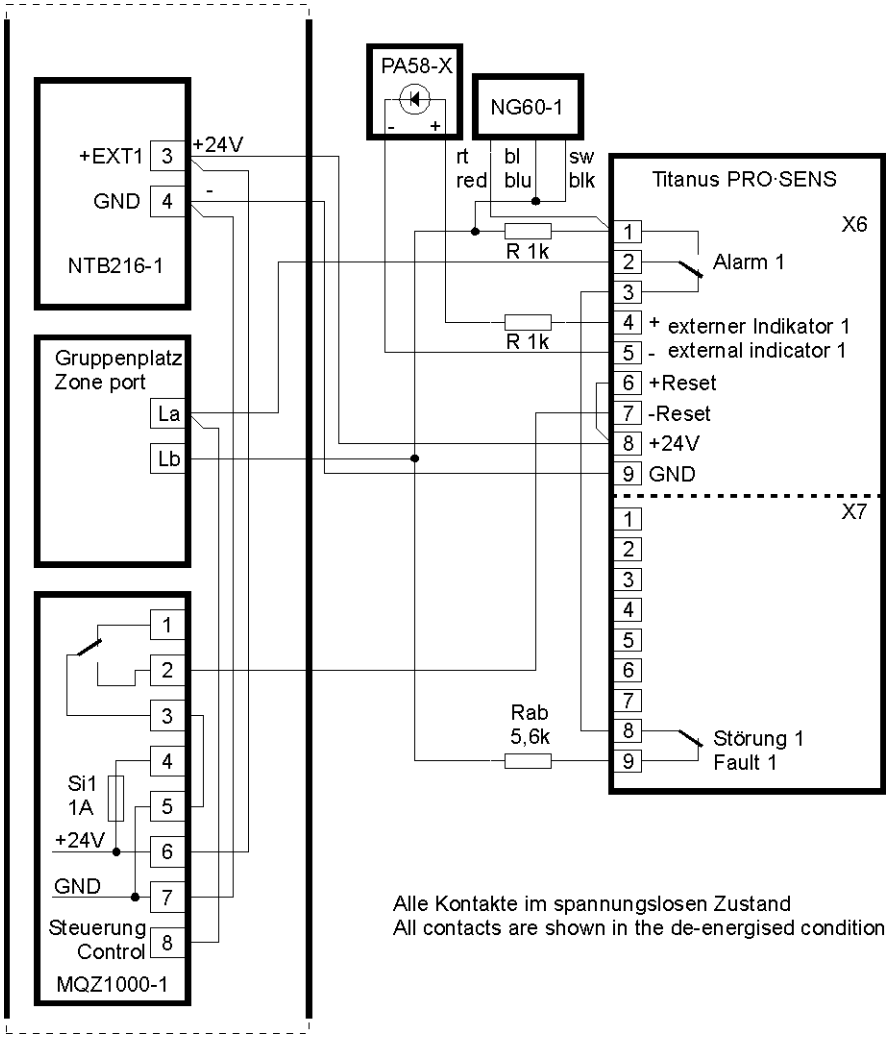


After applying the supply voltage to the detector, the fault relay will remain released for 8 seconds. Therefore, a brief fault can occur at the fire detection control panel after enabling the detector zone, after resetting the control panel or after power-on.

2.11 Aspirating smoke detectors

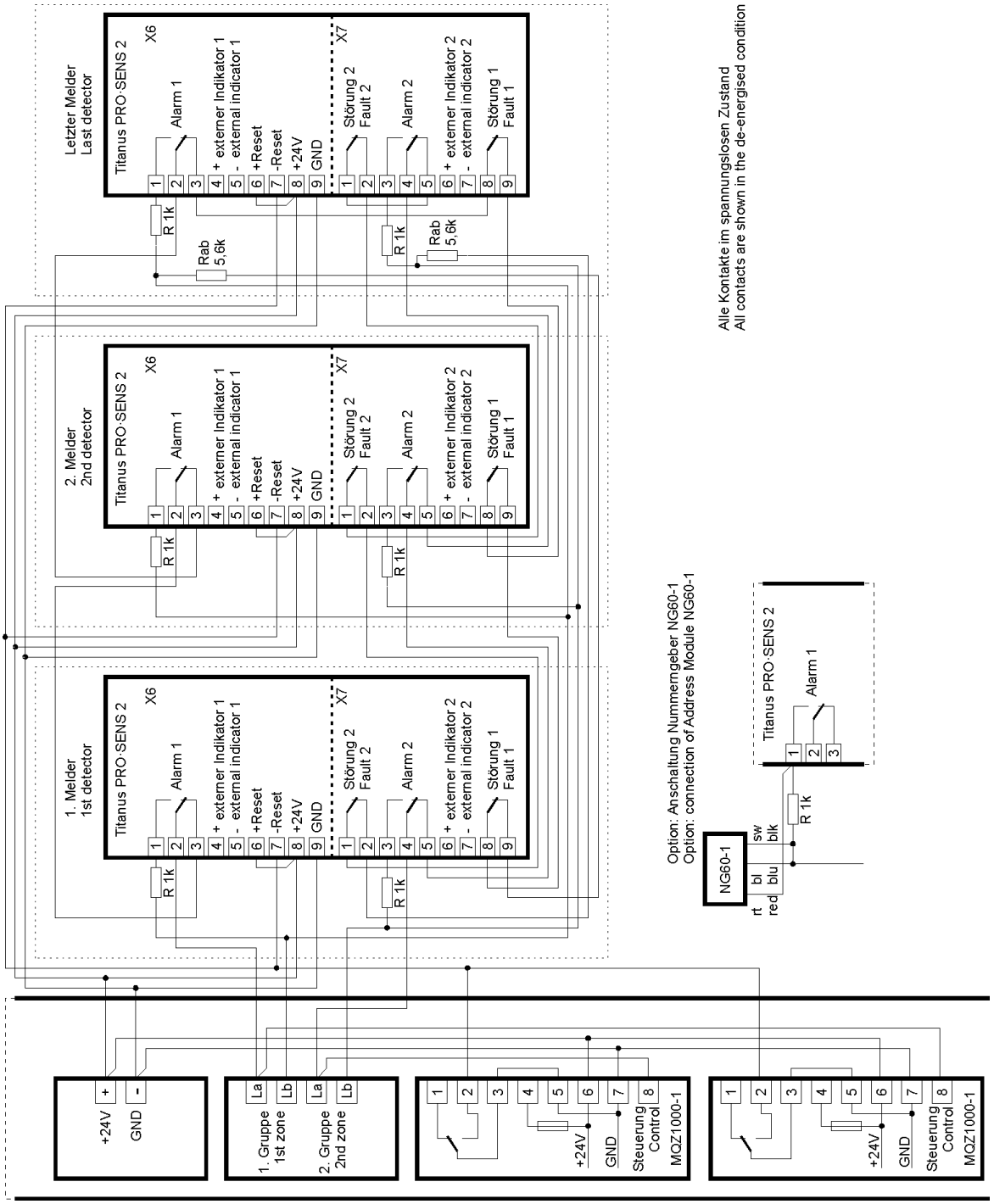
2.11.1 Aspirating smoke detector Titanus PRO·SENS – TP1/A

2.11.1.1 Connection of one aspirating smoke detector



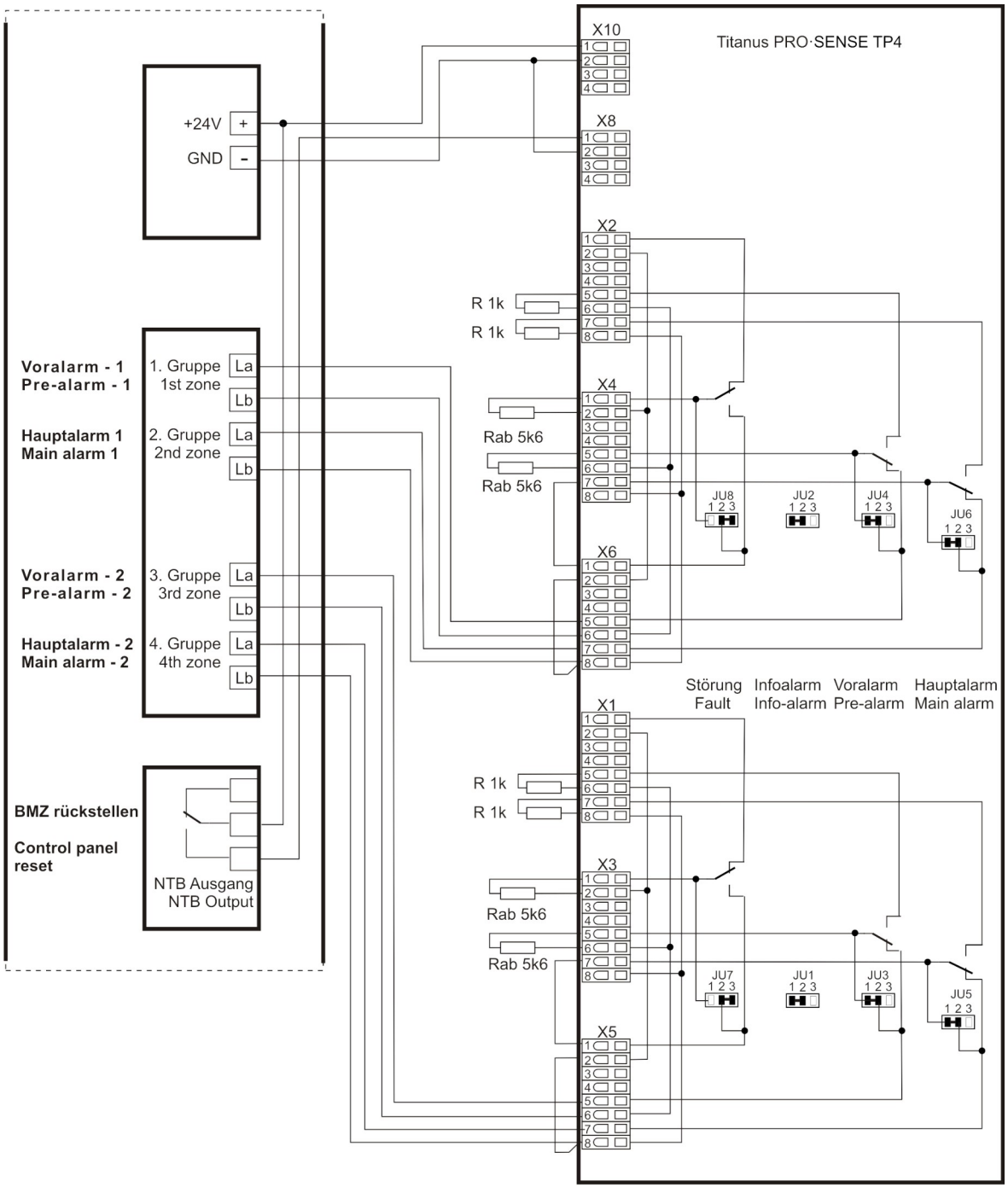
On pin connector JU2/3 (main printed circuit board), the jumper has to be set to position 1-2, which means that the fault relay is set to operate as NORMALLY OPEN contact.

2.11.2 Aspirating smoke detector Titanus PRO·SENS – TP1/A with 2 channels



On pin connector JU2/3 (main printed circuit board), the jumper has to be set to position 1-2, which means that the fault relay is set to operate as NORMALLY OPEN contact.

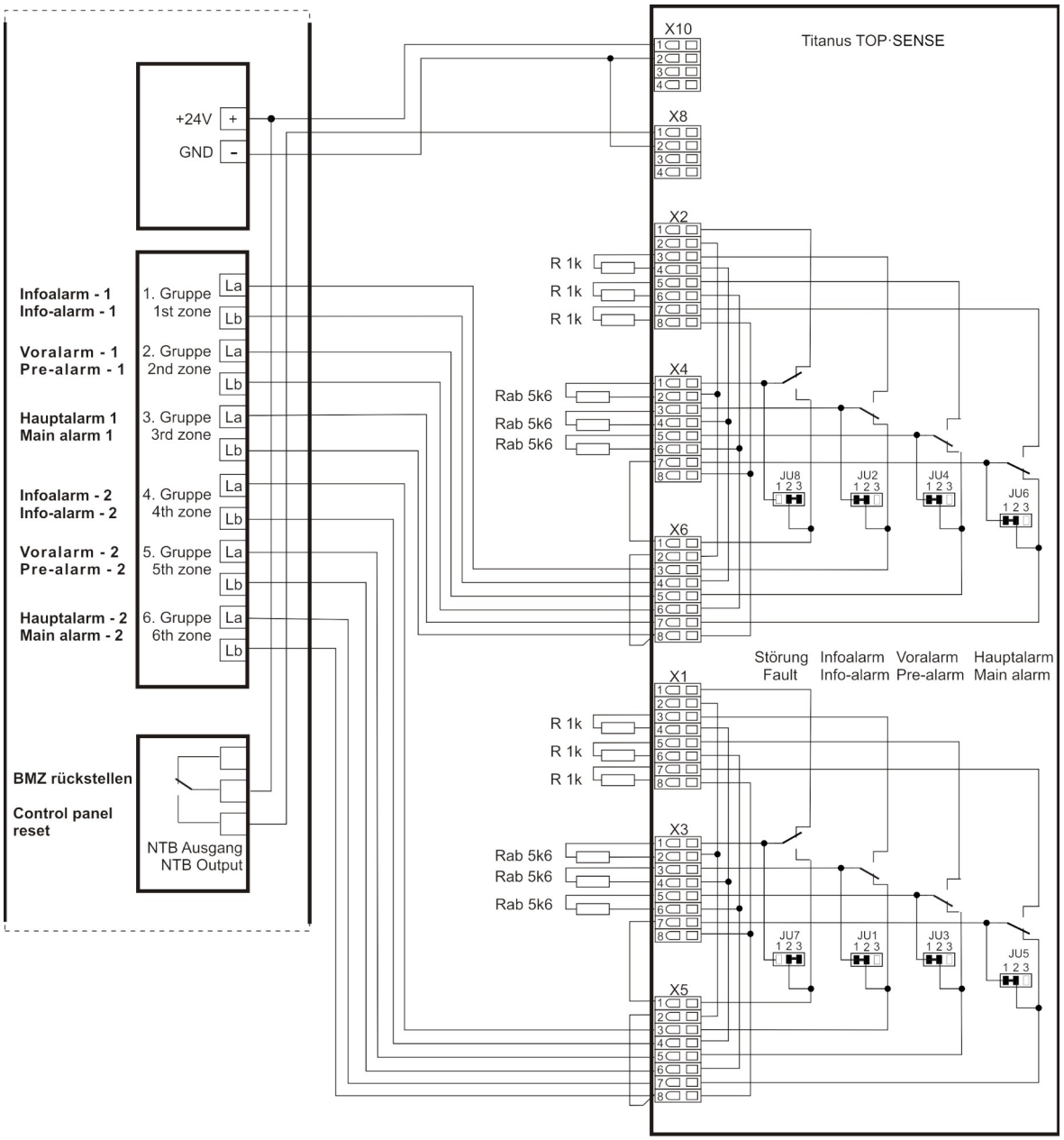
2.11.3 Aspirating smoke detector Titanus PRO SENS – TP-4



All contacts are shown in the de-energised condition.
Alarm reset is done via "Contol panel reset"

Alle Kontakte im spannungslosen Zustand.
Die Alarmrückstellung erfolgt mit BMZ rückstellen

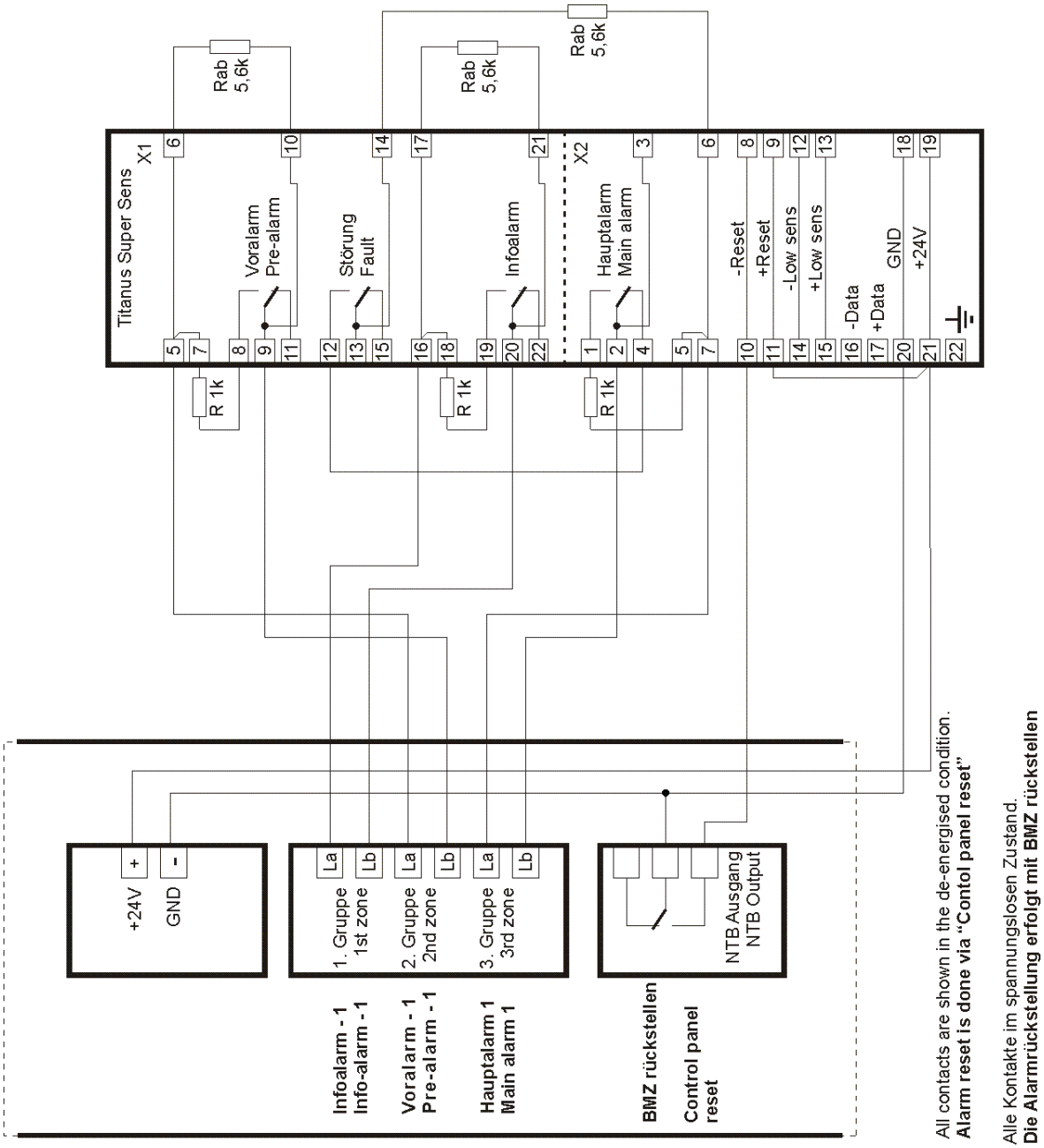
2.11.4 Aspirating smoke detector Titanus TOP SENSE – TT-1



All contacts are shown in the de-energised condition.
Alarm reset is done via "Contol panel reset"

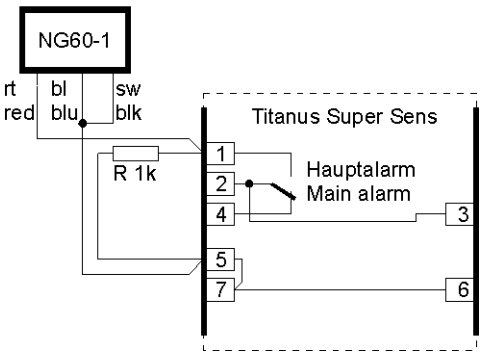
Alle Kontakte im spannungslosen Zustand.
Die Alarmrückstellung erfolgt mit BMZ rückstellen

2.11.5 Aspirating smoke detector Titanus Super Sens – T-SS

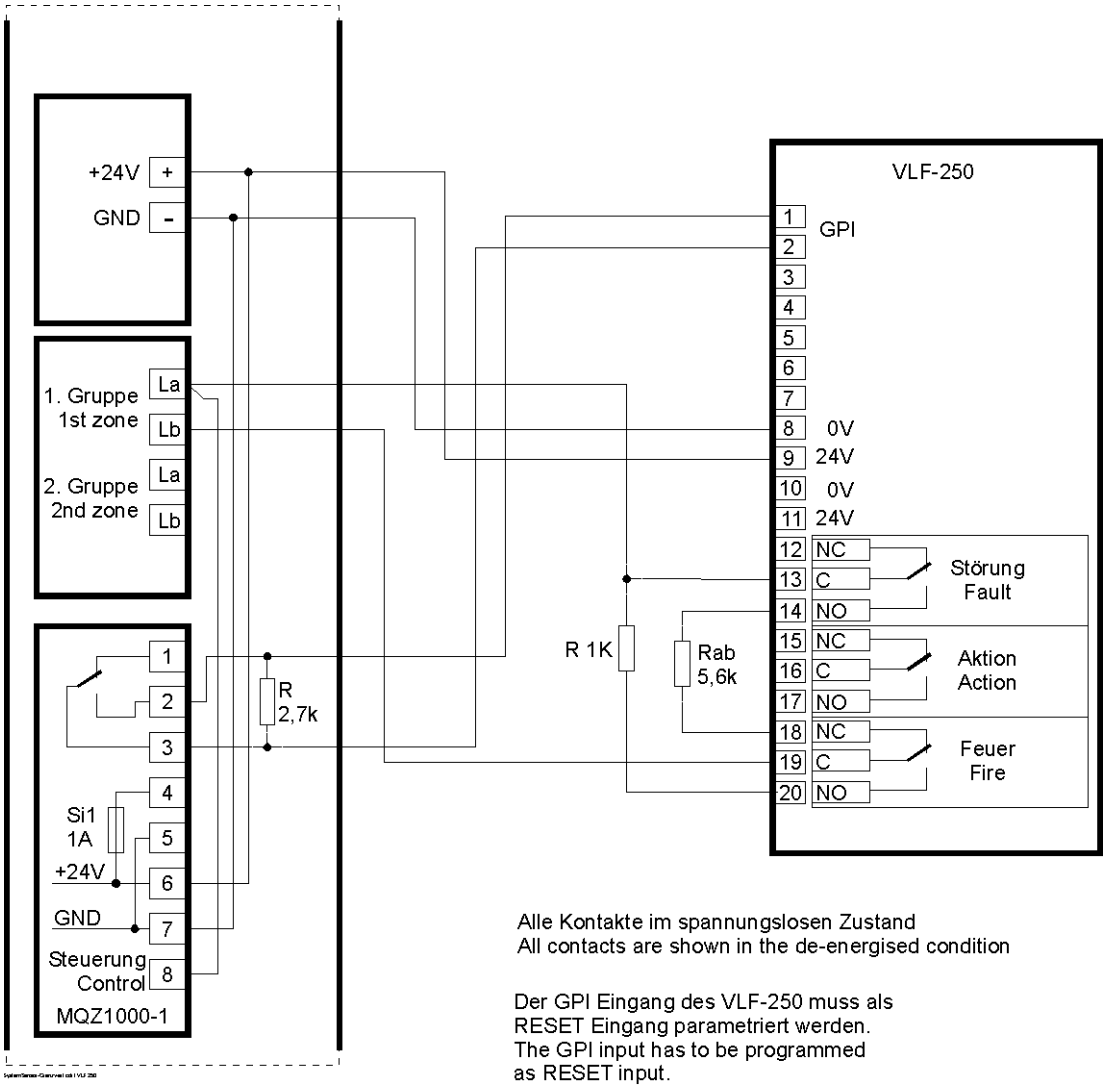


Connection of the address module

Option: Anschaltung Nummerngeber NG60-1
Option: connection of Address Module NG60-1



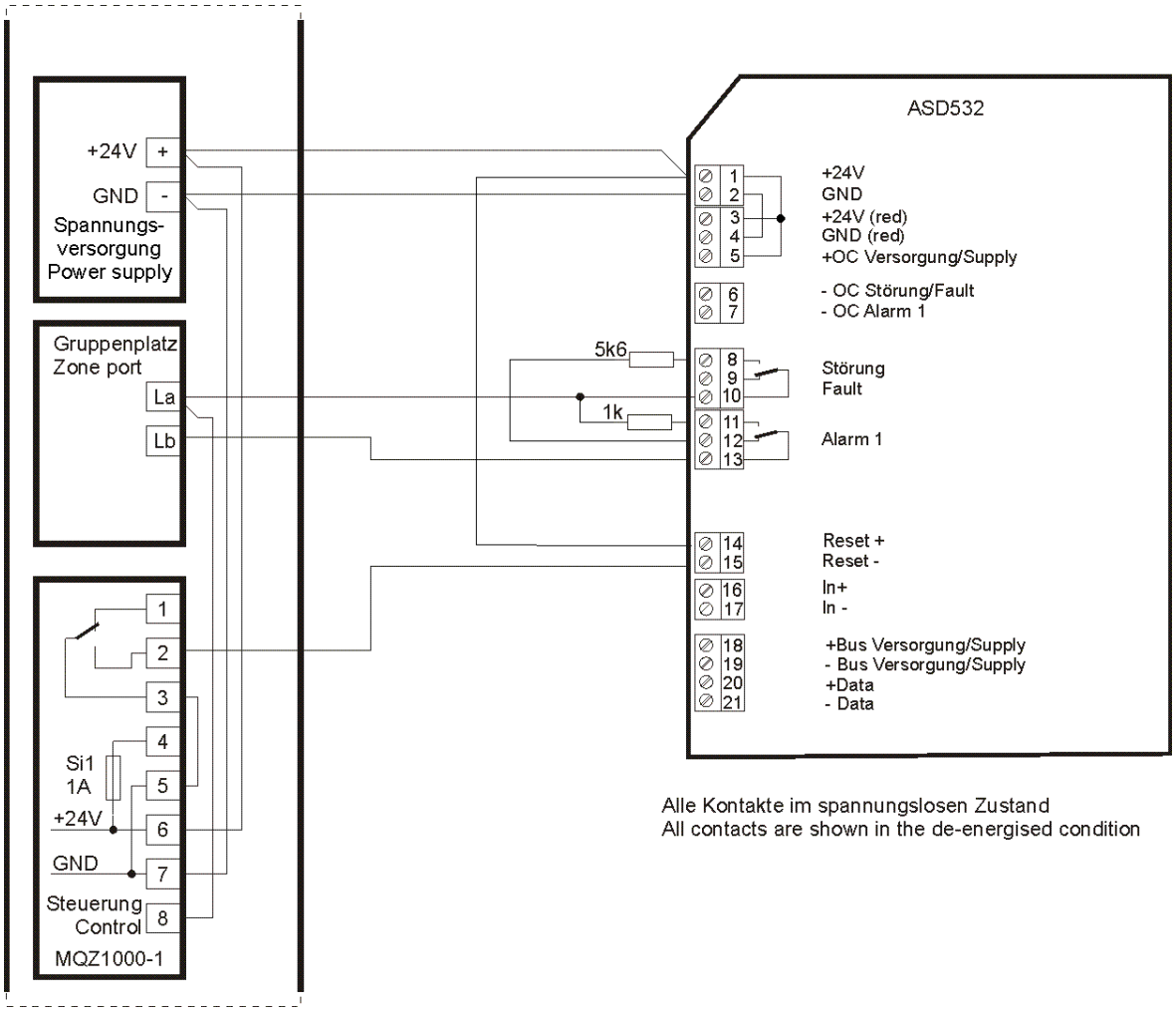
2.11.6 Aspirating smoke detector Vesda VLF-250 / VLF-500



You need a special software for the setup and commissioning of the Smoke Aspiration System Vesda VLF-250 / VLF-500.

The Smoke Aspiration System Vesda VLF-500 has the same terminal configuration as the VLF-250.

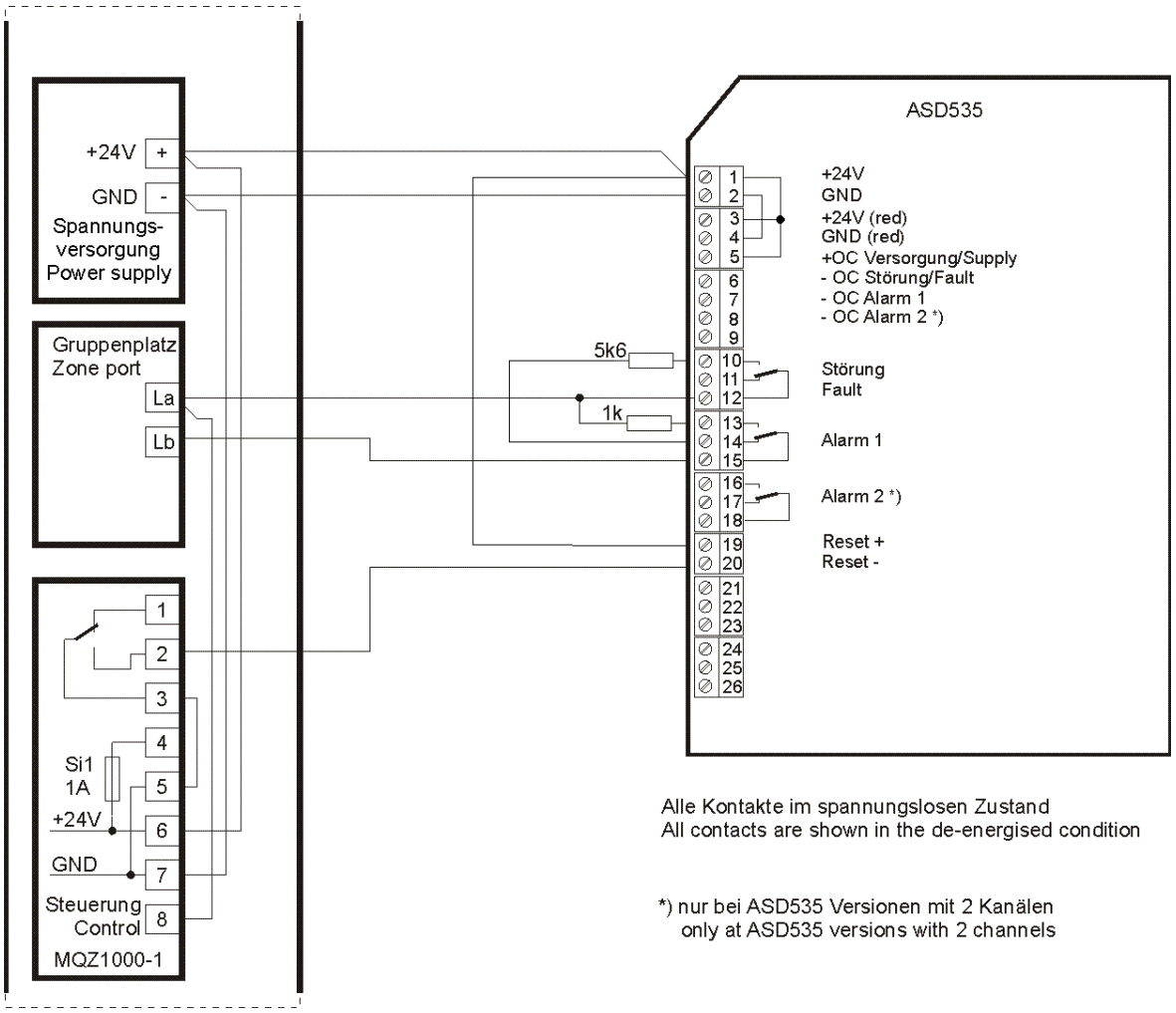
2.11.7 Aspirating smoke detector ASD532



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

2.11.8 Aspirating smoke detector ASD535 – 1 channel

Connection if the ASD535 is equipped with 1 channel:

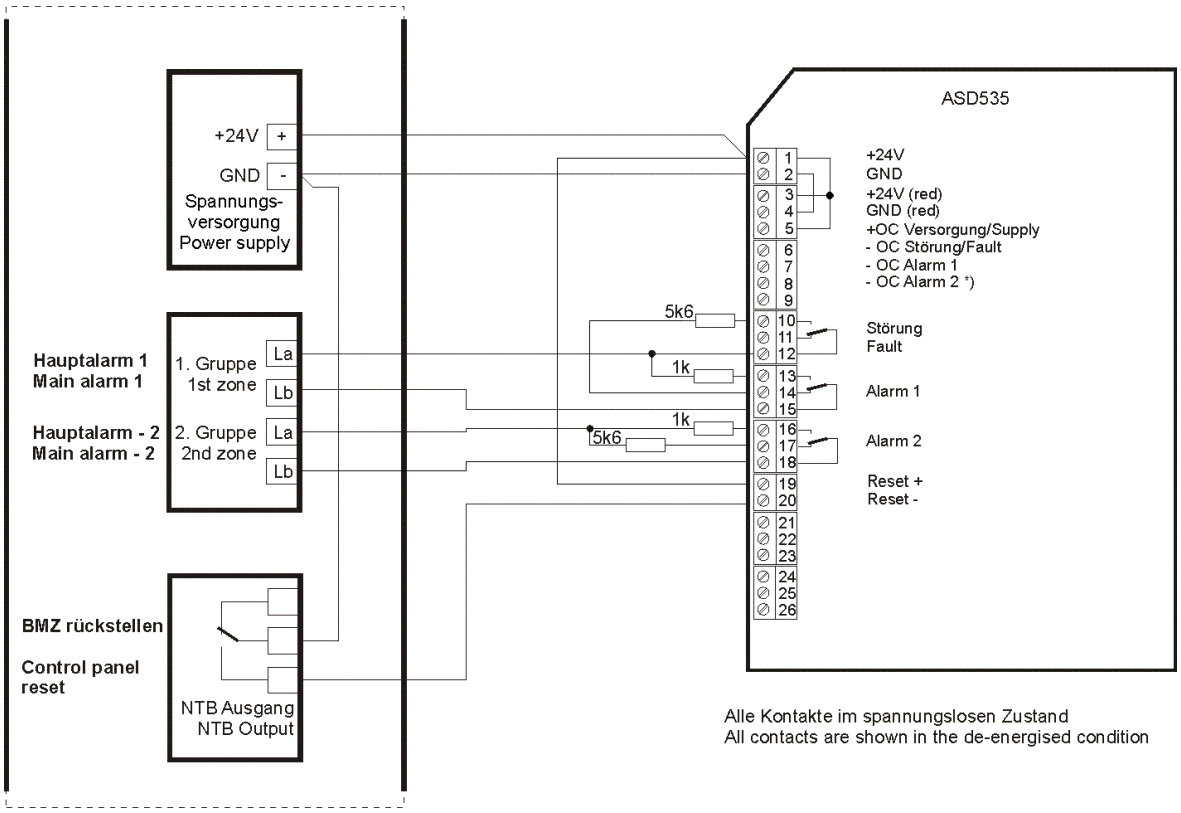


Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

*) nur bei ASD535 Versionen mit 2 Kanälen
only at ASD535 versions with 2 channels

2.11.9 Aspirating smoke detector ASD535 – 2 channels

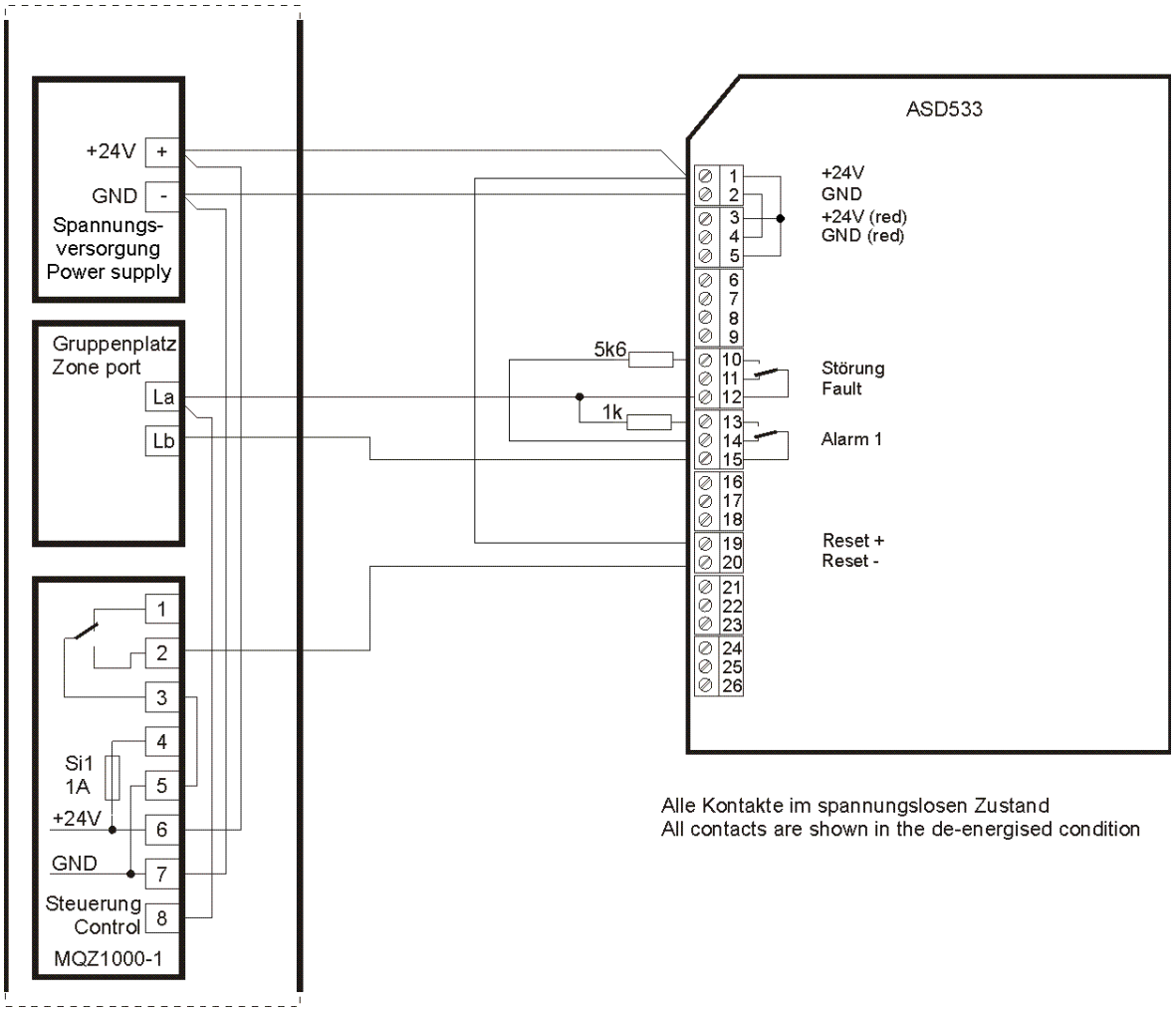
Connection if the ASD535 is equipped with 2 channels:



All contacts are shown in the de-energised condition.
Alarm reset is done via "Contol panel reset"

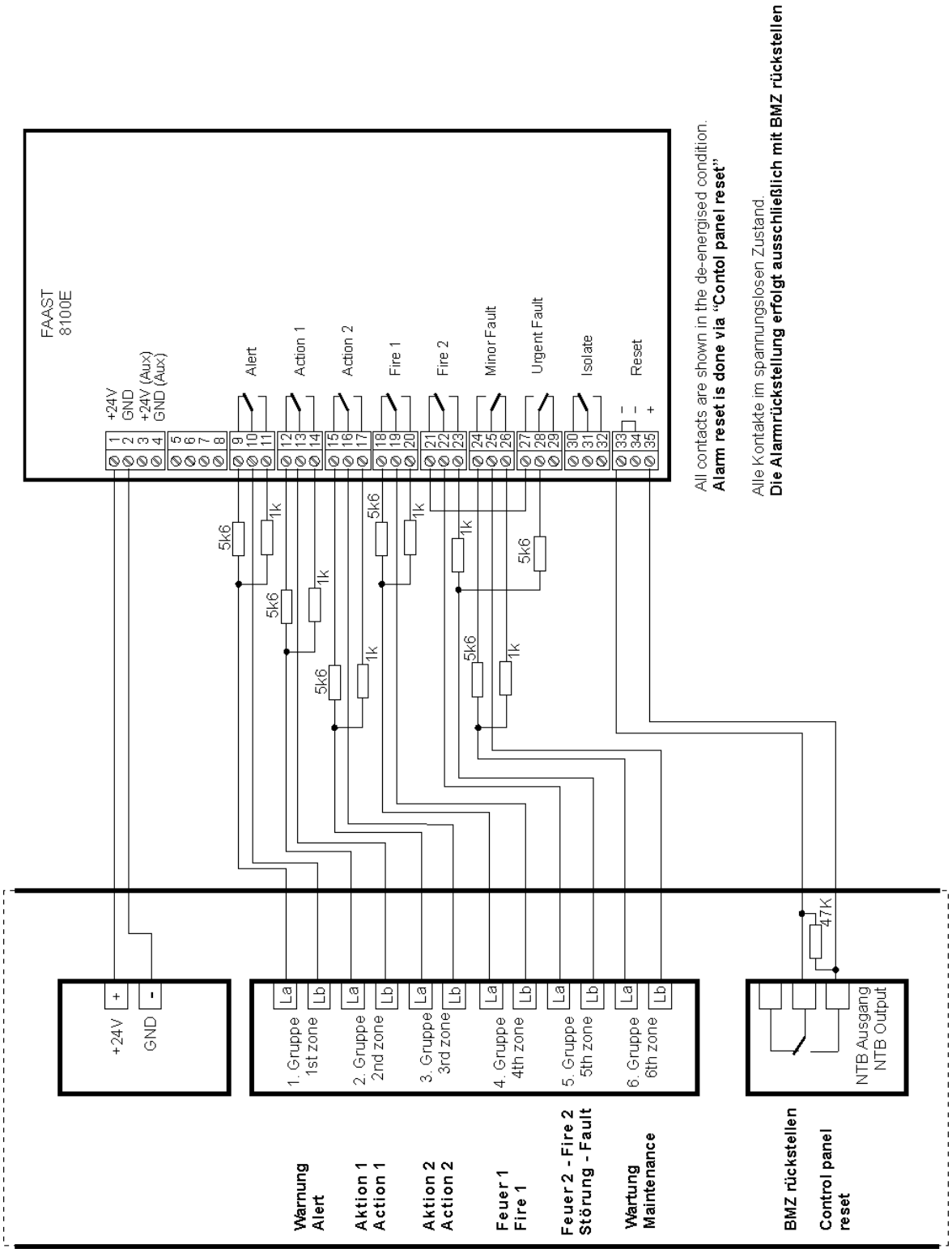
Alle Kontakte im spannungslosen Zustand.
Die Alarmrückstellung erfolgt mit BMZ rückstellen

2.11.10 Aspirating smoke detector ASD533



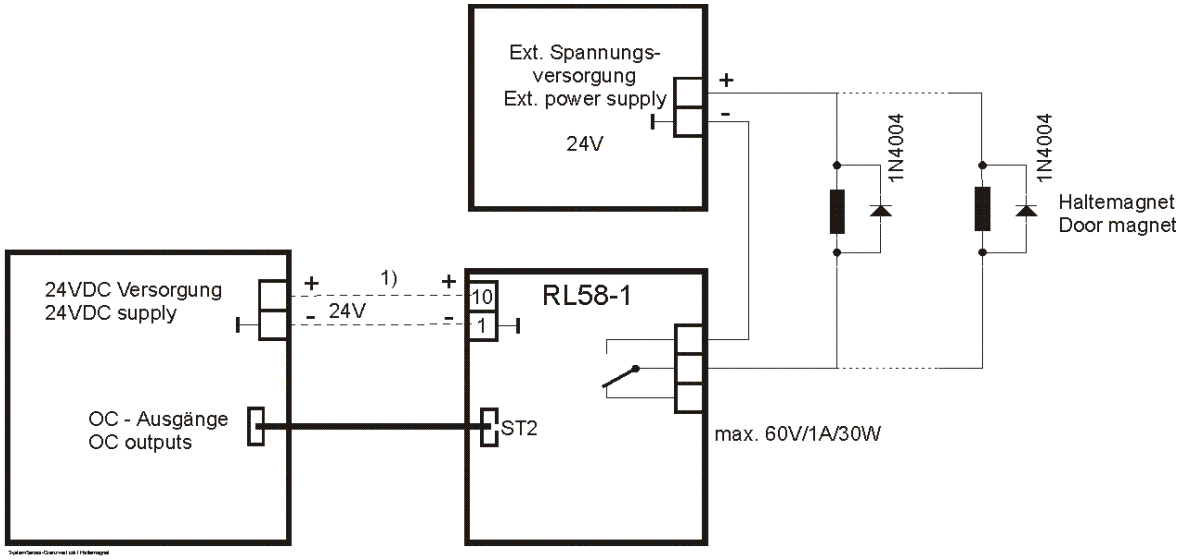
Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

2.11.11 Aspirating smoke detector FAAST 8100E



2.12 Connection of door magnets

When connecting door magnets, you have to make sure that the nominal current of the relay contact is not exceeded. Furthermore, a separate 24VDC supply and a clamping diode 1N4004 have to be used for the door magnet.



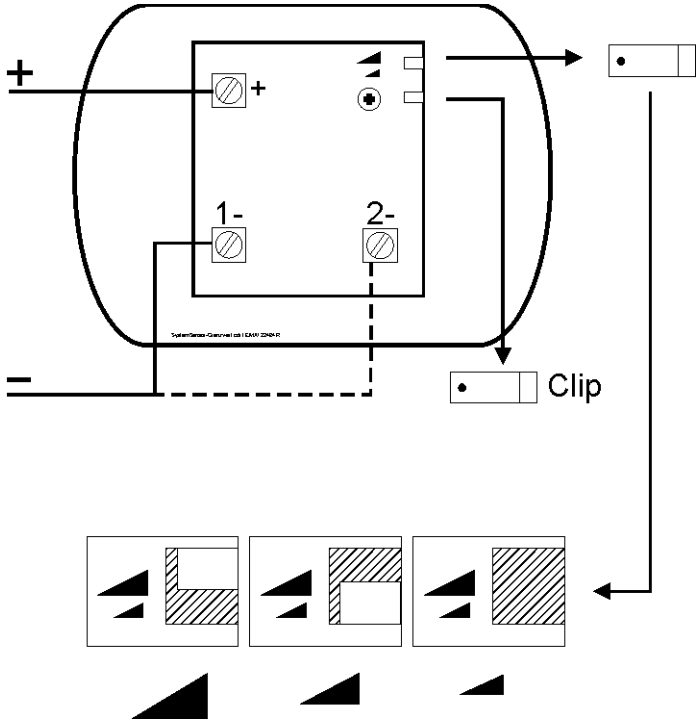
1) Getrennte 24VDC Versorgung nur erforderlich in Abhängigkeit der verwendeten Baugruppe (siehe Handbuch B der LST BMZ)
Independent 24VDC power supply only needed in dependency of the used componentry (see Manual B of the LST fire panel)

2.13 Connection of sounders and strobes

This section shows the connection of conventional sounders and strobes.

An end-of-line element has to be connected to the last alarming device, if a monitored siren output is used for the actuation.

2.13.1 Sounder EMA1224B4x



The connection and setting of the siren tone is explained in the table below.

ATTENTION: the old version and the new version differ just slightly in their type code.

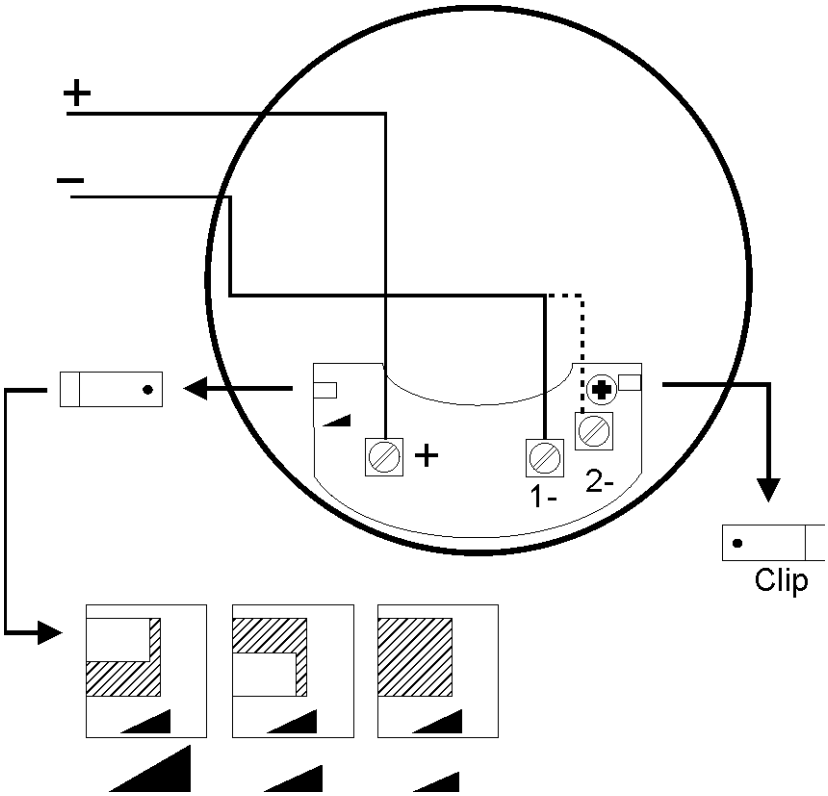
2.13.1.1 EMA1224B4R D / EMA1224B4W D (old version)

Connection Screw terminals				
+	**1-**	**2-**	**Clip**	**Tone**
✓	✓		✓	1200-500Hz DIN tone
✓		✓	✓	1200-500Hz DIN tone
✓	✓		removed	500-1200Hz Slow whoop tone
✓		✓	removed	800Hz continuous tone

2.13.1.2 EMA1224B4R-D / EMA1224B4W-D (new version)

Connection Screw terminals				
+	**1-**	**2-**	**Clip**	**Tone**
✓	✓		✓	1200-500Hz DIN tone
✓		✓	✓	800Hz continuous tone
✓	✓		removed	500-1200Hz Slow whoop tone
✓		✓	removed	1200-500Hz DIN tone

2.13.2 Sounder DBS1224B4x



The connection and setting of the siren tone is explained in the table below.

ATTENTION: the old version and the new version differ just slightly in their type code.

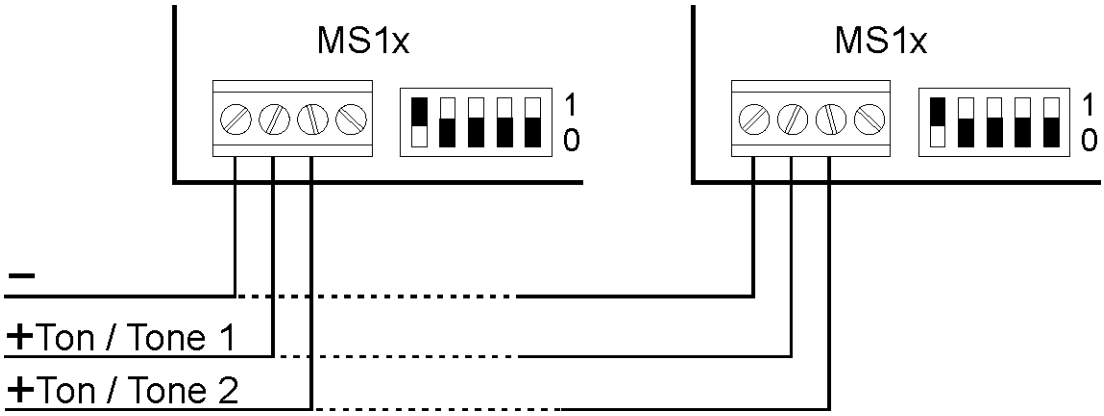
2.13.2.1 Sounder DBS1224B4W D (old version)

Connection Screw terminals				
+	**1-**	**2-**	**Clip**	**Tone**
✓	✓		✓	1200-500Hz DIN tone
✓		✓	✓	1200-500Hz DIN tone
✓	✓		removed	500-1200Hz Slow whoop tone
✓		✓	removed	800Hz continuous tone

2.13.2.2 Sounder DBS1224B4W-D (new version)

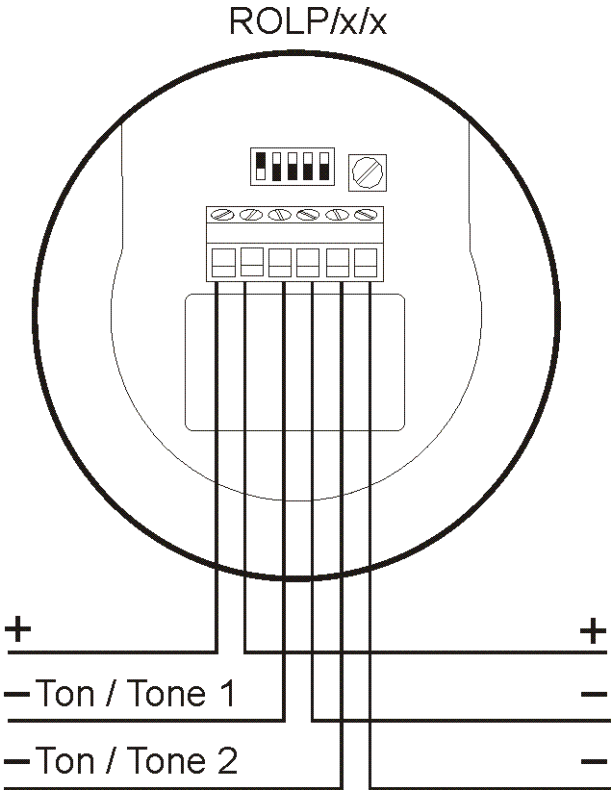
Connection Screw terminals				
+	**1-**	**2-**	**Clip**	**Tone**
✓	✓		✓	1200-500Hz DIN tone
✓		✓	✓	800Hz continuous tone
✓	✓		removed	500-1200Hz Slow whoop tone
✓		✓	removed	1200-500Hz DIN tone

2.13.3 Sounder MS1R



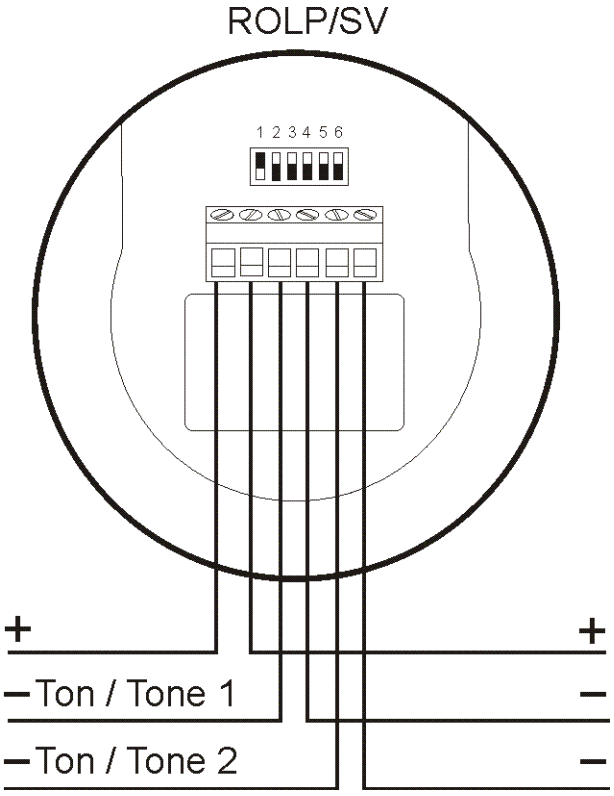
DIP switch						
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**
1	0	0	0	0	1200-500Hz DIN tone	1000Hz continuous tone
0	1	0	0	0	500-1200Hz Slow whoop tone	1000Hz continuous tone

2.13.4 Sounder ROLP



DIP switch						
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**
1	1	0	0	0	1200-500Hz DIN tone	970Hz – BS tone
1	1	0	0	1	500-1200Hz Slow whoop tone	970Hz – BS tone
1	0	0	1	0	970Hz – BS tone	970Hz – BS tone

2.13.5 Sounder ROLP/SV

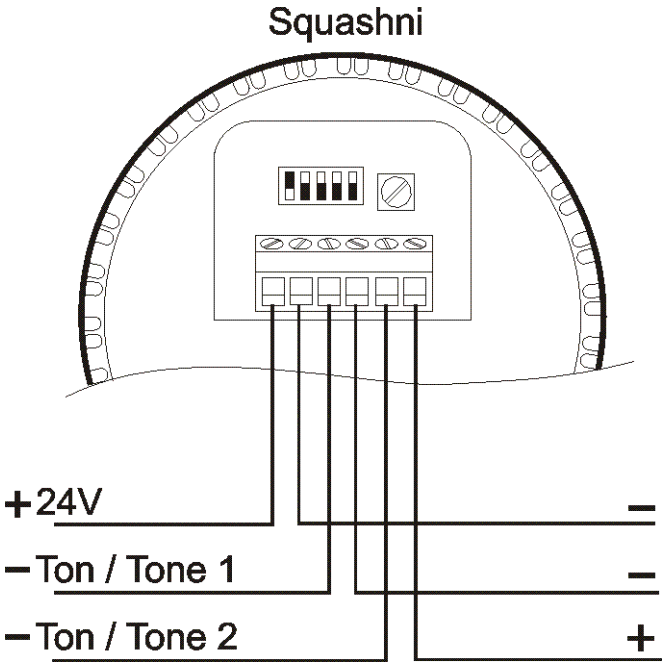


DIP switch 1 is used for setting the sound level: 0 = low; 1 = high. This corresponds to a difference of 20dB(A).

By means of the DIP switches 2 through 6 the tones can be set. Tone 2 results from the switch position.

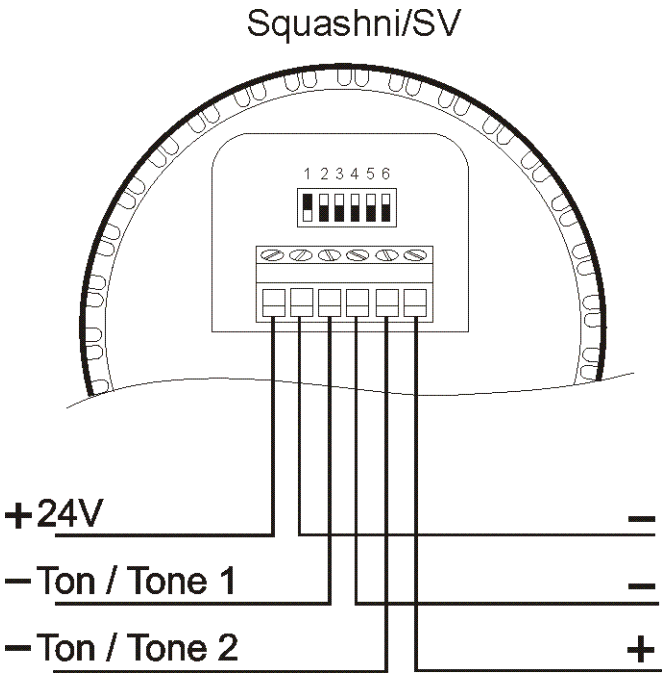
DIP switch						
2	**3**	**4**	**5**	**6**	**Tone 1**	**Tone 2**
1	1	0	0	0	1200-500Hz DIN tone	970Hz – BS tone
1	1	0	0	1	500-1200Hz Slow whoop tone	970Hz – BS tone
1	0	0	1	0	970Hz – BS tone	970Hz – BS tone

2.13.6 Sounder SQUASHNI



DIP switch						
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**
1	1	0	0	0	1200-500Hz DIN tone	970Hz – BS tone
1	1	0	0	1	500-1200Hz Slow whoop tone	970Hz – BS tone
1	0	0	1	0	970Hz – BS tone	970Hz – BS tone

2.13.7 Sounder SQUASHNI/SV

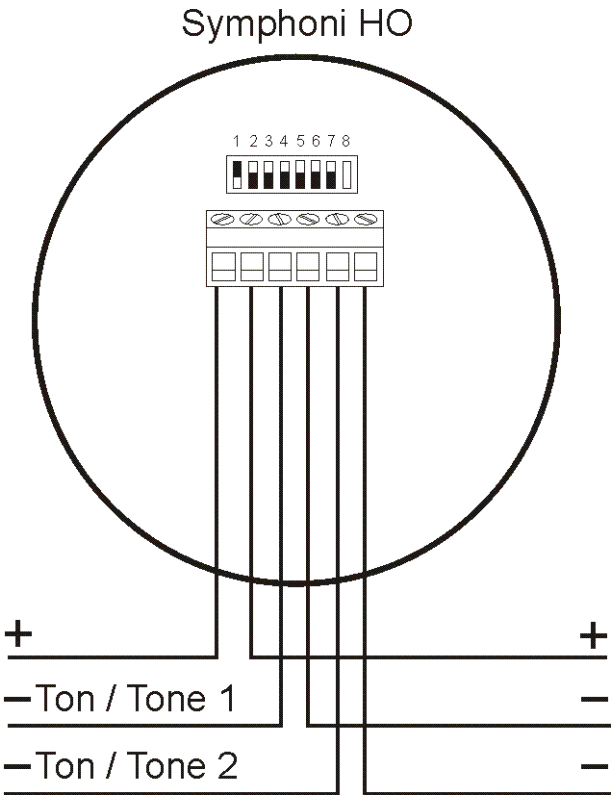


DIP switch 1 is used for setting the sound level: 0 = low; 1 = high.

By means of the DIP switches 2 through 6 the tones can be set. Tone 2 results from the switch position.

DIP switch						
2	**3**	**4**	**5**	**6**	**Tone 1**	**Tone 2**
1	1	0	0	0	1200-500Hz DIN tone	970Hz – BS tone
1	1	0	0	1	500-1200Hz Slow whoop tone	970Hz – BS tone
1	0	0	1	0	970Hz – BS tone	970Hz – BS tone

2.13.8 Sounder SYMPHONI HO



By means of the DIP switches 1 through 5 the tones can be set. Tone 2 results from the switch position.

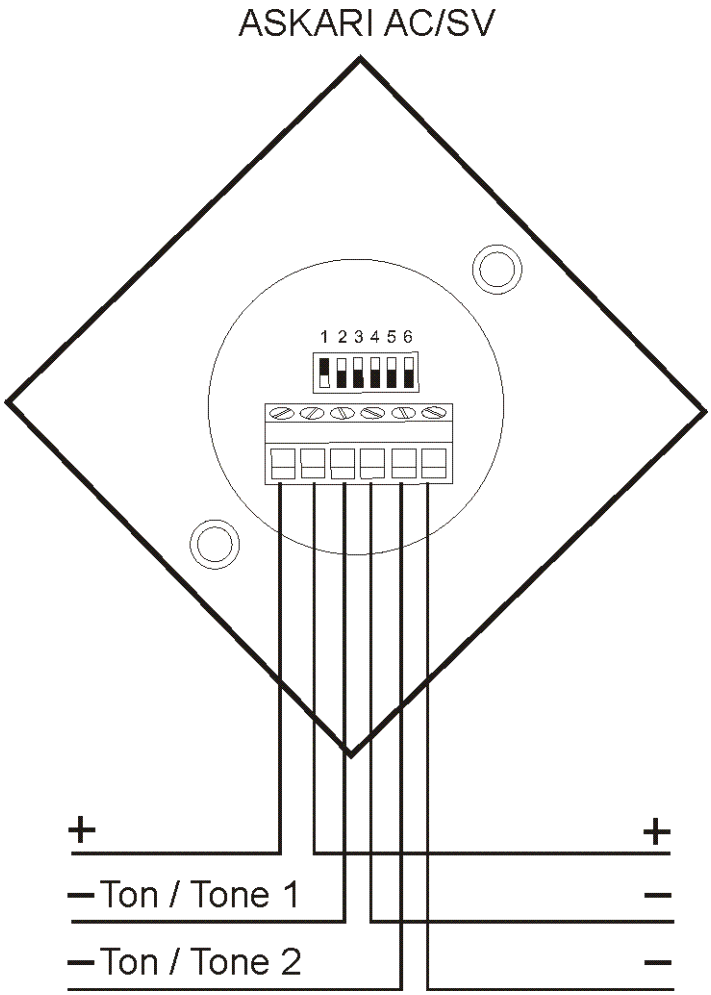
DIP switch						
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**
1	1	0	0	0	1200-500Hz DIN tone	970Hz – BS tone
1	1	0	0	1	500-1200Hz Slow whoop tone	970Hz – BS tone
1	0	0	1	0	970Hz – BS tone	970Hz – BS tone

The DIP switches 6 and 7 are used for setting the sound level.

DIP switch		
6	**7**	**Sound level**
1	1	Very high
1	0	High
0	1	Medium
0	0	Low

DIP switch 8 is not used.

2.13.9 Sounder ASKARI – AC/SV/R/S – AC/SV/W1/S

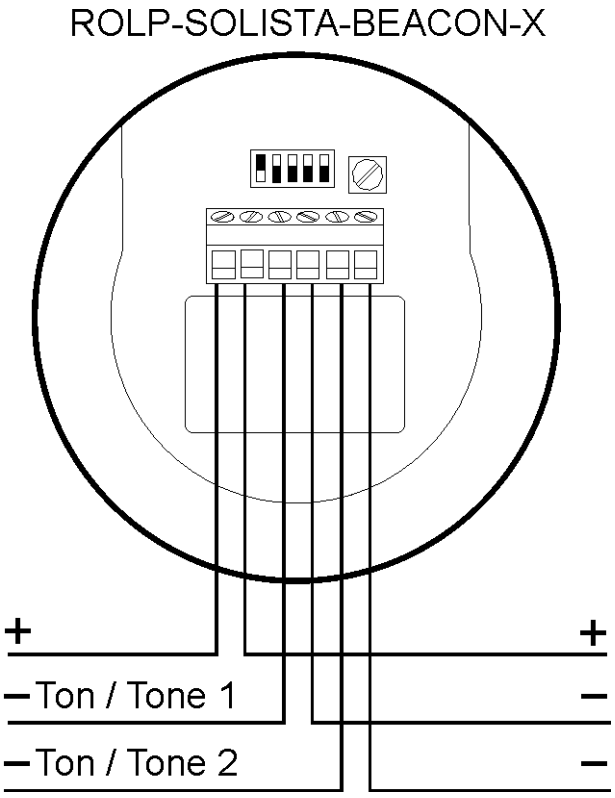


DIP switch 1 is used for setting the sound level: 0 = high; 1 = very high.

By means of the DIP switches 2 through 6 the tones can be set. Tone 2 results from the switch position.

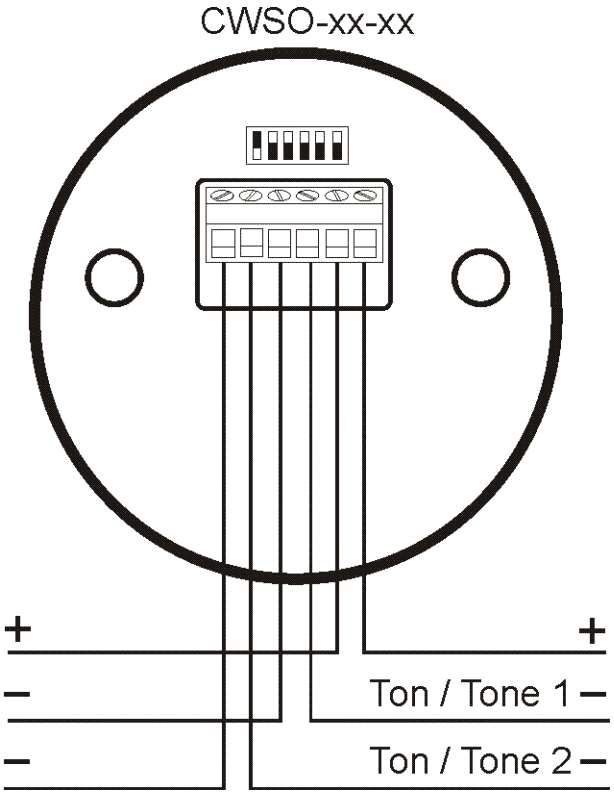
DIP switch						
2	**3**	**4**	**5**	**6**	**Tone 1**	**Tone 2**
1	1	0	0	0	1200-500Hz DIN tone	970Hz – BS tone
1	1	0	0	1	500-1200Hz Slow whoop tone	970Hz – BS tone
1	0	0	1	0	970Hz – BS tone	970Hz – BS tone

2.13.10 Sounder-Strobe ROLP-SOLISTA



DIP switch						
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**
1	1	0	0	0	1200-500Hz DIN tone	970Hz – BS tone
1	1	0	0	1	500-1200Hz Slow whoop tone	970Hz – BS tone
1	0	0	1	0	970Hz – BS tone	970Hz – BS tone

2.13.11 Sounder CWSO-xx-xx

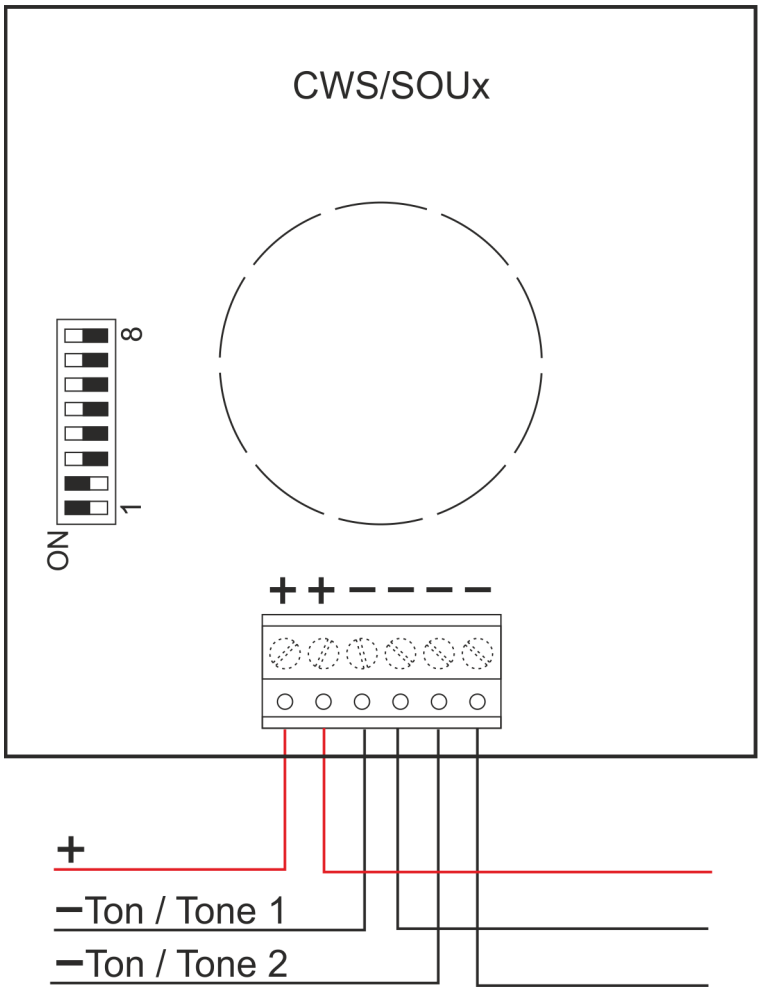


DIP switch 6 is used for setting the sound level: 0 = medium; 1 = high.

By means of the DIP switches 1 through 5 the tones can be set. Tone 2 results from the switch position.

DIP switch						
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**
1	0	1	0	1	1200-500Hz DIN tone	DIN, PFEER
1	1	1	0	1	500-1200Hz Slow whoop tone	NEN2575
1	1	0	0	1	800Hz – BS tone	BS 5839 Pt 1

2.13.12 Sounder-Strobe CWS/SOUx



By means of the DIP switches 1 through 5 the tones can be set. Tone 2 results from the switch position.

