Fire detection control panel
Series BC216

Connection of detectors

SYSTEM SENSOR
Conventional technology / ADM technology

Contents

1 CAUTION NOTES

ALL PARTS OF THE FIRE DETECTION SYSTEM HAVE TO BE INSTALLED BY SKILLED PERSONNEL, TRAINED BY LST OR LST-AUTHORIZED PERSONS. THE COUNTRY SPECIFIC STANDARDS, REGULATIONS, GUIDELINES AND LST-INSTRUCTIONS HAVE TO BE OBSERVED STRICTLY.

The installation and any modification of the system must be performed with the power source (mains supply and battery) disconnected. The installation must be checked before connecting to power.

For a proper operation of the fire detection system, all devices have to be installed and supplied with power as specified.

All devices must be specified according to the ambient conditions.

Mains operated tools (e.g. soldering iron) must be connected to protective earth, ***a protective insulation is insufficient.***

Attention to MOS components: MOS devices used in the panel Series BC216 can be destroyed by static discharge. Modifications on componentries must be performed by skilled personnel. Possible static charges of the human body must be eliminated touching earthed parts.

Fire detection systems must be serviced regularly, based on country specific standards. Necessary repairs have to be done immediately.

The fire detection system has to be adapted to any modification of the supervised building.

2 CONVENTIONAL TECHNOLOGY

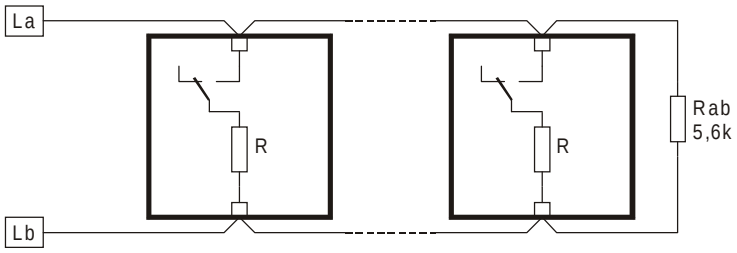
2.1 General

The present section specifies the connection of conventional detectors to the conventional detector interface GIF8-1 and the fire detection control panel Series BC216. All detectors of a zone are connected in parallel, in the last detector a line terminating resistor (R_{ab}=5,6kOhms) must be installed. Each detector has a normally open contact. In case of activation, the resistor R is connected to the loop and the quiescent current is increased.

2.1.1 Installation of detectors

See installing instructions for your country.

2.1.2 Schematic circuit diagram of a detector zone



Rab.....line terminating resistor in last detector

2.1.3 Conditions of zones

To evaluate the condition of a zone, the loop current is sensed. The measured value is processed by the microcontroller and the corresponding condition of the zone is determined. The following table shows the relation between loop current or loop resistance and the condition of the zone, based on a nominal loop voltage of 24V.

The maximum permitted detector current is 3,5mA.

Condition of the zone	Loop current or loop resistance
Normal condition	typ. 3,5mA / 20V
Short circuit	< 150Ohms
Open circuit	< 2mA
Alarm	> 9mA

2.1.4 Cable requirements

The line resistance of the conventional detection loop must be below 50 Ohms per wire. This corresponds to a distance of approx. 1400m of the last detector from the fire detection control panel, using an AWG20 wire.

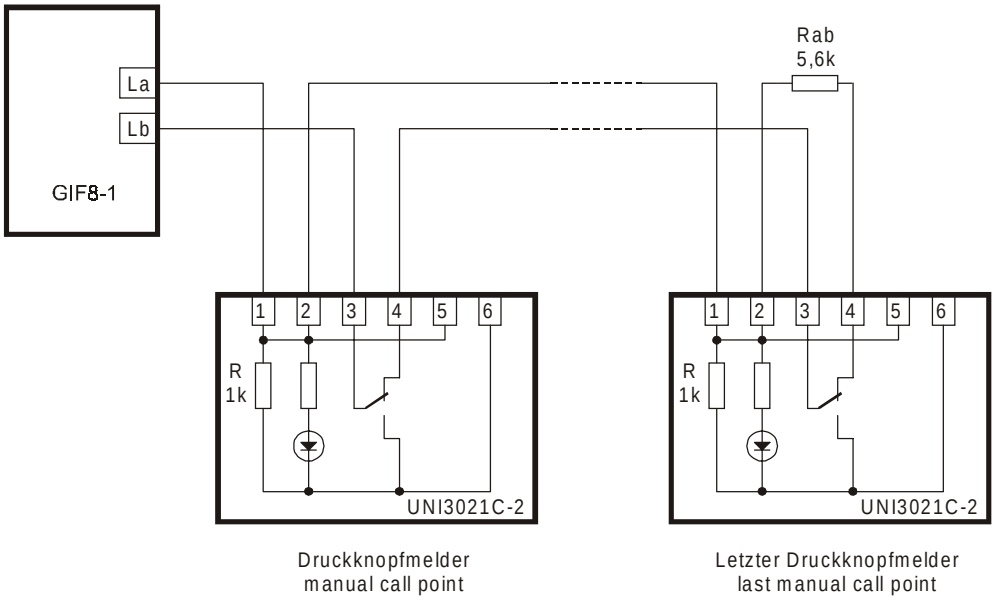
The alarm condition of a conventional detector zone is reset by disconnecting the zone for a minimum of 10 seconds.

2.2 Connection of manual call points

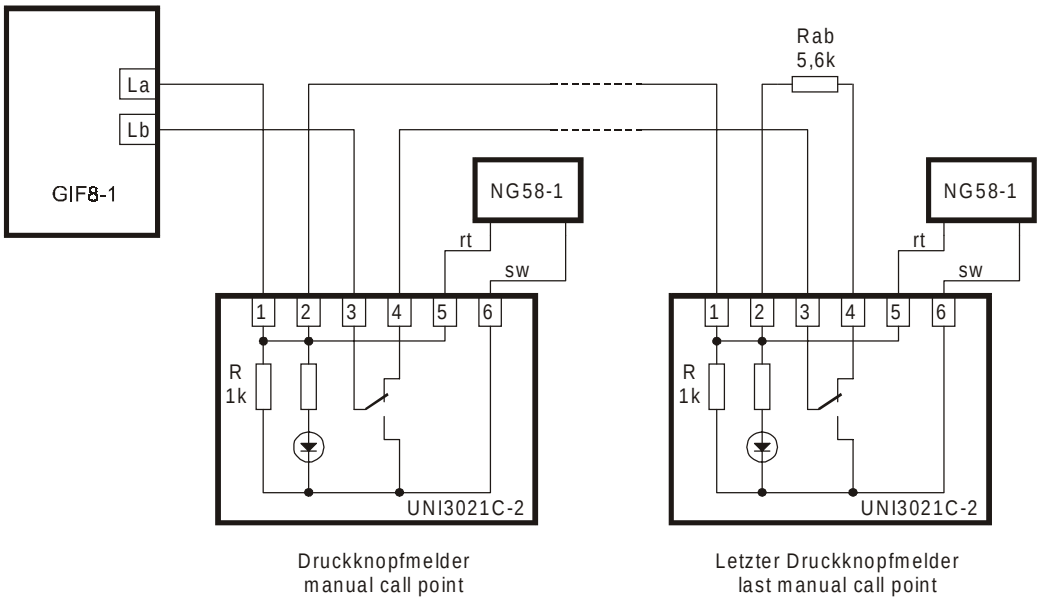
2.2.1 Manual call point type UNI3021C-2 (red)

Each manual call point has a built in alarm resistor (R=1kOhms/0,35W). In the last manual call point, a line terminating resistor (R_{ab}=5,6kOhms) has to be installed. All diodes not specified are 1N4004.

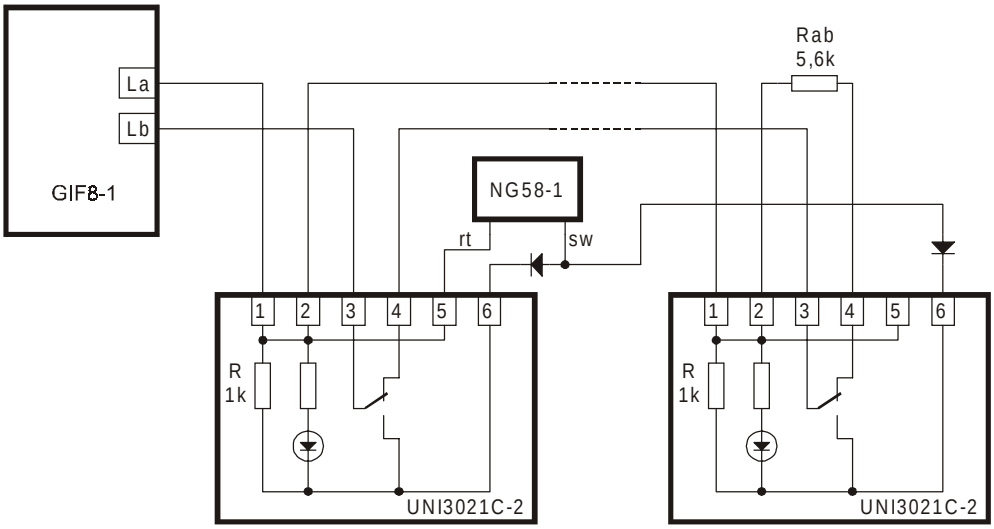
2.2.1.1 Connection of manual call points



2.2.1.2 Connection of manual call points with individual address module NG58-1



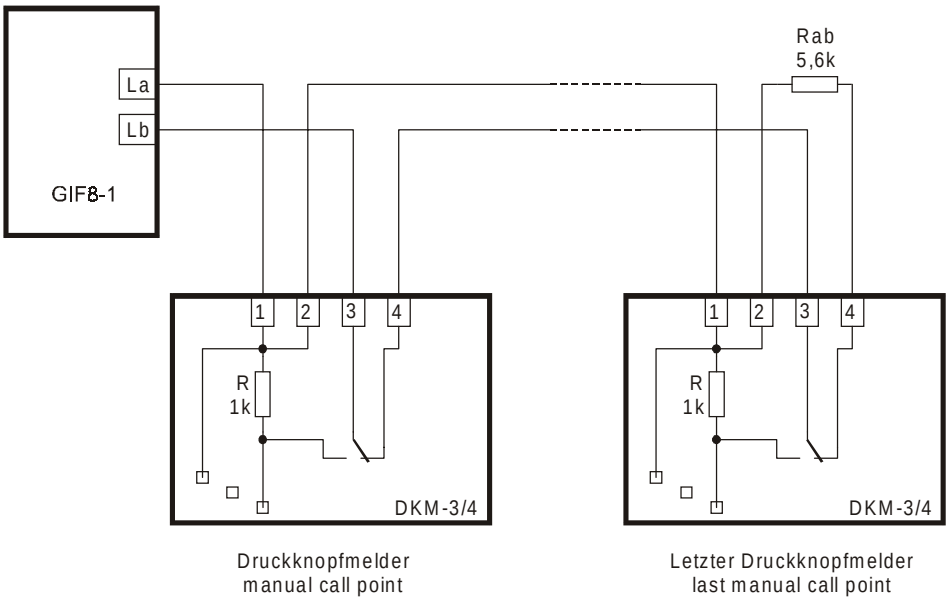
2.2.1.3 Connection of manual call points with common address module NG58-1



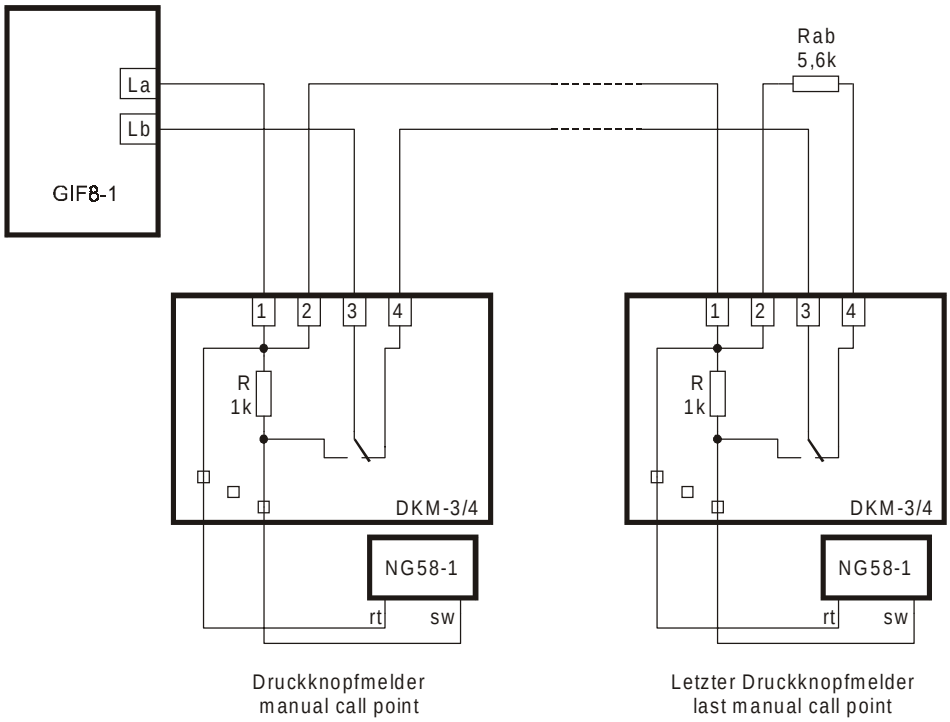
2.2.2 Manual call point type DKM-3 (blue) and DKM-4 (yellow)

Each manual call point has a built in alarm resistor (R=1kOhms/0,35W). In the last manual call point, a line terminating resistor (R_{ab}=5,6kOhms) has to be installed. All diodes not specified are 1N4004.

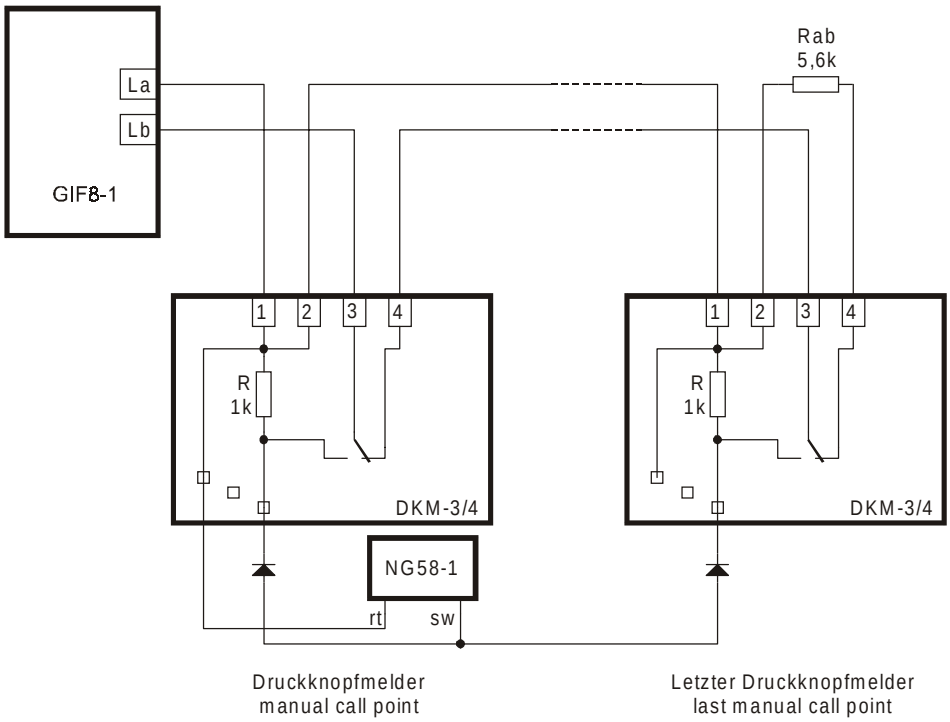
2.2.2.1 Connection of manual call points



2.2.2.2 Connection of manual call points with individual address module NG58-1



2.2.2.3 Connection of manual call points with common address module NG58-1



2.3 Connection of automatic detectors

2.3.1 Automatic detectors Series 100 / System Sensor

The following detectors can be connected to the control panel, using the detector base B401RM. The detector base has a built-in alarm resistor R=1kOhms between terminals 4 and 5.

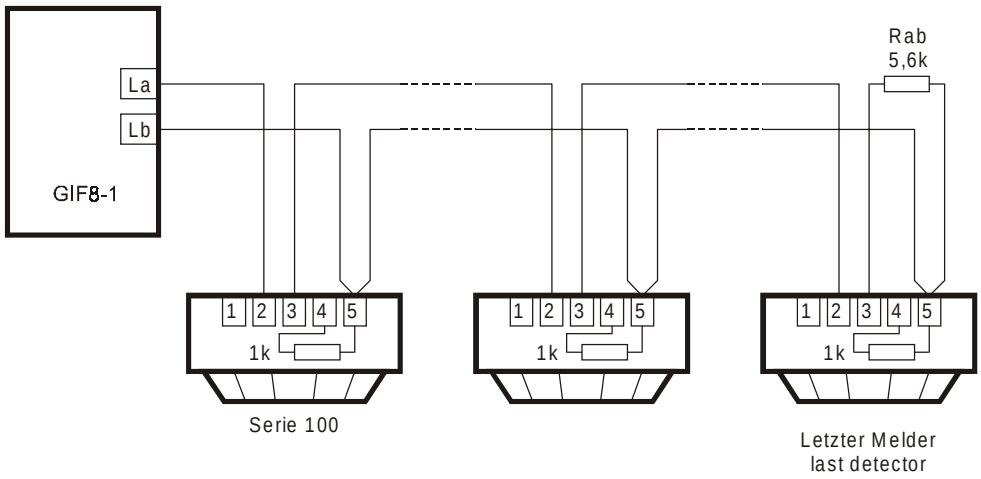
Description	Type
Ionization smoke detector	1151E
Ionization smoke detector for intrinsically safe areas	1151EIS *)
Optical smoke detector	2151E
Rate-of-rise thermal detector	5451E

*) with safety barrier ES58-2

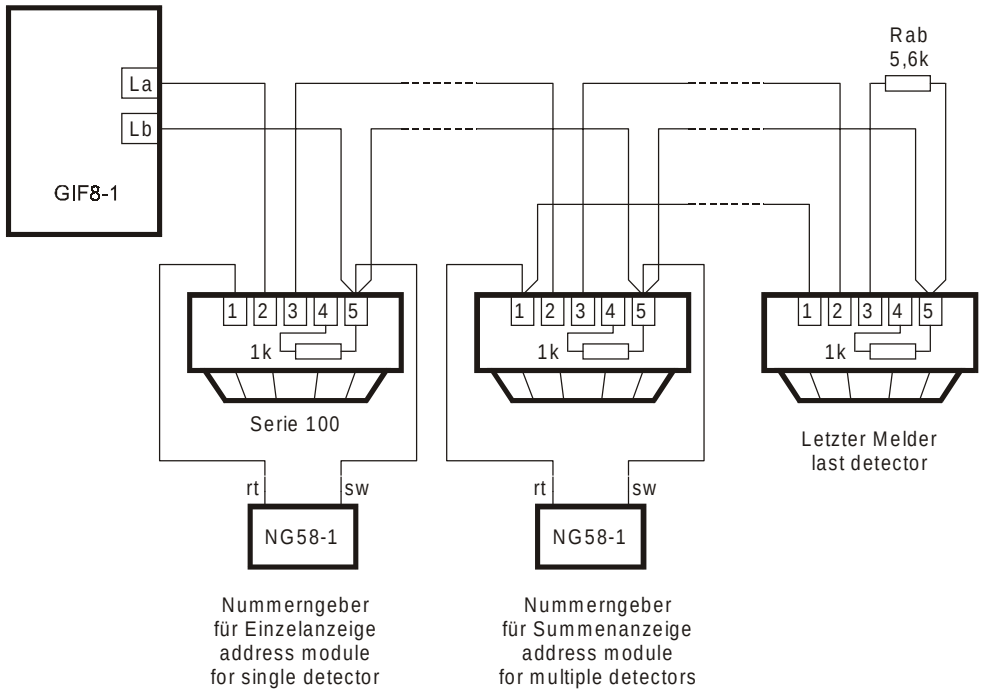
2.3.1.1 Arrangement of wires in detector base B401RM

Strip the insulation just as short as the terminal requires for connection. The alarm resistor R=1kOhms must be connected between terminals 4 and 5.

