



# RLY3-EMSS100

ReLy

SAFETY RELAYS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
RLY3-EMSS100	1085345

Other models and accessories → [www.sick.com/ReLy](http://www.sick.com/ReLy)

### Detailed technical data

#### Features

<b>Applications</b>	Evaluation unit
<b>Compatible sensor types</b>	Safety sensors with potential-free outputs

#### Safety-related parameters

<b>Safety integrity level</b>	SIL3 (IEC 61508) SILCL3 (IEC 62061)
<b>Category</b>	Category 4 (ISO 13849-1)
<b>Performance level</b>	PL e (ISO 13849-1)
<b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b>	1.0 x 10 <sup>-9</sup>
<b>T<sub>M</sub> (mission time)</b>	20 years (ISO 13849-1)
<b>Stop category</b>	0 (IEC 60204-1)

#### Functions

<b>Sensor monitoring</b>	Discrepancy monitoring Cross-circuit detection
<b>Restart interlock</b>	✓
<b>Reset</b>	Automatic Manual
<b>External device monitoring (EDM)</b>	✓

#### Interfaces

<b>Connection type</b>	Front connector with spring terminals
<b>Inputs</b>	2 safety inputs 1 input for reset pushbutton or external device monitoring (EDM)
<b>Outputs</b>	2 enabling current paths (safe) 2 application diagnostic outputs (not safe) 3 test pulse outputs (not safe)
<b>Display elements</b>	LEDs
<b>Configuration method</b>	Hard wired

## Electrical data

### Operating data

<b>Voltage supply</b>	PELV or SELV
<b>Supply voltage <math>V_s</math></b>	24 V DC (16.8 V ... 30 V)
<b>Residual ripple</b>	$\leq 2.4$ V
<b>Power consumption</b>	$\leq 2.5$ W (DC)

### Safety inputs

<b>Number</b>	2
<b>Input voltage</b>	
	HIGH 24 V DC (11 V ... 30 V)
	LOW 0 V DC (-3 V ... 5 V)
<b>Input current</b>	4 mA ... 6 mA
<b>Activation time tolerance between the two start buttons</b>	$\leq 3$ s

### Reset pushbutton or external device monitoring (EDM) input

<b>Number</b>	1
<b>Input voltage</b>	
	HIGH 24 V DC (11 V ... 30 V)
	LOW 0 V DC (-3 V ... 5 V)
<b>Input current</b>	4 mA ... 6 mA

### Enabling current paths

<b>Response time</b>	10 ms
<b>Number</b>	2
<b>Type of output</b>	N/O contacts, positively guided
<b>Contact material</b>	Silver alloy, gold flashed
<b>Switching voltage</b>	10 V AC ... 230 V AC 10 V DC ... 230 V DC
<b>Switching current</b>	10 mA ... 6 A
<b>Total current</b>	12 A
<b>Mechanical life</b>	$1 \times 10^7$ switching cycles
<b>Overvoltage category</b>	III (EN 60664-1)
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>	6 kV (EN 60664-1)

### Application diagnostic outputs

<b>Number</b>	2
<b>Type of output</b>	Push-pull semiconductor output, short-circuit protected
<b>Output voltage</b>	
	HIGH $\geq V_s - 3$ V
	LOW $\leq 3$ V
<b>Input current (NPN)</b>	$\leq 15$ mA
<b>Output current (PNP)</b>	$\leq 120$ mA

### Test pulse outputs

<b>Number</b>	3
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<b>Type of output</b>	PNP semiconductors, short-circuit protected
<b>Output voltage</b>	$\geq V_s - 3 \text{ V}$
<b>Test pulse width</b>	2 ms
<b>Test pulse interval</b>	40 ms

