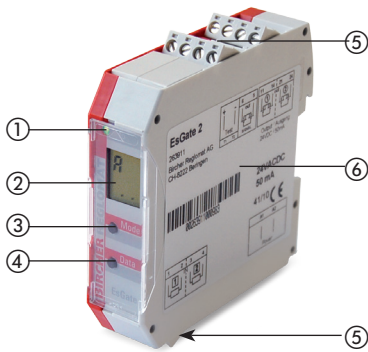


EsGate 2

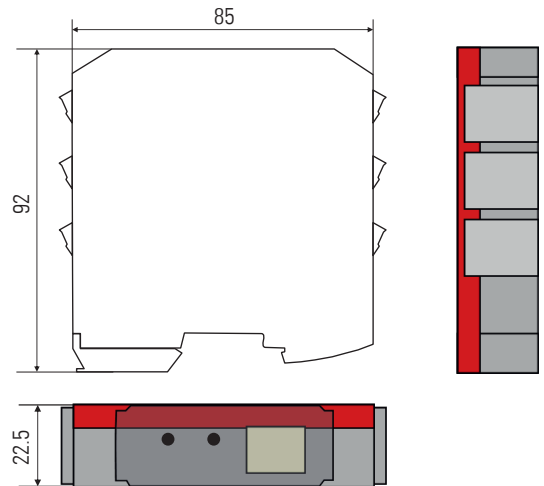
Safety switching device for sensors with 8,2 kOhm

Original instructions

General



- ① LED
- ② LCD display
- ③ "Mode" button
- ④ "Data" button
- ⑤ Terminals
- ⑥ Label (with terminal description)



1 Safety Instructions



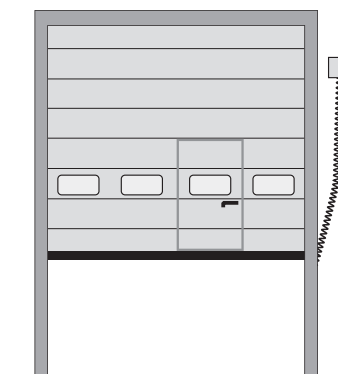
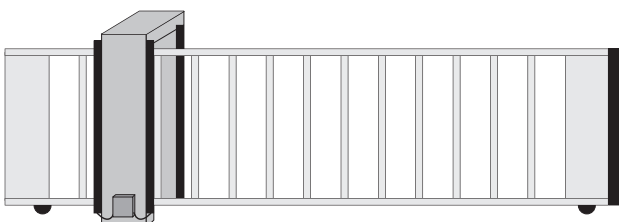
- Read these operating instructions thoroughly before putting the device into operation and keep them for future reference.
- The assembly, commissioning, modifications and extensions may only be completed by an experienced electrician!
- Before commencing work, remove the power supply from the device/ installations!
- During the operation of electrical components
 - e. g. in the case of a short circuit hot and ionised gases can be emitted
 - protection covers must not be removed!
- Pay attention to all local relevant electrical safety regulations!
- Disregard of the safety regulations can cause death, severe injuries or extensive damage!
- Devices that are classified as Category 2 according to EN ISO 13849-1 must be tested regularly – at least once per cycle.
- It is the responsibility of the equipment manufacturer to carry out a risk assessment and to install both the detector and the equipment in compliance with applicable national and international regulations and safety standards, as well as the Machinery Directive 2006/42/EC, should this apply.

Before commencing the installation or assembly complete the following safety precautions:

- Check the voltage data on the label of the switching device.
- Ensure that the device/installations can not be switched on!
- Determine that the power supply is disconnected!
- Protect the device with a housing against contamination or aggressive environments!
- Connect all operating and switching voltages to the same fuse.
- Connect the operating voltage to the same circuit as the industrial door controller.
- Disconnect device from mains in the event of a fault.
- Protection max. 10 A

Limited protection against accidental contact!

2 Common Applications



3 Function

Connected sensors with a terminating resistor of 8.2 kOhm are monitored for a change in current.