2.3.1.2 Connection of detectors

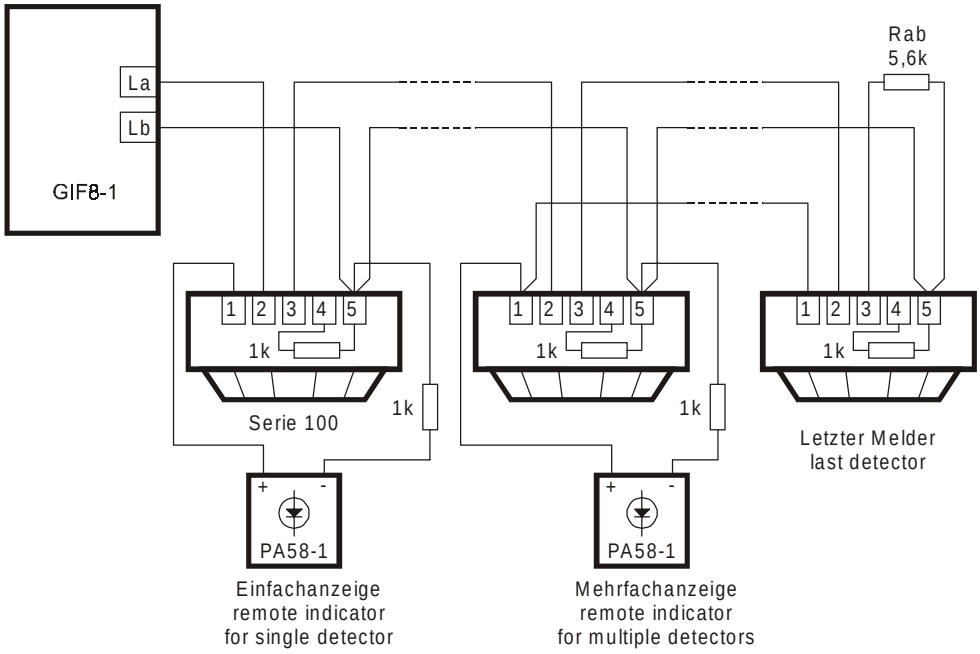


2.3.1.3 Connection of detectors with address module NG58-1

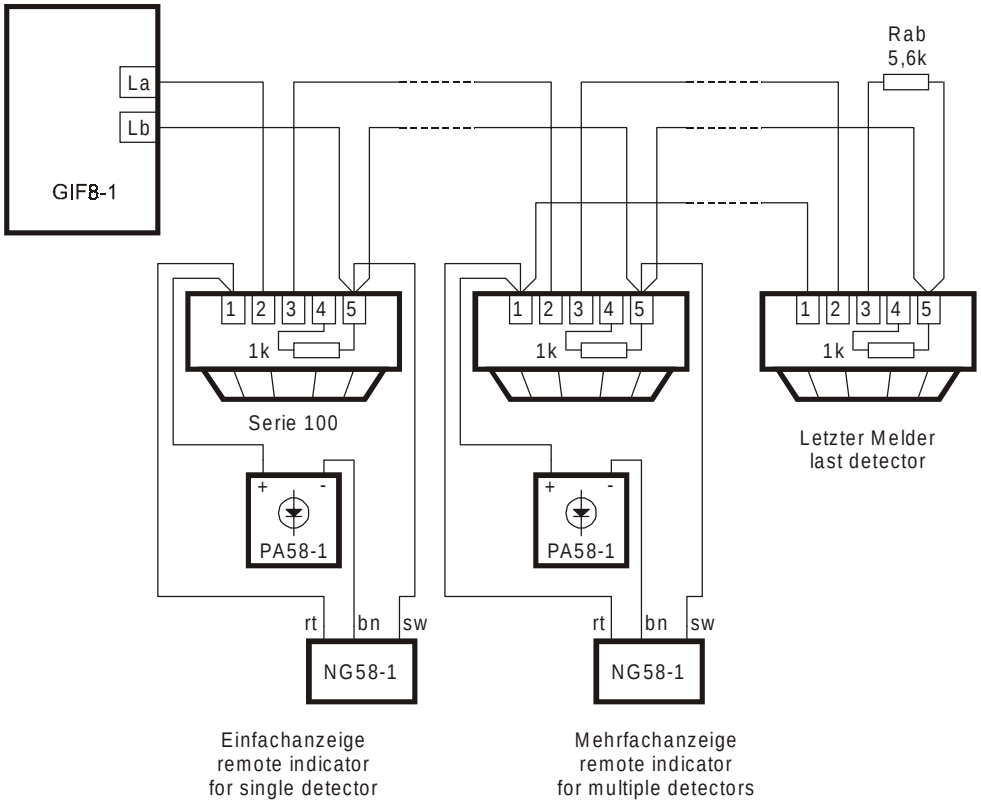


If an address module is connected to more than one detector, the address module is activated in the alarm condition and indicates the address of the detection area.

2.3.1.4 Connection of detectors with remote indicator PA58-1

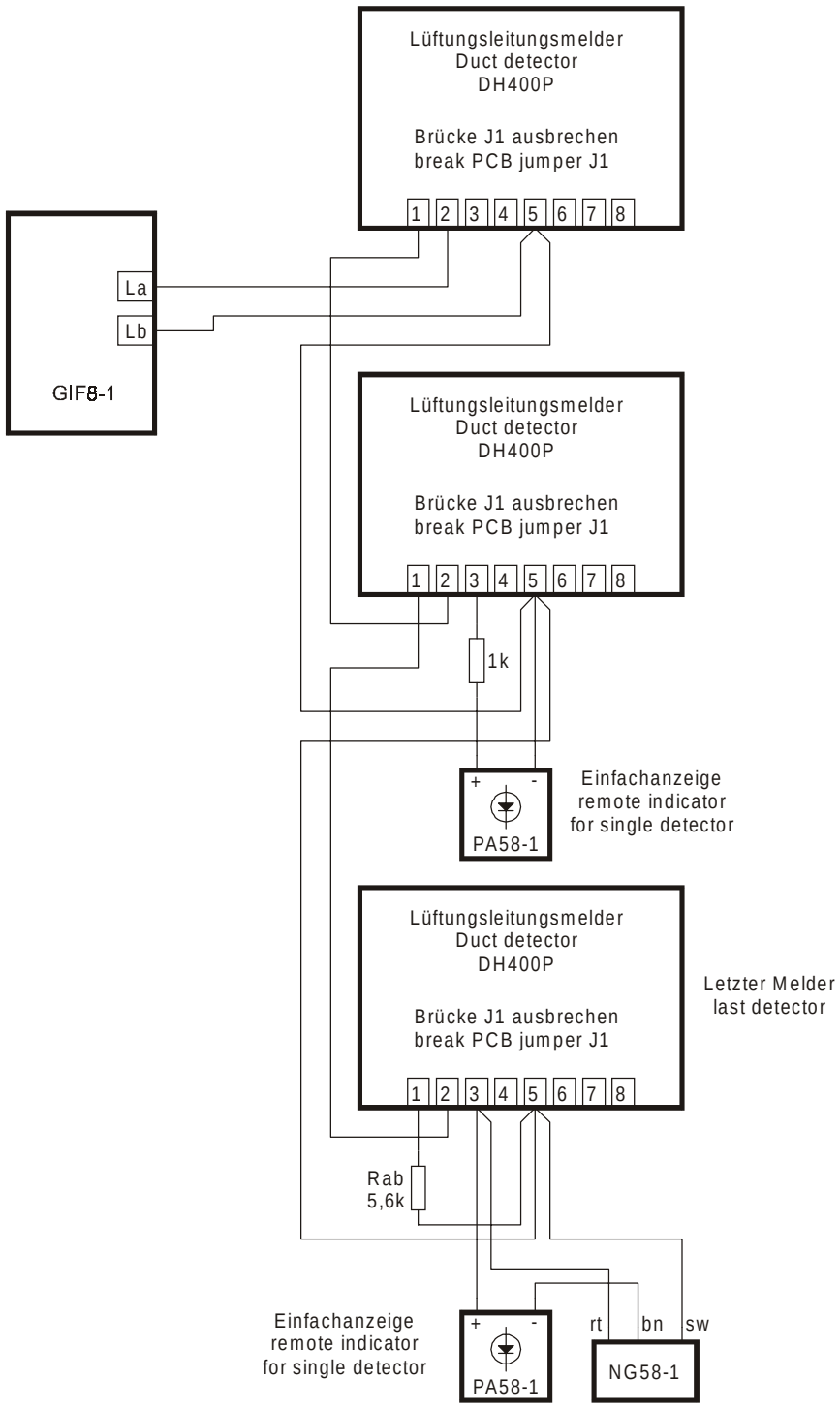


2.3.1.5 Connection of detectors with remote indicator PA58-1 and address module NG58-1



If an address module is connected to more than one detector, the address module is activated in the alarm condition and indicates the address of the detection area.

2.3.2 Connection of duct detectors DH400P



2.3.3 Intrinsically safe detection circuits

Within the fire detection control system Series BC216, the

- Safety barrier ES58-2 (electrically insulated)

is used to separate detection circuits in intrinsically safe areas from those in not intrinsically safe areas.

The

- detector/100/IM/EX 1151EIS

has been especially designed for automatic fire detection in intrinsically safe detection circuits.

Detectors and optical indicators without energy storing capability (capacitors, inductivities, power sources, etc.) can be used without restriction in intrinsically safe detection circuits. For example, manual call points, thermal detectors (on a mechanical basis) or LED indicators can be used without a separate approval. The intrinsically safe area is formed with the means of the safety barrier ES58-2.

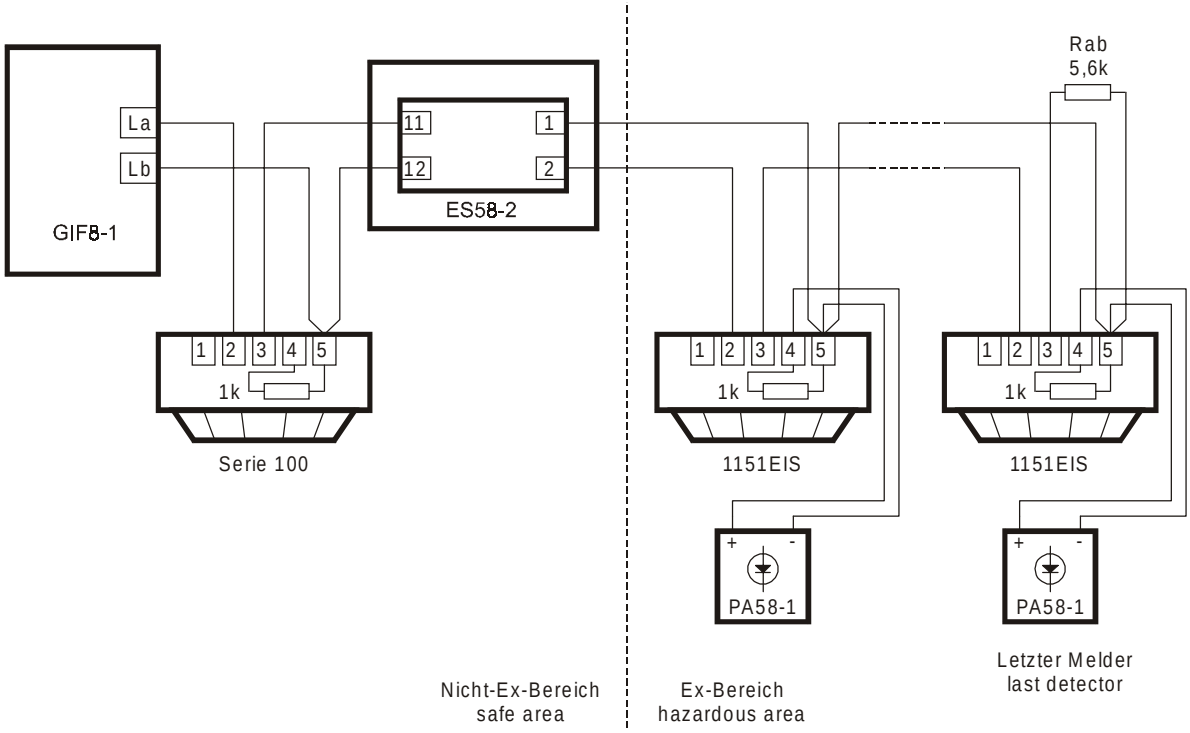
A connection to protective earth is not necessary because of the electrical insulation between intrinsically safe circuit and not intrinsically safe circuit. The earth fault detection of the fire detection control panel need not be deactivated. A possible earth leakage will immediately be detected on the panel as a fault.

The ionization detector 1151EIS has been especially designed for intrinsically safe detection circuits, formed by the safety barrier ES58-2. It is conform to the international regulations (EEx ia IIC T5, BAS-EEFA Nr. EX95C2071).

Note: The connection of address modules type NG58-1 (detector identification) in intrinsically safe detection circuits formed by the safety barrier ES58-2 is not possible!

Intrinsically safe area	ES58-2
Maximum number of ionization detectors 1151EIS Maximum number of contact detectors (e.g. manual call points)	20 unlimited
max. capacitance of cable IIA (IIB) max. inductance of cable IIA (IIB) max. ratio inductance/resistance IIA (IIB)	880nF (330nF) 33,6mH (12,6mH) 440µH/Ohm (165)
Connection of remote indicators PA58-1	possible
Detector identification (address module NG58-1)	not possible
Earth fault can be indicated on fire detection control panel	yes
Size WIDTHxHEIGHTxDEPTH [mm]	120x160x90

2.3.3.1 Connection



Detectors in intrinsically safe areas and detectors in not intrinsically safe areas can be combined in one detector zone.

Detectors in intrinsically safe areas must always be connected at the end of a detector loop. After such areas no detectors designed for not intrinsically safe areas must be connected.

The safety barrier must always be installed outside the intrinsically safe area.

Note: The connection of detectors in intrinsically safe areas and those in not intrinsically safe areas is different!

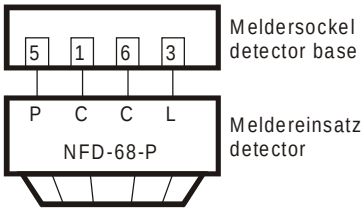
2.4 Connection of special detectors

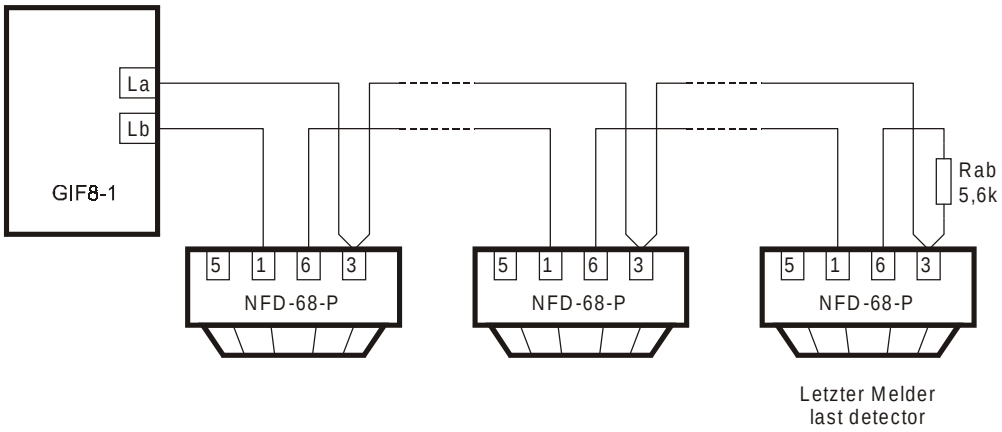
2.4.1 Flame detector NFD-68-P

2.4.1.1 Notes

- Mind the right polarity.
- Before you perform an insulation check of the detector zone, remove all detectors from their base.
- When you insert the detectors into the bases, check, if the installation (position of the detector) coincides with the planning.
- A detector identification (connection of address modules) and/or the connection of remote indicators PA58-1 is not possible.
- A maximum number of 5 flame detectors NFD-68-P can be used within a detector zone.
- Note the different marking of detector and base (see following drawing).

2.4.1.2 Connection of detectors



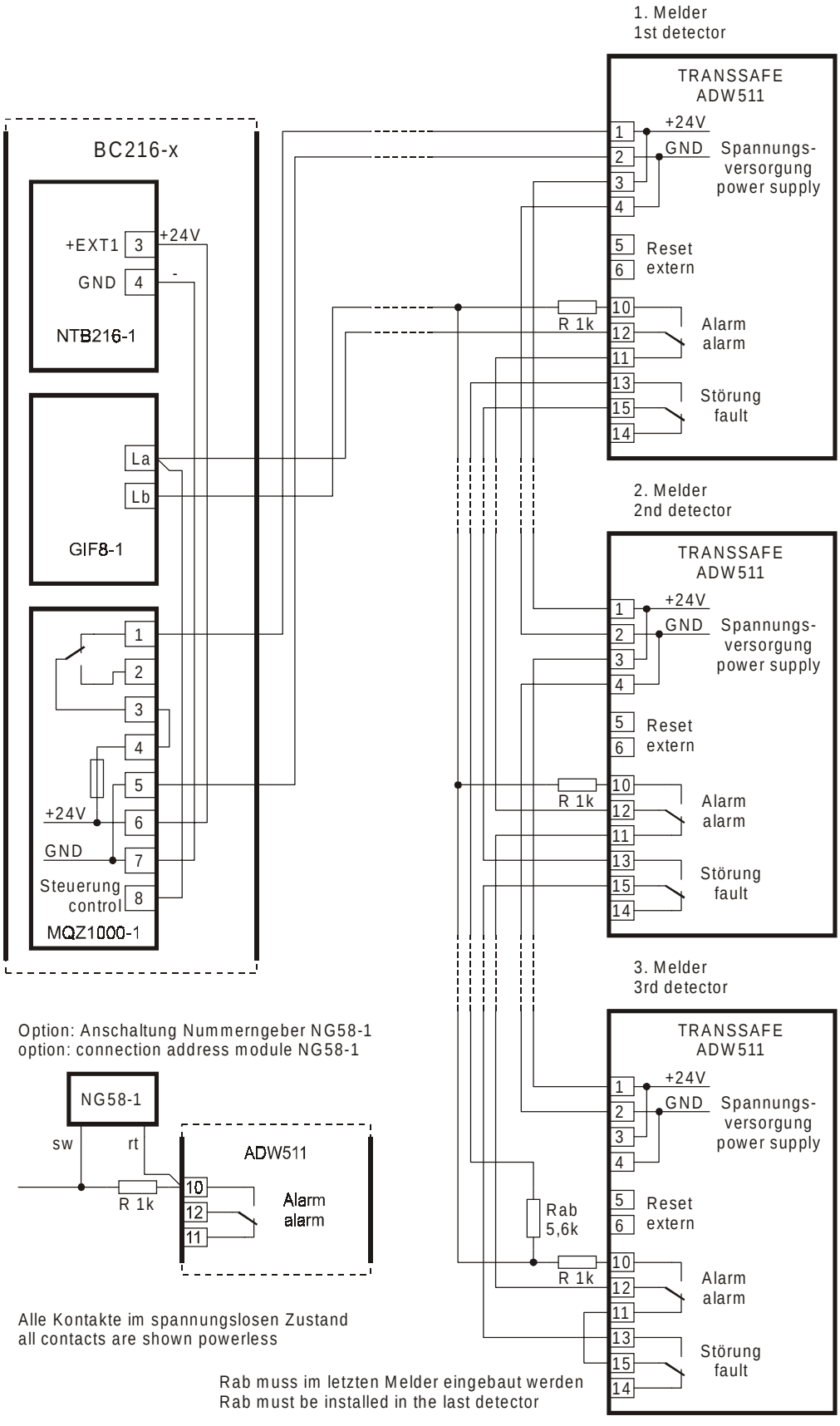


2.4.2 Linear heat detection system ADW511

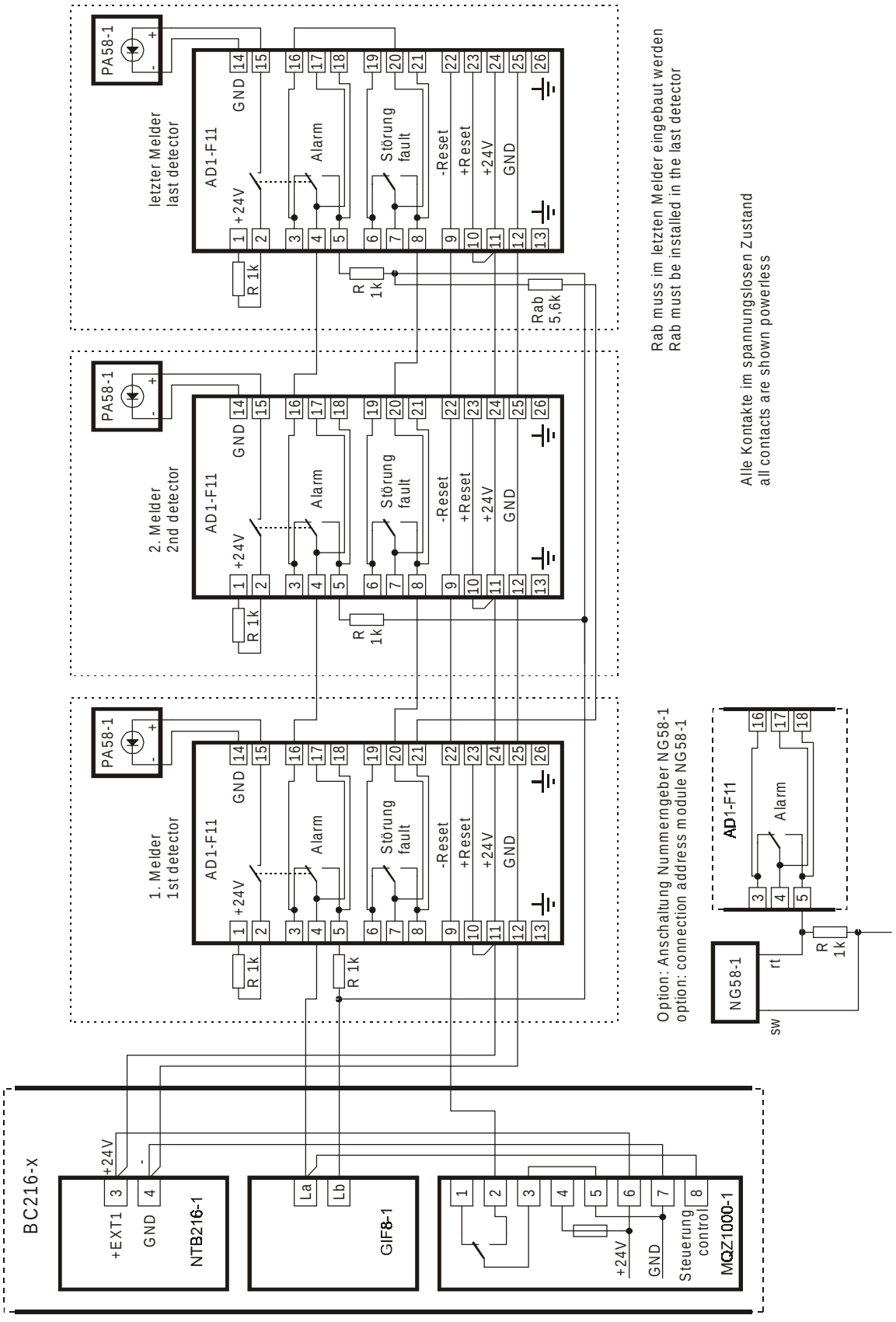
2.4.2.1 Notes

- Maximum 3 detectors per detector zone
- Note the power consumption of the detectors and eventually install a separate power supply, as the output current of the fire detection control panel is limited.
- The country specific regulation concerning power supply devices have to be observed.