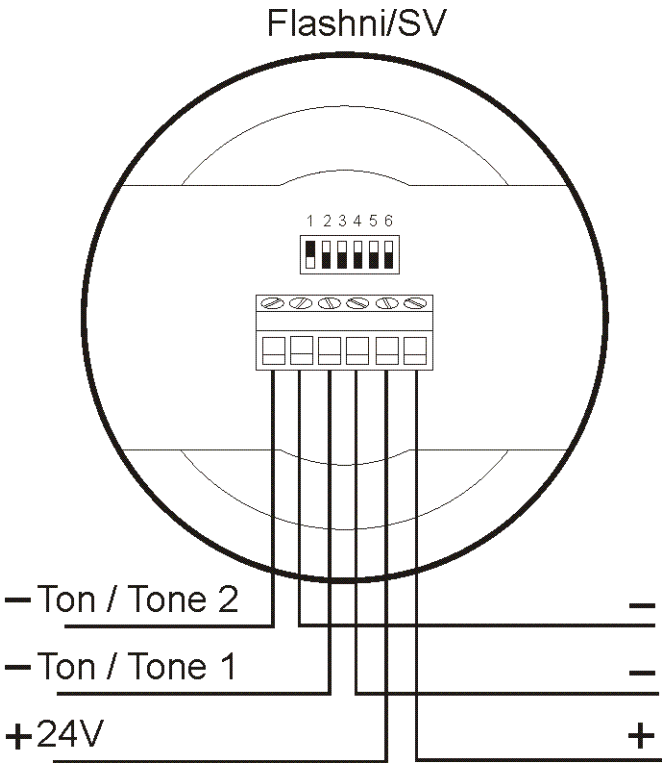
DIP switch						
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**
0	0	1	1	1	1200-500Hz DIN tone	800Hz
1	0	1	0	1	500-1200Hz Slow whoop tone	500-1200Hz Slow whoop tone
0	1	0	1	1	970Hz – BS tone	1000Hz – BS tone

The DIP switches 6 and 7 are used for setting the sound level.

DIP switch		
6	**7**	**Sound level**
1	1	Very high
0	1	High
1	0	Medium
0	0	Low

DIP switch 8 is not used.

2.13.13 Sounder-Strobe FLASHNI-SV

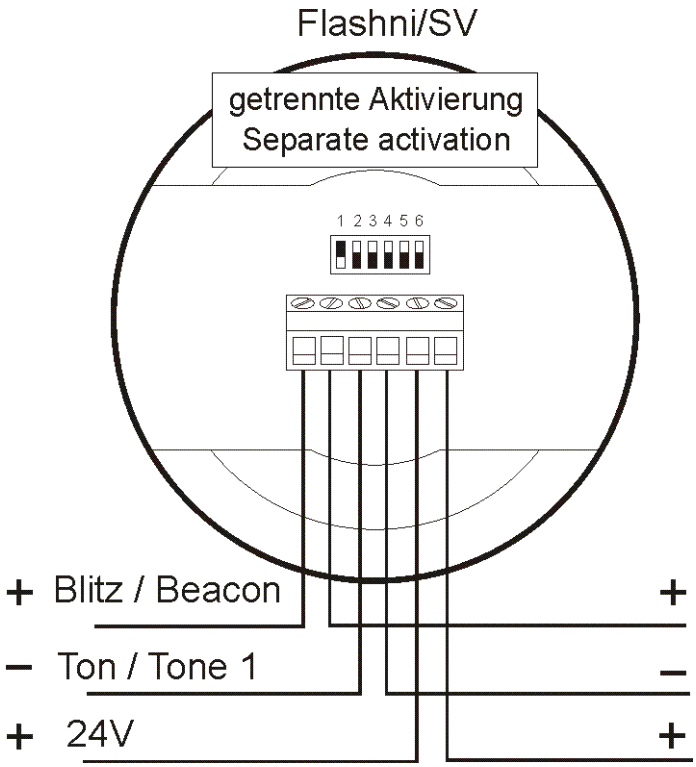


DIP switch 1 is used for setting the sound level: 0 = low; 1 = high.

By means of the DIP switches 2 through 6 the tones can be set. Tone 2 results from the switch position.

DIP switch						
2	**3**	**4**	**5**	**6**	**Tone 1**	**Tone 2**
1	1	0	0	0	1200-500Hz DIN tone	970Hz – BS tone
1	1	0	0	1	500-1200Hz Slow whoop tone	970Hz – BS tone
1	0	0	1	0	970Hz – BS tone	970Hz – BS tone

2.13.14 Sounder-Strobe FLASHNI-SV with separate actuation

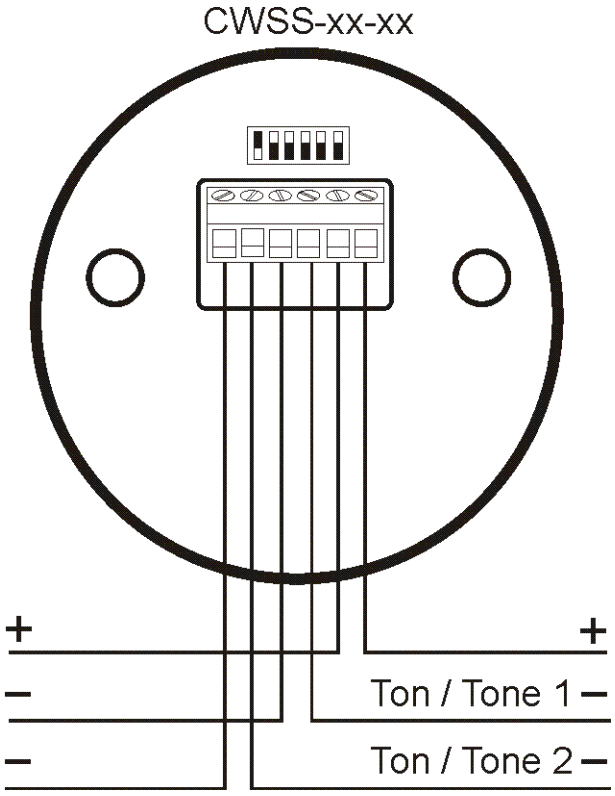


DIP switch 1 is used for setting the sound level: 0 = low; 1 = high.

By means of the DIP switches 2 through 6 the tone can be set.

DIP switch					
2	**3**	**4**	**5**	**6**	**Tone 1**
1	1	0	0	0	1200-500Hz DIN tone
1	1	0	0	1	500-1200Hz Slow whoop tone
1	0	0	1	0	970Hz – BS tone

2.13.15 Sounder-Strobe CWSS-xx-xx

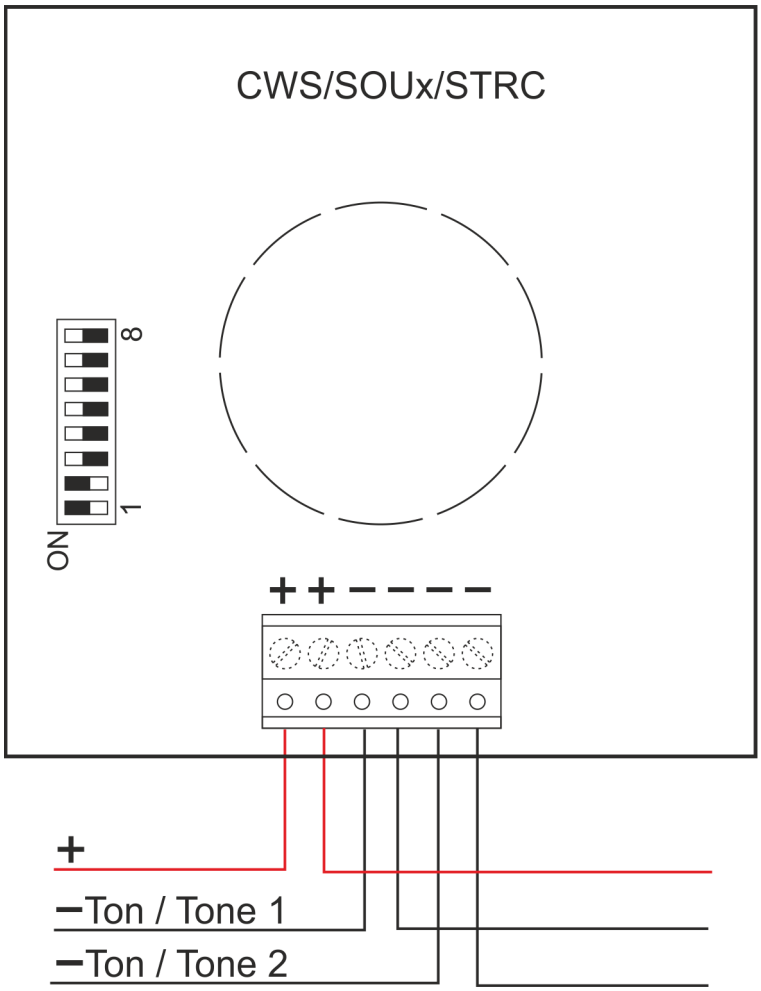


DIP switch 6 is used for setting the sound level: 0 = medium; 1 = high.

By means of the DIP switches 1 through 5 the tones can be set. Tone 2 results from the switch position.

DIP switch						
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**
1	0	1	0	1	1200-500Hz DIN tone	DIN, PFEER
1	1	1	0	1	500-1200Hz Slow whoop tone	NEN2575
1	1	0	0	1	800Hz – BS tone	BS 5839 Pt 1

2.13.16 Sounder-Strobe CWS/SOUx/STRC



By means of the DIP switches 1 through 5 the tones can be set. Tone 2 results from the switch position.

DIP switch						
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**
0	0	1	1	1	1200-500Hz DIN tone	800Hz
1	0	1	0	1	500-1200Hz Slow whoop tone	500-1200Hz Slow whoop tone
0	1	0	1	1	970Hz – BS tone	1000Hz – BS tone

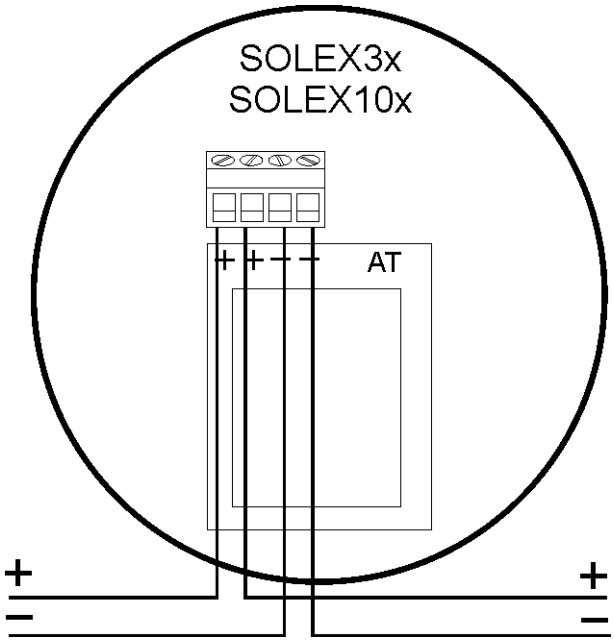
The DIP switches 6 and 7 are used for setting the sound level.

DIP switch		
6	**7**	**Sound level**
1	1	Very high
0	1	High
1	0	Medium
0	0	Low

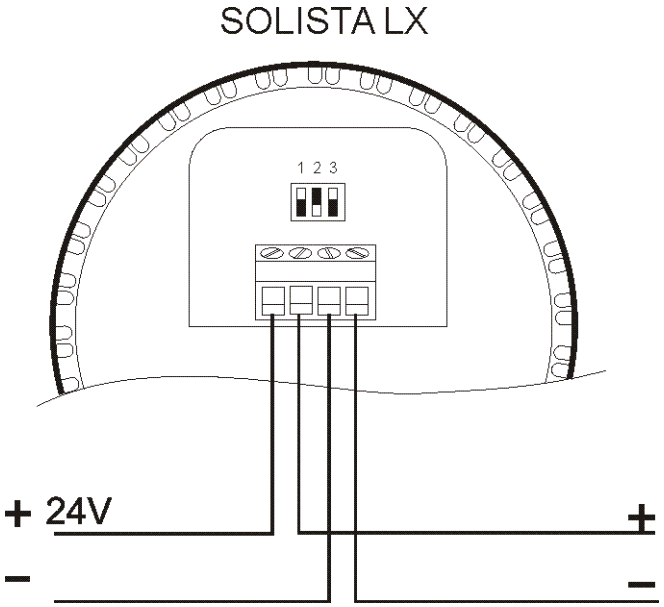
DIP switch 8 is not used.

2.13.17 Strobe SOLEX

If a monitored output is used for the actuation, the end-of-line resistor Rab has to be connected to the last strobe.



2.13.18 Strobe SOLISTA-LX



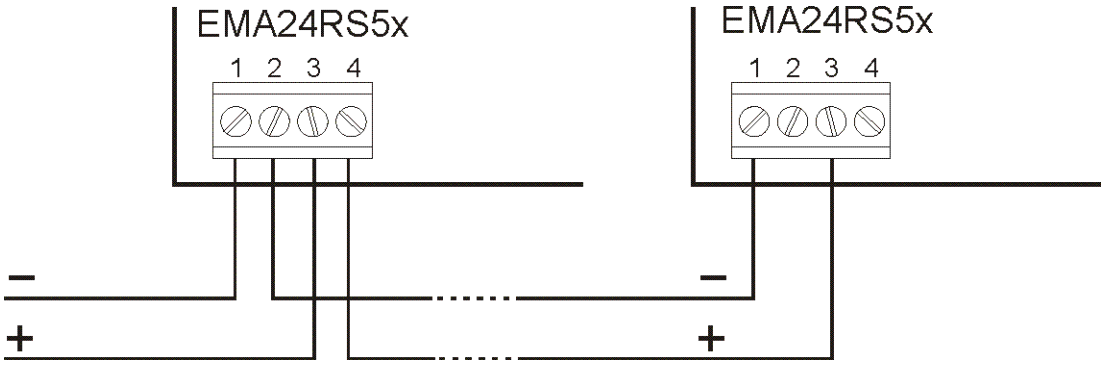
DIP switch 1 is used for setting the flash frequency: 0 = 0.5Hz; 1 = 1Hz.

DIP switch 2 is used for setting the power level: 0 = low; 1 = high.

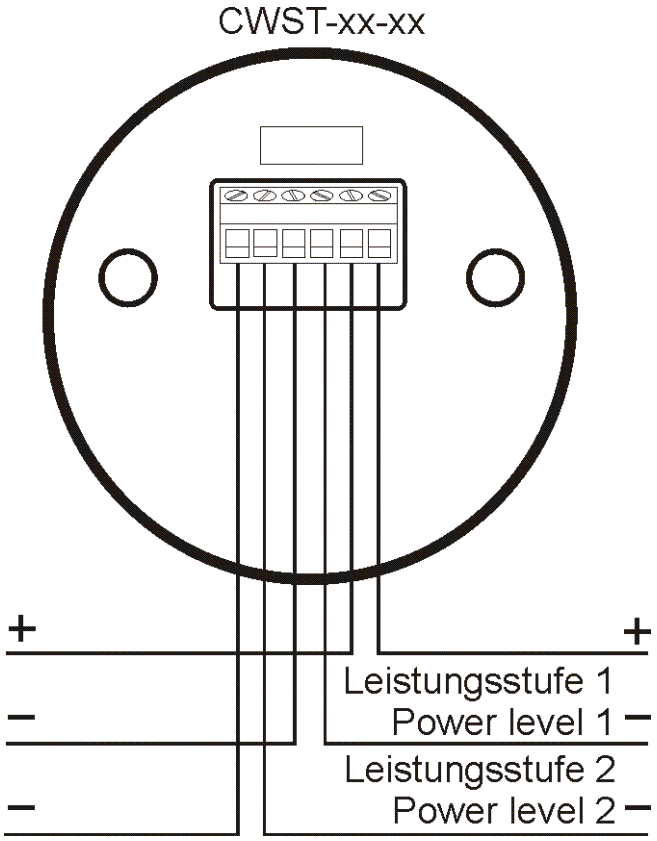
DIP switch 3 is not used.

2.13.19 Strobe EMA24RS5x

The position of the potentiometer for the flash frequency must not be changed.

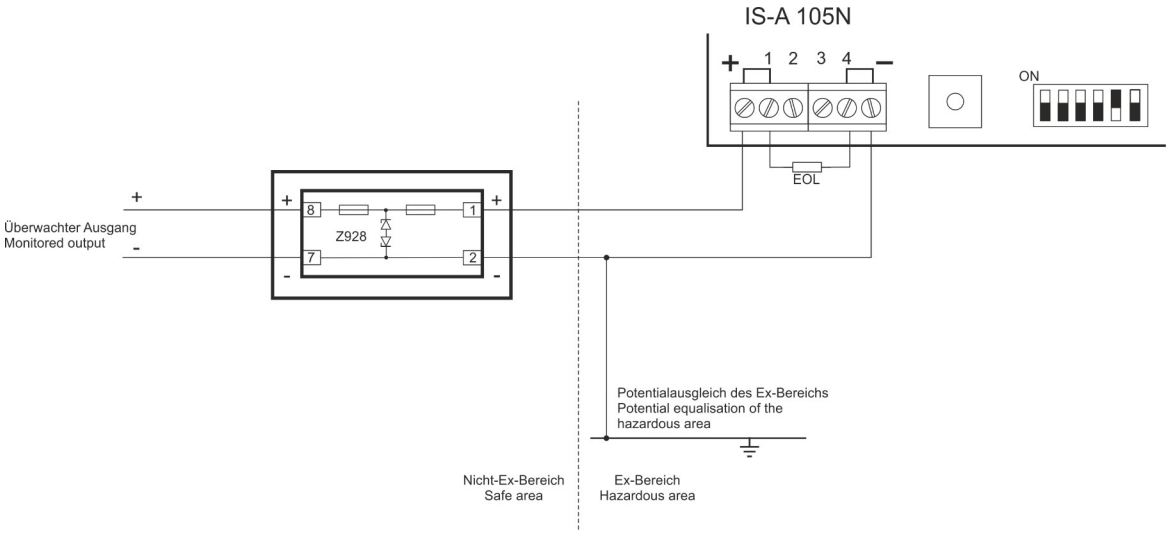


2.13.20 Strobe CWST-xx-xx



2.14 Connecting signalling devices in hazardous areas

2.14.1 IS-A105N – sounder



The element designated "EOL" has to be chosen such that it fits the monitored output.

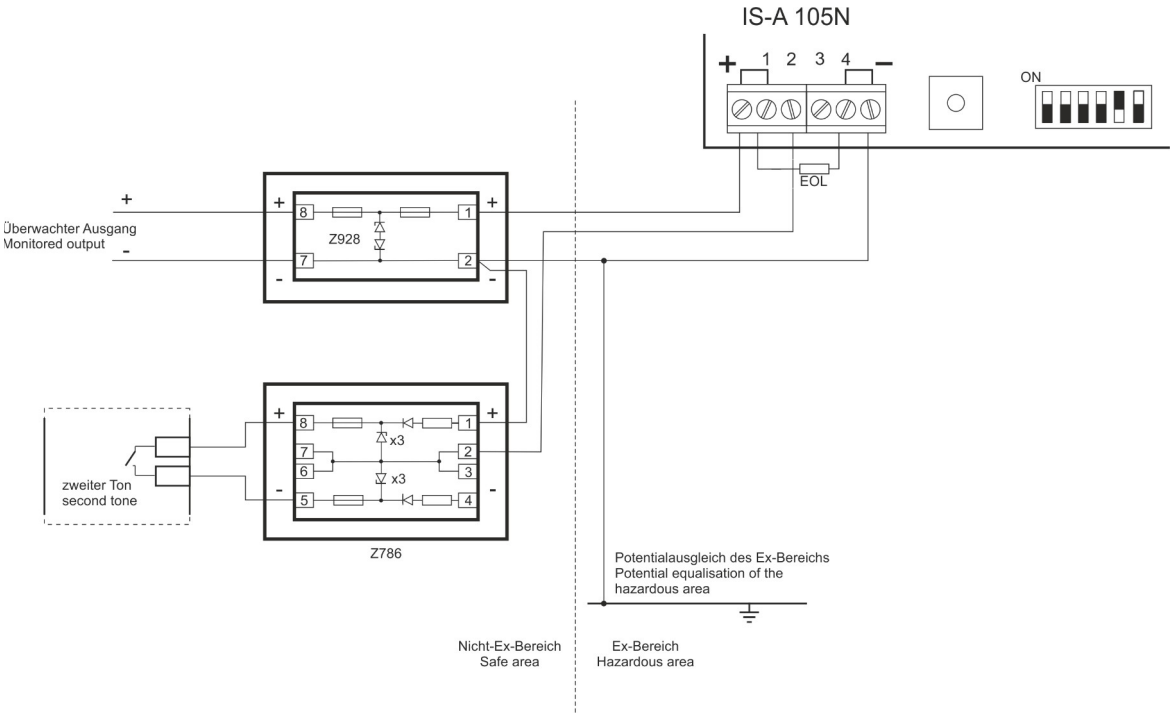
This sounder can be operated via the following outputs: SZ58-3, alarming device 1 output of the ZTB601-1 or monitored alarming device output of the BC216. The potential equalisation near the barrier results in an earth fault. In this case the earth fault detection of the fire detection control panel may be deactivated.

The tone of the sounder is set by means of switches. Here is an excerpt from the list of possible combinations:

DIP								
1	**2**	**3**	**4**	**5**	**6**	**Tone 1**	**Tone 2**	**Tone 3**
0	0	0	1	0	0	DIN tone and PFEER	Continuous tone 800 Hz	Alternating tone 800 / 1000 Hz

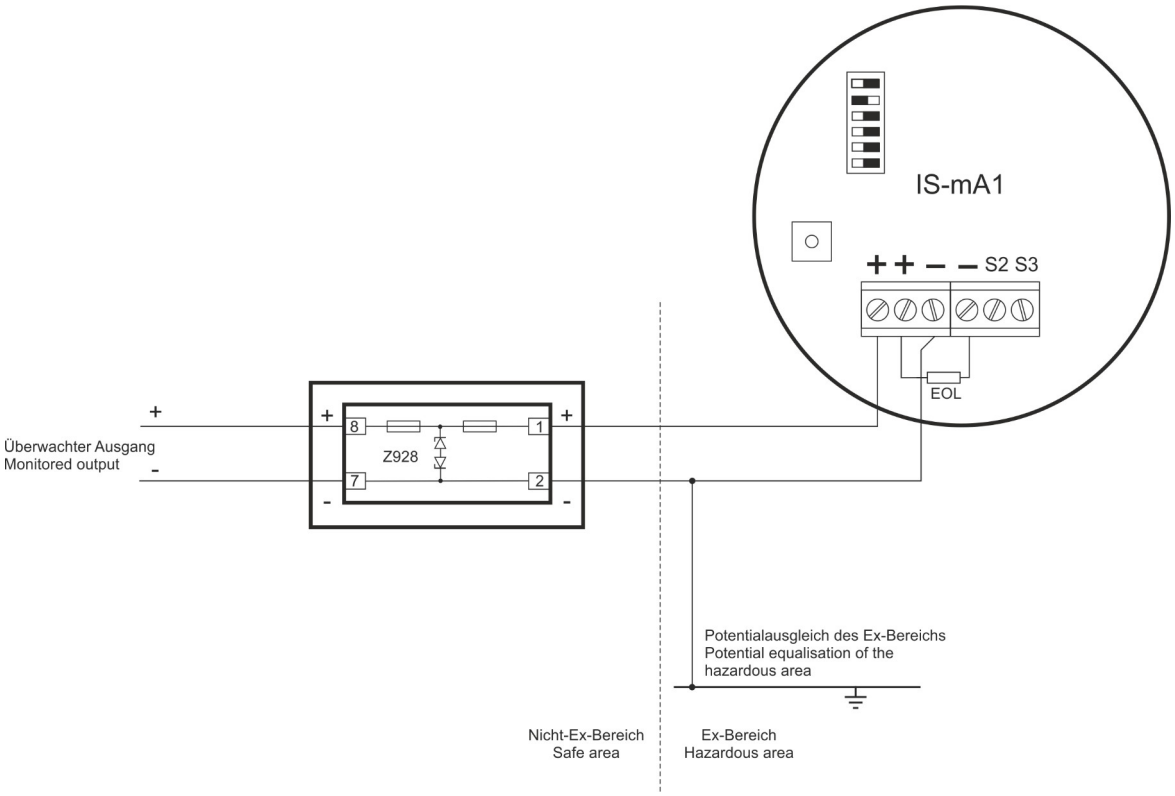
The sounder allows activation of up to three different tones. This is done by applying the supply to different terminals.
Tone 1 = terminal 1 and terminal 4
Tone 2 = terminal 2 and terminal 4
Tone 3 = terminal 3 and terminal 4

Connection of the Sounder IS-A105N for use of 2 tones:



This sounder can be operated via the following outputs: SZ58-3, alarming device 1 output of the ZTB601-1 or monitored alarming device output of the BC216. The potential equalisation near the barrier results in an earth fault. In this case the earth fault detection of the fire detection control panel may be deactivated.

2.14.2 IS-mA1 – sounder



The element designated "EOL" has to be chosen such that it fits the monitored output.

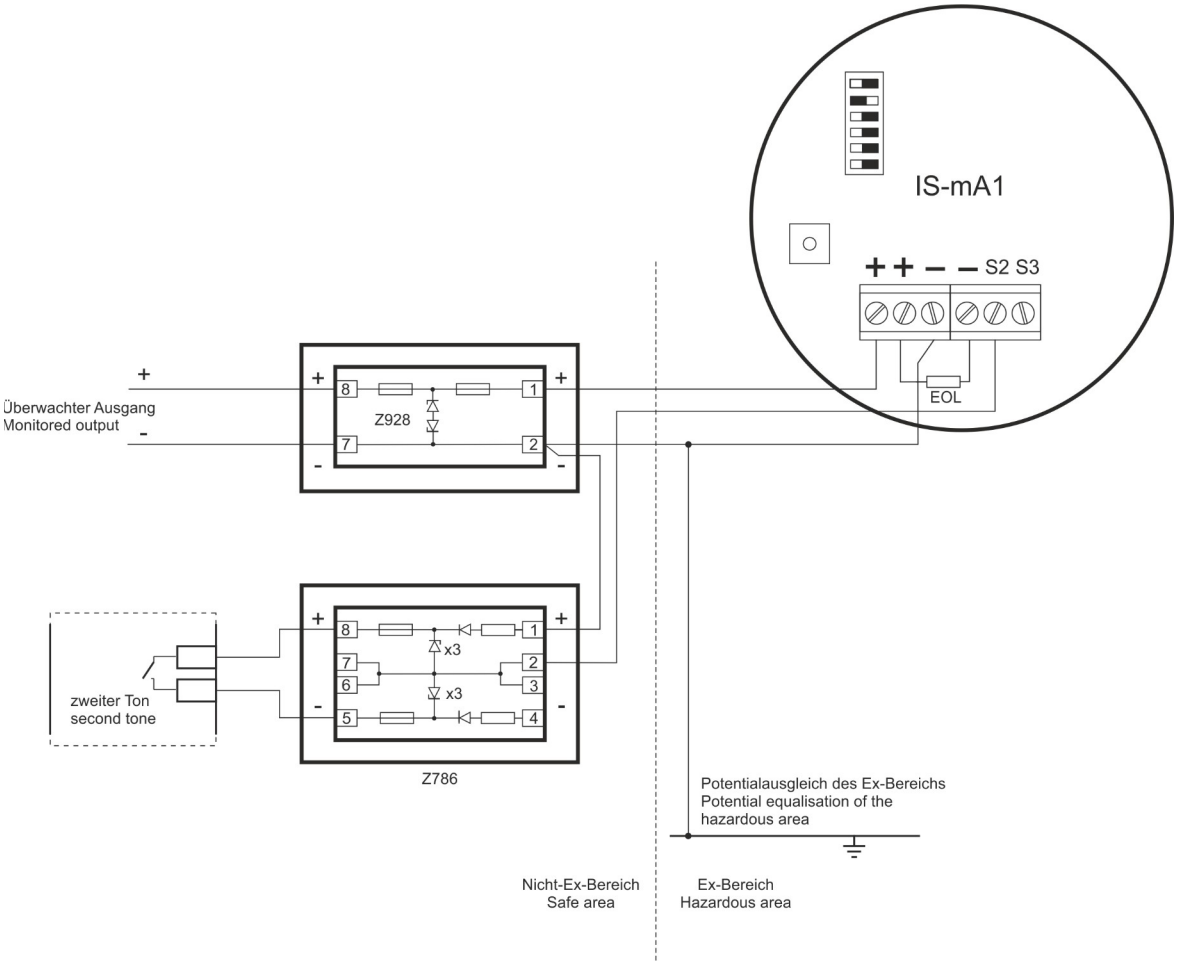
This sounder can be operated via the following outputs: SZ58-3, alarming device 1 output of the ZTB601-1 or monitored alarming device output of the BC216. The potential equalisation near the barrier results in an earth fault. In this case the earth fault detection of the fire detection control panel may be deactivated.

The tone of the sounder is set by means of switches. Here is an excerpt from the list of possible combinations:

DIP							
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**	**Tone 3**
0	0	0	0	0	Continuous tone (340 Hz)	Alternating tone 800 / 1000 Hz	Continuous tone
0	0	0	1	0	DIN tone and PFEER	Continuous tone 800 Hz	Alternating tone 800 / 1000 Hz

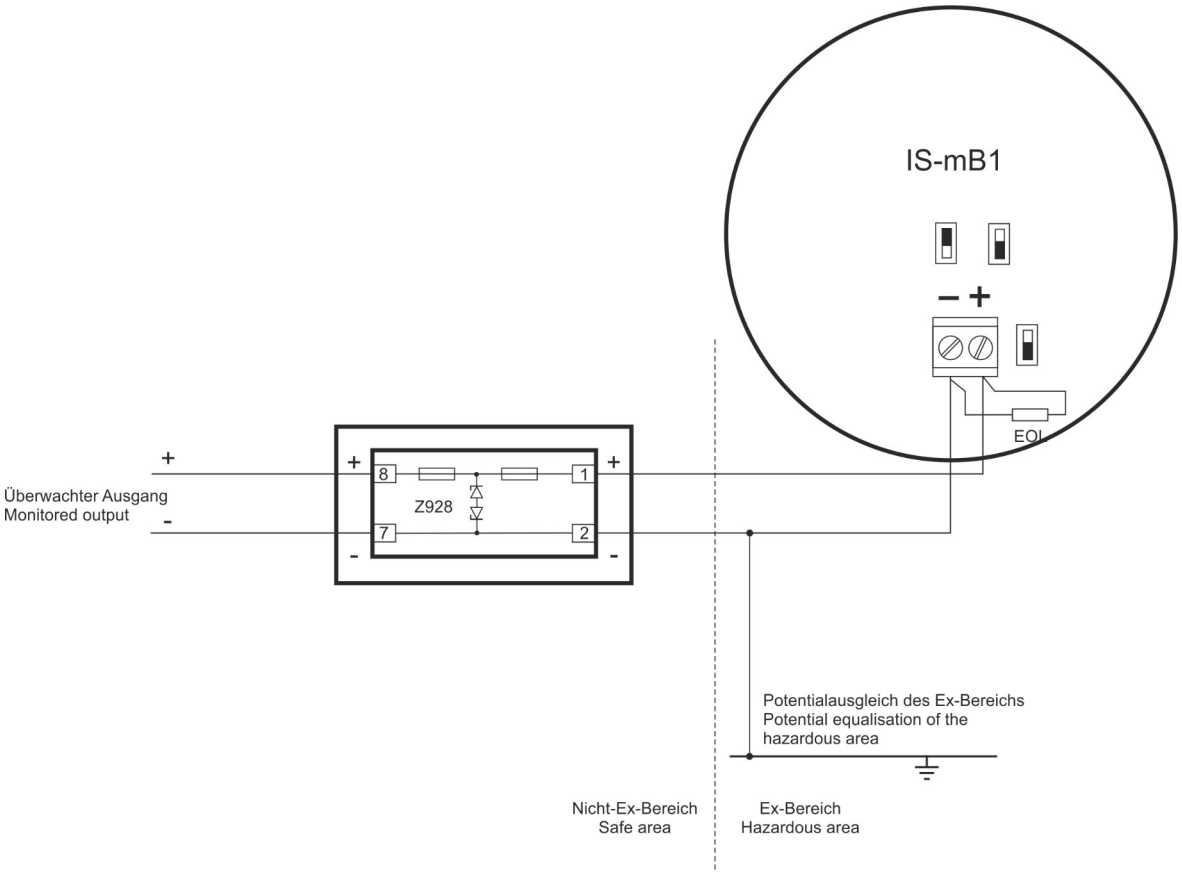
The sounder allows activation of up to three different tones. This is done by applying the supply to different terminals.
Tone 1 = + and -
Tone 2 = + and S2
Tone 3 = + and S3

Connection of the Sounder IS-mA1 for use of 2 tones:



This sounder can be operated via the following outputs: SZ58-3, alarming device 1 output of the ZTB601-1 or monitored alarming device output of the BC216. The potential equalisation near the barrier results in an earth fault. In this case the earth fault detection of the fire detection control panel may be deactivated.

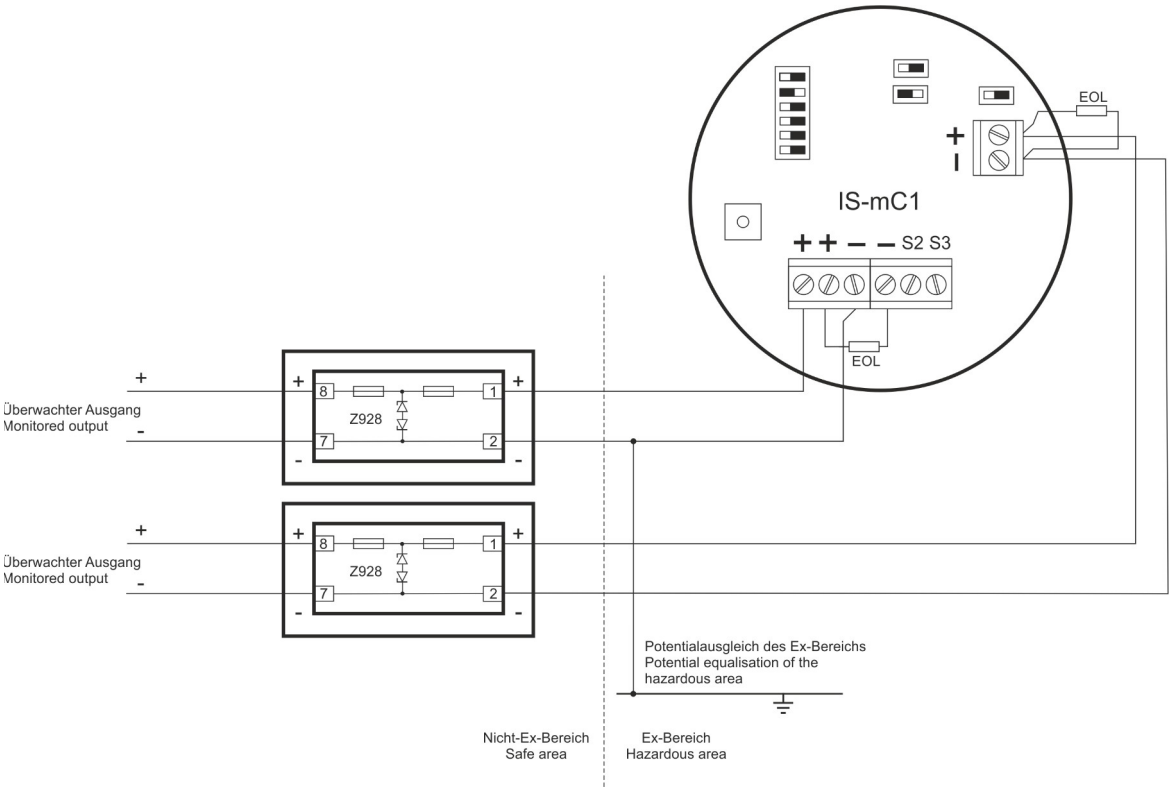
2.14.3 IS-mB1 – blinking light



The element designated "EOL" has to be chosen such that it fits the monitored output.

This blinking light can be operated via the following outputs: SZ58-3, alarming device 1 output of the ZTB601-1 or monitored alarming device output of the BC216. The potential equalisation near the barrier results in an earth fault. In this case the earth fault detection of the fire detection control panel may be deactivated.

2.14.4 IS-mC1 – sounder and blinking light



The element designated "EOL" has to be chosen such that it fits the monitored output.

This sounder can be operated via the following outputs: SZ58-3, alarming device 1 output of the ZTB601-1 or monitored alarming device output of the BC216. The potential equalisation near the barrier results in an earth fault. In this case the earth fault detection of the fire detection control panel may be deactivated.

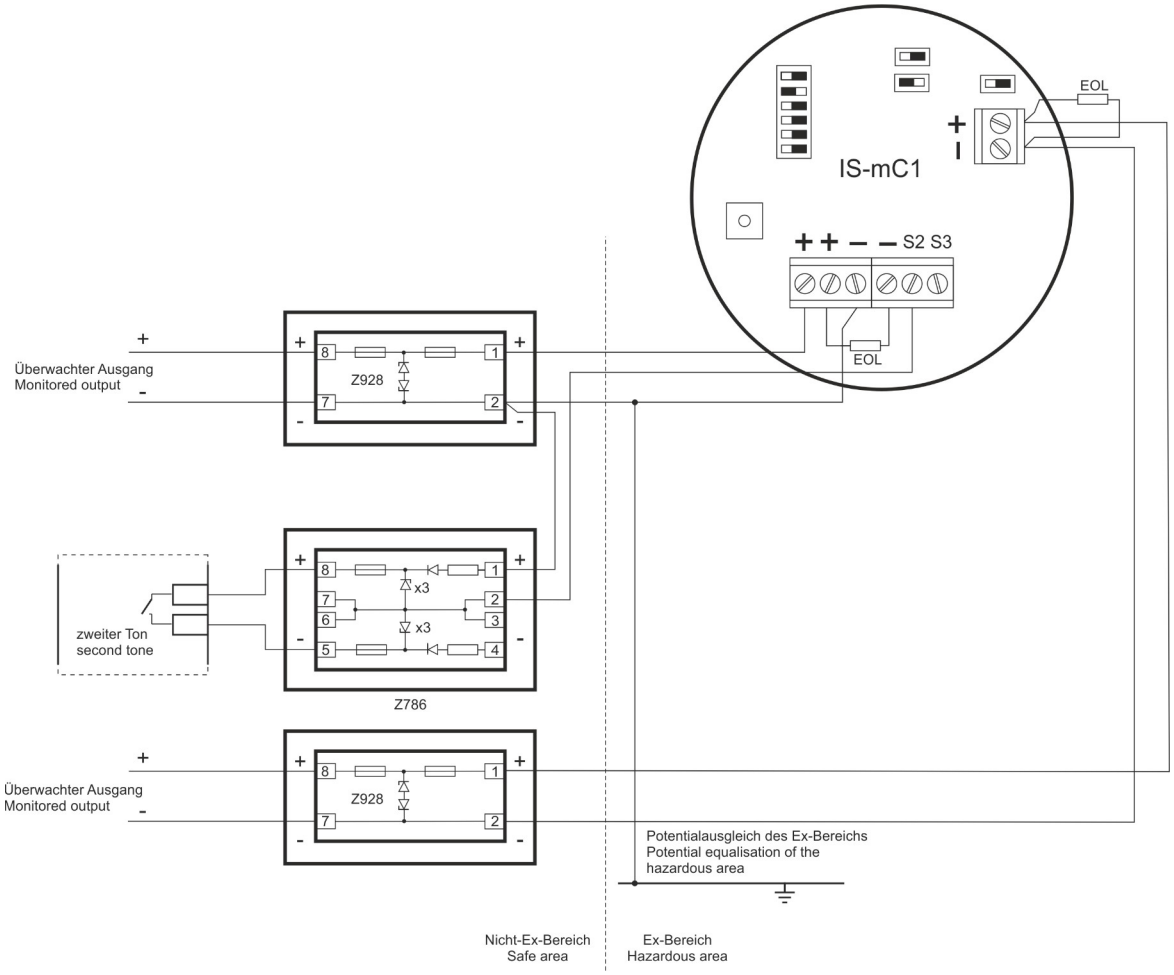
The tone of the sounder is set by means of switches. Here is an excerpt from the list of possible combinations:

DIP							
1	**2**	**3**	**4**	**5**	**Tone 1**	**Tone 2**	**Tone 3**
0	0	0	0	0	Continuous tone (340 Hz)	Alternating tone 800 / 1000 Hz	Continuous tone
0	0	0	1	0	DIN tone and PFEER	Continuous tone 800 Hz	Alternating tone 800 / 1000 Hz

As drawn here in the example, the optical part of this alarming device can be activated separately from the acoustic alarming.

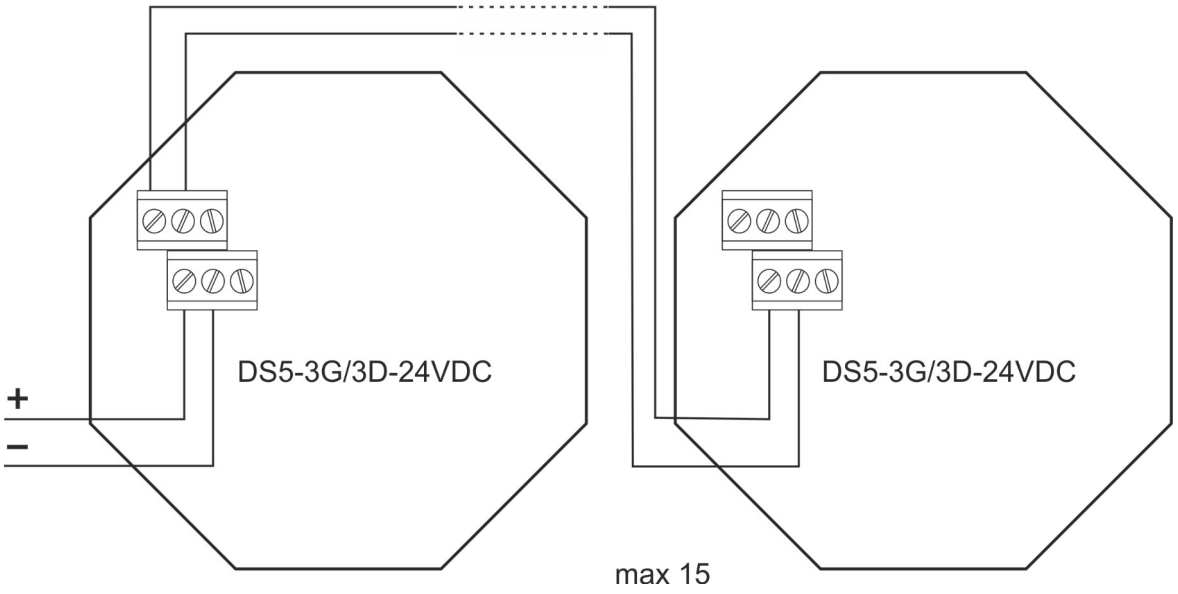
The sounder allows activation of up to three different tones. This is done by applying the supply to different terminals.
Tone 1 = + and -
Tone 2 = + and S2
Tone 3 = + and S3

Connection of the Sounder IS-mC1 for use of 2 tones:



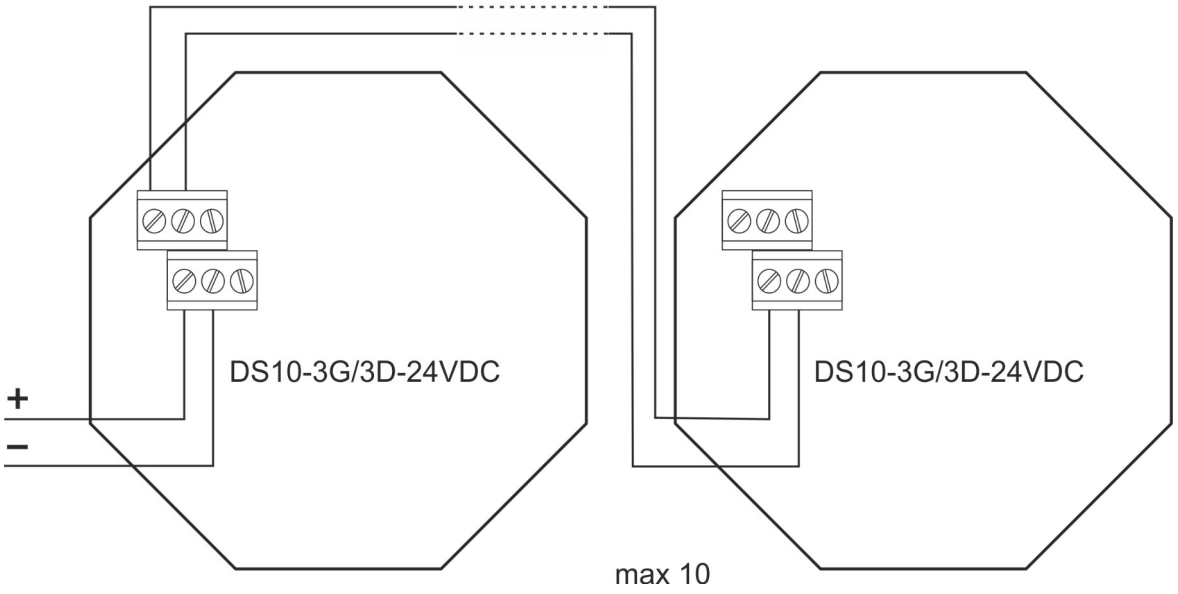
This sounder can be operated via the following outputs: SZ58-3, alarming device 1 output of the ZTB601-1 or monitored alarming device output of the BC216. The potential equalisation near the barrier results in an earth fault. In this case the earth fault detection of the fire detection control panel may be deactivated.

2.14.5 DS5-3G/3D-24VDC



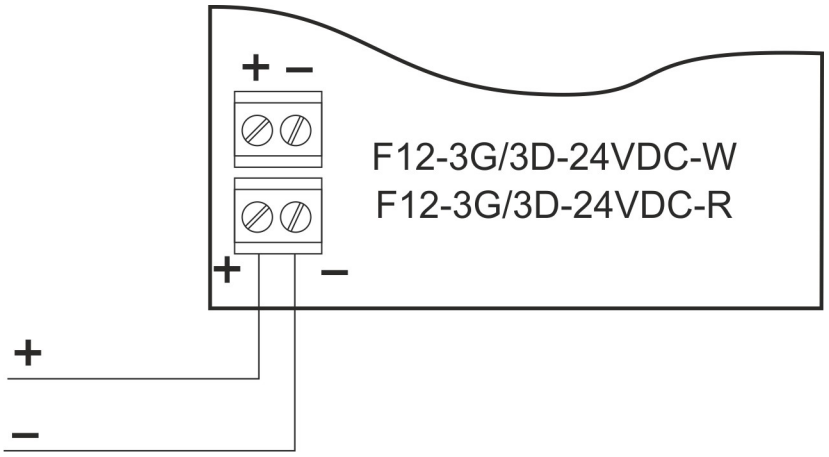
Please note the instructions in the manufacturer's documentation that accompanies the product.

2.14.6 DS10-3G/3D-24VDC



Please note the instructions in the manufacturer's documentation that accompanies the product.

2.14.7 F12-3G/3D-24VDC-W – F12-3G/3D-24VDC-R



Please note the instructions in the manufacturer's documentation that accompanies the product.

2.15 Coding of the Address Module NG60-1

Together with the Fire Detection Control Panels Series BC216 (with a Conventional Detector Interface GIF8-1), BC016 and BC600 (with a Conventional Detector Interface GIF608-1), the Address Module NG60-1 allows the exact identification of a detector in alarm condition. The number of the detector in alarm condition will be indicated on the fire detection control panel. The number that is to be indicated must be set (coded) on the address module within the range 0 to 63.

In the parameter settings of the Fire Detection Control Panels Series BC016 and Series BC216, the detector address mode must be set to **binary** (menu **Global settings**). In the case of the BC600 it is not necessary to parameterise the type of evaluation. The Fire Detection Control Panel Series BC06 does not support address modules.

The number is set by cutting up to six coding jumpers. According to their order, the coding jumpers have the following values:

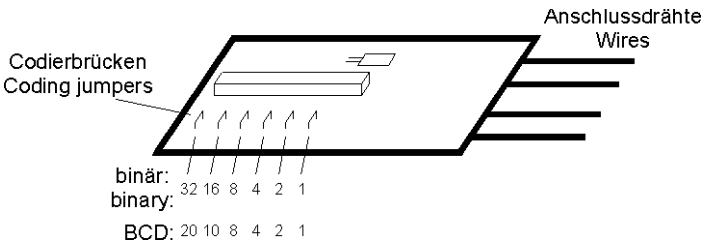
Binary coding: 1, 2, 4, 8, 16 and 32

Example: number 25

Binary coding: 25 = 16 + 8 + 1 --> Coding jumpers with the values 16, 8 and 1 must be cut.

Example: number 12

Binary coding: 12 = 8 + 4 --> Coding jumpers with the values 8 and 4 must be cut.



3 ADM TECHNOLOGY

3.1 General

This chapter applies to fire detection control panels with a loop interface. This document only describes the technical possibilities of connecting dialog devices, on the basis of electrical engineering and information processing. Standards or other regulations, that have to be observed to guarantee the fire protection capability of the fire detection system, have not been taken into account. These regulations vary in different countries and can therefore not be considered in this document.

However, we have to stress that, especially in the field of danger detection systems, the technical possibilities are often severely limited by country-specific regulations. Before starting the planning, cabling and the installation of devices, familiarise yourself with the country-specific regulations concerning fire detection systems. In case of doubt, please contact the appropriate authority. Of course we are also at your disposal for further information.

3.2 Hints for project planning

The loop interface is intended for connection of a loop. Altogether, the following number of elements can be connected to one loop:

Series XP95 and Series Discovery elements can be used up to address 126.
If an LIF601-2 is used, the Series Soteria can also be used up to address 254.

Loop Interface	Maximum number per loop	Detector series
LIF64-1	126	XP95
LIF128-1	126	Discovery
LIF601-1	126	Soteria
LIF601-2	254	Soteria

Mixed operation of these elements on the same loop is permissible.

All detectors and modules on a loop are connected in parallel on a two-wire line.

The loop is usually wired in the form of a circular line. Thanks to the ring-shaped wiring, all elements on the loop remain functional in the event of a single wire breakage. If necessary, it is also possible to connect branch lines to the loop – examples can be found from page 279 onwards in Chapter 3.18: "Examples for the wiring of detector circuits".

On a BC216-1 and on every BCnet216 sectional panel, up to 400 inputs (detectors, modules, FWIs, ...) as well as 128 outputs (modules, NTBs, ...) can be managed.

A loop **must not be connected to another loop**, because otherwise a single wire breakage will not be detected.

We recommend the use of the loop calculator tool (FireSysCALC_xxxx.ods) which is available in the download area of the LST website after registration. This is even more important when you have a lot of loop elements as well as when using loop-powered elements and in case of a long distance between the elements and the control panel (loop length).

Fire Detection Control Panels Series BC216 allow simultaneous activation of up to 8 detector/module LEDs per loop. This has to be taken into account when remote indicators and sounders which are actuated via parallel outputs are used.
In the case of Fire Detection Control Panels Series BC600, this limitation can be cancelled by setting the remote indicator output to the property "individual" (PARSOFT window **Element parameters – General**). The devices that are actuated via remote indicator output must be considered in the loop calculator spreadsheet FireSysCALC_xxx.ods, which is available in the download area of the LST website.

3.3 Use of isolators

3.3.1 General

The terms isolator, dual-isolator, isolator module as well as isolator base have the same meaning and refer to a product which is provided with an electronic circuit both on the input AND on the output side, which interrupts the loop line in the event of a short circuit on the line.

The reduction in the length of the loop that is caused by the increased use of isolators can be compensated for by increasing the wire gauge.

These length specifications – see the table – only refer to the resistance of the isolators and not to the current consumption of the loop elements. We recommend the use of the loop calculator tool (FireSysCALC_xxxx.ods), which is available in the download area of the LST website – registration required. This is even more important when you have a lot of loop elements as well as when using loop-powered elements and in case of a long distance between the elements and the control panel (loop length).

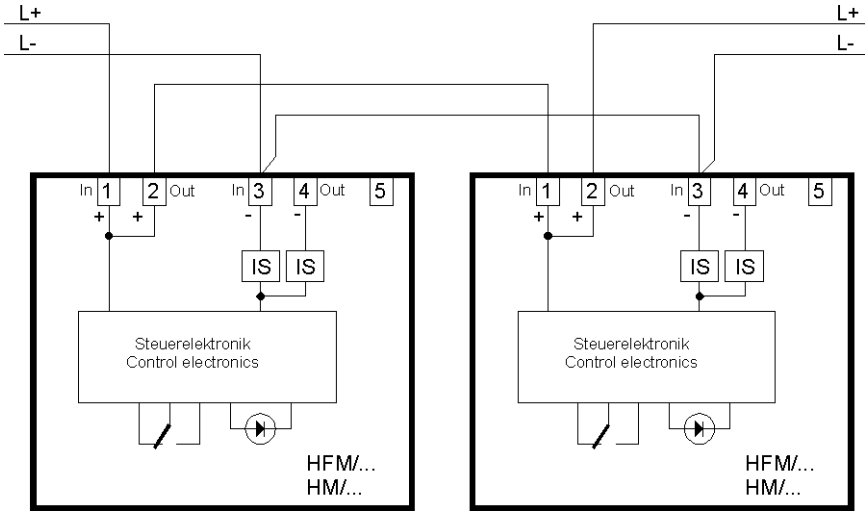
We recommend using the loop calculator tool FireSysCALC_xxxx.ods, which is available in the download area of the LST website – registration required.

3.3.2 Number of isolators

The number of isolators on a loop is limited due to their ohmic resistance which directly affects the maximum length of the loop.

3.3.3 Bypassing of isolators

If the number of isolators is in direct conflict with the length of the loop, you can bypass some single integrated isolators, as shown below.



The installation has to comply with the country-specific regulations!

3.3.4 Notes on isolators – modules, detector bases and manual call points

The number of elements that may be connected between two modules with isolator, Detector Bases 45681-321, Detector Bases 45681-284, detectors with isolators or manual call points with integrated isolator, is limited.

The various elements (detectors / modules) have different weights. The total value which can be calculated based on the table below, must not exceed **20**.

For the following products, the specifications in this section only apply to a limited extent:
Isolator Module ISM1-3 with serial number xxx5985 or higher,
Detector Base AISA95-1 with serial number xxx0721 or higher,
Manual Call Point DTA2/1C-2 with serial number 00/17825 or higher.

The weights of the products can be found in the document "PP2090 Short-Circuit Isolation Datasheet," which can be downloaded from the Apollo homepage (www.apollo-fire.co.uk). The Manual Call Points Series HM and HME have a weight of 1.

3.4 Cable requirements

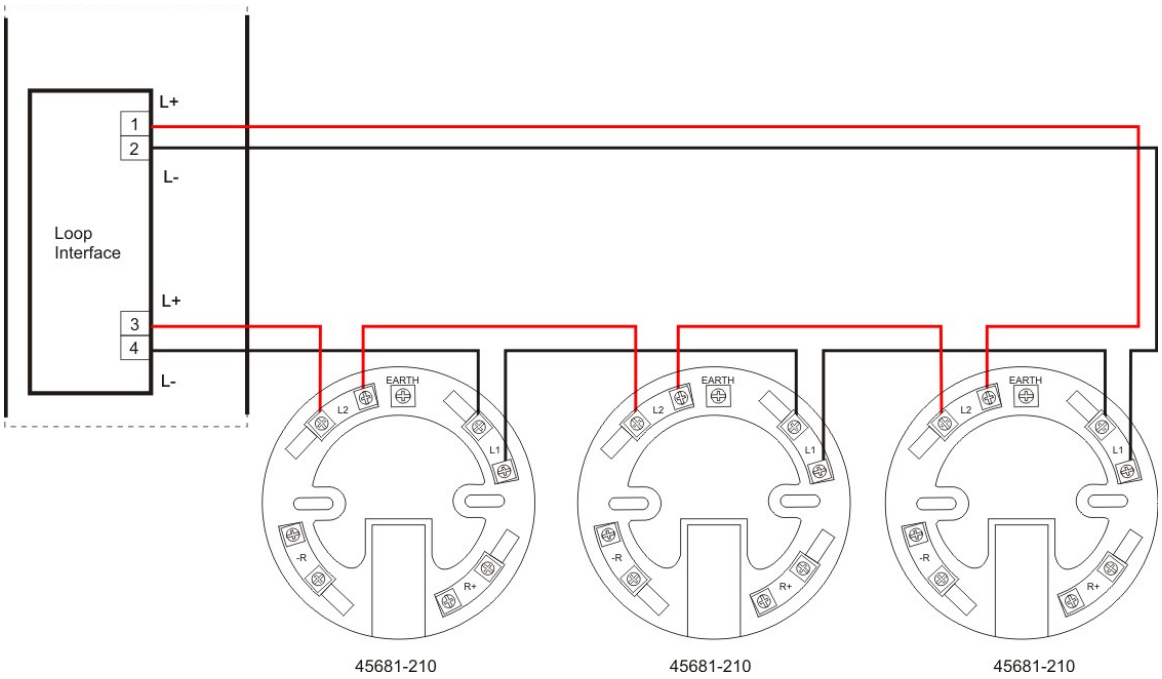
The line resistance of the detection loop must be below 50 Ohms per wire.
If a 0.5mm² wire is used, this corresponds to a loop length of approx. 1400m.

The capacitance of the whole loop line must not exceed 400nF.

Loop lines of several loop interfaces **must not** share a common cable. **Shielded cables are not necessary and therefore not recommended**.

3.4.1 Unshielded cable

An unshielded cable can be used for cabling. If an unshielded cable is indeed used, cabling has to be carried out according to the drawing below.

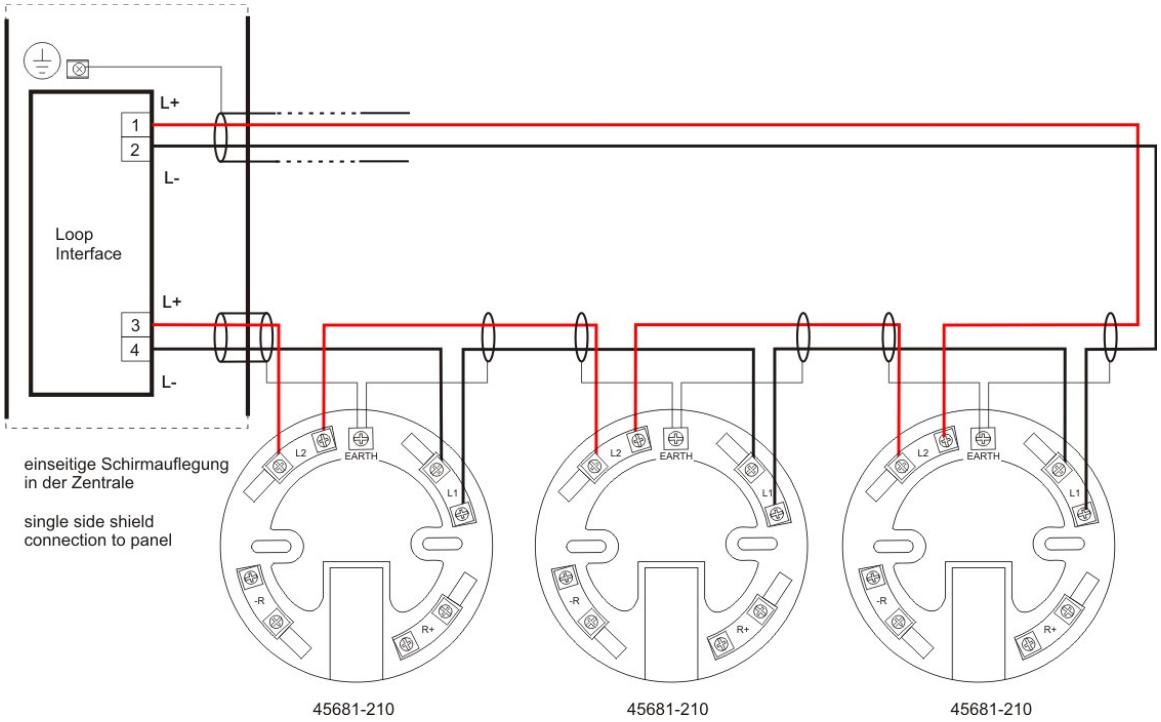


This drawing symbolically applies to the base SA5000-200 as well.

3.4.2 Shielded cable

Unshielded cables can be used for cabling. When using a shielded cable you have to take care about the following important notes:

- The shield must be connected to the fire detection control panel **only at one end** of the loop.
- The shield has to be securely connected through in each detector base or module. The shield must not be interrupted under any circumstances.
- If no shield terminal is available, the secure through-connection of the shield must be ensured by means of an auxiliary terminal.
- The shield must not, under any circumstances, get in contact with any other wire or metal part.



This drawing symbolically applies to the base SA5000-200 as well.

3.5 Setting the addresses

In the case of the Apollo protocol, the same address range is used for detectors and modules. In all, up to 254 element addresses can be assigned – depending on the loop interface (LIF601-2 = 254 addresses; otherwise 126). For multi modules one address is set, and the inputs and outputs are addressed by the fire detection control panel via SUB addresses.

3.5.1 Manual call points

Description	Type
Manual Call Point	HFM/3/32/xx, HM/x/32/xx/xx
Manual Call Point Series HME	HME/FFFF/32/TT/LL
Manual Call Point XP95	55100-908
Manual Call Point Soteria	SA5900-908

3.5.1.1 Manual Call Points Series HFM/HM and HME

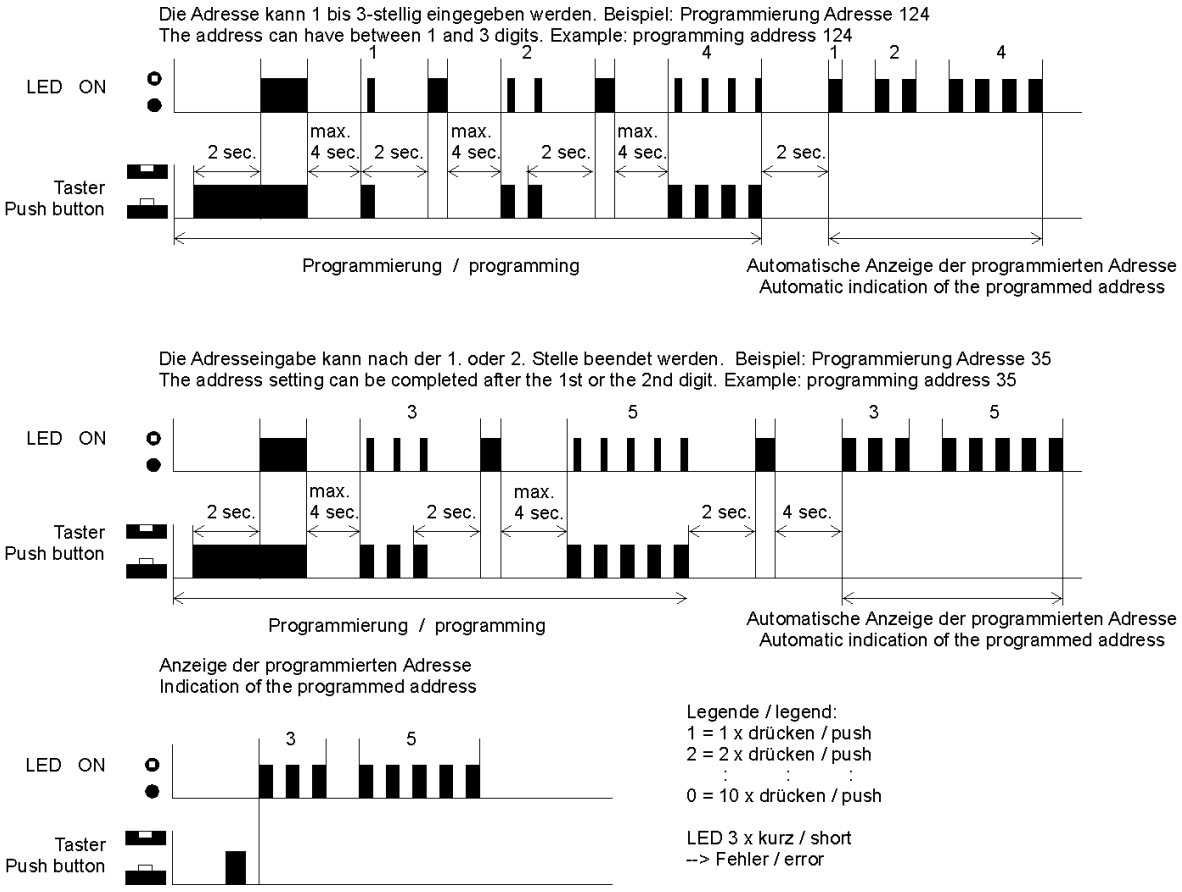
One-digit, two-digit or three-digit addresses can be entered.

A "0" is entered by pressing the push-button ten times. By pressing the push-button ten times, a previous address setting is also set to "0".

The manual call points are programmed by entering the desired address with a push-button. The programming process is as follows:

- Press the push-button for approx. 2 seconds, until the LED lights up.
- Enter the hundreds digit of the address, for example 124: After being prompted to enter the address, briefly press the push-button once, thereby entering the address "100" – when the push-button is pressed, the LED briefly lights up once. Approximately one second after the last press of the push-button, the LED illuminates again. Now the tens digit can be entered.
- Enter the tens digit of the address, for example 124: Briefly press the push-button twice – the LED briefly lights up with every press of the push-button. Approximately one second after the last press of the push-button, the LED illuminates again. Now the ones digit can be entered.
- Enter the ones digit of the address, for example 124: Briefly press the push-button four times – the LED briefly lights up with every press of the push-button.
- After the programming, the programmed address is indicated automatically. Like before, first the hundreds digit, then the tens digit, and finally the ones digit is indicated by the LED.

The address can be displayed at any time by briefly pressing the push-button, as explained above.



3.5.1.2 Manual Call Points Apollo Series XP95 – 55100-908

By means of the DIP switch, the address (01-126) that has been defined for this manual call point during project planning, can be set in the binary format. A table of the switch positions for all possible addresses is enclosed with the product.

In the OFF = 1 position, the switches have the following weight:

Switch:	1	2	3	4	5	6	7
Weight:	1	2	4	8	16	32	64

Example address 14: Switch setting 0111000, i.e., switches 2, 3, 4 in the OFF position:
Address = 2 + 4 + 8 = 14

3.5.2 Automatic detectors

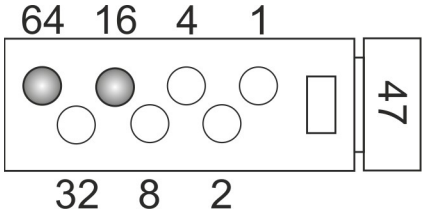
The shown method of setting the address applies to the following detectors:

Description	Type
Ionisation Smoke Detector XP95	55000-520
Optical Smoke Detector XP95	55000-620
Optical-Thermal Detector XP95	55000-885
Thermal Detector XP95	55000-420
CO-Detector Discovery	58000-300
CO Thermal Detector Discovery [1)]	58000-305
Thermal Detector Discovery	58000-400
Ionisation Smoke Detector Discovery	58000-500
Optical Smoke Detector Discovery	58000-600
Optical-Thermal Detector Discovery	58000-700
IS Ionisation Smoke Detector	55000-540
IS Optical Smoke Detector	55000-640
IS Thermal Detector	55000-440
Optical Smoke Detector	SA5000-600
Optical Smoke Detector	SA5100-600
Optical-Thermal Detector	SA5000-700
Optical-Thermal Detector	SA5100-700
Thermal Detector	SA5000-400
Thermal Detector	SA5100-400

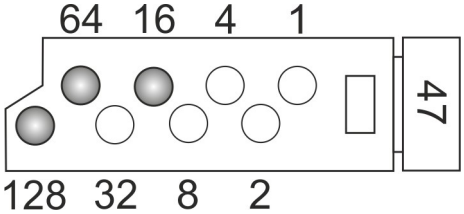
1) The product 58000-305 is supported by the Fire Detection Control Panel Series BC600 since firmware version V1.06 1828.

By means of the code card, the address that has been defined during project planning, is set in the binary format by breaking off the pips. A table of the pip assignment is enclosed with the product. After setting the address, the code card is inserted into the detector base.

45681-210



SA5000-200



Example: 1 + 2 + 4 + 8 + 32 = 47

An address >126 is not permitted for the Series BC216 and in case of connection to the Loop Interface LIF601-1 (Series BC600).
In case of connection to the Loop Interface LIF601-2 (Series BC600), addresses >126 can be used.

3.5.3 Modules

On the modules listed in the table below, the address that has been defined during project planning, must be set in the binary format, by means of the DIP switch. A table of the switch positions for all possible addresses is enclosed with the product.

3.5.3.1 Modules Series XP95:

Description	Type
Monitor Module/XP95/Mini/Inter.	55000-832
Monitor Module/XP95/Mini	55000-833
Monitor Module/XP95/Mini	55000-760
Monitor Module/XP95/Special Detector	55000-841
Control Module/XP95	55000-852
Control Module/XP95/Relay	55000-849
Conventional Zone Module/XP95	55000-845
Module 1xIn 1xRel.Out/XP95	55000-847
Module 3xIn 3xRel.Out/XP95	55000-588
Module 1xIn 1xRel.Out/230/XP95	55000-875

In the OFF = 1 position, the switches have the following weight:

Switch:	1	2	3	4	5	6	7
Weight:	1	2	4	8	16	32	64

Example address 14: Switches 2, 3, 4 to OFF and 1, 5, 6 and 7 to ON. Since OFF corresponds to a logical 1, this is 0111000 and the address = 2 + 4 + 8 = 14

3.5.3.2 Modules Series Soteria:

Description	Type
Input Module 1xIN/Core	SA4700-100
Module 1xIN 1xREL/Core	SA4700-102
Module 2xIN 1xREL/Core	SA4700-103
Module 2xIN 2xREL/Core	SA4700-104
Input Module 1xIN/Core/DIN	SA4700-300
Module 1xIN 1xREL/Core/DIN	SA4700-302
Module 2xIN 1xREL/Core/DIN	SA4700-403
Input Module 2xIN/Core	SA6700-100

In the case of these modules, the labelling of the address switch has been changed compared with that of the Series XP95.
Position 1 corresponds to a binary 1 and position 0 corresponds to a binary 0.

Switch:	1	2	3	4	5	6	7	8
Weight:	1	2	4	8	16	32	64	128

Example address 14: Switch setting 0111000, i.e., switches 2, 3, 4 in position 1:
Address = 2 + 4 + 8 = 14

An address >126 is not permitted for the Series BC216 and in case of connection to the Loop Interface LIF601-1 (Series BC600)!

In case of connection to the Loop Interface LIF601-2 (Series BC600), addresses >126 can be used.

3.5.4 Loop sounders and strobes

The setup options of sounders and other alarming devices are described on the piece of paper that accompanies the product. Here the methods of setting the address are listed for some alarming devices as examples. With few exceptions, an address can be set for loop sounders – see the table below (excerpt from the available product range).

Description	Type	Means of setting the address
Sounder/XP95RI/White/Alert	45681-276	No setting needed
Sounder/XP95ISM/White/Slow-Whoop	45681-290	Switch
Sounder/XP95/Red/Alert/100dB	55000-278	Switch SW1 – S1 through S7
Strobe/XP95/White/Red	55000-877	Code card

The loop sounder, the loop strobe and the combined sounder-strobe are provided with a DIP switch. The switches 1 through 7 of the DIP switch are used for setting the address. A table showing the switch positions for all possible addresses is enclosed with the product.