In the idle mode

- all safety outputs are conductive
- the LED lights up green
- both dots on the display flash



Note: If 1st dot is permanently on: test input active



When one or more sensors are **actuated**

- the total resistance of the sensor system drops towards zero ohm
- the defined switching threshold is not reached anymore
- the corresponding Safety output opens
- the LED lights up orange, P appears on the display

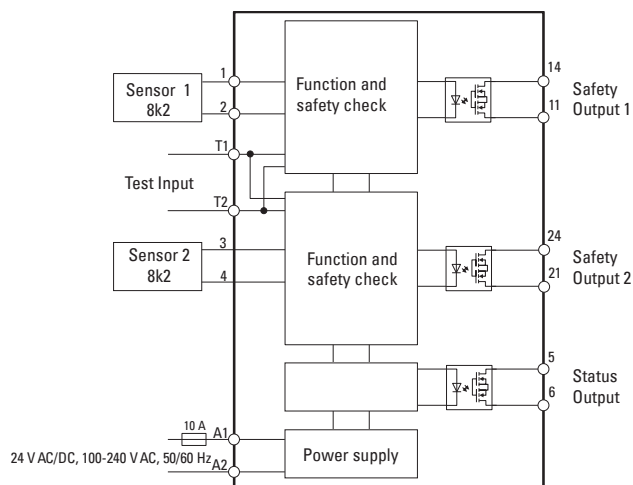


In the event of a **fault** in the sensor circuit (for example cable breakage)

- the total resistance of the sensor system increases
- the defined switching threshold is exceeded
- **both** Safety outputs open
- the LED lights up red, E appears on the display



Block diagram



4 Configuration and set-up

4.1 Terminals

Wiring the device

- A1 / A2: Supply voltage (24 V DC or 24 V AC) / LVAC: 100 ... 240 V AC
- 1 / 2: Sensor 1
- 3 / 4: Sensor 2
- 11 / 14: Safety output 1
- 21 / 24: Safety output 2
- 5 / 6: Status output
- T1 / T2: Test input

4.2 Switch on supply voltage

If necessary, configure the device

4.3 Function test

Function test

- Press sensor 1, check LED (orange), display (P ①, 1). Check if output 1 is open.
- Release sensor
- If present, press sensor 2, check LED, display (P ②, 2). Check if output 2 is open.
- Release sensor

After successful testing, the system is ready for operation.
Display: A and two flashing dots



Outputs

Contacts	Unpowered	Sensor 1 idle	Sensor 1 actuated	Sensor 2 idle	Sensor 2 actuated	Sensor 1 + 2 idle	Fault
Safety output 1	OPEN	closed	OPEN			closed	OPEN
Safety output 2	OPEN			closed	OPEN	closed	OPEN
Status output	OPEN		OPEN		OPEN	closed	OPEN

4.4 Diagnostic menu (read only)

⏏ Data ⏏ Mode ⏏ Back to top ⏏ Back to start

2 sec {		⏏ E	⏏ r	⏏ S	⏏ S	⏏ S	⏏ I	⏏ C	⏏ c	⏏ h	⏏ C	⏏ ⏏
		Errors flash	Resistors	Output 1	Output 2	both outputs	Configu- ration	Configu- ration	Test signal	Fall-delay time	Configu- ration	
		Error 5 latest	1 value	P 1	P 1	P 1	I IAC	C 001	c 001	h 003	con	
		Error 4	2 value	P 0	P 0	P 0					con (flashing)	
		Error 3										
		Error 2										
		Error 1										
		End										

Access Configuration (see chapter 4.5)

Enter Diagnostic menu:

Press "Mode" and "Data" buttons simultaneously for 2 seconds → Status LED flashes orange.
To see the next parameter, press "Mode", Data query (Mode E and r): press "Data"

Exit Diagnostic menu:

⏏ Press "Mode" button for 2 seconds

- E last 5 error messages (displayed by pressing "Data")
- r current resistances of the sensors (displayed in kOhm: 1, 2, 4, 6, 8, 10, 12 or 14)
- S ① shows the state of output 1:
output activated, P 1
press "Data", output deactivated: P 0
- S ② shows the state of output 2:
output activated, P 1
press "Data", output deactivated: P 0
- S ① ② shows the state of both outputs:
outputs activated: P 1
press "Data", outputs deactivated: P 0
- I shows the state of the test input: IAC = inactive, AC = active
- C shows the current configuration (active inputs):
001 = both inputs 1 and 2, 002 = only input 1, 003 only input 2
- c shows the current configuration of the test input: 001 = , 002 =
- h The holding time (extension of the output signal):
001 = none, 002 = 100 ms, 003 = 200 ms, 004 = 500 ms, 005 = 1000 ms
- C configuration: entering into the configuration mode by pressing "data" → chap. 4.5

