MECHAN CONTROLS

Installation Guide : SRL-1 Safety Relay

Keep this guide for future reference

This information is designed to help suitably qualified personnel install and operate Mechan Safety equipment. Before using this product, read this guide thoroughly along with any relevant European and/or National standards e.g. Machinery Directive 2006/42/EC and it's amendments, Provision and Use of Work Equipment Regulations.

Further information can be obtained from Mechan Controls

Description

The SRL-1 Safety relay has dual channel, low voltage inputs, two normally open control contact outputs and one normally closed indication contact.

With LED indication to speed up fault finding and a slim 22.5mm DIN rail mounting enclosure the SRL-1 takes up minimum control panel space.

Designed for operation with the Mechan range of non-contact safety switches, the SRL-1 is also suitable for use with dual channel Emergency Stop buttons, or safety devices with 2 safety outputs e.g mechanical safety switches.

Depending on installation the SRL-1 can be used in CAT-4 / SIL 3 safety circuits.

Operation

POWER ON
The SRL-1 Safety relay requires a 24Vdc or 24Vac power supply. When power is applied to the control unit POWER LED will be illuminated RED.

AUTOMATIC RESET
When the reset circuit X1/X2 is in automatic reset mode, closing the contacts on the input circuit S13/S14 and S23/S24 will illuminate the Green K1 and K2 LED's and energise the internal relays. The N/O outputs on terminals 13/14 and 23/24 will close and the N/C indication output on 31/32 will open.

MANUAL RESET
If the reset circuit is set to manual/monitored mode the outputs will only change when the input circuits are closed and the normally open, momentary reset button is operated.

Applications

Suitable for control circuits requiring CAT-4 / SIL 3 / PL-e performance
Monitoring dual channel safety circuits including :
Non-contact safety switches,
Mechanical safety switches,
Emergency stop buttons
Light curtains

CE TÜV NORD

CAT 4
SIL 3 PLe

APPROVALS	
CE	Complies with all relevant sections of the CE marking directive
TUV	CAT 4 SIL 3 PLe
EUROPEAN DIRECTIVES	
Machinery Directive 2006/42/EC	
Low Voltage Directive 2006/95/EC	
Electromagnetic Compatibility Directive 2004/108/EC	
EUROPEAN STANDARDS	
EN ISO 13849-1	Safety of Machinery Safety related parts of control systems
EN ISO 62061	Safety of Machinery - Functional safety of safety related electrical, electronic and programmable electronic control systems
EN 60204	Safety of Machinery Electrical equipment for machines
EN 60947-5-1	Low voltage switch gear and control gear
EN 1088	Interlocking devices associated with guards
EN 60947-5-3	Safety of Machinery Specification for low voltage switchgear and control gear

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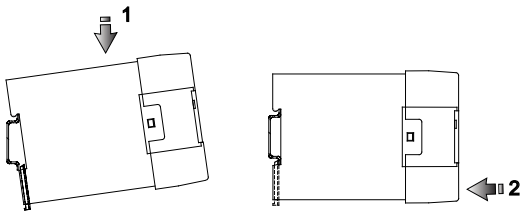
Mounting and Indication

Mounting on 35mm DIN Rail

The control modules are designed to be mounted in an IP55 (minimum) control cabinet.

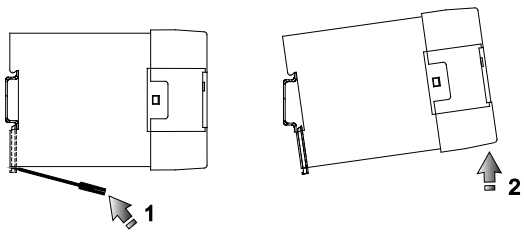
The modules clip on to standard 35 mm symmetric DIN-Rail



Removal from 35mm DIN Rail

To remove the modules, gently lever out the DIN clip with a small screwdriver as shown (1).

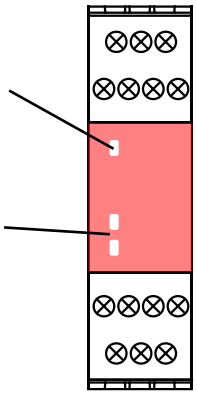
Tilt the unit in the direction (2) and slip the unit off the DIN Rail



Indication

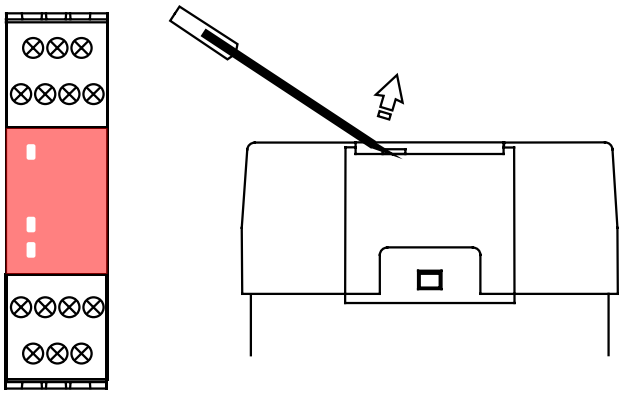
POWER
When power is connected, the red LED will be illuminated

OUTPUT
When K1 & K2 are illuminated green, the outputs 13/14 & 23/24 will be closed and 31/32 will be open.