In the OFF = 1 position, the switches have the following weight:

Switch:	1	2	3	4	5	6	7
Weight:	1	2	4	8	16	32	64

3.6 XP95 modules – Soteria modules

The new input and output modules Series Soteria replace the Series XP95 modules.

For the majority of the XP95 modules, a successor is available. Since the new modules are downward compatible, mixed operation of Series XP95 modules and Series Soteria modules on one loop is possible. Therefore, older modules can be replaced and a loop can be expanded without problems.

Series XP95		Series Soteria		
Description	Type Art. No.	Description	Type. Art. No.	Remarks
Monitor Module/XP95/ Special Detector	55000-841 249072	Input Module 1xIN/Core	SA4700-100APO 249330	no reset output for special detectors
		Module 1xIN 1xREL/Core	SA4700-102APO 249331	
		Module 1xIN 1xREL/Core/DIN	SA4700-302APO 249336	DIN rail mounting
Monitor Module/ XP95/Mini	55000-760 249079	Input Module 1xIN/Core/DIN	SA4700-300APO 249335	DIN rail mounting
– – – – –	– – – – –	Input Module 2xIN/Core	SA6700-100APO 249334	
Conventional Zone Module/XP95	55000-845 249075	– – – – –	– – – – –	currently no successor model
Module 1xIn 1xRel.Out/ XP95	55000-847 249076	Module 2xIN 1xREL/Core	SA4700-103APO 249332	1 dry relay contact
		Module 2xIN 1xREL/Core/DIN	SA4700-403APO 249337	1 dry relay contact, DIN rail mounting
Module 3xIn 3xRel.Out/ XP95	55000-588 249077	– – – – – – – –	– – – – –	no direct successor, can be replaced by several modules SA4700-102APO or SA4700-302APO
Module 1xIn 1xRel.Out/ 230/XP95	55000-875 249078	Module 2xIN 1xREL/Core	SA4700-103APO 249332	
		Module 2xIN 1xREL/Core/DIN	SA4700-403APO 249337	DIN rail mounting
– – –	– – –	Module 2xIN 2xREL/Core	SA4700-104APO 249333	
Control Module/XP95	55000-852 249073	– – –	– – –	currently no successor model
Control Module/XP95/ Relay	55000-849 249074	Module 1xIN 1xREL/Core	SA4700-102APO 249331	
		Module 1xIN 1xREL/Core/DIN	SA4700-302APO 249336	DIN rail mounting

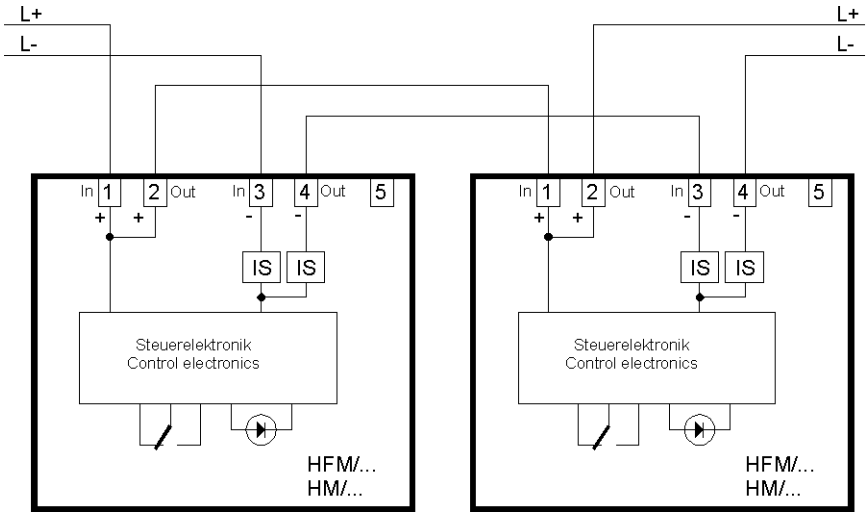
For input modules, characteristics of connecting the Soteria modules to the BC216 are described from Chapter 3.13.4 onwards, and for output modules they are described from Chapter 3.16.5 onwards.

3.7 Connection of manual call points

The following manual call points can be connected to the fire detection control panel:

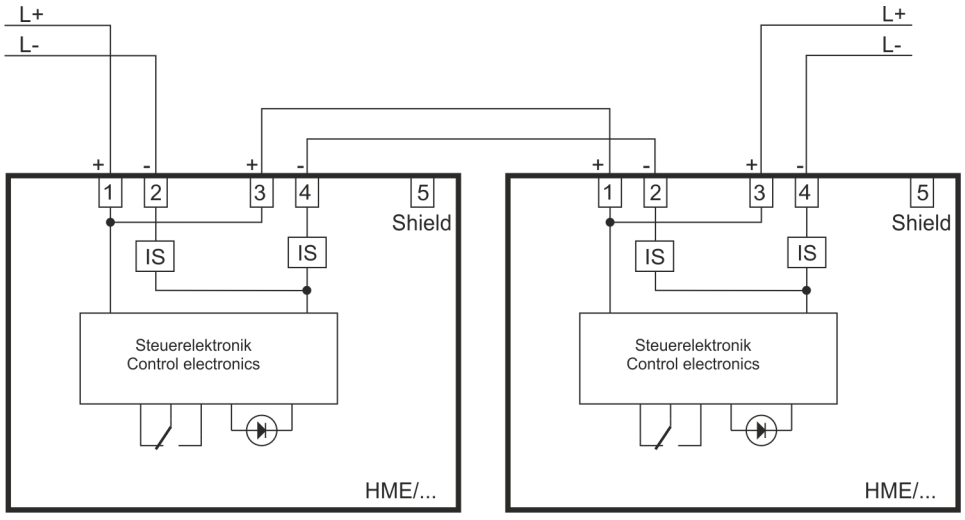
Description	Type
Manual Call Point	HFM/3/32/xx, HM/x/32/xx/xx
Manual Call Point Series HME	HME/FFFF/32/TT/LL
Manual Call Point XP95	55100-908
Manual Call Point Soteria	SA5900-908

3.7.1 Connection of Manual Call Points Series HFM/HM



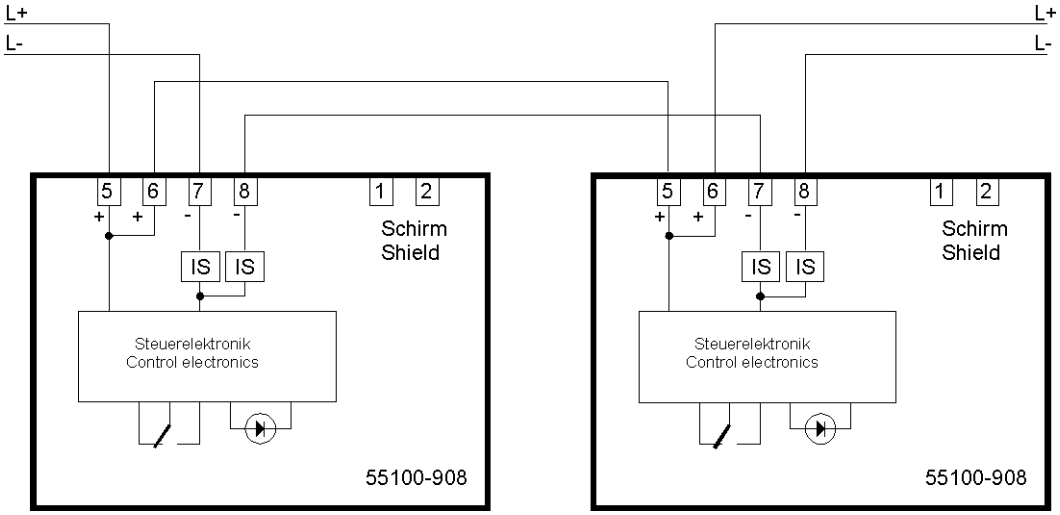
For information on how to set the address, see from page 126 onwards in Chapter 3.5.1: "Manual call points".

3.7.2 Connection of Manual Call Points Series HME



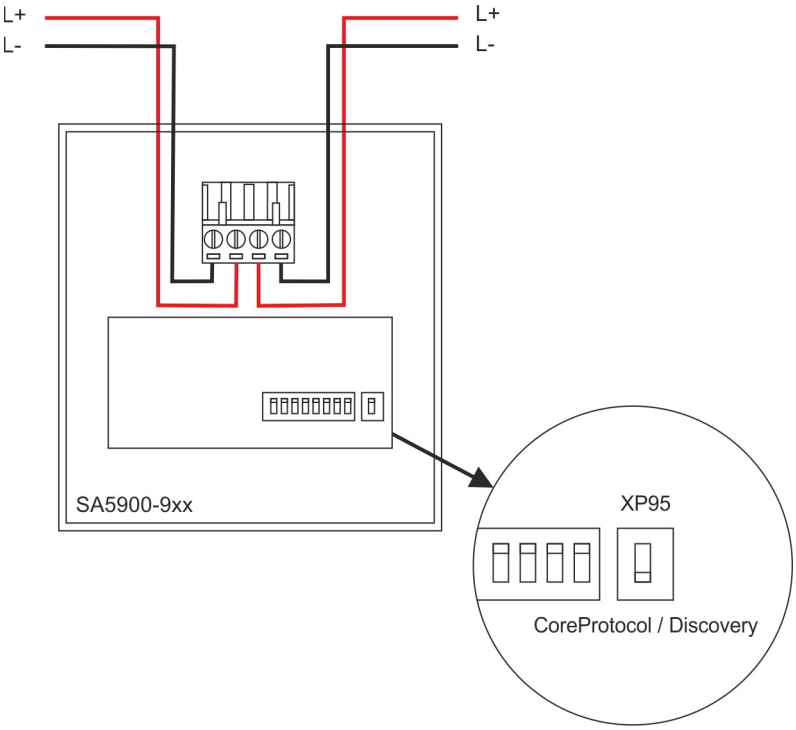
For information on how to set the address, see from page 126 onwards in Chapter 3.5.1: "Manual call points".

3.7.3 Manual call points Apollo Series XP95 – 55100-908



For information on how to set the address, see from page 126 onwards in Chapter 3.5.1: "Manual call points".

3.7.4 Manual call points Apollo Series Soteria – SA5900-908



For information on how to set the address, see Chapter 3.5.1: "Manual call points" from page 126 onwards.

The single switch must be set to the position "CoreProtocol / Discovery".
The Manual Call Point SA5900-908 can **NOT** be used on Fire Detection Control Panels Series BC216!

3.8 Connection of intelligent automatic detectors

3.8.1 Series XP95 – Series Discovery

If the Detector Base 45681-210, 45681-242, 45681-321 or 45681-284 is used, the following automatic detectors can be connected to the fire detection control panel.

Pay attention to the remark regarding the isolator bases, which is found at the end of the table.

Description	Type
Ionisation Smoke Detector	55000-520
Optical Smoke Detector	55000-620
Optical-Thermal Detector	55000-885
Thermal Detector	55000-420
Carbon Monoxide Detector	58000-300
CO/T Detector Discovery [1)]	58000-305
Thermal Detector	58000-400
Ionisation Smoke Detector Discovery	58000-500
Optical Smoke Detector Discovery	58000-600
Optical-Thermal Detector	58000-700
Ionisation Smoke Detector EX	55000-540
Optical Smoke Detector EX	55000-640
Thermal Detector EX	55000-440

1) The product 58000-305 is supported by the Fire Detection Control Panel Series BC600 since firmware version V1.06 1828.

In the detector base the desired address must be set by means of the code card. For details see from page 128 onwards in Chapter 3.5.2: "Automatic detectors".

The isolator bases 45681-321, 45681-320 - 10D and 45681-323 - 20D are NOT compatible with the detectors 58000-300 and 58000-305.

The detector 55000-420 can be operated as a thermal RoR detector on the BC216 without any restrictions. If the 55000-420 is used as an A1R detector on the BC600, the maximum number of these detectors is reduced to 50 per loop. PARSOFT checks the number of parameterised elements and provides an error message if the permissible value is exceeded.
If a thermo-differential evaluation is required, the number of elements must be reduced to less than 51, for example by replacing them with 58000-400 or SA5000-400 or SA5100-400.

3.8.2 Series Soteria

If the Detector Base 45681-210, 45681-242, 45681-284 or **SA5000-200** is used, the following automatic detectors can be connected to the fire detection control panel.

Description	Type
Optical Smoke Detector/Core	SA5000-600
Optical Smoke Detector/CoreISM	SA5100-600APO
Optical Smoke Detector/CoreISM	FL5100-600, FL6100-600
Optical-Thermal Detector/Core	SA5000-700
Optical-Thermal Detector/CoreISM	SA5100-700APO
Thermal Detector/Core	SA5000-400
Thermal Detector/CoreISM	SA5100-400APO

These products are supported by the Fire Detection Control Panel Series BC600 since firmware version V1.06 1828.

The isolator bases 45681-321, 45681-320 - 10D and 45681-323 - 20D are NOT compatible with the Series Soteria detectors. When replacing detectors with Soteria models, detectors with built-in isolator are to be used and the isolator base is to be replaced with the model SA5000-200.

3.8.3 Detector base and isolator function

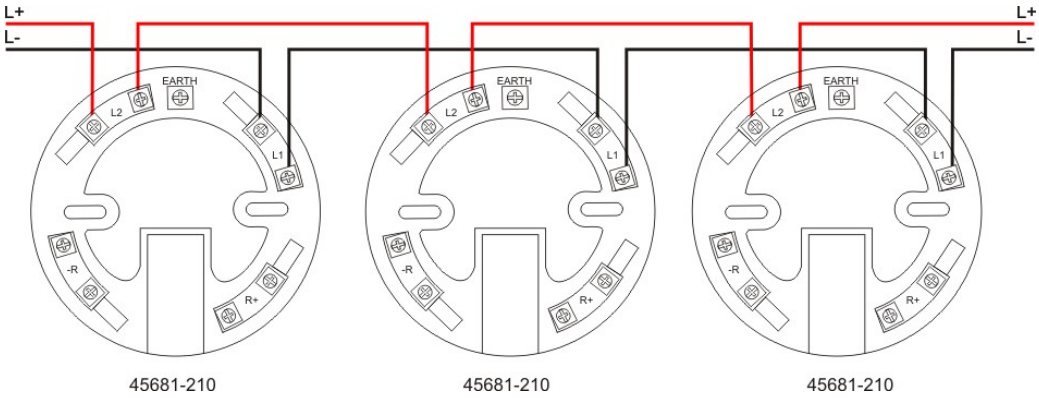
Whether the isolator (ISO) of the element can be used depends on the installed detector base. However, there are also combinations that are not allowed. The table below provides more information.

Detector base – Description		Soteria with isolator	Soteria/Discovery/XP95 without isolator
45681-210	Mounting base	isolator not used	no isolator functionality
45681-209	Deep base	isolator not used	no isolator functionality
45681-242	Relay base	isolator not used	no isolator functionality
45681-219	Heater base	isolator not used	no isolator functionality
45681-284	Isolating base	isolator in the base operable	isolator in the base operable
45681-321	Isolating base	NOT ALLOWED	The combination is not permitted for all Soteria detectors and for Discovery detectors 58000-300 and 58000-305. Electrically incompatible!
45681-320	Isolating base	NOT ALLOWED	
45681-323	Isolating base	NOT ALLOWED	
SA5000-200	Mounting base	detector isolator operable	no isolator functionality

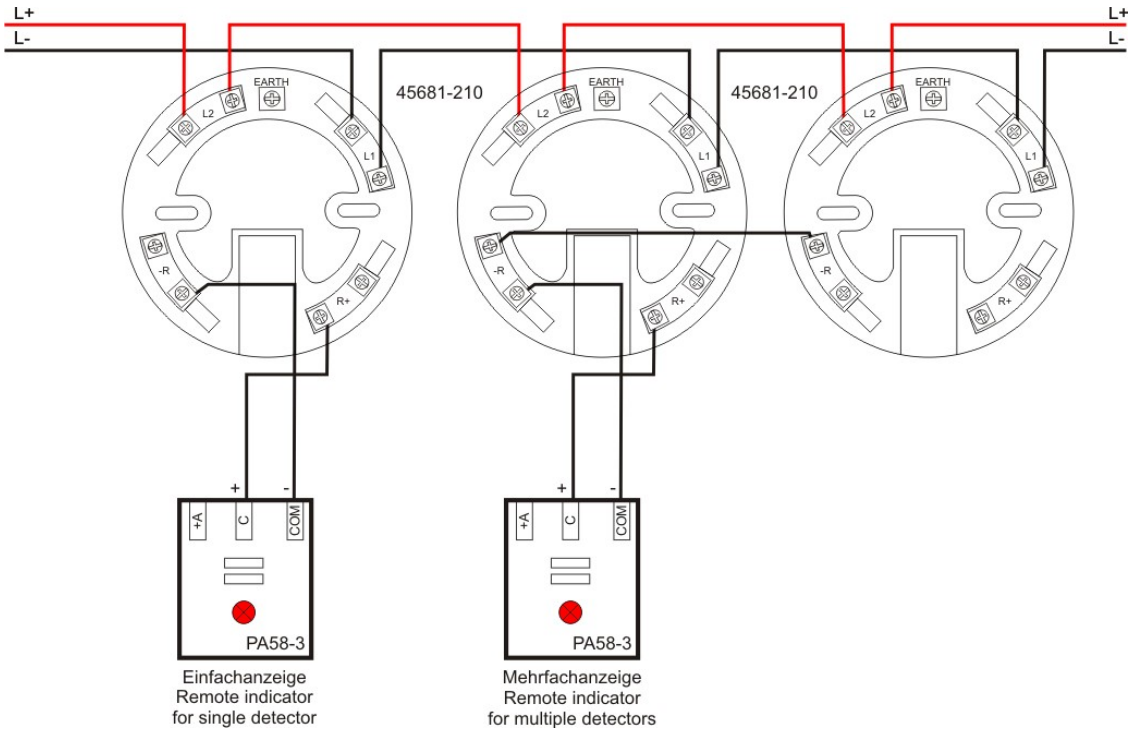
3.8.4 Detector Base 45681-210

All automatic detectors are connected to the detector zone in parallel. Alarm resistors or line terminating resistors are not required.

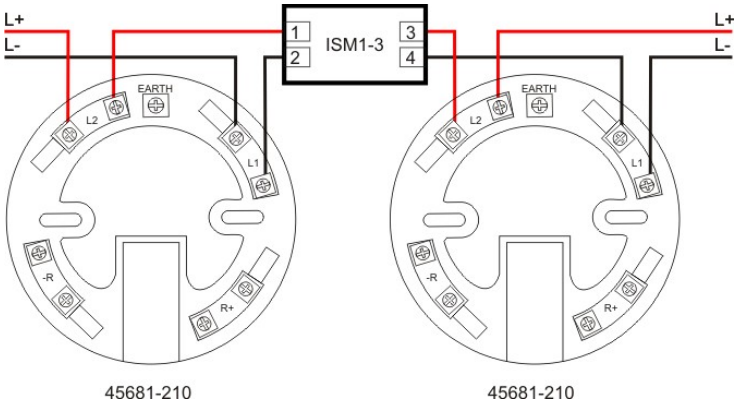
3.8.4.1 Connection of 45681-210



3.8.4.2 Connection of detectors with Remote Indicator PA58-3



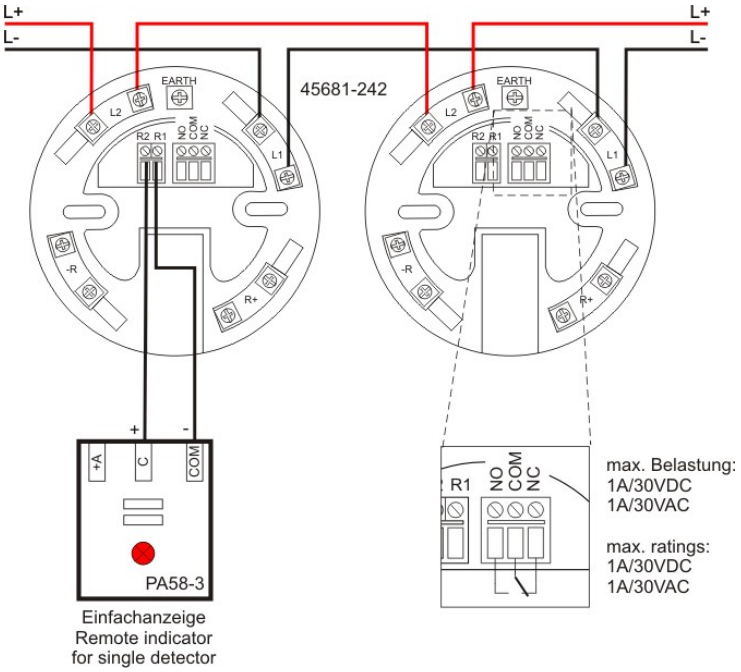
3.8.4.3 Connection of detectors with Isolator Module ISM1-3



For details see from page 122 onwards in Chapter 3.3: "Use of isolators".

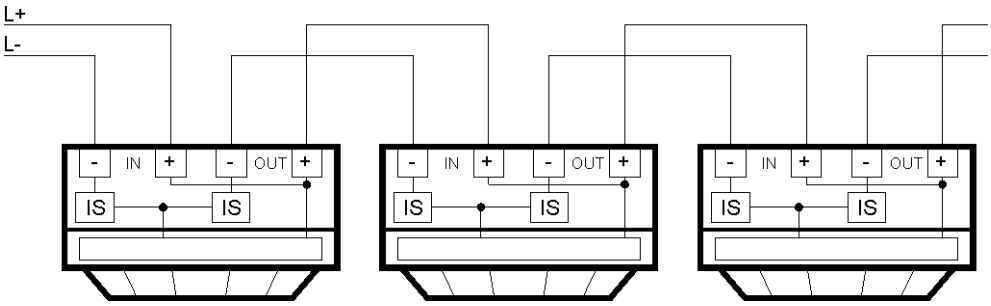
3.8.5 Detector Base 45681-242 with integrated relay

All automatic detectors are connected to the detector zone in parallel. Alarm resistors or end-of-line resistors are not required.



3.8.6 Detector Base 45681-321 with integrated isolator module

An isolator module is integrated in every detector base. In the event of a short circuit on the 2-wire line, the isolator modules before and behind the short circuit open the connection. As a result, all detectors that are not affected by the short circuit remain functional.



For further details, see from page 122 onwards in Chapter 3.3: "Use of isolators".

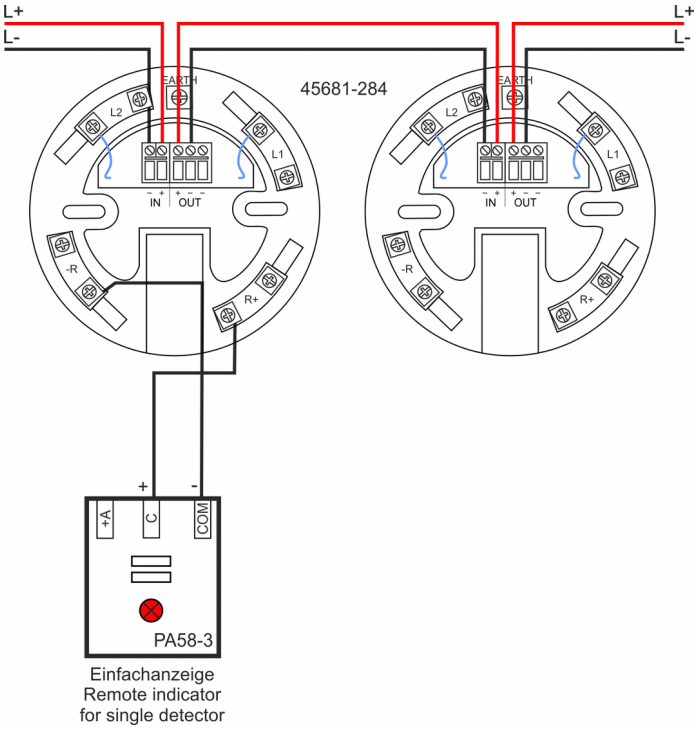
The isolator base 45681-321 is NOT compatible with Series Soteria detectors. When replacing detectors with Soteria models, detectors with built-in isolator are to be used and the isolator base is to be replaced with the model SA5000-200.

Furthermore, this base must not be used together with the flame detectors for base mounting – 55000-022APO, -023APO, -024APO and 55000-027MAR, -028MAR, -029MAR.

If you use this base together with the Discovery detectors with CO sensor – the Discovery Carbon Monoxide Detector 58000-300APO and the Discovery CO thermal Detector 58000-305APO – you have to make sure that the base is connected with the correct polarity.

3.8.7 Detector Base 45681-284 with integrated isolator module

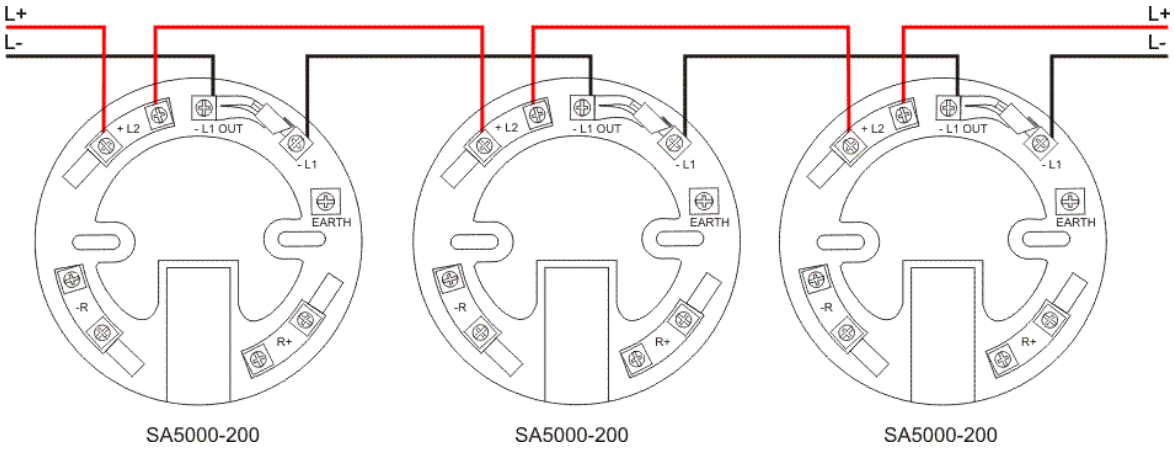
An isolator module is integrated in every detector base. In the event of a short circuit on the 2-wire line, the isolator modules before and behind the short circuit open the connection. As a result, all detectors that are not affected by the short circuit remain functional.



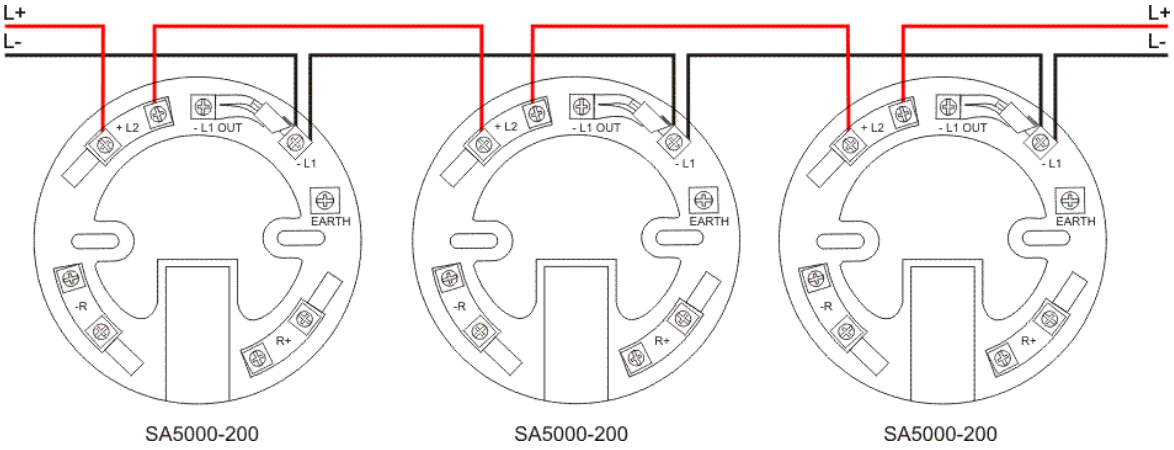
For further details, see from page 122 onwards in Chapter 3.3: "Use of isolators".

3.8.8 Detector Base SA5000-200

This detector base is designed to accommodate the Series Soteria detectors. A spring contact between the MINUS terminals connects the loop if the base does not contain a detector.

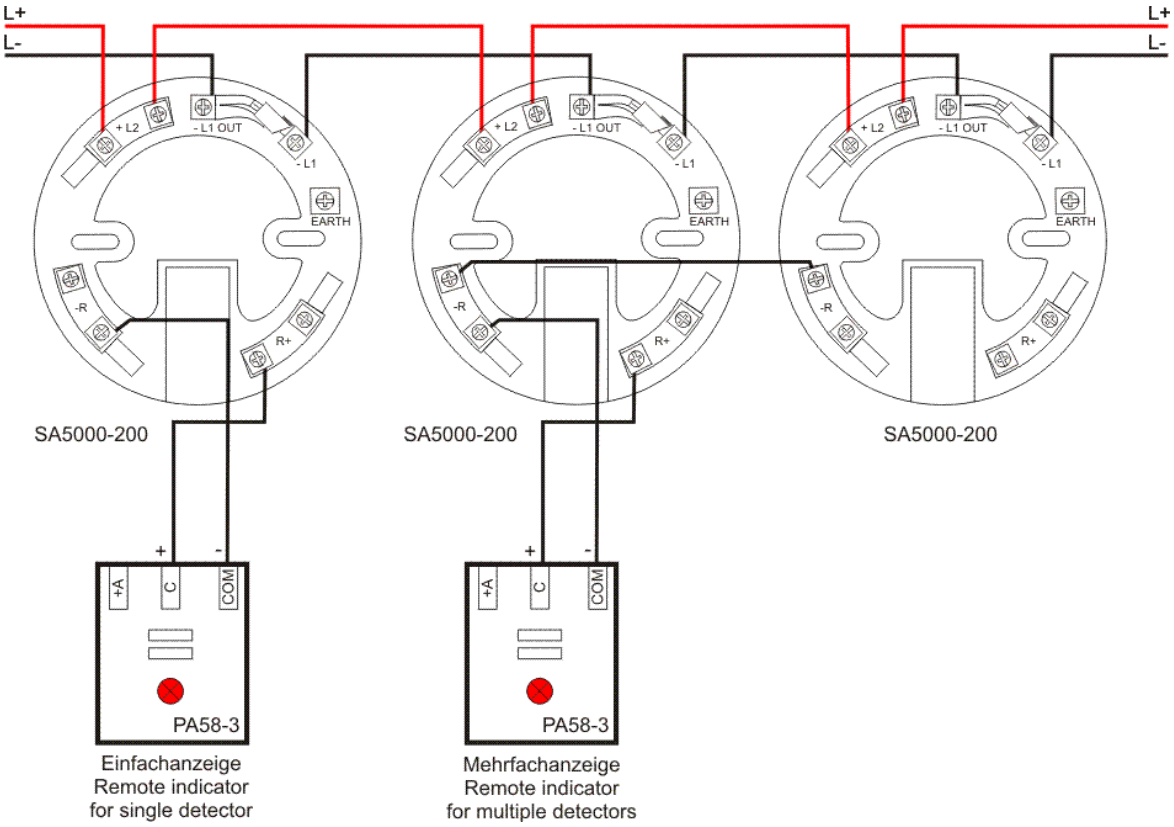


3.8.8.1 Detector Base SA5000-200 – bridging the isolator of the detector



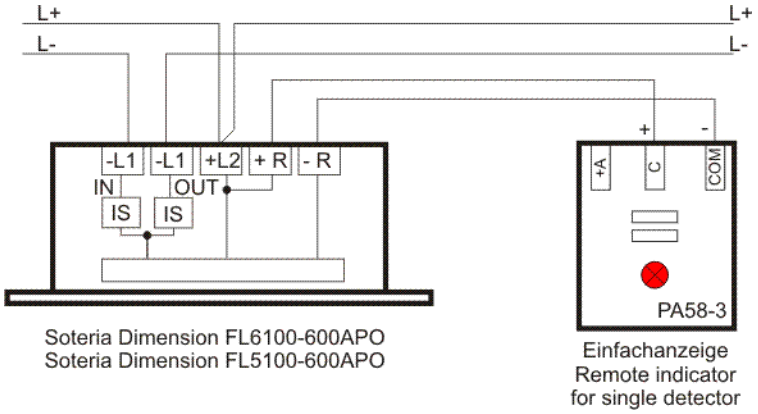
If both MINUS wires are connected to the same terminal, the isolator with which some Soteria detectors are equipped is bypassed.

3.8.8.2 Detector Base SA5000-200 – with parallel output actuation



3.8.9 Soteria – DIMENSION

It is also possible to connect the detectors FL5100-600APO and FL6100-600APO to the fire detection control panel. The address is set by means of switches.



Soteria Dimension FL6100-600APO
Soteria Dimension FL5100-600APO

Einfachanzeige
Remote indicator
for single detector

These products are supported by the Fire Detection Control Panel Series BC600 since firmware version V1.06 1828.

The detector can only be inserted into the base if the bridging contact in the detector base is inactive.

Please note the special requirements (in the documentation that accompanies the product) regarding the orientation of the detector.
The detector is able to detect that it has been covered.

It is not possible to test the Dimension detector with test gas by means of the standard detector tester Solo 330. The proximity sensor in the detector would detect an obstruction of the detector, which would result in a fault.

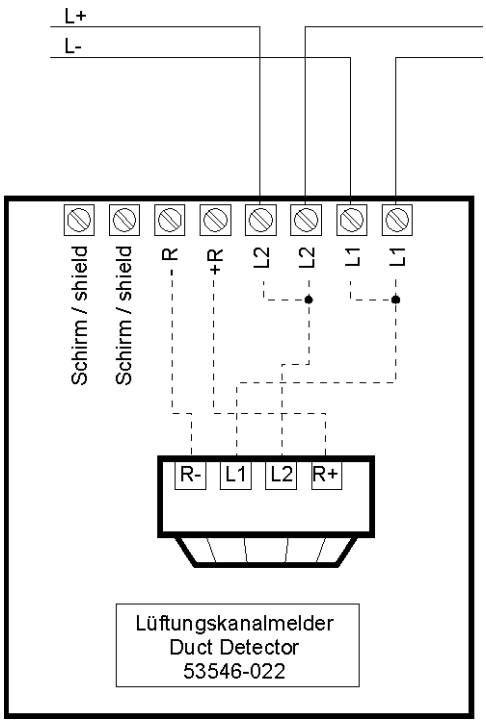
The following means of testing the function are available:

- Smoke pen
- Solo 365 together with the Solo 372 adaptor

3.8.10 Duct Detector 53546-022

The Duct Detector 53546-022 contains a Detector Base 45681-210 for use with the following detectors:

Description	Type
Ionisation Smoke Detector XP95	55000-520
Optical Smoke Detector XP95	55000-620
Ionisation Smoke Detector Discovery	58000-500
Optical Smoke Detector Discovery	58000-600



3.8.11 Linear Hear Detector Unit – SKM-95

3.8.11.1 Address setting

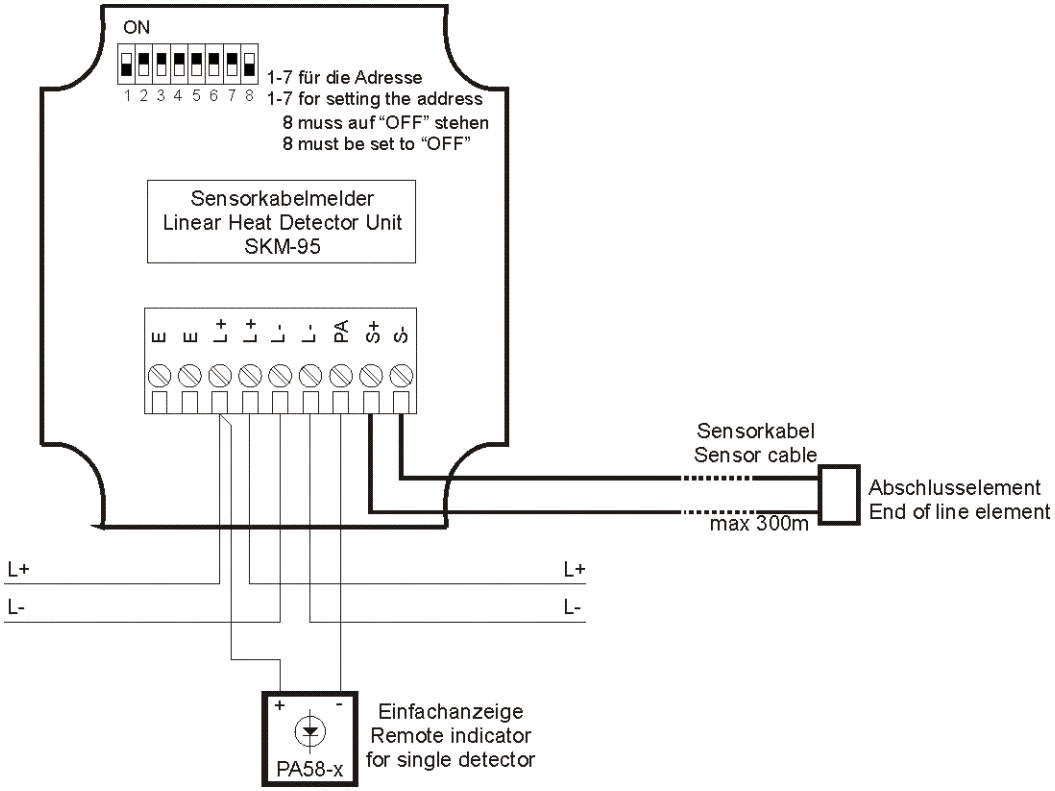
The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

3.8.11.2 Function of the LED

In case of an open isolator the yellow LED will illuminate.

The red LED will be active if an alarm is detected.

3.8.11.3 Connection



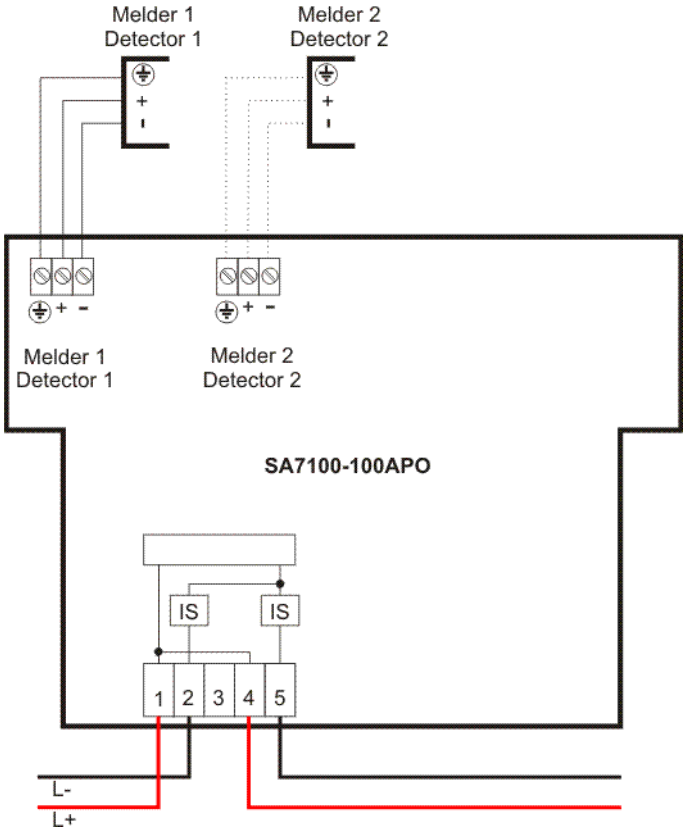
3.8.12 Beam Smoke Detector SA7100-100APO

3.8.12.1 Address setting

For information on how to set the address, please refer to the piece of paper that accompanies the product.

3.8.12.2 Connection

Die erlaubte Kabellänge **SA7100-100APO - Melder** beträgt max.100m
The allowed cable length **SA7100-100APO - Detector** is max.100m



3.8.13 Position Switch ÜWA-FMZ4100-M20x1.5 – SUX5000AP

3.8.13.1 Address setting

In the position switch, a Monitor Module SUX5000AP is used.

The address of the element is set with DIP switches 1-7.

The position switch is to be parameterised as 55000-833.

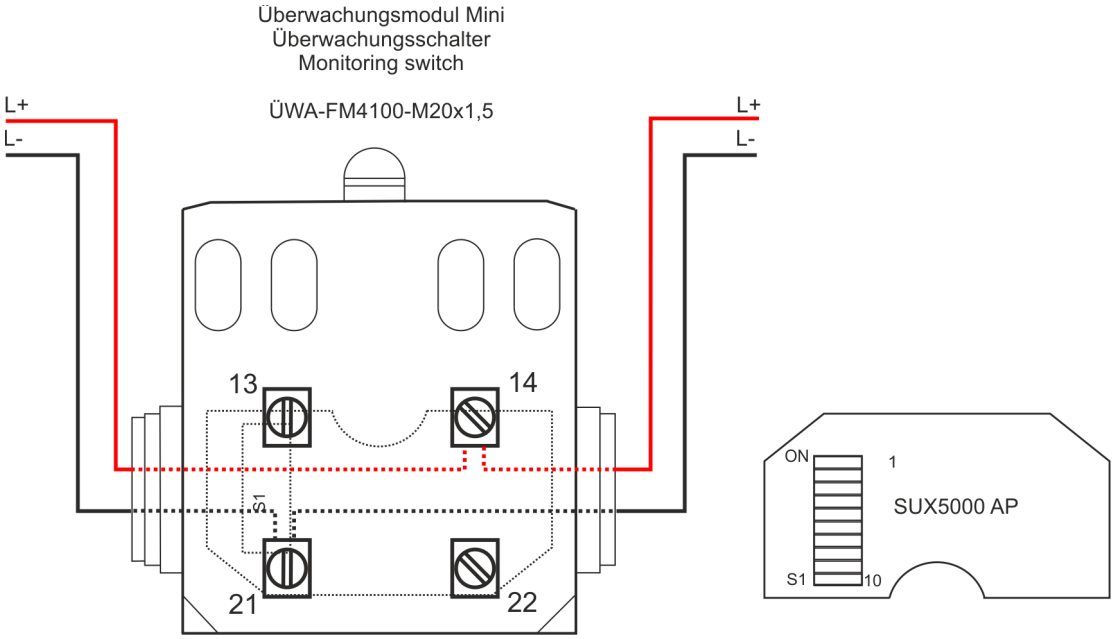
3.8.13.2 Function of the DIP switches

DIP switches 1-7: address
DIP switch 8: This switch must be in the **ON** position
DIP switch 9: This switch must be in the **ON** position
DIP switch 10: Here you can set whether the position switch has the "GR" (pressed: idle) or "GA"(pressed: alarm) function.

DIP switch 10 – ON – (pressed: idle)
DIP switch 10 – OFF – (pressed: alarm)

The use of the parallel output is not supported by the fire detection control panel.

3.8.13.3 Connection



3.9 Intrinsically safe detection circuits for hazardous areas

3.9.1 Automatic detectors

The detectors listed below have been designed especially for use in intrinsically safe electric circuits which are created by means of the Protocol Interface 55000-855 and the Safety Barrier 29600-098. The devices comply with the internationally applicable regulations (EECS ATEX 0073, Ex Class EEx ia IIC T5).

Description	Type
Ionisation Smoke Detector	55000-540
Optical Smoke Detector	55000-640
Thermal Detector	55000-440

In order to install these detectors, the Detector Base 45681-215 has to be used.

3.9.1.1 Safety barrier

Two products are needed for the connection between the automatic detectors and the loop.

Description	Type
Protocol Interface	55000-855
Safety Barrier	29600-098

The Protocol Interface 55000-855 serves as a protocol converter and is connected to a loop. At the output of the 55000-855, the Safety Barrier 29600-098 is connected. The number of detectors that can be connected is limited and depends on the batch number of the safety barrier.

Batch number of 29600-098	Limitation
71977	max. 1 detector connectable
72157, 107496 or 207802	max. 5 detectors connectable

Please note the maximum number of detectors which depends on the batch number of the Safety Barrier 29600-098 (Pepperl&Fuchs KFDO-CD-Ex1.54).

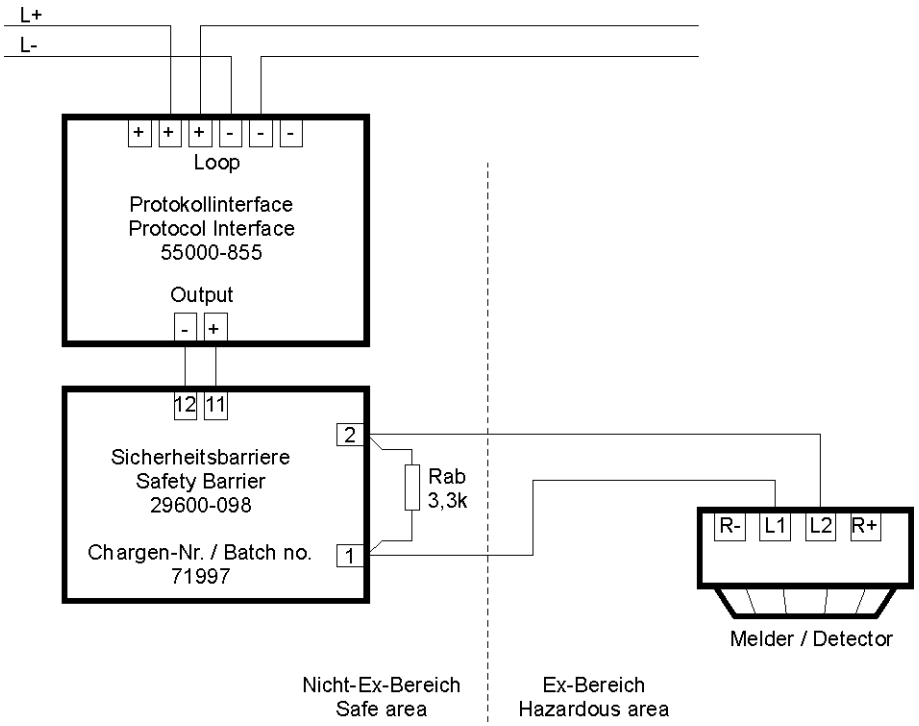
Due to the galvanic isolation between the hazardous area and the safe area, earth faults can not be detected in the protected area if the Safety Barrier 29600-098 is used. The fire detection control panel will immediately indicate an earth fault if an earth fault occurs in the wiring between the control panel and the safety barrier.

The line between the Safety Barrier 29600-098 and the last detector must not exceed the values listed below, which correspond to a line length of approx. 500 metres:

- Line resistance: max. 20 Ohms per wire
- Line capacitance max. 80nF

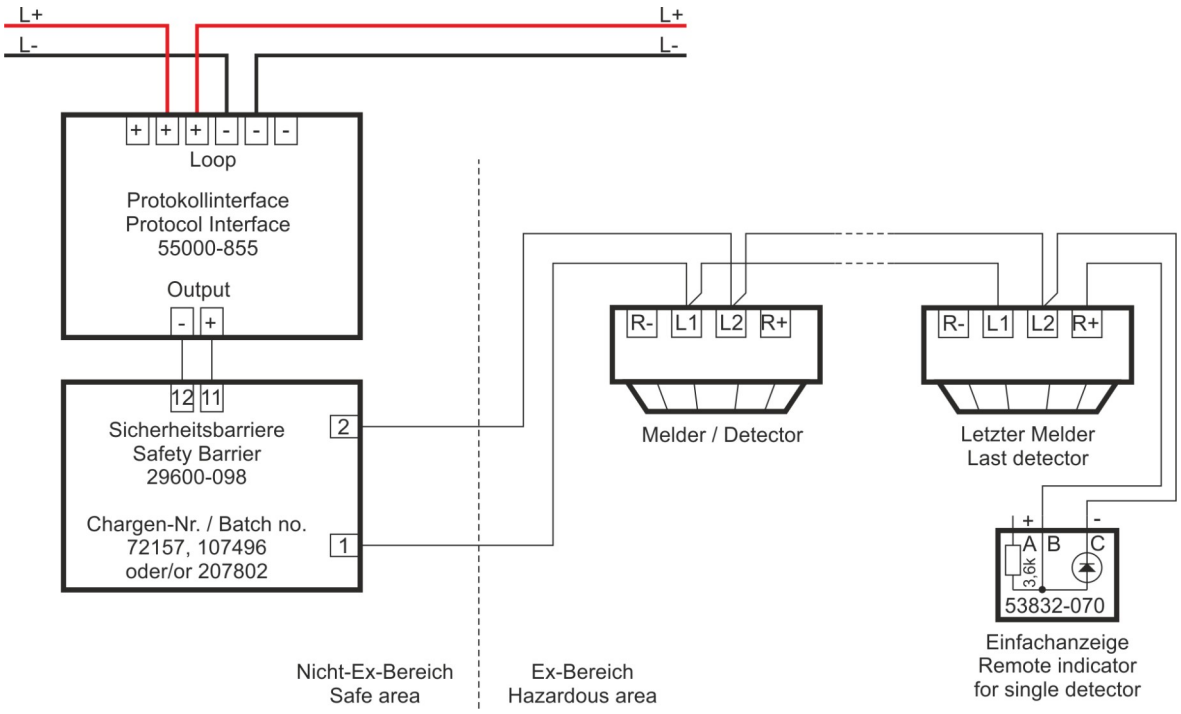
The safety barrier must be installed outside the hazardous area but as near as possible to it.

3.9.1.2 Connection with 45681-215 and Safety Barrier 29600-098 (batch number 71977)



The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

3.9.1.3 Connection with 45681-215 and 29600-098 (batch number 72157, 107496 or 207802)



The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

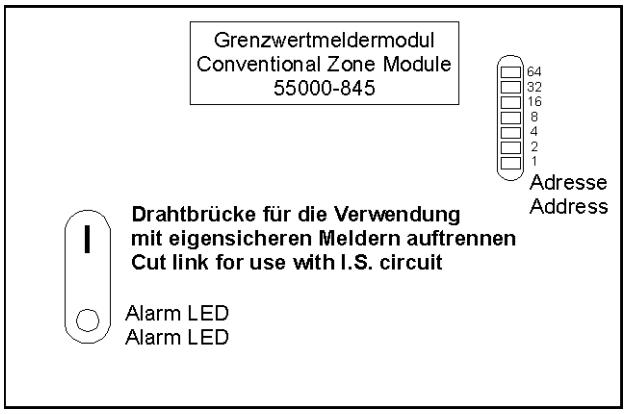
3.9.2 Automatic detectors and manual call points with Conventional Zone Module 55000-845

The following devices can be connected to a Conventional Zone Module 55000-845 to create intrinsically safe detector circuits:

Description	Type
Safety Barrier	ES58-2
ORBIS I.S. Optical Smoke Detector	OP-52027
ORBIS I.S. Optical-Thermal Detector	OH-53027
ORBIS I.S. Thermal RoR Detector	HT-51145
ORBIS I.S. Thermal Max Detector	HT-51157
Optical Smoke Detector	SLR-E-IS
Thermal Detector	6295
Thermal Detector	6296
Manual Call Point	dC31

Due to the galvanic isolation between the hazardous area and the safe area, earth faults can not be detected if the Safety Barrier ES58-2 is used.

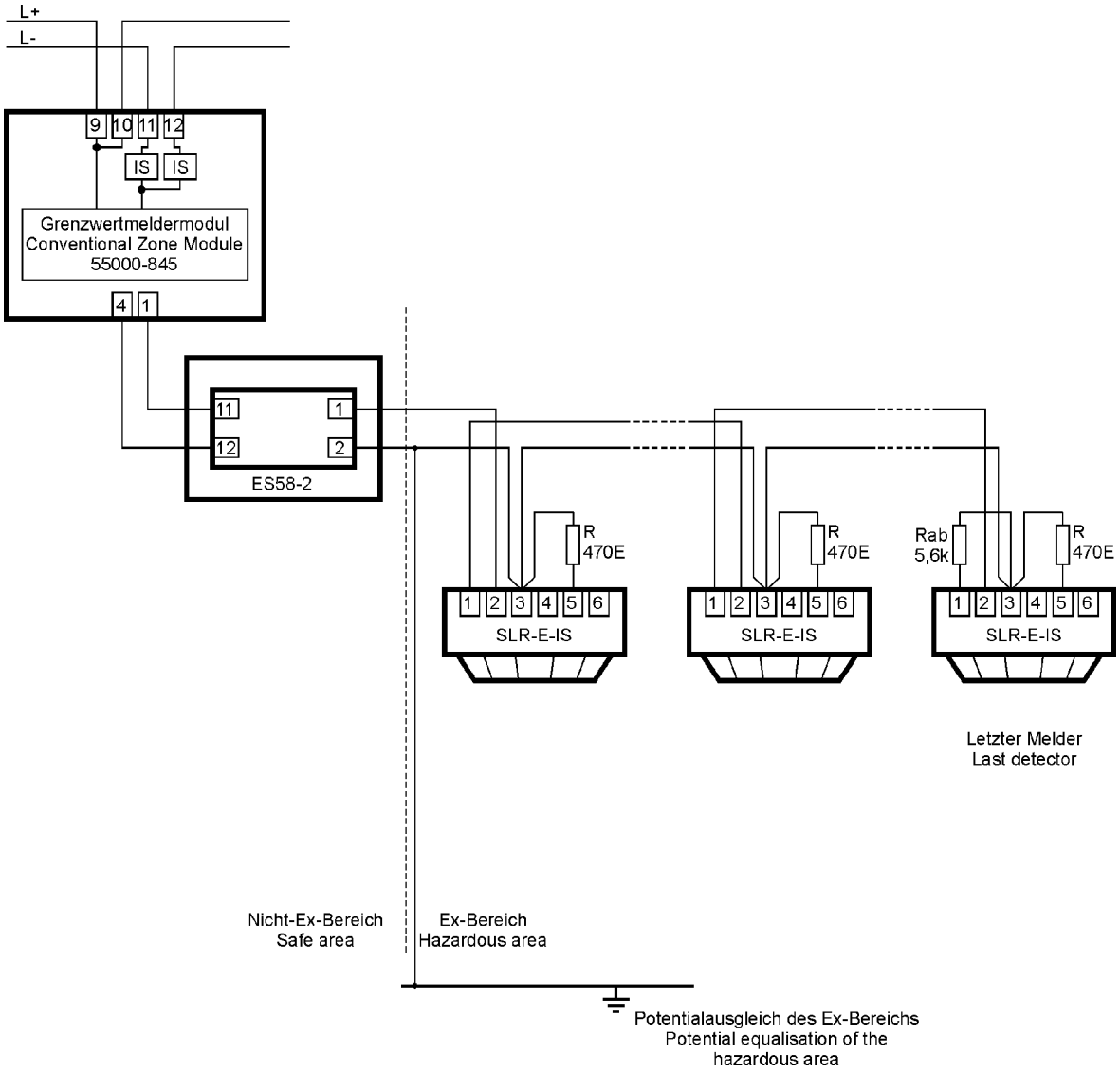
The safety barrier must be installed outside the hazardous area but as near as possible to it.



If intrinsically safe detectors are connected to the Conventional Zone Module 55000-845, the wire link near the module's alarm LED must be cut.

3.9.2.1 Optical Smoke Detector SLR-E-IS

Up to 20 Optical Smoke Detectors SLR-E-IS can be connected to a conventional zone module. The length of the line between the safety barrier and the last detector must not exceed 500m.



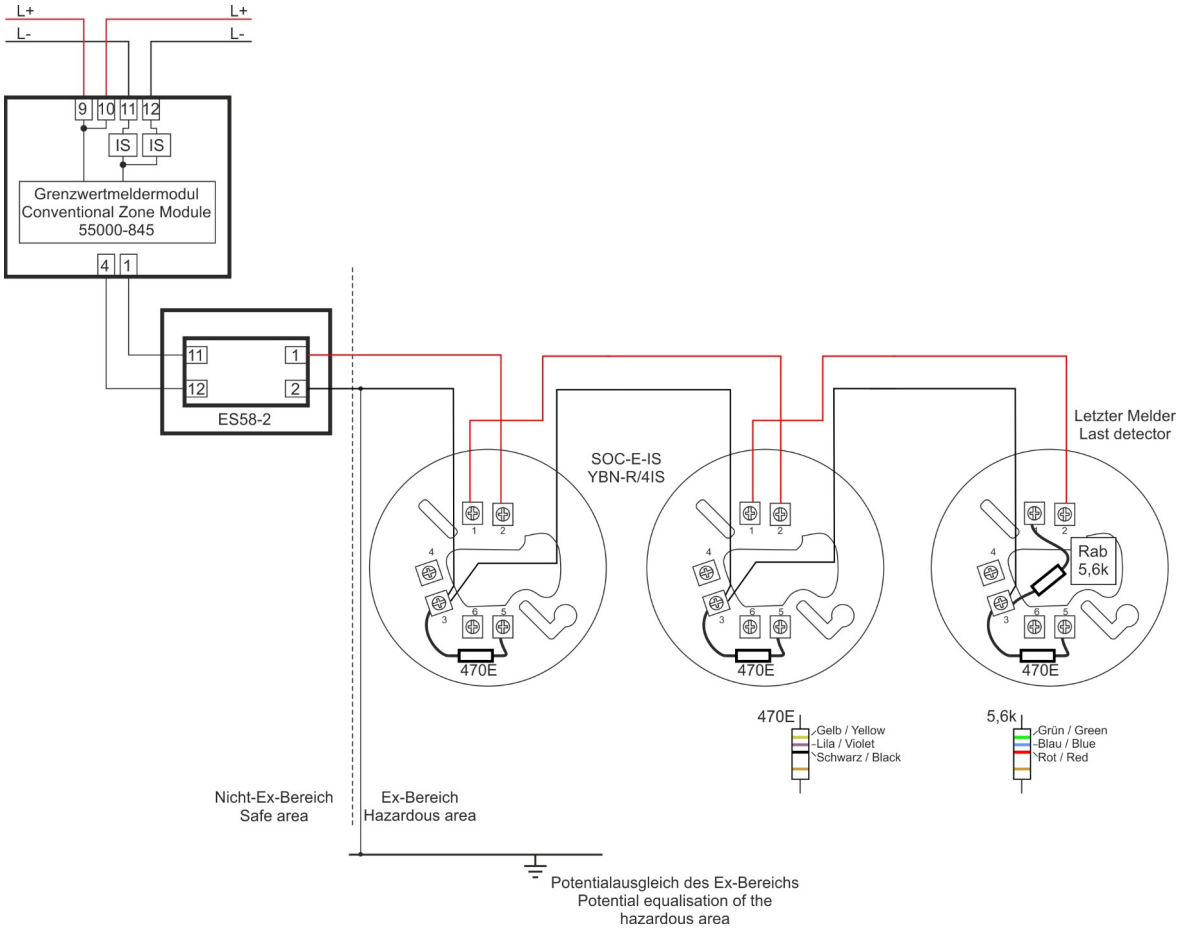
A short circuit at the output of the ES58-2 (terminals 1 / 2) will be evaluated as alarm.

If intrinsically safe detectors are connected to the Conventional Zone Module 55000-845, the wire link near the module's alarm LED must be cut.

The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

3.9.2.2 Optical Smoke Detector SOC-E-IS

Up to 8 Optical Smoke Detectors SOC-E-IS can be connected to a conventional zone module. The line length between the safety barrier and the last detector must not exceed 500m.



A short circuit at the output of the ES58-2 (terminals 1 / 2) will be evaluated as alarm.

If the Conventional Zone Module 55000-845 is to be used, the wire link near the module's alarm LED must be cut.

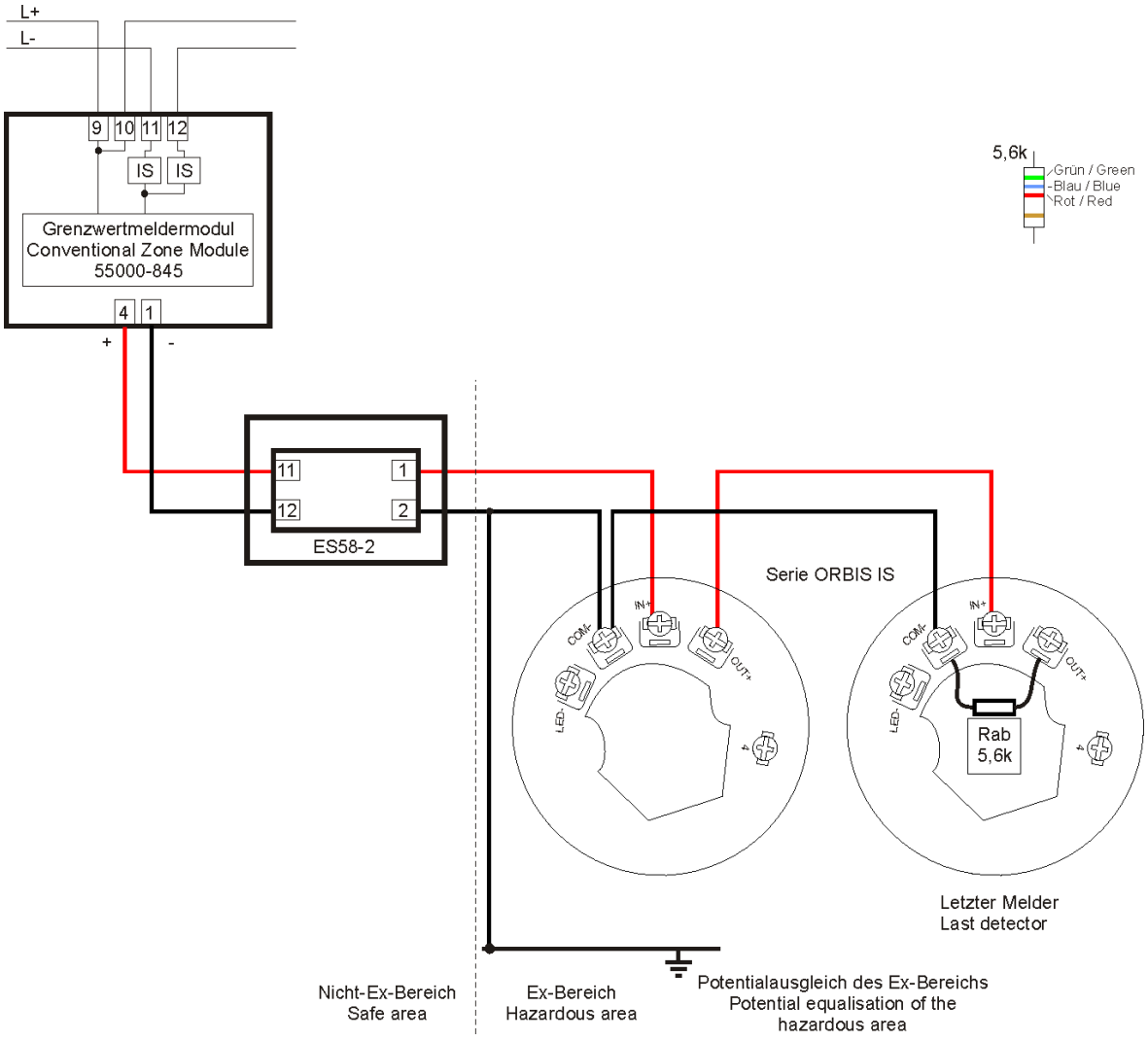
The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

3.9.2.3 Automatic detectors Series ORBIS I.S.

The connection below applies to the following detectors:

- Optical Smoke Detector OP-52027
- Optical-Thermal Detector OH-53027
- Thermal Detector HT-51145 (A1R)
- Thermal Detector HT-51157 (A1S)
- Thermal Detector HT-51147 (A2S)
- Thermal Detector HT-51149 (BR)
- Thermal Detector HT-51151 (BS)
- Thermal Detector HT-51153 (CR)
- Thermal Detector HT-51155 (CS)

In the hazardous area, up to 23 detectors may be connected. For the connection of the ORBIS I.S. detectors, the Detector Base MB-50018 is needed.



A short circuit at the output of the ES58-2 (terminals 1 / 2) will be evaluated as alarm.
You must **not** connect **more than 23 detectors**.

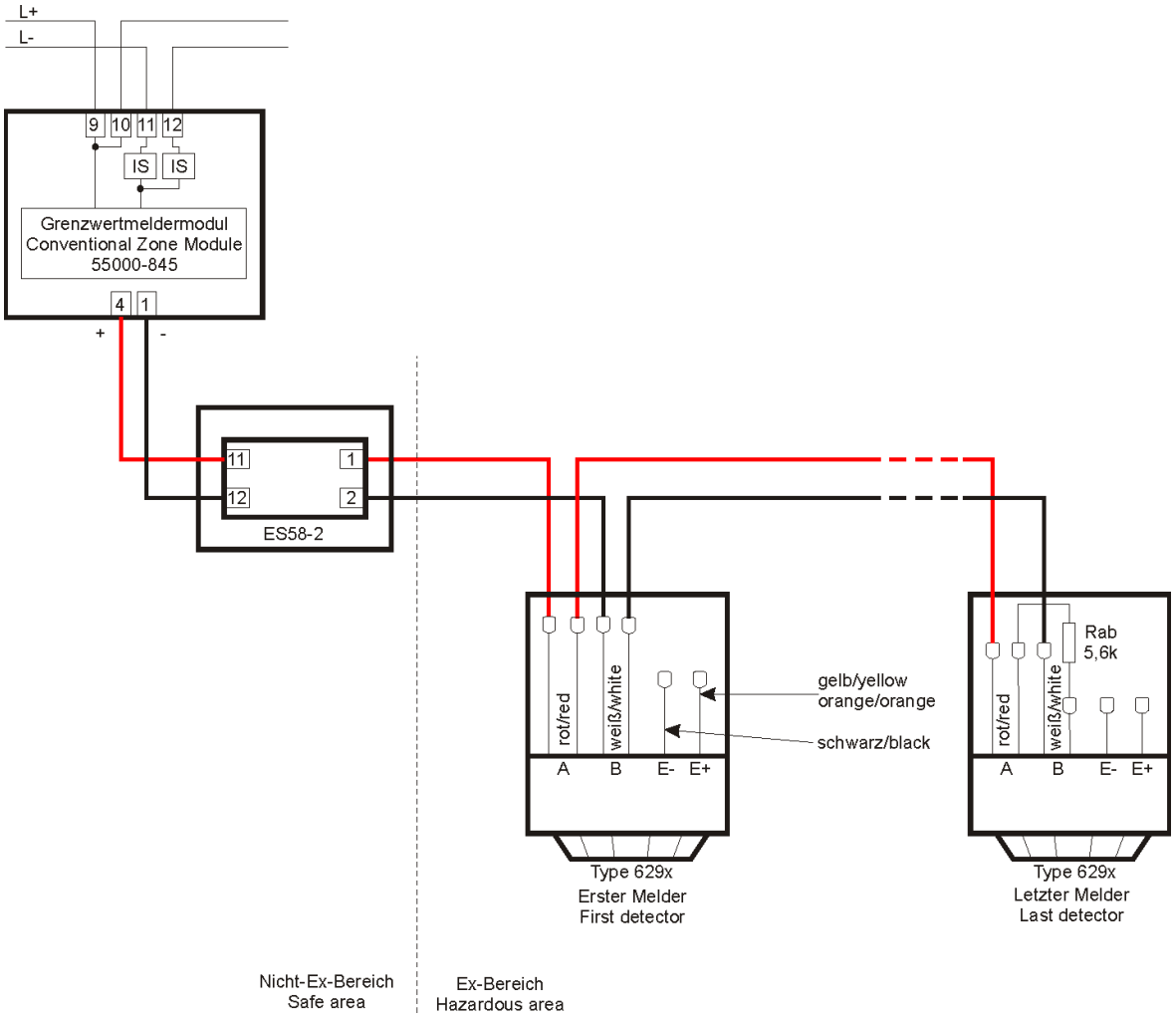
If intrinsically safe detectors are connected to the Conventional Zone Module 55000-845, the wire link near the module's alarm LED must be cut.

The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

3.9.2.4 Thermal Detectors 6295 and 6296

Up to 32 Thermal Detectors 6295 or 6296 may be connected to a conventional zone module.

Type	EN 54-5 Class
6295	57°C – A2S
6296	72°C – B2



A short circuit at the output of the ES58-2 (terminals 1 / 2) will be evaluated as alarm.

If intrinsically safe detectors are connected to the Conventional Zone Module 55000-845, the wire link near the module's alarm LED must be cut.

The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

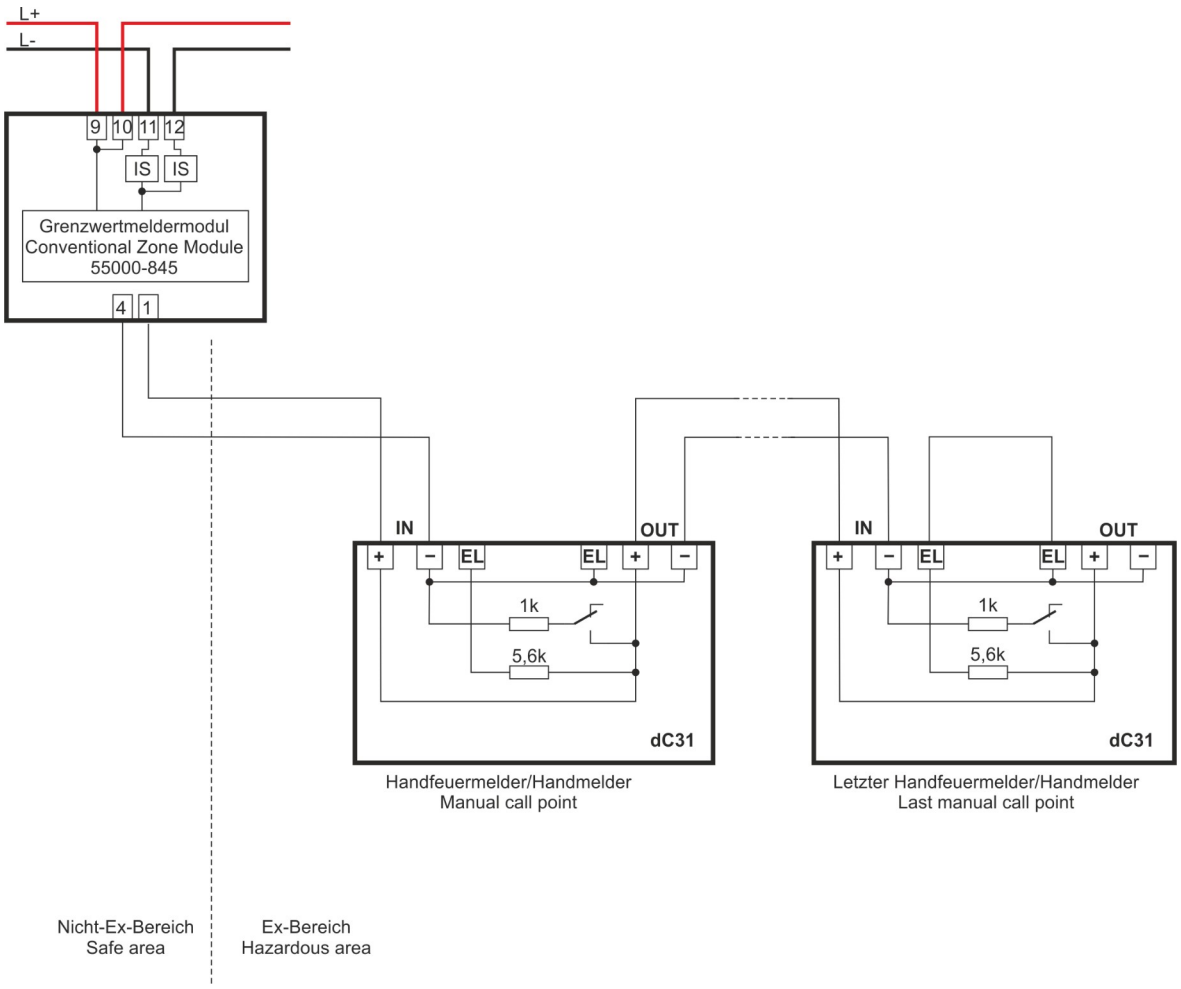
3.9.3 Intrinsically safe detectors for hazardous areas

3.9.3.1 Manual call point Ex dC31

Thanks to the types of protection "increased safety", "encapsulation" and "protection by enclosures", up to 20 Manual Call Points Ex dC31 can be used without the Safety Barrier ES58-2 or the Zener Barrier Z978.

