

DICTATOR Hold-Open Systems for Hazardous Areas

Products to be used in hazardous areas obviously have to meet special demands. The European ATEX directives (first the EN 94/9/EG and then the directive 2014/34/EU) brought about the regulations becoming considerably more rigorous.

DICTATOR furnishes a hold-open system especially for hazardous areas that meets the requirements of the ATEX directive 2014/34/EU. For the hold-open system exists a general type approval, no. Z-6.500-2443.

Two types are available:

- hold-open system without door operator
- hold-open system combined with a door operator for opening the door.

The central unit is installed outside the hazardous area. Special models with pressure capsulated casings for the hazardous area are available on demand.

The valid regulations and instructions relating to the protection in hazardous areas must strictly be observed. The installation of the components and operating elements must make sure that they cannot be damaged.



Technical Data

Use	hazardous areas of zones 1 and 2
Operating temperature	-20 °C to +40 °C
Ignition protection type fire detectors	II 1G Ex ia II C T5 (at max. 40 °C) only in combination with a safety barrier
Ignition protection type electromagnets, model with cable	II 2G Ex mb IIC T6 Gb or
	II 2D Ex mb IIIC T85°C Db
Ignition protection type electromagnets, with terminal box	II 2G Ex mb e IIC T6 Gb or
	II 2D Ex mb e IIIC T85°C Db



Components of a Hold-Open System without Door Operator

Fire protection doors that have to stay open, e.g. because of the requirements of the operating procedure, demand a hold-open system. The smallest unit of such a hold-open system consists of a fire detector, a power supply, an electromagnet and a hand release switch. In case of fire or gas alarm the power supply to the electromagnet is interrupted, the door is set free and automatically closed by the built-in spring, a door closer or a counterweight.

Whether an additional gas warning system is required must be checked by the EX representative of the operator.

Components

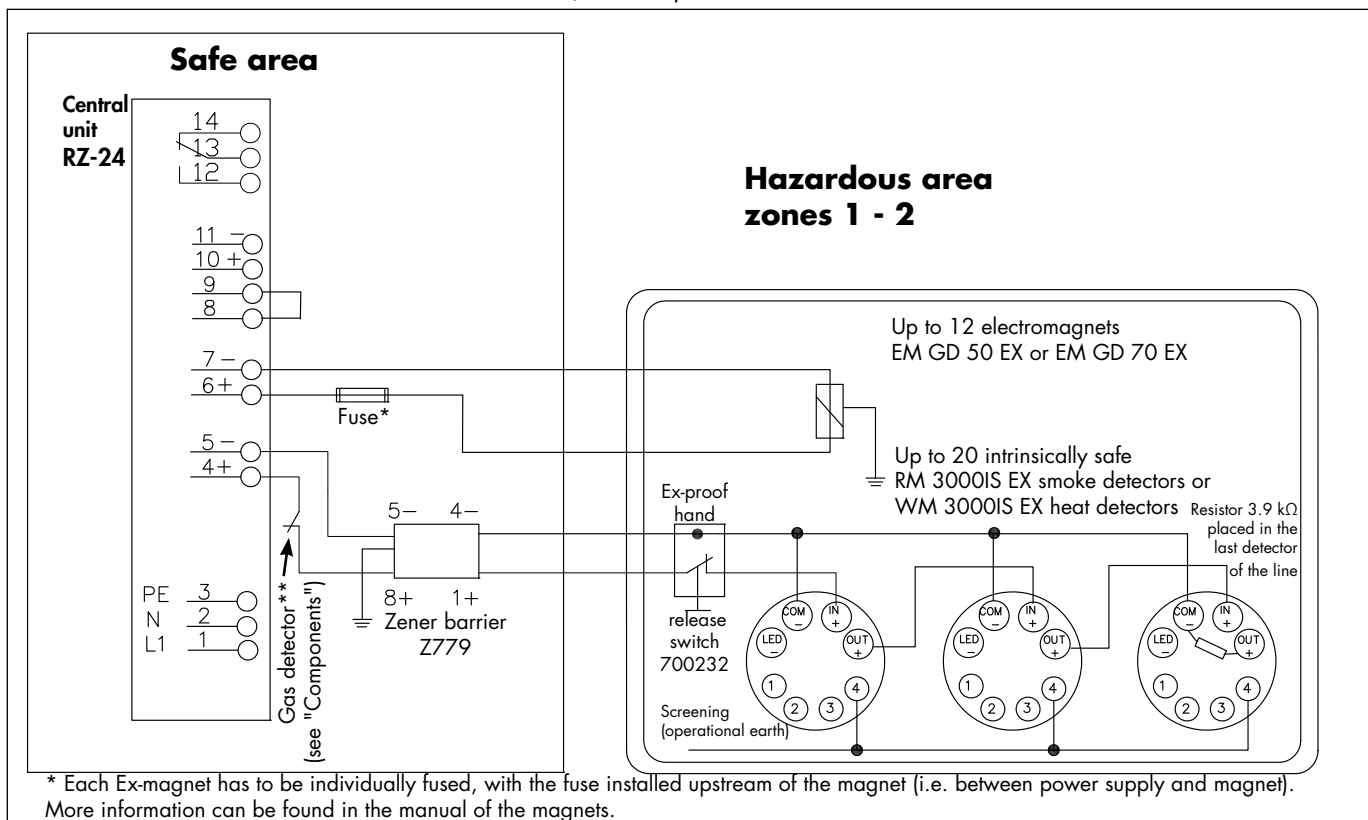
The explosion-proof DICTATOR hold-open system is made up of maximum 20 smoke or heat detectors and up to 12 explosion-proof magnets (ATTENTION: consider the maximum output load of the RZ-24 central!). The explosion-proof magnet is available in 2 different forces.

