SCHRACK FORCE GUIDED RELAYS

FOR SAFETY SOLUTIONS

SCHRACK Force Guided Relays are used in safety circuits in combination with light curtains, interlock switches, and emergency stop switches to control outputs. In the design of the Force Guided Relays, special importance was attached to the switching of low loads by the monitoring circuit. TE Connectivity (TE) has developed comprehensive documentation of Forced Guided Relays which accelerates the development process for safety controls and application notes help to point out possible error sources.

Credibility & Reliability

- Established in the relay market for 20 years
- Innovators in replacing contactors in safety circuits

Industry 4.0

- High volume manufacturing
- Fully automated packing improves traceability

Industry Standards & Certifications

- CCC, UL, TUV & VDE*
- Sealed against external influences according to IEC
- 61810 protection category RTIII

*for exact product approvals please refer to the individual product group data sheet

Ease Design-In Process & Support

- TE has developed special procedures to provide contact reliability
- Comprehensive documentation accelerates the development process for safety controls

Check out the **SCHRACK Force Guided Relays infographic** on **TE.com**

TE has extensive capabilities in the design and manufacturing of relays and a broad portfolio of switching solutions for demanding, high performance applications. These relay products are remotely actuated to control electrical power flow by either interrupting or completing an electrical circuit.

In many safety critical applications only a special version of an electro mechanical relay can be used, a Force Guided Relay, according to IEC 61810-3. The special design connects NC (normally closed) and NO (normally open) contacts through an actuator, so that one contact interacts with all the other contacts during switching operation in a planned, forced manner.

The ultimate goal is, in case of contact welding or other potential failure modes of the relay, to enable a minimum of 0.5mm (0.20 inch) contact gap of the antivalent contacts – in other words, NO and NC contacts can never be closed at the same time throughout the whole life cycle of the relay and allow operations to switch into a safe state.

TE's SCHRACK Force Guided Relays are essential for safety control applications and help protect people's lives & health when danger needs to be addressed in applications.

Focus applications:

- Machine safety such as presses, cutting machines and robots controls
- Building automation such as elevator, escalator and door controls
- Railway such as signaling, break controls, level crossings controls
- Medical devices such as x-ray, ventilation and diagnostic systems

Safety
of human beings
is **paramount**
in all areas of our
daily lives.

Watch the **SCHRACK Force Guided Relays Webinar** on **TE.com**

SCHRACK Force Guided Relays

For Safety Solutions

The SCHRACK portfolio of Force Guided Relay meets the superior requirements towards quality and lifetime of a Force Guided Relay.

TE's Force Guided Relay portfolio offers flexible design options such as:

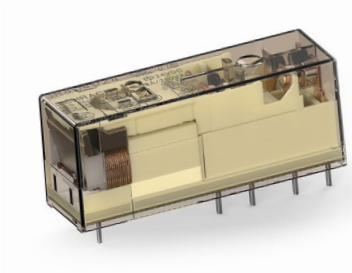
- Multiple contact configurations up to 5 NO (form A) and up to 3 NC (form B) in different form factors
- Different plating options such as standard plating AgSnO2 or high-performance gold plating AgSnO2 + 0.2µm Au
- Different pin layouts and version with selective contact loading to enable higher voltage ratings
- Standard and sensitive coil options for longer lifetime and improved heat dissipation
- Different packaging options such as box packaging and tube packaging

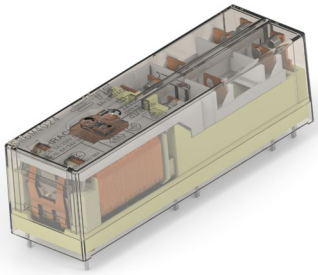
2 pole
SR2M

4 pole
SR4

6 pole
SR6

7 pole
SRL7





100K+
CYCLES AT
70°C & UP TO 20G
SHOCK RESISTANCE

13mm
WIDTH FOR HIGH
STACKING DENSITY
& MINIATURIZATION

40+
COIL & CONTACT
OPTIONS FOR HIGH
DESIGN FLEXIBILITY

10.8mm
FLAT HEIGHT
FOR OPTIMIZED
MODULE WIDTH

Being one of the leading manufacturers of Force Guided relays globally, our standard products are compliant to UL, CSA, VDE, TÜV and CCC regulation (please see details per family for exact approvals).