4.5 Configuration mode (edit mode)

To enter Configuration menu (see also chapter 4.4):

- Enter diagnostic menu: Press "Mode" and "Data" buttons simultaneously for 2 seconds → Status LED flashes orange.
- Press "Mode" repeatedly until "C" and "con" are displayed.
- Press "Data" button, "con" starts flashing.
- Press "Mode" and "Data" buttons simultaneously until "con" stops flashing.
- Release "Mode" and "Data", "C" starts flashing, both safety outputs open.

2 sec {		⏏ C	⏏ c	⏏ h	⏏ h
		Configu- ration	Test input	Holding time	
		001* Sensor 1 + 2	001	001 none	End
		002 Sensor 1	002*	002 100 ms	
		003 Sensor 2		003* 200 ms	
				004 500 ms	
				005 1 s	

Exit Configuration menu

* Factory setting

On initial commissioning, the device must be adapted (configured) to the application.

Configuration

- Press the "Mode" button to select the requested parameter.
- Press the "Data" button to set the value.

Exit Configuration menu:

Press "Mode" until "h End", than press "Data".

Adjustable parameters:

- C active inputs: 001 = both inputs 1 and 2, 002 = only input 1, 003 only input 2
- c set required test signal: 001 = , 002 =
- h set required holding time (extension of the output signal):
001 = none, 002 = 100 ms, 003 = 200 ms, 004 = 500 ms, 005 = 1000 ms

4.6 Service mode

 Data
  Mode
  Back to top
  Back to start

10 sec

H	S	t	U	o	E	E
Hardware version	Software version	Type	Supply voltage	Internal temperature	Errors flash	Errors flash
005	4.09	2	value	value	Error 5 latest	rES
					Error 4	--- 2 sec
					Error 3	
					Error 2	
					Error 1	
					End	

Enter Service mode: Press "Data" for 10 seconds

→ Green status LED flashes

To show the next parameter, press "Mode"

Data query in each mode: press "Data" button

Exit Service mode: Press "Mode" button for 2 seconds

In the service mode, further information can be displayed:

H Hardware Version

S Software Version

t Type (Cat. acc. to EN ISO 13849-1)


U Internal supply voltage

o Current chip temperature

E The last five error messages (displayed by pressing "Data")

E rES: press and hold "Data" button until --- is displayed to reset the error messages

4.7 Error displays

	If an error is detected both safety outputs are deactivated and symbols ① & ② and an error code are displayed. The status LED lights up red.				
Display	E001	E002	E006	E101	E102
Error	Sensor 1 wiring defective	Sensor 2 wiring defective	Configuration mode incorrectly set	Undervoltage	Overvoltage
Remedy	Check sensor 1	Check sensor 2	Check configuration	Check supply	


Should other fault messages appear, please contact your supplier.

5 Technical Data

Supply voltage	EsGate 2: 24 V AC/DC, ±15% EsGate 2.LVAC: 100 – 240 V AC, 50/60 Hz
Power consumption	max. 3 VA
Inputs sensors	for Sensors with 8,2 kOhm termination
Safety outputs	Solid state relays, 24 V AC/DC, max. 50 mA $R_{DS(on)}$ ca. 30 Ω
Status output	Solid state relays, 24 V AC/DC, max. 50 mA $R_{DS(on)}$ ca. 30 Ω
Reaction time (at activation)	< 20 ms

Start-up time	< 500 ms
Test input	24 V AC/DC, 2 mA
Housing	Polyamide grey / red
Dimensions	22,5 x 94 x 88 mm (W x H x D)
Mounting	Direct DIN-rail mounting
Terminals	Pluggable screw terminals
Protection class	IP30
Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +70°C
Humidity	< 95% non-condensing

6 EU Declaration of Conformity

 See attachment

7 WEEE



Devices with this symbol must be treated separately during disposal. This must be done in accordance with the laws of the respective countries for environmentally sound disposal, processing and recycling of electrical and electronic equipment.

8 Contact

BBC Bircher Smart Access, BBC Bircher AG, Wiesengasse 20, CH-8222 Beringen, www.bircher.com

Designed in Switzerland / Made in EU