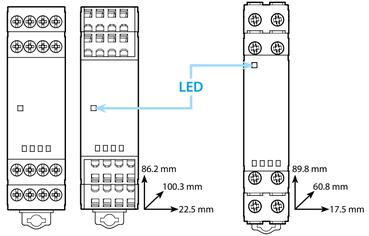
finder
RELAYING INNOVATION

7S.xx | 7S.23

| | | | |
|---|---|---|---|
| | **7S.xx.8.xxx.xxx0**<br>230 $U_{min}$ - $U_{max}$ (195.5...253)V AC<br>120 $U_{min}$ - $U_{max}$ (102...132)V AC | **7S.xx.9.xxx.xxx0**<br>012 $U_{min}$ - $U_{max}$ (9.6...14.4)V DC<br>024 $U_{min}$ - $U_{max}$ (19.2...28.8)V DC<br>110 $U_{min}$ - $U_{max}$ (88 ...132)V DC | **7S.23.9.xxx.0210**<br>012 $U_{min}$ - $U_{max}$ (9.6...14.4)V DC<br>024 $U_{min}$ - $U_{max}$ (19.2...28.8)V DC<br>048 $U_{min}$ - $U_{max}$ (38.4...57.6)V DC<br>110 $U_{min}$ - $U_{max}$ (88...132)V DC |
| | P 2.3 VA (50 Hz) / 1 W | | |
| | 6 A 250 V AC | | 10 A 250 V AC |
| | AC1 1500 VA<br>AC15 (230V) 5 A<br>DC1 (24/110/220)V (6/0.6/0.2) A [7S.x2]<br>(6/0.9/0.3) A [7S.x4/x6]<br>DC13 (24V) 1 A [7S.x2]<br>3 A [7S.x4]<br>3 A [7S.x6] | | AC1 2500 VA<br>AC15 (230 V) 5 A<br>DC1 (24/110/220)V (10/0.6/0.3)A<br>DC13 (24 V) 5 A |
| | (–40...+70)°C | | |
| | IP20 | | |

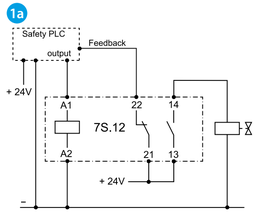
EN 61810-3 TYPE A

7S.3x 7S.1x 7S.23

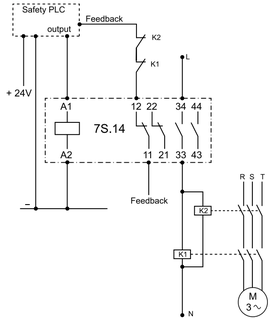


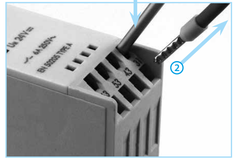



1a




1b

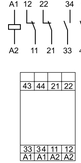




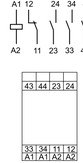

| | 9mm | 9mm |
|---|---|---|
| | 1x6 / 2x2.5 mm²<br>1x10 / 2x14 AWG | 1x4 / 2x2.5 mm²<br>1x12 / 2x14 AWG |
| | 1x1.5 mm²<br>1x14 AWG | 1x1.5 mm²<br>1x16 AWG |