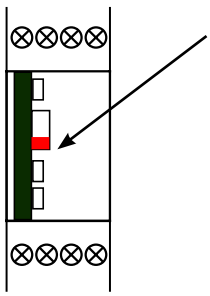


Reset Circuit

To remove lid, use small screwdriver in the lid recess as shown and prise gently upwards.



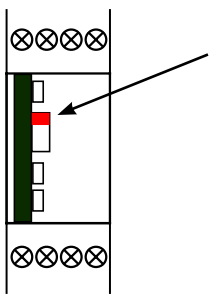
Manual Reset



Internal switch is set to the LOWER position

Circuit X1/X2 requires a momentary N/O button to initialise reset.

Automatic Reset



Internal switch is set to the UPPER position

Circuit X1/X2 requires a link.
NOTE: Closed contacts on K3 & K4 can still be monitored

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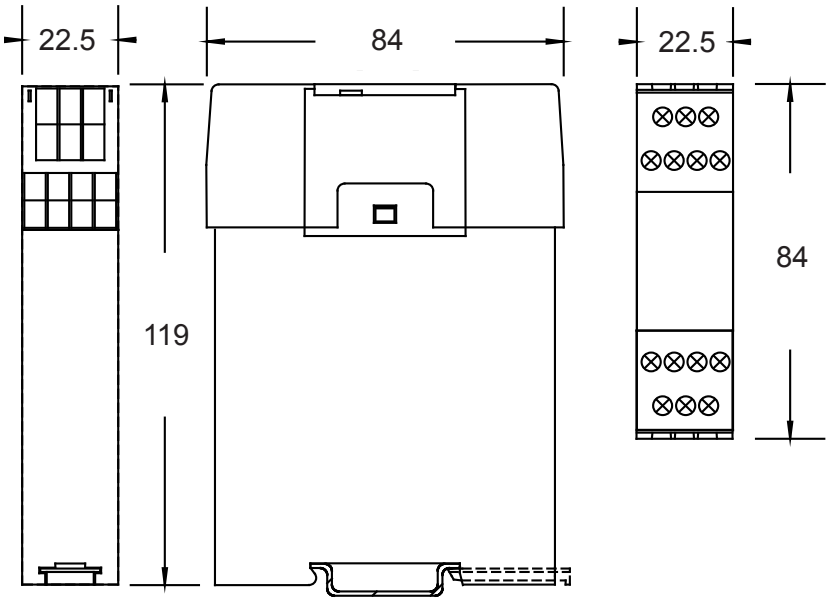
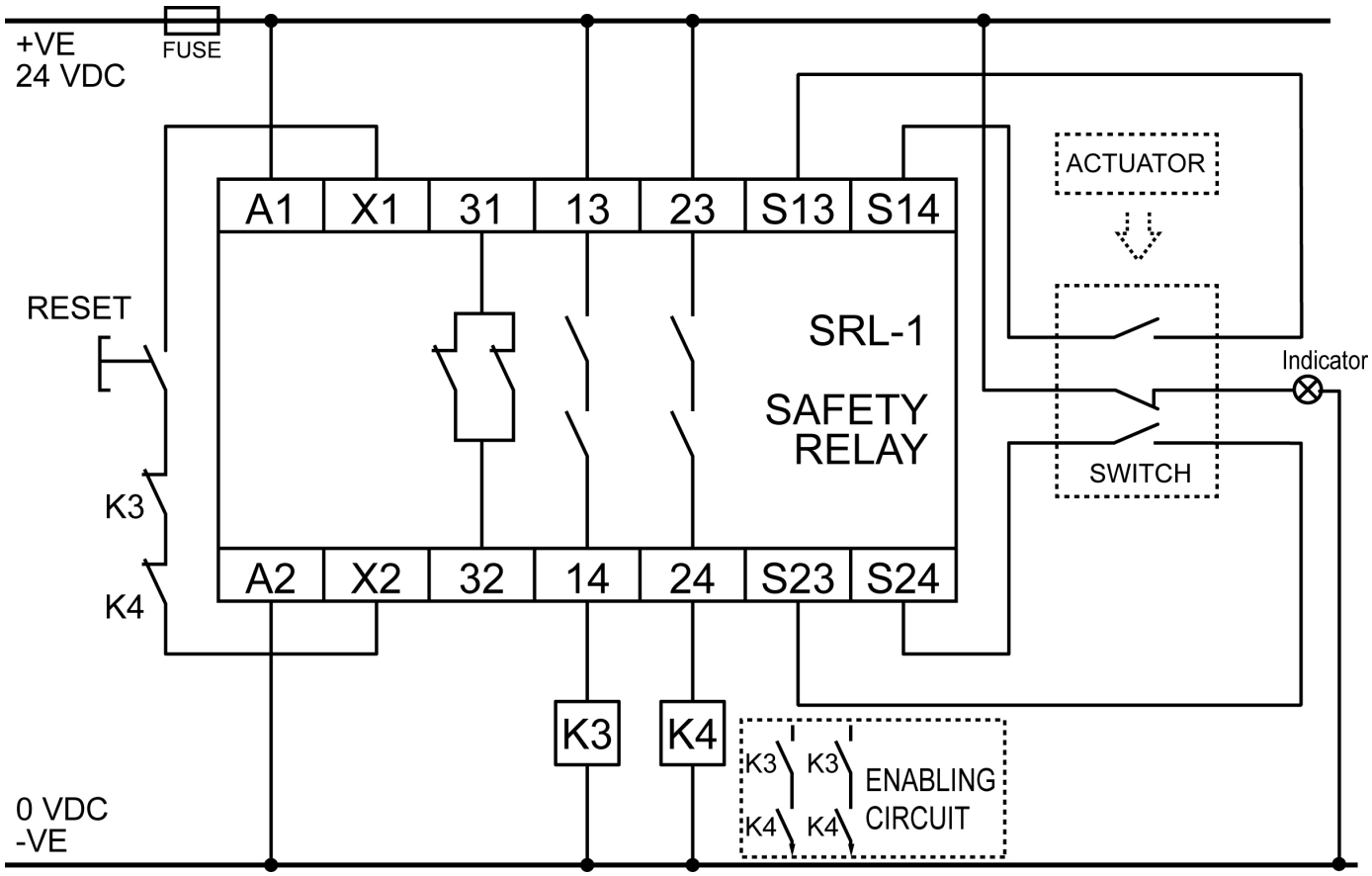
Dimensions