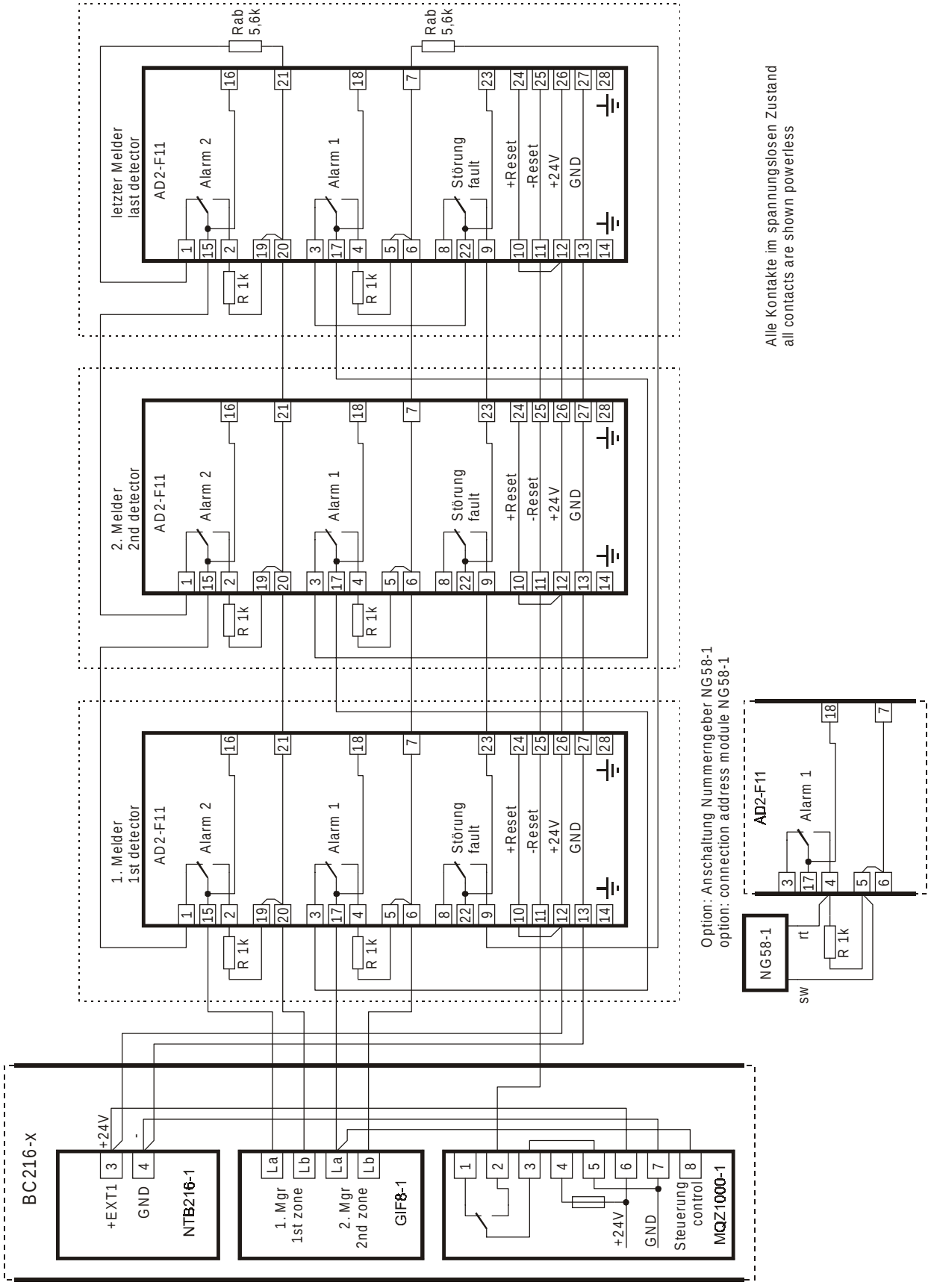
2.4.2.2 Connection



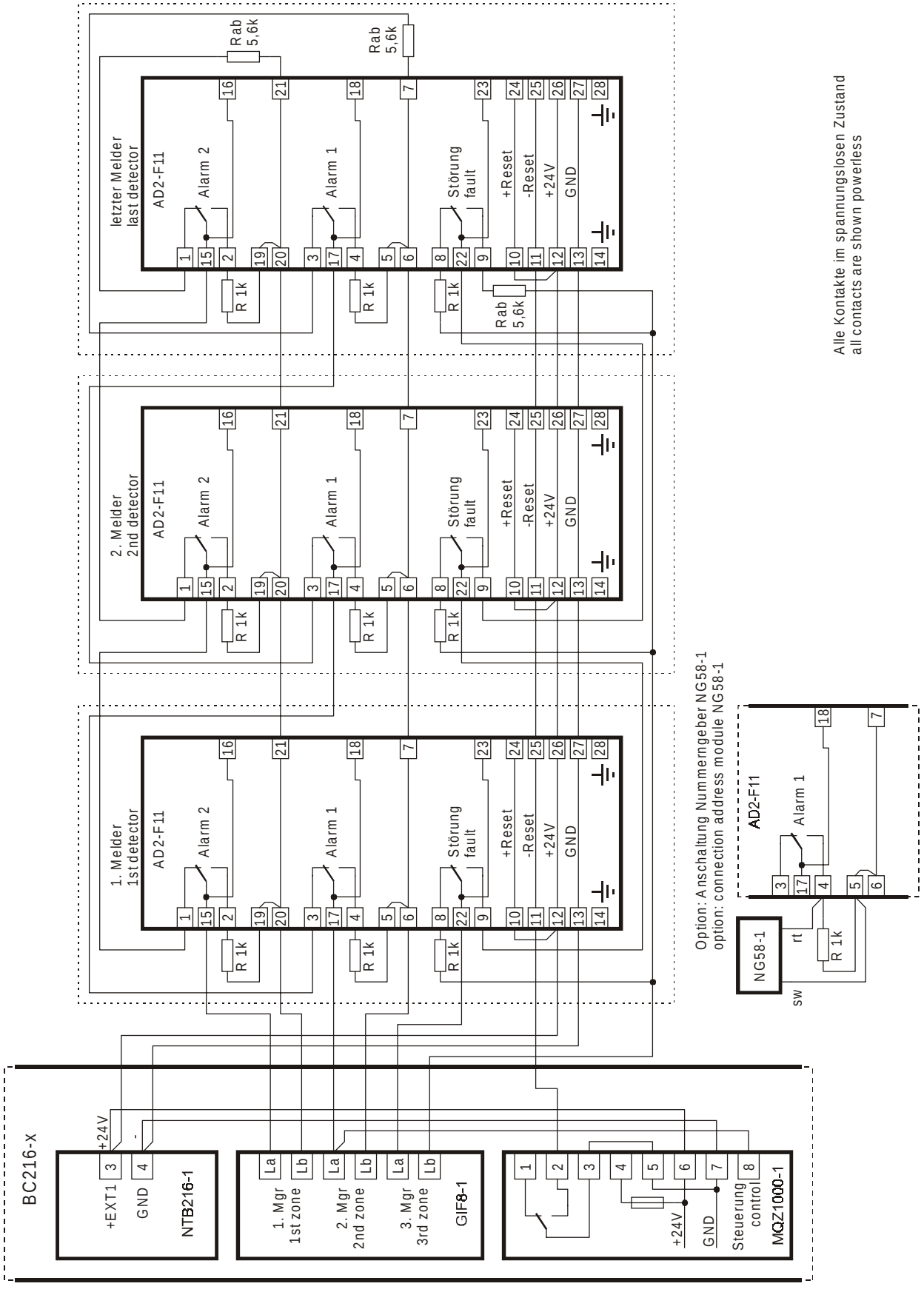
2.4.3 Connection of smoke suction system AD1-F11



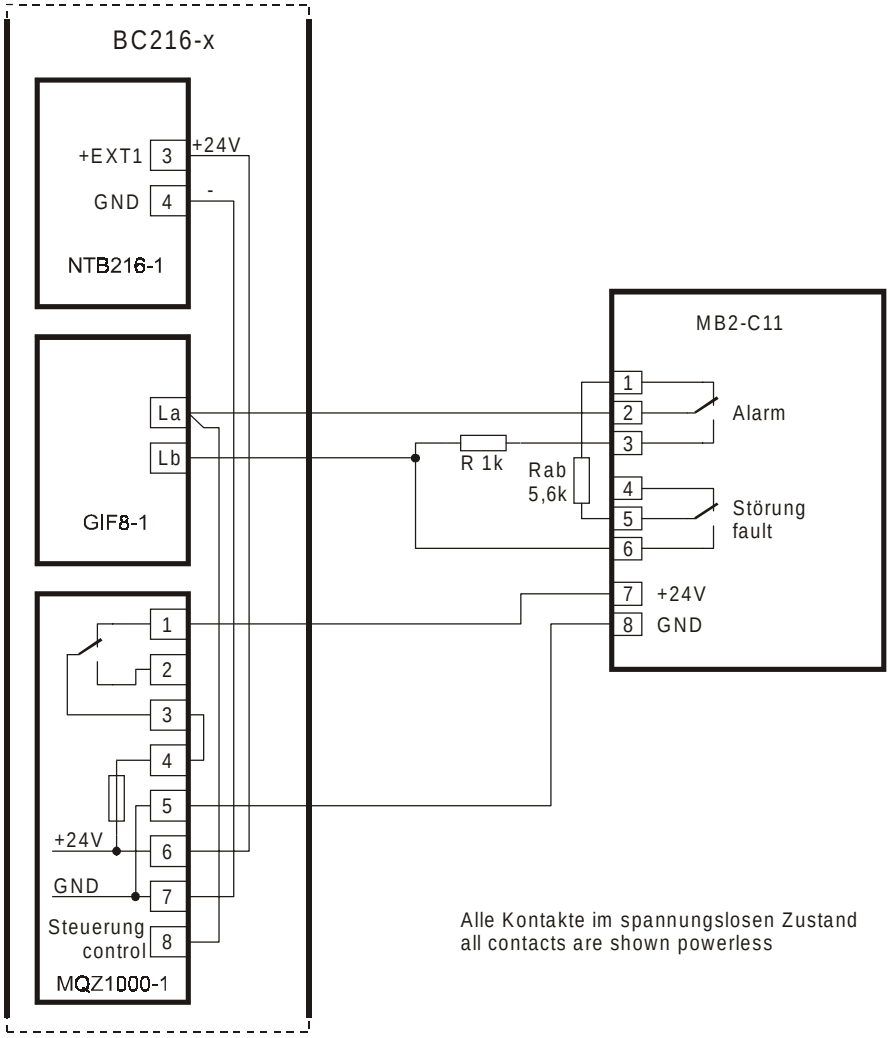
2.4.4 Connection of smoke suction system AD2-F11



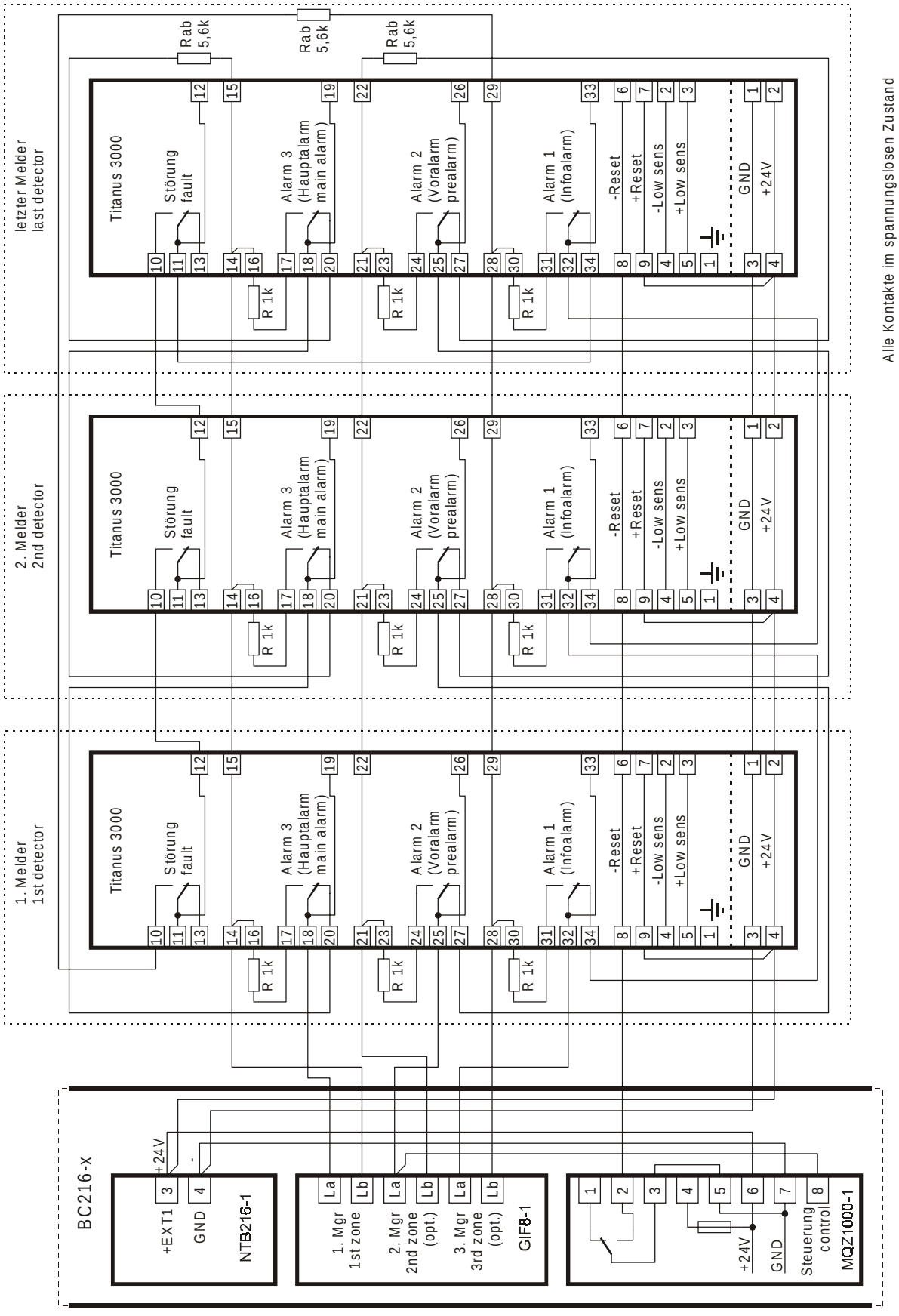
2.4.5 Connection of smoke suction system AD2-F11 with separate fault detector zone



2.4.6 Connection of smoke suction system - detector box MB2-C11

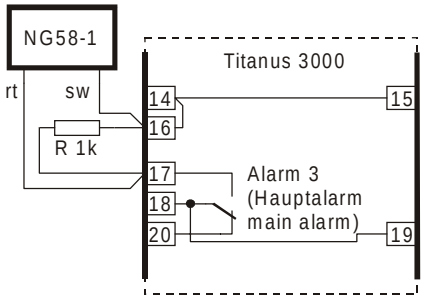


2.4.7 Connection of smoke suction system Titanus 3000

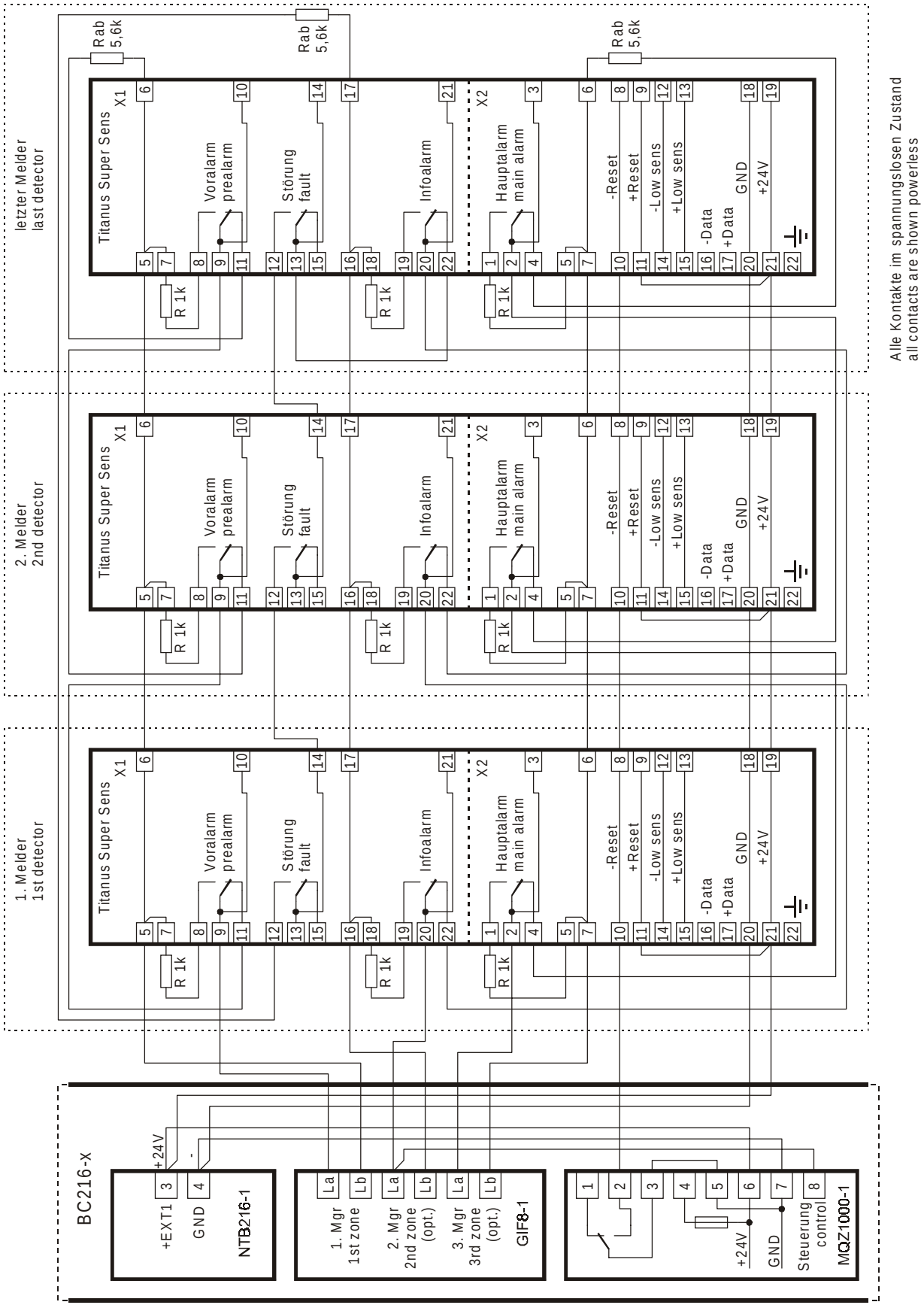


2.4.7.1 Connection of address module

Option: Anschaltung Nummerngeber NG58-1
option: connection address module NG58-1

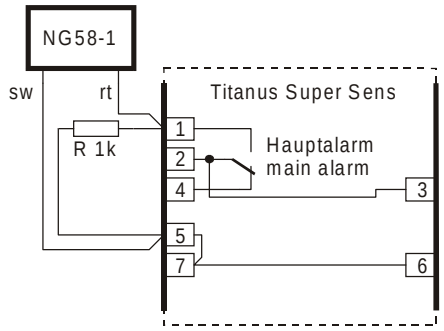


2.4.8 Connection of smoke suction system Titanus Super Sens



2.4.8.1 Connection of address module

Option: Anschaltung Nummerngeber NG58-1
option: connection address module NG58-1

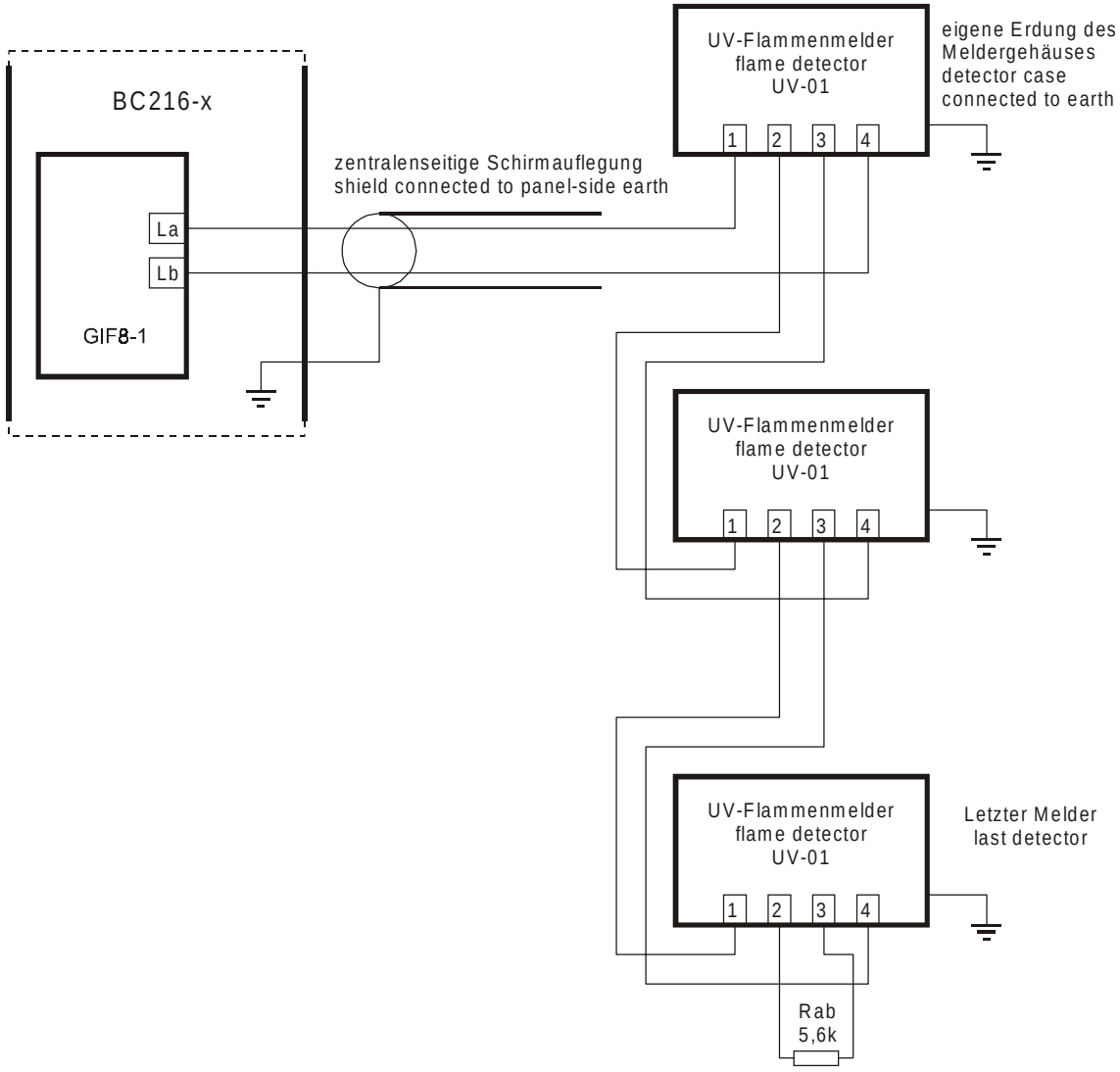


2.4.9 Flame detector UV-01

2.4.9.1 Notes

- Maximum 3 detectors per detector zone
- Shielded cable required
- Shield connected to panel-side earth
- Detector case connected to earth

