



# SSP

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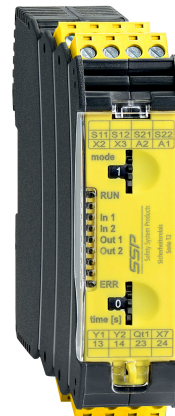
## Safety System Products

### T2 series

### Time delay safety relay 1 safety function

### Your advantages

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**we simplify safety**

## T2 series

**Monitoring of:** • [Potential-free](#) signals

- OSSD signals

**Functions:** • Time-delayed OSSD output

- Manual or automatic reset
- EDM (External Device Monitoring)
- Adjustable time delay of up to 30 seconds

**Safety contacts:** • 2 x relay output DC13, 4 A (STOP 0)

- 1 x Semiconductor output 24 VDC / 2 A (STOP 1)

**Signal contacts:** • 1 x Semiconductor output 24 VDC / 100 mA (STOP 0)

- 1 x Semiconductor output 24 VDC / 100 mA (STOP 1)

### General data

|                                  |                               |
|----------------------------------|-------------------------------|
| Type designation                 | T2 series                     |
| Interference immunity            | to EMC Directive              |
| Item number                      | SP-K-70-001-02                |
| Mounting                         | standard DIN rail to EN 60715 |
| Terminal designations            | EN 60947-1                    |
| PFHD semi-conductor output       | $\leq 2.66 \times 10^9$ / h   |
| PFDavg semi-conductor output     | $\leq 2.42 \times 10^5$       |
| PFHD relay output                | $\leq 1.25 \times 10^8$ / h   |
| PFDavg relay output              | $\leq 5.3 \times 10^5$        |
| DC                               | high                          |
| Service life TM (EN ISO 13849-1) | 20 Years                      |

### Safety data

|                                |                                                                       |
|--------------------------------|-----------------------------------------------------------------------|
| Category (EN ISO 13849-1:2015) | Cat. 4                                                                |
| SIL (acc. IEC 62061)           | 3                                                                     |
| Approvals                      | IEC/EN 60204-1, EN 60947-5-1; EN ISO 13849-1, IEC/EN 62061, IEC 61508 |

## T2 series

CCF (ISO 13849-1)

> 65 points

### Environmental conditions

|                                         |                                       |
|-----------------------------------------|---------------------------------------|
| Ambient temperature                     | -25 °C ... +60 °C (non condensing) °C |
| Resistance to shock                     | 30 g/11 ms                            |
| Max. storage temperature                | -40 °C ... +85 °C (non condensing) °C |
| Resistance to vibrationsto EN 60068-2-6 | 10 ... 55 Hz, Amplitude 0.35 mm       |
| Altitude                                | max. 2.000 m                          |
| Contamination level                     | 2                                     |

### Electrical data

|                                     |                                                                                                                                                                                                                  |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated operating voltage Ue          | 24 VDC / 24 VAC -20%/+20% residual ripple max. 10% V                                                                                                                                                             |
| Frequency range                     | -                                                                                                                                                                                                                |
| Power Supply                        | SELV-Netzteil network as per DIN EN 60950; safety transformer as per DIN EN 61558-2-6 (AC); mains power supply must harmonise with device safety (characteristic/melting property) so that triggering is assured |
| Power consumption                   | 3 W (+ load of the safety outputs)                                                                                                                                                                               |
| Protection of the operating voltage | we recommend a circuit breaker type Z (max. 16 A) or a fine fuse (max. 15 A, delayed action)                                                                                                                     |
| UL Rating of external fuse:         | max. 16 A, only use fuses in accordance with UL 248 series                                                                                                                                                       |

### Isolation parameters acc. to IEC 60664-1

#### Rated insulation voltage Ui

|                   |       |
|-------------------|-------|
| - safety contacts | 250 V |
| Safety outputs    | 50 V  |

#### Rated impulse withstand voltage Uimp

|                                |          |
|--------------------------------|----------|
| - safety contacts 13-14, 23-24 | 6 kV     |
| - safety outputs               | 0.8 kV   |
| Overvoltage category           | III      |
| Pick-up delay                  | < 150 ms |