Check out the **SCHRACK Force Guided Relays Virtual Sample Kit** on **TE.com**

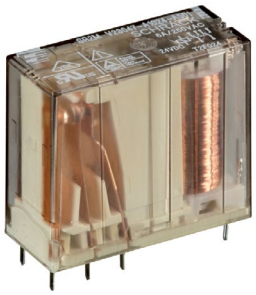
Contents

WHAT'S INSIDE

FIND THE RIGHT RELAY FOR YOUR DESIGN HERE

RELAY SELECTOR TOOL

SCHRACK SR2M



SCHRACK SR2M force guided relays are high endurance with reinforced insulation between all adjacent contacts for loads up to 6A. The SR2M family offers a 2-pole contact arrangement with either 1 NO (form A) + 1 NC (form B) contact set or 2 CO (form C) contact set with Force Guided contacts according to EN61810-3. The robust and slim footprint of 12.6mm allow economic usage, if the application requires dense stacked relay design and reinforced insulation at the same time.

FEATURES

- 2 pole relay with force guided contacts according to EN 50205
- Reinforced insulation between poles
- Version for use in sockets

CONTACT DATA

- Contact arrangement: 1 form A + 1 form B (1 NO + 1 NC) and 2 form C (2 CO)
- Rated voltage: 250VAC
- Rated current: 6A
- Contact material: AgNi
- Min. recommended contact load: 5V/10mA

COIL DATA

- Magnetic system: DC
- Rated coil voltage: 5 to 110VDC
- Rated coil power: 700mW

APPLICATIONS

- Emergency shut-off
- Press control
- Machine control
- Elevator and escalator control

INSULATION DATA

- Initial dielectric strength
  - between open contacts: 1500Vrms
  - between contact and coil: 4000Vrms
  - between adjacent contacts: 3000Vrms
- Clearance/creepage between contact and coil: ≥8/8mm

OTHER DATA

- Ambient temperature (max.): +70°C
- Mounting and terminal type: PCB, THT

PRODUCT INFORMATION

Product Code	Description	Contact Arrangement	Part Number
V23047-A1024-A501	SR2M-V23047 2 Pole Safety Relay	2 form C (CO)	1-1393258-5
V23047-A1021-A501	SR2M-V23047 2 Pole Safety Relay	2 form C (CO)	1-1393258-1
V23047-A1024-A511	SR2M-V23047 2 Pole Safety Relay	2 form C (CO)	1-1393258-7
V23047-A1012-A501	SR2M-V23047 2 Pole Safety Relay	2 form C (CO)	1393258-4
V23047-A1110-A501	SR2M-V23047 2 Pole Safety Relay	2 form C (CO)	1-1415012-1

For additional configurations, see the Data Sheet - SCHRACK SR2M

SCHRACK SR2M Plug-In & Accessories

DIN rail mountable sockets for the SCHRACK SR2M 2 pole Force Guided relay allow quick changeover if required. Time efficient spring clamp wire connection and robust screw clamp wire connection available for full flexibility. White snap on marking tabs and tool-less mounting clips save installer most important asset – their time.

FEATURES

- 2 pole relay with force guided contacts according to EN 50205
- Reinforced insulation between poles
- Version for use in sockets

CONTACT DATA

- Contact arrangement: 1 form A + 1 form B (1 NO + 1 NC) and 2 form C (2 CO)
- Rated voltage: 250VAC
- Rated current: 6A
- Contact material: AgNi
- Min. recommended contact load: 5V/10mA

COIL DATA

- Magnetic system: DC
- Rated coil voltage: 5 to 110VDC
- Rated coil power: 700mW

APPLICATIONS

- Emergency shut-off
- Press control
- Machine control
- Elevator and escalator control

INSULATION DATA

- Initial dielectric strength
  - between open contacts: 1500Vrms
  - between contact and coil: 4000Vrms
  - between adjacent contacts: 3000Vrms
- Clearance/creepage between contact and coil: ≥8/8mm