2.4.9.2 Connection of detectors

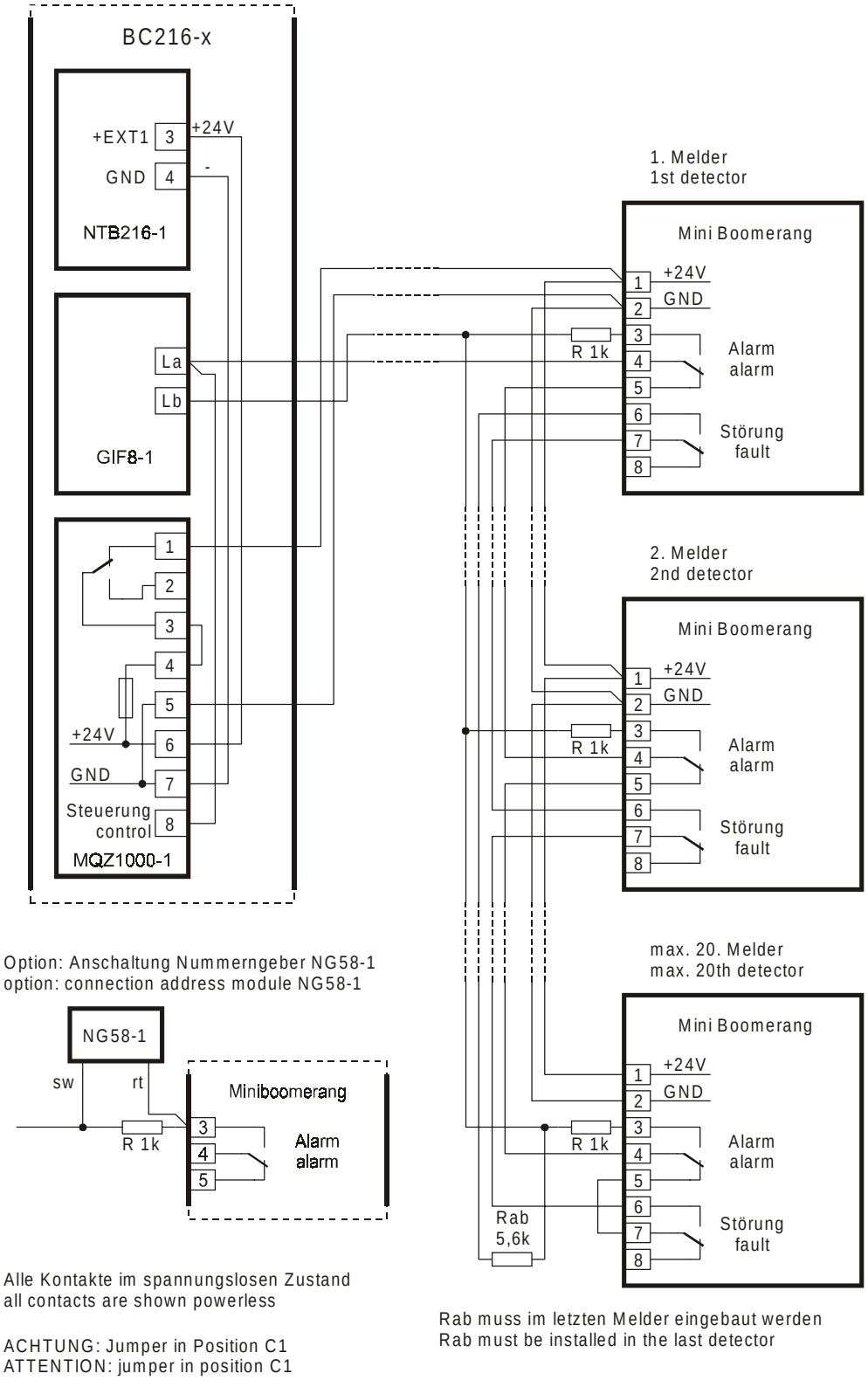


2.4.10 Miniboomerang 2S

2.4.10.1 Notes

- Maximum 20 detectors per detector zone

2.4.10.2 Connection

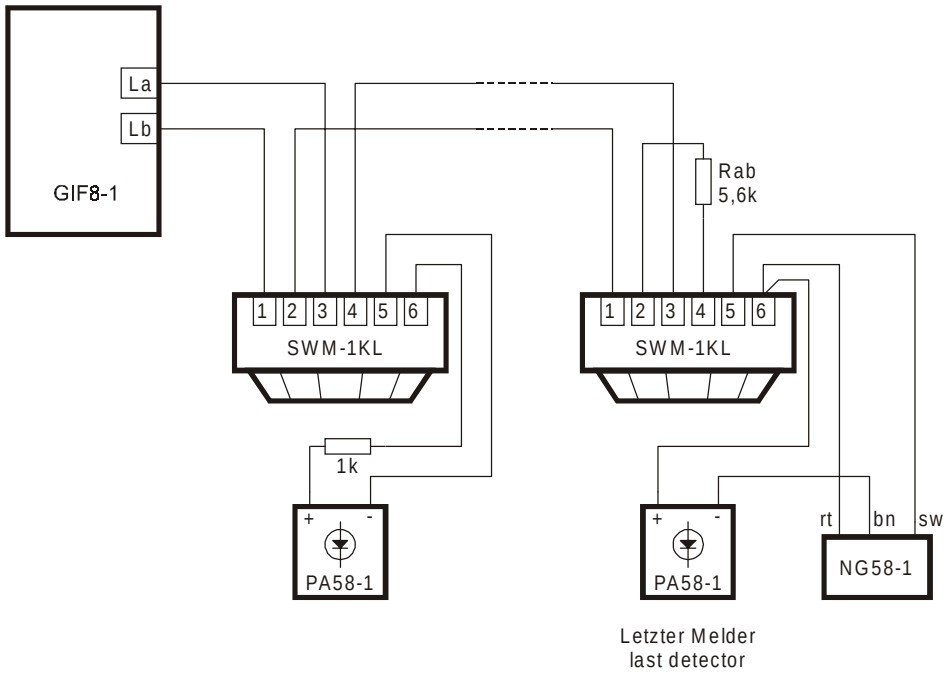


2.4.11 Heat detector SWM-1KL

2.4.11.1 Notes

The maximum number of detectors of a zone is not limited by the detector, as is contains a thermal normally open contact (bimetallic strip). The quiescent current of a detector is therefore 0.

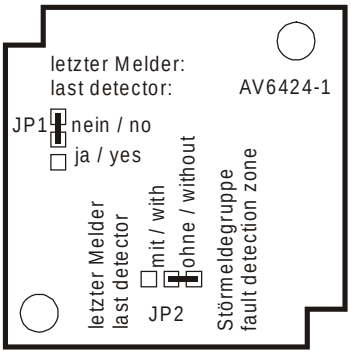
2.4.11.2 Connection of detectors



2.4.12 Linear smoke detector 6424

A terminal unit AV6424-1 is used to connect the linear smoke detector 6424.

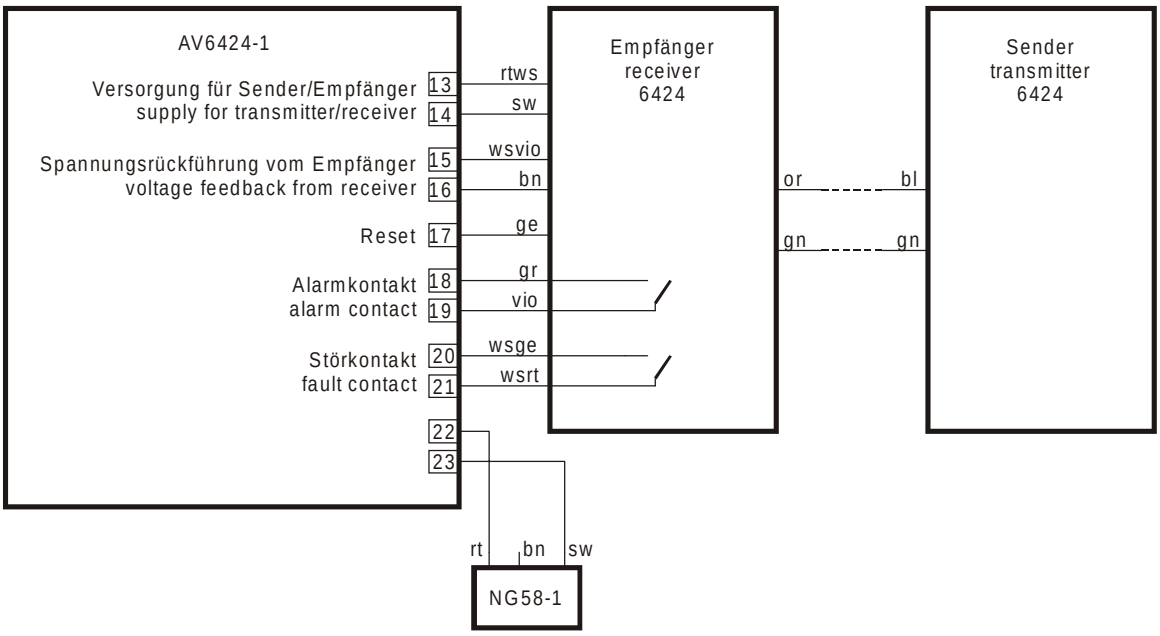
2.4.12.1 Jumper setting



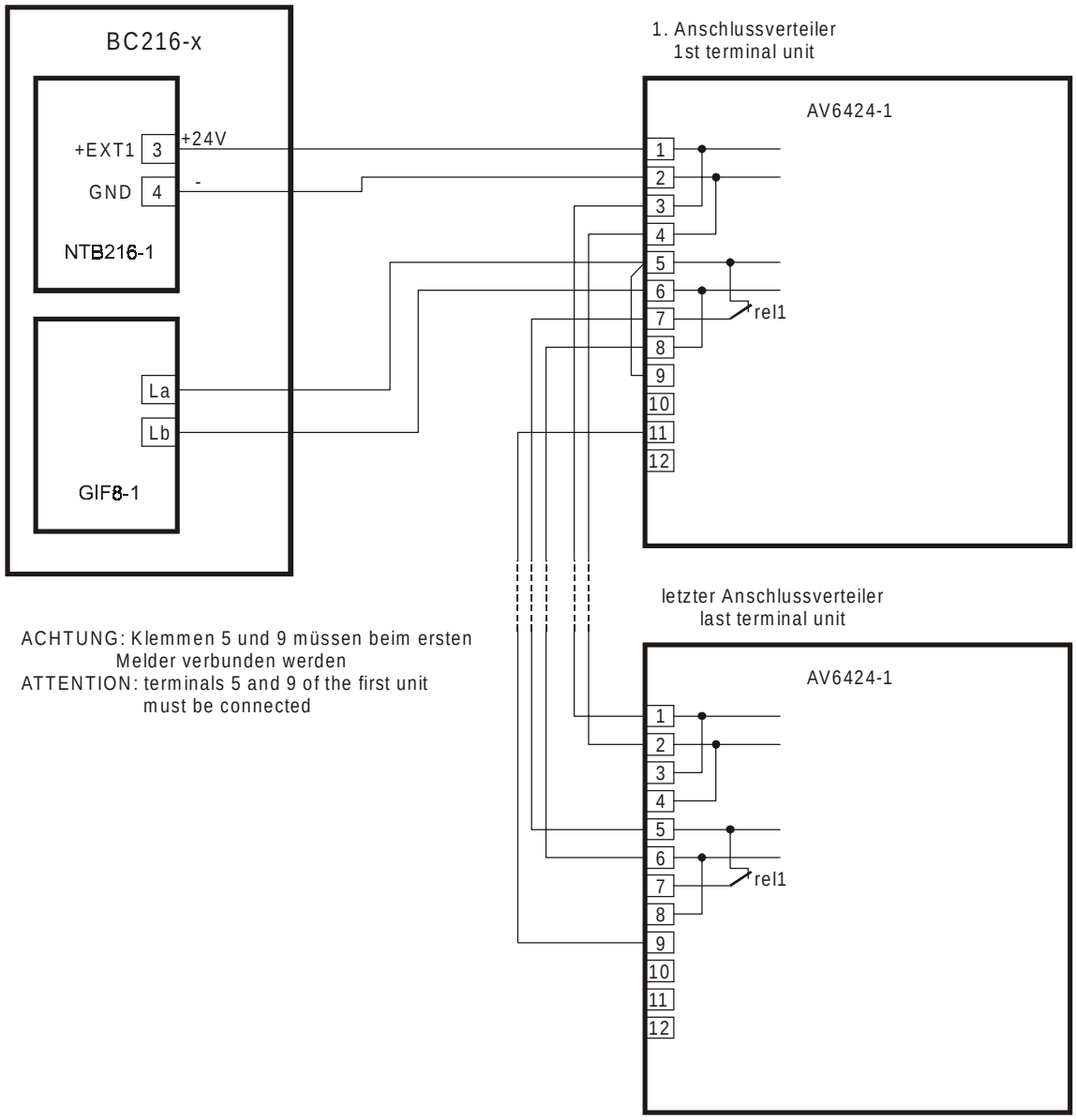
Jumper 1 must be set to "last detector - yes" in the last terminal unit. In all other terminal units jumper 1 must be in position "last detector - no" (default setting).

Jumper 2 defines, if a fault detection zone is used in addition to the alarm detection zone. When using a fault detection zone, jumper 2 has to be set to "with fault detection zone" in the last terminal unit. Otherwise, jumper 2 remains in position "without fault detection zone" (default setting). In all other terminal units the setting of jumper 2 is insignificant.

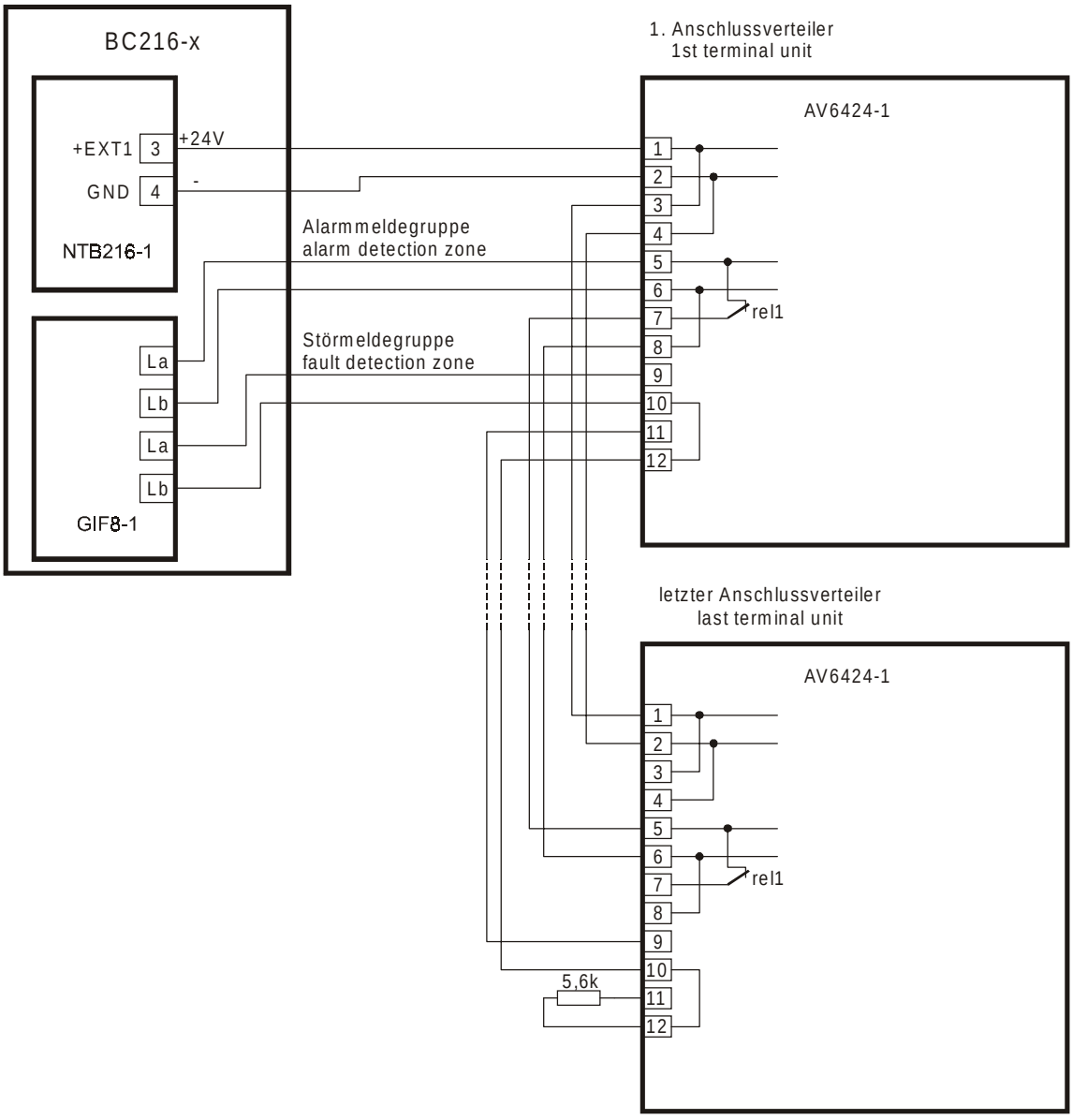
2.4.12.2 Connection of transmitter and receiver



2.4.12.3 Connection of terminal unit without fault detection zone



2.4.12.4 Connection of terminal unit with fault detection zone



2.5 Coding of address module NG58-1

Together with the fire detection control panel Series BC216 and a conventional detector interface GIF8-1, the address module NG58-1 allows the exact identification of a detector in alarm condition. The number of the detector in alarm condition will be displayed with 3 digits on the control panel. The number to be displayed must be preset (coded) on the address module, allowed numbers are 0 to 63.

Note: In the parameter settings of the control panel, the detector address mode must be set to "binary" (menu "Global settings").

The number is preset by cutting out the corresponding address jumpers. According to their order, the six jumpers have the following values:

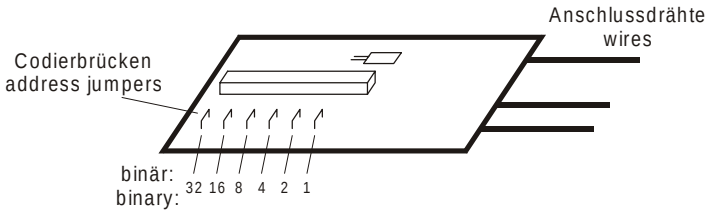
binary coding: 1, 2, 4, 8, 16 and 32

Example: number 25

binary coding: 25 = 16 + 8 + 1 --> Jumpers with the value 16, 8 and 1 must be cut out.

Example: number 12

binary coding: 12 = 8 + 4 --> Jumpers with the value 8 and 4 must be cut out.



View of address module NG58-1

3 ADM TECHNOLOGY

3.1 General

The present section specifies the connection of dialog devices to the loop interface LIF64-1 and the fire detection control panel Series BC216. This document only describes the technological 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 protecting capability of the system, have not been taken into account. These regulations vary in different countries and can therefore not be considered in this document.

We would like to put special emphasis on the fact that, especially in the field of security systems, technical possibilities are often drastically limited by country specific regulations. Please do get familiar with those regulations before you start planning, installing and mounting devices. In case of doubt please contact the corresponding local authority. Of course we are also at your disposal for any further information.

3.2 Hints for planning

The loop interface LIF64-1 is designed for the connection of a loop with a maximum of 99 detectors and 99 modules Series 200. All detectors and modules on a loop are connected in parallel on a two-wire line. The installation can be done either in loops, in branch lines or in a combination of both (see examples on page 61 in Chapter 3.12: "Examples for the wiring of detector circuits"). A loop must not be connected to another loop, as an open circuit (broken wire) will not be detected. A star-shaped wiring is possible within a detector zone.

Inserting isolation modules ISM1-2 between the detector zones will prevent a detector zone from being interfered from another detector zone in case of short circuit.