When ordering this manual call point, you have to specify the resistance values (alarm and end-of-line resistor) of this detector, because they are sealed within the detector housing and can not be changed at a later stage.

The installation in the hazardous area has to comply with EN 60079 because the energy in the supply line is not limited by a safety barrier.



If intrinsically safe detectors are connected to the Conventional Zone Module 55000-845, the wire link near the module's alarm LED must be cut.

The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

3.9.3.2 Flame Detectors – Series 16000

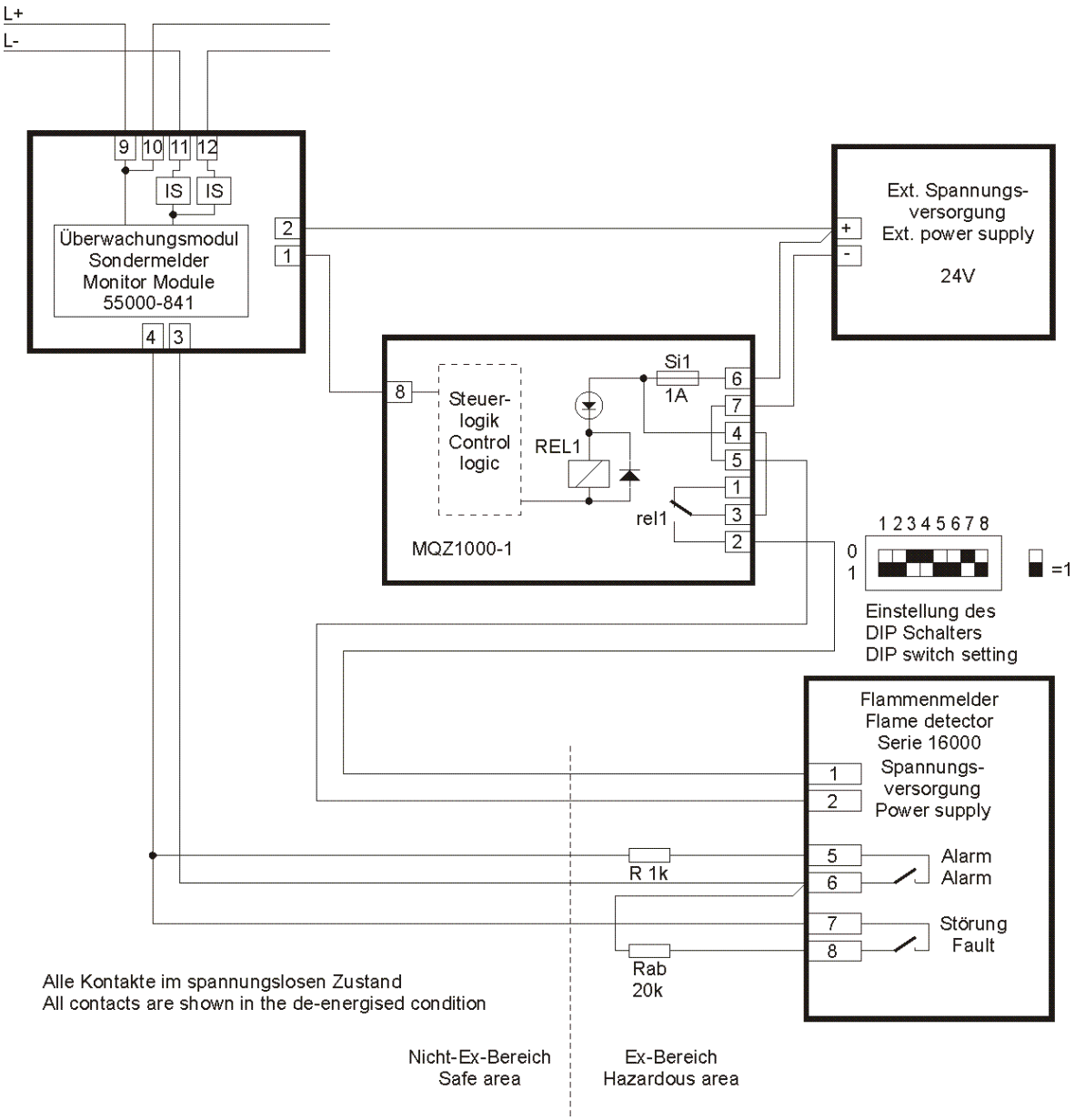
Thanks to the ignition protection class "flameproof enclosure", the flame detector can be used without a safety barrier or zener barrier.

Type	EN 54-10 Class 1
16511	IR2
16519	IR3
16521	UV/IR2

SW6	SW7	Response time
0	0	8s
1	0	4s
0	1	2s
1	1	1s

By means of the DIP switches, the detector can be adjusted to the various operating conditions. The switches 6 and 7 allow you to change the response time.

The installation in the hazardous area has to comply with EN 60079 because the energy in the line is not limited by barriers.

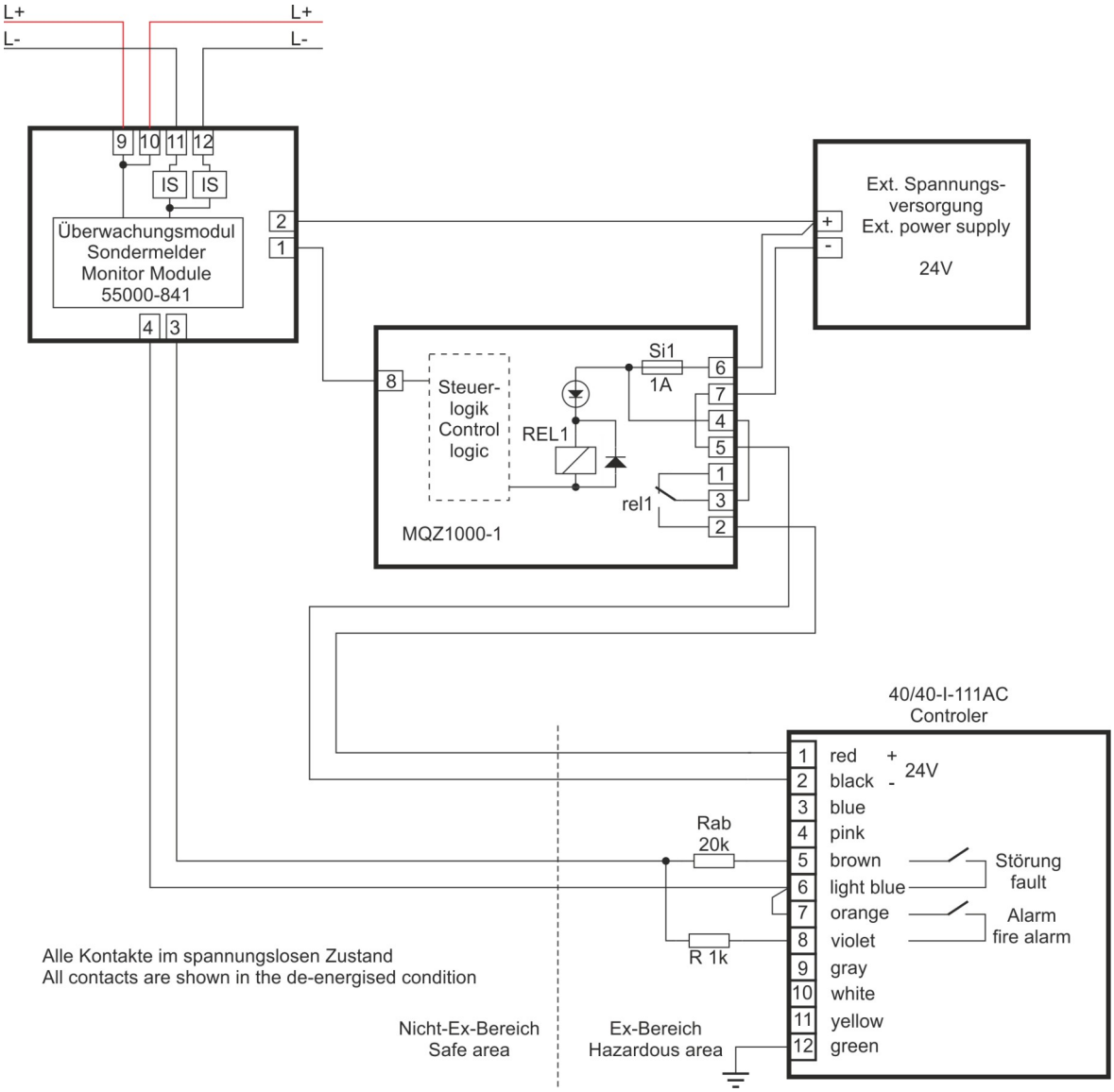


As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600. For the output of the module, the signal type "Pulsed signal, retrigger func." must be parameterised, and the output must be combined with the events "Control panel reset", "Zone -

test alarm" and "Disablement zone/element" of the special detector. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector. The MQZ1000-1 can be omitted.

3.9.3.3 Flame Detector – 40/40-I-111AC

Thanks to the ignition protection class "flameproof enclosure," the flame detector can be used without a safety barrier or zener barrier.



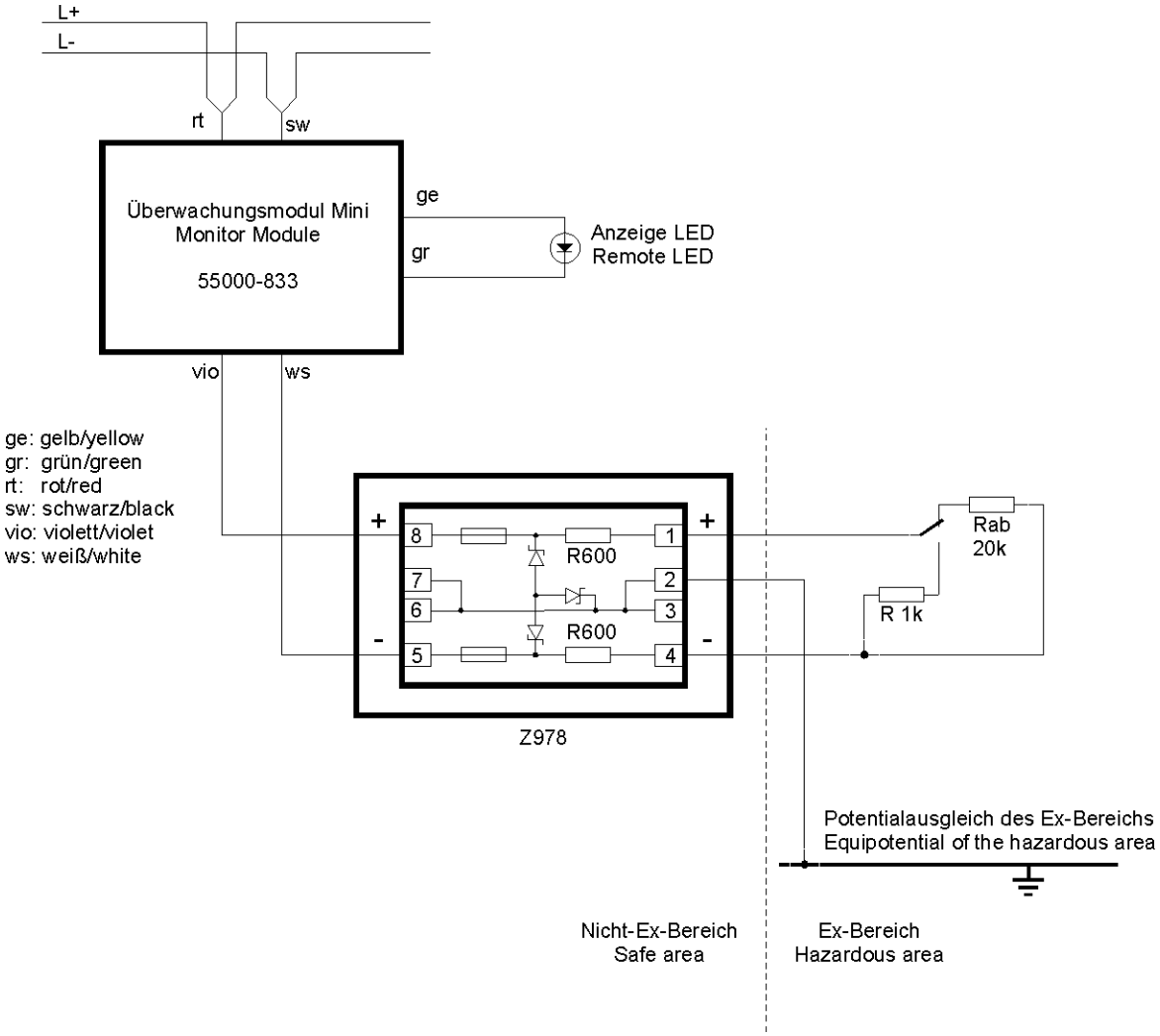
As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600. For the output of the module, the signal type "Pulsed signal, retrigger func." must be parameterised, and the output must be combined with the events "Control panel reset," "Test alarm" and "Disablement zone/element" of the special detector. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector. The MQZ1000-1 can be omitted.

3.9.4 Detectors without energy storage – contact detectors

Fire detectors and display devices without energy storage (capacitors, inductors, power sources, etc.) can be used virtually without restriction and without identification in accordance with Section 12 of DIN EN 50020 in intrinsically safe circuits. For this purpose the Zener Barrier Z978 is used.

3.9.4.1 Contact detectors with Monitor Module 55000-833 and Zener Barrier Z978

Monitor modules can be used to connect contact detectors in hazardous areas. The usual alarm resistor and end-of-line resistor has to be used. As an example, the connection using a Monitor Module 55000-833 is shown.

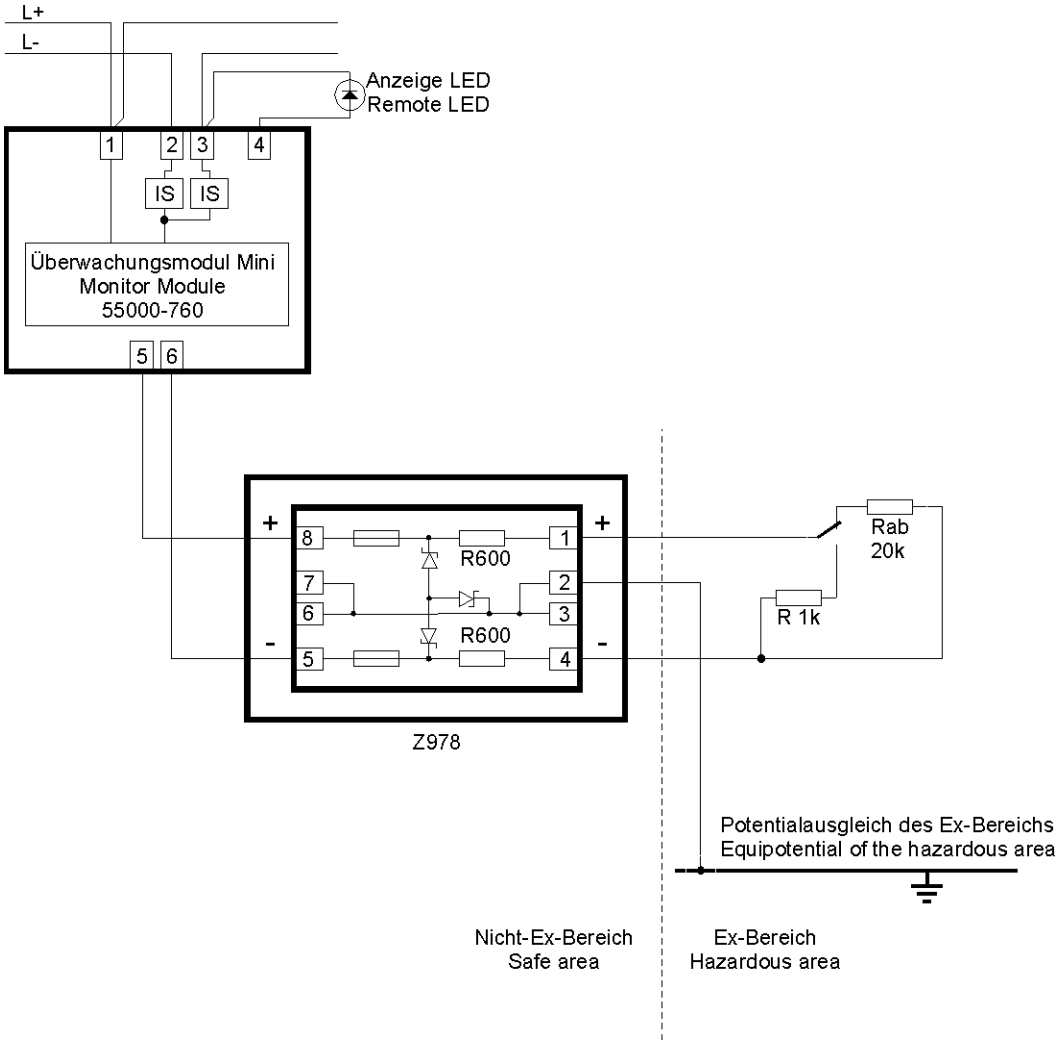


Due to the internal circuitry of the Z978, a short circuit between the output terminals 1 and 4 will cause an alarm condition of the monitor module.

The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

3.9.4.2 Contact detectors with Monitor Module 55000-760 and Zener Barrier Z978

Monitor modules can be used to connect contact detectors in hazardous areas. The usual alarm resistor and end-of-line resistor has to be used. The following drawing shows the connection using a Monitor Module 55000-760.



Due to the internal circuitry of the Z978, a short circuit between the output terminals 1 and 4 will cause an alarm condition of the monitor module.

The DIP switches of the module are used to set the address and to activate the quick response time. This quick response time is activated with switch 8, and as a result, an alarm from the module is immediately indicated on the fire detection control panel.

The installation in the hazardous area has to comply with the local regulations, guidelines and requirements.

3.10 Connection of wireless detectors Series FI7x0/RF

3.10.1 Connection of the Conventional RF Expander FI7x0/RF/CWE via 55000-845

3.10.1.1 Notes

Also see the User Manual "Wireless fire detection systems FI700/RF and FI720/RF"

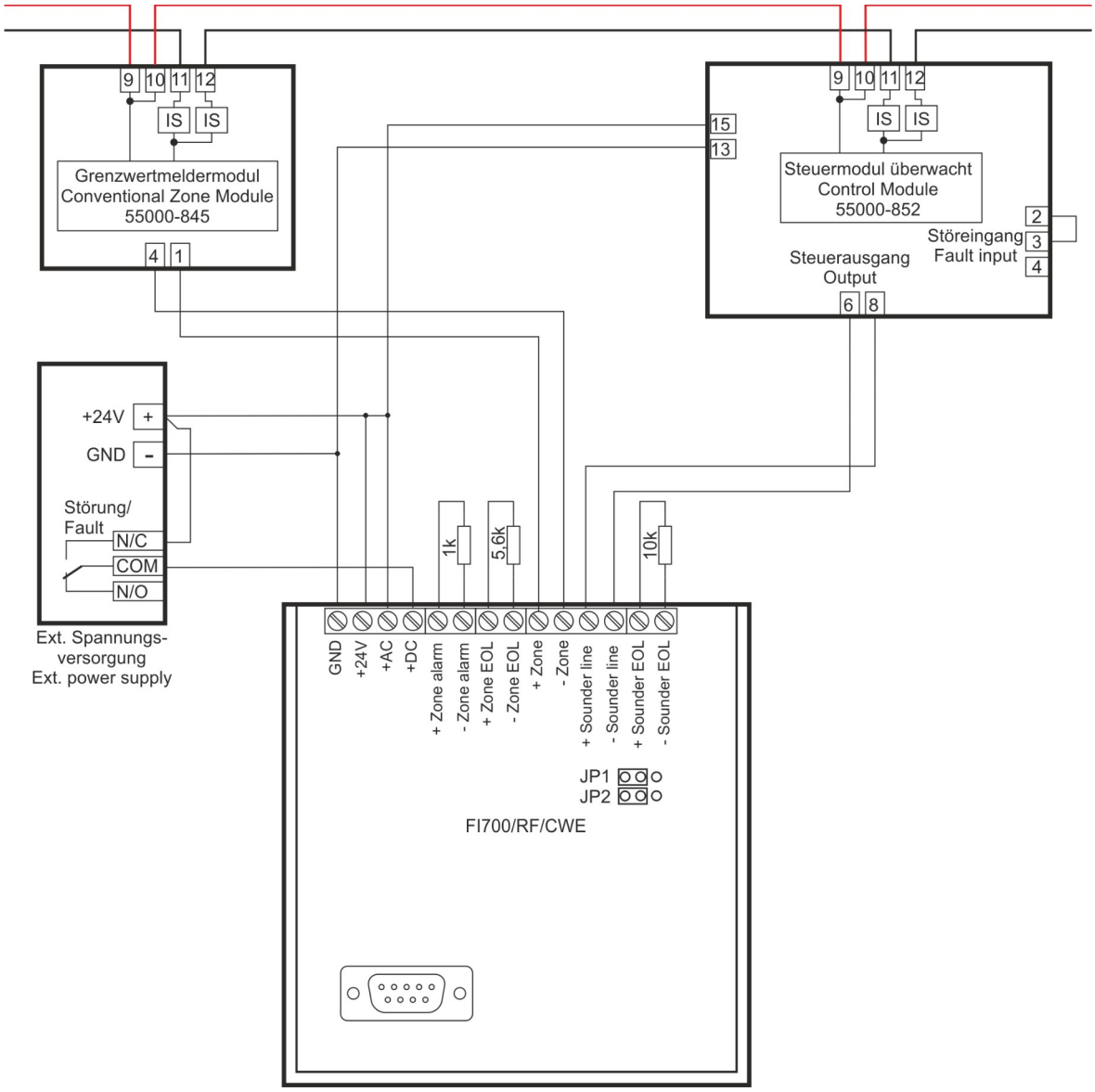
Please note that a maximum of 32 detectors are supported per RF interface and that they are evaluated through one zone.

If more than 9 Volts are applied to the sounder line of the RF interface, the parameterised wireless alarming devices will be activated.

3.10.1.2 Address setting

The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

3.10.1.3 Connection



The Conventional RF Expanders FI720/RF/CWE and FI700/RF/CWE are connected in the same way.

3.11 Connection of conventional detectors by means of a 55000-845

By using conventional zone modules, various automatic conventional detectors can be connected to the Fire Detection Control Panel Series BC216 and Series BC600.

The maximum line resistance of the conventional line is 50 Ohms per wire. If a 0.5mm² wire is used, this corresponds to a distance of approx. 1400m between the last detector and the conventional zone module.

The alarm of a conventional detector is reset by disabling the detector zone to which it belongs for at least 10 seconds.

If several conventional detectors are connected to the same module, the fire detection control panel will indicate all of them with the same element number in the event of an alarm.

The Conventional Zone Module 55000-845 has a built-in isolator.

3.11.1 Address setting

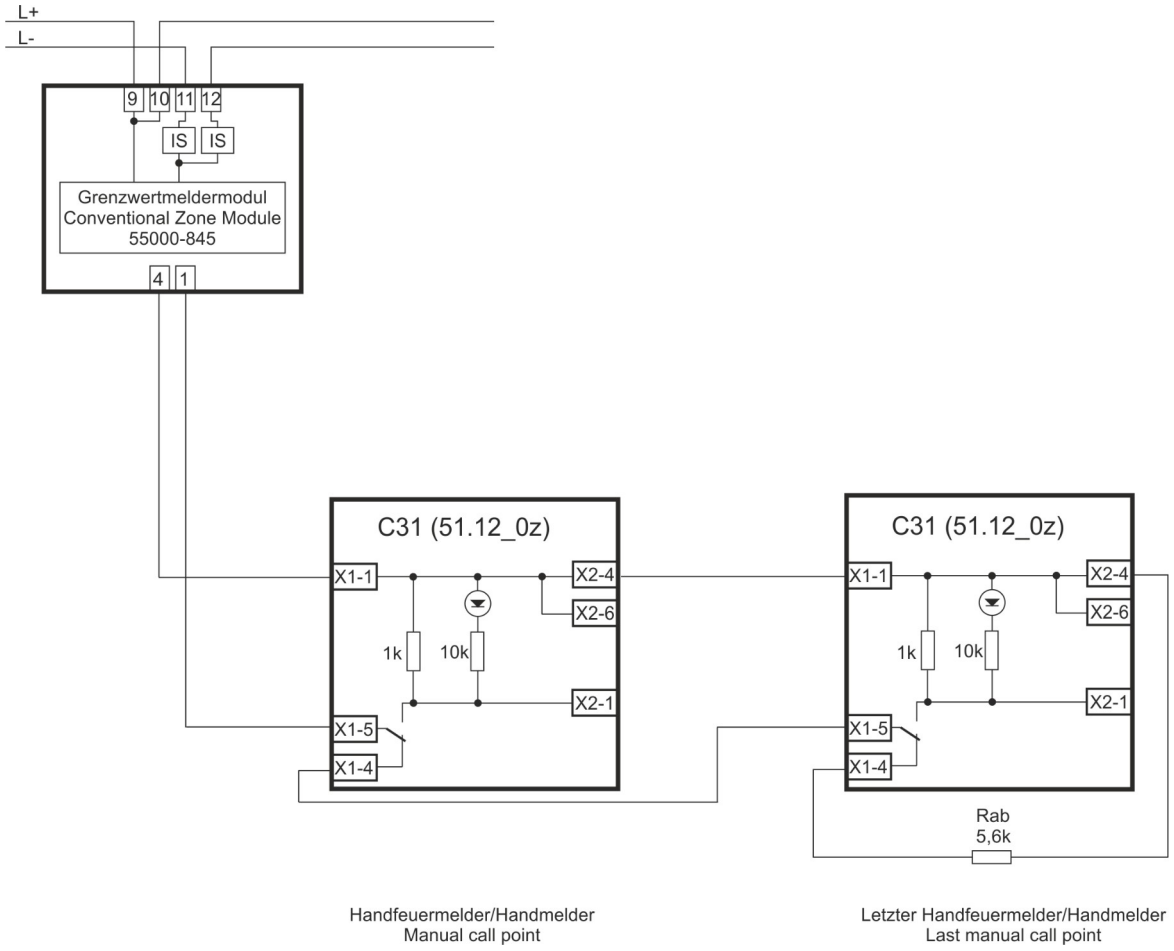
The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

3.11.2 Power supply

The Conventional Zone Module 55000-845 is powered via the loop and the power for the conventional line is also provided by the loop. No external power supply is necessary.

In this case, the current demand of the loop can be ascertained by means of the loop calculator spreadsheet FireSysCALC_xxxx.ods for Apollo detectors. It is available in the download area of the LST-website (registration required) under "Tools – FireSysCALC – Calculation of fire detection systems".

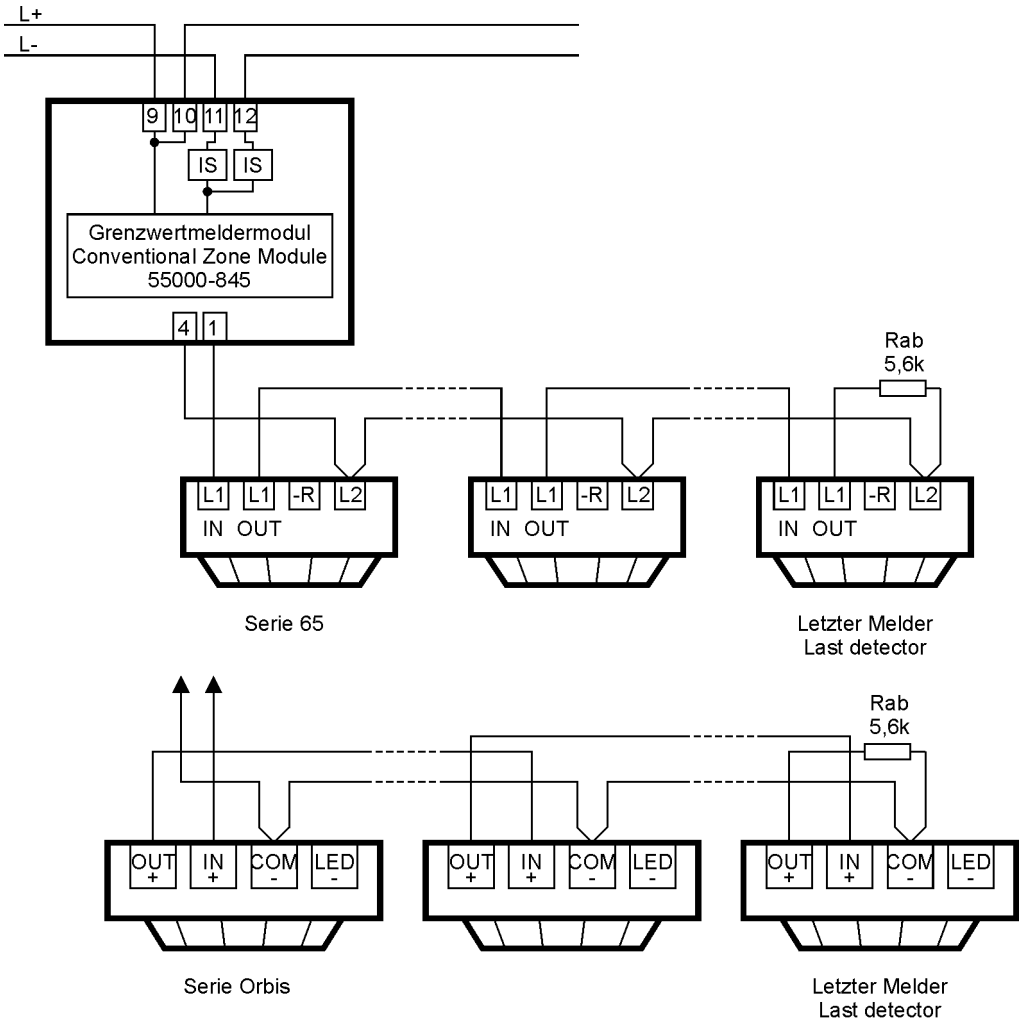
3.11.3 Manual Call Points Series C31 – 55000-845



3.11.4 Connection of detectors Series 65 or Series ORBIS – 55000-845

Up to 20 detectors Series 65 or Series ORBIS may be connected to a Conventional Zone Module 55000-845.

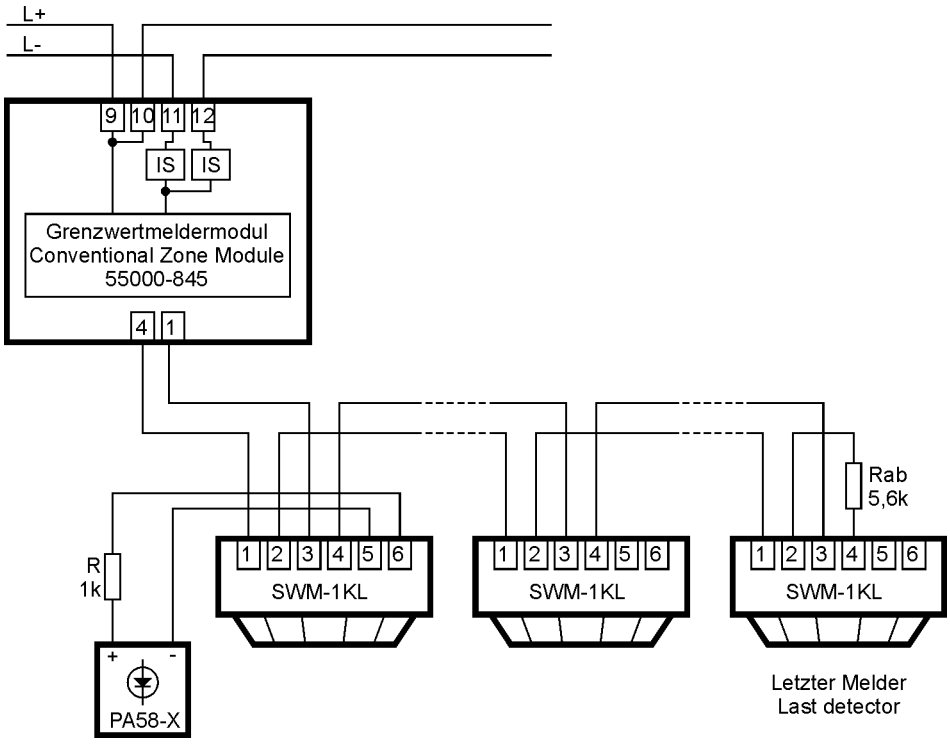
If the conventional zone module is used, individual detector identification is not possible.



3.11.5 Thermal Max Detector SWM-1KL – 55000-845

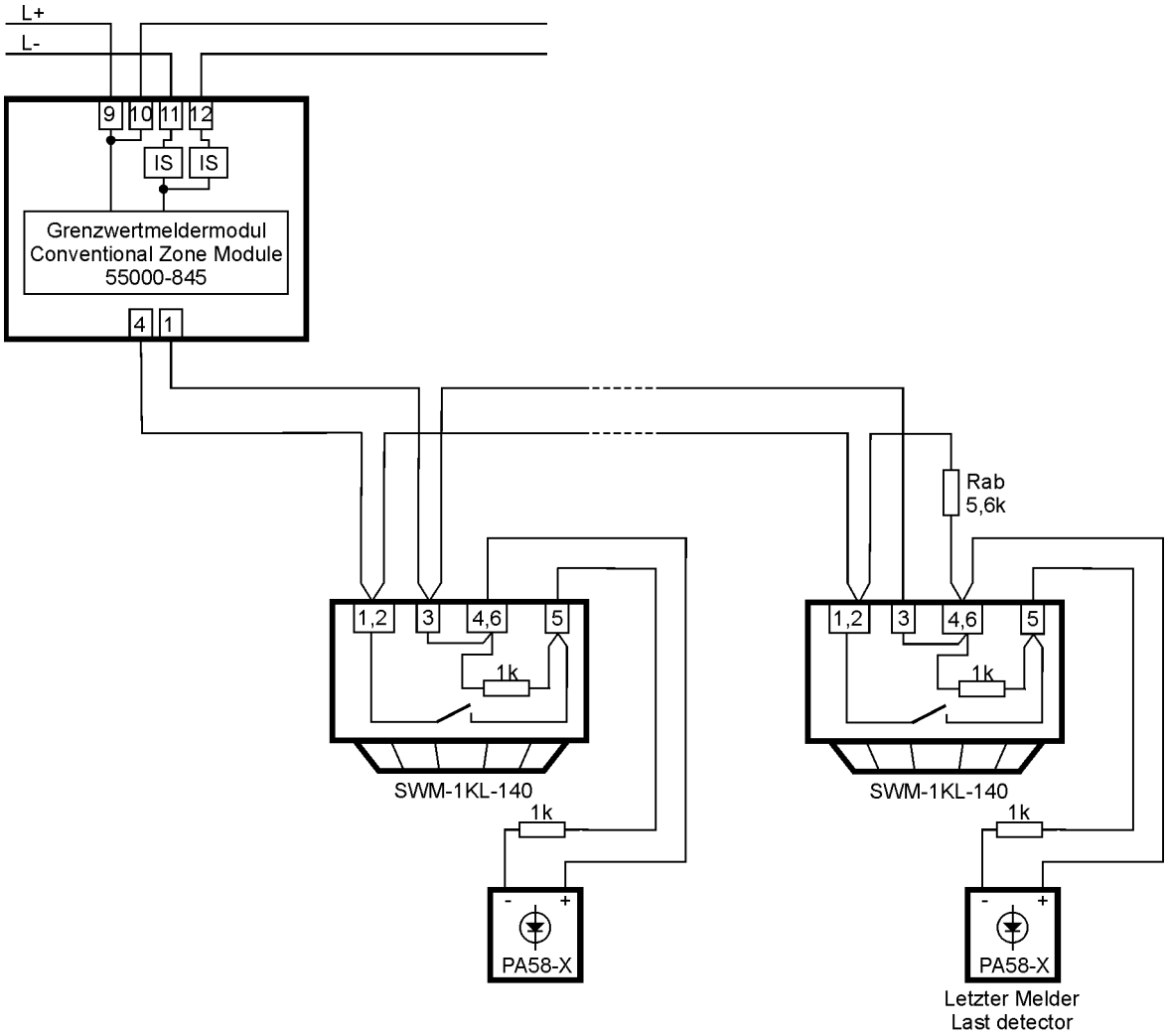
Up to 3 Thermal Max Detectors SWM-1KL can be connected to a conventional zone module.

This drawing applies to the 57°C, the 80°C and the 100°C version of the detector.



Make sure that the connection cable is sufficiently temperature-resistant.

3.11.6 Thermal Max Detector SWM-1KL-140 – 55000-845



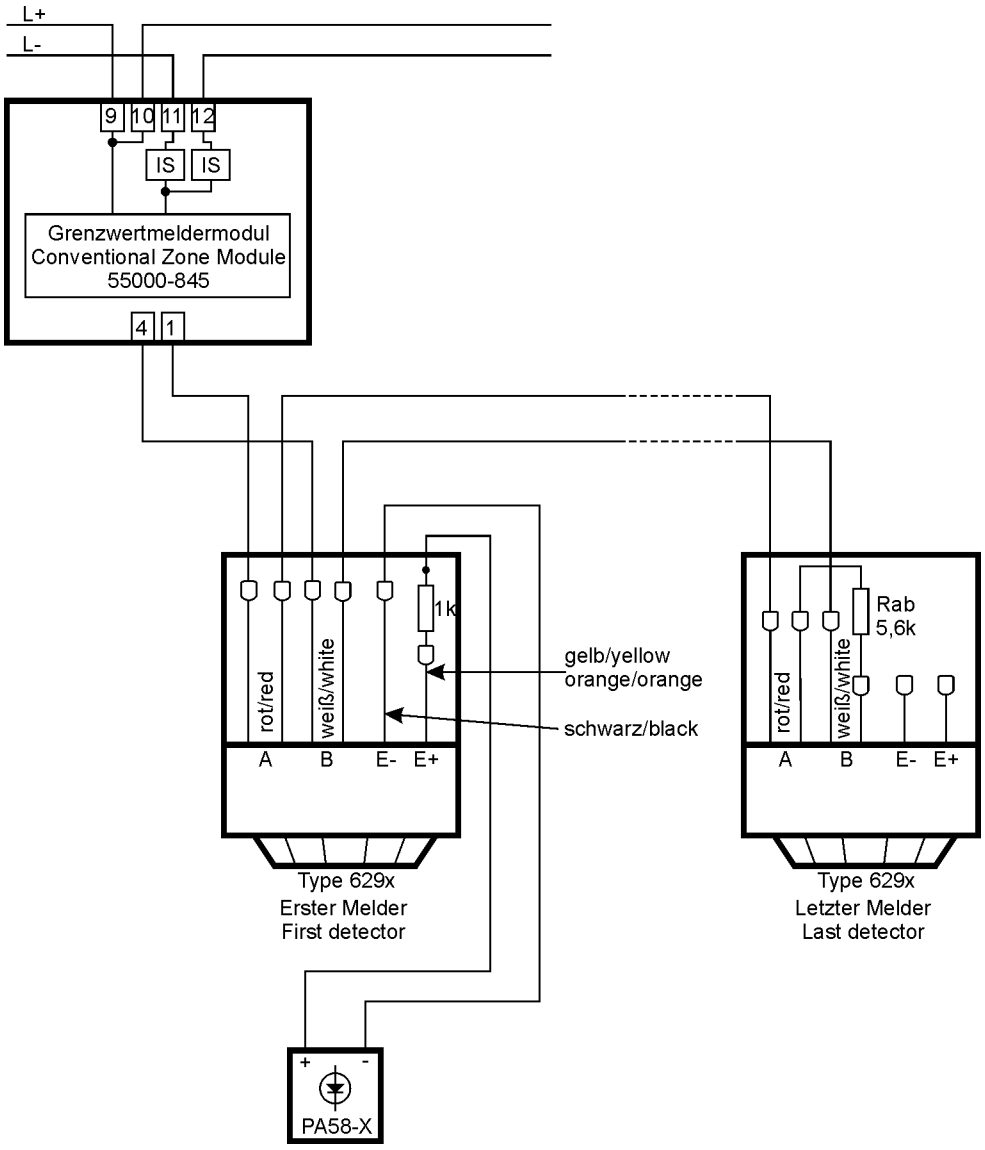
Make sure that the connection cable is sufficiently temperature-resistant.

3.11.7 Thermal Detectors 6295, 6296, 6297 and 6298 – 55000-845

Up to 32 detectors 629x may be connected to a conventional zone module.

Type	EN 54-5 Class
6295	57°C – A2S
6296	72°C – B2
6297	87°C – CS
6298	117°C – ES

3.11.7.1 Connection



Make sure that the connection cable is sufficiently temperature-resistant.

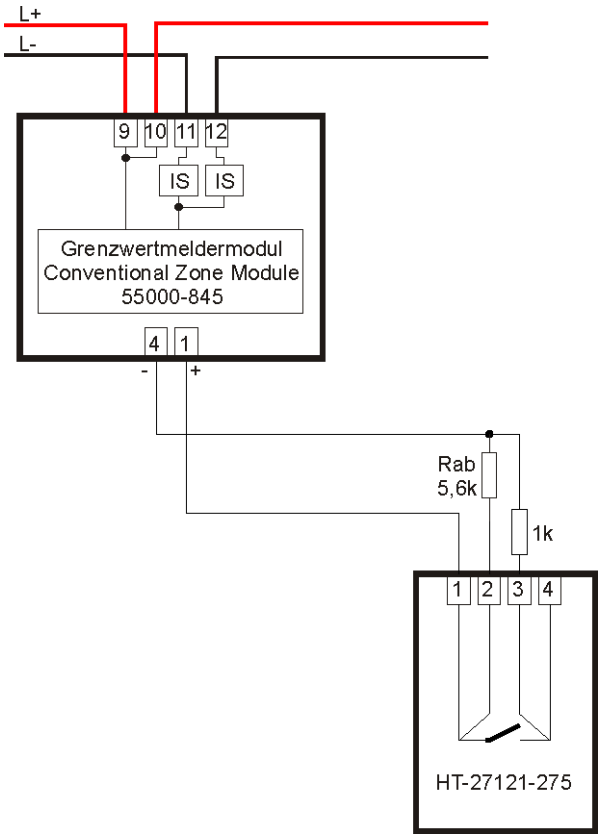
3.11.8 Thermal Detector HT-27121-275 – 55000-845

The number of detectors of a zone is not limited since only a thermally controlled, normally open contact (bimetallic strip) is used. (Quiescent current of the detector = 0 mA).

This detector activates at 135°C (275°F) and does not have a light emitting diode.

This connection also applies analogously to the following detectors, because they also do not have a light emitting diode.

Type	Alarm temperature	
27121-0-225	107°C	
27121-0-275	135°C	LST Art. No. 242170
27121-0-325	162°C	
27121-0-360	182°C	
27121-0-450	232°C	
27121-0-600	315°C	
27121-0-725	385°C	



3.12 Connection of special detectors by means of a Monitor Module

A monitor module/special detector allows connection of one special detector. If the special detector is not provided with a reset input, a Detector Reset Module MQZ1000-1 is required in addition.

The Monitor Module/Special Detector 55000-841 is provided with an integrated isolator.

In many cases, the Input Module SA4700-100APO can be used as successor to the Monitor Module 55000-841. However, this module does not contain a reset output for the resetting of special detectors.
For the fire detection system BC216, at the moment no successor module with reset output for the connection of special detectors is available!

The modules are described in Chapters 3.13.4 and 3.16.5.

For newly introduced products, the connections for the 55000-841 and for the SA4700-102 are shown. For older special detectors, only the connection for the 55000-841 is shown.

3.12.1 Address setting

The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

3.12.2 Power supply

The Monitor Module 55000-841 has to be powered by an external source. The external power supply must comply with the local regulations.

3.12.3 Resetting contact detectors with a 55000-841 and an MQZ1000-1

If the module receives a reset signal from the fire detection control panel, the module terminals PIN 1 and PIN 2 will be connected to each other. That means the connected MQZ1000-1 will receive a positive level at the control input and will activate its relay.

The reset output will become active under the following conditions:
- Input of the module is deactivated
- When the FDCP is reset
- After a test alarm

3.12.4 Resetting contact detectors with the SA4700-102

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600. For the reset of the contact detector, the output of the module has to be parameterised. This function is available in the Series BC600. The BC216 does not support this possibility.
In the event of activation, the relay contact of the module will interrupt the power supply or will activate the reset input of the detector.

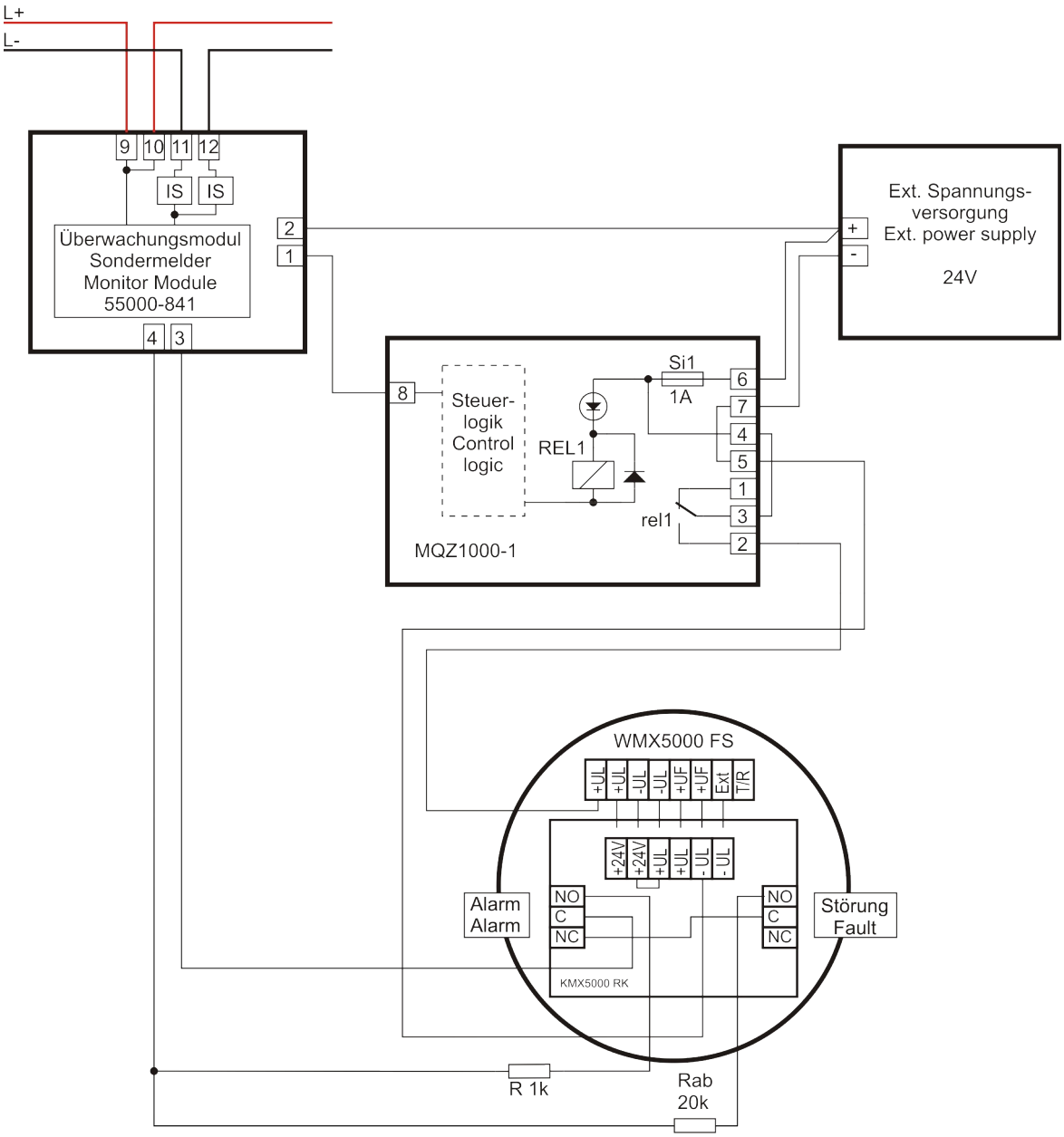
Parameters of the output:
Signal type: Pulsed signal with Retrigger,
The chosen Pulse width must not be longer than 8 seconds.

Combination with the events
- Panel reset
- Test alarm (of the connected contact detector)
- Disablement – zone/element (of the connected contact detector)

The alarm delay according to EN 54-2 Type A or Type B can not be used with this module.

3.12.5 Thermal Max Detector WMX5000 FS – 55000-841

This detector may only be used together with the Relay Module KMX5000 RK.



If the monitor module is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

The reset input T/R must not be used.
Make sure that the connection cable is sufficiently temperature-resistant.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

3.12.6 Flame Detector Series 16000 – 55000-841

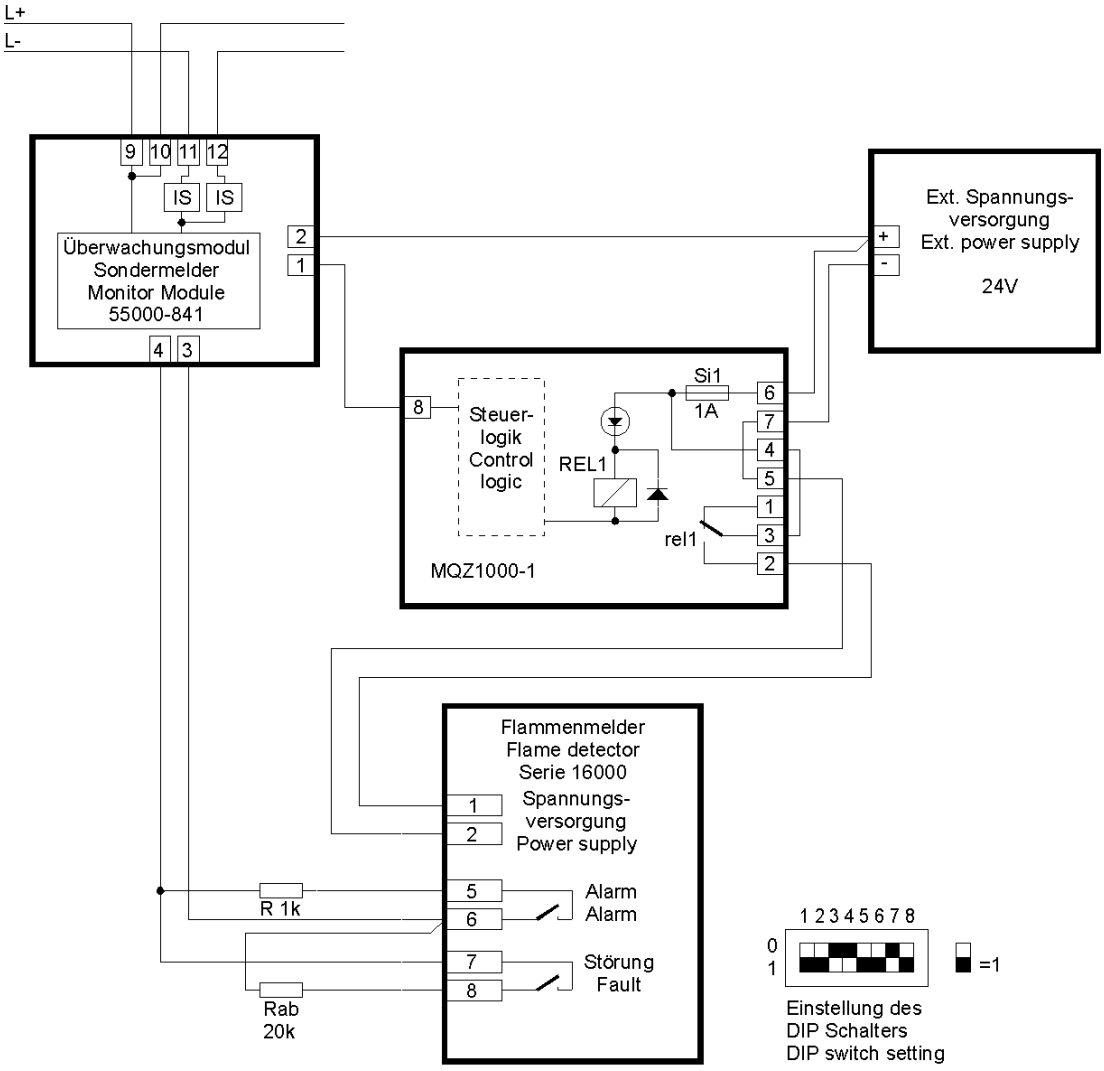
3.12.6.1 Settings

The detector can be adapted to different applications by means of DIP switches. The response time can be selected with switches 6 and 7.

Type	EN 54-10 Class 1
16581	IR2
16589	IR3
16591	UV/IR2

SW6	SW7	Response time
0	0	8s
1	0	4s
0	1	2s
1	1	1s

3.12.6.2 Connection

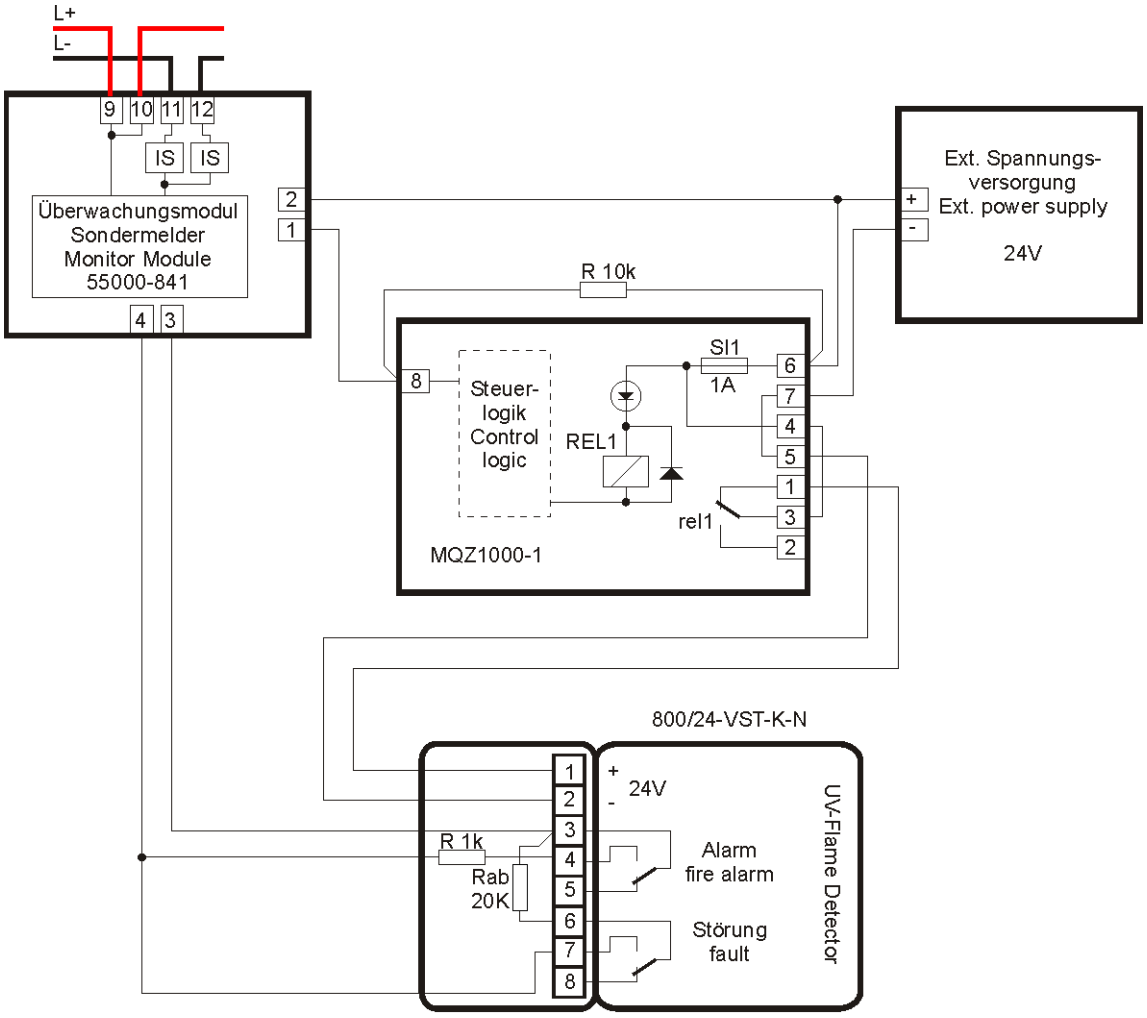


Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

If the monitor module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

3.12.7 Flame Detector 800/24-VST-K-N – 55000-841

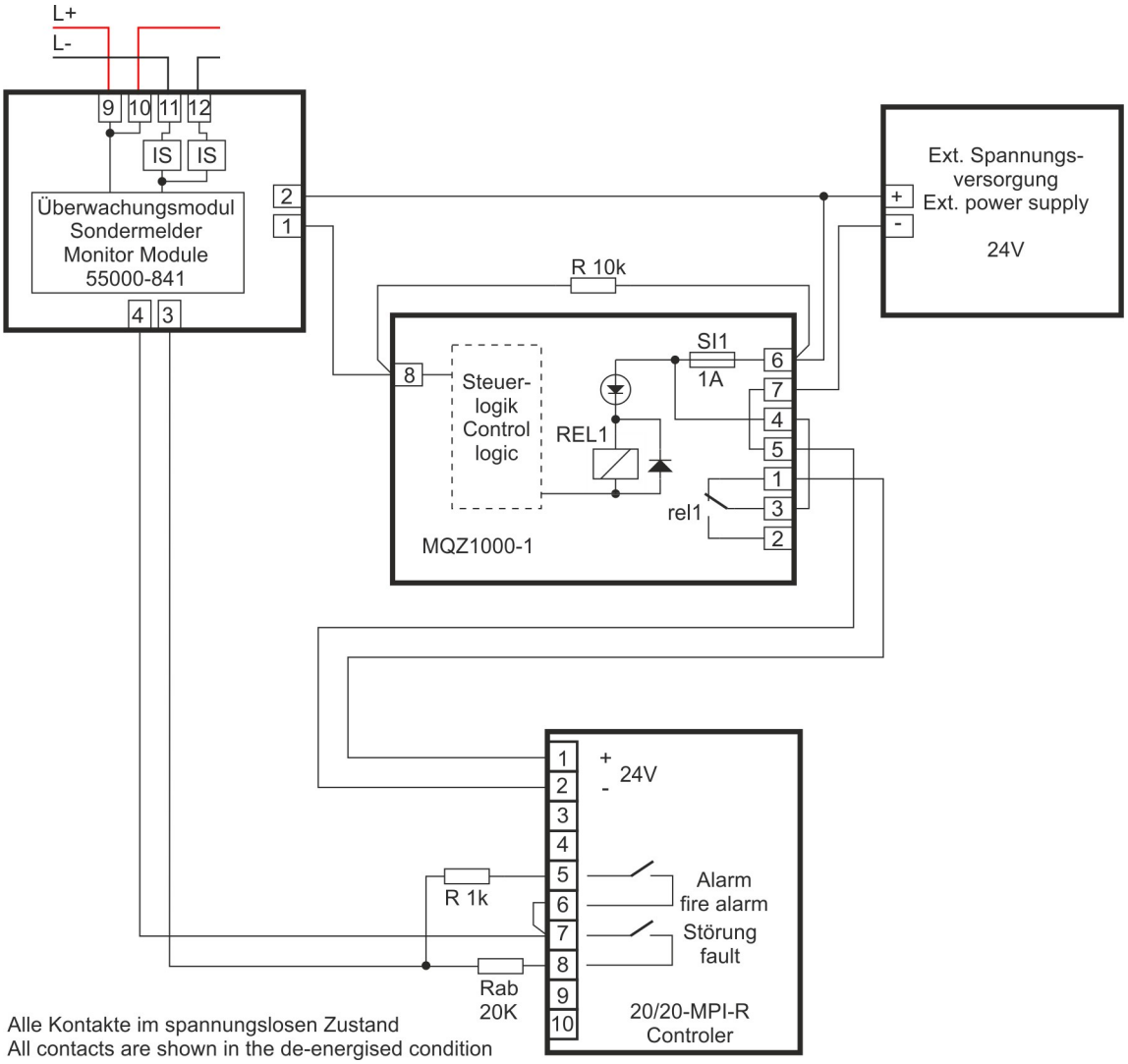


Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

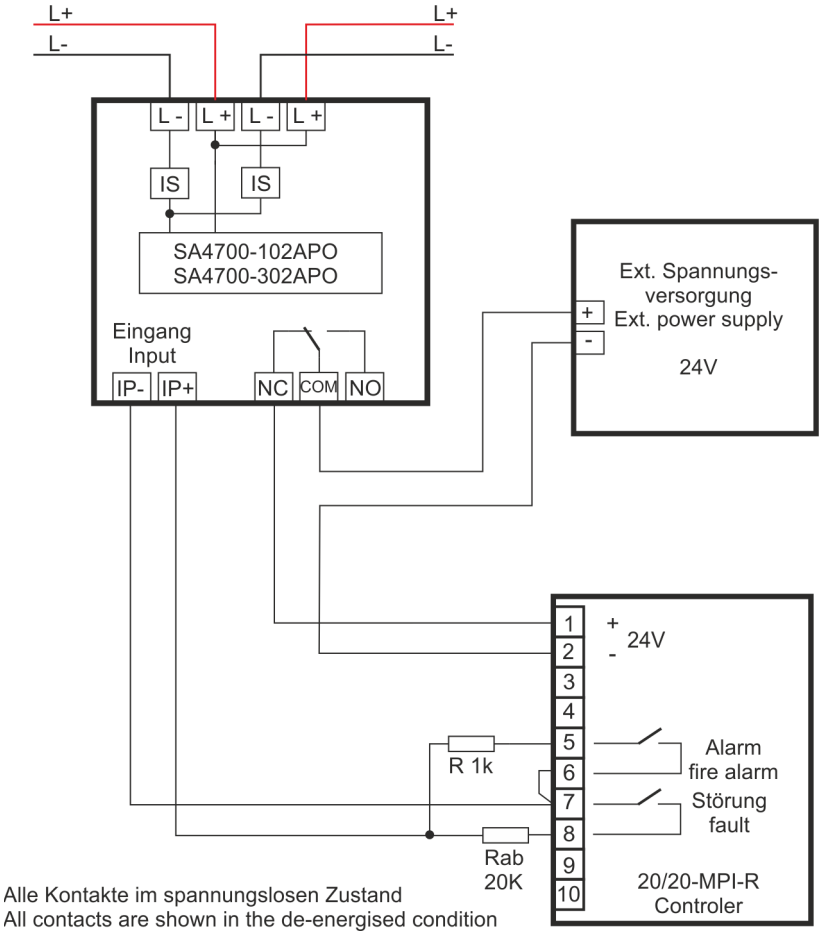
3.12.8 Flame Detector 20/20-MPI-R – 55000-841



If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone).

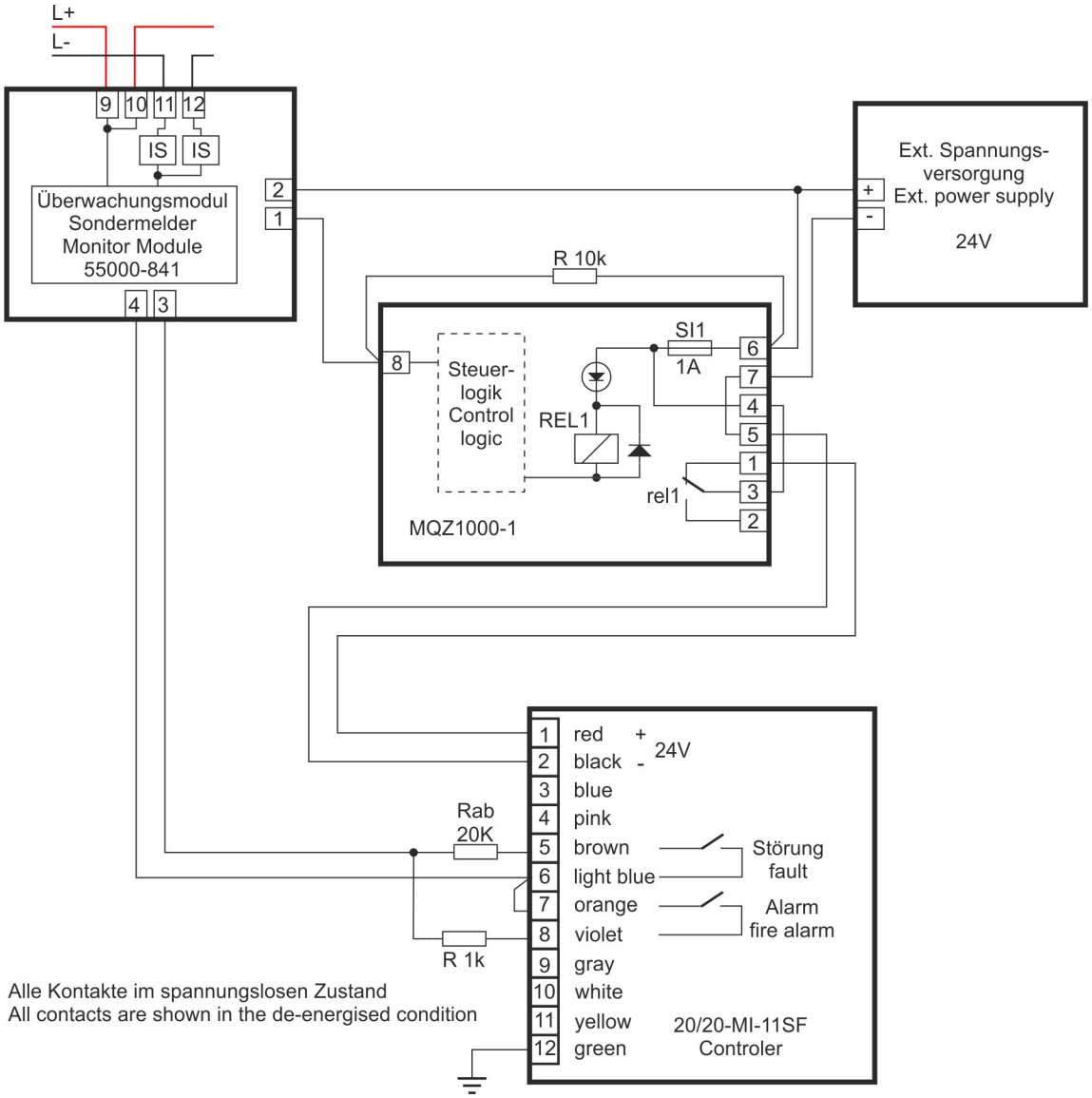
3.12.9 Flame Detector 20/20-MPI-R – SA4700-102 / SA4700-302



This connection does not apply to the Fire Detection Control Panels Series BC216. The module output has to be parameterised according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone).

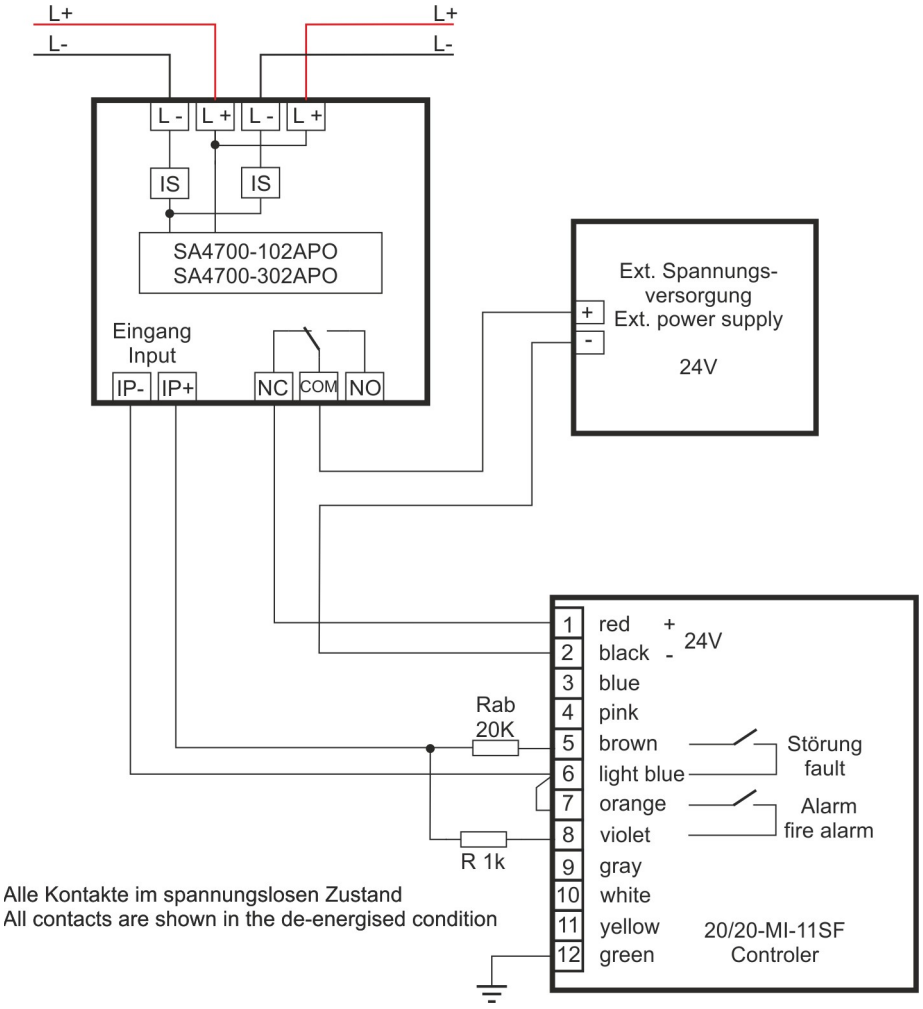
3.12.10 Flame Detector 20/20-MI-11SF – 55000-841



If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone).

