

# TECHNICAL MANUAL CENTRAL UNIT RZ-24-05

You can find the current version of our manual on our website under «Downloads»:

<https://en.dictator.de/products/hold-open-systems-fire-protection-doors/central-units/central-unit-rz-24-05/>

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# 1. General safety instructions

## 1.1 GENERAL SAFETY INSTRUCTIONS

The RZ-24-05 central is a power supply with integrated tripping device for hold-open systems on fire and smoke protection doors.

Only trained professionals may effect the installation; e.g. only a qualified electrical technician may connect the power supply to the mains. To the electrical installation following the power supply (safety extra-low voltage 24 VDC) apply the acknowledged technical regulations for electrical installations. Only a professional trained by DICTATOR with an approval authorization may approve the system.



### **IMPORTANT**

**The relevant regulations must be observed for all work.**

**The operation of all components is only permitted in undamaged condition.**

**All accident prevention regulations have to be respected.**

## 1.2 INSTRUCTIONS FOR WIRING

The connection cables have to be installed in such a way that they cannot be moved and are sufficiently protected against damage. Also here you strictly have to adhere to the requirements of the respective operating company. All components of the system, the cables and their connections have to be clearly marked by the installation contractor.

If nothing else is required on site or by special regulations, the following specifications have to be respected:

**All works on current circuits may only be effected in the de-energized state.**

## 2. General regulations for hold-open system

### 2.1 DEMANDS

In Germany, the installation of a hold-open system is regulated by the general building inspection approval or type approval of the DIBt. For European countries without national regulations, EN 14637 is used as a guideline.

These regulations also govern:

- the mounting positions and number of fire detectors
- the position and design of the hand switch
- the acceptance test (first placing in service) and marking
- the recurring functional tests and maintenance
- the requirements for the qualification of the persons testing and maintaining

The documents are available under [www.dictator.de](http://www.dictator.de). The general type approval DIBt also includes all permissible device combinations.

For further instructions on installation, use, maintenance, functional testing and servicing as well as documentation, please refer to our operating manual for hold-open systems, which is available to our authorized specialists for DICTATOR hold-open systems.



#### **IMPORTANT**

**The device combinations "RZ-24" and "RZ-24-05" have to be mounted in the detection range of one of the fire detectors of the respective door. If not, an additional detector is required.**

### 2.2 OPERATIONAL LIFE

To ensure the correct functioning of the hold-open system, the DICTATOR smoke and heat detectors have to be replaced after a maximum of 8 years of operational life. In Germany the DIN 14677 regulates the replacement obligation of fire detectors in hold-open systems.

### 3. Components of a DICTATOR hold-open system with RZ-24-05

The DICTATOR hold-open system may comprise a maximum of 20 smoke and/or heat detectors. (ATTENTION: observe the maximum output load of the RZ-24-05 central!).

#### Components:

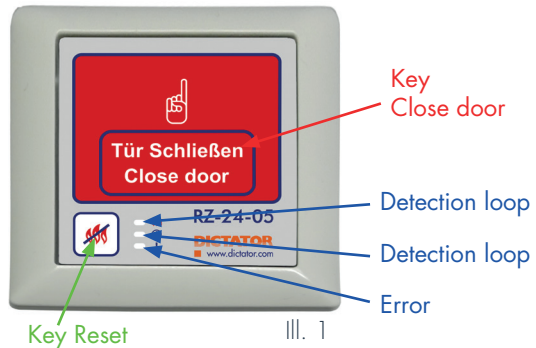
- RZ-24-05 central with power pack, part no. 040563
- RM 4000 smoke detector or WM 4000 heat detector with base, part no. 040860SET or 040861SET
- Resistor 3.9 k $\Omega$  (included in the delivery of the RZ-24-05)
- Magnet (DICTATOR electromagnets EM GD 50 to EM GD 70 - see separate catalogue pages)
- Push button of the RZ-24-05 central, further push button switches can be connected in the detector loop, e.g. part no. 040005

## 4. Information about the RZ-24-05 central unit

### 4.1 MEMBRANE KEYBOARD

#### General Information

The membrane keyboard is slightly heated by the underlying electronics. Thus the foil surface feels warm to the touch. When using the controller in cool rooms, the heating of the keyboard prevents the formation of condensation water. The controller is only suitable for deep-freeze areas if it is housed in an additional enclosure with an additional heater.