3.3 Isolation module ISM1-2, detector base B524IEFT with integrated isolation module and manual call point HFM/3/22/02

Attention: For the isolation module ISM1-2 all indications are valid for products from serial number xxx6584 on.

The number of isolators on a loop is limited due to the ohmic resistance (0,3 Ohms/element) that affects the maximum length of the loop.

The following table shows the maximum number of isolators with respect to the loop length.

Isolators [Stk.]	Loop length [m]
9	1400
20	1316
30	1274
40	1232
50	1190
60	1148
66	1120
70	1106
80	1064
90	1022
100	980

The absolute maximum number of isolation modules is 100 per loop.

A reduction of the loop length due to the insertion of isolators can certainly be compensated increasing the wire size (more than AWG20).

3.3.1 Notes for ISM1-2 and HFM/3/22/02

A maximum of 32 detectors or modules may be installed between two isolation modules or manual call points HFM/3/22/02.

3.3.2 Notes for B524IEFT

The number of elements that may be installed between two detector bases B524IEFT is limited. The different elements (detectors / modules) have a different weighting (see the following table). The total weighting must not exceed 20.

Detector / Module	Weighting
Standard detector in B501 base: 1251E, ND2251EM, 5251EM, 7251, 2251TEM	1
Linear smoke detector 6200	20
Standard modules M500ME[1)], M500CHE, M501ME, M503ME, M500KAC[1)], HFM/3/22/02, M512ME with external power supply.	1
M512ME with loop supply	not usable
Analog sirens with loop supply[1)]	2,5
Standard detectors in relay base B524RE[1)]	4
IST200	20

[1)] Not distributed in Austria.

Example: Six detectors 2251E in B501 bases, one detector 5551E in a B524RE base, two detectors 1251E in B501 bases and two sirens with loop supply shall be installed between two detector bases B524IEFT:

Total weighting: $6 \times 1 + 1 \times 4 + 2 \times 1 + 2 \times 2{,}5 =$ **17**

The total weighting of the stated elements is 17 (less than the maximum value), the system will therefore work properly.

3.4 Cable requirements

The line resistance of the detection loop must be below 50 Ohms per wire. This corresponds to a distance of approx. 1400m of the last detector from the fire detection control panel, using an AWG20 wire.

Loop lines of different loop modules must not be combined in a common cable. Shielded cables must not be used.

3.5 Connection of manual call points

The following manual call point can be connected to the fire detection control panel Series BC216:

Description	Type
Manual call point	HFM/3/22/02

This manual call point includes a built-in monitoring module and two isolation modules.

Note: see page 35 in Chapter 3.3: "Isolation module ISM1-2, detector base B524IEFT with integrated isolation module and manual call point HFM/3/22/02".

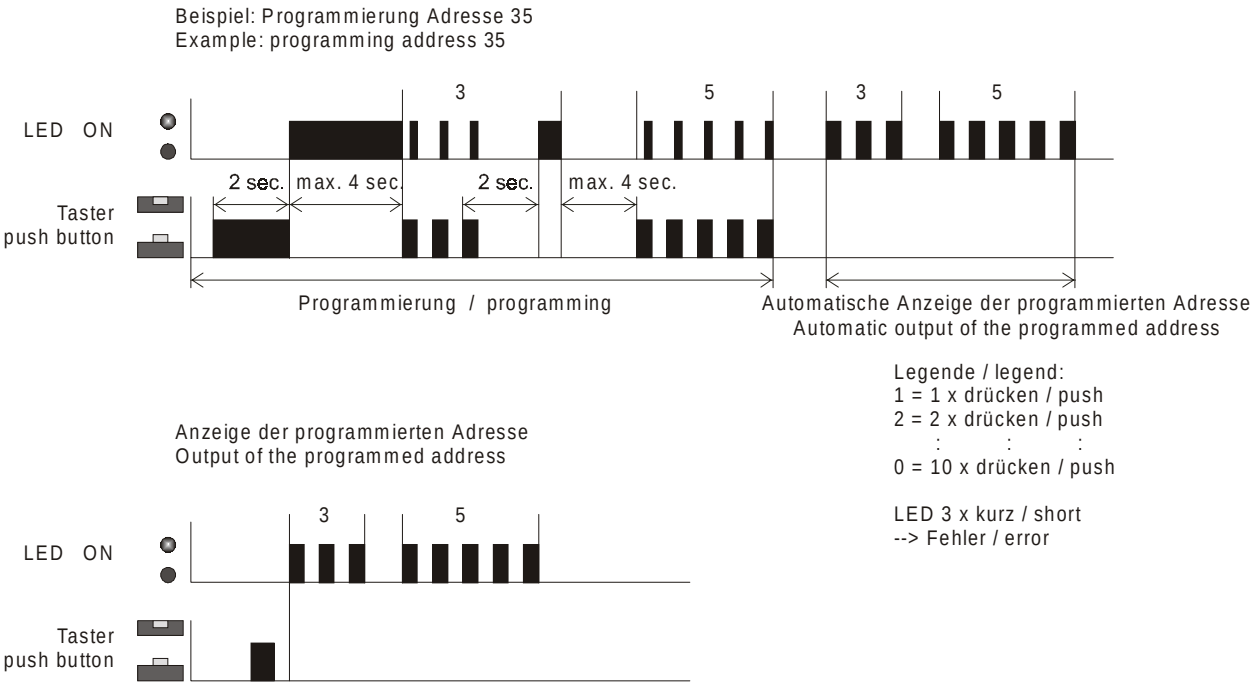
3.5.1 Address programming

The manual call point HFM/3/22/02 is programmed by entering the assigned address with a push button. The programming process is as follows:

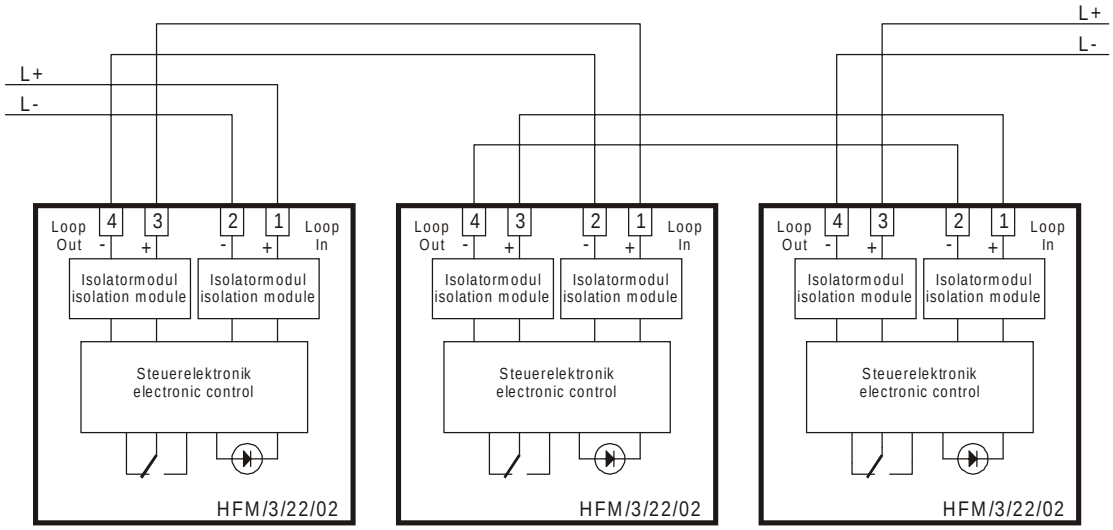
- Press the button for approx. 2 seconds, until the LED is ON.
- Enter the tens digit of the address, pushing the button shortly, according to the digit (example: address **3**5 ... push 3 times)
  Note that the button must be pushed 10 times to enter the digit 0!
- Wait for approx. 2 seconds, until the LED flashes ON shortly.
- Enter the units digit of the address, pushing the button shortly, according to the digit (example: address 3**5** ... push 5 times).
- Check the address. Both digits will be displayed with the flashing LED.

The programmed address can be displayed at any time, just pushing the button shortly, as explained before.

The programming sequence is explained in the following diagram:



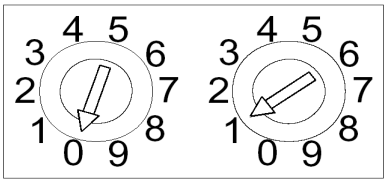
3.5.2 Connection of detectors



3.6 Connection of intelligent automatic detectors

3.6.1 Address setting

The assigned address (01-99) is preset in BCD format at the detector by means of rotary switches.



The illustrated switch setting corresponds to address 01.

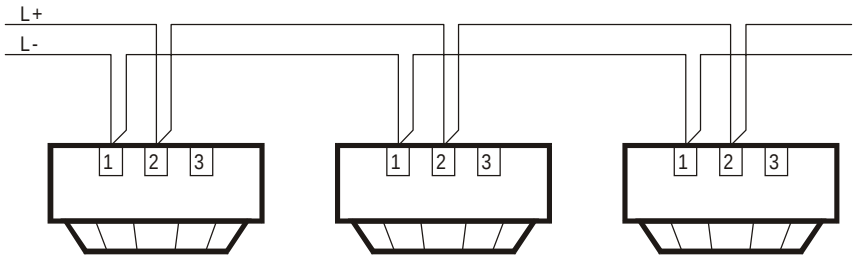
3.6.2 Detector base B501

The following automatic fire detectors can be connected to the fire detection control panel Series BC216, using the detector base type B501:

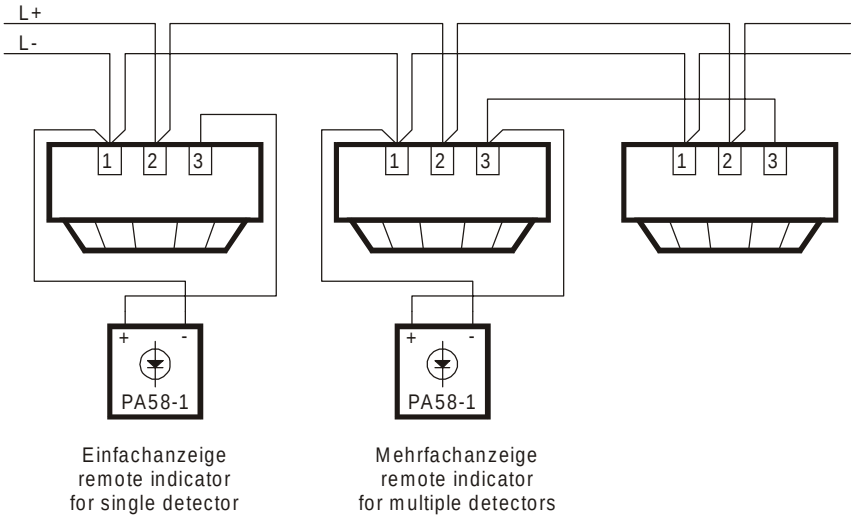
Description	Type
Ionization smoke detector	1251E
Optical smoke detector	ND2251EM
Multisensor	2251TEM
Optical smoke detector for intrinsically safe detection circuits	2251EIS
Maximum thermal detector	5251EM

3.6.2.1 Connection of detectors

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



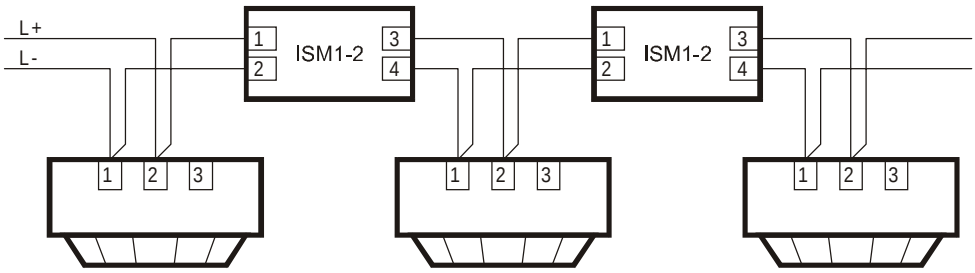
3.6.2.2 Connection of detectors with remote indicator PA58-1



Einfachanzeige
remote indicator
for single detector

Mehrfachanzeige
remote indicator
for multiple detectors

3.6.2.3 Connection of detectors with isolation module ISM1-2



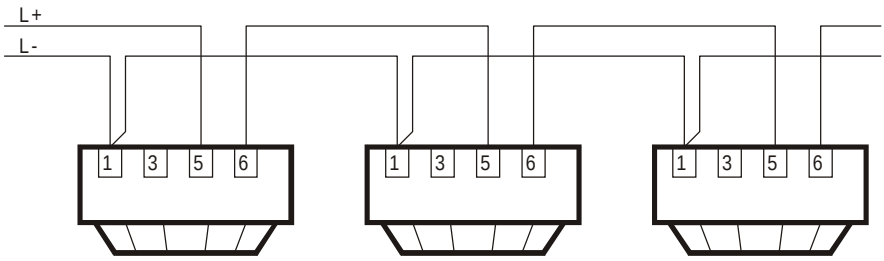
Note: see page 35 in Chapter 3.3: "Isolation module ISM1-2, detector base B524IEFT with integrated isolation module and manual call point HFM/3/22/02".

3.6.3 Detector base B524IEFT with integrated isolation module

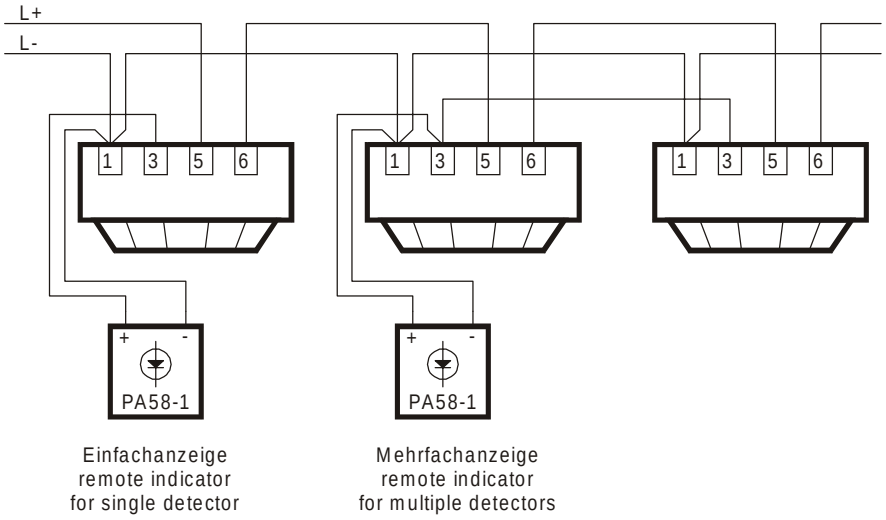
An isolation module is integrated into every detector base. In case of short circuit at the 2-wire line, the isolation modules at both sides open the circuit. The other detectors remain in function this way.

Note: see page 35 in Chapter 3.3: "Isolation module ISM1-2, detector base B524IEFT with integrated isolation module and manual call point HFM/3/22/02".

3.6.3.1 Connection of detectors



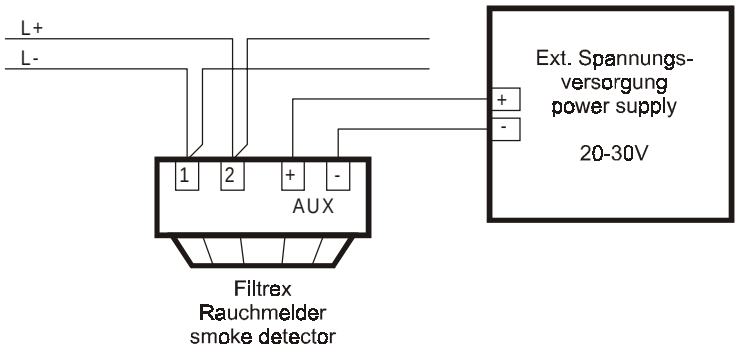
3.6.3.2 Connection of detectors with remote indicator PA58-1



3.6.4 Detector base B524FTXE

The following automatic fire detectors can be connected to the fire detection control panel Series BC216, using the detector base type B524FTXE:

Description	Type
Filtrex	FTX-P1



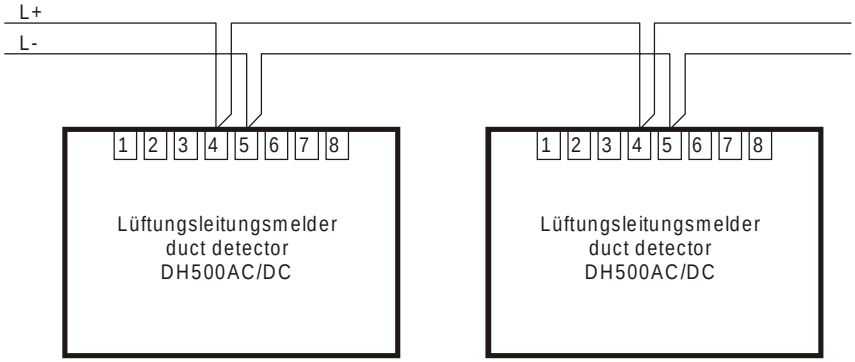
A separate power supply is required for the Filtrex detector. It can be connected to the control panel or to an external power supply.

In the case of an external power supply the state specific regulations concerning emergency power supply have to be observed.

Power consumption:

Condition	Input current
Normal condition	6mA
Alarm condition (every 30s for 5 s)	60mA

3.6.5 Connection of duct detectors

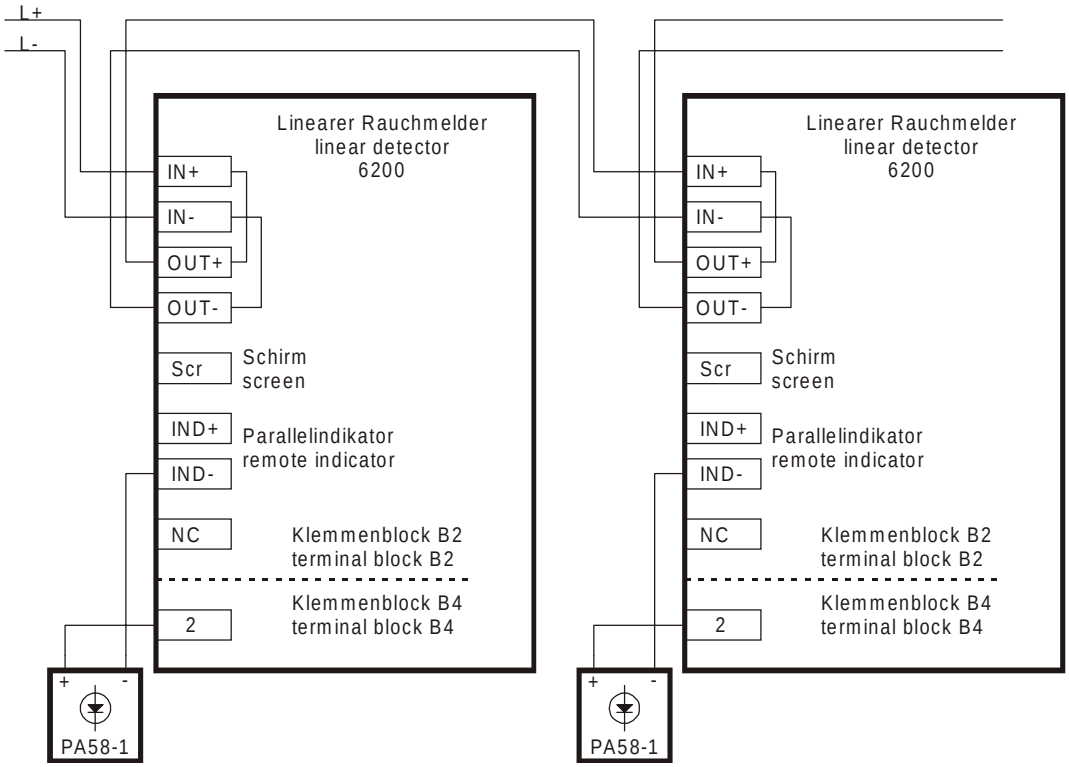


3.6.6 Connection of linear smoke detectors 6200

The power consumption of a linear smoke detector 6200 is 10 times higher than the consumption of an automatic detector (e.g. optical smoke detector). Using a linear smoke detector, the maximum number of detectors that can be connected to the loop is reduced by 10.

Example: 3 linear smoke detectors connected to the loop:
99 permitted devices minus 3 x 10 = 69;
a maximum of 69 automatic detectors can be connected to the loop.

For detailed information about connection, setting of address and putting into operation see the data sheet of the detector.



3.7 Intrinsically safe detection circuits

3.7.1 General

The detector 2251EIS (optical smoke detector) has been especially designed for intrinsically safe detection circuits, formed by the module IST200 and the safety barrier Y72221.

The translator module IST200 serves as a protocol translator and is connected to the loop. On the output side, a maximum of 15 detectors 2251EIS can be connected to a branch line.

Every detector 2251EIS occupies a detector address.

3.7.2 Notes

- A maximum of 15 detectors 2251EIS can be connected to a safety barrier IST200 and a translator module IST200.
- The line between the translator module IST200 and the last detector must not exceed the following values:
  Line resistance: max. 20 Ohms per wire
  Line capacitance: max. 80nF
- The control panel does not recognize two ore more detectors set to the same address.

3.7.3 Isolator

The module IST200 has a built-in isolation module on the output side. A short circuit on the branch line with the 2251EIS does not affect the ADM loop.

Number of IST200 between two isolation modules ISM1-2

A maximum of 10 modules IST200 can be connected between two ISM1-2.

Number of IST200 between two detector bases with integrated isolation modules B524IEFT

Only one module IST200 can be connected between two B524IEFT.