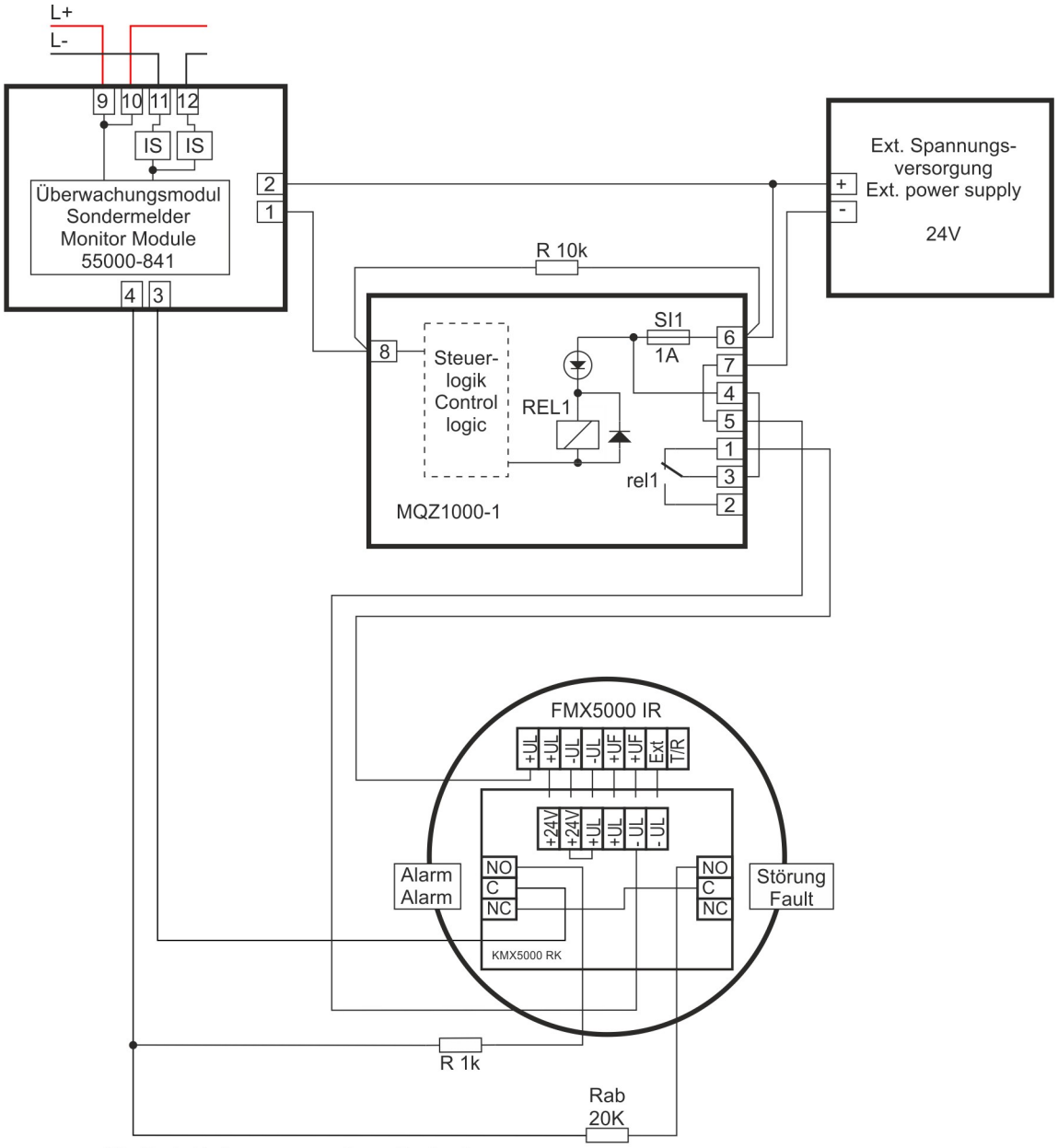
3.12.11 Flame Detector 20/20-MI-11SF – SA4700-102 / SA4700-302



This connection does not apply to the Fire Detection Control Panels Series BC216. The module output has to be parameterised according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone).

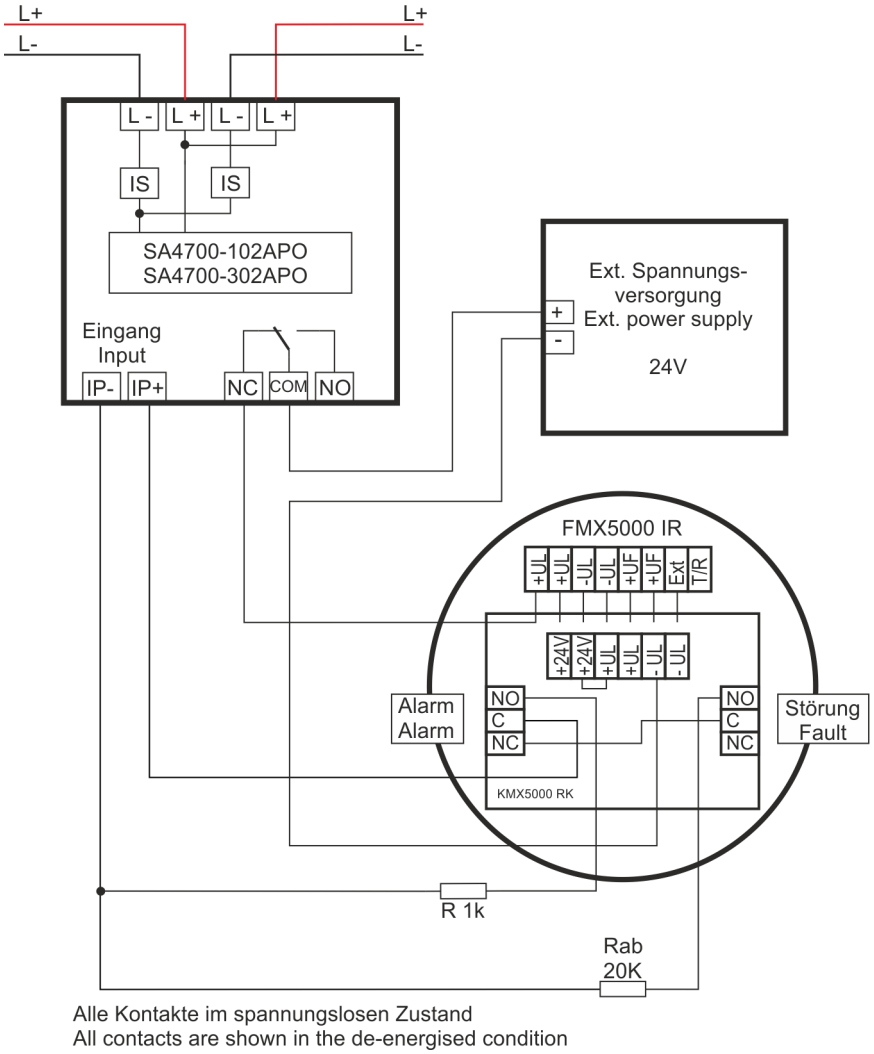
3.12.12 Flame Detector FMX5000 IR – 55000-841



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

3.12.13 Flame Detector FMX5000 IR – SA4700-102

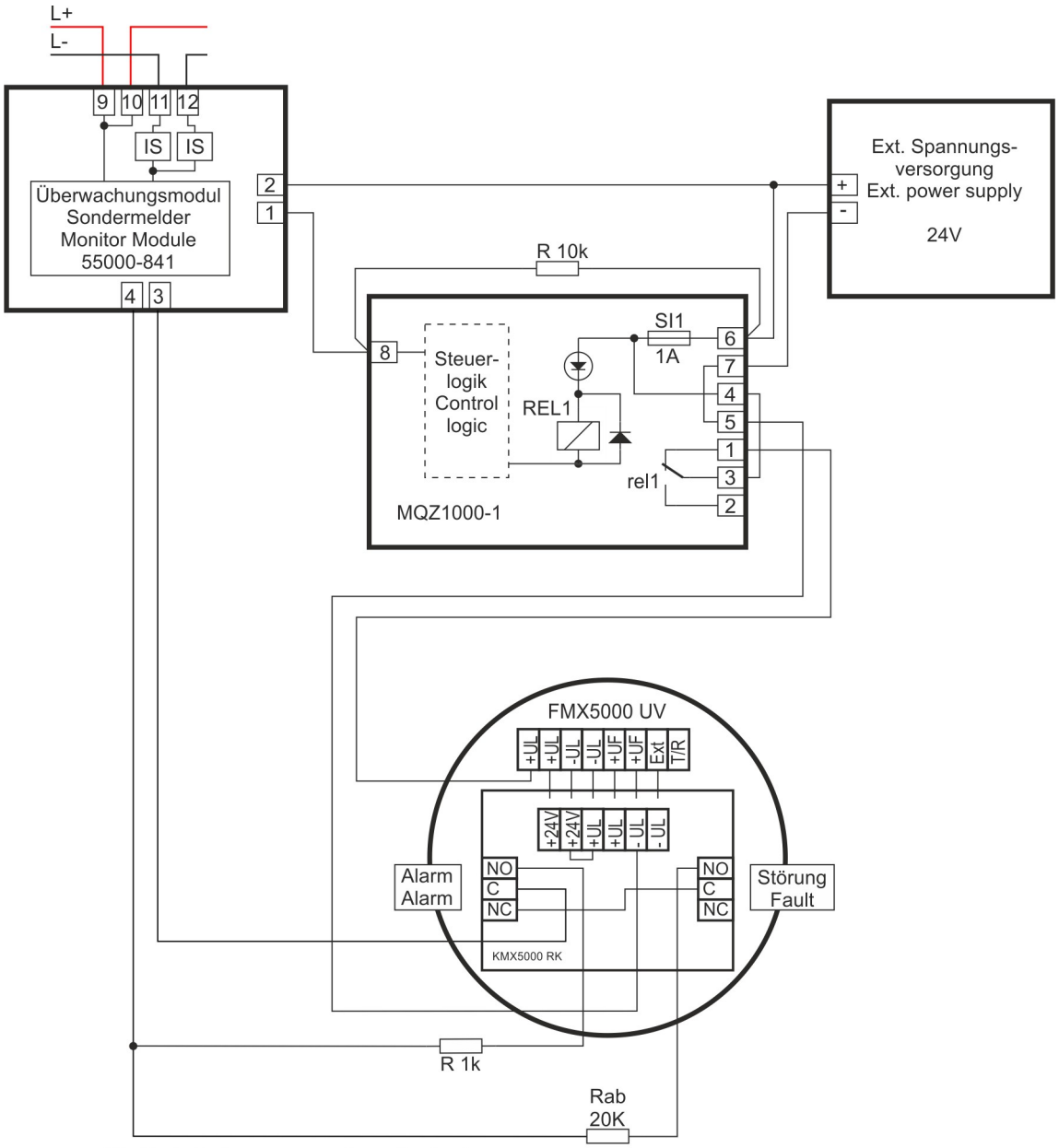


Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

This connection does not apply to the Fire Detection Control Panels Series BC216. The module output has to be parameterised according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

If the detector is powered by an external power supply, the country-specific regulations have to be observed.

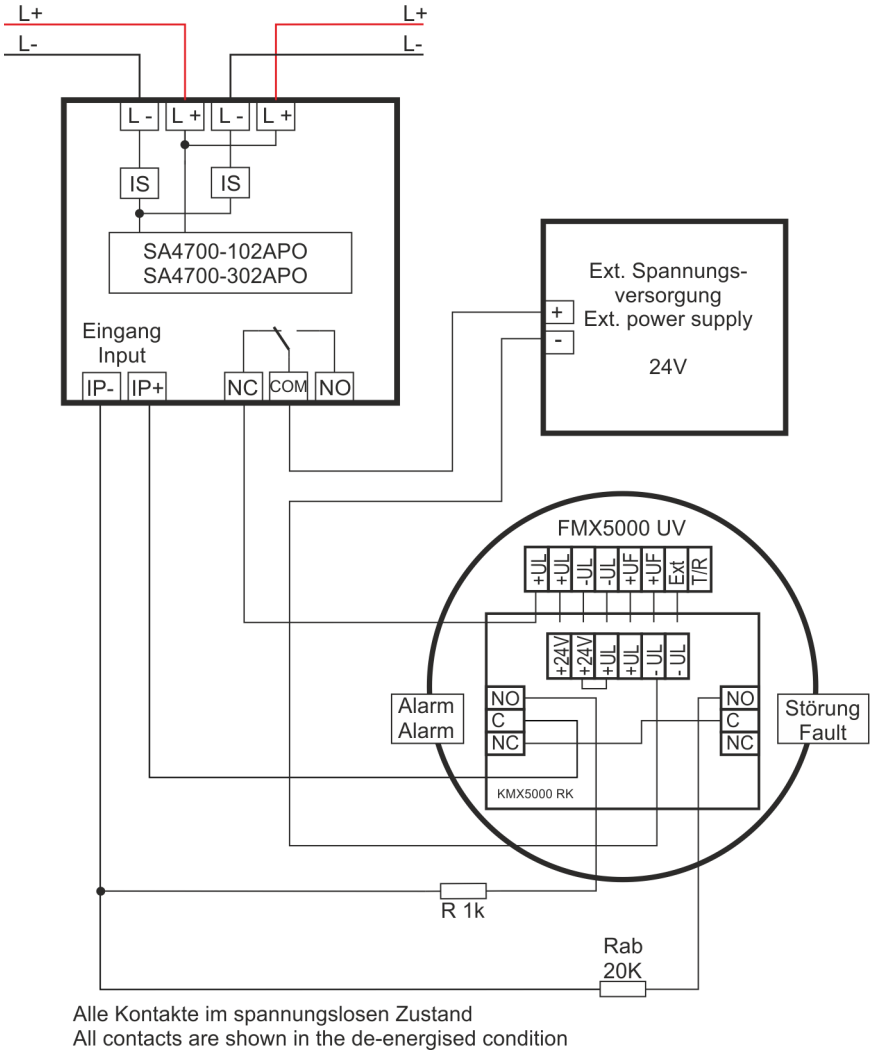
3.12.14 Flame Detector FMX5000 UV – 55000-841



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

3.12.15 Flame Detector FMX5000 UV – SA4700-102 / SA4700-302

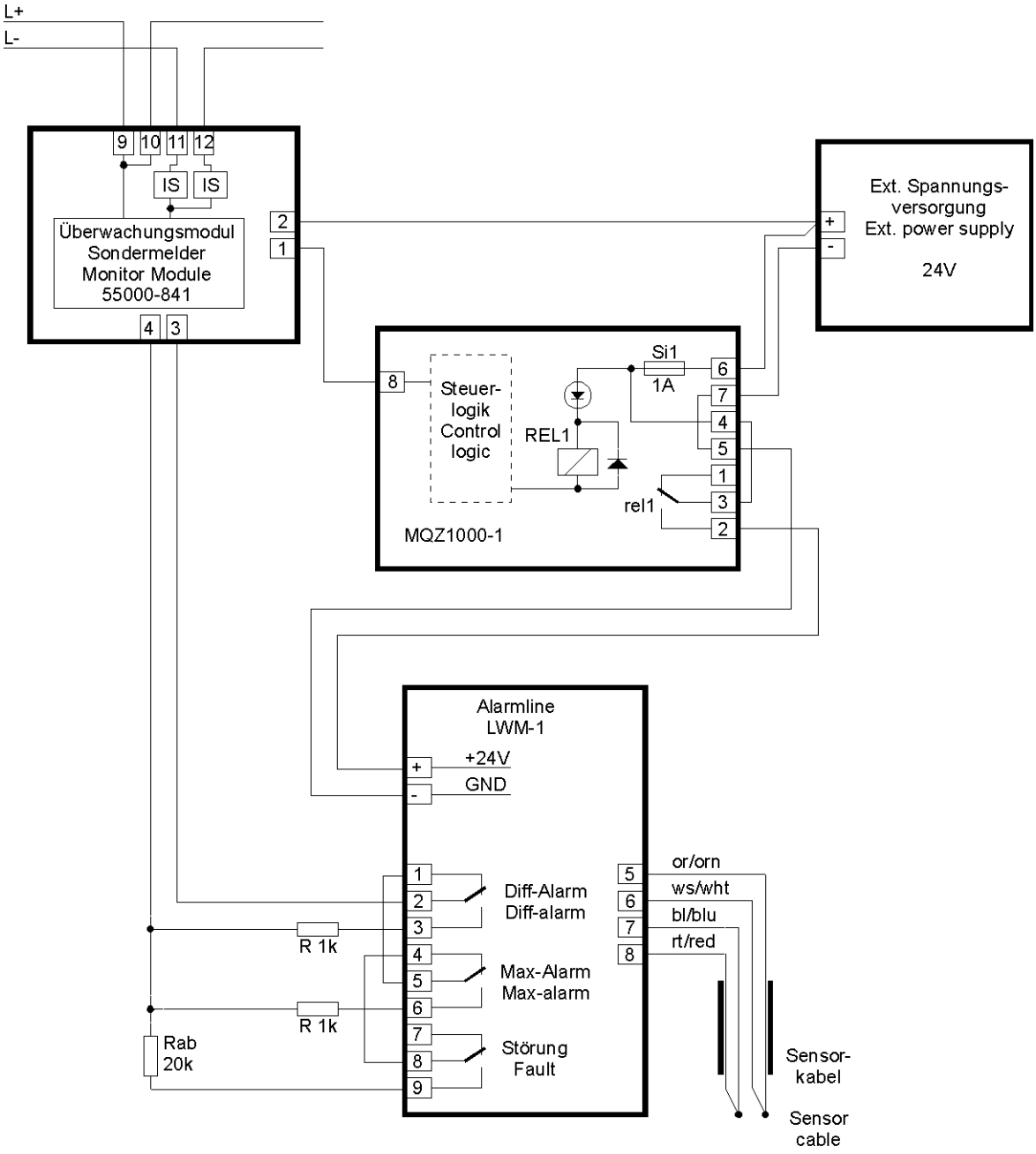


Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

This connection does not apply to the Fire Detection Control Panels Series BC216. The module output has to be parameterised according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

If the detector is powered by an external power supply, the country-specific regulations have to be observed.

3.12.16 Linear Heat Detector Unit LWM-1 – 55000-841

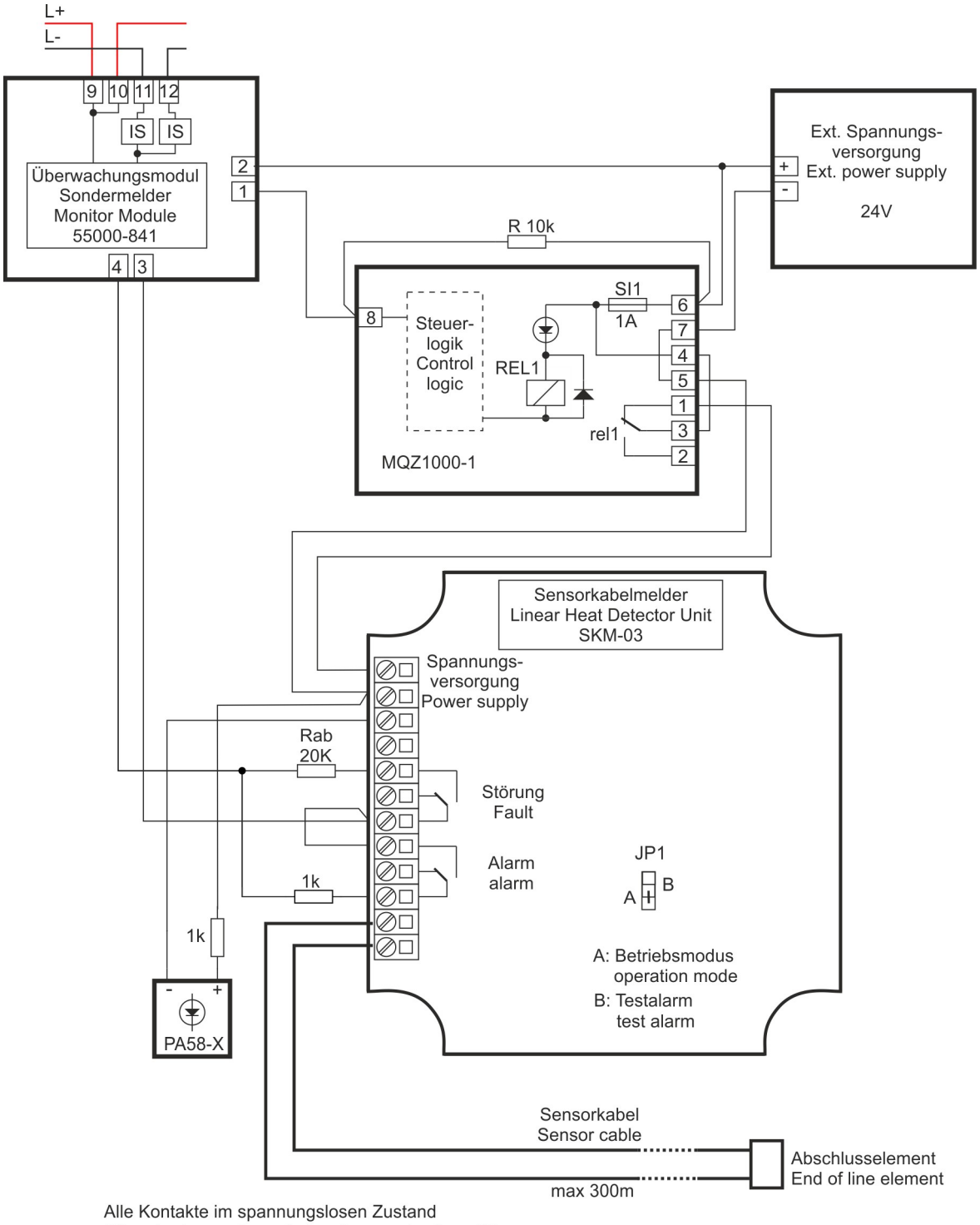


Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

If the monitor module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

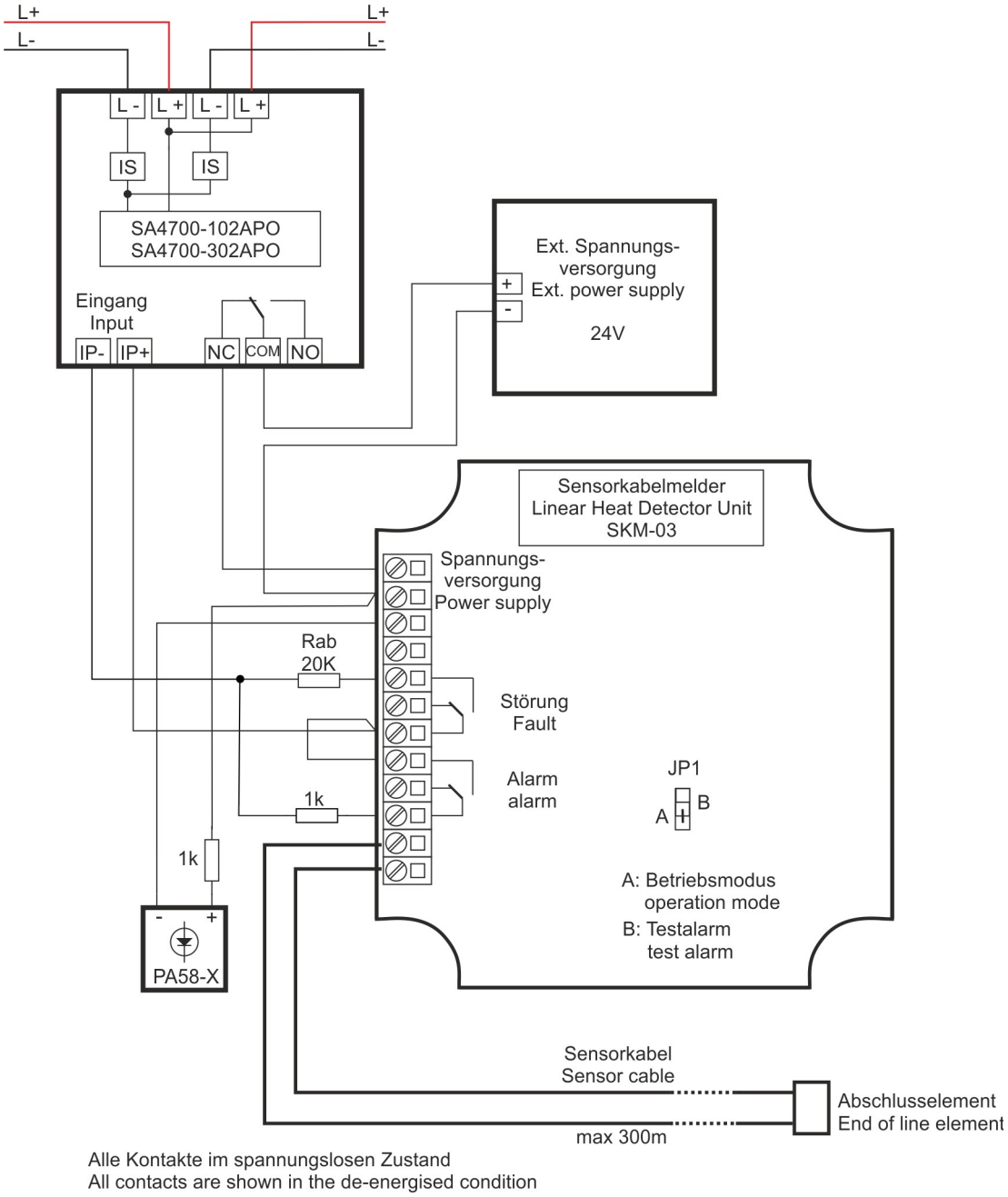
3.12.17 Linear Heat Detector Unit SKM-03 – 55000-841



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

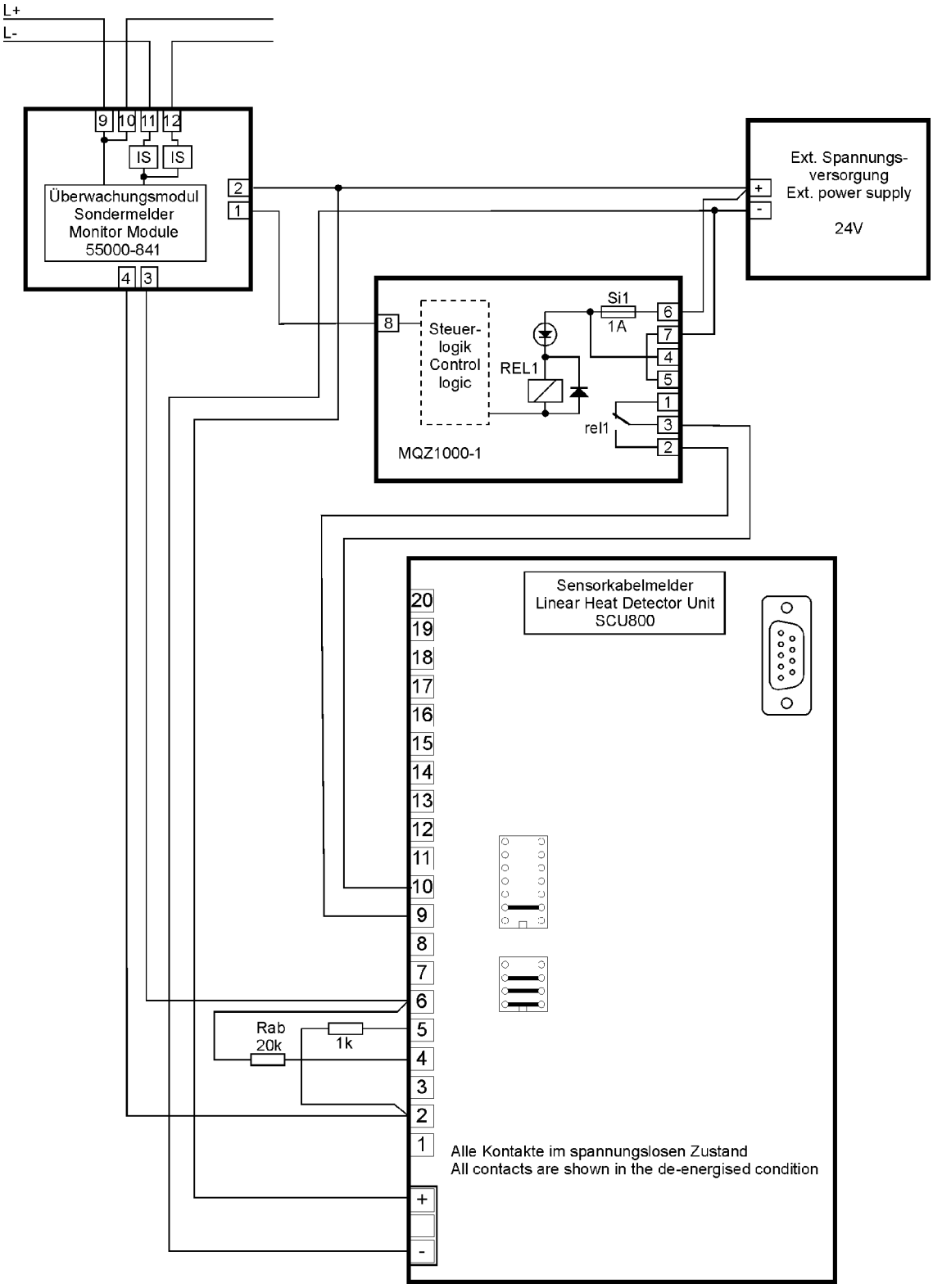
3.12.18 Linear Heat Detector Unit SKM-03 – SA4700-102 / SA4700-302



This connection does not apply to the Fire Detection Control Panels Series BC216. The module output has to be parameterised according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

If the detector is powered by an external power supply, the country-specific regulations have to be observed.

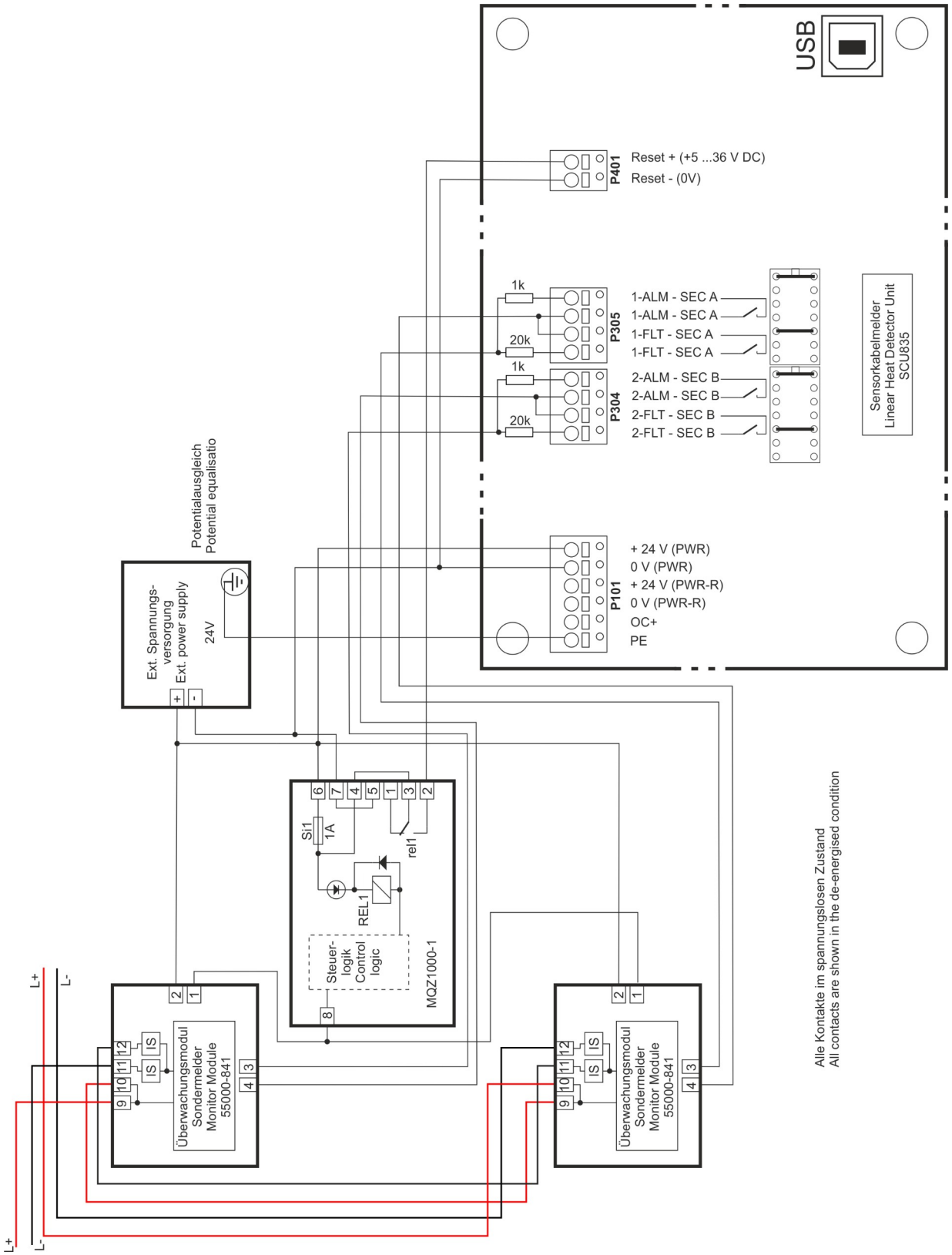
3.12.19 Linear Heat Detector Unit SCU800 – 55000-841



If the monitor module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

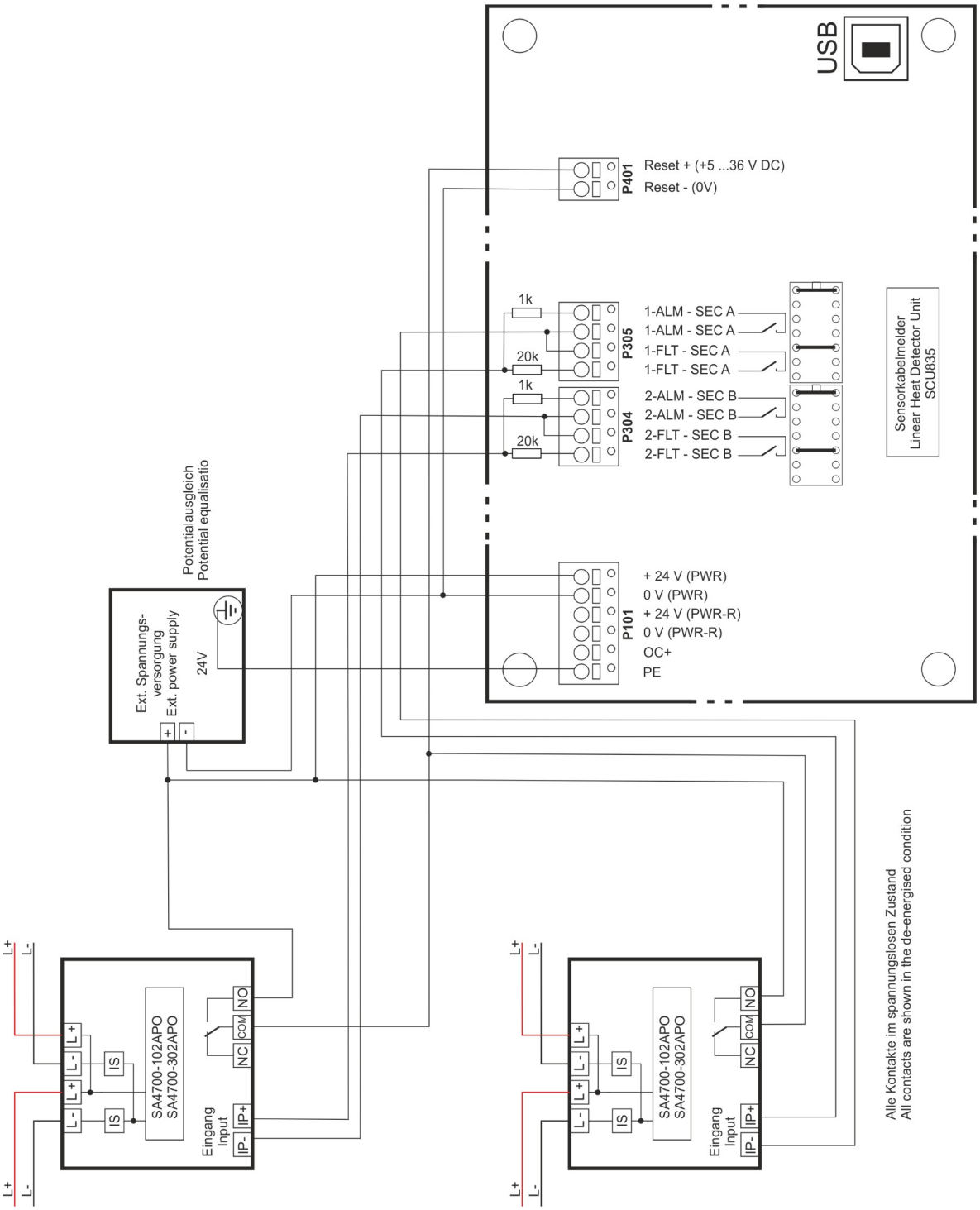
As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will activate the RESET input of the detector.

3.12.20 Linear Heat Detector Unit SCU835 – 55000-841



As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will activate the RESET input of the detector.

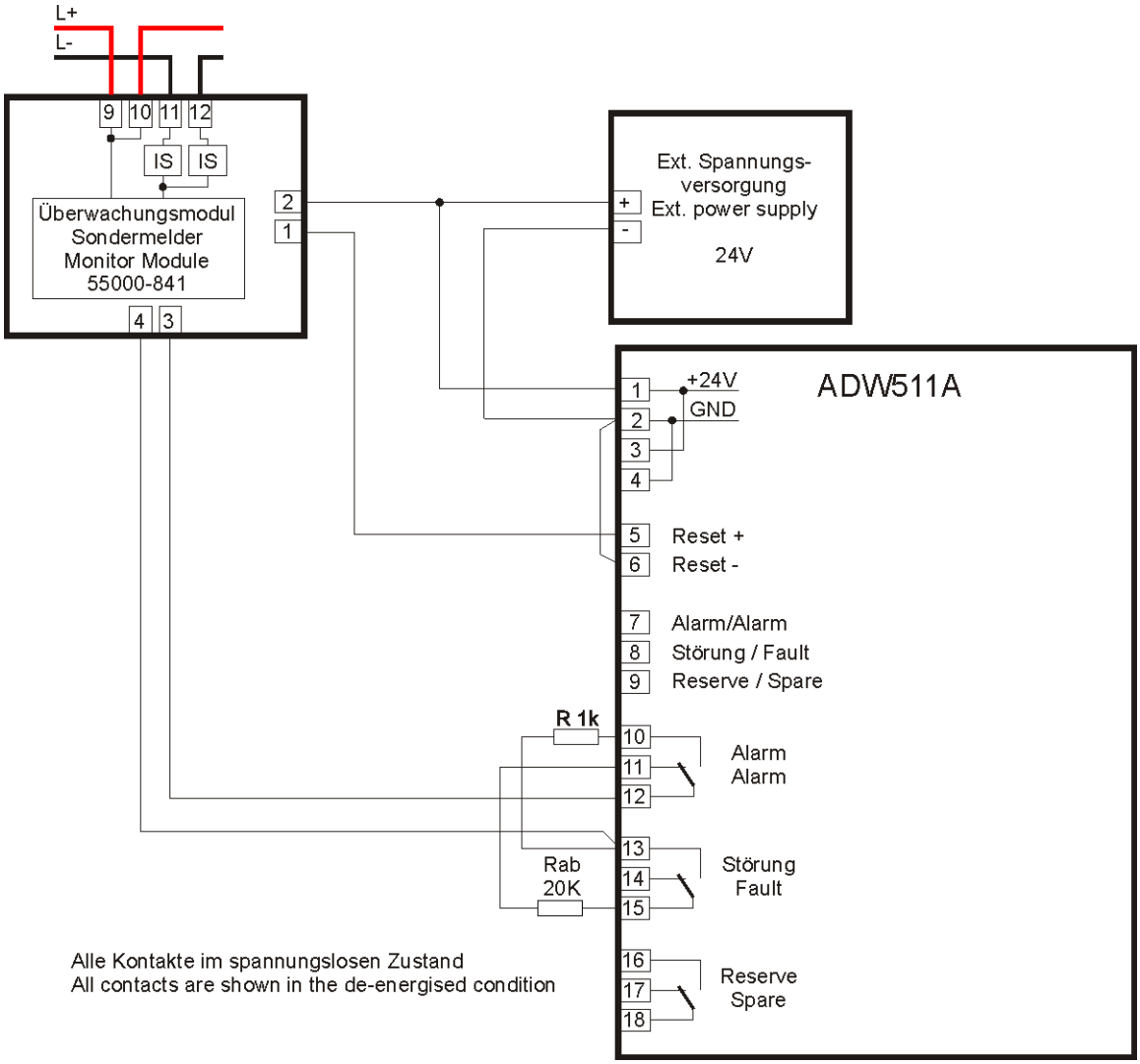
3.12.21 Linear Heat Detector Unit SCU835 – SA4700-102 / SA4700-302



If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

This connection does not apply to the Fire Detection Control Panels Series BC216. The module output has to be parameterised according to Chapter 3.12.4. The relay contact of the module activates the reset input of the detector.

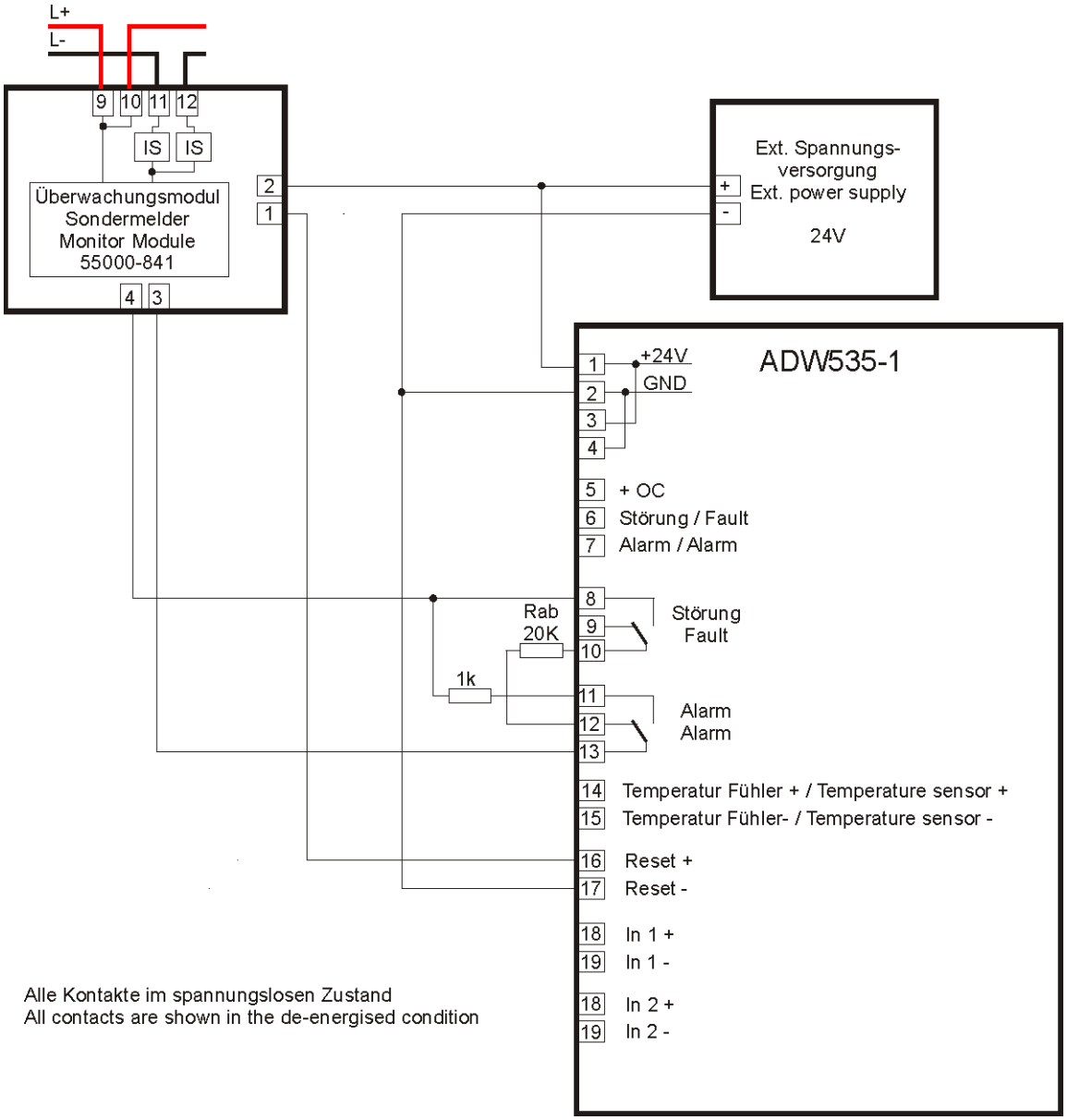
3.12.22 Linear Heat Detector Unit ADW511A – 55000-841



If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

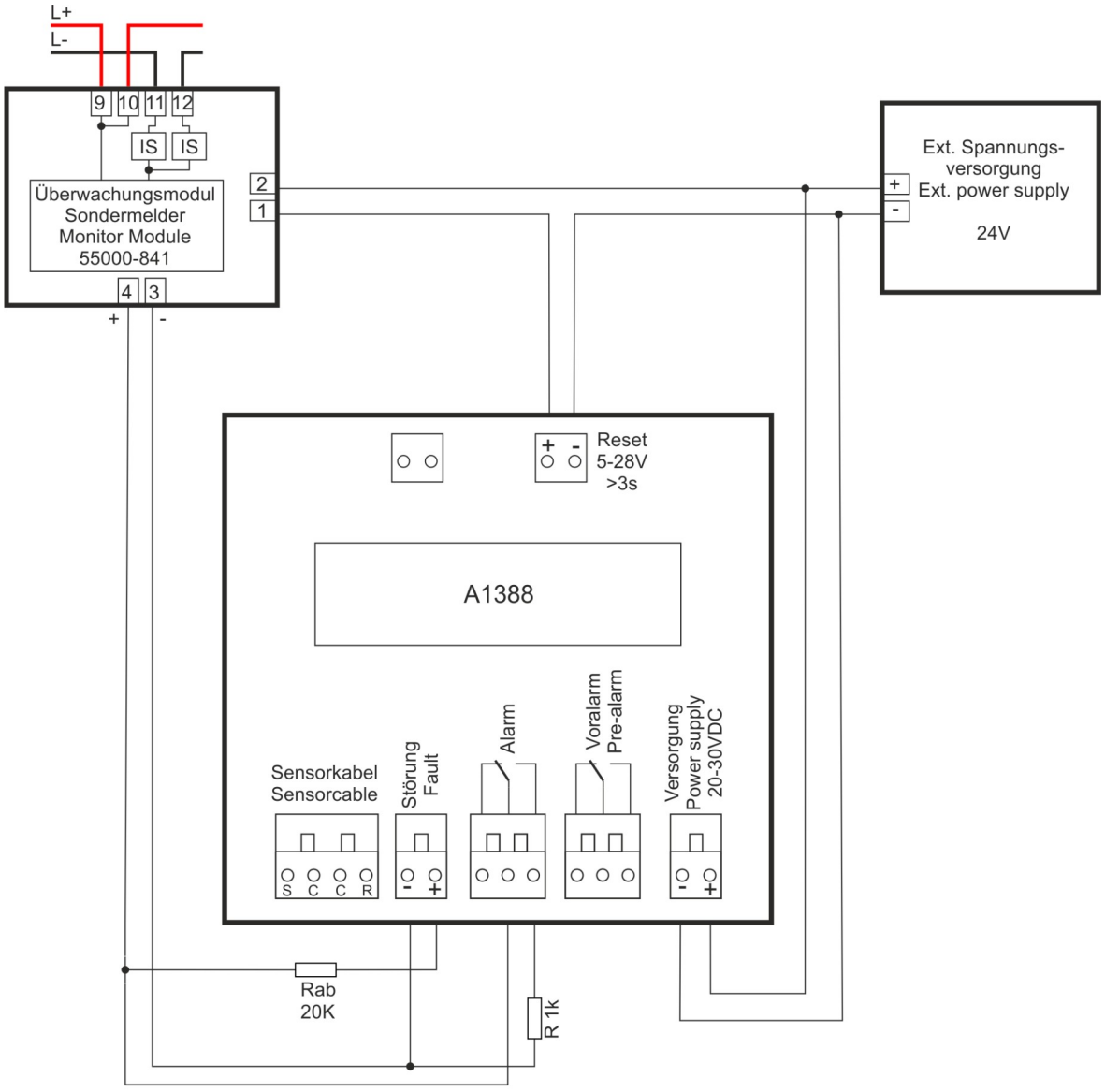
3.12.23 Linear Heat Detector Unit ADW535 – 55000-841



If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

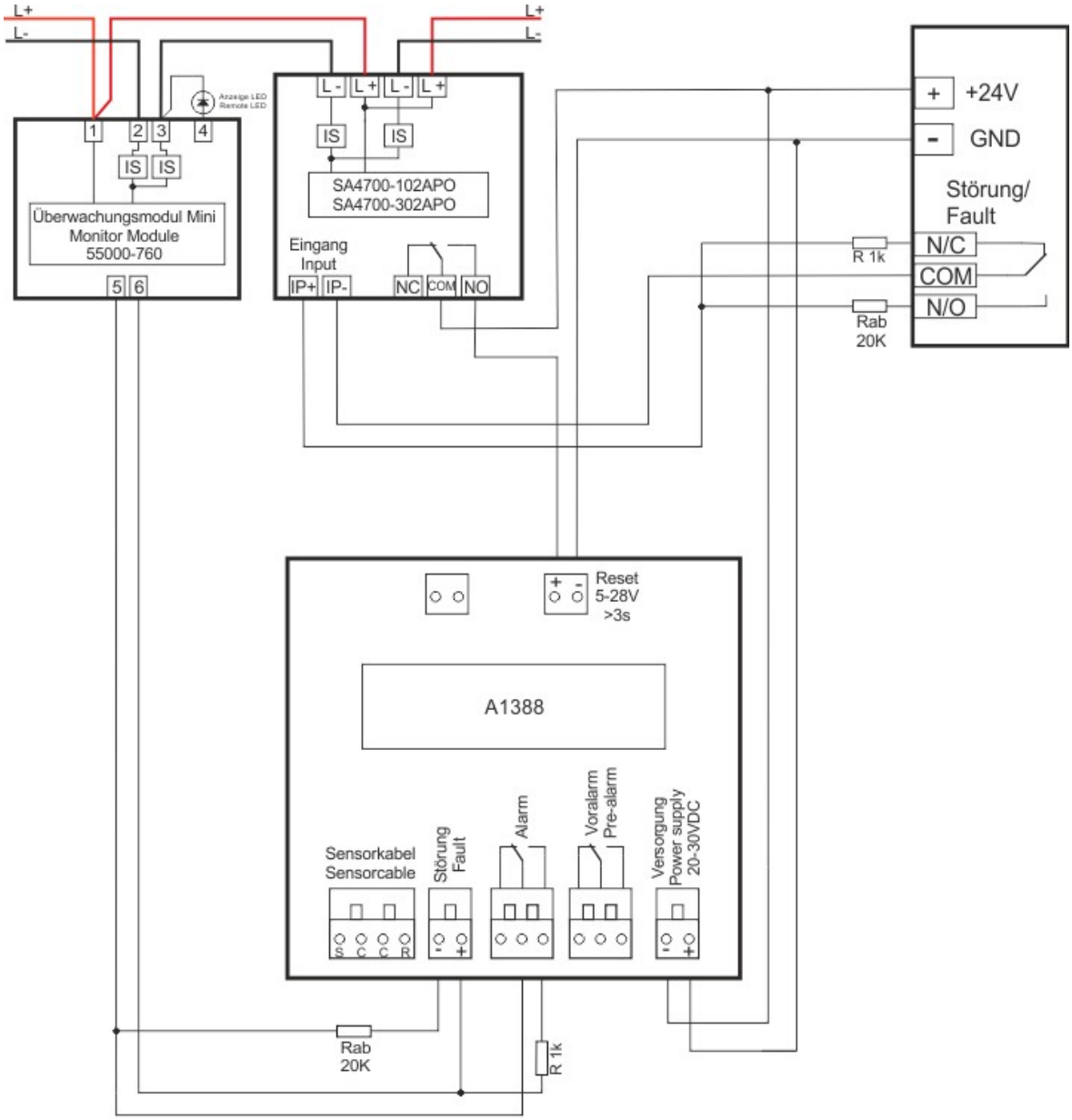
3.12.24 Linear Heat Detector Unit A1388 – 55000-841



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

3.12.25 Linear Heat Detector Unit A1388 – 55000-760 and SA4700-102 / SA4700-302

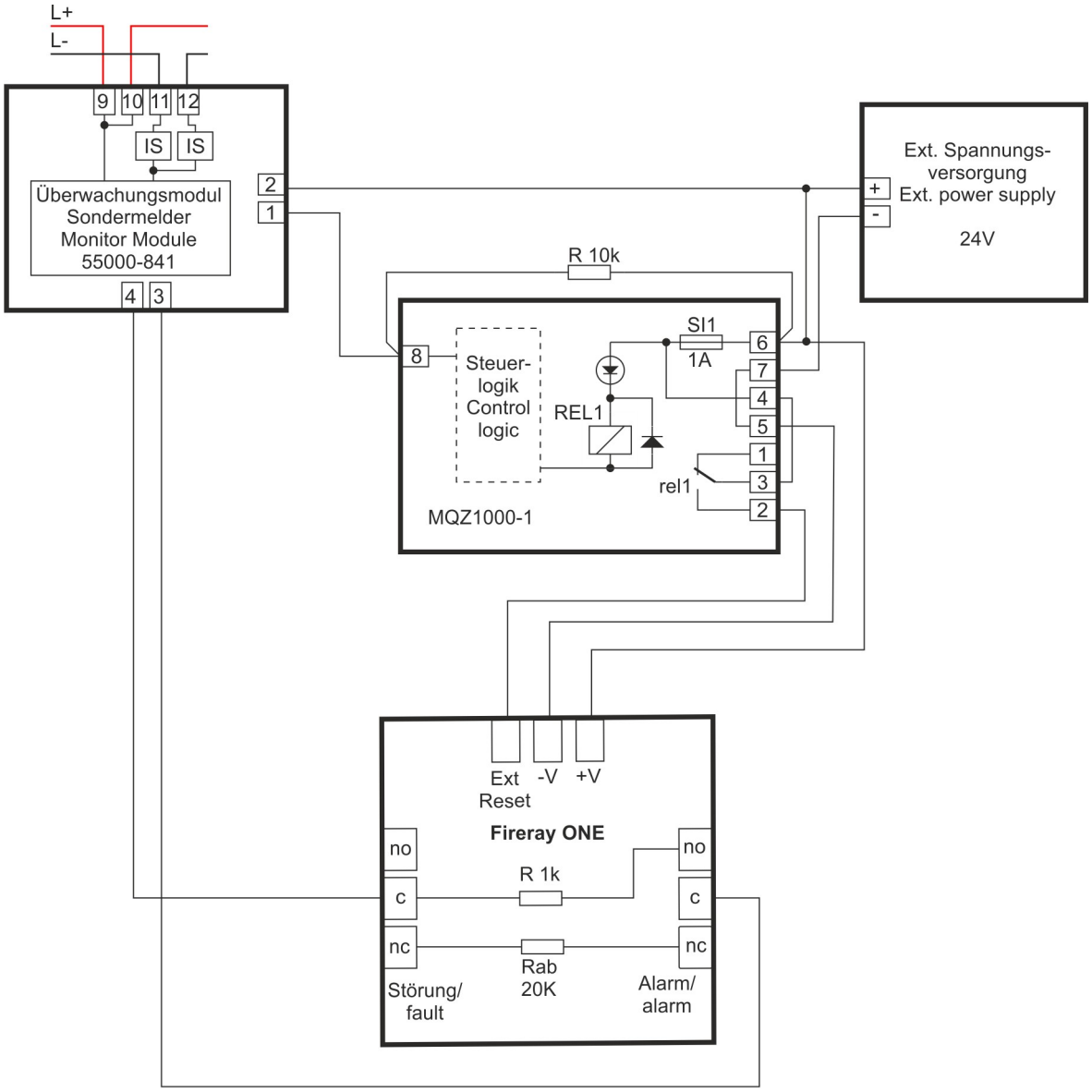


If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

This connection does not apply to the Fire Detection Control Panels Series BC216. The module output has to be parameterised according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

In connection with, for example, the 55000-760, the alarm/pre-alarm can be realised by using the appropriate resistors with a module on the BC600 - see chapter 3.13.1 - Monitor Module/Mini 55000-760. To reset the detector, measures must be taken as described in the previous paragraph.

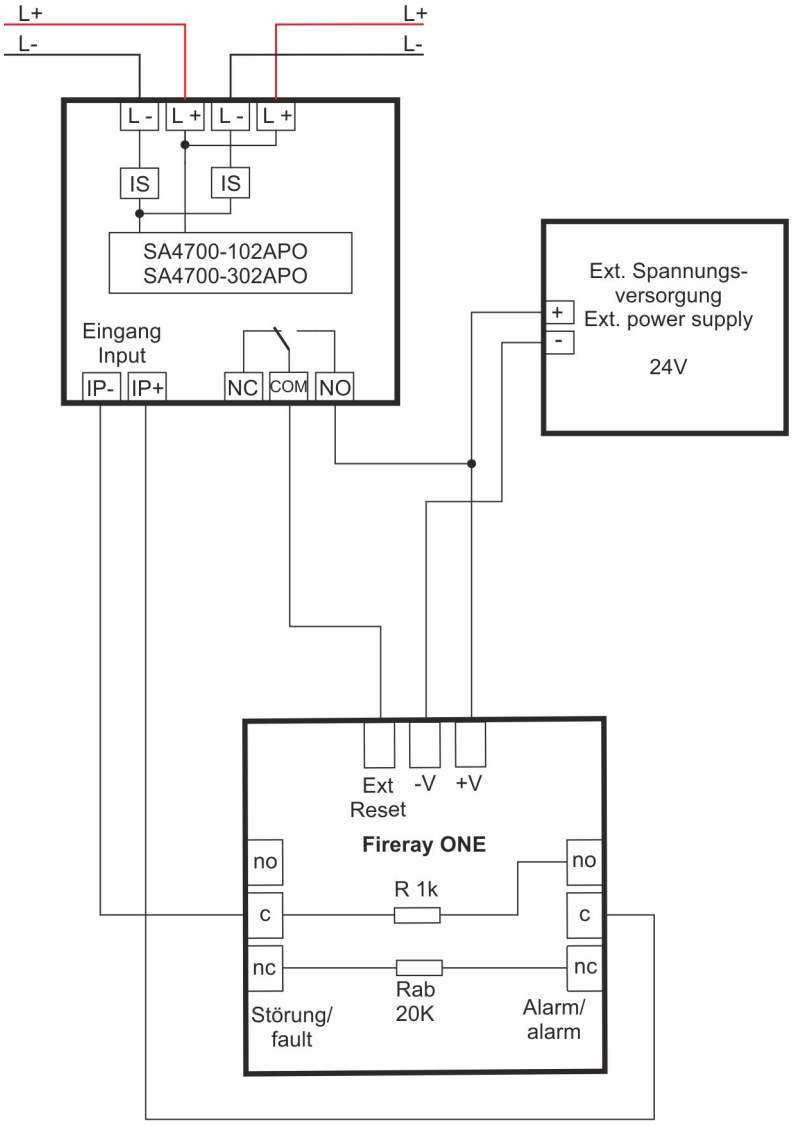
3.12.26 Beam Smoke Detector Fireray ONE – 55000-841



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

3.12.27 Beam Smoke Detector Fireray ONE – SA4700-102 / SA4700-302

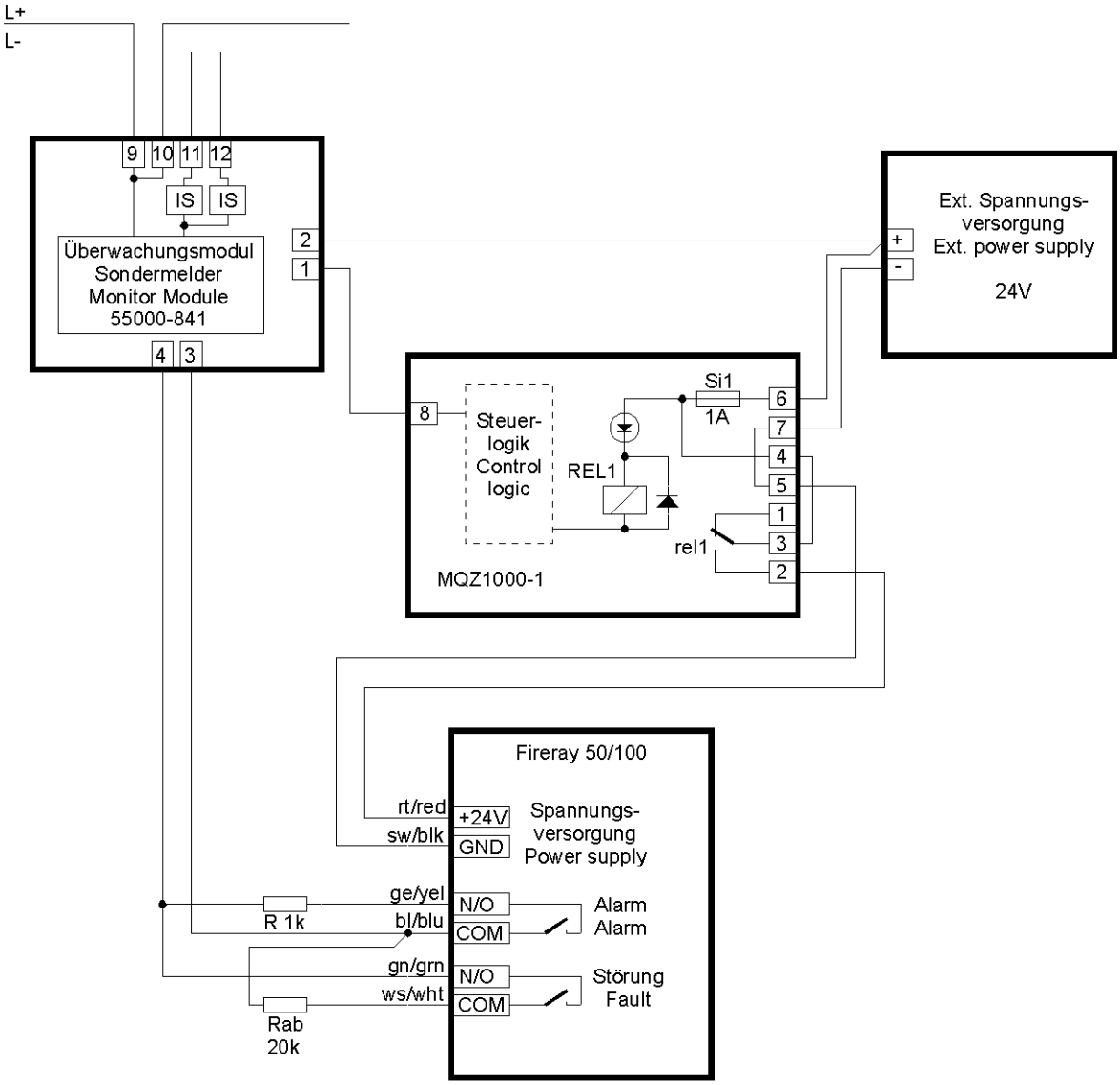


Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

This connection does not apply to the Fire Detection Control Panels Series BC216. The module output has to be parameterised according to Chapter 3.12.4. The relay contact of the module activates the RESET input of the detector.

If the monitor module is powered by an external power supply, the country-specific regulations have to be observed.

3.12.28 Beam Smoke Detector FR50/100 – 55000-841



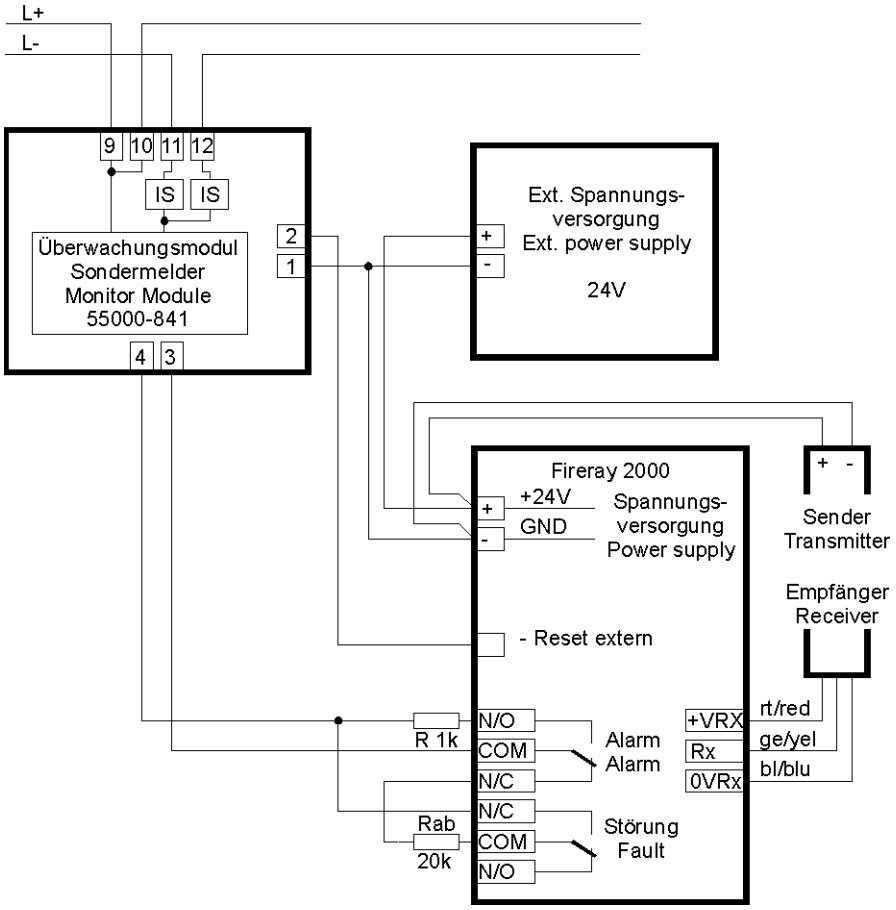
Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

If the monitor module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone).

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

3.12.29 Beam Smoke Detector FR2000 – 55000-841

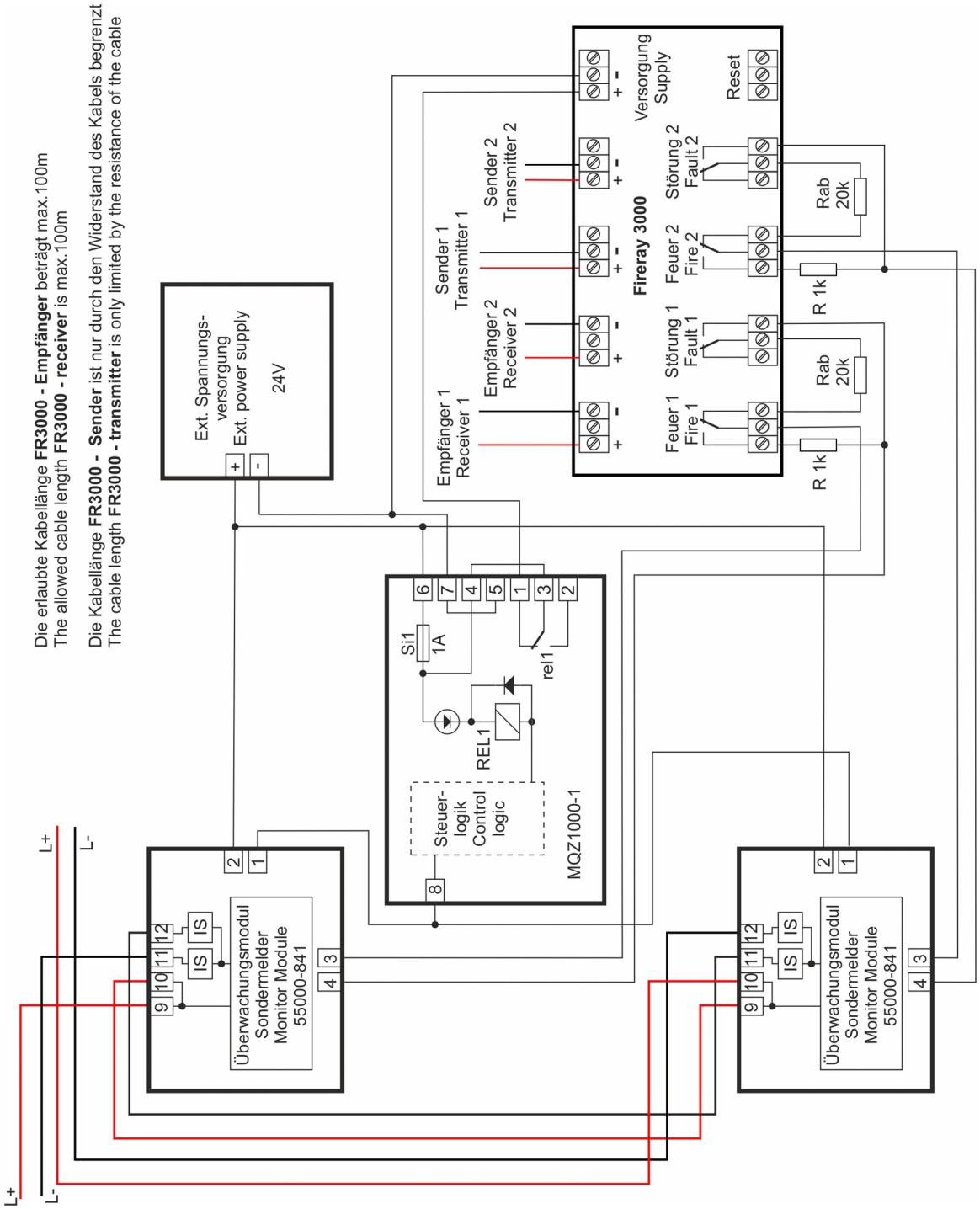


If the monitor module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

An alarm verification according to EN 54-2 Type A is not permissible (in the case of the BC600, the alarm verification is set through the properties of the zone, and in the case of the BC216 it is set through the type of zone).

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the negative potential.

3.12.30 Beam Smoke Detector FR3000 – 55000-841



For the operation of the detector on Control Panels Series BC216 and BC600, a firmware from calendar week 12 / 2013 or later is to be used, and the reset output of the module is to be set to Pulsed signal. If an older firmware is used, the smoke aspiration system will be deactivated if one of the two modules is disabled!

If the module is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector.

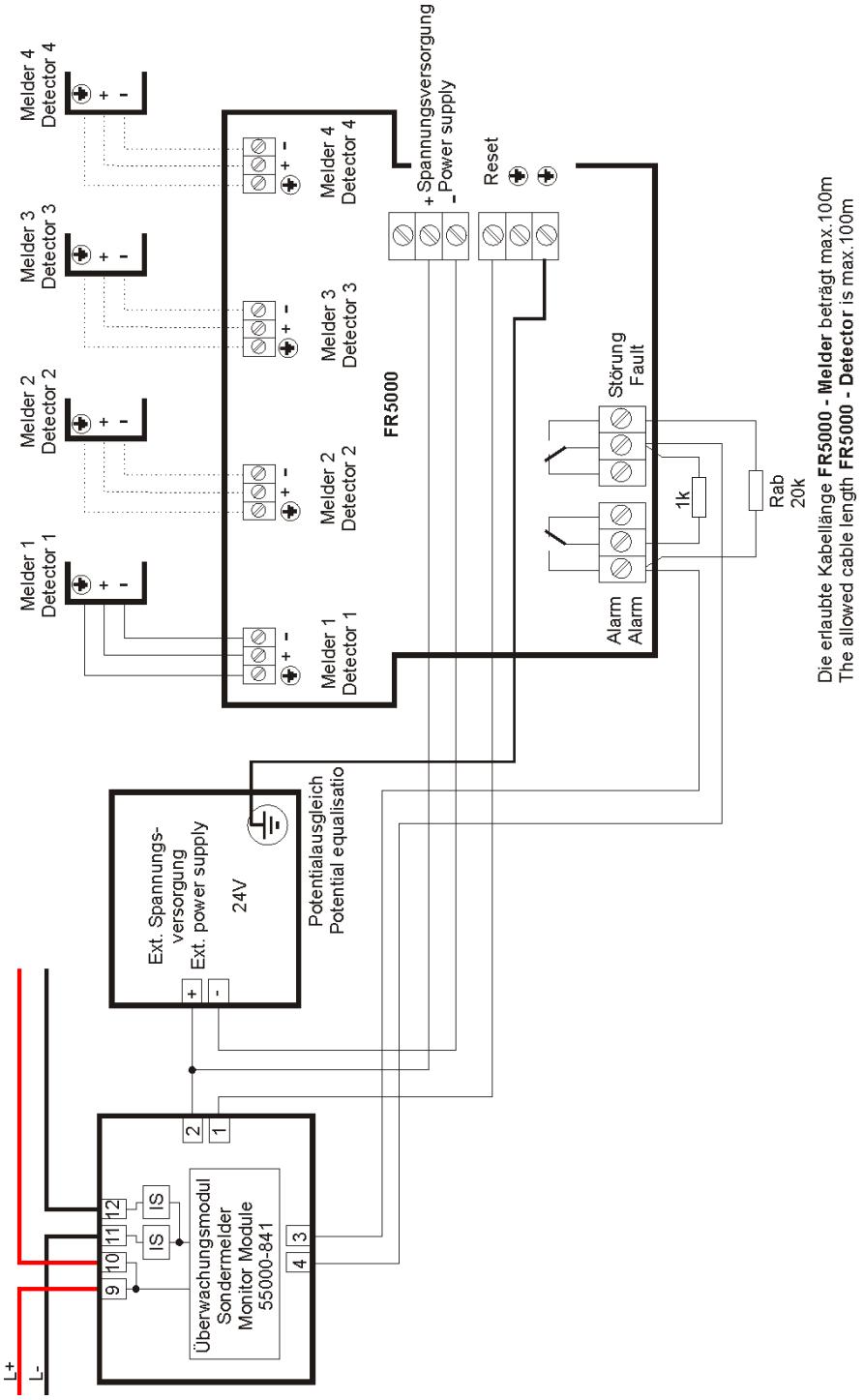
3.12.31 Beam Smoke Detector FR5000 – 55000-841

There are two versions of the Beam Smoke Detector FR5000. The old version allows you to connect 4 detectors, and the new version has 2 detector lines with separate alarm relays.