#### Key "Close door"

The "Close door" key is a 35 x 47 mm red flat key without button click, which has two functions:

- Function 1: Test activation of the fire detection loop and closing of the connected closing device.
- Function 2: Resetting the triggered detectors by switching off the loop voltage.

After pressing the button, the detection loop can only be reset after a waiting period of 3 s.

#### Key "Reset"

The "Reset" key is a 10 x 10 mm white key with button click, which resets the central unit when pressed. The reset only works if the connected detectors are not triggered and ready for operation and the 3 s waiting period after pressing the "Close door" button has expired.



#### **DANGER**

**Some parts inside the casing are energized with hazardous voltage during operation! May be opened only by professionals when being de-energized (the power supply of the RZ-24-05 is cut!!)**

## 4.2 TECHNICAL DATA OF THE RZ-24-05

Supply voltage	85 VAC - 264 VAC
Power consumption	about 14 W, own consumption about 40 mA
Secondary output voltage	24 VDC $\pm$ 10 %
Secondary total load	0.5 A (supply of fire detectors, electromagnets and other consumers)
Operating temperature	0 °C to +40 °C
Max. number of detectors	20
Power consumption of detection loop	Alarm: $I > 12$ mA Interruption: $I < 3$ mA Short circuit current: max. 45 mA Quiescent current: 4.5 mA Line tension: $U_{lin} = 20.5 \dots 21.4$
LED indicators	Green LED is on: detection loop is ready. Red LED is on: detection loop is triggered. Yellow LED is on/flashes: there is a disturbance.
IP rating	IP 30



### IMPORTANT

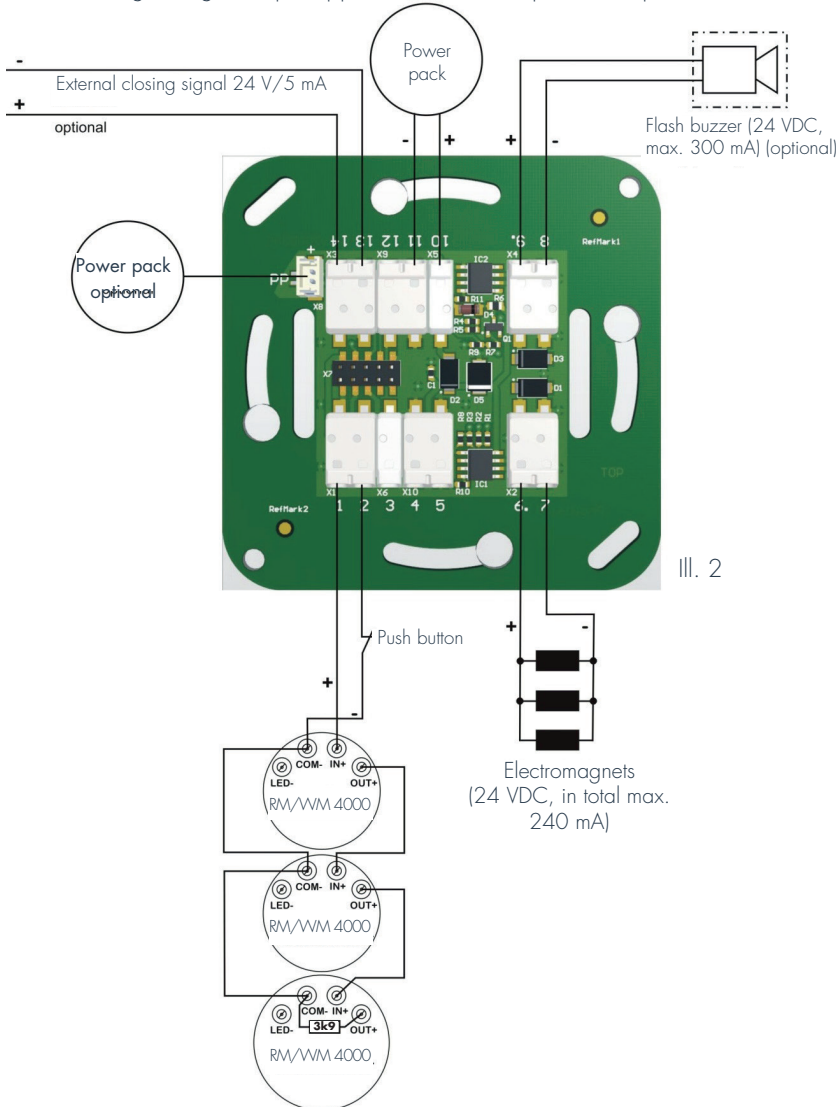
**In total the RZ-24-05 central provides 0.5 A for the supply of the connected fire detectors, magnets etc.**