The RZ-24 central and the safety barrier (Zener barrier) are installed outside the hazardous area. Special models with pressure capsulated casings for the hazardous area are available on demand.

The cable recommended for the wiring within the hazardous area is an Ölflex cable 2x0,75 mm², max. length 100 m.

- RZ-24 central unit with power supply: see page 07.009.00 et sqq.
- Shunt safety barrier: Zener barrier Z779
- RM 3000IS EX smoke detector (or WM 3000IS EX heat detector) with base
- Resistor 3.9 kΩ (included in the delivery of the RZ-24 central)
- Ex-proof magnet (for zones 1 + 2: p. 07.063.00 et sqq., only for zone 2: p. 07.061.00)
- Hand release switch (part no. 700232)
- Gas warning system **: Whether a gas warning system (to be provided by the customer) is required must be checked by the EX representative on the basis of the explosion protection documents (requires a potential-free contact with a switching capacity of 24 VDC/100 mA).

Wiring Diagram





Components of a Hold-Open System with Door Operator

In order to open a fire protection door automatically an approved, explosion-proof door operator can be used. In explosion-proof hold-open systems the magnets are generally installed only in the OPEN position of the door and are not integrated in the door operator. In the case of an alarm it has absolutely to be made sure that the door closes and is not blocked due to an error of the control system. Therefore, in such a case, the relay integrated in the RZ-24 central automatically switches off the control system of the ex-proof door operator (see diagram below).