Distinguishing features

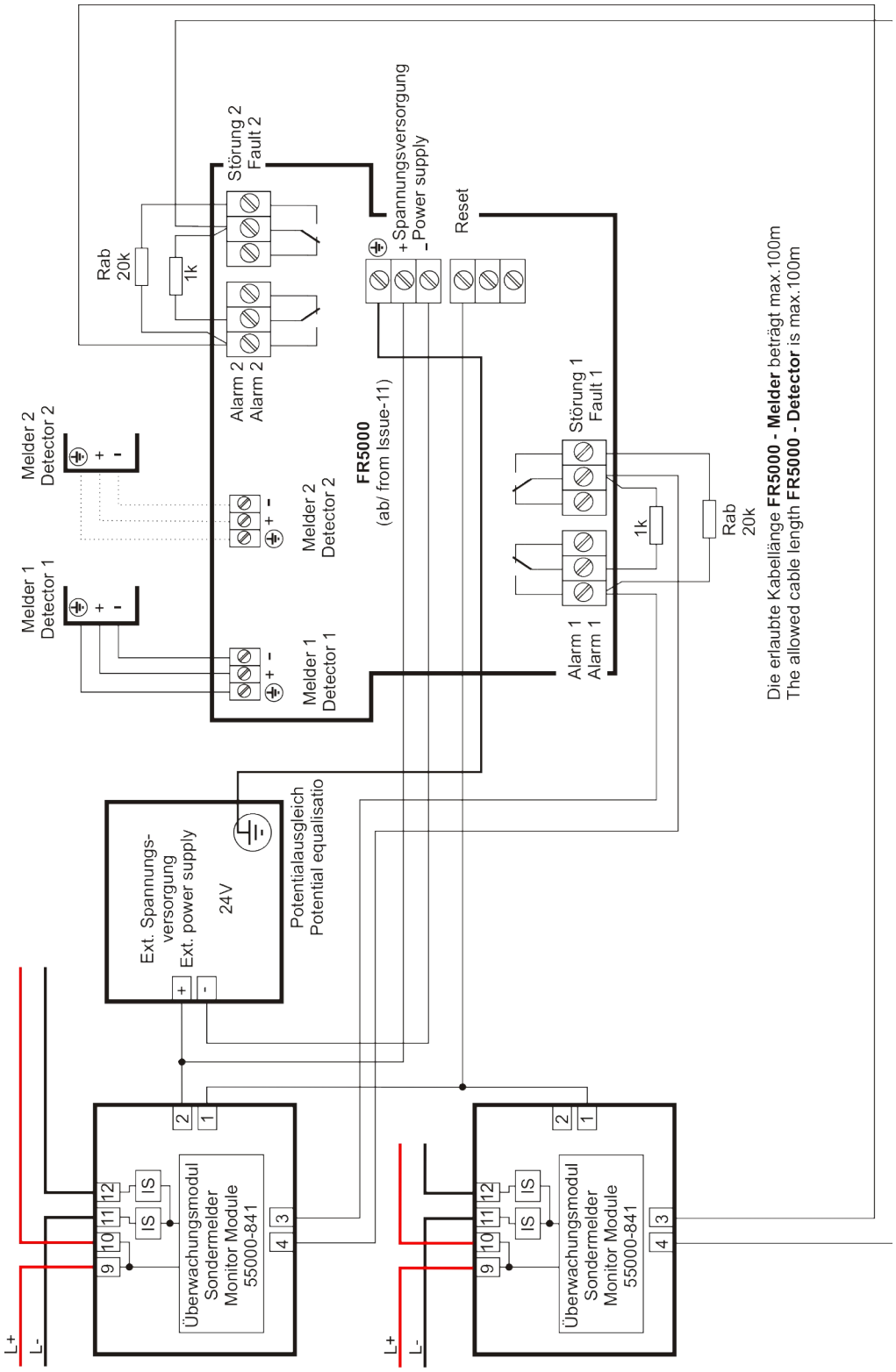
- Packaging: on the packaging of the new version of the FR5000 there is the note "Issue-11".
- Number of LEDs: the new version has 3 LEDs, the old version has 5 LEDs.

3.12.31.1 Old version



As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

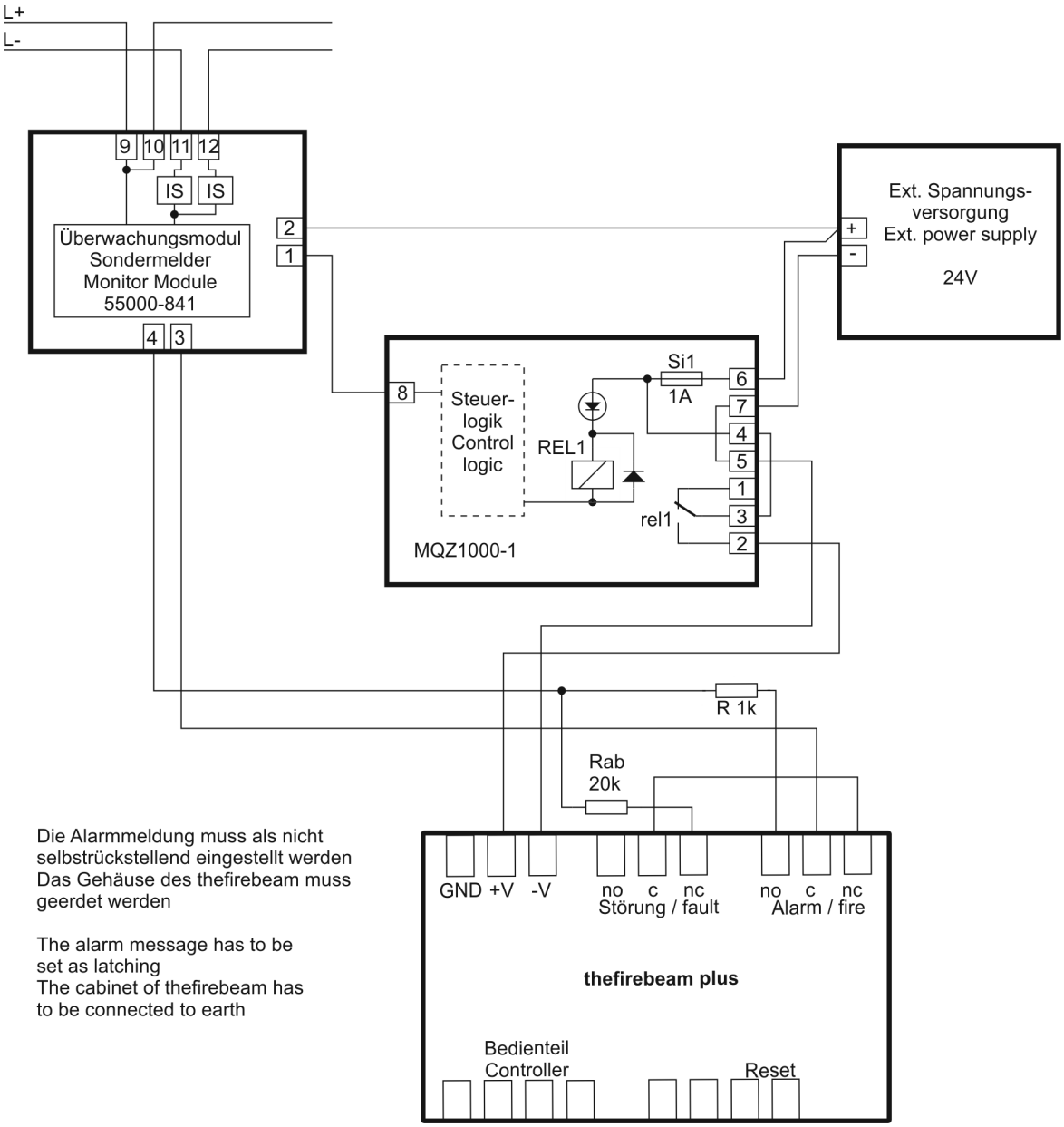
3.12.31.2 New version



For the operation of the detector on Control Panels Series BC216 and BC600, a firmware from calendar week 12 / 2013 or later is to be used, and the reset output of the module is to be set to Pulsed signal. If an older firmware is used, the smoke aspiration system will be deactivated if one of the two modules is disabled!

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

3.12.32 Beam Smoke Detector thefirebeam plus – 55000-841

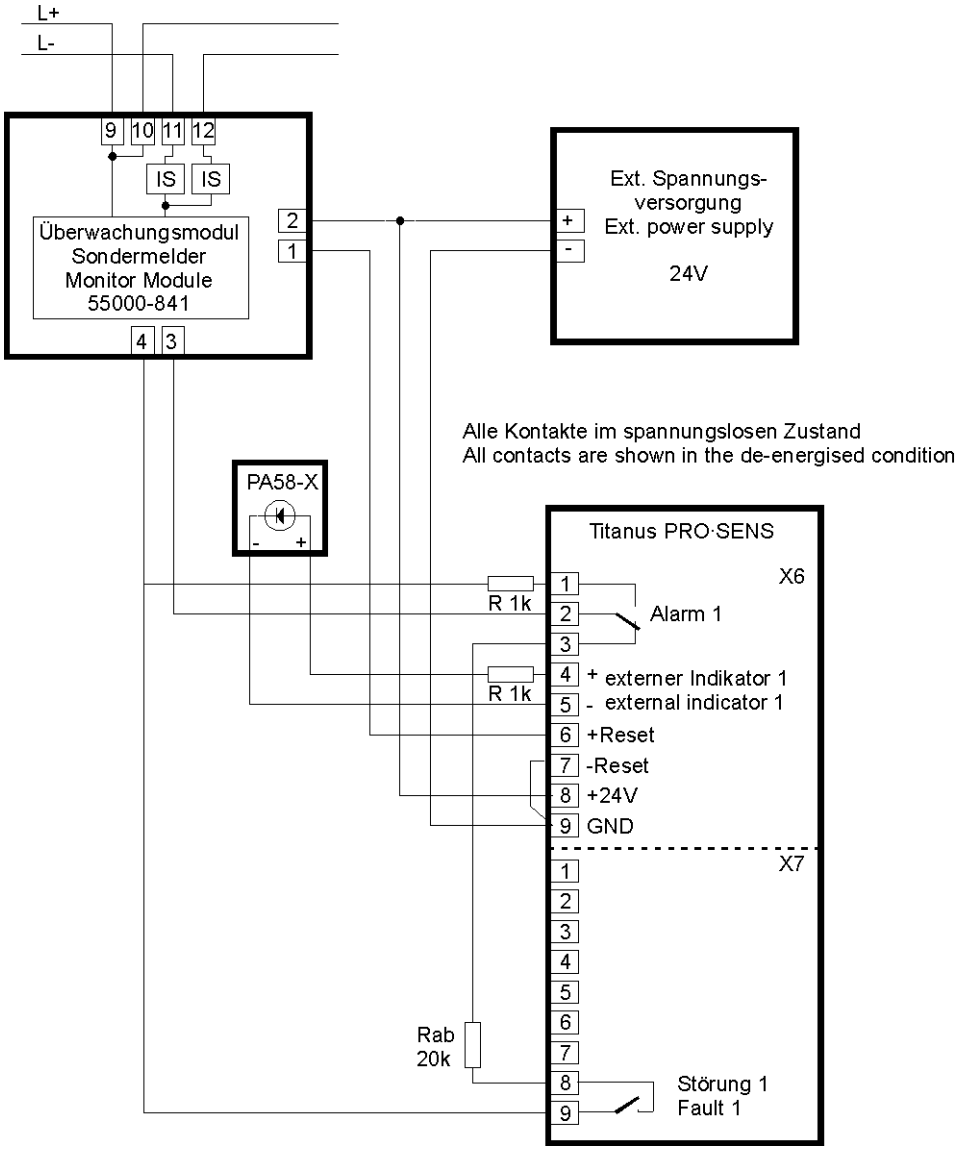


After applying the supply voltage to the detector, the fault relay will remain released for 8 seconds. Therefore, a brief fault can occur at the fire detection control panel after enabling the module, after resetting the control panel or after power-on.

If the monitor module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will interrupt the power supplied to the detector. The MQZ1000-1 can be omitted.

3.12.33 Smoke Aspiration System Titanus PRO·SENS – TP-1/A with one detector module - 55000-841

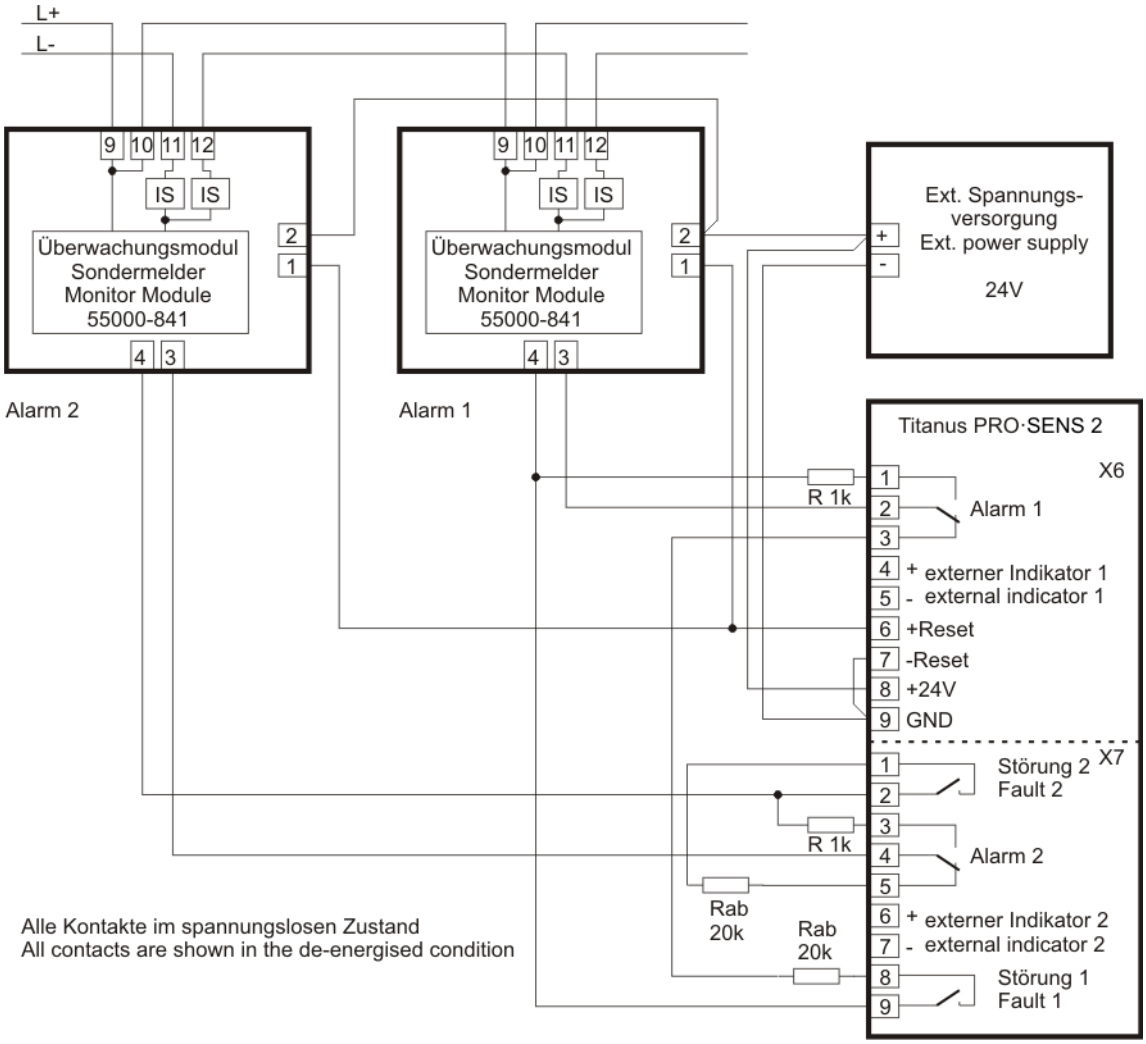


On pin connector JU2/3 (main printed circuit board of the smoke aspiration system), the jumper has to be set to position 1-2, which means that the fault relay is set to operate as NORMALLY OPEN contact.

If the module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

3.12.34 Smoke Aspiration System Titanus PRO·SENS – TP-1/A with 2 detector modules – 55000-841



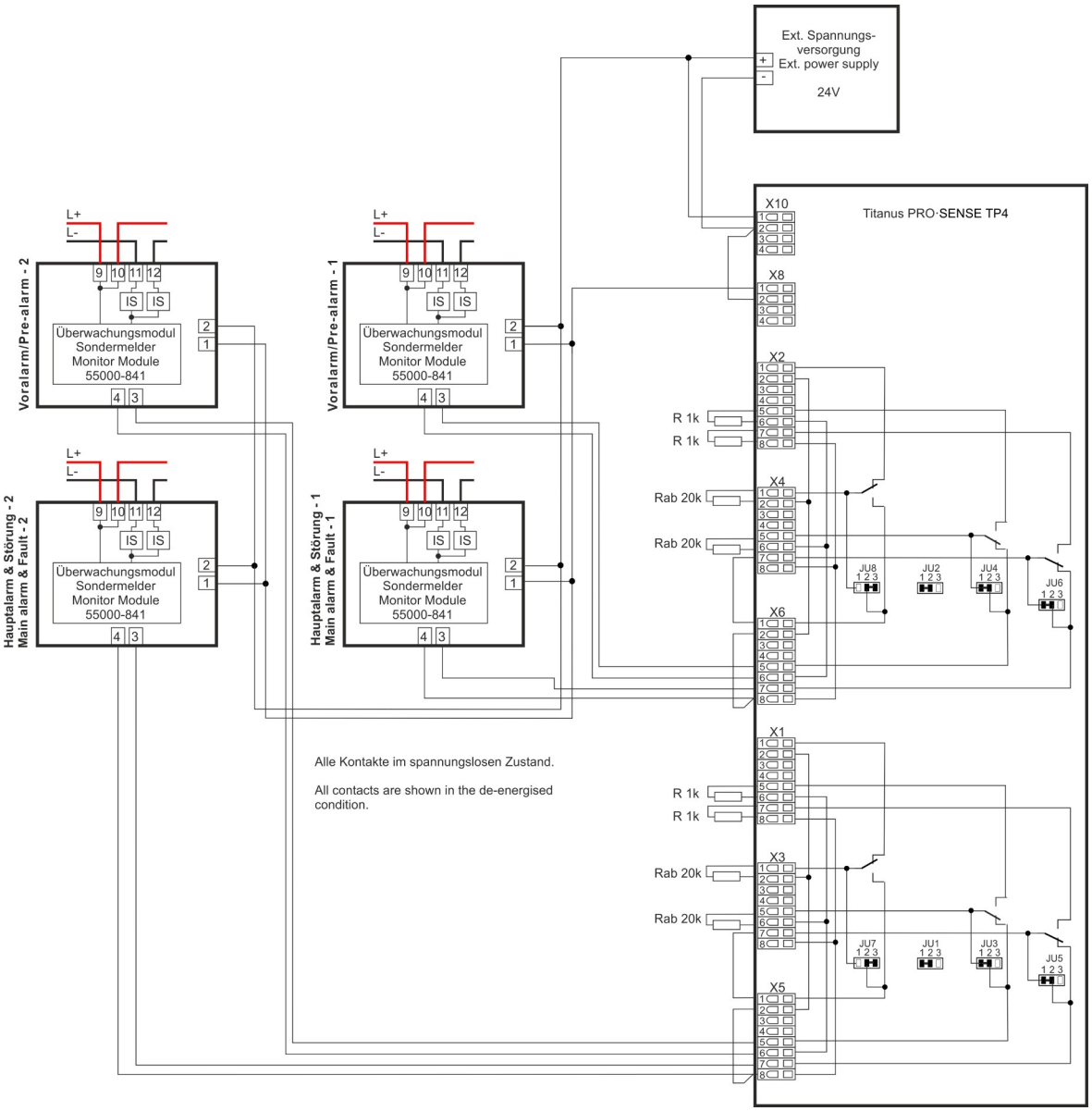
On pin connector JU2/3 (main printed circuit board of the smoke aspiration system), the jumper has to be set to position 1-2, which means that the fault relay is set to operate as NORMALLY OPEN contact.

For the operation of the smoke aspiration system on Control Panels Series BC216 and BC600, a firmware from calendar week 12 / 2013 or later is to be used, and the reset output of the module is to be set to Pulsed signal. If an older firmware is used, the smoke aspiration system will be deactivated if one of the two modules is disabled!

If the module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

3.12.35 Smoke Aspiration System Titanus PRO SENS – TP-4 with 2 detector modules – 55000-841

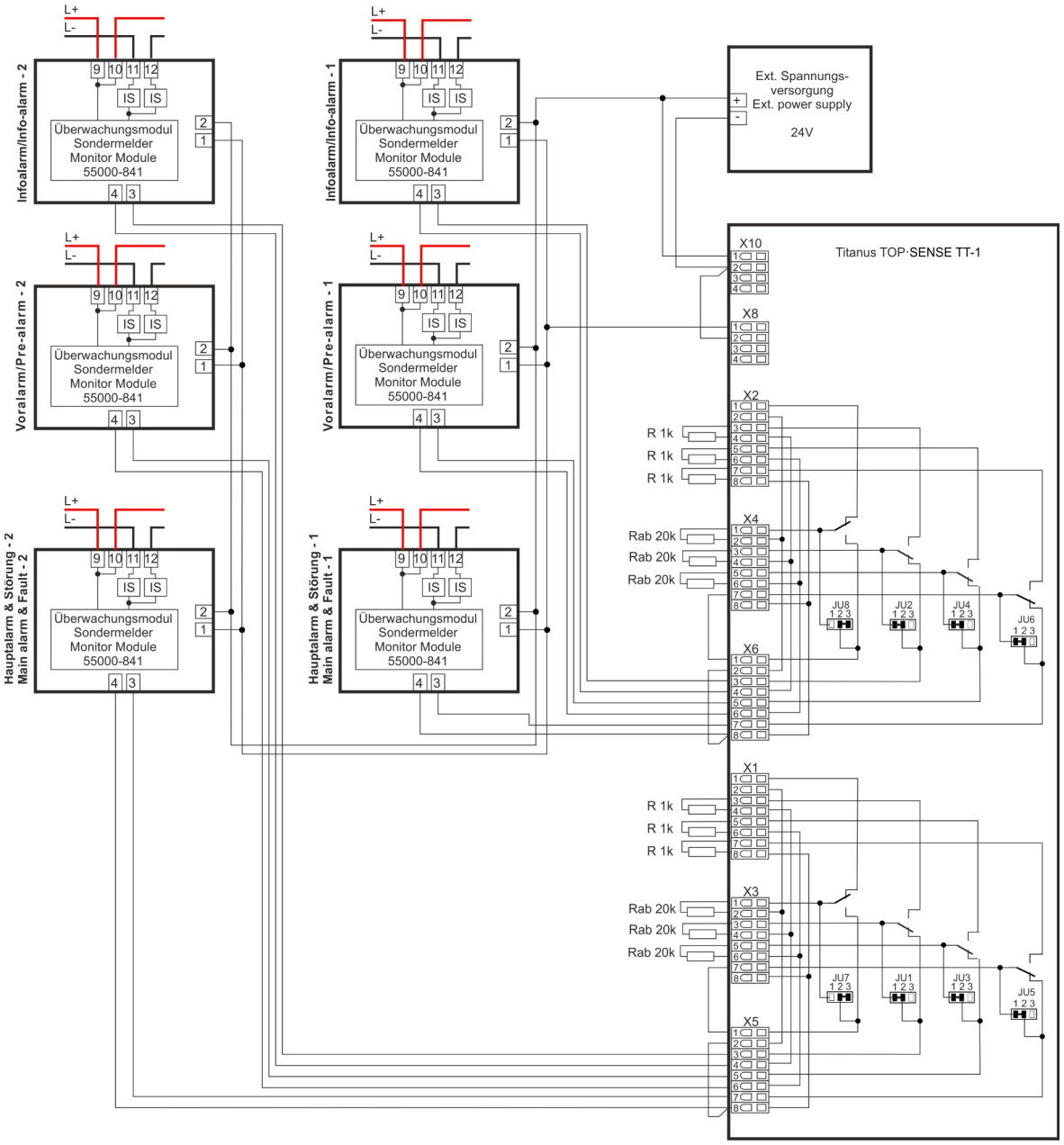


For the operation of the detector on Control Panels Series BC216 and BC600, a firmware from calendar week 12 / 2013 or later is to be used, and the reset output of the module is to be set to Pulsed signal. If an older firmware is used, the smoke aspiration system will be deactivated if one of the two modules is disabled!

If the module is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

3.12.36 Smoke Aspiration System Titanus TOP SENS – TT-1 with 2 detector modules – 55000-841

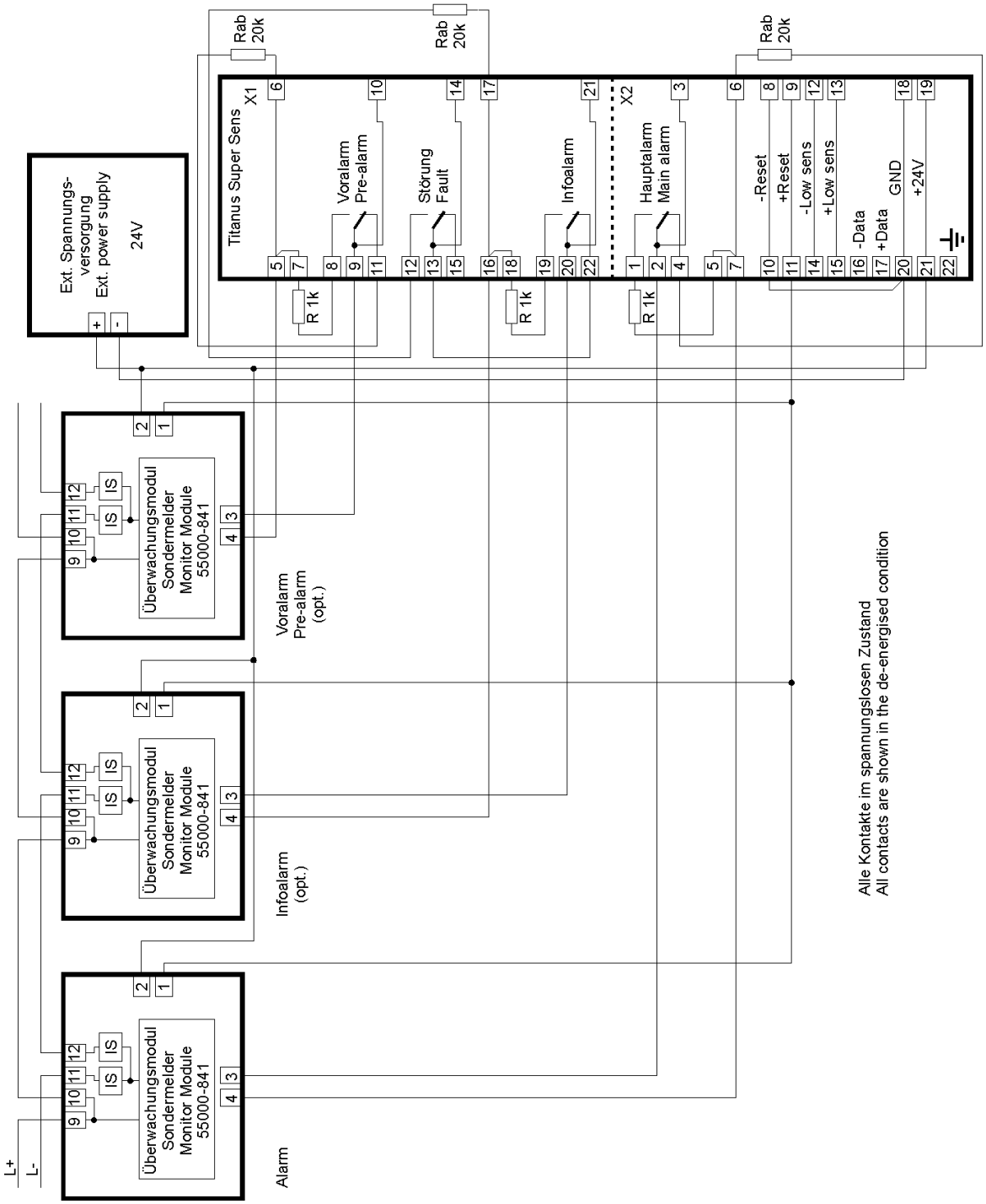


For the operation of the detector on Control Panels Series BC216 and BC600, a firmware from calendar week 12 / 2013 or later is to be used, and the reset output of the module is to be set to Pulsed signal. If an older firmware is used, the smoke aspiration system will be deactivated if one of the two modules is disabled!

If the module is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

3.12.37 Smoke Aspiration System Titanus Super Sens – T-SS – 55000-841

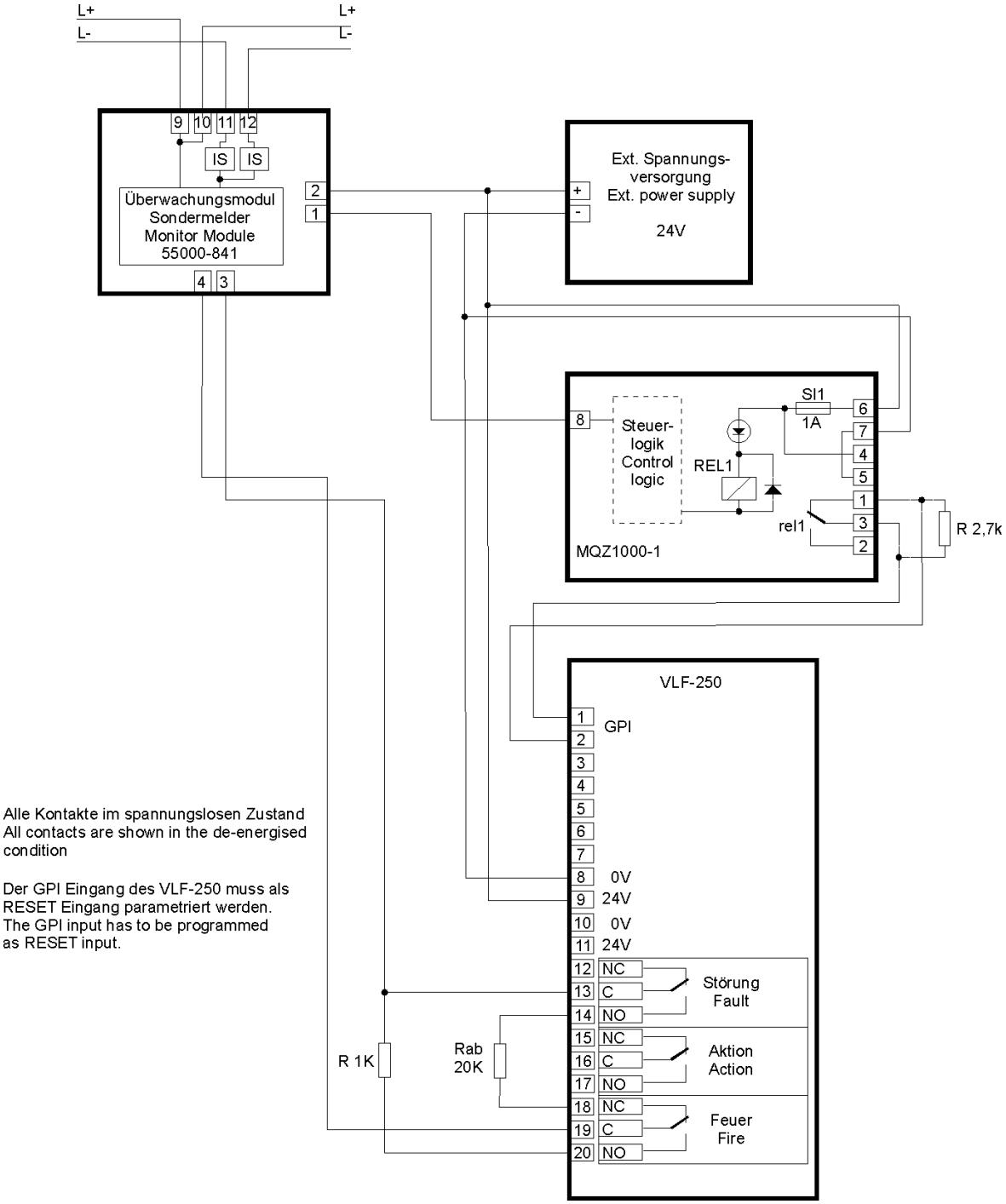


For the operation of the detector on Control Panels Series BC216 and BC600, a firmware from calendar week 12 / 2013 or later is to be used, and the reset output of the module is to be set to Pulsed signal. If an older firmware is used, the smoke aspiration system will be deactivated if one of the two modules is disabled!

If the module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

3.12.38 Smoke Aspiration System Vesda VLF-250 / VLF-500 – 55000-841



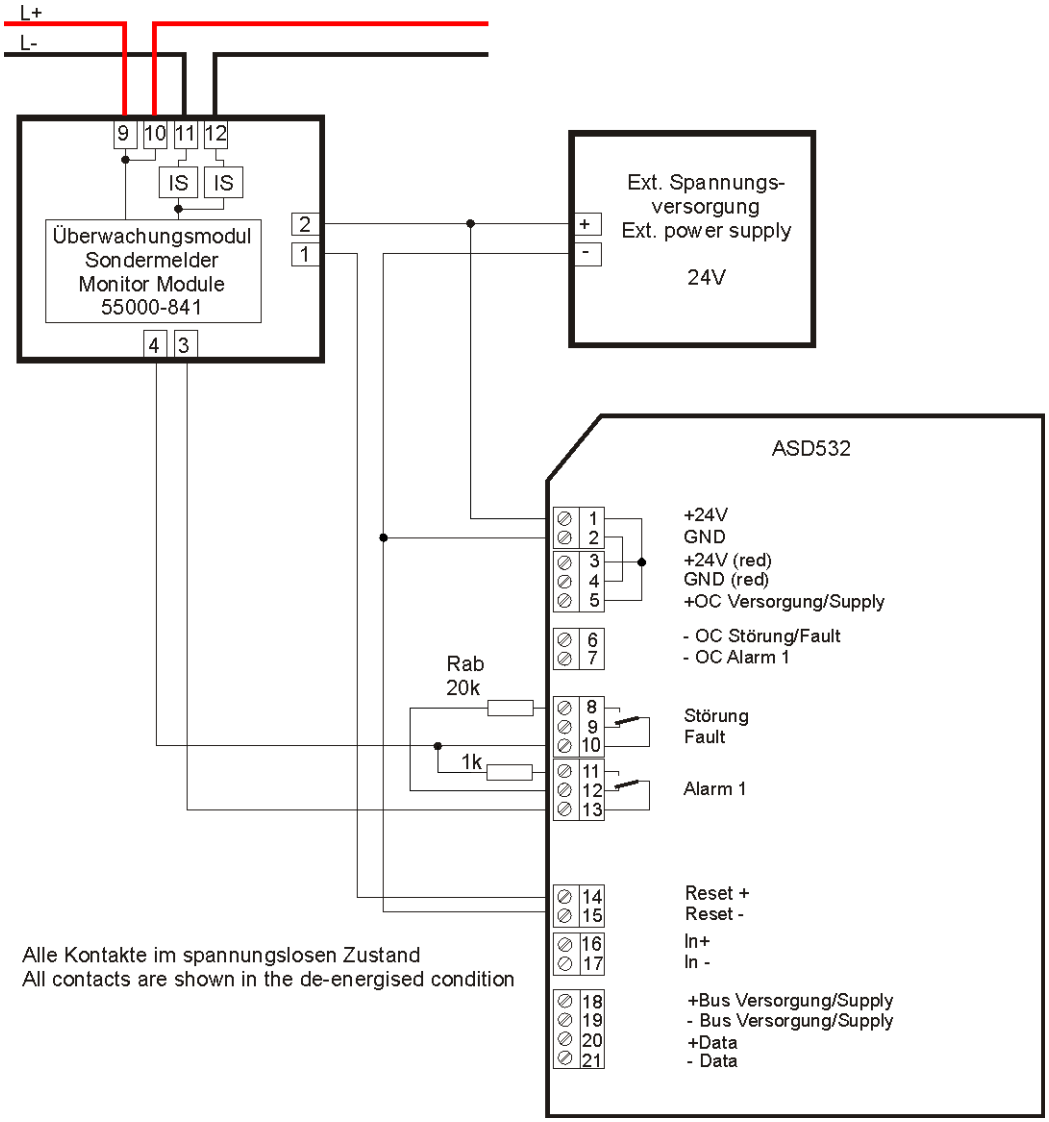
You need a special software for the setup and commissioning of the Smoke Aspiration System Vesda VLF-250 / VLF-500.

The Smoke Aspiration System Vesda VLF-500 has the same terminal assignment as the VLF-250.

If the module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

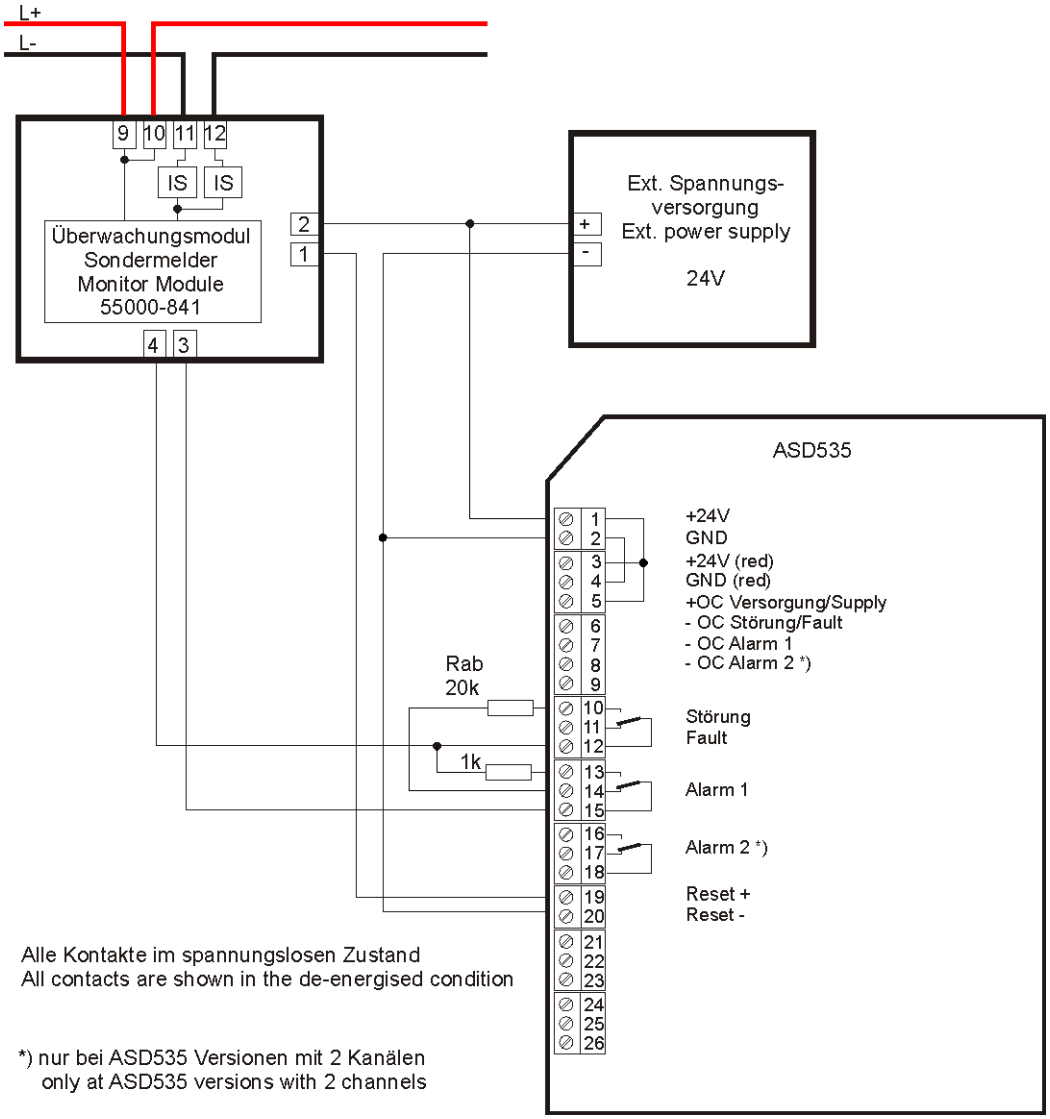
3.12.39 Smoke Aspiration System ASD532 – 55000-841



If the module is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

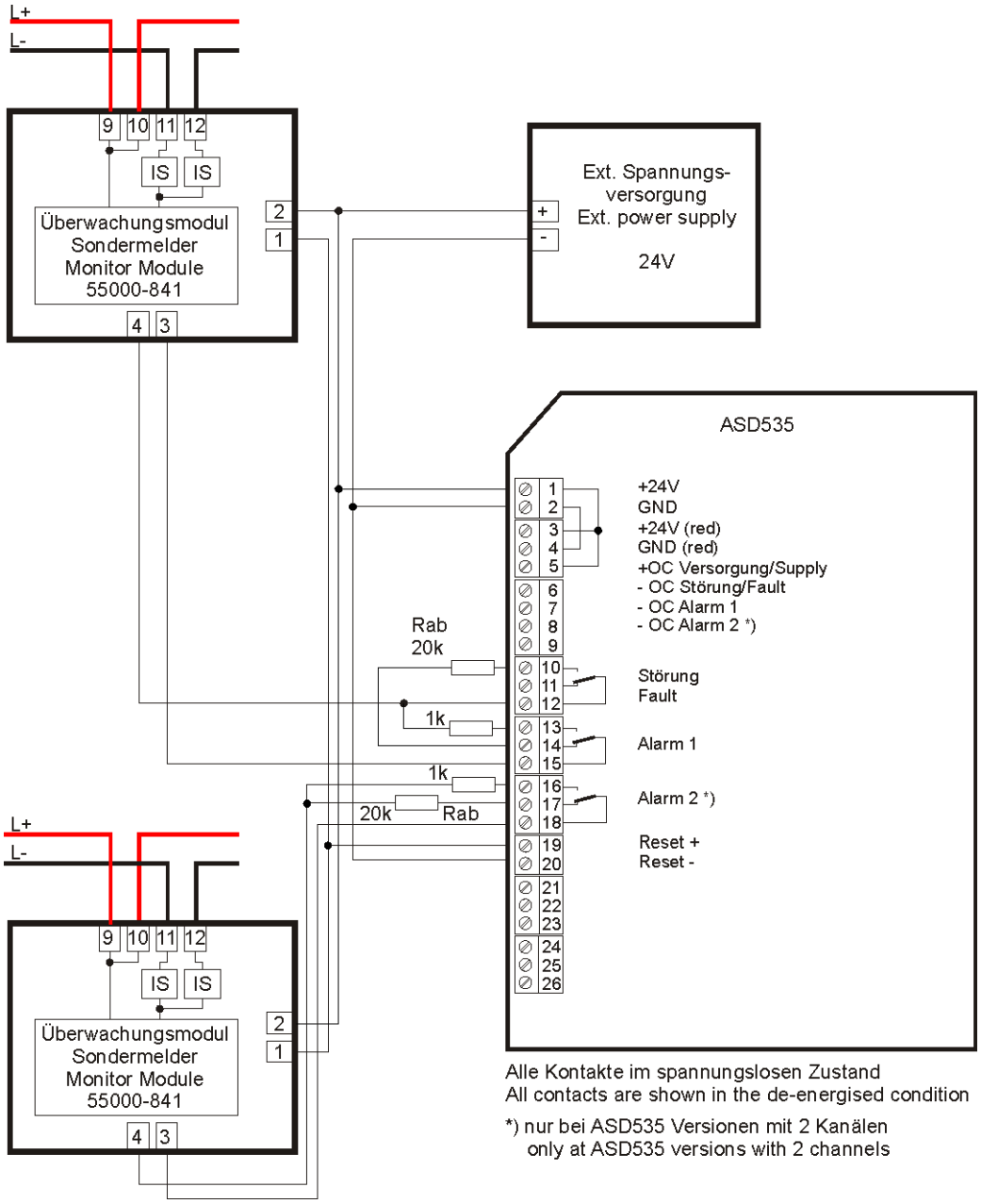
3.12.40 Smoke Aspiration System ASD535 with one channel – 55000-841



If the module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

3.12.41 Smoke Aspiration System ASD535 with 2 channels – 55000-841

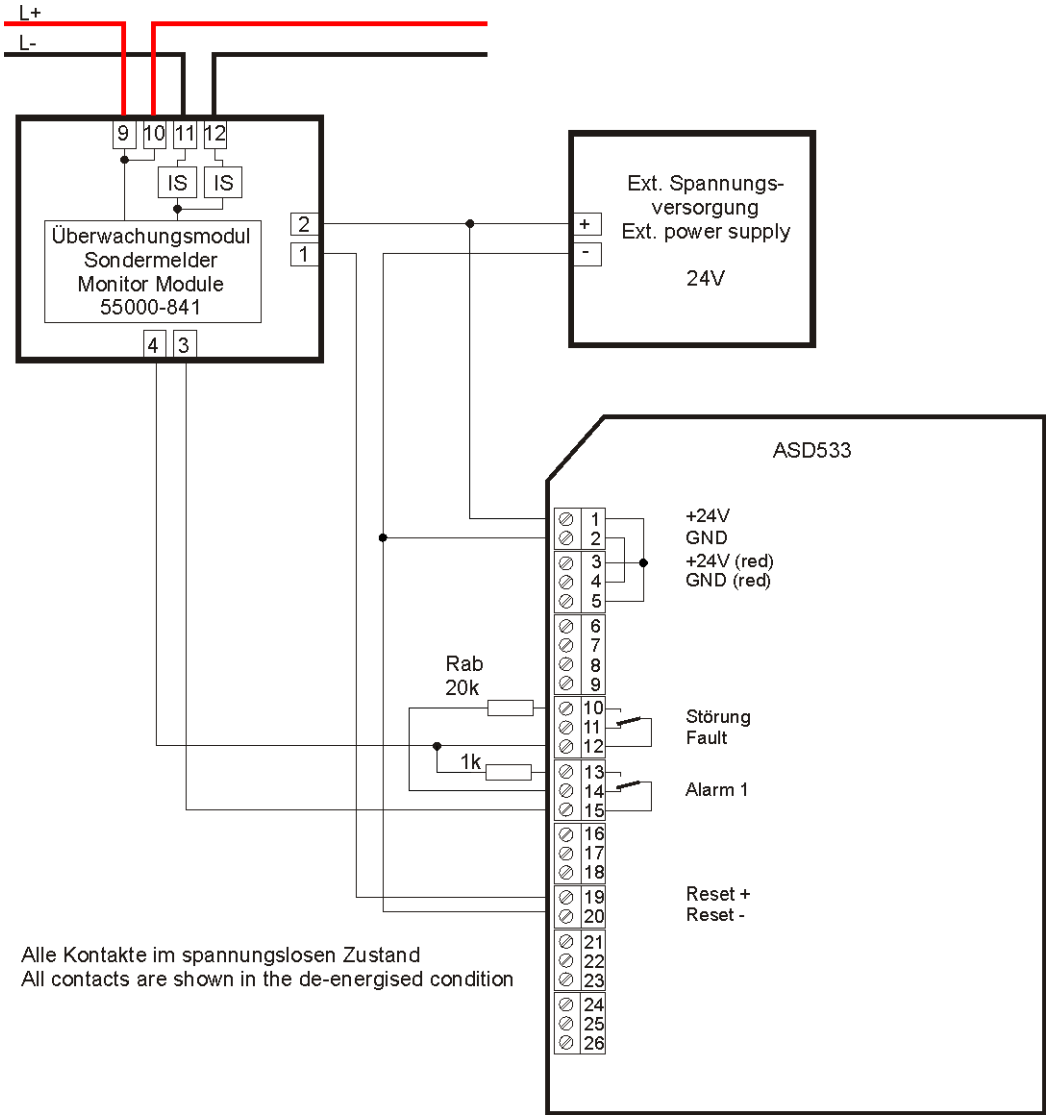


For the operation of the detector on Control Panels Series BC216 and BC600, a firmware from calendar week 12 / 2013 or later is to be used, and the reset output of the module is to be set to Pulsed signal. If an older firmware is used, the smoke aspiration system will be deactivated if one of the two modules is disabled!

If the module is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

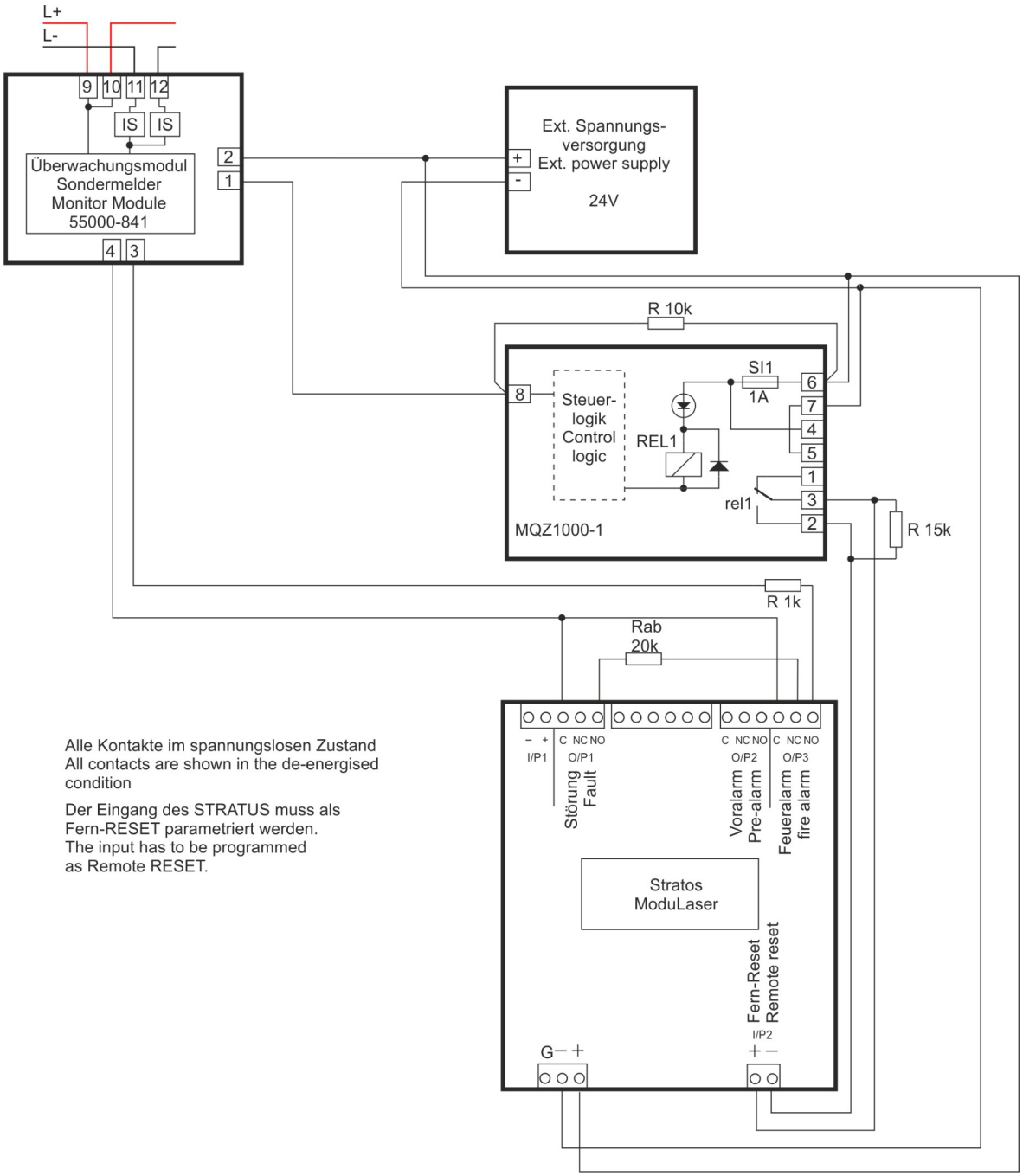
3.12.42 Smoke Aspiration System ASD533 – 55000-841



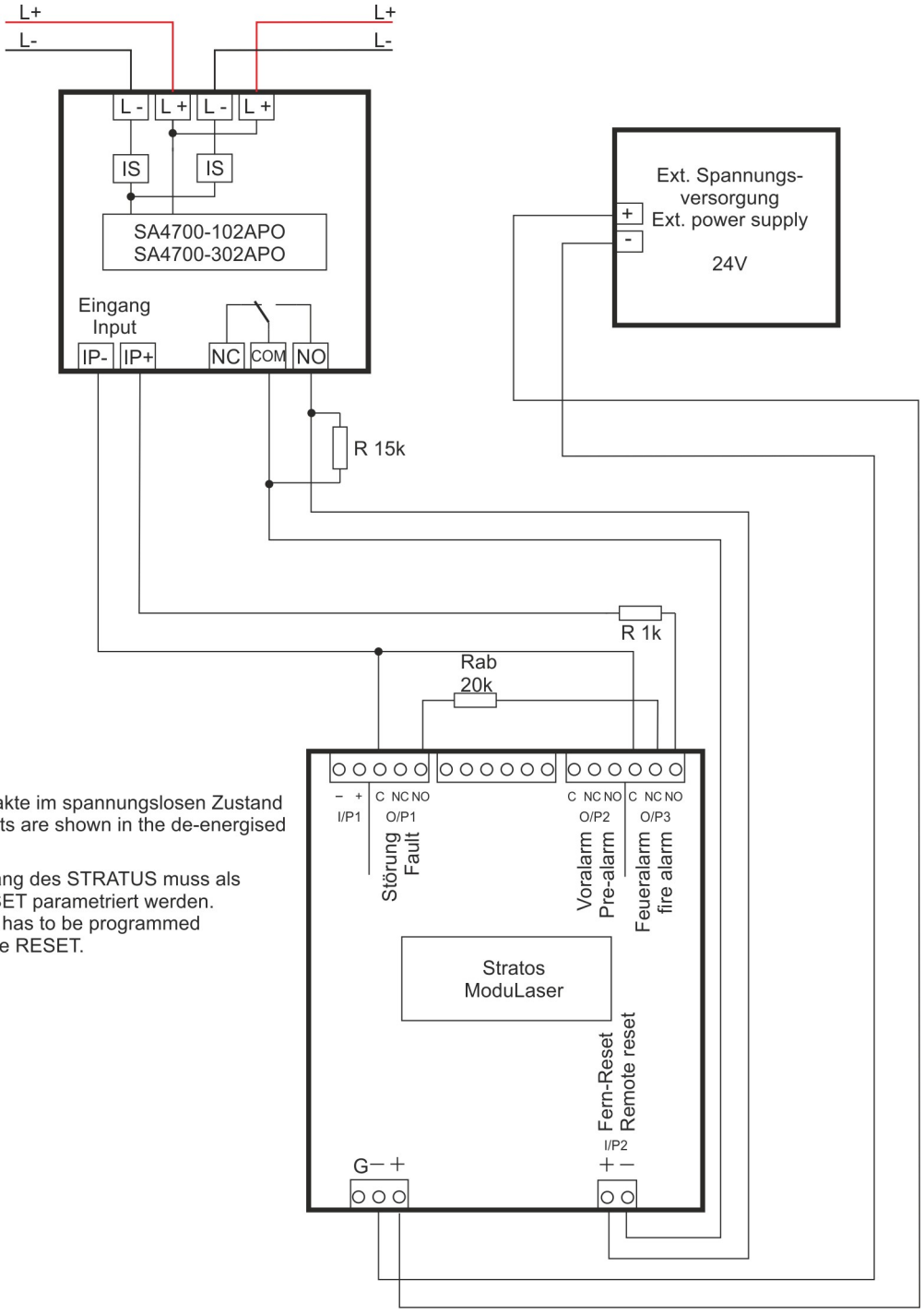
If the module is powered by an external power supply, the country-specific regulations concerning emergency power supply have to be observed.

As a substitute for the module 55000-841, the module SA4700-102 or -302 can be connected to the BC600 – parameterisation according to Chapter 3.12.4. In the event of activation, the relay contact of the module will connect the reset input of the detector to the positive potential.

3.12.43 Aspirating Smoke Detector Stratos-ModuLaser – 55000-841



3.12.44 Aspirating Smoke Detector Stratos-ModuLaser – SA4700-102 / SA4700-302



Alle Kontakte im spannungslosen Zustand
All contacts are shown in the de-energised condition

Der Eingang des STRATUS muss als Fern-RESET parametriert werden.
The input has to be programmed as Remote RESET.

This connection does not apply to the Fire Detection Control Panels Series BC216. The module output has to be parameterised according to Chapter 3.12.4. The relay contact of the module activates the input of the detector.

3.13 Connection of contact detectors by means of monitor modules

3.13.1 Monitor Module/Mini 55000-760

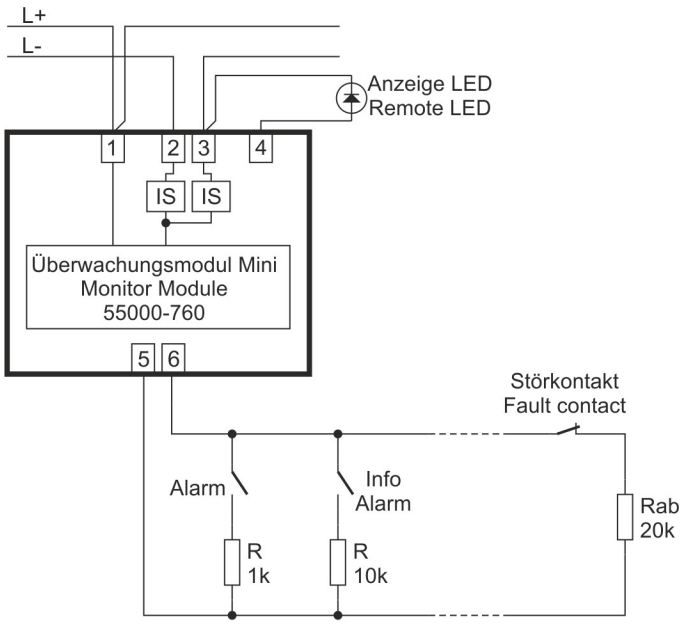
By means of the Monitor Module 55000-760, contact detectors (e.g., sprinkler system contacts, supervising contacts) can be connected to a Fire Detection Control Panel Series BC216. You can set whether the module is latching or not.

3.13.1.1 Address setting

The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

The DIP switches of the module are used for setting the address and for activating the quick response time - **Interrupt**. This **quick response time** is activated with **switch 8**. If switch 8 is in the OFF position, the module must be in the alarm condition for at least 10 seconds – element type in PARSOFT: Monitor module Mini. If switch 8 is in the ON position, the alarm will be detected more quickly – element type in PARSOFT: manual call point.

3.13.1.2 Connection



The number of contact detectors that can be connected to a Monitor Module 55000-760 is not limited. An alarm resistor R = 1kOhm/0.35W must be installed in each detector. In addition, an end-of-line resistor Rab = 20kOhm/0.35W must be installed in the last detector.

The module can, if defined in the BC600 element parameterisation, evaluate an additional state of the input – the info alarm. This feature is available when the module is set to non-interrupt. Normal condition = 20kOhm; Info alarm = 10kOhm; Alarm = 1kOhm.

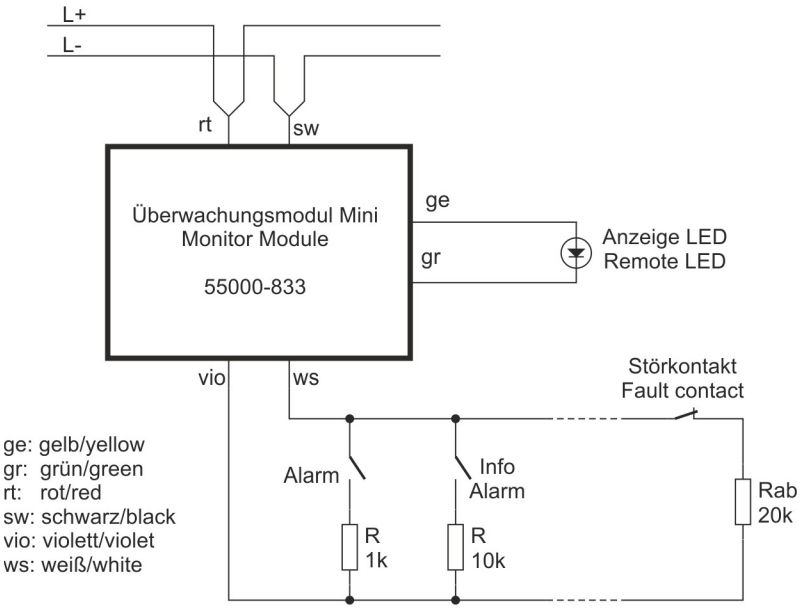
3.13.2 Monitor Module/Mini 55000-833

By means of the Monitor Module 55000-833, contact detectors (e.g., sprinkler system contacts, supervising contacts) can be connected to a Fire Detection Control Panel Series BC216.

3.13.2.1 Address setting

The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

3.13.2.2 Connection



The number of contact detectors that can be connected to a Monitor Module 55000-833 is not limited. An alarm resistor R = 1kOhm/0.35W must be installed in each detector. In addition, an end-of-line resistor Rab = 20kOhm/0.35W must be installed in the last detector.

The module can, if defined in the BC600 element parameterisation, evaluate an additional state of the input – the info alarm.
Normal condition = 20kOhm; Info alarm = 10kOhm; Alarm = 1kOhm.

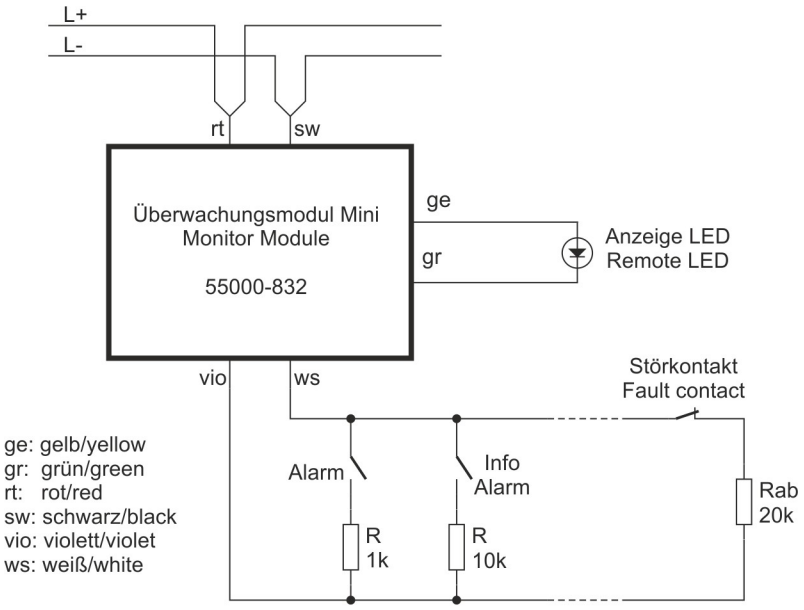
3.13.3 Monitor Module/Mini Interrupt 55000-832

By means of the Monitor Module 55000-832, contact detectors (e.g., sprinkler system contacts, supervising contacts) can be connected to a Fire Detection Control Panel Series BC216. A line interruption will be evaluated as alarm. The module 55000-832 differs from the 55000-833 in that, with the 55000-832, the contact detector is evaluated by the fire detection control panel more quickly.

3.13.3.1 Address setting

The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

3.13.3.2 Connection



The number of contact detectors that can be connected to a Monitor Module 55000-832 is not limited. An alarm resistor R = 1kOhm/0.35W must be installed in each detector. In addition, an end-of-line resistor Rab = 20kOhm/0.35W must be installed in the last detector.

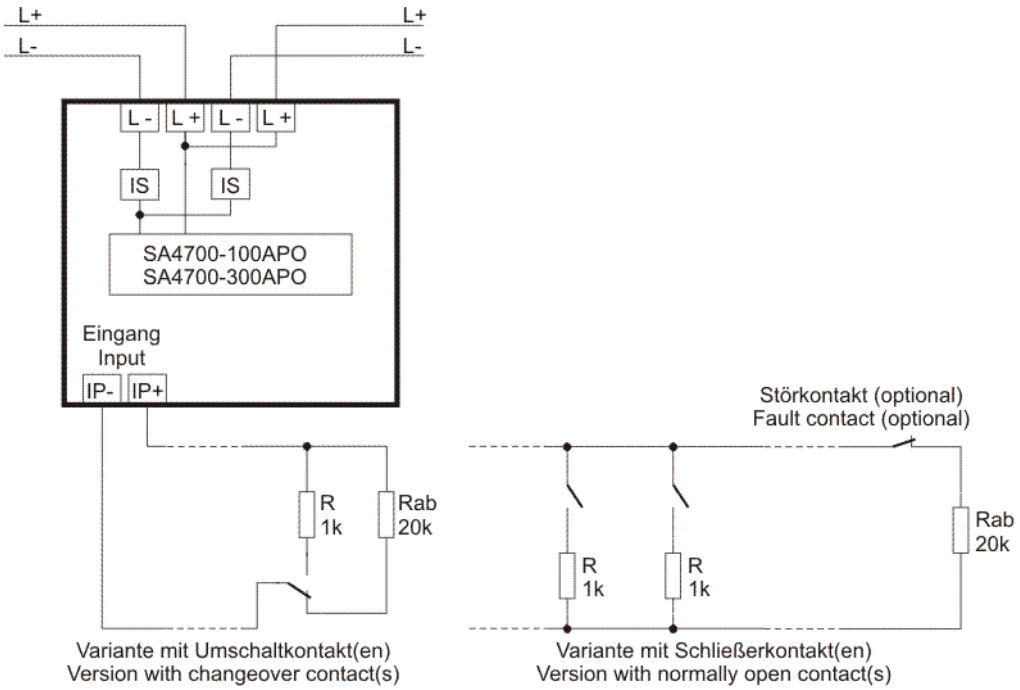
The module can, if defined in the BC600 element parameterisation, evaluate an additional state of the input – the info alarm.
Normal condition = 20kOhm; Info alarm = 10kOhm; Alarm = 1kOhm.

3.13.4 Monitor module SA4700-100, SA4700-300APO

By means of the monitor module, contact detectors (e.g., sprinkler system contacts, supervising contacts) can be connected to a fire detection control panel.

3.13.4.1 Address setting

For information on how to set the address, please refer to the piece of paper that accompanies the product.



The switch S8 must be set to the 0 position.

The switch S9 (MCP) is used to set the quick alarm detection.

0 = normal alarm detection ("Monitor module Mini" parameterised on the BC216)
1 = quick alarm detection ("Manual call point" parameterised on the BC216)

The switch S10 (DLY) is used to set the delay of the alarm detection.

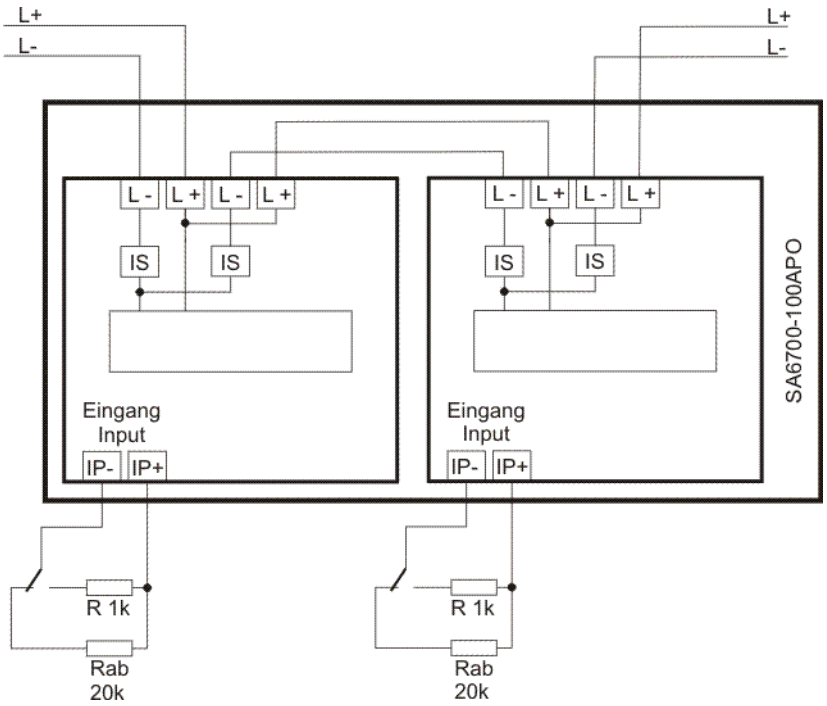
1 = 30 seconds delay

3.13.5 Monitor module SA6700-100APO

By means of the monitor module, contact detectors (e.g., sprinkler system contacts, supervising contacts) can be connected to a fire detection control panel.

3.13.5.1 Address setting

For information on how to set the address, please refer to the piece of paper that accompanies the product.



The switch S8 must be set to the 0 position.

The switch S9 (MCP) is used to set the quick alarm detection.

0 = normal alarm detection ("Monitor module Mini" parameterised on the BC216)
1 = quick alarm detection ("Manual call point" parameterised on the BC216)

The switch S10 (DLY) is used to set the delay of the alarm detection.

1 = 30 seconds delay

3.14 Connection of control modules with monitoring 55000-852

The Control Module 55000-852 is used for activating external line-monitored devices (e.g., optical and acoustic signalling devices).