**In case the maximum power consumption is exceeded, the RZ-24-05 will automatically switch off. This also happens when it is overheated!**

# 5. Electrical connection & configuration of hold-open system with RZ-24-05

## 5.1 WIRING DIAGRAM

The following wiring example applies when the components of point 3 are used.





## 5.2 TERMINAL ASSIGNMENT

The RZ-24-05 has 14 terminals. The maximum permissible wire thickness is 0.75 mm<sup>2</sup>. The terminals may only be loosened with a special tool, part no. 040565, which is available separately. A normal screwdriver will damage the terminals!

	Function	Description
<b>1</b>	Detection loop (+)	output; (terminating resistor 3.9 kΩ)
<b>2</b>	Detection loop (-)	output; (terminating resistor 3.9 kΩ)
<b>3</b>	-24 V output	Power supply for fire detectors and/or manual release with LED indication.
<b>4</b>	Ground (0 V)	
<b>5</b>	Ground (0 V)	-
<b>6</b>	Output HM (+)	free-wheeling diode present
<b>7</b>	Output HM (-)	ground 0 V
<b>8</b>	Output WS (-)	warning signal; ground 0 V
<b>9</b>	Output WS (+)	warning signal; free-wheeling diode present
<b>10</b>	24 V operating voltage	connect power supply output (+)
<b>11</b>	Ground (0 V)	connect power supply output (-)
<b>12</b>	External input	input central closing or external reset (+)
<b>13</b>	Ground (0 V)	-
<b>14</b>	External input	input central closing or external reset (+)

## 5.3 CONFIGURATION OF THE DIP SWITCHES

### DIP switch 1

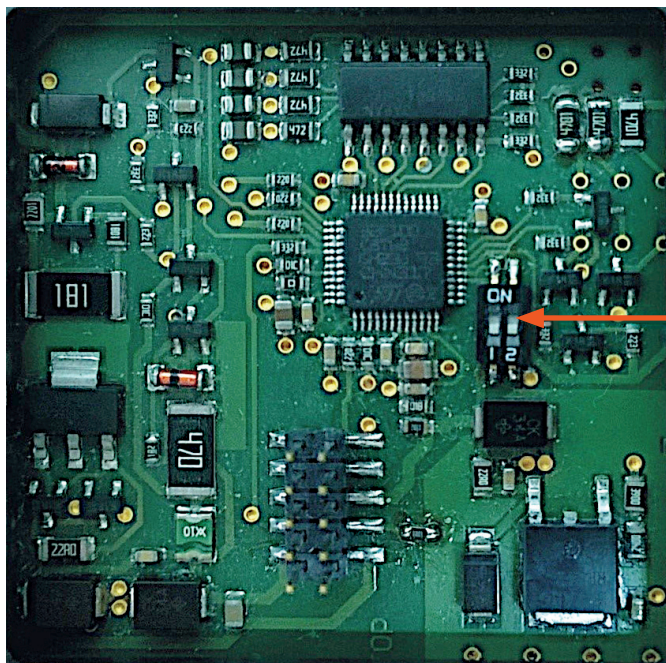
When DIP switch 1 is set to OFF (factory setting), a tripping is stored. This means that a manual push button release is not automatically reset and the reset button must be operated manually.