Components

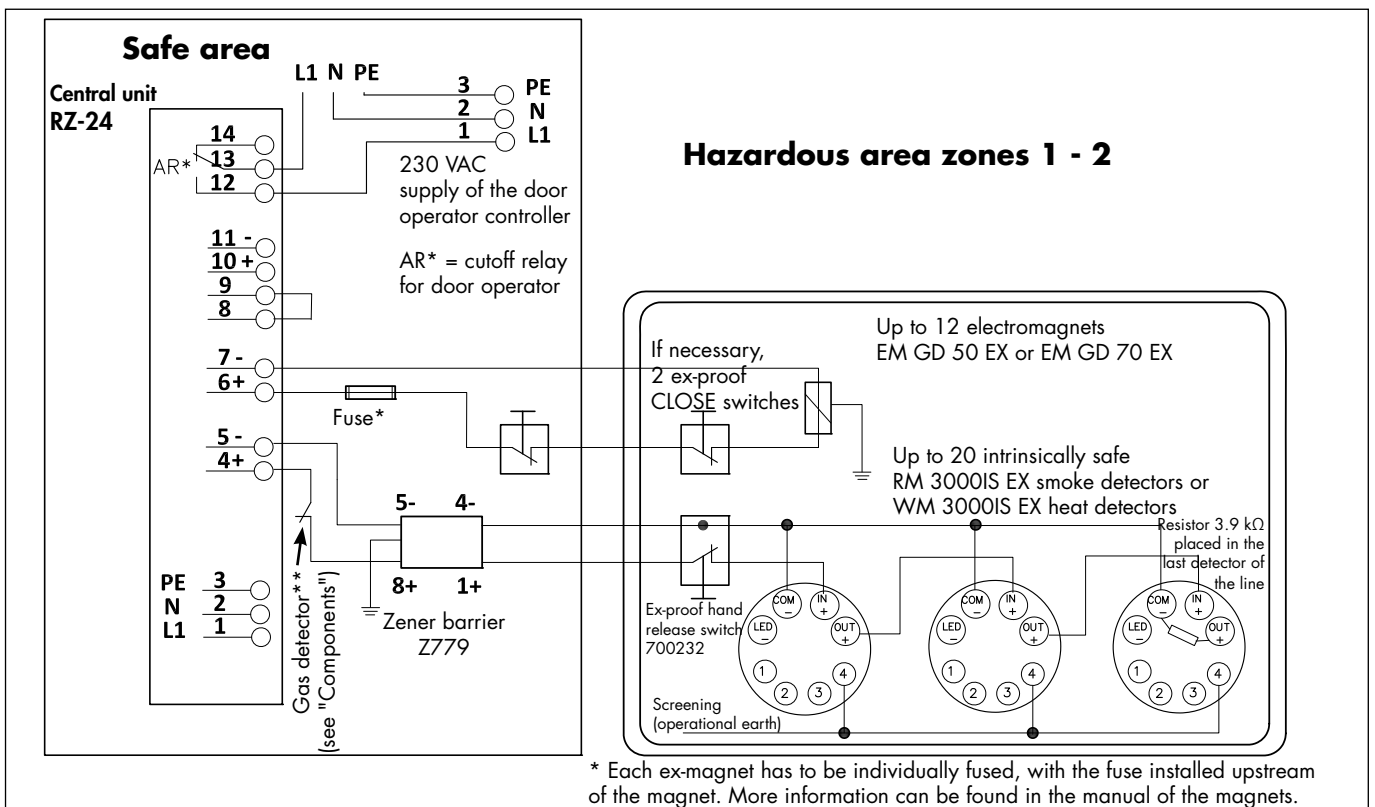
The door operator used to open the fire protection door is not shown in the list of the components. Which door drive should be chosen depends on the type of door, the required forces, functions etc.

The RZ-24 central unit and the shunt safety barrier are installed outside the hazardous area. Special models with pressure capsulated casings for the hazardous area are available on demand.

The cable recommended for the wiring within the hazardous area is an Ölflex cable 2x0,75 mm², max. length 100 m.

- RZ-24 central unit with power supply: see page 07.009.00 et sqq.
- Shunt safety barrier: Zener barrier Z779
- RM 3000IS EX smoke detector (or WM 3000IS EX heat detector) with base
- Resistor 3.9 kΩ (included in the delivery of the RZ-24 central)
- Ex-proof magnet (for zones 1 + 2: p. 07.063.00 et sqq., only for zone 2: p. 07.061.00)
- Hand release switch (part no. 700232)
- Gas warning system **: Whether a gas warning system (to be provided by the customer) is required must be checked by the EX representative on the basis of the explosion protection documents (requires a potential-free contact with a switching capacity of 24 VDC/100 mA).
- If necessary, ex-proof CLOSE switches for the door

Wiring Diagram





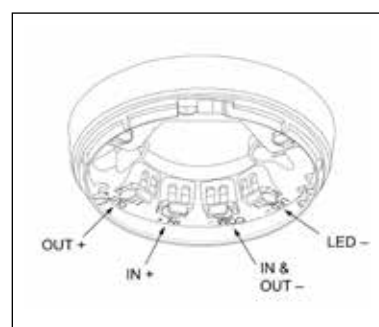
Smoke and Heat Detectors RM 3000IS EX / WM 3000IS EX

Fire protection components installed in hazardous areas require in addition to the approval for fire protection a test and a certificate confirming their compliance with the ATEX directive. Both the smoke detector RM 3000IS EX and the heat detector WM 3000IS EX meet these requirements.

The smoke detector RM 3000IS EX is a stray light detector with integrated thermo sensor. The smoke detectors RM 3000IS EX and the heat detectors WM 3000IS EX are intrinsically safe. In hazardous areas they may only be used in combination with the Zener barrier described on the next page.

Dimensions

Smoke detector RM 3000IS EX with base	Ø 100 mm height 60 mm
Heat detector WM 3000IS EX with base	Ø 100 mm height 50 mm



Installation

The wiring is done in the base S 3000IS EX. In the last detector the 3.9 kΩ resistor has to be installed between the clamps Com- and Out+.