## T2 series

|                                             |                                                                                        |
|---------------------------------------------|----------------------------------------------------------------------------------------|
| Dropout delay emergency-stop                | < 10 ms                                                                                |
| Dropout delay power failure                 | < 10 ms                                                                                |
| Bridging voltage drop                       | typ. 5 ms                                                                              |
| Standby after power switched on [s]         | < 1.5                                                                                  |
| <b>Terminal blocks</b>                      |                                                                                        |
| Single-wire (rigid) or fine-wire (flexible) | 0.2 ... 2.5 mm <sup>2</sup>                                                            |
| Fine-wired with wire sleeve                 | 0.25 ... 2.5 mm <sup>2</sup>                                                           |
|                                             | 0.5 Nm                                                                                 |
| <b>Control current circuits/inputs</b>      |                                                                                        |
| Inputs S12, S22                             | 24 VDC/8 mA                                                                            |
| Inputs X2, X3, X7                           | 24 VDC/8 mA                                                                            |
| Clock outputs S11, S21                      | > 20 VDC. 10 mA per output                                                             |
| Cable length                                | 1500 m with 1.5 mm <sup>2</sup> ; 2500 m with 2.5 mm <sup>2</sup>                      |
| Conduction resistance                       | max. 40 Ω                                                                              |
| <b>Relay outputs</b>                        |                                                                                        |
| Switching capacity of the safety contacts   | contacts 13-14, 23-24: max. 250 V, 6 A ohms, min. 10 VDC / 10 mA (Derating see 2.5)    |
| Fuse rating of the safety contacts          | external (Ik = 1000 A) acc. to EN 60947-5-1 Safety fuse 10 A quick blow. 6 A slow blow |
| Utilisation category to EN 60947-5-1        | AC-15: 230 V / 4 A DC-13: 24 V / 4 A                                                   |
| Electrical service life (nominal load)      | see 2.5 (operating manual) Years                                                       |
| mechanical lifespan                         | 10 million switching cycles                                                            |
|                                             | resistance max. 100 mΩ, AgNi, self-cleaning, positive action                           |
| Max. switching cycles / minute              | 20                                                                                     |
| Inductive consumers                         | provision is to be made for suitable protective wiring for suppression                 |
| <b>Semi-conductor outputs</b>               |                                                                                        |
| Switching capacity of the safety outputs Q  | Qt1: max. 2 A                                                                          |
| Voltage drop                                | < 0.5 V                                                                                |
| residual current                            | < 1 mA                                                                                 |
| Max. fuse rating of the safety outputs      | refer to „Operating voltage“                                                           |
| Switching capacity of signaling outputs     | semiconductor outputs Y1: 24 VDC/100 mA                                                |

## T2 series

|                                                 |                                                            |
|-------------------------------------------------|------------------------------------------------------------|
| Fuse rating of the signalling outputs           | internal electronic trip, tripping current > 100 mA        |
| Utilisation category according to IEC 60947-5-1 | DC-13: 24 V / 2A<br>< 1 ms (negative), < 100 µs (positive) |

### Mechanical data

|                  |                                                  |
|------------------|--------------------------------------------------|
| Housing material | glass-fibre reinforced thermoplastic. ventilated |
|------------------|--------------------------------------------------|

### Dimensions

|        |         |
|--------|---------|
| Height | 98 mm   |
| Width  | 22,5 mm |
| Length | 115 mm  |