### Mechanical data

<b>Dimensions (W x H x D)</b>	18 mm x 124.6 mm x 85.5 mm
<b>Weight</b>	130 g

### Ambient data

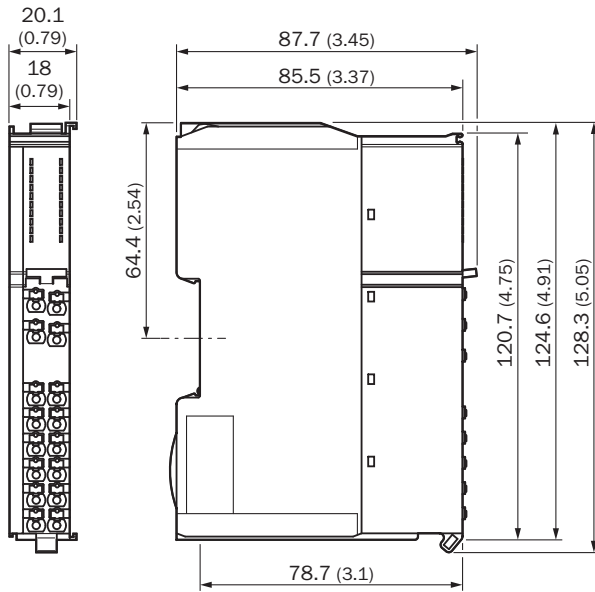
<b>Enclosure rating</b>	IP20 (IEC 60529)
<b>Ambient operating temperature</b>	-25 °C ... +55 °C
<b>Storage temperature</b>	-25 °C ... +70 °C
<b>Air humidity</b>	≤ 95 %, Non-condensing
<b>Interference emission</b>	According to IEC 61000-6-4
<b>Interference resistance</b>	According to IEC 61326-3-1 According to IEC 61000-6-2 According to IEC 60947-5-1

### Classifications

<b>eCl@ss 5.0</b>	27371990
<b>eCl@ss 5.1.4</b>	27371990
<b>eCl@ss 6.0</b>	27371819
<b>eCl@ss 6.2</b>	27371819
<b>eCl@ss 7.0</b>	27371819
<b>eCl@ss 8.0</b>	27371819
<b>eCl@ss 8.1</b>	27371819
<b>eCl@ss 9.0</b>	27371819
<b>eCl@ss 10.0</b>	27371819
<b>eCl@ss 11.0</b>	27371819
<b>eCl@ss 12.0</b>	27371819
<b>ETIM 5.0</b>	EC001449
<b>ETIM 6.0</b>	EC001449
<b>ETIM 7.0</b>	EC001449
<b>ETIM 8.0</b>	EC001449
<b>UNSPSC 16.0901</b>	41113704

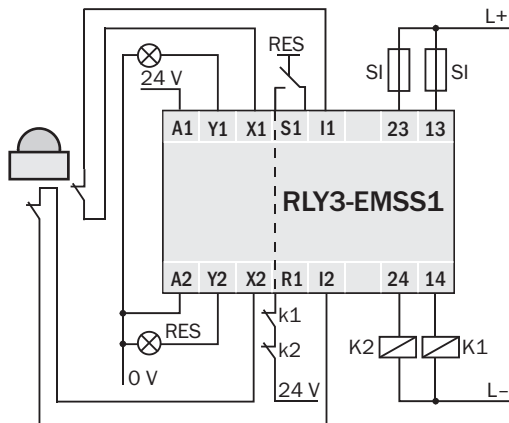
**Dimensional drawing** (Dimensions in mm (inch))

EMSS1, HAND1, OSSD1, OSSD2, TIME1

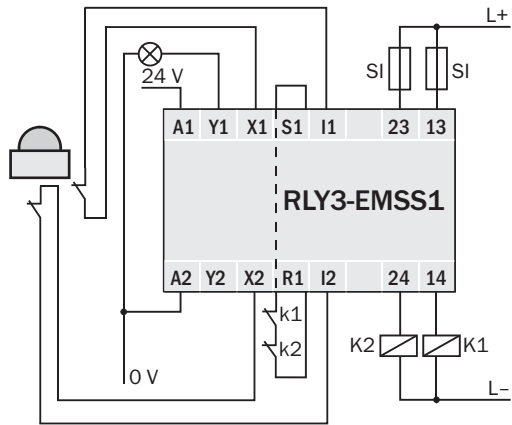


**Connection diagram**

RLY3-EMSS1 at dual-channel emergency switching off with manual reset and external device monitoring



RLY3-EMSS1 at dual-channel emergency switching off with automated reset and external device monitoring



## SICK AT A GLANCE

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We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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