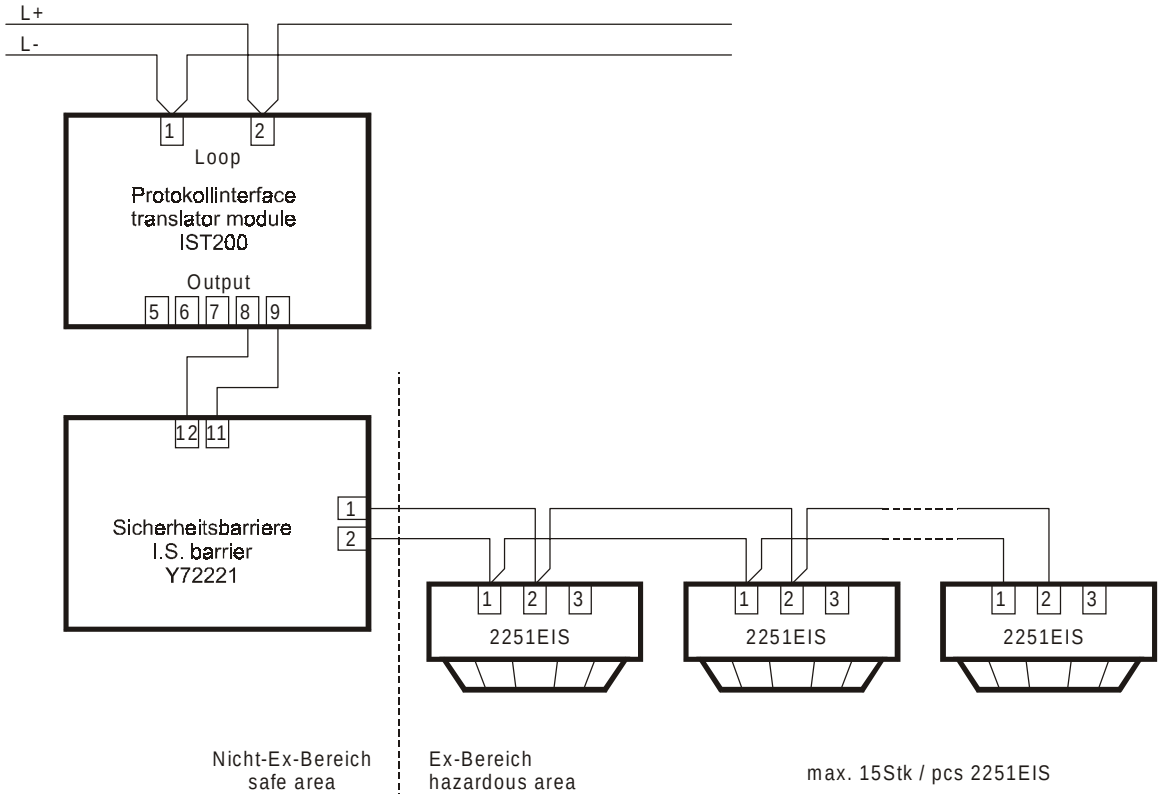
3.7.4 Prerequisite

The software installed in the loop interface LIF64-1 must be version V1.01 or higher.

3.7.5 Parameter setting

The detector must be programmed as "Optical detector".

3.7.6 Connection



3.8 Connection of conventional detectors with a conventional detector module

By means of the conventional detector module M512ME, the following automatic conventional detectors can be connected to the fire detection control panel Series BC216:

Description	Type
Ionization smoke detector	1151E
Ionization smoke detector for intrinsically safe areas	1151EIS
Optical smoke detector	2151E
Maximum thermal detector	4451E
Rate-of-rise thermal detector	5451E
Flame detector	NFD-68-P
Linear heat detection system	ADW511
Smoke suction system AD1	AD1-F11
Smoke suction system AD2	AD2-F11
Detector box MB2	MB2-C11
Smoke suction system Titanus 3000	Titanus 3000
Smoke suction system Titanus Super Sens	Titanus Super Sens
Flame detector	UV-01
Miniboomerang	Miniboomerang 2S
Heat detector	SWM-1KL

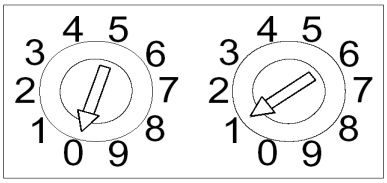
The line resistance of the detection loop must be below 50 Ohms per wire. This corresponds to a distance of approx. 1400m of the last detector from the conventional detector module, using an AWG20 wire.

The alarm condition of a conventional detector zone is reset by disconnecting the zone for a minimum of 10 seconds.

The maximum detector current is 2,5mA

3.8.1 Address setting

The assigned address (01-99) is preset in BCD format at the conventional detector module by means of rotary switches. If more than one detectors are connected to the module, the same element number will be displayed at the control panel in case of alarm.



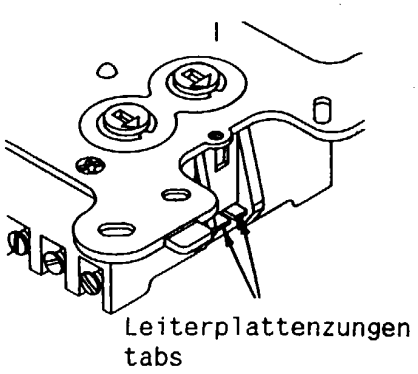
The illustrated switch setting corresponds to address 01.

3.8.2 Power supply

A separate power supply is required for the conventional detector module M512ME. It can be connected to the control panel or to an external power supply.

In case of an external power supply, the maximum current consumption of the conventional detector module is 60mA in case of short circuit. If the power supply is unable to supply that current, it can be limited to 20mA by breaking out two tabs of the printed circuit board. The position of the tabs is shown in the following drawing.

If the conventional detector module is supplied from the control panel, the current consumption of the module must be limited to 20mA by breaking out two tabs of the printed circuit board.

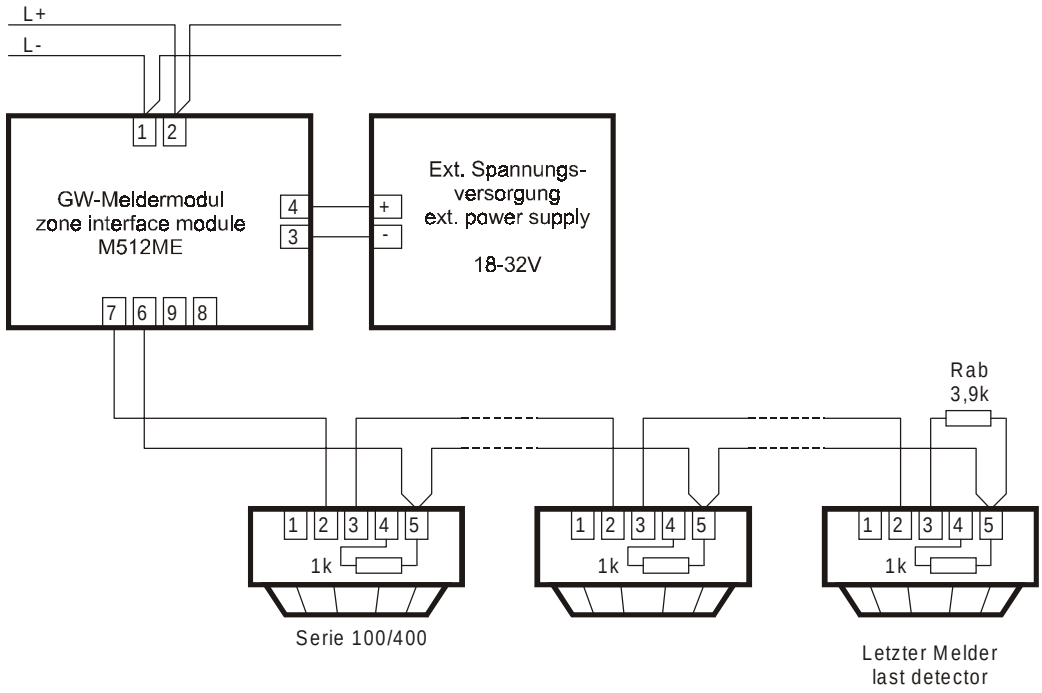


3.8.3 Connection of detectors Series 100/400

A maximum of 20 detectors Series 100 or 400 can be connected to a conventional detector module M512ME, using the detector base B401RM. A line terminating resistor R_{ab}=3,9kOhms/0,35 W must be installed in the last detector.

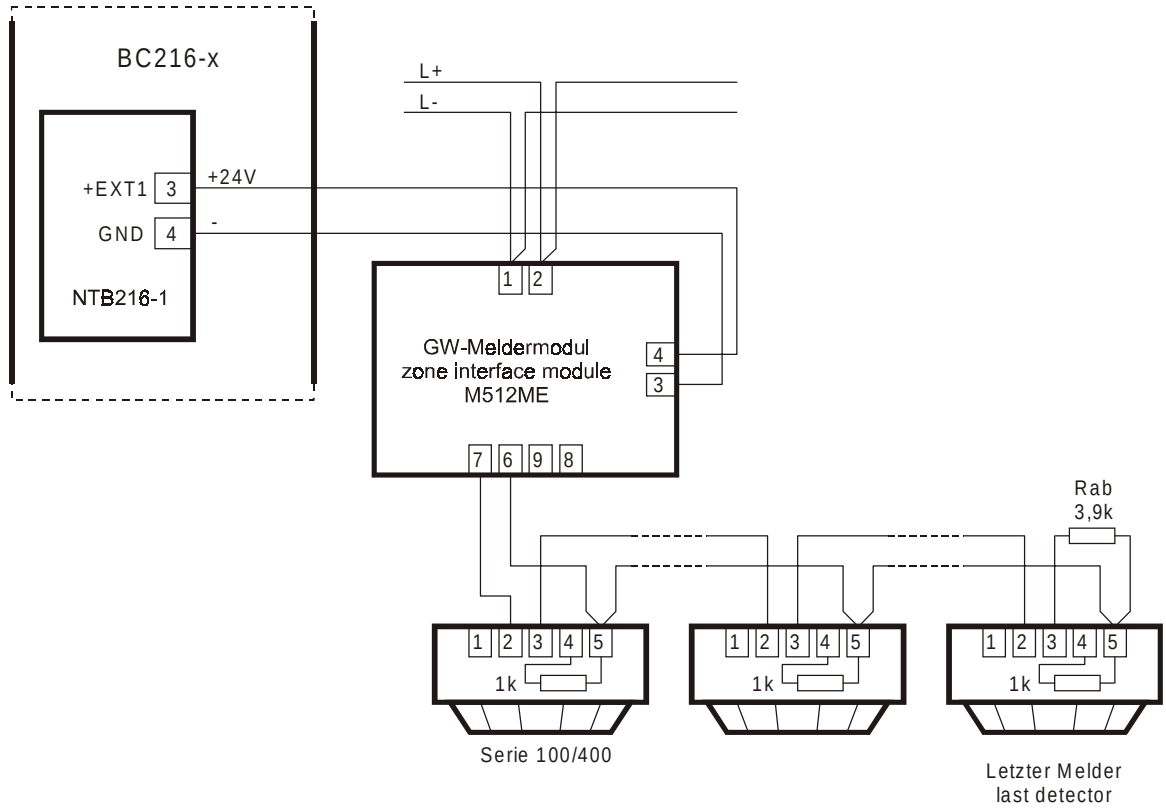
3.8.3.1 Connection of detectors Series 100/400 with external power supply

In the case of an external power supply the state specific regulations concerning emergency power supply have to be observed.

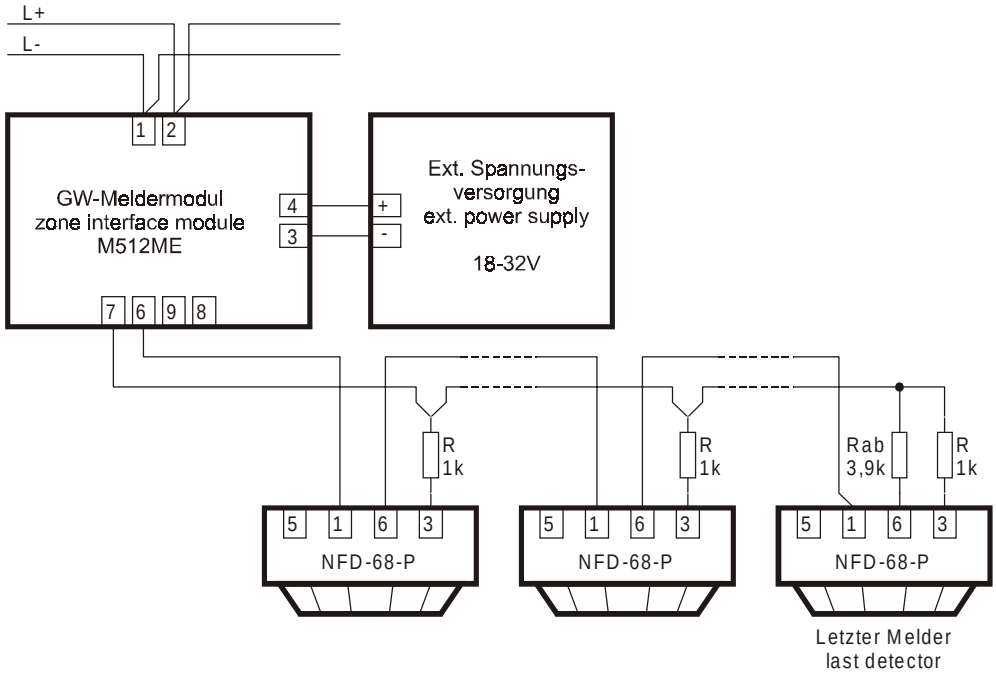


3.8.3.2 Connection of detectors Series 100/400 with power supply from the control panel

If the conventional detector module is supplied from the fire detection control panel, the current consumption has to be limited to 20mA. This can be done by breaking out two tabs of the printed circuit board (position of the tabs: see page 45 in Chapter 3.8.2: "Power supply").

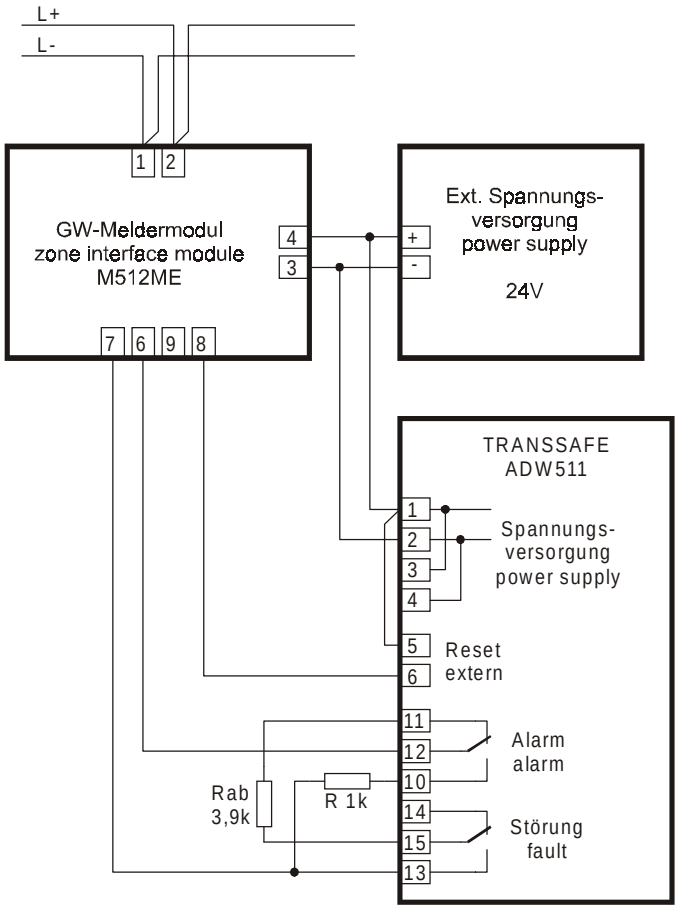


3.8.4 Connection of flame detectors NFD-68-P

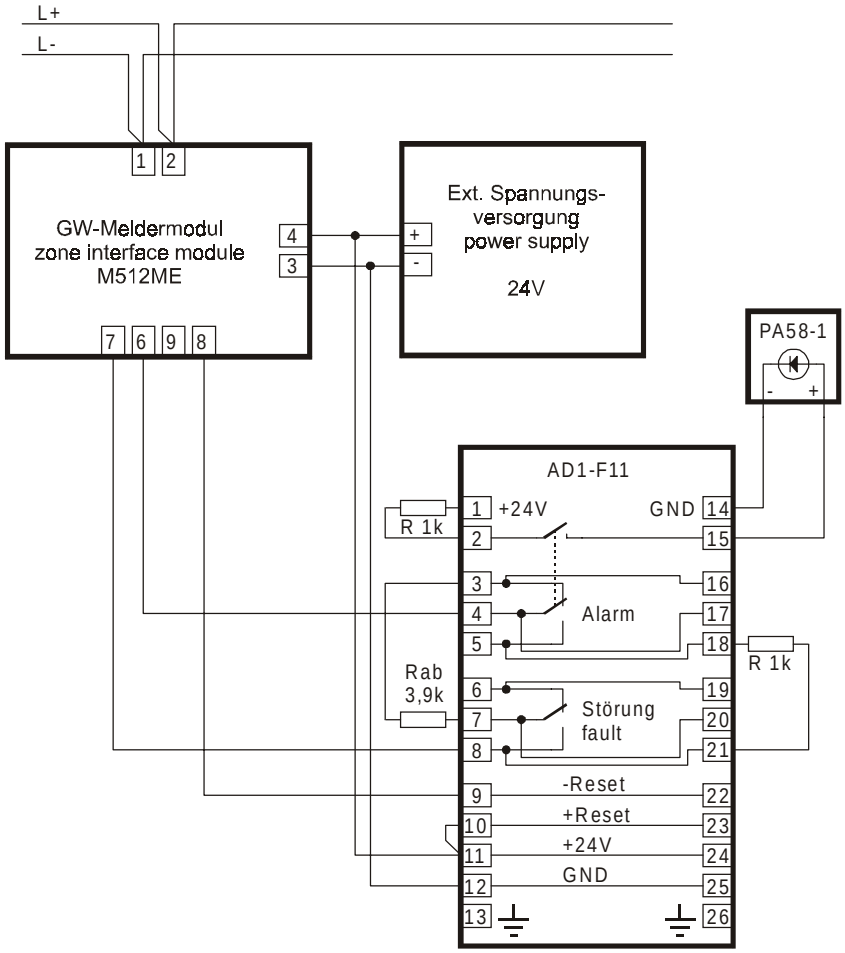


A maximum of 5 detectors NFD-68-P can be connected to a conventional detector module M512ME. An alarm resistor (1kOhms/0,35W) must be installed in each detector. A line terminating resistor R_{ab}=3,9kOhms/0,35 W must be installed in the last detector.

