EsGate 3
Safety switching device for sensors with 8,2 kΩ

Translation of the original instructions

General

1 Safety Instructions

- Read these operating instructions thoroughly before putting the device into
  operation and keep them for future reference.
- Do not use this product other than for its specified application.
- Only trained and qualified personnel may install and initialize the device.
- Only authorized factory personnel may perform hardware/software changes or
  repairs to the product.
- Pay attention to all local relevant electrical safety regulations!
- Failure to follow these safety precautions may cause damage to device or
  objects, serious personal injury, or death.
- It is the responsibility of the equipment installer to carry out a risk assessment
  and to install the system, in compliance with applicable local, national and
  international regulations, safety standards, codes and laws as well as the
  Machinery Directive 2006/42/EC, should this apply.
- Observe all applicable local, national, and international door safety standards,
  codes, and laws.
- Always consider the safety functions of your applications as a whole, never just
  in relation to one individual section of the system.
- The installer is responsible for testing the system to ensure it meets all
  applicable safety standards.
- 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!
- The device should only be operated from a safety extra low voltage (SELV)
  system with safe electrical separation according to EN 61558.
- The wiring must be protected against mechanical damage.

Prior to starting installation or mounting, take the following safety precautions:
- Check the voltage data on the label of the switching device.
- Ensure that the device/installations cannot be switched on!
- Ensure that the power supply is disconnected!
- Protect the device with a housing against contamination or harsh environments!
- Cover any neighbouring live parts or remove them!
- Disconnect device from mains in the event of a fault.
- Avoid touching any electronic components.
- Limited protection against accidental contact!

2 Intended use

The EsGate 3 switching devices are used to monitor the manufacturer’s pressure-
 sensitive protective devices (for safety edges according to EN ISO 13856-2) on
 industrial gates/doors. They comply with the requirements of the standard
 EN ISO 13849-1 for protective devices up to Pl. e, Cat. 3.
 If the safety device is not requested operationally at least once a month, it must be
 checked automatically or manually by the operator at least once a month.
 The device can be installed in a simple, industrial or even controlled electromagne-
tic environment.

Common Application
Connected sensors with a terminating resistor of 8.2 kΩ 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

When one or more sensors are actuated
- the total resistance of the sensor system drops towards zero Ω
- 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

### 4 Configuration and set-up

#### 4.1 Terminals

*Wiring the device*

A1 / A2: ▲ Supply voltage (24 V AC/DC)
1 / 2: Sensor 1
3 / 4: Sensor 2
11 / 14: ▲ Safety output 1
21 / 24: ▲ Safety output 2
5 / 6: Status output

⚠️ No function test possible without connected outputs (Display E 007 or E 008)
▲ Wiring mandatory

#### 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

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Unpowered</th>
<th>Sensor 1 idle</th>
<th>Sensor 1 actuated</th>
<th>Sensor 2 idle</th>
<th>Sensor 2 actuated</th>
<th>Sensor 1 + 2 idle</th>
<th>Fault</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety output 1</td>
<td>OPEN</td>
<td>closed</td>
<td>OPEN</td>
<td></td>
<td></td>
<td>closed</td>
<td>OPEN</td>
</tr>
<tr>
<td>Safety output 2</td>
<td>OPEN</td>
<td></td>
<td></td>
<td>closed</td>
<td>OPEN</td>
<td>closed</td>
<td>OPEN</td>
</tr>
<tr>
<td>Status output</td>
<td>OPEN</td>
<td></td>
<td>OPEN</td>
<td></td>
<td></td>
<td>closed</td>
<td>OPEN</td>
</tr>
</tbody>
</table>
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
- **h** The 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

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

Should other fault messages appear, please contact your supplier.

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 | E007 | E008 | E101 | E102
--- | --- | --- | --- | --- | --- | --- | ---
Error | Sensor 1 wiring defective | Sensor 2 wiring defective | Configuration mode incorrectly set | Outputs not OK | Undervoltage | Overvoltage
Remedy | Check sensor 1 | Check sensor 2 | Check configuration | Check output wiring | Check supply

5 Technical Data

Operating voltage 24 V DC ±15 %, 24 V AC ±15 %, 50/60 Hz
Power consumption max. 3 W
Inputs sensors for sensors with 8,2 kΩ termination
Safety outputs Solid state relays, 24 V DC, min. 0.5 mA, max. 50 mA internally protected by a fuse R_DS(ON) ca. 60 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
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 IP20 (EN 60529)
Operating temperature -20°C to +60°C
Storage temperature -40°C to +70°C
Humidity Max. 95% relative, 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

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Designed in Switzerland / Made in Bulgaria