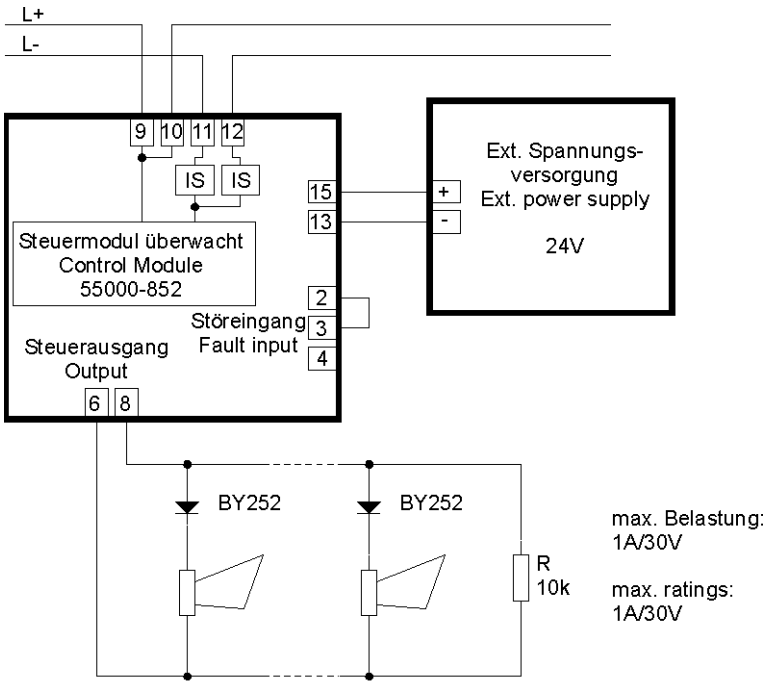
The externally connected devices must not be powered by the loop! Therefore, a local power supply with sufficient output power is required. The power supply is monitored by the control module.

The Control Module 55000-852 has an integrated isolator.

3.14.1 Address setting

The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

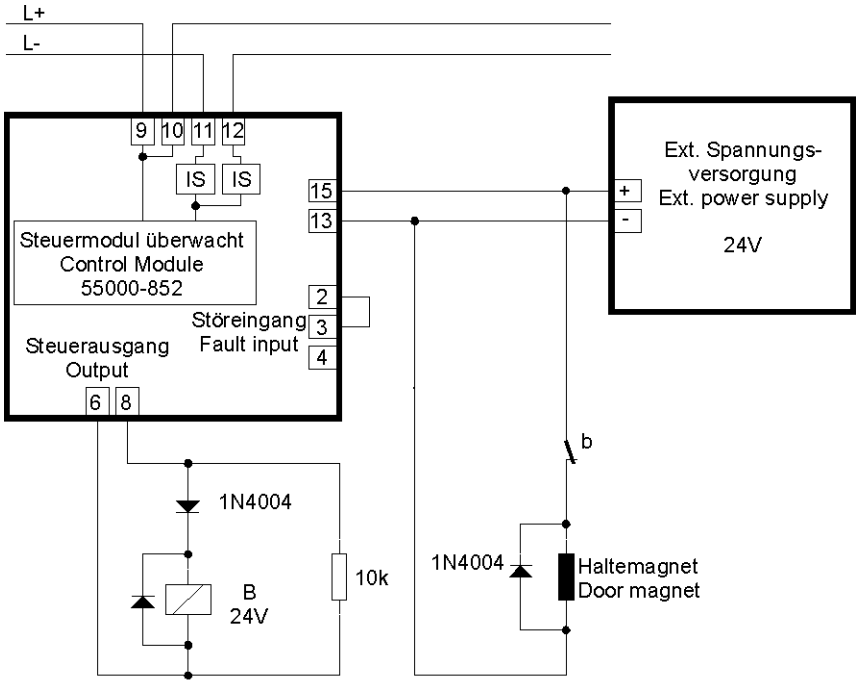
3.14.2 Connection of sirens with a 55000-852



If the module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

This module has a fail-safe (FS) function. If the loop is interrupted on both sides, the output will become inactive. Therefore, the module is not suitable for the actuation of sounders which must continue to function during two wire breakages on the loop.

3.14.3 Connection of door magnets by means of a 55000-852



If the module is powered by an external power supply, the country-specific regulations concerning the emergency power supply have to be observed.

3.15 Connection of control modules with relay output

The Control Module 55000-849 is used for activating devices without line-monitoring (e.g., fire controls), for which purpose it provides two dry change-over contacts.

The Control Module 55000-849 has an integrated isolator.

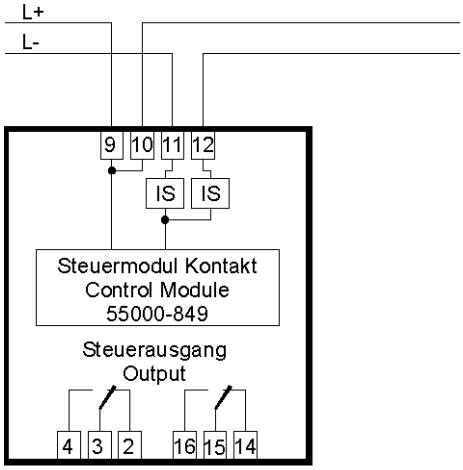
If the product has been subjected to vibration during transport, the relay contacts may be in the active position. Therefore you should, in the course of commissioning, activate the outputs of the module once so that the relays are reset.

You must not connect components with which a short activation of the output has negative consequences (e.g., release of an extinguishing system).

3.15.1 Address setting

The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

3.15.2 Connection



max. Belastung:
1A/30V

max. ratings:
1A/30V

3.16 Connection of combi modules

The modules in the following section have at least one input or output. The monitored inputs have to be terminated according to the connection diagrams shown.

If the product has been subjected to vibration during transport, the relay contacts may be in the active position. Therefore you should, in the course of commissioning, activate the outputs of the module once so that the relays are reset.

You must not connect components with which a short activation of the output has negative consequences (e.g., release of an extinguishing system).

3.16.1 Address setting

The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses" or can be found on the piece of paper that accompanies the product.

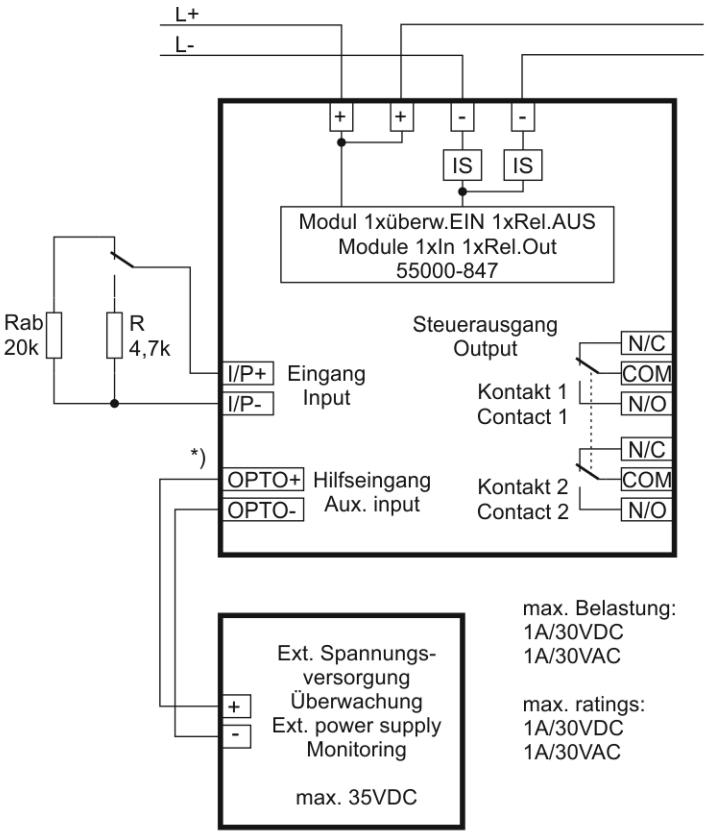
Independent of the number of inputs or outputs, one address is set on these modules. With regard to parameterisation, this means that the output of the module must have the same address and loop position as the input of the module.

If the module has several inputs and/or outputs, they are accessed via SUB addresses which have to be entered during parameterisation of the fire detection control panel. All inputs and outputs have the same address and loop position.

3.16.2 Connection of combi module 55000-847

The module 55000-847 has one monitored input, two relay outputs and an auxiliary input for the monitoring of an external power supply.

The relay outputs are actuated together and can not be parameterised separately.

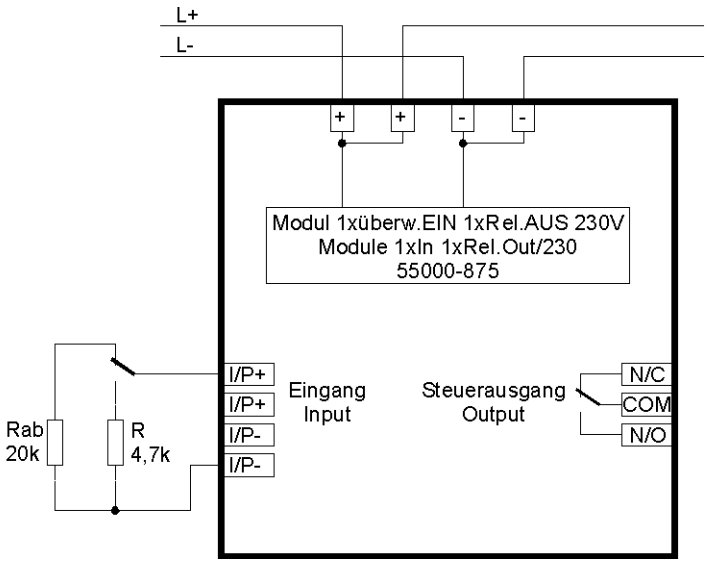


*) Störung, wenn U<4V
fault, if U<4V
(wenn unbenutzt, dann mit L+ und L- verbinden, Polarität beachten!)
(if unused, then connect to L+ and L-, mind the polarity!)

The malfunction of the input, for example due to a wire breakage, also leads to a malfunction of the output. In this fault state, the output of the module can no longer be activated.

3.16.3 Connection of combi module 55000-875

The module 55000-875 has one monitored input and one relay output which is capable of switching a voltage of 230VAC.



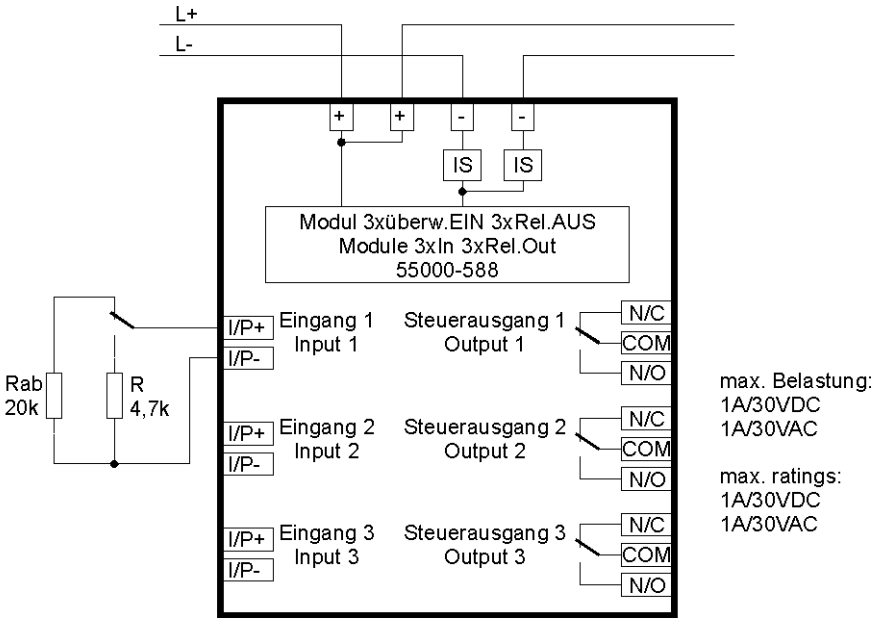
max. Belastung:
2A/48VDC
5A/250VAC

max. ratings:
2A/48VDC
5A/250VAC

The malfunction of the input, for example due to a wire breakage, also leads to a malfunction of the output. In this fault state, the output of the module can no longer be activated.

3.16.4 Connection of combi module 55000-588

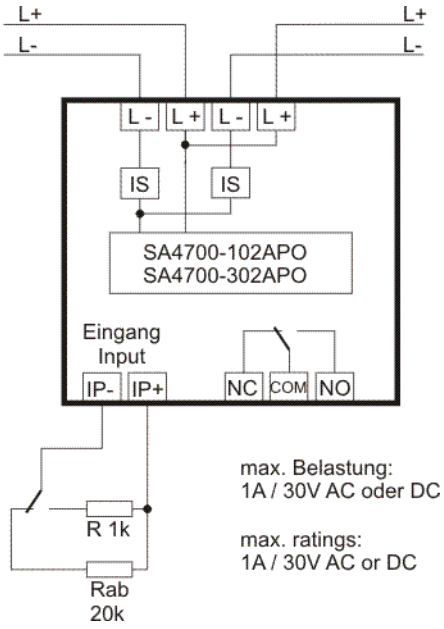
The module 55000-588 has three monitored inputs and three relay outputs.



The fault condition of one input leads to the fault indication of all inputs at the fire detection control panel.

3.16.5 Connection of combi module SA4700-102APO / SA4700-302APO

The module has one monitored input and one relay output (30V AC/DC).



Switch 8 must be in the 0 position.

Switch 9 (FS) must be in the 0 position, position 1 is not permissible.

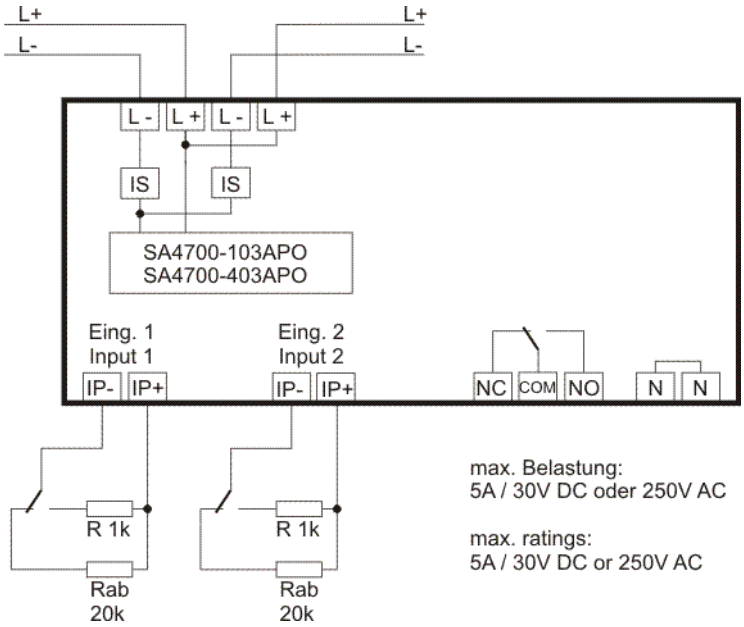
Switch 10 (LED) allows deactivation of the LEDs on the module (with the exception of the isolator LED).

The end-of-line resistor must also be connected if the input is not used.

If neither alarm nor end-of-line resistor has been connected, a fault of the module input will – after 30 seconds – result in a fault of the module output. On the BC600, this is indicated as "Device fault" of the parameterised alarming device or actuation.

3.16.6 Connection of combi module SA4700-103APO / SA4700-403APO

The module has two monitored inputs and one relay output (250V AC).



Switch 8 must be in the 0 position.

Switch 9 (FS) must be in the 0 position, position 1 is not permissible.

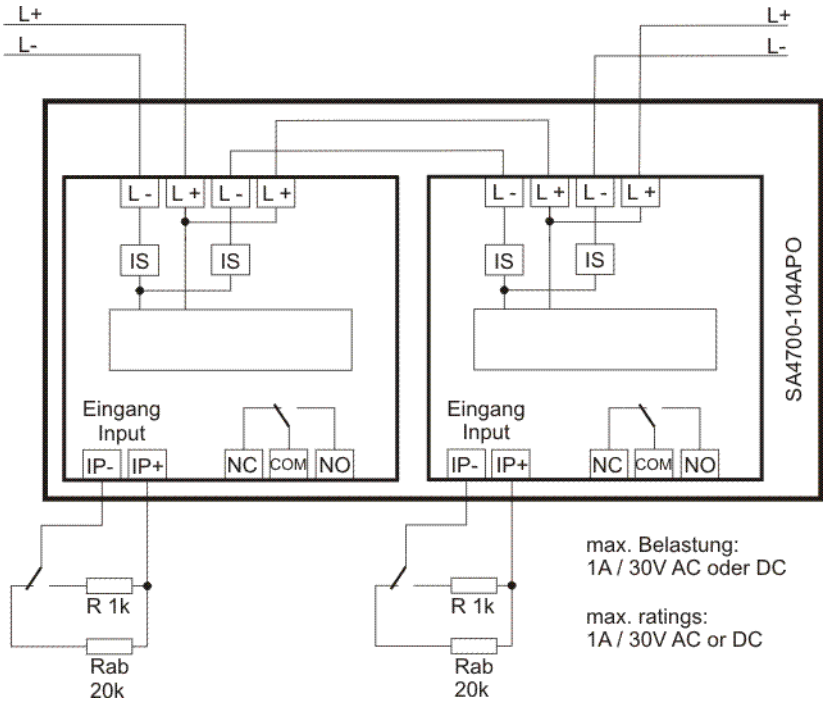
Switch 10 (LED) allows deactivation of the LEDs on the module (with the exception of the isolator LED).

In order to be able to use the combi module SA4700-103 / -403 on the BC216, input 2 must be terminated with a 1k resistor. By means of the 1k resistor, the input is put into the alarm condition and the LED near input 2 illuminates red. However, the module is in the normal condition. This measure is necessary, because if input 2 is terminated with a 20k resistor, an energy fault of input 1 is indicated on the BC216. The end-of-line resistor must also be connected if input 1 is not used.

After 30 seconds, the fault of an input will result in a fault of the output. On the BC600, this is indicated as "Device fault" of the parameterised alarming device or actuation. In the case of the SA4700-103APO / SA4700-403, the alarms of the inputs are transmitted separately to the control panel (through the Input bits). In the analogue value – which is used to indicate messages on the fire detection control panel – the line faults of both inputs and the various other disturbance sources are combined, and therefore can not be distinguished.

3.16.7 Connection of combi module SA4700-104APO

The module has two monitored inputs and two relay outputs (30V AC/DC).



Switch 8 must be in the 0 position.

Switch 9 (FS) must be in the 0 position, position 1 is not permissible.

Switch 10 (LED) allows deactivation of the LEDs on the module (with the exception of the isolator LED).

The end-of-line resistor must also be connected if the input is not used.

If the end-of-line resistor of the input is removed, this will – after 30 seconds – result in a fault of the output. On the BC600, this is indicated as "Device fault" of the parameterised alarming device or actuation.

3.17 Loop sounders and strobes

In the following sub-chapters, the tone setting and the connection of the products listed below are clearly described. The leaflet provided with the product describes in detail how the sounder parameters (sound level and tone) are set.

The setting of the address is described from page 126 onwards in Chapter 3.5: "Setting the addresses".

Device	*Type*	*Remark*	*BC216*	*BC600*
Sounder	45681-276		Yes	Yes
	45681-277		Yes	Yes
	45681-290		Yes	Yes
	45681-300		Yes	Yes
	55000-278		Yes	Yes
	55000-279		Yes	Yes
	55000-274	IP66	Yes	Yes
	55000-275	IP66	Yes	Yes
	55000-276		Yes	Yes
	55000-001		Yes	Yes
	55000-002		Yes	Yes
	45681-702		No	Yes
	58000-010		No	Yes
	58000-020		No	Yes
Strobe	55000-009		Yes	Yes
	55000-010		Yes	Yes
	55000-877		Yes	Yes
	55000-878		Yes	Yes
	55000-879		Yes	Yes
	55000-740	EN 54-23-C-W	Yes	Yes
	55000-741	EN 54-23-C-W	Yes	Yes
	55000-742	EN 54-23-C-W	Yes	Yes
	55000-743	EN 54-23-C-W	Yes	Yes
	55000-744	EN 54-23-C-W	Yes	Yes
	55000-745	EN 54-23-C-W	Yes	Yes
	45681-709	EN 54-23-O	Yes	Yes
Sounder / Strobe	45681-330		Yes	Yes
	45681-332		Yes	Yes
	45681-334		Yes	Yes
	55000-293		Yes	Yes
	55000-294		Yes	Yes
	55000-298	IP66	Yes	Yes
	55000-299	IP66	Yes	Yes

Device	*Type*	*Remark*	*BC216*	*BC600*
	55000-005		Yes	Yes
	55000-006		Yes	Yes
	58000-005		No	Yes
	58000-007		No	Yes
	58000-030	Voice – separate activation	No	Yes
	58000-040	Voice – separate activation	No	Yes
	45681-705	EN 54-23	Yes	Yes
	45681-706	EN 54-23	Yes	Yes
	45681-707	EN 54-23	Yes	Yes
	45681-700	EN 54-23 – separate activation	No	Yes

3.17.1 Notes

Loop sounders XP95 may only be connected to a Loop Interface LIF64-1 with PCB version V3 or higher, to an LIF128-1 or to an LIF601-1/LIF601-2.

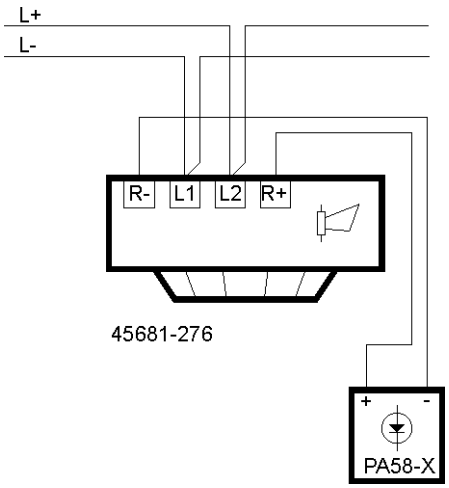
The LIF64-1/V3 provides approx. 300mA for loop-powered devices. The LIF128-1 and the LIF601-1 provide approx. 500mA for loop-powered devices. The LIF601-2 provides approx. 600mA.

- The maximum number of loop-powered sounders per loop depends on the sound level that has been set. The current consumption of the sounder depends on the sound level.
- The maximum number of sounders can be determined with the loop calculator tool FireSys-CALC_xxxx.ods (which is available in the download area of the LST website – registration required).
- The maximum number of sounders which may be connected between two isolator modules can be found in the tables starting on page 122 in Chapter 3.3: "Use of isolators".

3.17.2 Sounder 45681-276

3.17.2.1 Connection

The base sounder 45681-276 is activated via the remote indicator output of the detector. This sounder does not have its own address and the sound level is adjusted with a potentiometer on the sounder.



These sounders can not be synchronised.

3.17.2.2 Tone setting

The tone of this sounder can not be changed.

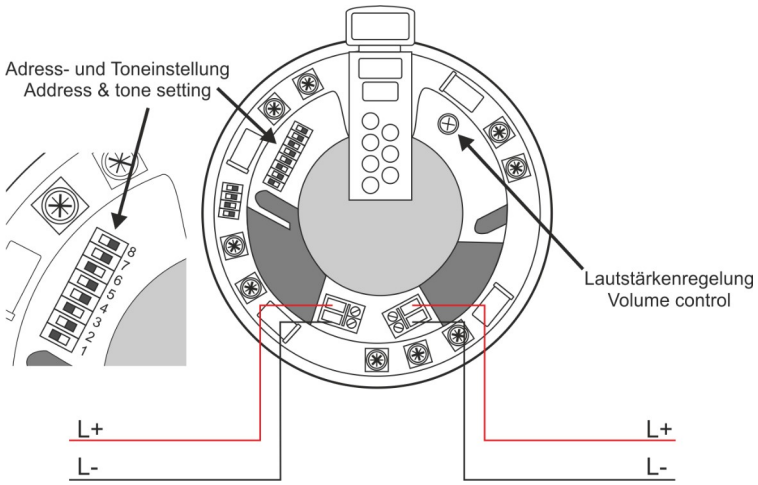
Frequency [Hz]	*Repetition*	*Application*
990 / 630	0.5s / 0.5s	BS tone

By means of the potentiometer, the sound level can be adjusted between 70dB(A) and 85dB(A).

3.17.3 Sounder 45681-277

3.17.3.1 Connection

The base sounder 45681-277 is provided with an integrated dual-isolator and a detector base.



3.17.3.2 Address setting

The address is set by means of 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the sounder, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.3.3 Tone setting

Apart from the address setting, the switch is also used for setting the basic sound level.

S8	*Sound level*
0 - ON	Low
1 - OFF	High

The following tones can be assigned as **Sound A** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-277	581 / 870	0.5s / 0.5s	

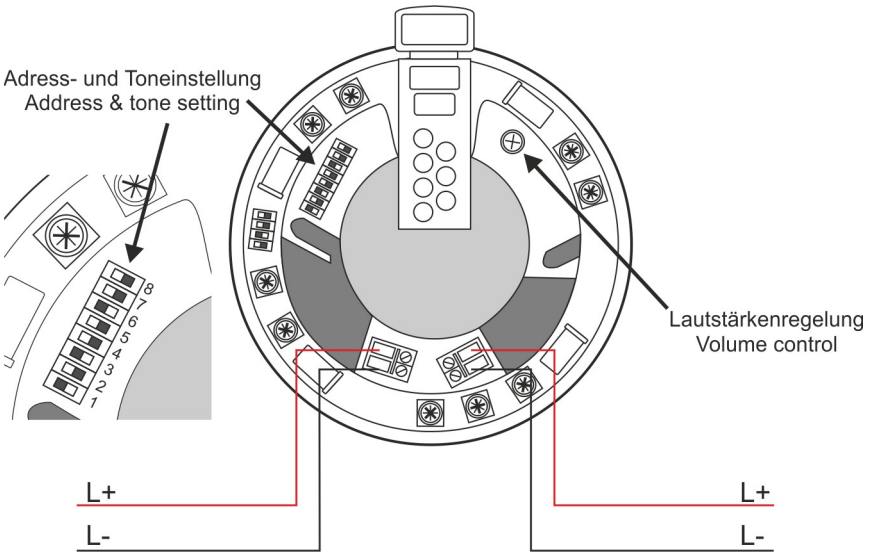
The following tones can be assigned as **Sound B** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-277	870	1s ON, 1s OFF	

3.17.4 Sounder 45681-290

3.17.4.1 Connection

The base sounder 45681-290 is provided with an integrated dual-isolator and a detector base.



3.17.4.2 Address setting

The address is set by means of 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the sounder, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.4.3 Tone setting

In addition to the address setting, the switch is also used for setting the basic sound level.

S8	*Sound level*
0 - ON	Low
1 - OFF	High

The following tones can be assigned as **Sound A** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-290	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone

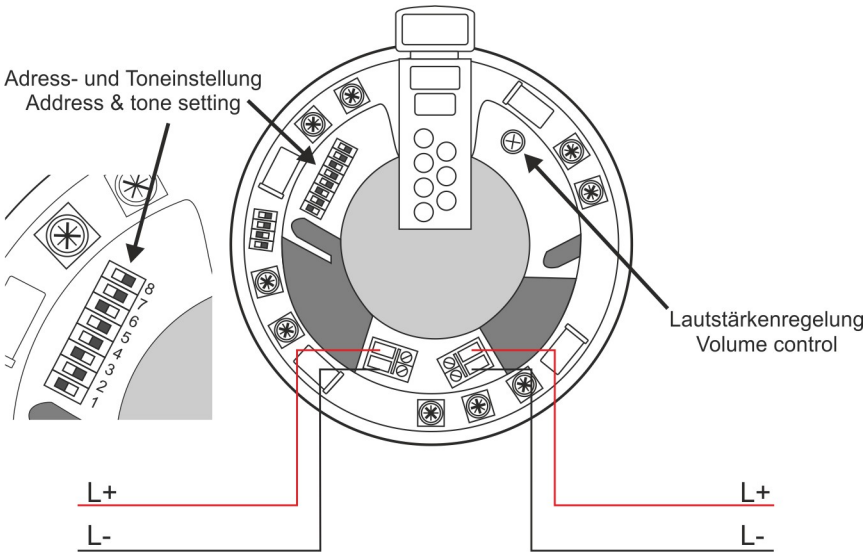
The following tones can be assigned as **Sound B** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-290	800 - 1000	2 Hz	BS tone

3.17.5 Sounder 45681-300

3.17.5.1 Connection

The base sounder 45681-300 is provided with an integrated dual-isolator and a detector base.



3.17.5.2 Address setting

The address is set by means of 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the sounder, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.5.3 Tone setting

In addition to the address setting, the switch is also used for setting the basic sound level.

S8	*Sound level*
0 - ON	Low
1 - OFF	High

The following tones can be assigned as **Sound A** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-300	1200 - 500	1Hz	DIN tone

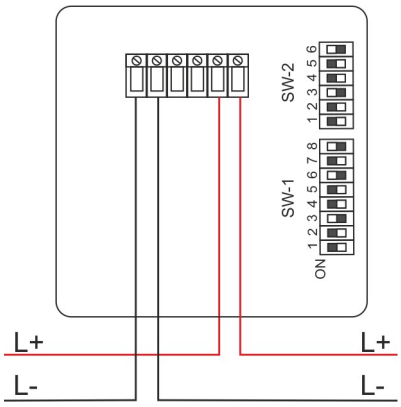
The following tones can be assigned as **Sound B** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-300	870	Continuous tone	BS tone

3.17.6 Sounder 55000-276

This red sounder is designed for indoor use.

3.17.6.1 Connection



3.17.6.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been moved towards the outside of the sounder, the bit has the value 1. If the switch has been moved towards the inside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 91.

3.17.6.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.

The switches of SW-2 are not supported.

SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The following tones can be assigned as **Sound A** by means of PARSOFT:

Frequency [Hz]	*Repetition*	*Application*
500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone

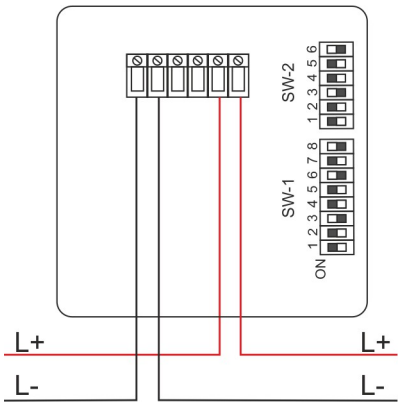
The following tones can be assigned as **Sound B** by means of PARSOFT:

Frequency [Hz]	*Repetition*	*Application*
970	Continuous tone	BS tone

3.17.7 Sounder 55000-278

This red multitone sounder is designed for indoor use.

3.17.7.1 Connection



3.17.7.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been moved towards the outside of the sounder, the bit has the value 1. If the switch has been moved towards the inside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 91.

3.17.7.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.

SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	550 -700 / 850 - 1000	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

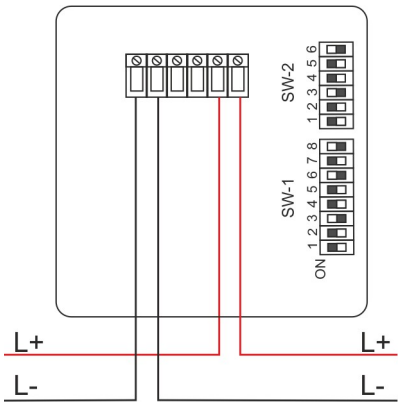
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	900	Continuous tone	
0 - ON	1 - OFF	900	Continuous tone	

3.17.8 Sounder 55000-279

This white multitone sounder is designed for indoor use.

3.17.8.1 Connection



3.17.8.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been moved towards the outside of the sounder, the bit has the value 1. If the switch has been moved towards the inside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 91.

3.17.8.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.

SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	***S6***	***Frequency [Hz]***	***Repetition***	***Application***
0 - ON	0 - ON	550 -700 / 850 - 1000	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

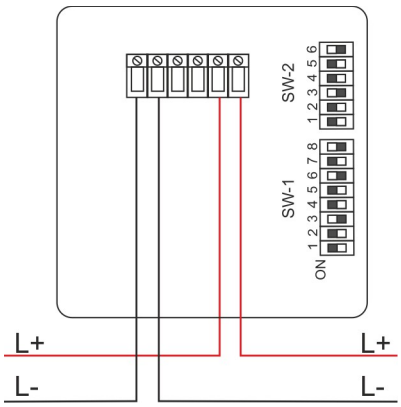
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	***S6***	***Frequency [Hz]***	***Repetition***	***Application***
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	900	Continuous tone	
0 - ON	1 - OFF	900	Continuous tone	

3.17.9 Sounder 55000-274

This red multitone sounder has protection class IP66. In order to ensure the protection class of the housing, suitable cable glands have to be used.

3.17.9.1 Connection



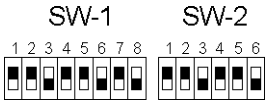
3.17.9.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been moved towards the outside of the sounder, the bit has the value 1. If the switch has been moved towards the inside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 91.

3.17.9.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.



SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	550 -700 / 850 - 1000	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

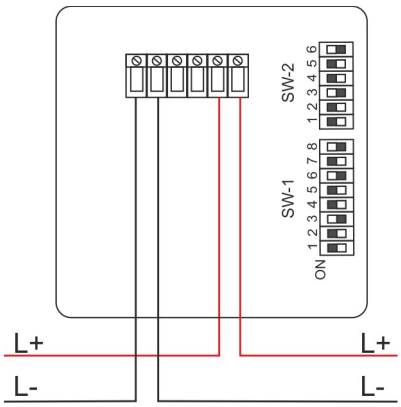
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	900	Continuous tone	
0 - ON	1 - OFF	900	Continuous tone	

3.17.10 Sounder 55000-275

This white multitone sounder has protection class IP66. In order to ensure the protection class of the housing, suitable cable glands have to be used.

3.17.10.1 Connection



3.17.10.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been moved towards the outside of the sounder, the bit has the value 1. If the switch has been moved towards the inside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 91.

3.17.10.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.

SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	550 -700 / 850 - 1000	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

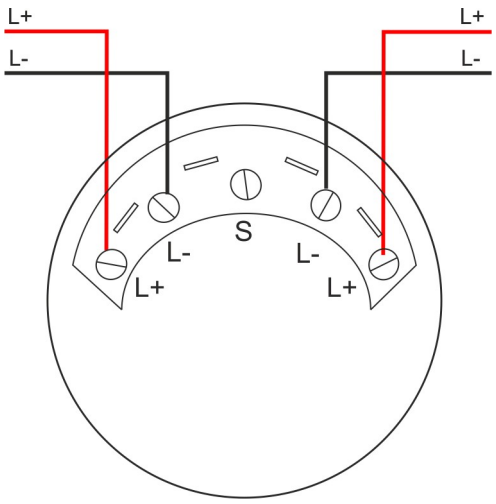
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	900	Continuous tone	
0 - ON	1 - OFF	900	Continuous tone	

3.17.11 Sounder 55000-001

This red sounder can be used up to address 126 and has an integrated dual-isolator.

3.17.11.1 Connection



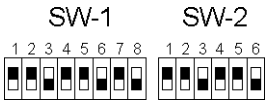
3.17.11.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been set to the ON position, the bit has the value 0. If the switch has been moved towards the contact springs, the bit has the value 1. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 78.

3.17.11.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.



SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	558 / 840	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

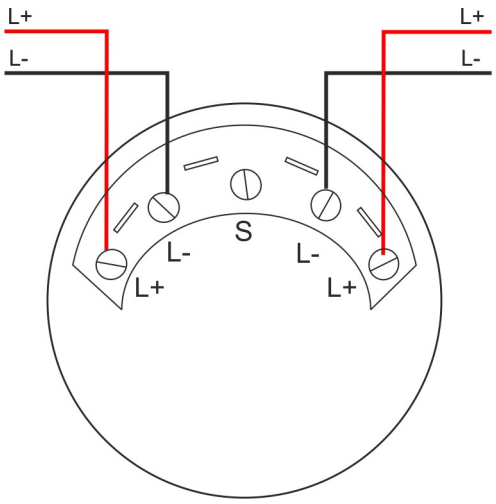
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	***S6***	***Frequency [Hz]***	***Repetition***	***Application***
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	825	Continuous tone	
0 - ON	1 - OFF	825	Continuous tone	

3.17.12 Sounder 55000-002

This white sounder can be used up to address 126 and has an integrated dual-isolator.

3.17.12.1 Connection



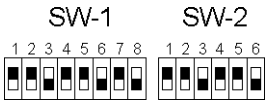
3.17.12.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been set to the ON position, the bit has the value 0. If the switch has been moved towards the contact springs, the bit has the value 1. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 78.

3.17.12.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.



SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	558 / 840	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	***S6***	***Frequency [Hz]***	***Repetition***	***Application***
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	825	Continuous tone	
0 - ON	1 - OFF	825	Continuous tone	

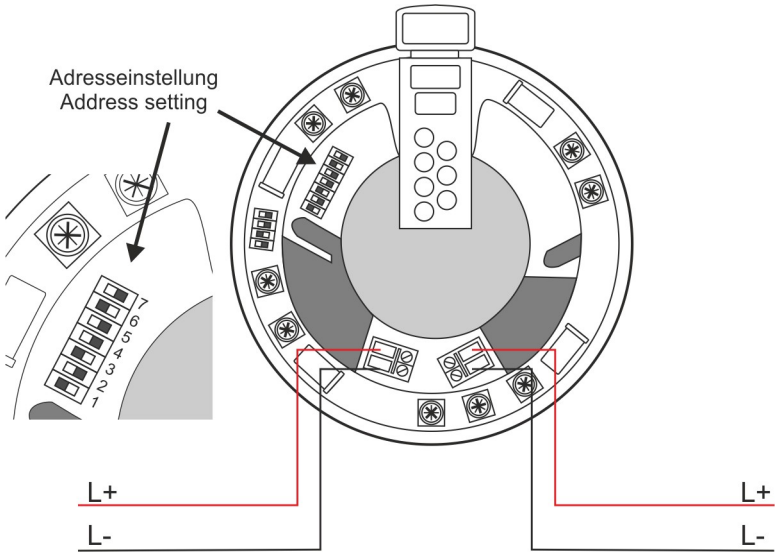
3.17.13 Sounder 45681-702

This alarming device can not be used on the Series BC216.

3.17.13.1 Connection

The base sounder is provided with an integrated dual-isolator and a detector base.

The connection is not made through the terminals of the detector base, instead it is made via the separate terminal block inside the sounder.



3.17.13.2 Address setting

The address is set by means of the 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the sounder, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.13.3 Tone setting

The tone and the sound level are set via the loop protocol.

Sound level	Sound pressure level, dB(A)	Remark
1	60	does not meet the requirements of EN 54-3
2	70	
3	74	
4	78	
5	82	
6	86	
7	90	

With 60dB(A), the lowest level lies outside the field of application of the standard EN 54. It has been included here in order to offer a very local warning for the personnel in certain environments, such as staff rooms for nurses in hospitals.

The tone can be chosen from among 15 tone pairs.

Tone	Primary – tone 1		Secondary – tone 2	
1	Apollo Evacuation Tone *	567Hz for 0.5s, 850Hz for 0.5s	Apollo Alert Tone*	1s off, 1s 850Hz
2	Alternating *	925Hz for 0.25, 626Hz for 0.25s	Continuous *	925Hz
3	Medium Sweep*	800Hz to 970Hz at 1 Hz	Continuous	970Hz
4	Fast Sweep	2500Hz - 2850Hz at 9Hz	Continuous	2850Hz
5	(sweep)*Dutch Slow Whoop	500 Hz - 1200Hz for 3.5s, 0.5s off	Continuous*	850Hz
6	DIN Tone (sweep) *	1200Hz - 500Hz for 1s	Continuous*	850Hz
7	Swedish Fire Tone*	660 Hz, 150ms on, 150ms off	Swedish all clear signal*	660Hz
8	Aus (fast rise sweep)	3 x (500Hz - 1200Hz for 0.5s), 0.5s off	Aus Alert Tone	420Hz, 0.625s, 0.625s off
9	NZ (slow rise sweep)	500Hz - 1200Hz for 3.75s, 0.25s off	NZ Alert Tone	420Hz, 0.625s, 0.625s off
10	US Temporal LF (ISO 8201)	3 x (970Hz, 0.5s on, 0.5s off) 1s off	Continuous	970Hz
11	US Temporal HF (ISO 8201)	3 x (2850Hz, 0.5s on, 0.5s off) 1s off	Continuous	2850Hz
12	Simulated Bell - Continuous	Continuous	Simulated Bell - Intermittent	1s off, 1s on
13	Emergency Warning Siren	N/A	Emergency Warning - All clear	N/A
14	Evacuation Tone*	970Hz continuous	Alert Tone	Silence for 1s, 970Hz for 1s
15	Apollo Evacuation Tone *	567Hz for 0.5s, 850Hz for 0.5s	Apollo Alert Tone	1s off, 1s 850Hz

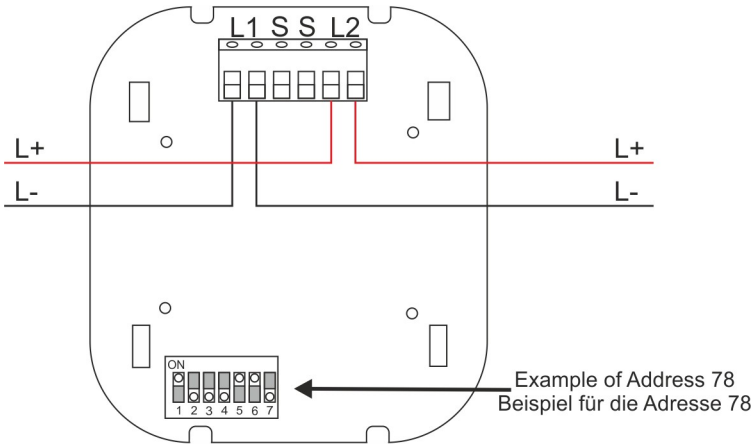
* Tone complies with EN 54

3.17.14 Sounder 58000-010

This red alarming device can not be used on the Series BC216.
On the outside of this sounder there are 4 LEDs, two of which are relevant.
Isolator LED – YELLOW if active.
Communication LED – GREEN if the element communicates with the fire detection control panel.

3.17.14.1 Connection

The sounder has an integrated dual-isolator.



3.17.14.2 Address setting

The address is set by means of the 7 DIP switches (highest possible address: 126).

3.17.14.3 Tone setting

The tone and the sound level are set via the loop protocol.

Sound level	Sound pressure level, dB(A)	Remark
1	60	does not meet the requirements of EN 54-3
2	72	
3	77	
4	82	
5	87	
6	92	
7	97	

With 60dB(A), the lowest level lies outside the field of application of the standard EN 54. It has been included here in order to offer a very local warning for the personnel in certain environments, such as staff rooms for nurses in hospitals.

The tone can be chosen from among 15 tone pairs.

Tone	Primary – tone 1		Secondary – tone 2	
1	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone*	1s off, 825Hz for 1s
2	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
3	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
4	Fast Sweep	2500Hz - 2850Hz at 9Hz	Continuous	2850Hz
5	(sweep)*Dutch Slow Whoop	500 Hz - 1200Hz for 3.5s, 0.5s off	Continuous*	825Hz
6	DIN Tone (sweep) *	1200Hz - 500Hz for 1s	Continuous*	825Hz
7	Swedish Fire Tone*	660 Hz, 150ms on, 150ms off	Swedish all clear signal*	660Hz
8	Aus (fast rise sweep)	3 x (500Hz - 1200Hz for 0.5s), 0.5s off	Aus Alert Tone	420Hz, 0.625s, 0.625s off
9	NZ (slow rise sweep)	500Hz - 1200Hz for 3.75s, 0.25s off	NZ Alert Tone	420Hz, 0.625s, 0.625s off
10	US Temporal LF (ISO 8201)	3 x (970Hz, 0.5s on, 0.5s off) 1s off	Continuous	970Hz
11	US Temporal HF (ISO 8201)	3 x (2850Hz, 0.5s on, 0.5s off) 1s off	Continuous	2850Hz
12	Simulated Bell - Continuous	Continuous	Simulated Bell - Intermittent	1s off, 1s on
13	Emergency Warning Siren	N/A	Emergency Warning - All clear	N/A
14	Evacuation Tone*	970Hz continuous	Alert Tone	Silence for 1s, 970Hz for 1s
15	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 1s 850Hz

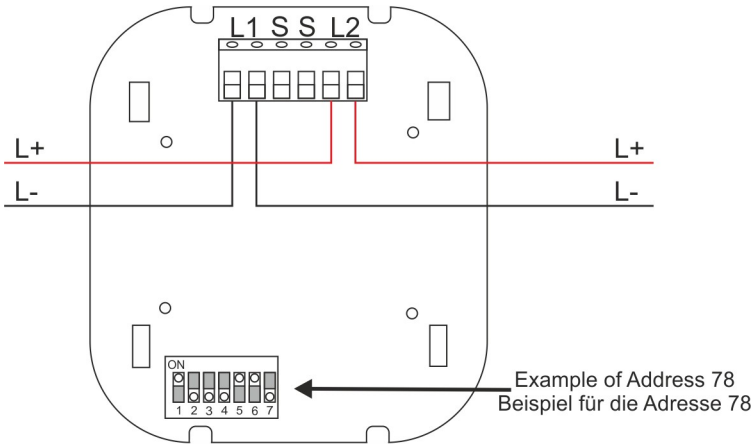
* Tone complies with EN 54

3.17.15 Sounder 58000-020

This white alarming device can not be used on the Series BC216.
On the outside of this sounder there are 4 LEDs, two of which are relevant.
Isolator LED – YELLOW if active.
Communication LED – GREEN if the element communicates with the fire detection control panel.

3.17.15.1 Connection

The sounder has an integrated dual-isolator.



3.17.15.2 Address setting

The address is set by means of the 7 DIP switches (highest possible address: 126).

3.17.15.3 Tone setting

The tone and the sound level are set via the loop protocol.

Sound level	Sound pressure level, dB(A)	Remark
1	60	does not meet the requirements of EN 54-3
2	72	
3	77	
4	82	
5	87	
6	92	
7	97	

With 60dB(A), the lowest level lies outside the field of application of the standard EN 54. It has been included here in order to offer a very local warning for the personnel in certain environments, such as staff rooms for nurses in hospitals.

The tone can be chosen from among 15 tone pairs.

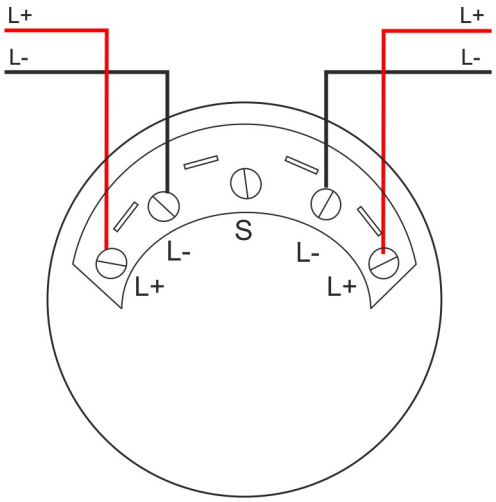
Tone	Primary – tone 1		Secondary – tone 2	
1	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone*	1s off, 825Hz for 1s
2	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
3	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
4	Fast Sweep	2500Hz - 2850Hz at 9Hz	Continuous	2850Hz
5	Dutch Slow Whoop (sweep)*	500 Hz - 1200Hz for 3.5s, 0.5s off	Continuous*	825Hz
6	DIN Tone (sweep) *	1200Hz - 500Hz for 1s	Continuous*	825Hz
7	Swedish Fire Tone*	660 Hz, 150ms on, 150ms off	Swedish all clear signal*	660Hz
8	Aus (fast rise sweep)	3 x (500Hz - 1200Hz for 0.5s), 0.5s off	Aus Alert Tone	420Hz, 0.625s, 0.625s off
9	NZ (slow rise sweep)	500Hz - 1200Hz for 3.75s, 0.25s off	NZ Alert Tone	420Hz, 0.625s, 0.625s off
10	US Temporal LF (ISO 8201)	3 x (970Hz, 0.5s on, 0.5s off) 1s off	Continuous	970Hz
11	US Temporal HF (ISO 8201)	3 x (2850Hz, 0.5s on, 0.5s off) 1s off	Continuous	2850Hz
12	Simulated Bell - Continuous	Continuous	Simulated Bell - Intermittent	1s off, 1s on
13	Emergency Warning Siren	N/A	Emergency Warning - All clear	N/A
14	Evacuation Tone*	970Hz continuous	Alert Tone	Silence for 1s, 970Hz for 1s
15	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 1s 850Hz

* Tone complies with EN 54

3.17.16 Strobe 55000-009

The loop strobe with red cap has an integrated dual-isolator. In the event of activation, a reddish light will be emitted. The product has not been approved according to EN 54-23 and can be used up to address 126.

3.17.16.1 Connection



The flash frequency is fixed at 1Hz.

3.17.16.2 Address setting

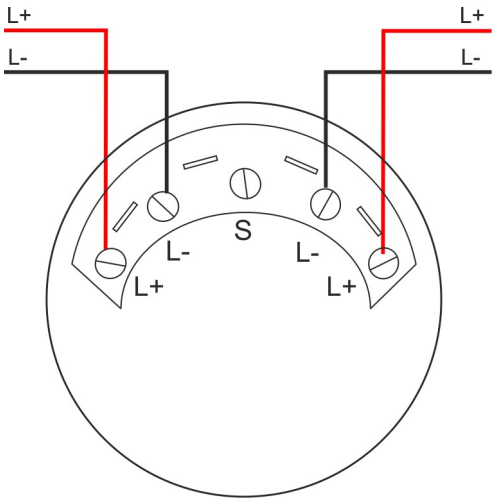
The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been set to the ON position, the bit has the value 0. If the switch has been moved towards the contact springs, the bit has the value 1. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 57.

3.17.17 Strobe 55000-010

The white loop strobe with clear cap has an integrated dual-isolator. In the event of activation, a reddish light will be emitted. The product has not been approved according to EN 54-23 and can be used up to address 126.

3.17.17.1 Connection



The flash frequency is fixed at 1Hz.

3.17.17.2 Address setting

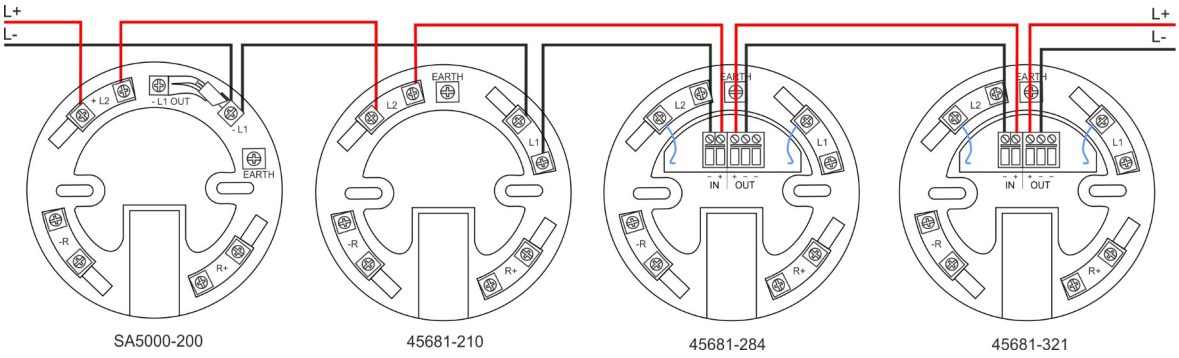
The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been set to the ON position, the bit has the value 0. If the switch has been moved towards the contact springs, the bit has the value 1. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 57.

3.17.18 Strobe – 55000-877

The loop strobe with red cap is designed to be fitted into a detector base or an isolator base. In the event of activation, a reddish light will be emitted. The product has not been approved according to EN 54-23 and can be used up to address 126.

3.17.18.1 Connection



The flash frequency is fixed at 1Hz.

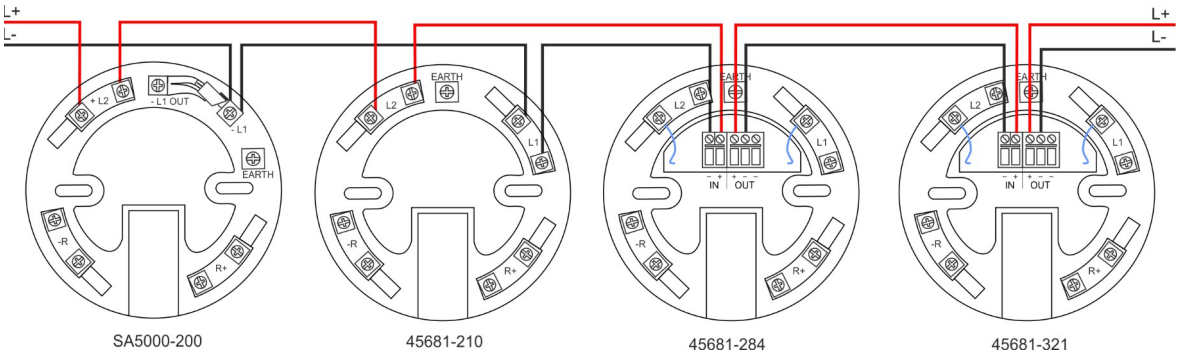
3.17.18.2 Address setting

The address is set by means of the code card.

3.17.19 Strobe – 55000-878

The loop strobe with colourless cap is designed to be fitted into a detector base or an isolator base. In the event of activation, a red light will be emitted. The product has not been approved according to EN 54-23 and can be used up to address 126.

3.17.19.1 Connection



The flash frequency is fixed at 1Hz.

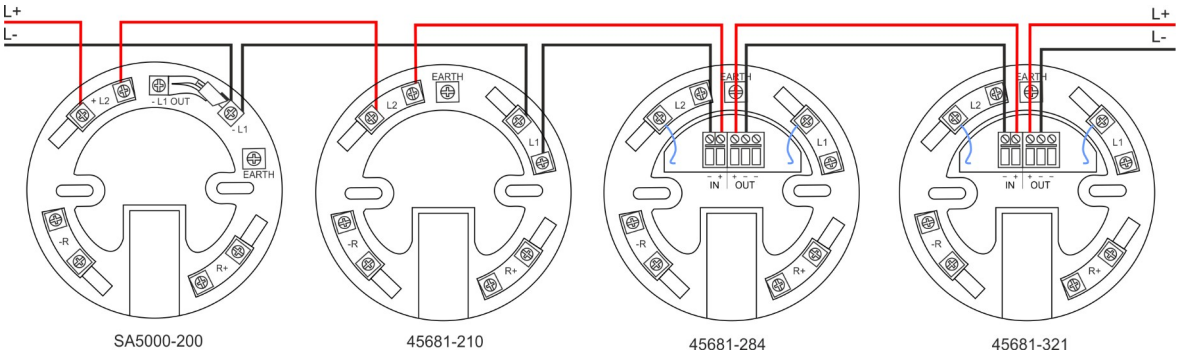
3.17.19.2 Address setting

The address is set by means of the code card.

3.17.20 Strobe – 55000-879

The loop strobe with orange cap is designed to be fitted into a detector base or an isolator base. In the event of activation, a yellowish light will be emitted. The product has not been approved according to EN 54-23 and can be used up to address 126.

3.17.20.1 Connection



The flash frequency is fixed at 1Hz.

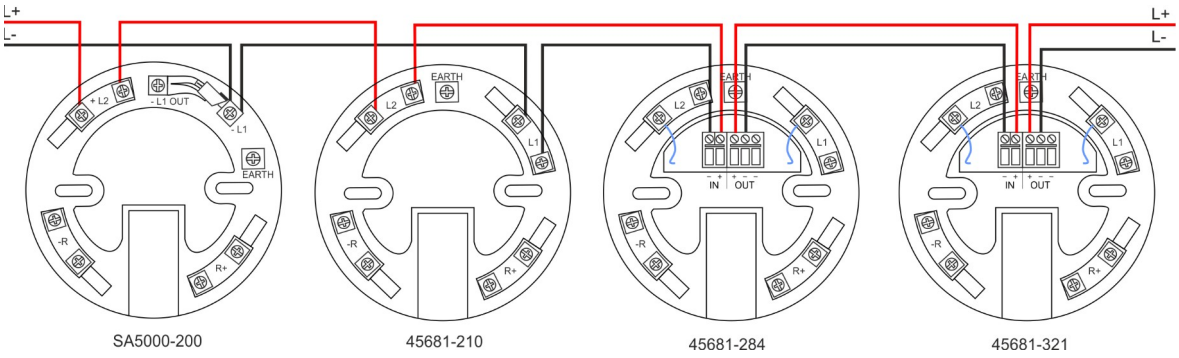
3.17.20.2 Address setting

The address is set by means of the code card.

3.17.21 Strobe – 55000-740

The red loop strobe is designed to be fitted into a detector base or an isolator base. In the event of activation, a white light will be emitted. The product has been approved according to EN 54-23 – C-3-15.

3.17.21.1 Connection



The flash frequency is fixed at 1Hz.

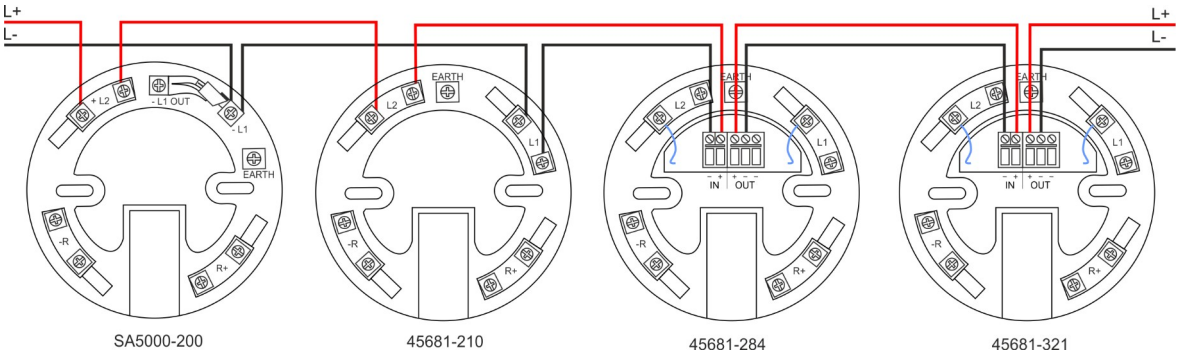
3.17.21.2 Address setting

The address is set by means of the code card.

3.17.22 Strobe – 55000-741

The red loop strobe is designed to be fitted into a detector base or an isolator base. In the event of activation, a white light will be emitted. The product has been approved according to EN 54-23 – W-2.4-6.

3.17.22.1 Connection



The flash frequency is fixed at 1Hz.

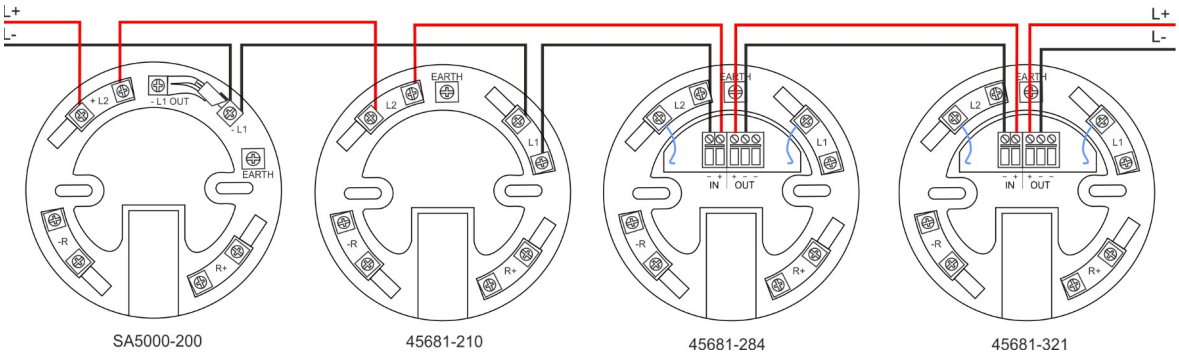
3.17.22.2 Address setting

The address is set by means of the code card.

3.17.23 Strobe – 55000-742

The red loop strobe is designed to be fitted into a detector base or an isolator base. In the event of activation, a white light will be emitted. The product has been approved according to EN 54-23 – C-3-8.

3.17.23.1 Connection



The flash frequency is fixed at 1Hz.

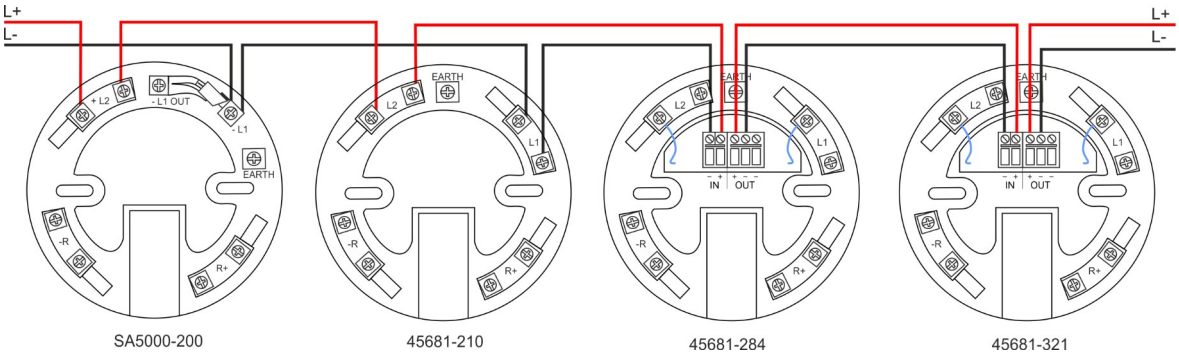
3.17.23.2 Address setting

The address is set by means of the code card.

3.17.24 Strobe – 55000-743

The white loop strobe is designed to be fitted into a detector base or an isolator base. In the event of activation, a white light will be emitted. The product has been approved according to EN 54-23 – C-3-15.

3.17.24.1 Connection



The flash frequency is fixed at 1Hz.

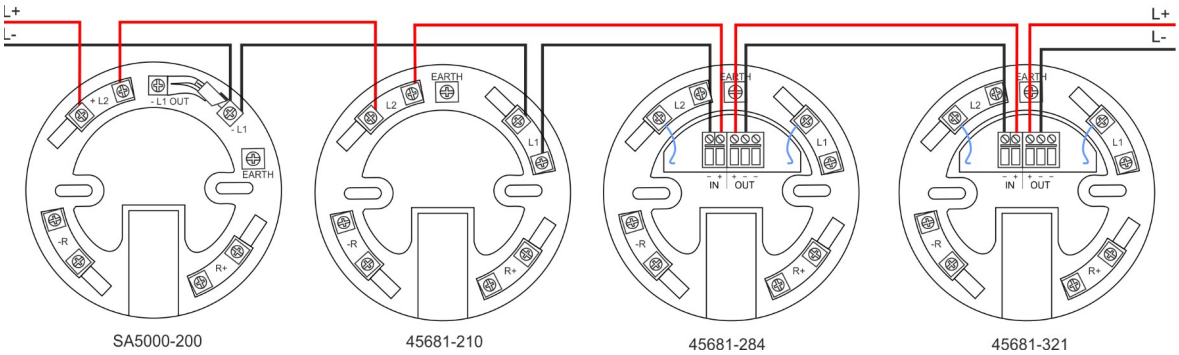
3.17.24.2 Address setting

The address is set by means of the code card.

3.17.25 Strobe – 55000-744

The white loop strobe is designed to be fitted into a detector base or an isolator base. In the event of activation, a white light will be emitted. The product has been approved according to EN 54-23 – W-2.4-6.

3.17.25.1 Connection



The flash frequency is fixed at 1Hz.

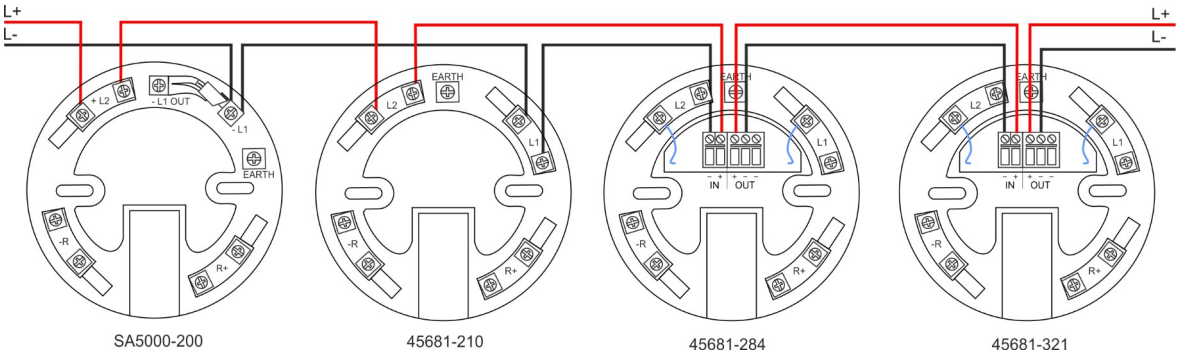
3.17.25.2 Address setting

The address is set by means of the code card.

3.17.26 Strobe – 55000-745

The white loop strobe is designed to be fitted into a detector base or an isolator base. In the event of activation, a white light will be emitted. The product has been approved according to EN 54-23 – C-3-8.

3.17.26.1 Connection



The flash frequency is fixed at 1Hz.

3.17.26.2 Address setting

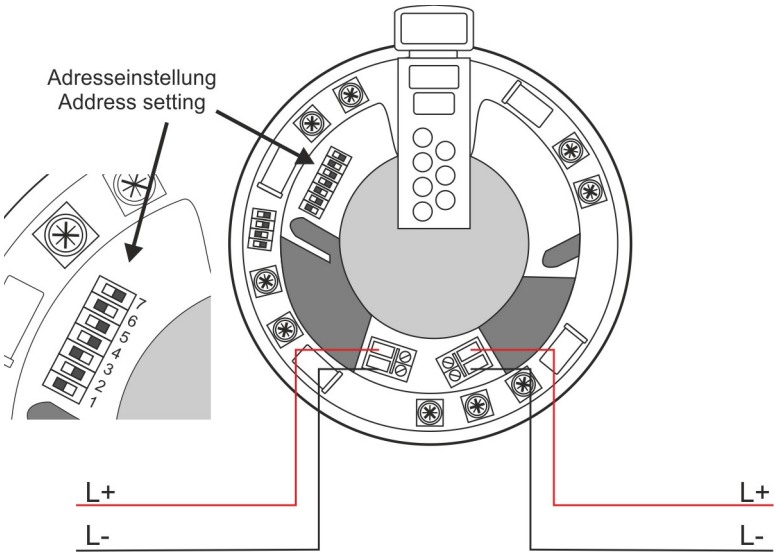
The address is set by means of the code card.

3.17.27 Strobe 45681-709

3.17.27.1 Connection

The base strobe is provided with an integrated dual-isolator and a detector base.

The connection is not made through the terminals of the detector base, instead it is made via the separate terminal block inside the sounder.



The flash frequency is fixed at 0.5Hz.

3.17.27.2 Address setting

The address is set by means of the 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the sounder, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

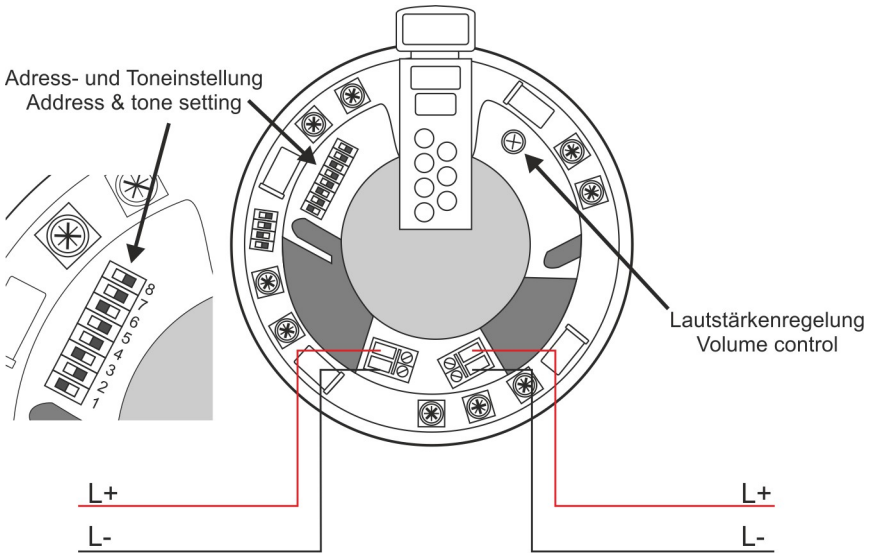
The switch setting shown above corresponds to address 37.

3.17.28 Sounder-Strobe 45681-330

The sounder and the strobe are addressed via one address. The sounder is activated together with the strobe.

3.17.28.1 Connection

The combined alarming device 45681-330 is provided with an integrated dual-isolator and a detector base. The connection is not made through the terminals of the detector base, instead it is made via the separate terminal block inside the sounder.



The flash frequency is fixed at 1Hz.

3.17.28.2 Address setting

The address is set by means of 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the alarming device, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.28.3 Tone setting

In addition to the address setting, the switch is also used for setting the basic sound level.

S8	*Sound level*
0 - ON	Low – 55-75dB(A)
1 - OFF	High – 75-91dB(A) – EN 54-3

The following tones can be assigned as **Sound A** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-330	550 / 825	0.5s / 0.5s	

The following tones can be assigned as **Sound B** by means of PARSOFT:

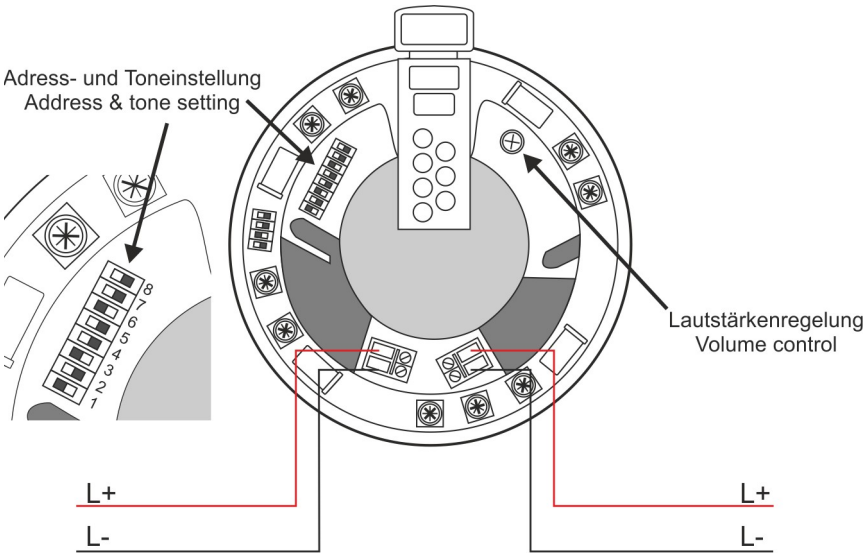
Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-330	825	1s ON, 1s OFF	

3.17.29 Sounder-Strobe 45681-332

The sounder and the strobe are addressed via one address. The sounder is activated together with the strobe.

3.17.29.1 Connection

The combined alarming device 45681-332 is provided with an integrated dual-isolator and a detector base. The connection is not made through the terminals of the detector base, instead it is made via the separate terminal block inside the sounder.



The flash frequency is fixed at 1Hz.

3.17.29.2 Address setting

The address is set by means of 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the alarming device, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.29.3 Tone setting

In addition to the address setting, the switch is also used for setting the basic sound level.