OTHER DATA

- Ambient temperature (max.): +70°C
- Mounting and terminal type: PCB, THT

PRODUCT SELECTION INFORMATION

Product Code	Description	Contact Arrangement	Part Number
V23047-P1005-A501	SR2M Printed Circuit Board, Socket, Plug-in Relay	2 Form C (CO)	7-1415543-4
V23047-P1009-A501	SR2M Printed Circuit Board, Socket, Plug-in Relay		7-1415543-5
V23047-P1012-A501	SR2M Printed Circuit Board, Socket, Plug-in Relay		7-1415543-6
V23047-P1021-A501	SR2M Printed Circuit Board, Socket, Plug-in Relay		7-1415543-7
V23047-P1024-A501	SR2M Printed Circuit Board, Socket, Plug-in Relay		7-1415543-8
V23047-P1036-A501	SR2M Printed Circuit Board, Socket, Plug-in Relay		7-1415543-9
V23047-P1110-A501	SR2M Printed Circuit Board, Socket, Plug-in Relay		8-1415543-0

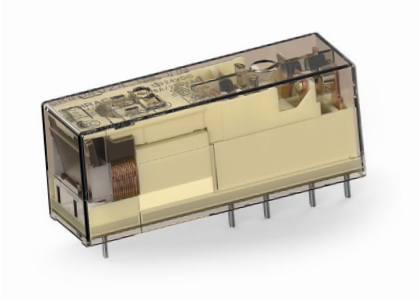
For additional configurations, see the Data Sheet - SCHRACK SR2M Plug-in

Product Code	Description	Part Number
RT7872P	Relay Accessory, Socket & Clip Socket Type	1860200-1

For additional configurations, see the Data Sheet - SCHRACK SR2M Plug-in Accessories Force Guided Relay

SCHRACK SR4 D/M

SCHRACK SR4 D/M force guided relay is compact and space efficient for loads up to 8A. The SR4M family offers a 4-pole contact arrangement with either 3 NO (form A) + 1 NC (form B) contact set or 2 NO (form A) + 2 NC (form B) contact set with Force Guided contacts according to EN61810-3. The optimized ratio between 13mm width and 16.5mm height allow miniaturization for horizontally or vertically installed PCBs and modules.



FEATURES

- 4 pole relay with force guided contacts according to EN 50205
- Compact design, space efficient

CONTACT DATA

- Contact arrangement: 3 form A + 1 form B (3 NO + 1 NC) and 2 form A + 2 form B (2 NO + 2 NC)
- Rated voltage: 250VAC
- Rated current: 8A
- Contact material: AgSnO2
- Min. recommended contact load: 5V/10mA

COIL DATA

- Magnetic system: DC
- Rated coil voltage: 5 to 110VDC
- Rated coil power: 800mW

APPLICATIONS

- Emergency shut-off
- Press control
- Machine control
- Elevator and escalator control

INSULATION DATA

- Initial dielectric strength
  - between open contacts: 1500Vrms
  - between contact and coil: 4000Vrms
  - between adjacent contacts: 2500Vrms
- Clearance/creepage between contact and coil: ≥10/10mm

OTHER DATA

- Ambient temperature (max.): +70°C
- Mounting and terminal type: PCB, THT

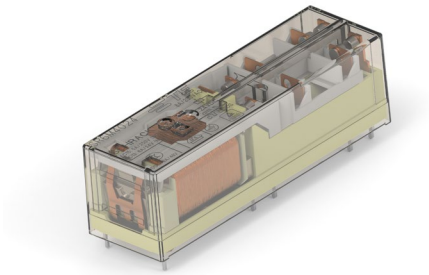
PRODUCT INFORMATION

Product Code	Description	Contact Arrangement	Part Number
SR4D4012	SR4 D/M 4 Pole Safety Relay	2 form A + 2 form B (2 NO + 2 NC)	1415055-1
SR4D4018	SR4 D/M 4 Pole Safety Relay		1-1415055-1
SR4D4024	SR4 D/M 4 Pole Safety Relay		3-1415055-1
SR4M4012	SR4 D/M 4 Pole Safety Relay	3 form A + 1 form B (3 NO + 1 NC)	8-1415053-1
SR4M4024	SR4 D/M 4 Pole Safety Relay		4-1415053-1