7Sx2...5110

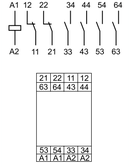
7Sx4...4220



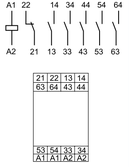

7Sx4...4310



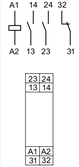

7Sx6...5420




7Sx6...5510




7S23




| Relay | Load | Vn (V) | In (A) | PFD | PFH | T cycle (s) | B10d | DC avg/SIL |
|---|---|---|---|---|---|---|---|---|
| 7S.12/32...5100 (T) | AC1 | 250 V AC | 6 | 5.21E-04 | 5.21E-08 | 180 | 220.000 | 90%/SIL2 |
| | | | 4 | 4.88E-04 | 4.88E-08 | 120 | 350.000 | 90%/SIL2 |
| | DC13 | 24 V DC | 1 | 2.02E-04 | 2.02E-08 | 450 | 210.000 | 90%/SIL2 |
| | AC15 | 250 V AC | 1 | 3.29E-04 | 3.29E-08 | 240 | 250.000 | 90%/SIL2 |
| | | | 2 | 7.51E-04 | 7.51E-08 | 180 | 160.000 | 90%/SIL2 |
| | | | 3 | 1.42E-03 | 1.42E-07 | 180 | 85.000 | 90%/SIL2 |
| 7S.14/7S.34...4220 (T)<br>7S.14/7S.34...4310 (T) | DC13 | 24 DC | 3 | 8.00E-03 | 8.00E-07 | 100 | 450.000 | 90%/SIL2 |
| | | | 1 | 6.00E-03 | 6.00E-07 | 30 | 2.000.000 | 90%/SIL2 |
| | | | 0,75 | 6.00E-03 | 6.00E-07 | 30 | 2.000.000 | 90%/SIL2 |
| | AC15 | 250 V AC | 3 | 1.50E-03 | 1.50E-07 | 600 | 400.000 | 90%/SIL2 |
| | | | 0.1 | 1.20E-03 | 1.20E-07 | 30 | 10.000.000 | 90%/SIL2 |
| | AC1 | 250 V AC | 6 | 1.20E-03 | 1.20E-07 | 600 | 500.000 | 90%/SIL2 |
| | | | 4 | 1.00E-03 | 1.00E-07 | 600 | 600.000 | 90%/SIL2 |
| | | | 2 | 1.20E-03 | 1.20E-07 | 300 | 1.000.000 | 90%/SIL2 |
| 7S.16/7S.36...5420 (T)<br>7S.16/7S.36...5510 (T) | DC13 | 24 V DC | 3 | 4.00E-03 | 4.00E-07 | 300 | 300.000 | 90%/SIL2 |
| | | | 2 | 6.00E-03 | 6.00E-07 | 30 | 2.000.000 | 90%/SIL2 |
| | | | 1 | 1.71E-03 | 1.71E-07 | 30 | 7.000.000 | 90%/SIL2 |
| | AC15 | 250 V AC | 3 | 5.22E-03 | 5.22E-07 | 300 | 230.000 | 90%/SIL2 |
| | | | 1 | 3.16E-03 | 3.16E-07 | 300 | 380.000 | 90%/SIL2 |
| | AC1 | 250 V AC | 6 | 2.40E-03 | 2.40E-07 | 300 | 500.000 | 90%/SIL2 |
| | | | 4 | 1.40E-03 | 1.40E-07 | 300 | 860.000 | 90%/SIL2 |
| | | | 2 | 9.23E-03 | 9.23E-07 | 30 | 1.300.000 | 90%/SIL2 |
| 7S.23/7S.P3...0210 (T) | DC13 | 24 V DC | 5 | 2.00E-03 | 2.00E-07 | 300 | 600.000 | 90%/SIL2 |
| | AC15 | 230 V AC | 5 | 1.33E-03 | 1.33E-07 | 300 | 900.000 | 90%/SIL2 |

| Probabilistic constraints | |
|---|---|
| T1 | 1 year |
| MTTR | 8h |
| MTR | 0.5 h |
| PFD* | 1E5 x PFH |

# ENGLISH

7S
Relay modules with forcibly guided contacts

1a Direct load switching and contact diagnostics , with a common supply
1b Indirect load switching and contact diagnostics, with a different load supply

Relays with forcibly guided contacts for applications up to SIL2.
Being a single channel system (1oo1), the diagnostics, entrusted for example to a safety PLC, should aim at identifying the fault before the safety function is required.
Dynamic tests are not foreseen or imposed by the relay manufacturer.
If the NO contacts fail to open when the coil is de-energised the NC contact will not close, and restarting the machinery must then be prevented.
Using the relay as a device for realising a safety function requires that circuit techniques well established for safety purposes are followed. ie. Using the NO contacts of a relay which will remove the power supply from the load when the coil is de-energised.
On these assumptions, the failure of the NO contact to close is a failure in safety while the failure to open is a dangerous fault.
The system is built in 1oo1 logic and should provide for a system proof test interval equal to T1.
It is assumed the time to restart the system after a dangerous failure equals MTTR and the time to carry out the replacement of the 7S equals MTR.

✱ Consider that the calling frequency of the safety function does not exceed 1.14 years (10,000 hours)

Installation advice
- It is recommended to install overvoltage protection devices (SPD) to protect the safety devices
- It is recommended to install overcurrent protection devices to protect the load
- It is recommended to evaluate the appropriate IP degree of the enclosure in which the 7S will be mounted, dependent on the application

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