S8	*Sound level*
0 - ON	Low – 55-75dB(A)
1 - OFF	High – 75-91dB(A) – EN 54-3

The following tones can be assigned as **Sound A** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-332	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone

The following tones can be assigned as **Sound B** by means of PARSOFT:

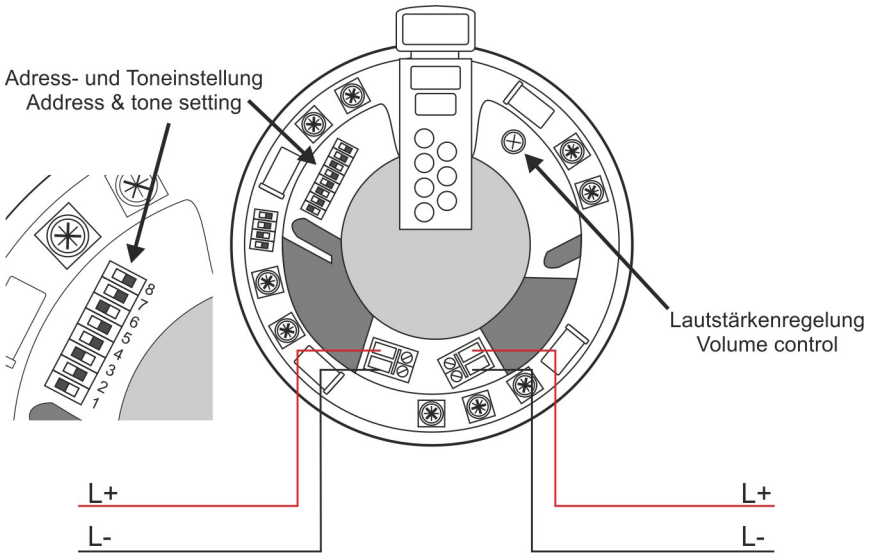
Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-332	825	Continuous tone	

3.17.30 Sounder-Strobe 45681-334

The sounder and the strobe are addressed via one address. The sounder is activated together with the strobe.

3.17.30.1 Connection

The combined alarming device 45681-334 is provided with an integrated dual-isolator and a detector base. The connection is not made through the terminals of the detector base, instead it is made via the separate terminal block inside the sounder.



The flash frequency is fixed at 1Hz.

3.17.30.2 Address setting

The address is set by means of 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the alarming device, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.30.3 Tone setting

In addition to the address setting, the switch is also used for setting the basic sound level.

S8	*Sound level*
0 - ON	Low – 55-75dB(A)
1 - OFF	High – 75-91dB(A) – EN 54-3

The following tones can be assigned as **Sound A** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-334	1200 - 500	1Hz	DIN tone

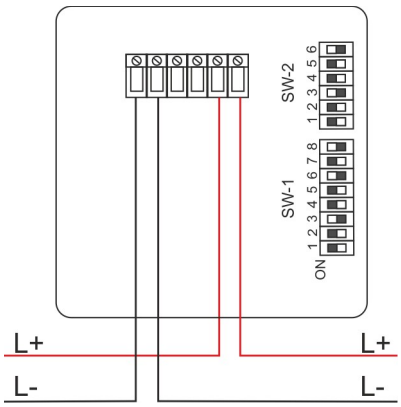
The following tones can be assigned as **Sound B** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-334	825	Continuous tone	

3.17.31 Sounder-Strobe 55000-293

This red alarming device is designed for indoor use. The sounder is activated together with the strobe.

3.17.31.1 Connection



3.17.31.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been moved towards the outside of the sounder, the bit has the value 1. If the switch has been moved towards the inside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 91.

3.17.31.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.

SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	550 - 700 / 850 - 1000	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

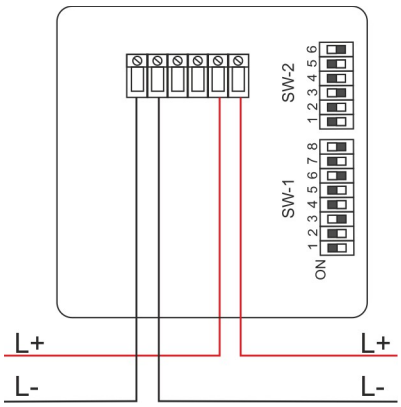
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	900	Continuous tone	
0 - ON	1 - OFF	900	Continuous tone	

3.17.32 Sounder-Strobe 55000-294

This white alarming device is designed for indoor use. The sounder is activated together with the strobe.

3.17.32.1 Connection



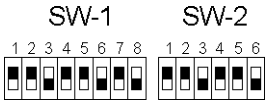
3.17.32.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been moved towards the outside of the sounder, the bit has the value 1. If the switch has been moved towards the inside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 91.

3.17.32.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.



SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	550 - 700 / 850 - 1000	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

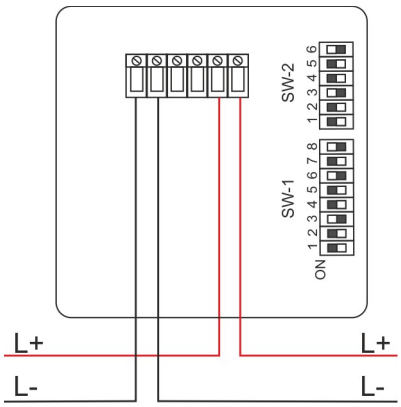
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	900	Continuous tone	
0 - ON	1 - OFF	900	Continuous tone	

3.17.33 Sounder-Strobe 55000-298

This red alarming device has protection class IP66. In order to ensure the protection class of the housing, suitable cable glands have to be used. The sounder is activated together with the strobe.

3.17.33.1 Connection



3.17.33.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been moved towards the outside of the sounder, the bit has the value 1. If the switch has been moved towards the inside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 91.

3.17.33.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.

SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	550 - 700 / 850 - 1000	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

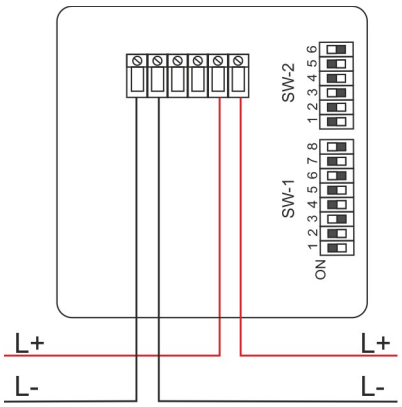
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	900	Continuous tone	
0 - ON	1 - OFF	900	Continuous tone	

3.17.34 Sounder-Strobe 55000-299

This white alarming device has protection class IP66. In order to ensure the protection class of the housing, suitable cable glands have to be used.

3.17.34.1 Connection



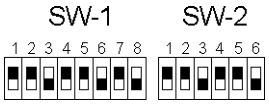
3.17.34.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been moved towards the outside of the sounder, the bit has the value 1. If the switch has been moved towards the inside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 91.

3.17.34.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.



SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is set by means of switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	550 - 700 / 850 - 1000	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

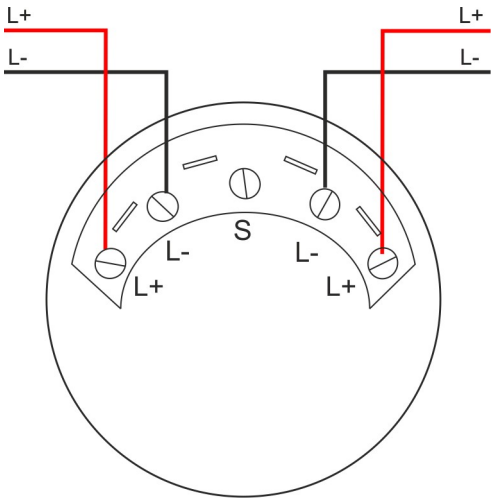
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	900	Continuous tone	
0 - ON	1 - OFF	900	Continuous tone	

3.17.35 Sounder-Strobe 55000-005

This red alarming device with red lens has protection class IP66. In order to ensure the protection class of the housing, suitable cable glands have to be used. The sounder is activated together with the strobe.

3.17.35.1 Connection



The flash frequency is fixed at 1Hz.

3.17.35.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been set to the ON position, the bit has the value 0. If the switch has been moved towards the contact springs, the bit has the value 1. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 78.

3.17.35.3 Tone setting

The sound level of this sounder can be changed with switch 8 of SW-1.

SW-1 S8	*Sound level*
0 - ON	Low
1 - OFF	High

The tone is defined using switches 5 and 6 of SW-2.

The following tones can be assigned as **Sound A** by means of PARSOFT:

Switch on SW-2				
S5	*S6*	*Frequency [Hz]*	*Repetition*	*Application*
0 - ON	0 - ON	558 / 840	0.5s / 0.5s	
1 - OFF	0 - ON	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone
0 - ON	1 - OFF	1200 - 500	1Hz	DIN tone

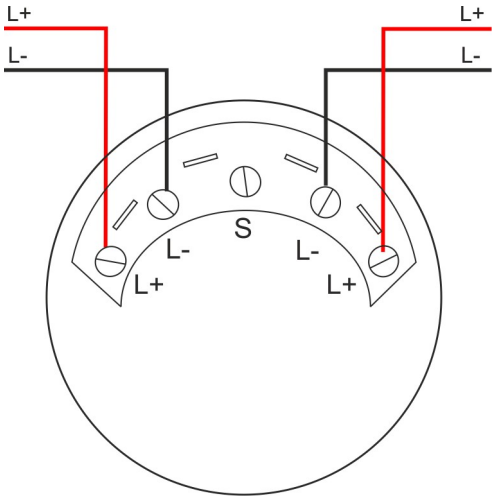
The following tones can be assigned as **Sound B** by means of PARSOFT:

Switch on SW-2				
S5	***S6***	***Frequency [Hz]***	***Repetition***	***Application***
0 - ON	0 - ON	100 - 1000	1s increasing, 1s silent	
1 - OFF	0 - ON	825	Continuous tone	
0 - ON	1 - OFF	825	Continuous tone	

3.17.36 Sounder-Strobe 58000-005

This red combined alarming device with a red lens can not be used on the Series BC216. The sounder is activated together with the strobe.

3.17.36.1 Connection



The flash frequency is fixed at 1Hz.

3.17.36.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been set to the ON position, the bit has the value 0. If the switch has been moved towards the contact springs, the bit has the value 1. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 78.

3.17.36.3 Tone setting

The tone and the sound level are set via the loop protocol.

Sound level	Sound pressure level, dB(A)	Remark
1	60	does not meet the requirements of EN 54-3
2	69	
3	75	
4	81	
5	87	
6	93	
7	100	

With 60dB(A), the lowest level lies outside the field of application of the standard EN 54. It has been included here in order to offer a very local warning for the personnel in certain environments, such as staff rooms for nurses in hospitals.

The tone can be chosen from among 15 tone pairs.

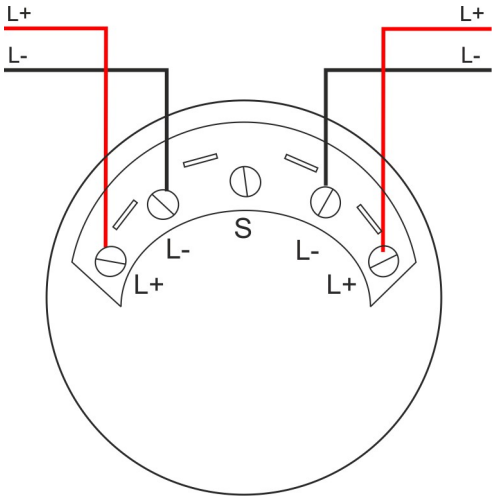
Tone	Primary – tone 1		Secondary – tone 2	
1	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone*	1s off, 825Hz for 1s
2	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
3	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
4	Fast Sweep	2500Hz - 2850Hz at 9Hz	Continuous	2850Hz
5	Dutch Slow Whoop (sweep)*	500 Hz - 1200Hz for 3.5s, 0.5s off	Continuous*	825Hz
6	DIN Tone (sweep) *	1200Hz - 500Hz for 1s	Continuous*	825Hz
7	Swedish Fire Tone*	660 Hz, 150ms on, 150ms off	Swedish all clear signal*	660Hz
8	Aus (fast rise sweep)	3 x (500Hz - 1200Hz for 0.5s), 0.5s off	Aus Alert Tone	420Hz, 0.625s, 0.625s off
9	NZ (slow rise sweep)	500Hz - 1200Hz for 3.75s, 0.25s off	NZ Alert Tone	420Hz, 0.625s, 0.625s off
10	US Temporal LF (ISO 8201)	3 x (970Hz, 0.5s on, 0.5s off) 1s off	Continuous	970Hz
11	US Temporal HF (ISO 8201)	3 x (2850Hz, 0.5s on, 0.5s off) 1s off	Continuous	2850Hz
12	Simulated Bell - Continuous	Continuous	Simulated Bell - Intermittent	1s off, 1s on
13	Emergency Warning Siren	N/A	Emergency Warning - All clear	N/A
14	Evacuation Tone*	970Hz continuous	Alert Tone	Silence for 1s, 970Hz for 1s
15	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 1s 850Hz

* Tone complies with EN 54

3.17.37 Sounder-Strobe 58000-007

This white combined alarming device with a white lens can not be used on the Series BC216. The sounder is activated together with the strobe.

3.17.37.1 Connection



The flash frequency is fixed at 1Hz.

3.17.37.2 Address setting

The address is set by means of switches 1 to 7 of SW-1 (highest possible address: 126). If the switch has been set to the ON position, the bit has the value 0. If the switch has been moved towards the contact springs, the bit has the value 1. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 78.

3.17.37.3 Tone setting

The tone and the sound level are set via the loop protocol.

Sound level	Sound pressure level, dB(A)	Remark
1	60	does not meet the requirements of EN 54-3
2	69	
3	75	
4	81	
5	87	
6	93	
7	100	

With 60dB(A), the lowest level lies outside the field of application of the standard EN 54. It has been included here in order to offer a very local warning for the personnel in certain environments, such as staff rooms for nurses in hospitals.

The tone can be chosen from among 15 tone pairs.

Tone	Primary – tone 1		Secondary – tone 2	
1	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone*	1s off, 825Hz for 1s
2	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
3	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
4	Fast Sweep	2500Hz - 2850Hz at 9Hz	Continuous	2850Hz
5	(sweep)*Dutch Slow Whoop	500 Hz - 1200Hz for 3.5s, 0.5s off	Continuous*	825Hz
6	DIN Tone (sweep) *	1200Hz - 500Hz for 1s	Continuous*	825Hz
7	Swedish Fire Tone*	660 Hz, 150ms on, 150ms off	Swedish all clear signal*	660Hz
8	Aus (fast rise sweep)	3 x (500Hz - 1200Hz for 0.5s), 0.5s off	Aus Alert Tone	420Hz, 0.625s, 0.625s off
9	NZ (slow rise sweep)	500Hz - 1200Hz for 3.75s, 0.25s off	NZ Alert Tone	420Hz, 0.625s, 0.625s off
10	US Temporal LF (ISO 8201)	3 x (970Hz, 0.5s on, 0.5s off) 1s off	Continuous	970Hz
11	US Temporal HF (ISO 8201)	3 x (2850Hz, 0.5s on, 0.5s off) 1s off	Continuous	2850Hz
12	Simulated Bell - Continuous	Continuous	Simulated Bell - Intermittent	1s off, 1s on
13	Emergency Warning Siren	N/A	Emergency Warning - All clear	N/A
14	Evacuation Tone*	970Hz continuous	Alert Tone	Silence for 1s, 970Hz for 1s
15	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 1s 850Hz

* Tone complies with EN 54

3.17.38 Sounder-Strobe 58000-030

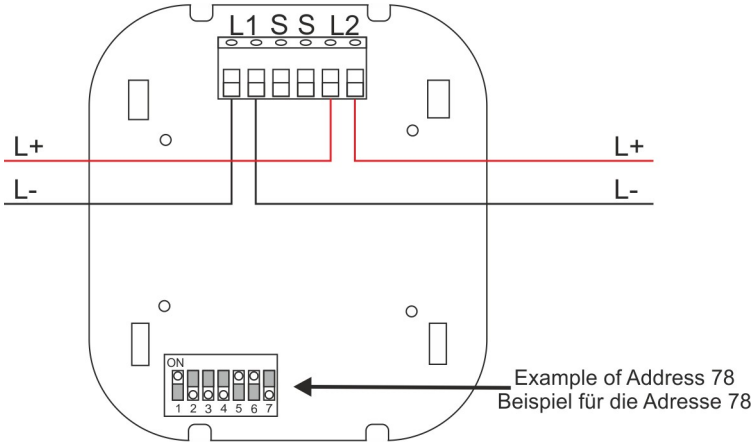
This red combined alarming device with voice output can not be used on the Series BC216. On the outside of this sounder there are 4 LEDs, two of which are relevant.
Isolator LED – YELLOW if active.
Communication LED – GREEN if the element communicates with the fire detection control panel.

The voice output is available with tone pairs 1, 2 and 3. In the event of activation, the tone and the voice are output alternately.

The acoustic and the optical alarming part can be activated separately from each other.

3.17.38.1 Connection

The alarming device has an integrated dual-isolator.



3.17.38.2 Address setting

The address is set by means of the 7 DIP switches (highest possible address: 126).

3.17.38.3 Tone setting

The tone and the sound level are set via the loop protocol.

Sound level	Sound pressure level, dB(A)	Remark
1	60	does not meet the requirements of EN 54-3
2	72	
3	77	
4	82	
5	87	
6	92	
7	97	

With 60dB(A), the lowest level lies outside the field of application of the standard EN 54. It has been included here in order to offer a very local warning for the personnel in certain environments, such as staff rooms for nurses in hospitals.

The tone can be chosen from among 15 tone pairs.

Tone	Primary – tone 1		Secondary – tone 2	
1	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone*	1s off, 825Hz for 1s
2	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
3	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
4	Fast Sweep	2500Hz - 2850Hz at 9Hz	Continuous	2850Hz
5	Dutch Slow Whoop (sweep)*	500 Hz - 1200Hz for 3.5s, 0.5s off	Continuous*	825Hz
6	DIN Tone (sweep) *	1200Hz - 500Hz for 1s	Continuous*	825Hz
7	Swedish Fire Tone*	660 Hz, 150ms on, 150ms off	Swedish all clear signal*	660Hz
8	Aus (fast rise sweep)	3 x (500Hz - 1200Hz for 0.5s), 0.5s off	Aus Alert Tone	420Hz, 0.625s, 0.625s off
9	NZ (slow rise sweep)	500Hz - 1200Hz for 3.75s, 0.25s off	NZ Alert Tone	420Hz, 0.625s, 0.625s off
10	US Temporal LF (ISO 8201)	3 x (970Hz, 0.5s on, 0.5s off) 1s off	Continuous	970Hz
11	US Temporal HF (ISO 8201)	3 x (2850Hz, 0.5s on, 0.5s off) 1s off	Continuous	2850Hz
12	Simulated Bell - Continuous	Continuous	Simulated Bell - Intermittent	1s off, 1s on
13	Emergency Warning Siren	N/A	Emergency Warning - All clear	N/A
14	Evacuation Tone*	970Hz continuous	Alert Tone	Silence for 1s, 970Hz for 1s
15	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 1s 850Hz

* Tone complies with EN 54

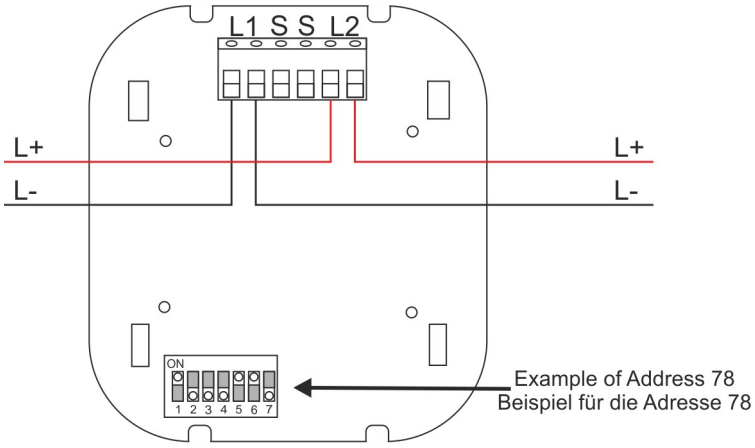
3.17.39 Sounder-Strobe 58000-040

This white alarming device with voice output can not be used on the Series BC216. On the outside of this sounder there are 4 LEDs, two of which are relevant.
Isolator LED – YELLOW if active.
Communication LED – GREEN if the element communicates with the fire detection control panel.

The voice output is available with tone pairs 1, 2 and 3. In the event of activation, the tone and the voice are output alternately.

The acoustic and the optical alarming part can be activated separately from each other.

3.17.39.1 Connection



3.17.39.2 Address setting

The address is set by means of the 7 DIP switches (highest possible address: 126).

3.17.39.3 Tone setting

The tone and the sound level are set via the loop protocol.

Sound level	Sound pressure level, dB(A)	Remark
1	60	does not meet the requirements of EN 54-3
2	72	
3	77	
4	82	
5	87	
6	92	
7	97	

With 60dB(A), the lowest level lies outside the field of application of the standard EN 54. It has been included here in order to offer a very local warning for the personnel in certain environments, such as staff rooms for nurses in hospitals.

The tone can be chosen from among 15 tone pairs.

Tone	Primary – tone 1		Secondary – tone 2	
1	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone*	1s off, 825Hz for 1s
2	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
3	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
4	Fast Sweep	2500Hz - 2850Hz at 9Hz	Continuous	2850Hz
5	Dutch Slow Whoop (sweep)*	500 Hz - 1200Hz for 3.5s, 0.5s off	Continuous*	825Hz
6	DIN Tone (sweep) *	1200Hz - 500Hz for 1s	Continuous*	825Hz
7	Swedish Fire Tone*	660 Hz, 150ms on, 150ms off	Swedish all clear signal*	660Hz
8	Aus (fast rise sweep)	3 x (500Hz - 1200Hz for 0.5s), 0.5s off	Aus Alert Tone	420Hz, 0.625s, 0.625s off
9	NZ (slow rise sweep)	500Hz - 1200Hz for 3.75s, 0.25s off	NZ Alert Tone	420Hz, 0.625s, 0.625s off
10	US Temporal LF (ISO 8201)	3 x (970Hz, 0.5s on, 0.5s off) 1s off	Continuous	970Hz
11	US Temporal HF (ISO 8201)	3 x (2850Hz, 0.5s on, 0.5s off) 1s off	Continuous	2850Hz
12	Simulated Bell - Continuous	Continuous	Simulated Bell - Intermittent	1s off, 1s on
13	Emergency Warning Siren	N/A	Emergency Warning - All clear	N/A
14	Evacuation Tone*	970Hz continuous	Alert Tone	Silence for 1s, 970Hz for 1s
15	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 1s 850Hz

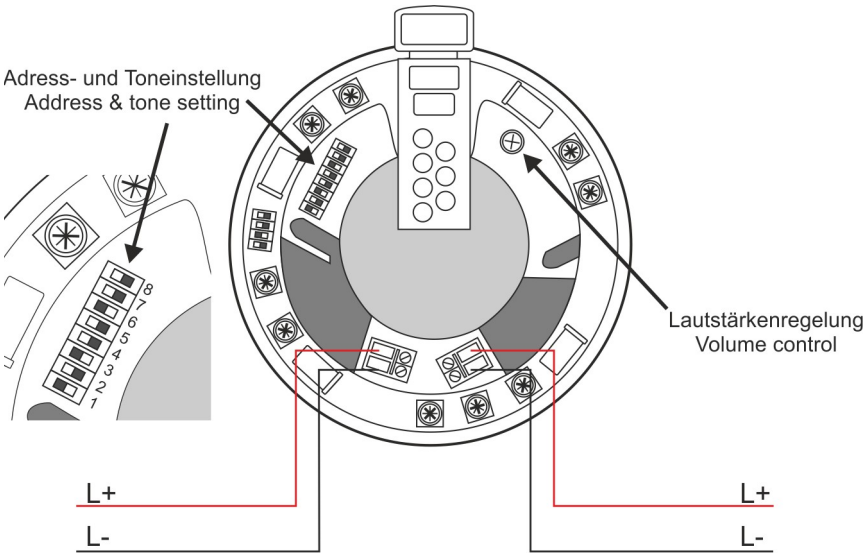
*** Tone complies with EN 54**

3.17.40 Sounder-Strobe 45681-705

The sounder and the strobe (white) are addressed via one address. The sounder is activated together with the strobe. The product has been approved according to EN 54-23 – Class O.

3.17.40.1 Connection

The combined alarming device 45681-705 is provided with an integrated dual-isolator and a detector base. The connection is not made through the terminals of the detector base, instead it is made via the separate terminal block inside the sounder.



The flash frequency is fixed at 0.5Hz.

3.17.40.2 Address setting

The address is set by means of 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the alarming device, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.40.3 Tone setting

In addition to the address setting, the switch is also used for setting the basic sound level.

S8	*Sound level*
0 - ON	Low – 55-75dB(A)
1 - OFF	High – 75-91dB(A) – EN 54-3

The following tones can be assigned as **Sound A** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-705	567, 850	0,5 Hz	Apollo Evacuation Tone

The following tones can be assigned as **Sound B** by means of PARSOFT:

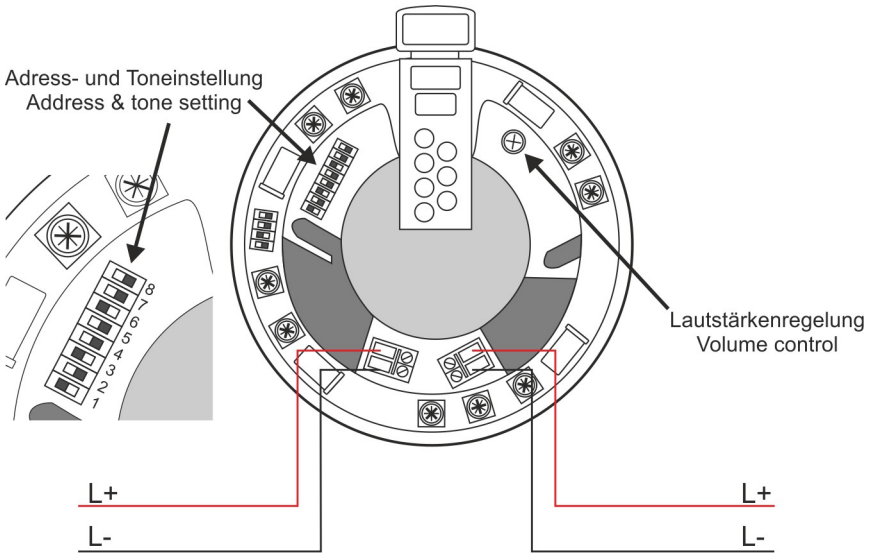
Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-705	850	1 second OFF, 1 second ON	Apollo Alert Tone

3.17.41 Sounder-Strobe 45681-706

The sounder and the strobe (white) are addressed via one address. The sounder is activated together with the strobe. The product has been approved according to EN 54-23 – Class O.

3.17.41.1 Connection

The combined alarming device 45681-706 is provided with an integrated dual-isolator and a detector base. The connection is not made through the terminals of the detector base, instead it is made via the separate terminal block inside the sounder.



The flash frequency is fixed at 0.5Hz.

3.17.41.2 Address setting

The address is set by means of 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the alarming device, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.41.3 Tone setting

In addition to the address setting, the switch is also used for setting the basic sound level.

S8	*Sound level*
0 - ON	Low – 55-75dB(A)
1 - OFF	High – 75-91dB(A) – EN 54-3

The following tones can be assigned as **Sound A** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-706	500 - 1200	3.5s increasing, 0.5s silent	Slow whoop tone

The following tones can be assigned as **Sound B** by means of PARSOFT:

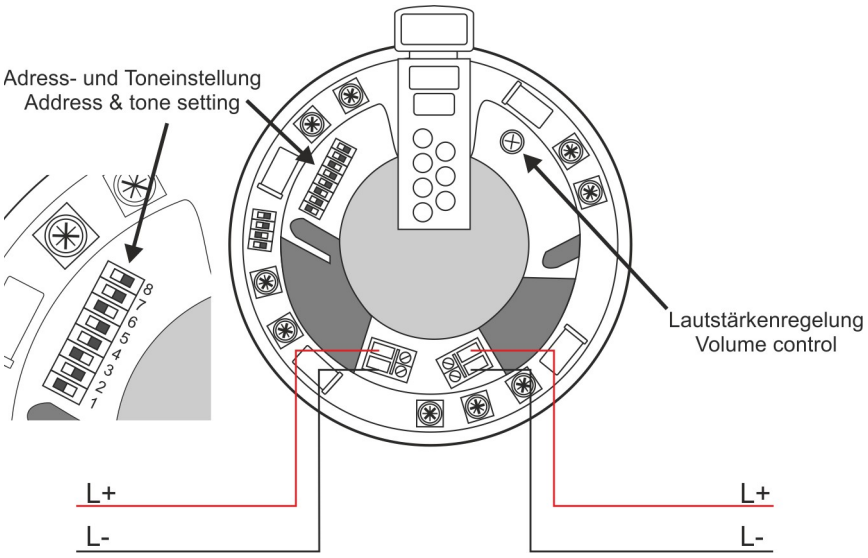
Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-706	850	Continuous tone	

3.17.42 Sounder-Strobe 45681-707

The sounder and the strobe (white) are addressed via one address. The sounder is activated together with the strobe. The product has been approved according to EN 54-23 – Class O.

3.17.42.1 Connection

The combined alarming device 45681-707 is provided with an integrated dual-isolator and a detector base. The connection is not made through the terminals of the detector base, instead it is made via the separate terminal block inside the sounder.



The flash frequency is fixed at 0.5Hz.

3.17.42.2 Address setting

The address is set by means of 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the alarming device, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.42.3 Tone setting

In addition to the address setting, the switch is also used for setting the basic sound level.

S8	*Sound level*
0 - ON	Low – 55-75dB(A)
1 - OFF	High – 75-91dB(A) – EN 54-3

The following tones can be assigned as **Sound A** by means of PARSOFT:

Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-707	1200 - 500	1Hz	DIN tone

The following tones can be assigned as **Sound B** by means of PARSOFT:

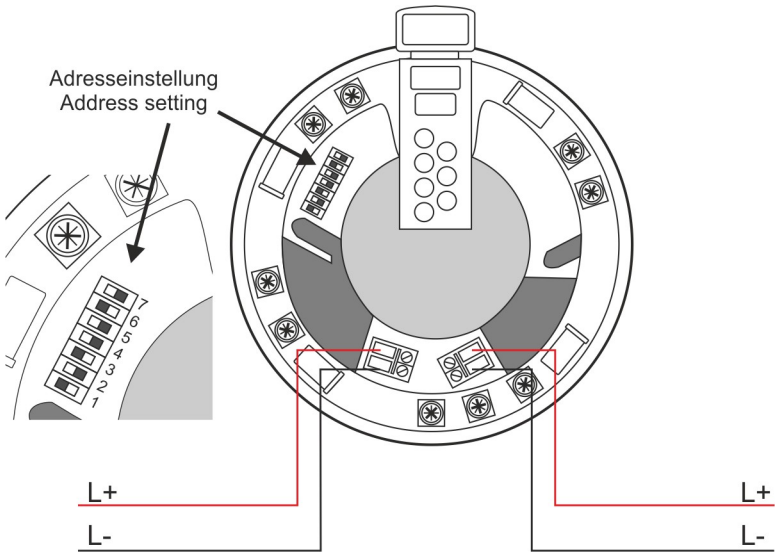
Product	*Frequency [Hz]*	*Repetition*	*Application*
45681-706	850	Continuous tone	

3.17.43 Sounder-Strobe 45681-700

This combined alarming device can not be used on the Series BC216. The acoustic and the optical alarming part can be activated separately from each other. The product has been approved according to EN 54-23 – Class O.

3.17.43.1 Connection

The combined alarming device 45681-700 is provided with an integrated dual-isolator and a detector base. The connection is not made through the terminals of the detector base, instead it is made via the separate terminal block inside the sounder.



3.17.43.2 Address setting

The address is set by means of the 7 DIP switches (highest possible address: 126). If the switch has been moved towards the centre of the alarming device, the bit has the value 1. If the switch has been moved towards the outside, the bit has the value 0. Switch 1 has the lowest value, switch 7 has the highest value.

The switch setting shown above corresponds to address 37.

3.17.43.3 Tone setting

The tone and the sound level are set via the loop protocol.

Sound level	Sound pressure level, dB(A)	Remark
1	60	does not meet the requirements of EN 54-3
2	70	
3	74	
4	78	
5	82	
6	86	
7	90	

With 60dB(A), the lowest level lies outside the field of application of the standard EN 54. It has been included here in order to offer a very local warning for the personnel in certain environments, such as staff rooms for nurses in hospitals.

The tone can be chosen from among 15 tone pairs.

Tone	Primary – tone 1		Secondary – tone 2	
1	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone*	1s off, 825Hz for 1s
2	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
3	Apollo Evacuation Tone*	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 825Hz for 1s
4	Fast Sweep	2500Hz - 2850Hz at 9Hz	Continuous	2850Hz
5	(sweep)*Dutch Slow Whoop	500 Hz - 1200Hz for 3.5s, 0.5s off	Continuous*	825Hz
6	DIN Tone (sweep) *	1200Hz - 500Hz for 1s	Continuous*	825Hz
7	Swedish Fire Tone*	660 Hz, 150ms on, 150ms off	Swedish all clear signal*	660Hz
8	Aus (fast rise sweep)	3 x (500Hz - 1200Hz for 0.5s), 0.5s off	Aus Alert Tone	420Hz, 0.625s, 0.625s off
9	NZ (slow rise sweep)	500Hz - 1200Hz for 3.75s, 0.25s off	NZ Alert Tone	420Hz, 0.625s, 0.625s off
10	US Temporal LF (ISO 8201)	3 x (970Hz, 0.5s on, 0.5s off) 1s off	Continuous	970Hz
11	US Temporal HF (ISO 8201)	3 x (2850Hz, 0.5s on, 0.5s off) 1s off	Continuous	2850Hz
12	Simulated Bell - Continuous	Continuous	Simulated Bell - Intermittent	1s off, 1s on
13	Emergency Warning Siren	N/A	Emergency Warning - All clear	N/A
14	Evacuation Tone*	970Hz continuous	Alert Tone	Silence for 1s, 970Hz for 1s
15	Apollo Evacuation Tone *	550Hz for 0.5s, 825Hz for 0.5s	Apollo Alert Tone	1s off, 1s 850Hz

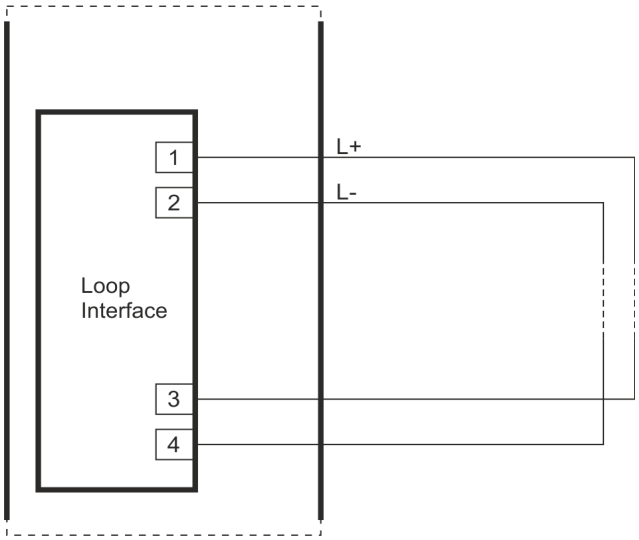
*** Tone complies with EN 54**

3.18 Examples for the wiring of detector circuits

We ask you again to consider the country-specific standards and regulations in the field of fire detection systems. Especially the use of isolator modules is not mandatory in some countries.

3.18.1 Loop with a maximum of 126 detector zones

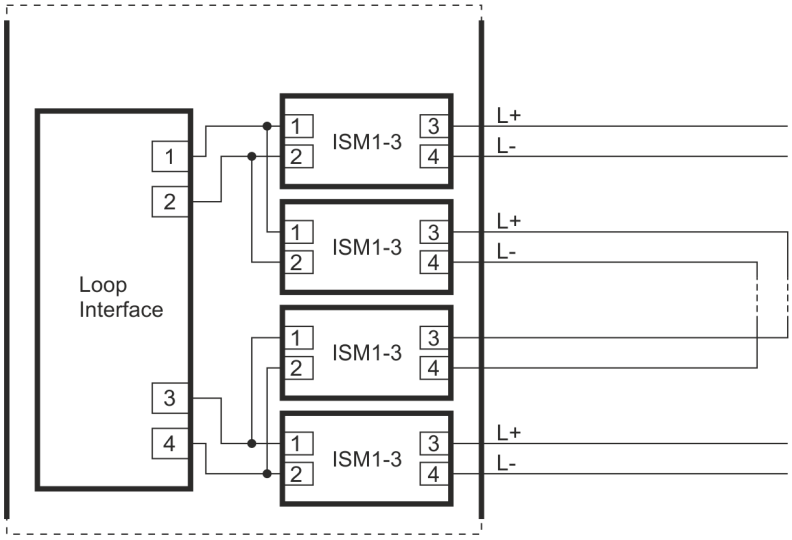
If Isolator Modules ISM1-3 or isolator bases are inserted into the loop line between the detector zones, a short circuit within one detector zone will not affect another detector zone.



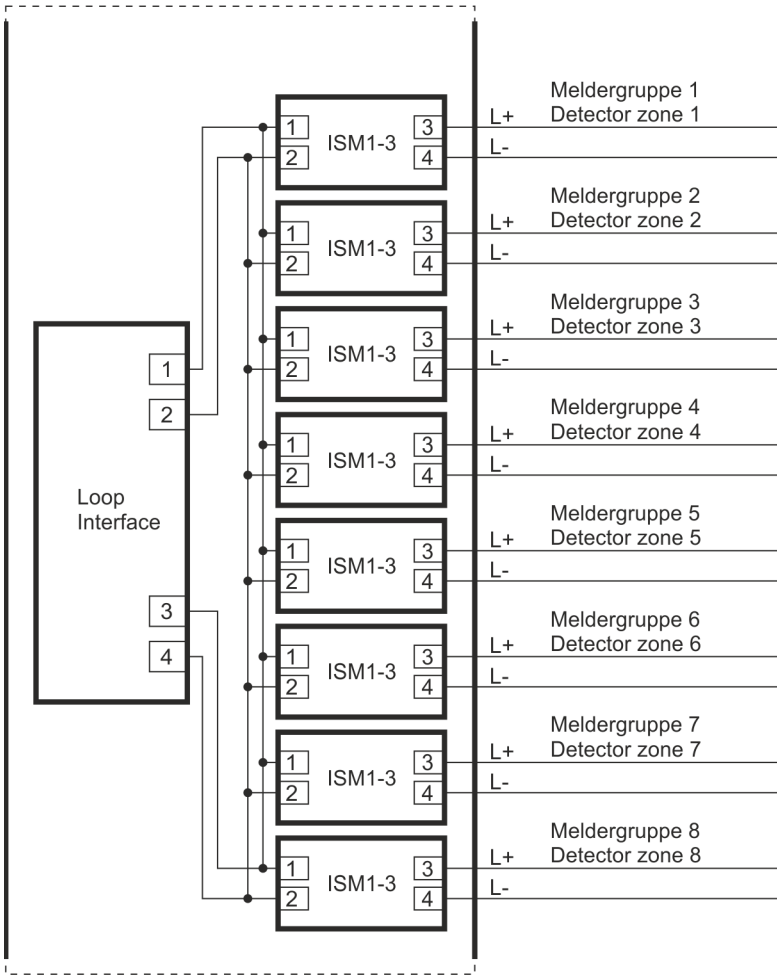
3.18.2 Combination of branch lines and loops

If Isolator Modules ISM1-3 are inserted into the loop, the section between two isolator modules will be disconnected from the loop if this section is experiencing a short circuit. As a result, all elements that are located outside the faulty section remain fully functional.

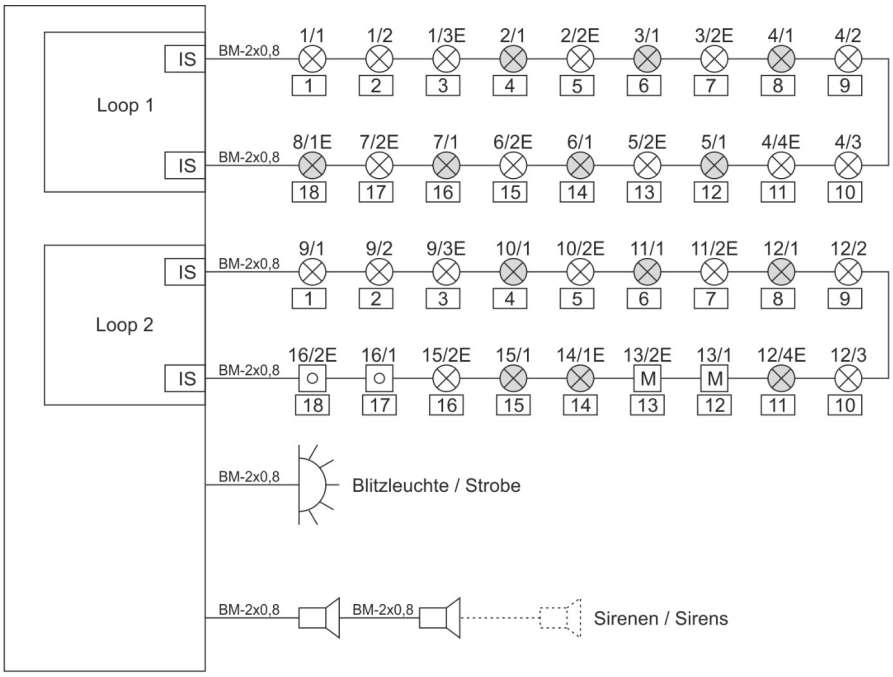
Any combination of loops and branch lines is possible.



3.18.3 Branch lines



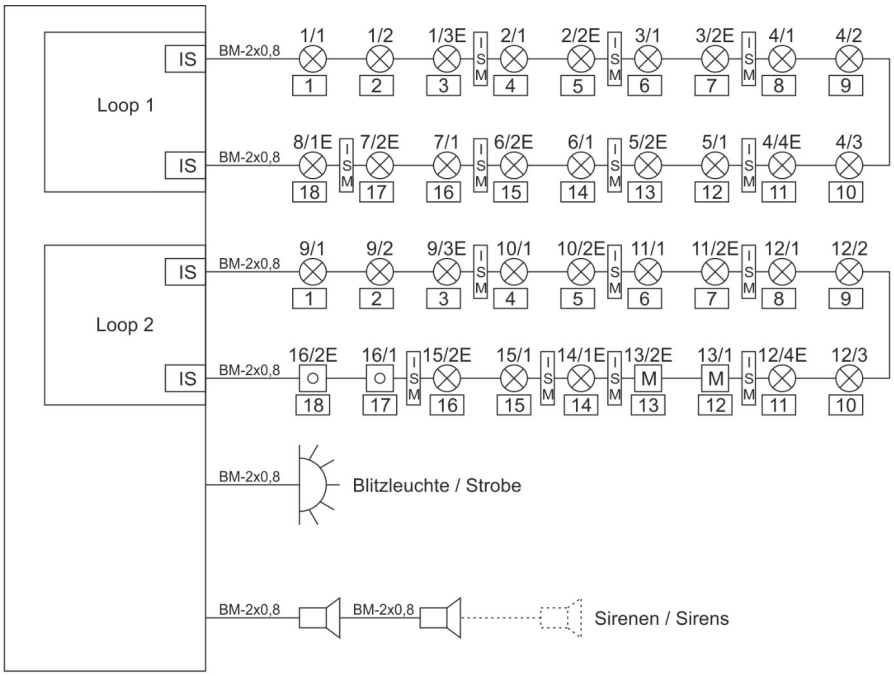
3.18.4 System cabling ADM loop with isolator bases



Legende:	
⊗	Melder
⊗	Melder mit Isolatorsockel (der erste Melder einer Gruppe benötigt einen Isolator, ausgenommen der erste Melder eines Loops)
○	Handfeuermelder
M	Modul (zB. Grenzwertmelder-, Überwachungsmodul)
IS	Isolator auf Loop-Interfacemodul
15/2E	Gruppen-/Elementnummer (der letzte Melder einer Gruppe ist mit 'E' gekennzeichnet)
4	Elementadresse
BM-2x0,8	Kabeltype (die max. Kabellänge ist im Kapitel "Anforderungen an Kabel" erläutert)

Explanation:	
⊗	Detector
⊗	Detector with isolator base (the first detector of a zone has to have an isolator, except the first detector of a loop)
○	Manual call point
M	Module (e.g., conventional zone module, monitor module)
IS	Isolator on loop interface
15/2E	Zone/element number (the last detector of a zone is marked with 'E')
4	Element address
BM-2x0,8	Cable type (the max. cable length is explained in chapter "Cable requirements")

3.18.5 System cabling ADM loop with isolator modules



Legende:

- Melder
- Handfeuermelder
- M — Modul (zB. Grenzwertmelder-, Überwachungsmodul)
- IS — Isolator auf Loop-Interfacemodul
- ISM — Isolatormodul
- 15/2E — Gruppen-/Elementnummer (der letzte Melder einer Gruppe ist mit 'E' gekennzeichnet)
- 4 — Elementadresse
- BM-2x0,8 — Kabeltype (die max. Kabellänge ist im Kapitel "Anforderungen an Kabel" erläutert)

Explanation:

- Detector
- Manual call point
- M — Module (e.g., conventional zone module, monitor module)
- IS — Isolator on loop interface
- ISM — Isolator module
- 15/2E — Zone/element number (the last detector of a zone is marked with 'E')
- 4 — Element address
- BM-2x0,8 — Cable type (the max. cable length is explained in chapter "Cable requirements")

3.19 Tips for programming

This part of the document is intended for Fire Detection Control Panels Series BC216 and BC600.

In the case of the Fire Detection Control Panel Series BC600, the elements have to be selected in PARSOFT by means of the exact type (for example **58000-600**).

For the Fire Detection Control Panels Series BC216, the types have to be selected according to the tables below and the detailed information which the tables contain. For example, for a detector of type 58000-600, the element type **Optical detector Discovery** is to be used in PARSOFT.

3.19.1 Parameterising detectors on the BC216

Art. No.	Type	Element type in PARSOFT	Remarks		
Manual call points					
	HxM/x/32/xx/xx	Manual call point			
	HME/FFFF/32/TT/LL	Manual call point			
	MCP	Manual call point			
Ionisation detector					
240024	55000-520	Ionisation detector			
240026	58000-500	Ionisation detector Discovery	**Level**	**Mode**	**Sensitivity [Y]**
			1		0.45 at 5s
			2		0.45 at 30s
			3		0.70 at 5s
			4		0.70 at 30s
			5		1.0 at 5s
Optical detector					
241023	55000-620	Optical detector			
241027	58000-600	Optical detector Discovery	**Level**	**Mode**	**Sensitivity**
241068	SA5000-600		1	O - 5s	1.4%/m
241066	SA5100-600		2	O - 30s	1.4%/m
			3	O - 5s	2.1%/m
			4	O - 30s	2.1%/m
		SA5x00-600 – 2.4%/m	5	O - 5s	2.8%/m
241170	FL5100-600	Optical detector Discovery	**Level**	**Mode**	**Sensitivity**
241171	FL6100-600		1	A15, F10	4.8%/m
		A = at least x seconds alarm delay	2	A30, F10	4.8%/m
		F = delay of the fault in seconds after covering the detector	3	A15, F20	4.8%/m
			4	A30, F20	4.8%/m
			5	A30, F30	4.8%/m

Art. No.	Type	Element type in PARSOFT	Remarks		
Multisensor					
241030	55000-885	Optical/therm detector			
241022	58000-700	Multisensor Discovery	**Level**	**Mode**	**Sensitivity**
241069	SA5000-700		1	O/T high	1.1%/m
241067	SA5100-700	T high = high sensitivity	2	O	2.1%/m
		T low = low sensitivity	3	O/T low	2.8%/m
			4	O/T high	4.2%/m
			5	Class A1	58°C (RoR,MAX)
Thermal detectors					
242023	55000-420	**With PARSOFT V1.23 or higher**			
		Max-therm detector	Class A2S typ. 58°C (maximum principle)		
		Diff-therm detector noCPD	Class A2R typ. 58°C (RoR, MAX)		
		Until PARSOFT V1.22			
		Max-therm detector	Class A2S typ. 58°C (maximum principle)		
		Diff-therm detector	Class A2R typ. 58°C (RoR, MAX)		
	55000-401	**With PARSOFT V1.23 or higher**			
		Max-therm detector	Class CS typ. 90°C (maximum principle)		
		Until PARSOFT V1.22			
		Max-therm detector	Class CS typ. 90°C (maximum principle)		
242028	58000-400	Thermal detector Discovery	**Level**	**Mode**	
242069	SA5000-400		1	Class A1R typ 57°C (RoR,MAX)	
242068	SA5100-400		2	Class A2 typ. 61°C	
			3	Class A2S typ. 61°C (MAX)	
			4	Class CR typ. 90°C (RoR,MAX)	
			5	Class CS typ. 90°C (MAX)	
244632	SKM-95	**With PARSOFT V1.20 or higher**			
		High temp. max-therm detector	Class BS typ. 78°C (maximum principle)		
Special detectors					
243100	58000-300	CO detector Discovery	**Level**	**Mode**	**Sensitivity**
			1	CO	30ppm - 60s
			2	CO	45ppm - 30s
			3	CO	45ppm - 60s
			4	CO	60ppm - 30s
			5	CO	75ppm - 30s
Detectors for hazardous areas					
240025	55000-540	Ionization detector			
241024	55000-640	Optical detector			
242036	55000-440	Max-therm detector	Class A2S typ. 58°C (maximum principle)		

3.19.2 Parameterising modules on the BC216

Art. No.	Type	Element type in PARSOFT	Remarks
Modules			
249060	55000-832	Manual call point	
249061	55000-833	Monitor module Mini	
249079	55000-760	Manual call point	S8 set to ON
249079	55000-760	Monitor module Mini	S8 set to OFF
249072	55000-841	Monitor module Special	keep the RESET output in mind
249073	55000-852	Ctrl.module with supervis.	
249074	55000-849	Ctrl.module without supervis.	
249075	55000-845	Conventional module	
249076	55000-847	Module 1xsuperv.In 1xRel.Out	
249077	55000-588	Module 3xsuperv.In 3xRel.Out	
249078	55000-875	Mod. 1xspv.In 1xRel.Out-230V	
249330	SA4700-100APO	Monitor module Mini	S8 set to 0, S9 set to 0; S10 set to 1 for alarm delay of 30 seconds
		Manual call point	S8 set to 0, S9 set to 1
249331	SA4700-102APO	Mod. 1xspv.In 1xRel.Out-230V	
249336	SA4700-302APO	Mod. 1xspv.In 1xRel.Out-230V	
249332	SA4700-103APO	Mod. 1xspv.In 1xRel.Out-230V	
249335	SA4700-300APO	Monitor module Mini	S8 set to 0, S9 set to 0; S10 set to 1 for alarm delay of 30 seconds
		Manual call point	S8 set to 0, S9 set to 1
249334	SA6700-100APO	Monitor module Mini	2 modules – 1 housing S8 set to 0, S9 set to 0; S10 set to 1 for alarm delay of 30 seconds
		Manual call point	S8 set to 0, S9 set to 1
249337	SA4700-403APO	Mod. 1xspv.In 1xRel.Out-230V	
249333	SA4700-104APO	Mod. 1xspv.In 1xRel.Out-230V	2 modules – 1 housing

3.19.3 Parameterising signalling devices on the BC216

Art. No.	Type	Element type in PARSOFT	Remark
Signalling devices			
355130	45681-276	Loop siren	Sounder
355133	45681-277	Loop siren	Sounder
355131	45681-290	Loop siren	Sounder
355132	45681-300	Loop siren	Sounder
355124	55000-278	Loop siren	Sounder
	55000-279	Loop siren	Sounder
	55000-274	Loop siren	Sounder

Art. No.	Type	Element type in PARSOFT	Remark
Signalling devices			
	55000-275	Loop siren	Sounder
355125	55000-276	Loop siren	Sounder
355139	55000-001	Loop siren	Sounder
355140	55000-002	Loop siren	Sounder
	55000-009	Loop siren	Strobe
	55000-010	Loop siren	Strobe
356020	55000-877	Loop siren	Strobe
356022	55000-878	Loop siren	Strobe
356023	55000-879	Loop siren	Strobe
356024	55000-740	Loop siren	Strobe
356025	55000-741	Loop siren	Strobe
356026	55000-742	Loop siren	Strobe
356027	55000-743	Loop siren	Strobe
356028	55000-744	Loop siren	Strobe
356029	55000-745	Loop siren	Strobe
355155	45681-709	Loop siren	Strobe
355134	45681-330	Loop siren	Sounder-strobe
355135	45681-332	Loop siren	Sounder-strobe
355136	45681-334	Loop siren	Sounder-strobe
355137	55000-293	Loop siren	Sounder-strobe
355145	55000-294	Loop siren	Sounder-strobe
355138	55000-298	Loop siren	Sounder-strobe
355146	55000-299	Loop siren	Sounder-strobe
355142	55000-005	Loop siren	Sounder-strobe
355143	55000-006	Loop siren	Sounder-strobe
355152	45681-705	Loop siren	Sounder-strobe
355153	45681-706	Loop siren	Sounder-strobe
355154	45681-707	Loop siren	Sounder-strobe
The following signalling devices can not be used on the Series BC216:			
	45681-702		Sounder
	58000-010		Sounder
	58000-020		Sounder
	58000-005		Sounder-strobe
	58000-007		Sounder-strobe
	58000-030		Sounder-strobe
	58000-040		Sounder-strobe
	45681-700		Sounder-strobe

3.19.4 AUTO-Setup / Initialize new devices

Apollo currently has three different product series – XP95, Discovery and the recently launched Soteria series. All three product series can be used simultaneously on the loop. Different protocols are used for the products in these series as the range of functions has been expanded. These are the XP95, Discovery and Core protocols.
An unbeatable advantage of these products is the usability on older fire detection control panels due to the multi-protocol support of the elements. This results in the fact that the full range of functions of the elements may not be utilised if the product is not addressed with the most current and suitable protocol.
Series Soteria detectors can be addressed in the Discovery and Core protocols. This allows seamless use of the latest Apollo technology on BC216 panels, as they support the Discovery protocol. Series Soteria modules respond in the XP95 protocol and also in the Core protocol. Therefore, the Series Soteria modules can also be used on the BC216. Observe the notes on element selection at the BC216 in chapters 3.19.1 - 3.19.3.

The Series BC600 will communicate with the Soteria elements in the XP95 or Discovery protocol until the Core protocol is fully implemented (this will be done with the function module LIF601-2). The parameterisation of the elements has been considerably simplified in PARSOFT, as the elements are selected from a list of supported products. The communication protocol to be used is stored behind the selection. This means that Soteria detectors are addressed with the Discovery protocol and Soteria modules with the XP95 protocol. In the future, the Core protocol will be applied to the Soteria elements.
As mentioned, the element definition at the BC600 is done by direct product selection in a loop element list. If you do not want to do this, you can carry out an AUTO-setup. However, the products will not be detected correctly. Soteria detectors respond as Discovery elements, modules, sounders and strobes as XP95 elements.

Is it now necessary to make a change to the types of elements found?

Series Soteria detectors do not differ from Series Discovery detectors in terms of properties and operation. Therefore, you could leave this selection unchanged. There will be no error message and the elements will function as desired. However, for system documentation, it may be necessary to set the correct types.

Series Soteria modules are recognised as XP95 elements. A change to the correct type is necessary because otherwise the correct properties of the product, for example sound setting, cannot be selected or faults are displayed because the module has other properties. In the BC600, the element found must be deleted from the loop table and re-inserted with the correct type. For the BC216, the table in chapters 3.19.2 - 3.19.3 applies. Please note that not all Soteria or Discovery elements are supported at the BC216.

This is due to the available element differentiation in the XP95 protocol. For example, all input/output modules are marked with the same ID.

What effect does an AUTO-setup (BC600) or the selection of the function "Initialize new devices" (BC216) have on the existing parameterisation?

PARSOFT sends an AUTO-setup command to the BC600, which then queries all addresses on the loop. The BC600 checks whether the answering element corresponds to that of the parameterisation. Before the new type is accepted, however, the ZTB600 checks whether it would be a category change. If the category does not change (optical detector), the element type is changed (Soteria becomes Discovery detector). In the case of a parameterised SA4700-103 (category "input/output module") and a detected 55000-849 (category "output module"), it would be a category change. Therefore, there is no change in the parameterisation. However, the message of the update was already sent to PARSOFT at that time and is displayed there. In this case, an update is displayed in PARSOFT, although none has taken place.

The BC216 does not support this function and thus there will be no element change after "initialize new devices".

Soteria elements are always incorrectly recognised (as XP95 or Discovery elements) during AUTO-setup on the BC600 with the LIF601-1. With the introduction of the LIF601-2, the automatic detection of Soteria elements is fully supported. The AUTO-setup of the BC600 can be used, but should not be started again after the loop has been completed. The more efficient method is to enter the elements manually in the loop table.

3.20 Glossary

3.20.1 Definition of the inputs

3.20.1.1 Conventional module

The features of this module can be compared with those of a monitor module. In addition, it can power the connected detectors through the conventional line. The detectors are reset via the module when it is disabled or when "Panel reset" is activated.

3.20.1.2 Monitor module Mini

In the normal condition the end-of-line resistor (Rab) is active, in the activated condition the alarm resistor is active. The detection contact must be in the messaging condition for at least 10s in order to be evaluated as message by the control panel.

3.20.1.3 Monitor module Special

In the normal condition the end-of-line resistor (Rab) is active, in the activated condition the alarm resistor is active. The detection contact must be in the messaging condition for at least 10s in order to be evaluated as message by the control panel. Via the control output, which is activated during resetting if the module was in the alarm condition, contact detectors can be reset.

3.20.1.4 Module 1xsuperv.In 1xRel.Out

In the normal condition the end-of-line resistor (Rab) is active, in the activated condition the alarm resistor is active. The detection contact must be in the messaging condition for at least 10s in order to be evaluated as message by the control panel.

3.20.1.5 Module 3xsuperv.In 3xRel.Out

In the normal condition the end-of-line resistor (Rab) is active, in the activated condition the alarm resistor is active. The detection contact must be in the messaging condition for at least 10s in order to be evaluated as message by the control panel.

3.20.1.6 Mod. 1xspv.In 1xRel.Out-230V

In the normal condition the end-of-line resistor (Rab) is active, in the activated condition the alarm resistor is active. The detection contact must be in the messaging condition for at least 10s in order to be evaluated as message by the control panel.

3.20.2 Definition of the outputs

3.20.2.1 Ctrl.module without supervis.

Output which is NOT monitored – typically a relay output.

3.20.2.2 Ctrl.module with supervis.

Monitored output which requires an end-of-line resistor. Wire breakage and short circuit are evaluated.

3.20.2.3 Module 1xsuperv.In 1xRel.Out

The module's relay output which is not monitored.

3.20.2.4 Module 3xsuperv.In 3xRel.Out

One of the module's three relay outputs, which are not monitored.

3.20.2.5 Mod. 1xspv.In 1xRel.Out-230V

The module's relay output which is not monitored.

4 ANALOGUE VALUES – CONDITION OF DETECTORS/MODULES

The analogue values of detectors and modules can be displayed by means of PARSOFT and also directly on the Fire Detection Control Panel BC216 and BC600. The following pages will give you an overview of the correlation between the indicated analogue value and the condition of detectors and modules.

4.1 Detectors

4.1.1 Ionisation smoke detectors

4.1.1.1 55000-520

Value	Meaning
< 8	Detector defective or removed, or short circuit on the loop
8-44	Detector OK
45-55	Detector dirty (technical message)
> 55	Alarm condition

4.1.1.2 58000-500

Value	Meaning
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.1.2 Optical smoke detectors

4.1.2.1 55000-620

Value	Meaning
< 8	Detector defective or removed, or short circuit on the loop
8-44	Detector OK
45-55	Detector dirty (technical message)
> 55	Alarm condition

4.1.2.2 58000-600

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
1	Primary sensor defective
4	General fault
6	Drift compensation error; occurs if the compensation limit has been exceeded in a 'negative' direction.
7	Memory defective
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.1.2.3 SA5000-600, SA5100-600

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
1	Primary sensor defective
4	General fault
5	Internal fault
6	Drift compensation error; occurs if the compensation limit has been exceeded in a 'negative' direction.
7	Memory defective
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.1.2.4 FL5100-600

Value	Meaning
< 8	Detector defective or removed, short circuit on the loop, detector covered, or ambient light
8-55	Detector OK
> 55	Alarm condition

4.1.2.5 FL6100-600

Value	Meaning
< 8	Detector defective or removed, short circuit on the loop, detector covered, or ambient light
8-55	Detector OK
> 55	Alarm condition

4.1.3 Multi-criteria detectors

4.1.3.1 55000-885

Value	Meaning
< 8	Detector defective or removed, or short circuit on the loop
8-32	Detector OK
33-55	Detector dirty (technical message)
> 55	Alarm condition

4.1.3.2 58000-700

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
1	Primary sensor defective
2	Secondary sensor defective
4	General fault
5	Internal fault
6	Drift compensation error; occurs if the compensation limit has been exceeded in a 'negative' direction.
7	Memory defective
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.1.3.3 SA5000-700, SA5100-700

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
1	Primary sensor defective
2	Secondary sensor defective
3	Primary and secondary sensor defective
4	General fault
5	Internal fault
6	Drift compensation error; occurs if the compensation limit has been exceeded in a 'negative' direction.
7	Memory defective
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.1.4 Thermal detectors

4.1.4.1 55000-420

Value	Meaning
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.1.4.2 58000-400

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
1	Primary sensor defective
4	General fault
7	Memory defective
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.1.4.3 SA5000-400, SA5100-400

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
1	Primary sensor defective
4	General fault
5	Internal fault
7	Memory defective
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.1.4.4 SKM-95

Value	Meaning
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.2 Special detectors

4.2.1 58000-300 (CO detector)

Value	Meaning
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.2.2 58000-305 (CO thermal detector)

Value	Meaning
< 8	Detector defective or removed, or short circuit on the loop
8-55	Detector OK
> 55	Alarm condition

4.3 Modules

4.3.1 Manual Call Points Series HFM/HM

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
16	Normal condition
64	Alarm condition

4.3.2 Manual Call Points Series HME

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
16	Normal condition
64	Alarm condition

4.3.3 55100-908

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
16	Normal condition
64	Alarm condition

4.3.4 SA5900-908

Value	Meaning
0	Detector defective or removed, or short circuit on the loop
16	Normal condition
64	Alarm condition

4.3.5 Monitor modules

4.3.5.1 55000-832

Value	Meaning
0	Module defective or removed, or short circuit on the loop
4	Short circuit or broken wire on the input
16	Normal condition
64	Alarm condition

4.3.5.2 55000-833

Value	Meaning
0	Module defective or removed, or short circuit on the loop
4	Short circuit or broken wire on the input
16	Normal condition
64	Alarm condition

4.3.5.3 55000-841

Value	Meaning
0	Module defective or removed, or short circuit on the loop
4	Short circuit or broken wire on the input
16	Normal condition
64	Alarm condition

4.3.6 Control modules

4.3.6.1 55000-852

Value	Meaning
0	Module defective or removed, or short circuit on the loop
4	Short circuit or broken wire on the output
16	Normal condition, activation

4.3.6.2 55000-849

Value	Meaning
0	Module defective or removed, or short circuit on the loop
16	Normal condition, activation

4.3.7 Conventional zone module

4.3.7.1 55000-845

Value	Meaning
0	Module defective or removed, or short circuit on the loop
4	Short circuit or broken wire on the input
16	Normal condition
64	Alarm condition

4.3.8 Multi modules

4.3.8.1 55000-847

Value	Meaning
0	Module defective or removed, or short circuit on the loop
4	Short circuit or broken wire
16	Normal condition, activation

4.3.8.2 55000-588

Value	Meaning
0	Module defective or removed, or short circuit on the loop
4	Short circuit or broken wire
16	Normal condition, activation

4.3.8.3 55000-875

Value	Meaning
0	Module defective or removed, or short circuit on the loop
4	Short circuit or broken wire
16	Normal condition, activation

4.4 Signalling devices

4.4.1 45681-277, 45681-290, 45681-300

Value	Meaning
0	Sounder defective or removed, or short circuit on the loop
1	No sound
16	Normal condition, activation

4.4.2 55000–274, 55000-275, 55000-276, 55000-278, 55000-279

Value	Meaning
0	Sounder defective or removed, or short circuit on the loop
16	Normal condition, activation

4.4.3 55000-001, 55000-002

Value	Meaning
0	Sounder defective or removed, or short circuit on the loop
1	No sound
16	Normal condition, activation

4.4.4 45681-702

Value	Meaning
0	Sounder defective or removed, or short circuit on the loop
1	No sound
4	General fault
17-23	Normal condition, activation (analogue value depending on the sound level 1-7)

4.4.5 58000-10, 58000-20

Value	Meaning
0	Sounder defective or removed, or short circuit on the loop
1	No sound
4	General fault
17-23	Normal condition, activation (analogue value depending on the sound level 1-7)

4.4.6 55000-877, 55000-878 and 55000-879

Value	Meaning
0	Strobe defective or removed, or short circuit on the loop
4	No optical alarming
16	Normal condition, activation

4.4.7 55000–740, 55000-741, 55000-742, 55000-744, 55000-745

Value	Meaning
0	Strobe defective or removed, or short circuit on the loop
4	No optical alarming
16	Normal condition, activation

4.4.8 45681-709

Value	Meaning
0	Strobe defective or removed, or short circuit on the loop
4	No optical alarming
16	Normal condition, activation

4.4.9 45681-330, 45681-332, 45681-334

Value	Meaning
0	Sounder-strobe defective or removed, or short circuit on the loop
1	No sound
2	No optical alarming
3	No sound and no optical alarming
16	Normal condition, activation

4.4.10 55000-293, 55000-294, 55000-298, 55000-299

Value	Meaning
0	Sounder-strobe defective or removed, or short circuit on the loop
2	No optical alarming
16	Normal condition, activation

4.4.11 55000-005, 55000-006

Value	Meaning
0	Sounder-strobe defective or removed, or short circuit on the loop
1	No sound
2	No optical alarming
3	No sound and no optical alarming
16	Normal condition, activation

4.4.12 58000-005, 58000-007

Value	Meaning
0	Sounder defective or removed, or short circuit on the loop
1	No sound
2	No optical alarming
4	General fault
17-23	Normal condition, activation (analogue value depending on the sound level 1-7)

4.4.13 58000-030, 58000-040

Value	Meaning
0	Sounder defective or removed, or short circuit on the loop
1	No sound
2	No optical alarming
3	No sound and no optical alarming
4	General fault
17-23	Normal condition, activation (analogue value depending on the sound level 1-7)

4.4.14 45681-705, 45681-706, 45681-707

Value	Meaning
0	Sounder defective or removed, or short circuit on the loop
1	No sound
2	No optical alarming
3	No sound and no optical alarming
16	Normal condition, activation

4.4.15 45681-700

Value	Meaning
0	Sounder defective or removed, or short circuit on the loop
1	No sound
2	No optical alarming
3	No sound and no optical alarming
17-23	Normal condition, activation (analogue value depending on the sound level 1-7)

5 Checking the loop lines

After completion of the installation work on the loop it is recommended that the entire loop cabling should be checked by means of the Loop Tester LTG30-1.

At that time, all loop elements should already be connected, because only then will the internal resistances of the isolators be considered as well.

The loop tester offers the advantage that the check can already be carried out prior to the connection or installation of the fire detection control panel.

The measuring method of the loop tester differs from that of the loop interfaces of the fire detection control panels. Therefore the results can be different, especially if the loop resistances exceed the permissible limit values.

If the permissible limit values of the loop lines are exceeded, it is – in spite of a fire detection system that works properly at the moment – not ensured that this trouble-free operation will also continue in the future. In this case you have to assume that even little changes can result in a huge number of fault messages.

Within the permissible values of the loop cabling, both measuring methods (the one of the loop interfaces as well as the one of the loop tester) achieve comparable measuring results.

You absolutely have to compare the indicated resistance value with the value that has been determined in the spreadsheet program. The maximum permissible loop resistance of your application can be considerably lower than the generally permissible loop resistance of 50Ω per core.

Further information about the use of the loop tester can be found in the User Manual LTG30-1, which is available in the download area of the LST website (after registration).

6 Contamination detection and maintenance prognosis

This part describes when the control panel will indicate a contamination – technical message – and how the detector replacement will be predicted.
A contamination can only be found out by elements which have an optical sensing chamber. Heat detectors and manual call points as well as modules do not provide a contamination. Furthermore, this description does not apply to detectors that are connected in conventional technology.

6.1 Contamination detection

6.1.1 Series XP95 elements on the BC216 or BC600

6.1.1.1 55000-520, 55000-620

A clean detector has an analogue value of 25 +/- 7.

If the analogue value is higher than 45 for more than 72 hours, a dirt message will be output.

6.1.1.2 55000-885

A clean detector has an analogue value of 23 +4 /-0.

If the analogue value is higher than 33 for more than 72 hours, a dirt message will be output.

6.1.2 Series Discovery / Soteria elements on the BC216 or BC600

6.1.2.1 58000-300, 58000-500, 58000-600, 58000-700, SA5000-600, SA5100-600, SA5000-700, SA5100-700

The Drift flag of the detector is evaluated.

The contamination value is read out from the detector and can range between 1 and 31. At 31 the detector will set the so-called drift flag and the control panel will indicate a technical message, which corresponds to a monthly average value of 38. A clean detector has a monthly average value of 23.

6.2 Maintenance prognosis

The maintenance prognosis indicates a detector's degree of contamination, or rather its contamination in the past months, and calculates when it will be necessary to replace a detector, provided that the contamination will progress at the same rate.

For the BC600 or PARSOFT-3, the following holds true: the % values (this is the degree of contamination) are recorded within 7 days, for 99 elements on average. If more elements have been installed, finding out the percentage takes longer because this process is based on the polling cycles.

In the case of the BC216, every 30 days an average value is calculated based on the contamination data (analogue values), – this corresponds to the current contamination of the detector – and only after the mentioned period of time has elapsed will it be indicated on the control panel or in PARSOFT.

The above-mentioned monthly average values can be read out by means of PARSOFT and are shown in the historical columns of the read-out of analogue values. The maintenance prognosis is created when 6 historical monthly average values are available. As method the linear regression is used.

6.2.1 Series XP95 elements on the BC216 or BC600

55000-620, 55000-520, 55000-885

From the periodically determined analogue value of the detector, an average value for one month is created, and from the course of the average values the maintenance prognosis is calculated.

6.2.2 Series Discovery / Soteria elements on the BC216 or BC600

58000-300, 58000-500, 58000-600, 58000-700, 58000-305, SA5000-600, SA5100-600, SA5000-700, SA5100-700

After each month, the detector's internal drift compensation (drift data) is read out and used to calculate a monthly average value. This value is stored in the monthly average value FIFO register, and as a result a detector maintenance prognosis is possible.

The monthly average value is calculated as follows:

Monthly average value = "Quiescent value" + "Drift data" - "0 value"

- Quiescent value: always amounts to 23
- 0 value: always amounts to 16
- Drift data is read out from the detector and can range between 1 and 31. At a value lower than 4 or higher than 30, the so-called drift flag will be set and the control panel will indicate a technical message, which corresponds to a monthly average value of 11 or 38, respectively. A clean detector has a historical analogue value of 23. Therefore the historical analogue values can be in the range 12 to 37 without a dirt message being indicated.

6.2.2.1 Detection of detector replacement

If a detector replacement is detected, the detector's historical analogue values will be discarded and the data for the calculation of the maintenance prognosis will also be reset. It is not necessary to confirm the detector replacement. The detector replacement is detected automatically. On the BC600, the historical course of the detector's analogue values (contamination) can be deleted individually.

6.2.3 Series XP95 elements

Based on current analogue values, a monthly average value is created. The detector replacement is detected based on a sudden negative change in the monthly average value.

6.2.4 Series Discovery / Soteria elements

From the internal drift compensation a monthly average value is calculated. The detector replacement is detected based on a sudden negative change in the average value.