For additional configurations, see the Data Sheet - SCHRACK SR4 D/M

SCHRACK SR6 D/M

If reinforced insulation between all adjacent contacts is a must. The SCHRACK SR6 D/M family offers a 4-pole contact arrangement with either 3 NO (form A) + 1 NC (form B) contact set or 2 NO (form A) + 2 NC (form B) contact set with Force Guided contacts according to EN61810-3. Reinforced insulation of up to 4000 V between selectively loaded, adjacent contacts –in addition to the reinforced insulation between coil and contact.



FEATURES

- 6 pole relay with force guided contacts according to EN 50205
- High insulation distances between electrical circuits

CONTACT DATA

- Contact arrangement: 3 form A + 1 form B (3 NO + 1 NC) and 2 form A + 2 form B (2 NO + 2 NC)
- Rated voltage: 250VAC
- Rated current: 8A
- Contact material: AgSnO2
- Min. recommended contact load: 5V/10mA

COIL DATA

- Magnetic system: DC
- Rated coil voltage: 5 to 110VDC
- Rated coil power: 1200/800mW

APPLICATIONS

- Emergency shut-off
- Press control
- Machine control
- Elevator and escalator control

INSULATION DATA

- Initial dielectric strength
  - between open contacts: 1500Vrms
  - between contact and coil: 4000Vrms
  - between adjacent contacts: 3000/4000Vrms
- Clearance/creepage between contact and coil: ≥5.5/5.5mm

OTHER DATA

- Ambient temperature (max.): +70°C
- Mounting and terminal type: PCB, THT

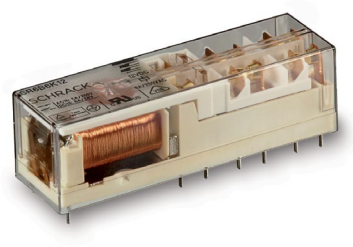
PRODUCT SELECTION INFORMATION

Product Code	Description	Contact Arrangement	Part Number
SR6D4012	SR6 D/M 6 Pole Relay	2 Form A (NO) + 2 Form B (NC)	1415078-1
SR6D4018	SR6 D/M 6 Pole Relay		7-1415354-1
SR6D4021	SR6 D/M 6 Pole Relay		8-1415353-1
SR6D4024	SR6 D/M 6 Pole Relay		6-1415027-1
SR6D4040	SR6 D/M 6 Pole Relay		9-1415366-1
SR6D4110	SR6 D/M 6 Pole Relay		1415062-1
SR6M4110	SR6 D/M 6 Pole Relay	3 Form A (NO) + 1 Form B (NC)	1-1415354-1
SR6M4012	SR6 D/M 6 Pole Relay		7-1415353-1
SR6M4018	SR6 D/M 6 Pole Relay		1415354-1
SR6M4021	SR6 D/M 6 Pole Relay		6-1415353-1
SR6M4024	SR6 D/M 6 Pole Relay		3-1415353-1
SR6M4048	SR6 D/M 6 Pole Relay		1-1415544-5

For additional configurations, see the Data Sheet - SCHRACK SR6 D/M

SCHRACK SR6 A/B/C/V

Our most versatile relay type for design-in flexibility for loads up to 8A. SHRACK SR6 A/B/C/V family offers a 6-pole contact arrangement with either 3 NO (form A) + 3 NC (form B) contact set, 4 NO (form A) + 2 NC (form B) contact set or 5 NO (form A) + 1 NC (form B) contact set with Force Guided contacts according to EN61810-3. Sensitive versions with low coil power consumption of only 800mW enable excellent low temperature to increase and support lifetime.