DIP switch 1 in position ON realizes the automatic reset mode. This means that a tripping is automatically reset after 3 s when the detection loop is ready.

### DIP switch 2

The DIP switch 2 in position OFF (factory setting) realizes the central closing via the external input. For this purpose, 24 V are briefly applied to the input. Central closing can be used to close doors (only with electromagnets) without triggering the detection loop of the RZ-24-05. This function is not a closing in case of fire, but only realizes the closing of the fire and smoke protection closures, e.g. at the end of the working day. The electromagnet output is switched off for approx. 3 s when the 24 V are applied to the external input.

The DIP switch 2 in position ON enables an external reset of the central via the external input 12 or 14.



**Control unit - back side**

DIP switches for operating modes

III. 3

## 5.4 ASSEMBLY OF THE RZ-24-05



## 6. Placing the hold-open system into operation

- After connecting all components in the RZ-24-05 central, put the cover back on.
- Switch on the power supply:
- With correct connection => the red LED (3) on the housing lights.
- Reset the central unit with the **RESET button (2)** on the housing cover.

**Now the system is ready for operation.**



# 7. Functioning / Adjustment instructions for the RZ-24-05

## 7.1 FUNCTIONS OF THE RZ-24-05

- **RESETTING the complete hold-open system after an alarm:** Firstly reset the fire detectors by means of the hand release key (1) on the cover of the casing. For this purpose press the key longer than 3 s. Now the entire system can be switched back into operation with the RESET button (2) of the central.



### LED indicator "Trip"

The "Trip" LED indicator lights up red when the RZ-24-05 detector loop is tripped. The "electromagnet" output is switched off, the "warning light" output is switched on.

### LED indicator "Ready"

The "ready" LED indicator lights up green when the RZ-24-05 detector loop is ready (not triggered). The "electromagnet" output is switched on, the "warning light" output is switched off.

### LED indicator "Error"

The "Error" LED indicator lights up or flashes yellow. A permanently yellow LED indicates a serious defect of the RZ-24-05. A yellow flashing LED indicates various other errors: The individual errors are indicated by the flashing LED one after the other. The messages are separated by a pause of 1 second (LED off).

- 1 x flashing = undervoltage error, i.e. the operating voltage has dropped below 1.5 V.
- 2 x flashing = flash memory error of the controller.
- 3 x flashing = output electromagnet overload or open.

A short flash of the LED "Error" when switching on the controller is normal and serves to test the display.

Example: Undervoltage error and flash memory error are pending:

1 x yellow flashing, pause 1 s, 2 x yellow flashing, pause 1 s, 1 x yellow flashing, pause 1 s and so on.

## 7.2 TROUBLESHOOTING

Error	Measure
Detection loop cannot be reset	Check whether the RZ-24-05 can be reset with a 3.9 kΩ resistor on terminals 1 and 2. If not, check whether the control module is correctly inserted in the terminal board. If the problem persists, replace the control module. If resettable with a 3.9 kΩ resistor on terminals 1 and 2, check the external detection loop step by step. Is a 3.9 kΩ resistor in the last detector? Is the manual push button reset and is a correct contact used?
Error LED lights up permanently yellow	Replace control module
Error LED flashes yellow	Determine the error using the functional description of the error LED in the manual. Is the voltage of the power supply unit too low? Please measure. External load too high? Replace the power supply unit if necessary.
Key "Close door" does not work	Replace the control module.
Key "RESET" does not work	Replace the control module.
Electromagnets don't work	Check the cable path from the terminal board to the electromagnets. Replace the terminal board.
Warning signal does not work	Check the cable path from the terminal board to the warning signal device. Replace the terminal board.