3.8.5 Linear heat detection system ADW511

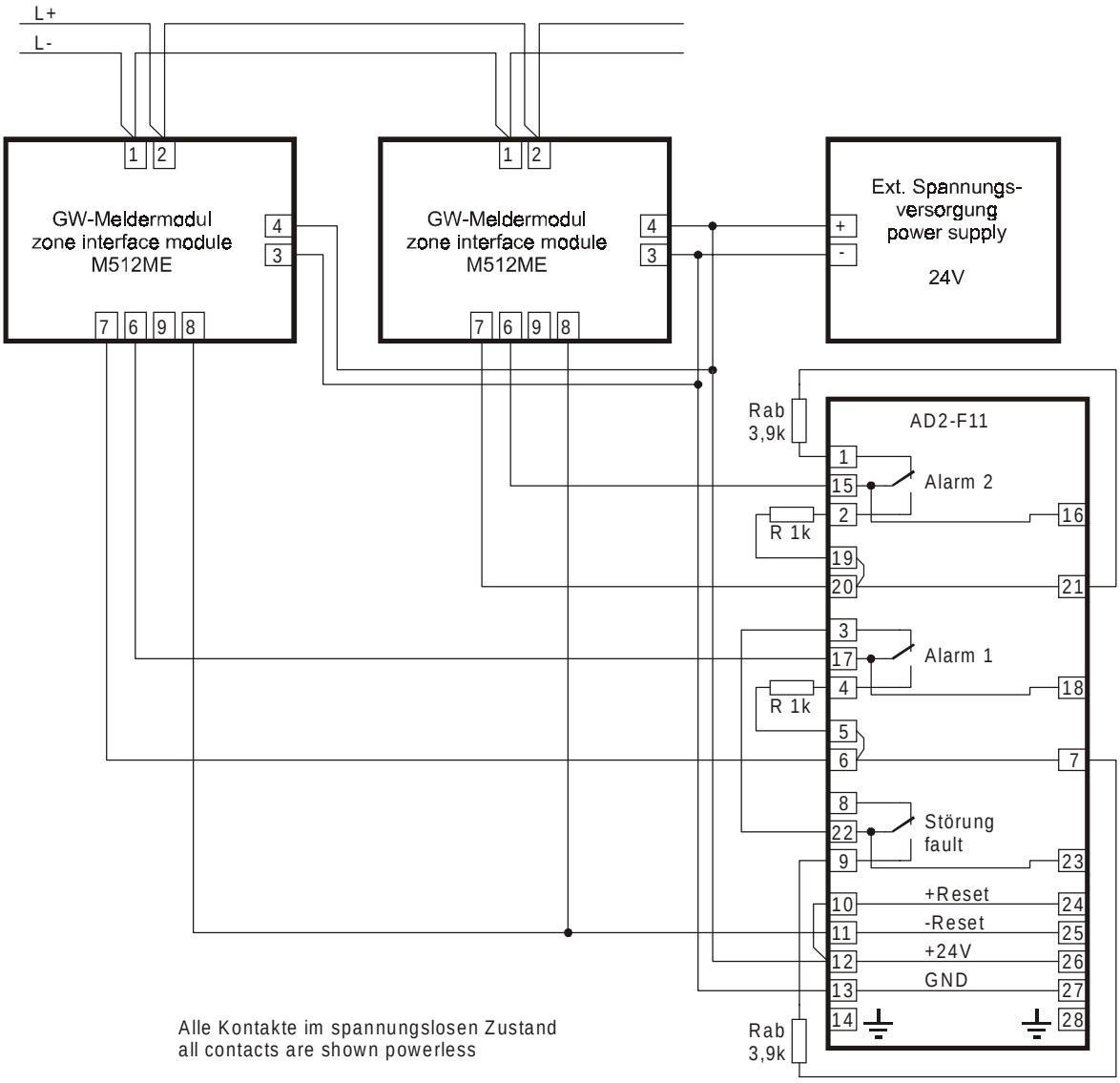


3.8.6 Smoke suction system AD1-F11

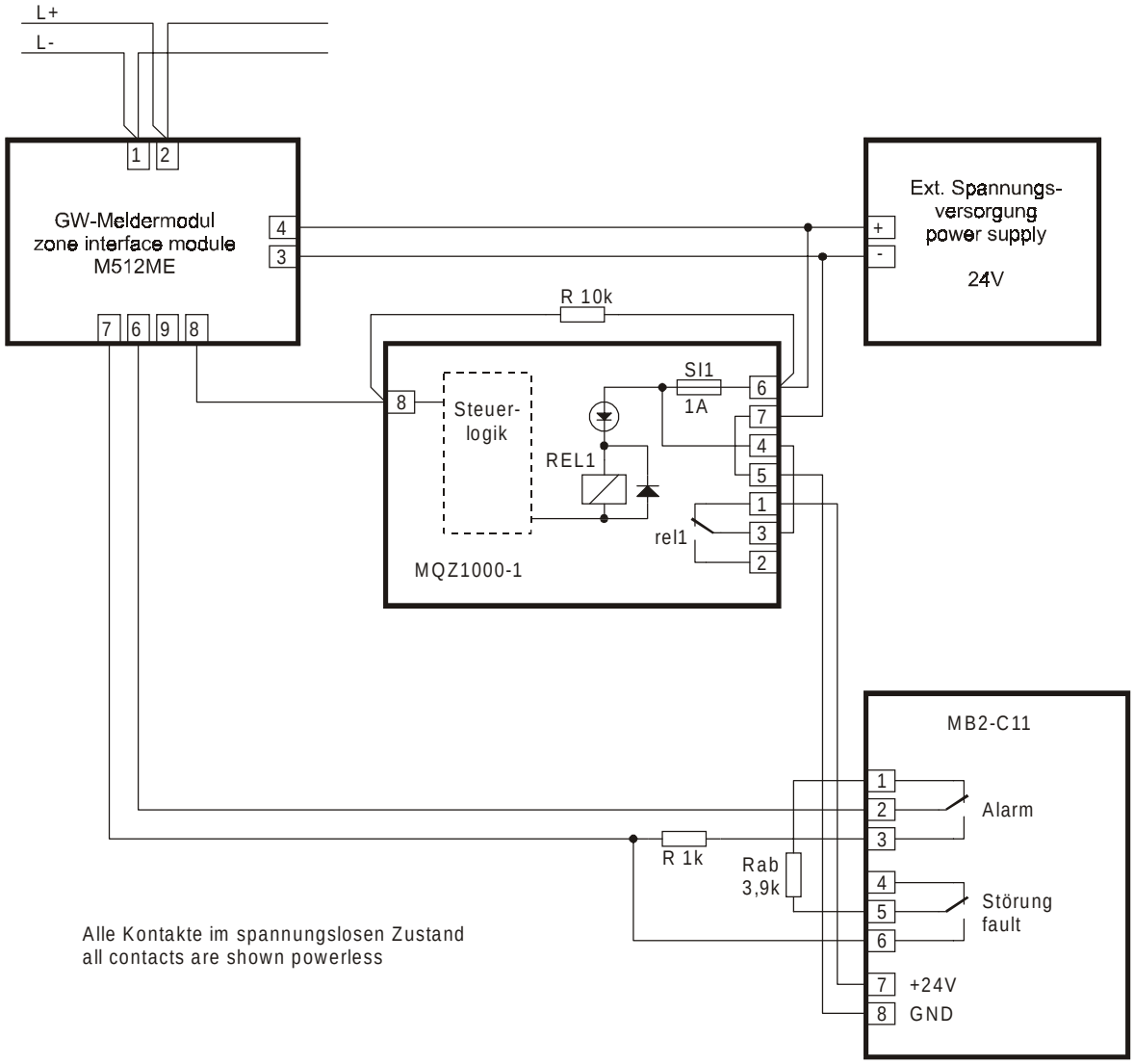


Alle Kontakte im spannungslosen Zustand
all contacts are shown powerless

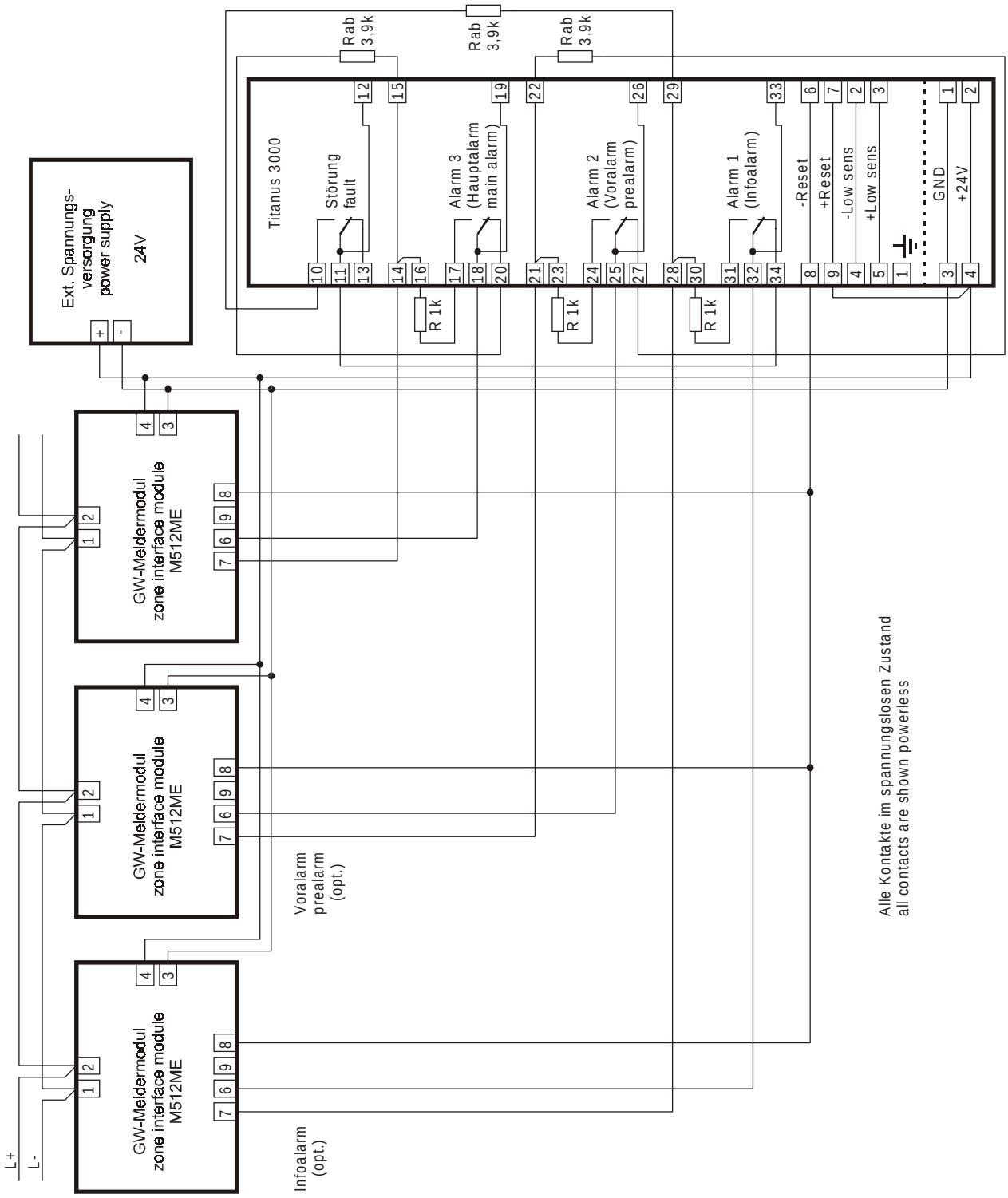
3.8.7 Smoke suction system AD2-F11



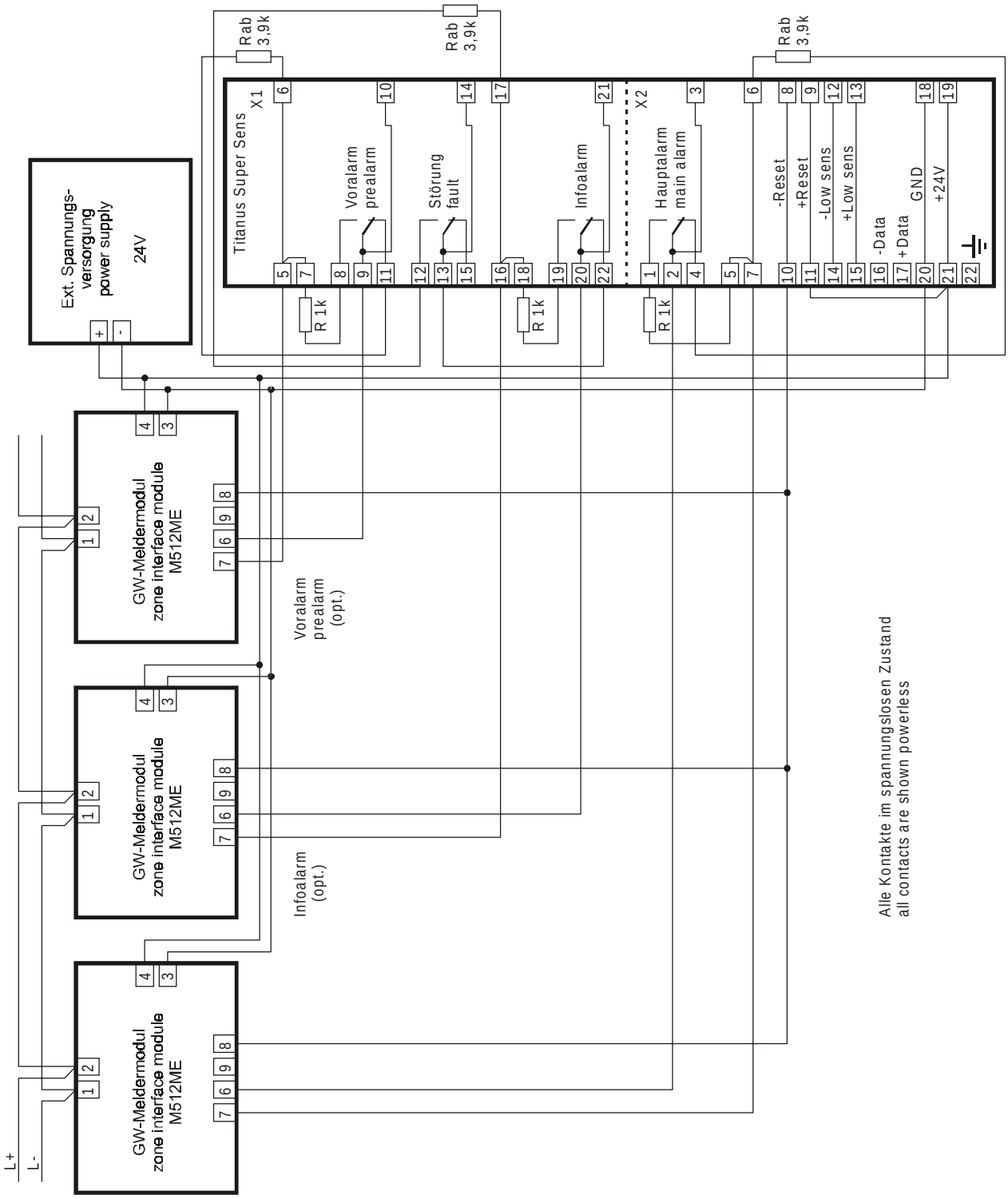
3.8.8 Detector box MB2-C11



3.8.9 Smoke suction system Titanus 3000



3.8.10 Smoke suction system Titanus Super Sens

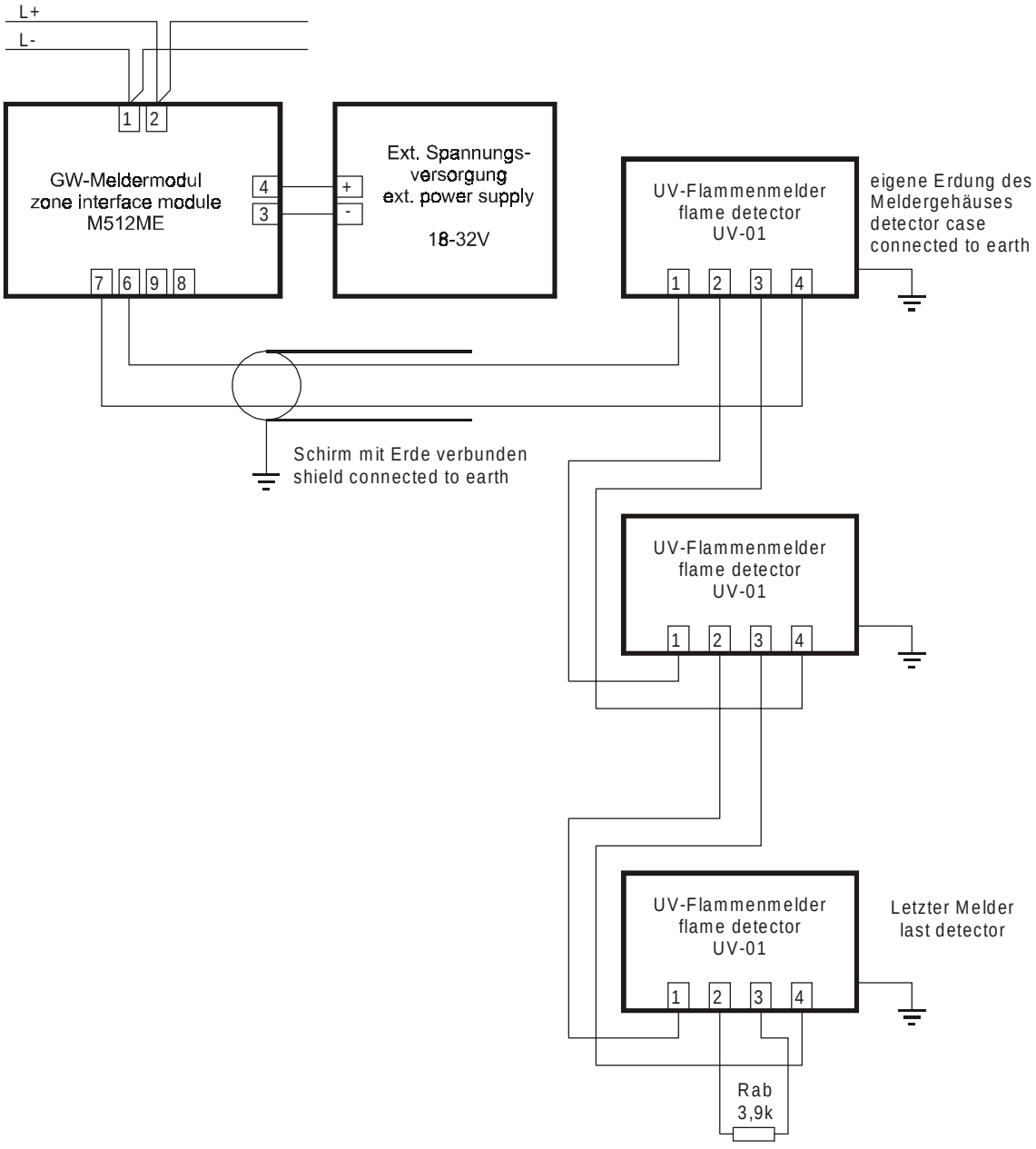


3.8.11 Flame detector UV-01

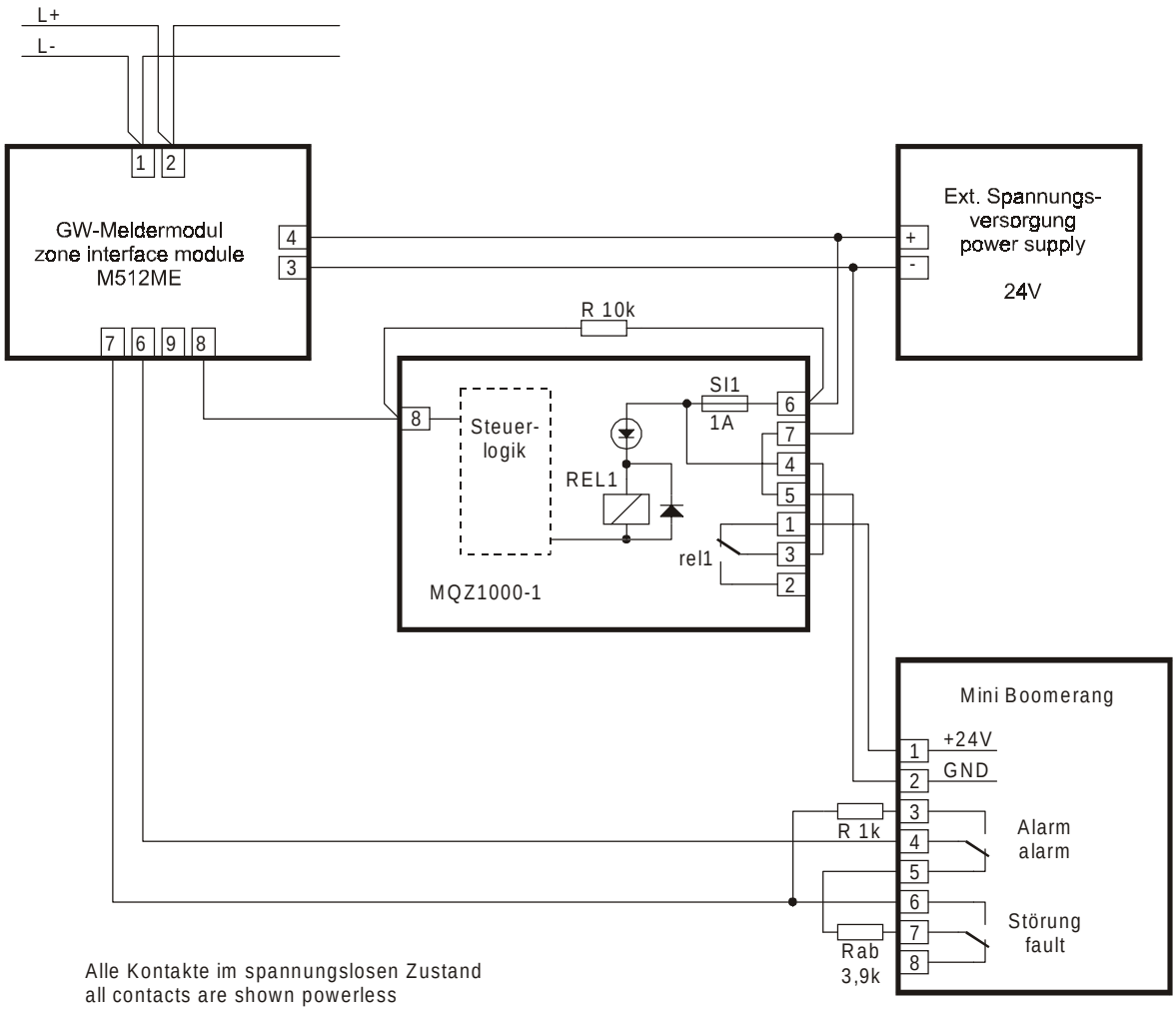
3.8.11.1 Notes

- Maximum 3 detectors per conventional detector module
- Shielded cable required
- Shield connected to earth
- Detector case connected to earth

3.8.11.2 Connection

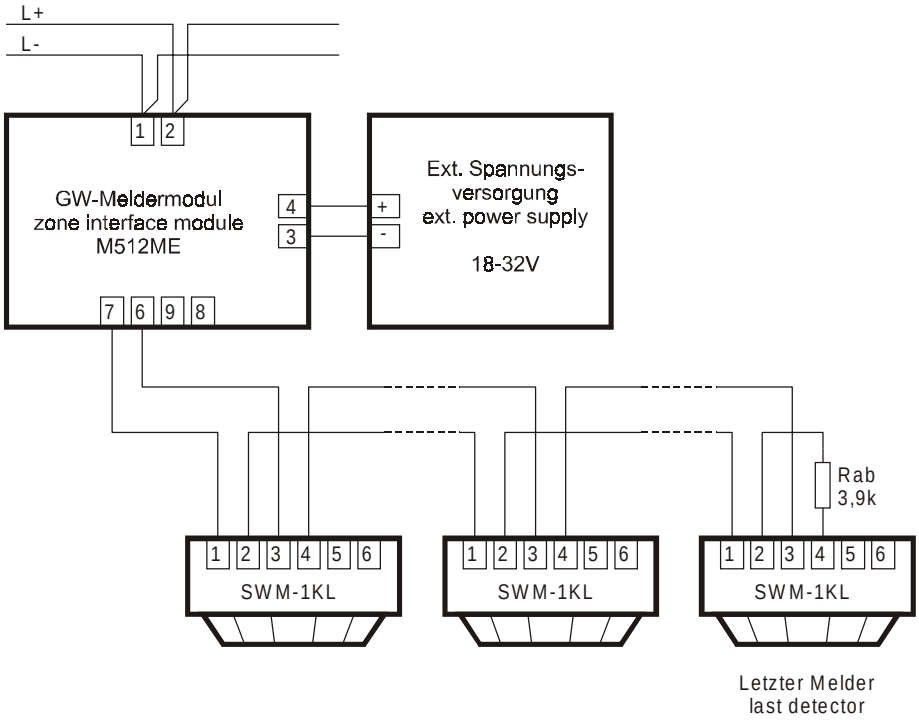


3.8.12 Miniboomerang 2S



Alle Kontakte im spannungslosen Zustand
all contacts are shown powerless

3.8.13 Heat detector SWM-1KL

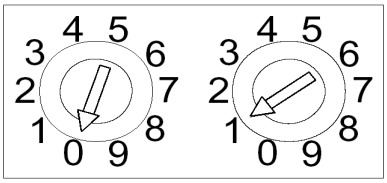


3.9 Connection of contact detectors with a monitoring module

By means of the micro monitoring module M503ME, contact detectors (e.g. sprinkler contacts, monitoring contacts) can be connected to the fire detection control panel Series BC216.