FEATURES

- 6 pole relay with force guided contacts according to EN 50205
- Reinforced insulation between all contacts

CONTACT DATA

- Contact arrangement: 3 form A + 3 form B (3 NO + 3 NC), 4 form A + 2 form B (4 NO + 2 NC) and 5 form A + 1 form B (5 NO + 1 NC)
- Rated voltage: 250VAC
- Rated current: 8A
- Contact material: AgSnO2
- Min. recommended contact load: 5V/10mA

COIL DATA

- Magnetic system: DC
- Rated coil voltage: 5 to 110VDC
- Rated coil power: 1200mW or 800mW

APPLICATIONS

- Emergency shut-off
- Press control
- Machine control
- Elevator and escalator control

INSULATION DATA

- Initial dielectric strength
  - between open contacts: 1500Vrms
  - between contact and coil: 4000Vrms
  - between adjacent contacts: 3000Vrms
- Clearance/creepage between contact and coil: ≥5.5/5.5mm

OTHER DATA

- Ambient temperature (max.): +70°C
- Mounting and terminal type: PCB, THT

PRODUCT SELECTION INFORMATION

Product Code	Description	Contact Arrangement	Part Number
SR6A6K24	SR6 A/B/C/V 6 Pole Relay	3 Form A (NO) + 3 Form B (NC)	6-1415537-5
SR6B4018 - V23050-A1018-A542	SR6 A/B/C/V 6 Pole Relay	4 Form A (NO) + 2 Form B (NC)	1393260-5
SR6B4024 - V23050-A1024-A542	SR6 A/B/C/V 6 Pole Relay		1393260-7
SR6B6K21	SR6 A/B/C/V 6 Pole Relay		7-1415537-9
SR6C4024 - V23050-A1024-A551	SR6 A/B/C/V 6 Pole Relay	5 Form A (NO) + 1 Form B (NC)	1415017-1
SR6V6K18	SR6 A/B/C/V 6 Pole Relay	4 Form A (NO) + 2 Form B (NC)	3-1415543-3

For additional configurations, see the Data Sheet - SCHRACK SR6 A/B/C/V

SCHRACK SRL7

The flattest version of a TE Force Guided Relay with only 10.8mm height for loads up to 6A. SCHRACK SRL7 family offers a 7-pole contact arrangement with 5 NO (form A) + 2 NC (form B) contact set with force guided contacts according to EN61810-3. With an overall height of only 10.7 mm the 7-pole relay belong to the flattest Force Guided relays. The low profile is ideal for the realization of compact safety modules (overall width of only 17.5mm), but also wherever there is little space for installation height. The low coil power consumption of only 700mW enable excellent low temperature to increase and expand the usage of this relay from 70 °C now up to 85°C ambient temperature condition.

FEATURES

- Low profile relay with force guided contacts according to EN 50205
- 5 form A (NO) + 2 form B (NC) contacts
- Reinforced insulation between contact circuits

CONTACT DATA

- Contact arrangement: 5 form A + 2 form B contacts (5 NO + 2 NC)
- Rated voltage: 250VAC
- Rated current: 6A
- Contact material: Ag alloy
- Min. recommended contact load: 5V/10mA

COIL DATA

- Coil voltage range: 5 to 110VDC
- Operative range: IEC 61810 2
- Max. coil power: 700mW

APPLICATIONS

- Safety Modules
- Process Technology
- Elevator and Escalator Control
- Emergency shut-off
- Remote Control
- Robotics
- Machine Tools

INSULATION DATA

- Initial dielectric strength
  - between open contacts: 1000Vrms 1000Vrms
  - between contact and coil: 4000Vrms 2500Vrms
  - between adjacent contacts: 4000Vrms 2500Vrms
- Clearance/creepage between contact and coil: ≥5.5/5.5mm ≥3/4mm

OTHER DATA

- Ambient temperature (max.): -40 to 85°C
- Mounting and terminal type: PCB, THT

PRODUCT SELECTION INFORMATION

Product Code	Description	Contact Arrangement	Part Number
SRL7-523-D012	SRL7-7 Pole Relay	5 form A + 2 form B	2045880-4
SRL7-523-D018	SRL7-7 Pole Relay		2045880-6
SRL7-523-D021	SRL7-7 Pole Relay		2045880-7
SRL7-523-D024	SRL7-7 Pole Relay		2045880-8

For additional configurations, see the Data Sheet - SCHRACK SRL7

Connect With Us

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