All dimensions in MM



Cconnection



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Technical Specifications			
Supply nominal voltage		24Vac/dc (+/- 15 %)	
Nominal power consumption		3VA	
Safety contacts		2 x N/O	
Auxiliary contact		1 x N/C	
Output contact rating (max)		4A/230Vac; 2A/24Vdc(Res.)@Cos=1	
Output contact rating (min)		10V/10mA	
Output contact fuse rating		AC=5A; DC=2.5A; Quick blow	
Drop out time		Deactivation by inputs, 13ms	
Internal fuse		100mA Resetable	
Internal fuse recovery time		>2 Seconds	
Internal switches		Reset Manual / Automatic—Selectable	
Max conductor size		1 x 2.5mm stranded with sleeves, 1 x 4mm solid	
Installation group (Control unit)		C in accordance with VDE0110	
Enclosure protection		Housing IP40, Terminals IP20	
Operating temperature		-10C to +55C (85% Humidity max)	
Storage temperature		-20C to +60C	
Housing material		Polycarbonate Red	
Mounting / Fixing		35mm Symmetric DIN Rail	
Utilisation category in accordance with EN 60947-4-1			
Safety contacts:AC1 at 230 V		Imin:10mA. Imax:4A	
Safety contacts:DC1 at 24 V		Imin:10mA. Imax:2A	
Air gap creepage in accordance with EN 60947-1		Vibration In Accordance With EN 60068-2-6	
Pollution Degree	2	Weight	210g
Over voltage Category	III	Frequency	10-55 Hz
Rated Insulation Voltage	250V	Amplitude	0.35mm
Rated Impulse Withstand Voltage	4.0KV		
Simultaneity Channel 1		∞	
Simultaneity Channel 2		∞	

Safety Related Data	
PL In accordance with EN ISO 13849-1	PL-e, CAT 4
SIL CL in accordance with EN IEC 62061	SIL 3
PFHd in accordance with EN IEC 62061	5.63^{-08}
PFH	3.37^{-08}
B10d	$2 X 10^{6}$
MTTFd	>100 years (Based on usage rate of 360 days/year, 24 hours/day, 10 operations/hour)
T10m(mission time)	20 years
DC	99%
SFF	98.2%

Maintenance

It is recommended to check the safe operation of the system on a regular basis. Also look for signs of damage or excessive wear. Damaged units should be replaced or returned to the manufacturer for repair where practical.

Notes

In the interest of product development specifications are subject to change without notice. It is the responsibility of the user to ensure compliance with any acts or by-laws in place. All information regarding Mechan equipment is believed to be accurate at the time of printing. Responsibility cannot be accepted for errors or omissions.

Declaration of Conformity

Mechan Controls declares that the products shown conform to the Essential Health and Safety Requirements of the European Machinery Directive. The above products have been third party tested to conform to the requirements of EN13849-1 and EN62061. The full declaration of conformity can be obtained from Mechan Controls PLC.