Intrinsically safe circuits (components marked light-blue) may enter hazardous areas - depending on the type of protection required. However, it has to be assured that each intrinsically safe circuit is safely separated from any not intrinsically safe circuit. The requirements of the EN 60079-14 standard have to be observed. In Germany additionally applies the "National Preamble" of the DIN EN 60079-14/VDE 0165 part 1.

On demand an additional parallel display can be connected to the RM/WM 3000IS EX smoke/heat detectors to faster locate the triggered detector or the seat of fire in case of alarm.

Technical Data

Supply voltage	14 to 28 VDC
Average quiescent current	85 µA at 24 VDC
Starting current	105 µA at 24 VDC
Alarm load	325 Ω in series with 1.0 V descent
Operating temperature	-40 °C to +60 °C (class T4) -40 °C to +40 °C (class T5) (Protect against condensation and icing!)
Heat detector	rate-of-rise detector
Reaction point class acc. EN 54-5:2000	AR1, max. room temperature 50 °C
Ignition protection type	Ex II 1G EEx ia IIC T5 (at max. 40 °C)
IP rating	IP 23
Indication of alarm	red LED indicator on the detector
Material / colour of the casing	polycarbonate / white

Order Information

Smoke detector RM 3000IS EX with S 3000IS EX base	part no. 040881SET
Heat detector WM 3000IS EX with S 3000IS EX base	part no. 040886SET
Resistor 3.9 kΩ	part no. 040893



Zener Barrier Z779

A shunt safety barrier, the Z779 Zener barrier, must be placed in between the RZ-24 central unit and the intrinsically safe smoke detectors installed in the hazardous area. If the maximum admissible voltage is exceeded, it prevents that too high energies occur in the hazardous area which could ignite explosive gases or vapours.

The Zener barrier Z779 has been tested and is certified according to the requirements of the European ATEX directive 2014/34/EU (approval no. BAS 01 ATEX 7005).

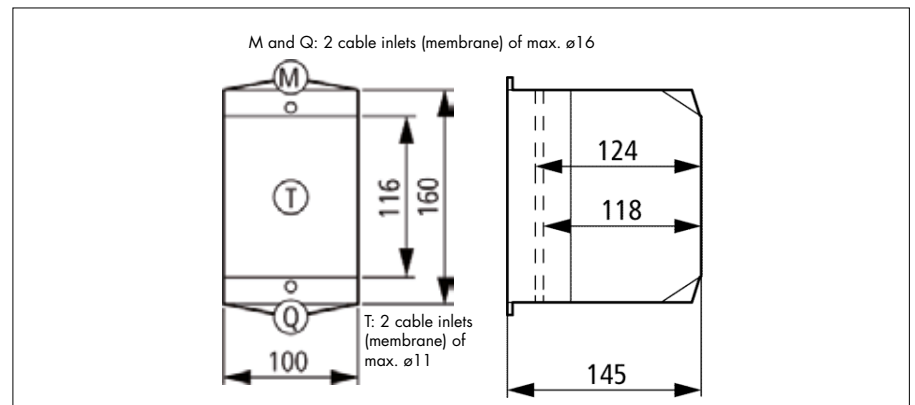
Functioning

The shunt safety barrier contains several diodes which are connected in reverse direction. If the voltage in the safe area exceeds the maximum voltage admissible for these diodes, they start to conduct current and release the fuse of the Zener barrier. This way the transfer of too high energies to the hazardous area is prevented.

The Zener barrier **must** be installed outside the hazardous area. Special models with pressure capsulated casings for the hazardous area are available on demand.

If on site no suitable casing (with a top hat rail according to EN 50222) is available, we offer a separate casing with IP rating IP 65. The Zener barrier is simply snapped onto the top hat rail in the casing.

Dimensions Casing CI-K



Technical Data

Characteristics Zener barrier Z779	2-channel, DC version, positive polarity
Supply voltage	max. 27 VDC
Fuse rating	50 mA
Series resistance	min. 301 Ω/max. 327 Ω
Number of connectable ex-proof detectors	max. 20 pieces of intrinsical safe detectors
IP rating	IP 20 / casing IP 65
Operating temperature	-20 °C to +60 °C
Dimensions Zener barrier	12.5 x 115 x 110 mm
Material casing	glassfiber reinforced polycarbonate
Colour of the casing	bottom black RAL 9005, upper part grey RAL 7035

Order Information

Zener barrier Z779	part no. 040589
CI-K casing for the Zener barrier	part no. 040585