3.9.1 Address setting

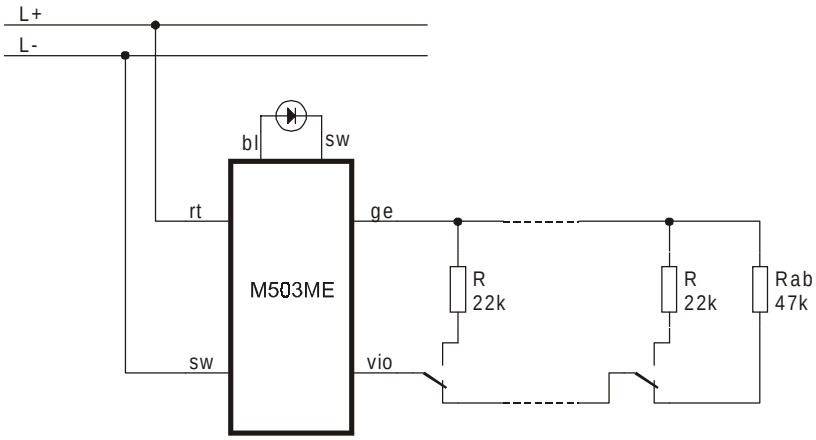
The assigned address (01-99) is preset in BCD format at the micro monitoring module M503ME by means of rotary switches.



The illustrated switch setting corresponds to address 01.

3.9.2 Connection of detectors

The number of contact detector that can be connected to a micro monitoring module M503ME is not limited. An alarm resistor R= 22kOhms/0,35W must be installed in each detector. A line terminating resistor R_{ab}=47kOhms/0,35W must be installed in the last detector.



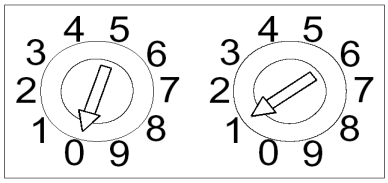
3.10 Connection of control modules with output monitoring

External line monitored devices (like optical and acoustical signal equipment) can be activated by a control module with output monitoring M500C.

Attention: The devices mentioned above must not be powered from the detector circuit. An additional power supply with appropriate power is therefore required!

3.10.1 Address setting

The assigned address (01-99) is preset in BCD format at the control module M500C by means of rotary switches.

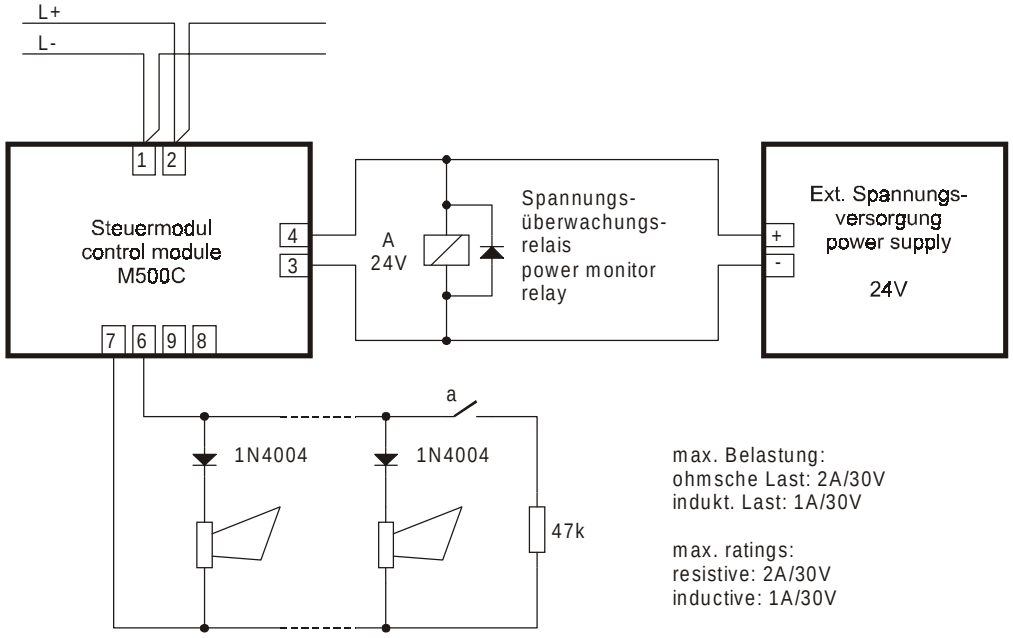


The illustrated switch setting corresponds to address 01.

3.10.2 Connection of the module

3.10.2.1 Connection of sirens

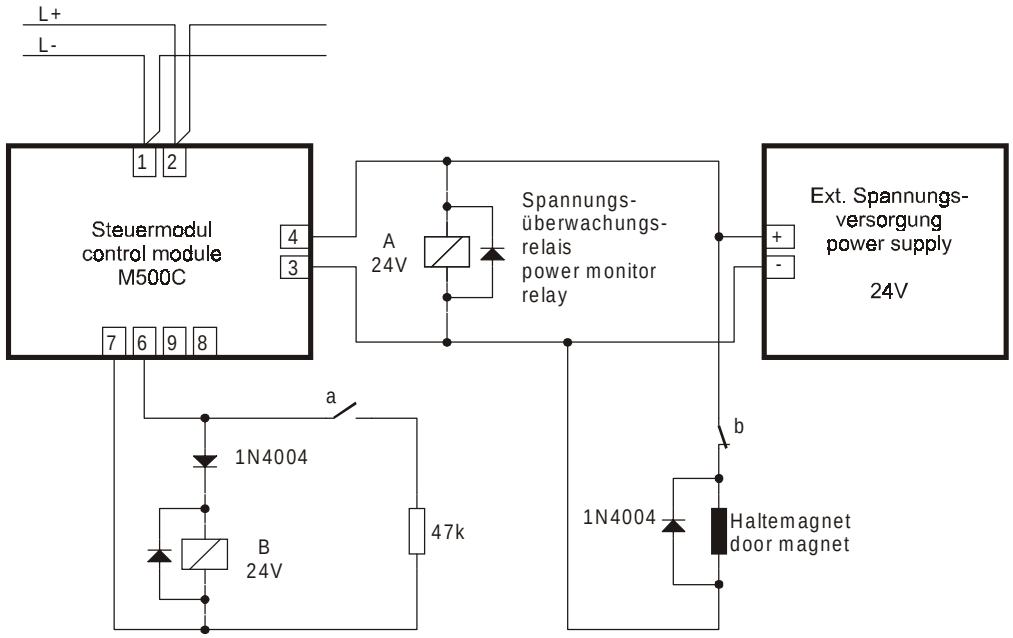
The voltage monitoring relay shown in the connection scheme below is only necessary if a fault of the external power supply shall be indicated as a fault on the control panel.



3.10.2.2 Connection of door magnets

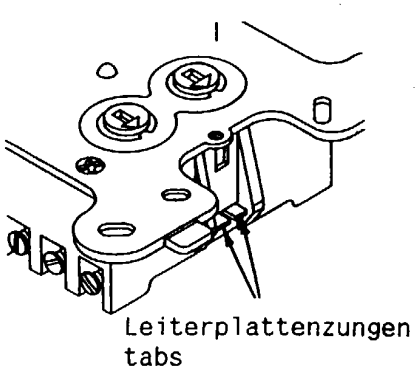
The voltage monitoring relay shown in the connection scheme below is only necessary if a fault of the external power supply shall be indicated as a fault on the control panel.

The maximum power consumption of the connected devices is only limited by the output power of the additional power supply and the switching capability of the control relay "B".



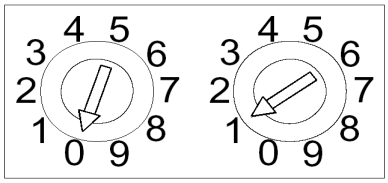
3.11 Connection of control modules with relay output

The control module M500C can be used as electrically insulated relay contact by breaking out two tabs of the printed circuit board. The position of the tabs is shown in the following drawing. The switched devices are not line monitored.



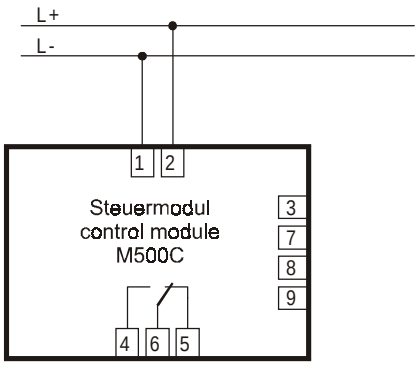
3.11.1 Address setting

The assigned address (01-99) is preset in BCD format at the control module M500C by means of rotary switches.



The illustrated switch setting corresponds to address 01.

3.11.2 Connection of the module



max. Belastung:
ohmsche Last: 2A/30V
indukt. Last: 1A/30V

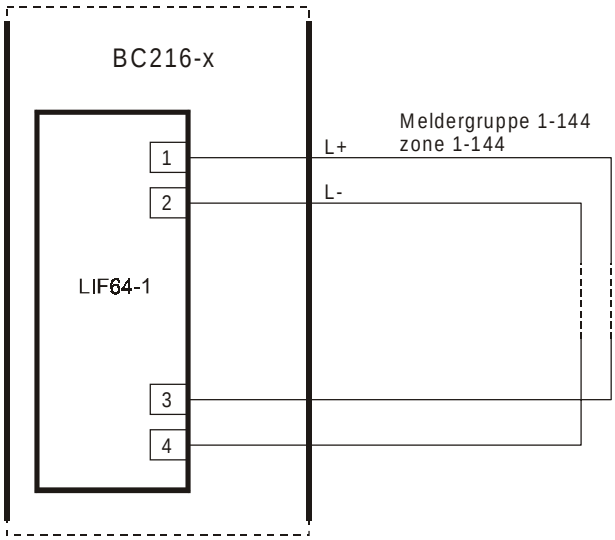
max. ratings:
resistive: 2A/30V
inductive: 1A/30V

3.12 Examples for the wiring of detector circuits

The following diagrams show typical installation schemes. We ask you again to consider state specific standards and regulations in the field of fire detection circuits. Especially the use of isolation modules is not mandatory in some countries.

3.12.1 Loop with a maximum of 144 detector zones

Inserting isolation modules ISM1-2 into the loop outside the control panel, between the detector zones will prevent a detector zone from being interfered from another detector zone in case of short circuit.

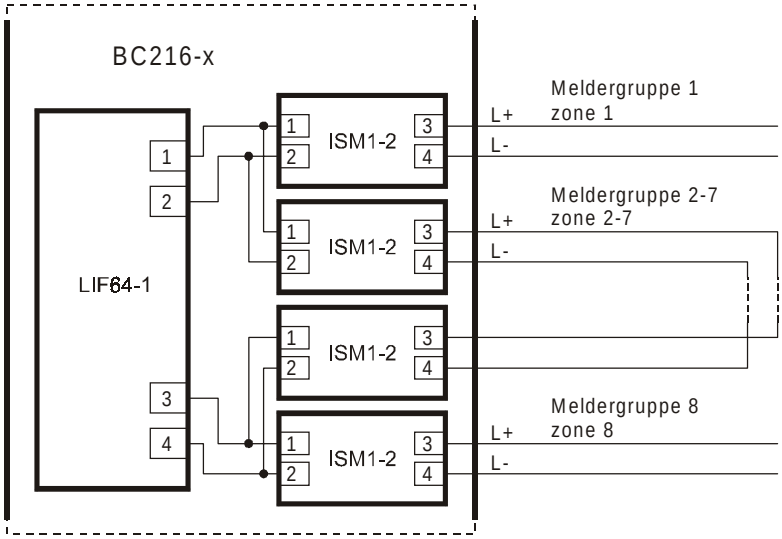


3.12.2 Combination of branch lines and loops

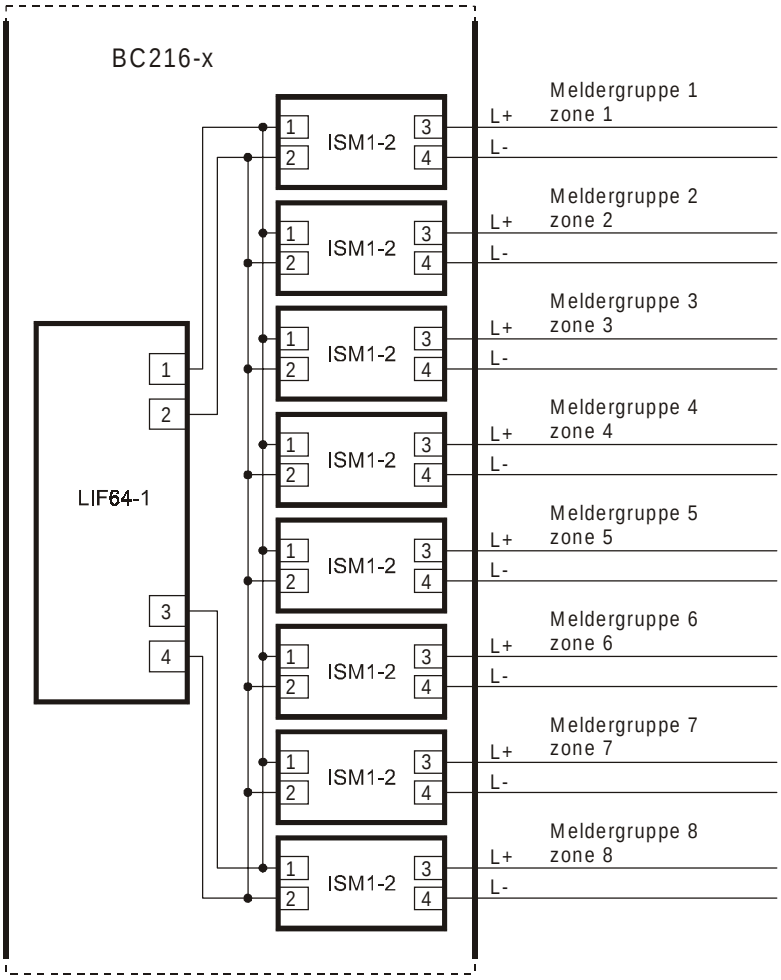
Example: 2 branch lines and a loop

Inserting isolation modules ISM1-2 into the loop outside the control panel, between the detector zones will prevent a detector zone from being interfered from another detector zone in case of short circuit.

Any combination of loops and branch lines is permitted.

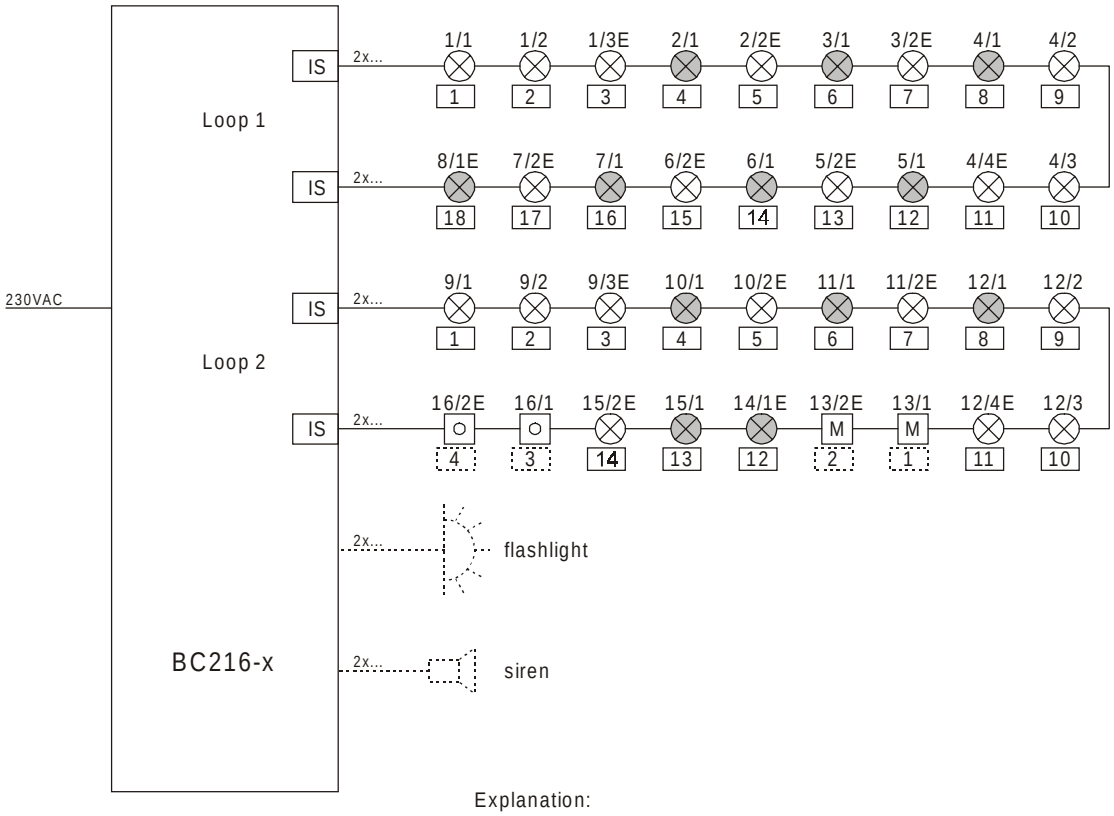


3.12.3 Branch lines



4 APPENDIX

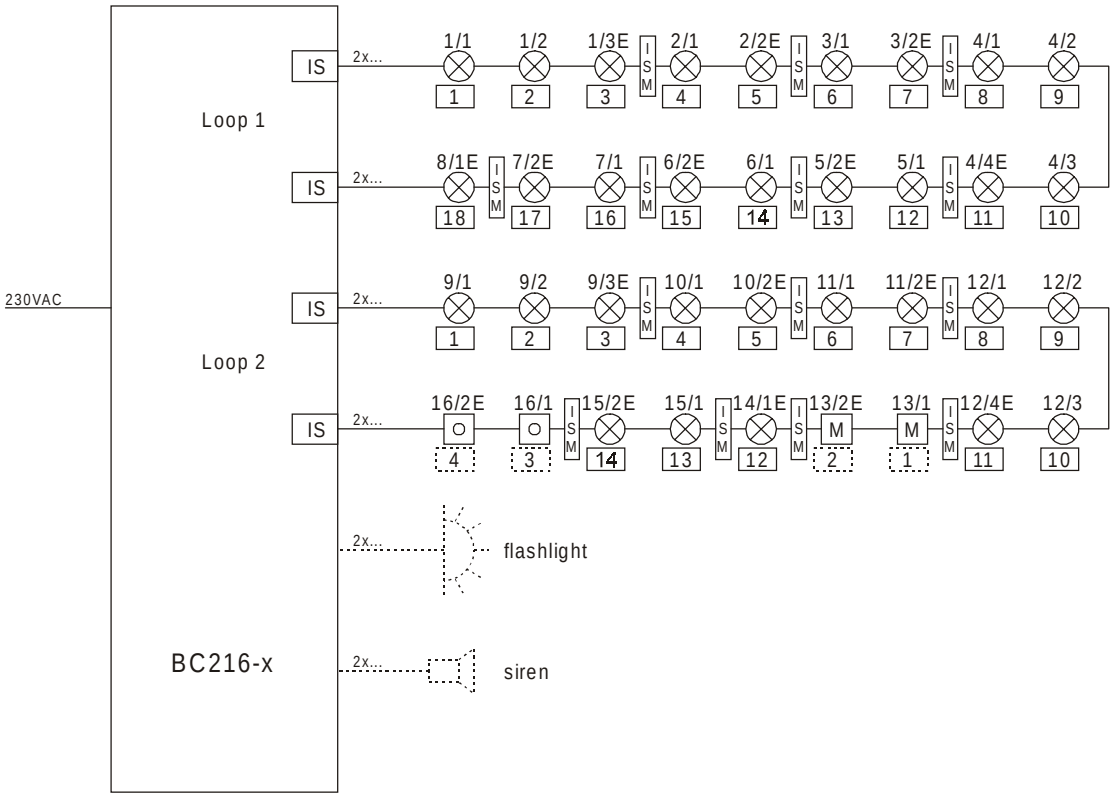
4.1 System cabling ADM loop with isolator bases



Explanation:

- smoke detector
- smoke detector with isolator base (the first detector of a zone has to be mounted on an isolator base, except the first detector of a loop)
- manual call point
- M: module (e.g. conventional detector module, monitoring module)
- IS: isolator on loop interface LIF64-1
- 15/2E: zone/element number (the last detector of a zone has to be marked with 'E')
- 4: detector address (max. 99 automatic detectors per loop)
- 2: modul address (max. 99 modules/manual call points per loop)
- 2x...: cable type (the max. cable length is explained in chapter "Cable requirements")

4.2 System cabling ADM loop <u>with isolator modules</u>



Explanation:

⊗	smoke detector
○	manual call point
M	module (e.g. conventional detector module, monitoring module)
IS	isolator on loop interface LIF64-1
ISM	isolator module
15/2E	zone/element number (the last detector of a zone has to be marked with 'E')
4	detector address (max. 99 automatic detectors per loop)
2	modul address (max. 99 modules/manual call points per loop)
2x...	cable type (the max. cable length is explained in chapter "Cable requirements")

4.3 Abbreviations

The following table lists the colour code used in this document for the connection wires:

Abbreviation	Colour
bl	blue
bn	brown
ge	yellow
gn	green
gr	grey
or	orange
rt	red
rtws	red-white
sw	black
vio	violet
ws	white
wsge	white-yellow
wsrt	white-red
wsvio	white-violet