### LED diagnostics

## T2 series

### Diagnose function

#### 6.1 LED indications

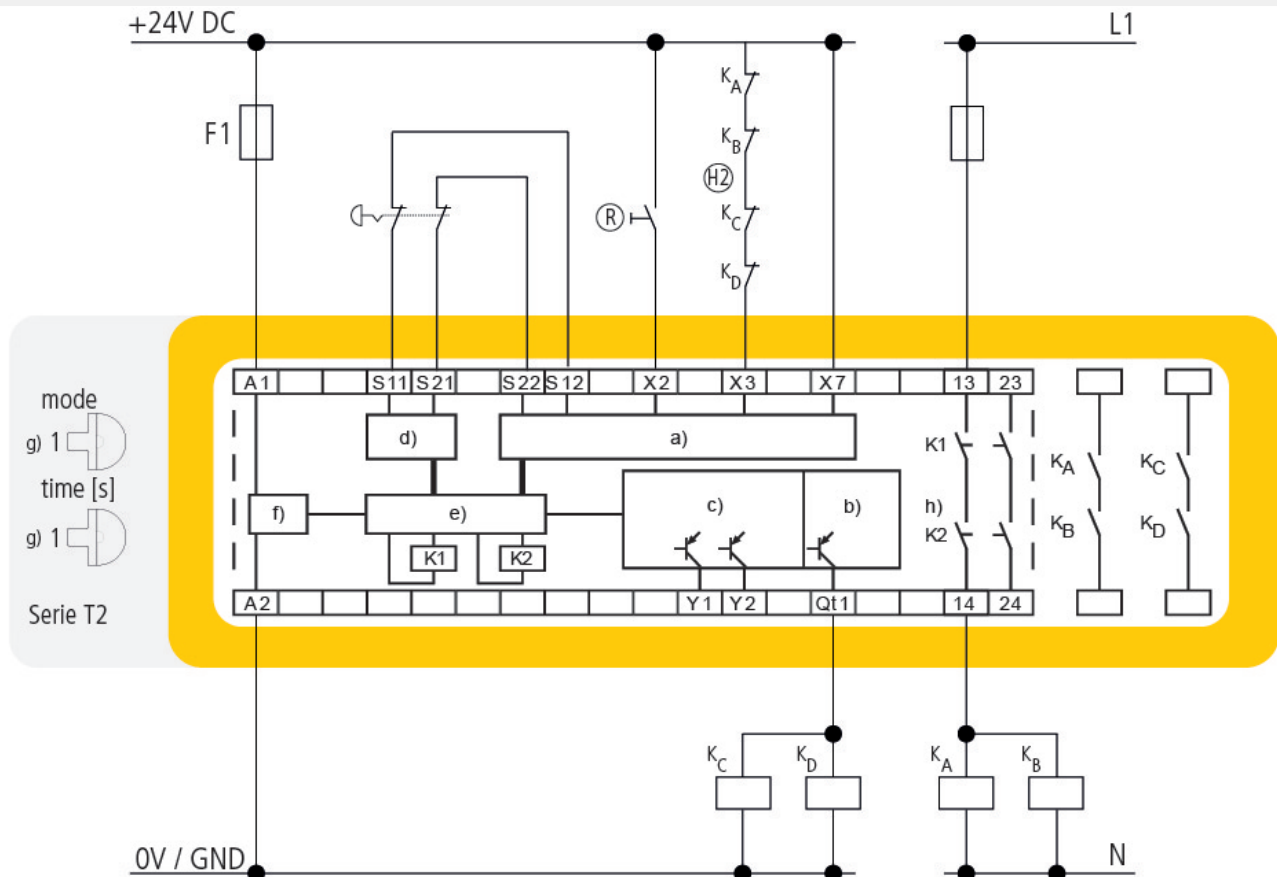
| LED  | Function                                    | Display type     |
|------|---------------------------------------------|------------------|
| RUN  | Ready for operation                         | Continuously lit |
|      | Not a valid application                     | Flashes          |
| In 1 | Eingang S12 geschlossen                     | Continuously lit |
|      | Time window for synchronicity exceeded      | Flashes quickly  |
|      | Second channel, input S22 has not opened    | Flashes slowly   |
| In 2 | Input S22 closed                            | Continuously lit |
|      | Time window for synchronicity exceeded      | Flashes quickly  |
|      | Second channel, input S12 has not opened    | Flashes slowly   |
| Out1 | Safety outputs ON                           | Continuously lit |
|      | No release signal on input X7               | Flashes quickly  |
|      | Safety outputs waiting for start (input X2) | Flashes slowly   |
|      | Feedback circuit not closed (input X3)      | Flashes slowly   |
| Out2 | Safety outputs ON                           | Continuously lit |
|      | No release signal on input X7               | Flashes quickly  |
|      | Safety outputs waiting for start (input X2) | Flashes slowly   |
|      | Feedback circuit not closed (input X3)      | Flashes slowly   |

Single flashing of all LEDs with mains on

## T2 series

## Electrical drawings

## Connection example 1



### Legend

- a) Safety inputs
- b) Safety outputs STOP 1
- c) Signalling outputs Y1 STOP 0  
Y2 STOP 1
- d) Clock outputs
- e) Processing
- f) Power
- g) Rotary knob for programming
- h) Safety outputs STOP 0

## T2 series

### Downloads

- SISTEMA - Data V 4.1
- Operating Manual
- Certificate
- CAD Data
- EPLAN-Data