

# VIPER Safety Relays Type: SCR-31-i (with added diagnostics)

## DESCRIPTION:

The Viper Safety Relays range from IDEM are designed to meet the latest safety standards and offer enhanced LED diagnostics and simplified wiring. Applications include the monitoring of safety interlock switches (guard door monitoring), emergency stop devices and sensors.

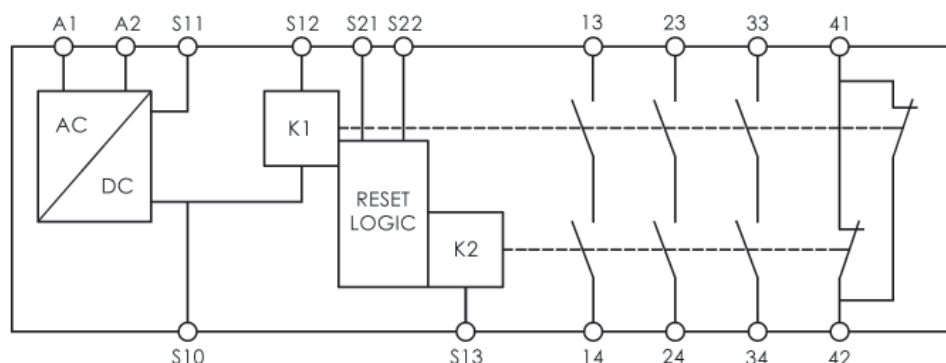
The SCR-31-i internal logic uses force guided relays to achieve cross monitoring, this ensures that a single fault does not lead to the loss of the safety function and that all faults are detected at or before the next safety demand.



## FEATURES:

- Outputs 3NC contacts and 1NO contact.
- Feedback circuit to monitor external contacts.
- Easy diagnosis of status via visual indication of LEDs.
- Up to PLe, SILCL 3, Category 4.
- Monitored manual or automatic start.
- Single and dual channel operation.
- Output expansion units available to increase number of outputs.

## BLOCK DIAGRAM AND ELECTRICAL CONNECTION:



### Electrical Connection

A1 A2	Power 24Vac/dc
S11	Control Output
S10 S13 S12	Control Inputs
S21	Auto Reset Input
S22	Manual Reset Input
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2
33-34	Safety Output Contact 3

## SPECIFICATIONS:

STANDARDS			
EN ISO13849-1	EN62061	EN60204-1	EN ISO12100
POWER SUPPLY CIRCUIT			
Operating Voltage	24V AC/DC		
Operating Voltage Tolerance	85-110%		
Rated Supply Frequency	50Hz-60Hz		
Power Consumption	2.5W (24V AC/DC)		
CONTROL CIRCUITS			
Rated Output Voltage	24V DC (S11)		
Output Current	100mA (S11)		
Response Time	100ms		
Release Time	25ms		
Recovery Time	90ms		
OUTPUT CIRCUITS			
Rated Output Voltage	250V AC		
Maximum Current per Output	6A		
Maximum Total Current all Outputs	8A		
Safety Contact Breaking Capacity AC	250V, 1500VA, 6A, Ohmic 230V, 4A for AC-15		
	DC 24V, 30W, 1.25A, Ohmic		
Minimum Contact Load	10V 10mA		
Minimum Contact Fuses	4A slow blow, 6A fast blow		
Contact Material	AgSnO <sub>2</sub>		
Contact Service Life	10 x 10 <sup>6</sup>		
GENERAL DATA			
Rated Impulse Withstand Voltage	4kV		
Rated Insulation Voltage	250V		
Degree of Protection	IP20		
Temperature Range	-20C to +55C		
Degree of Contamination	2		
Overvoltage Category	III		
Weight	160gr (5.5 oz.)		
Mounting	Any position		

SAFETY CHARACTERISTICS	
EN62061	SIL3
ISO13849-1	Ple Category 4
PFH	4.1E-10 1/h (0.4% of SIL3 (1 E-07 1/h))
PFD Av. (T=20a)	3.6E-05 (3.6% of SIL3 (1 E-03))
MTTFd	142a (High)
DC Av.	99% (High)

## LED DIAGNOSTICS:

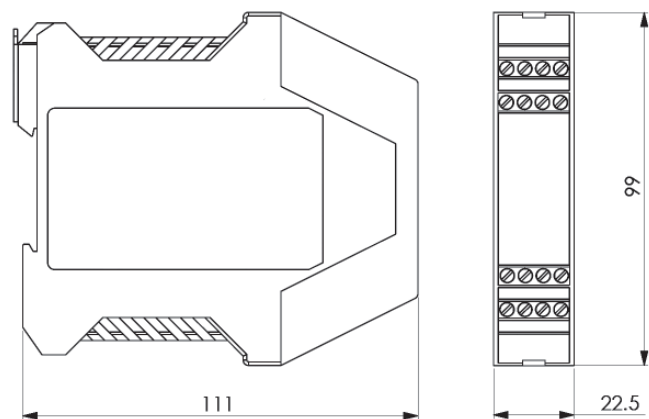
### WHEN SAFETY RELAY IN OPERATION

- Power Power applied to device  
 Reset Reset Circuit is closed.  
 CH1 External switch input 1 closed.  
 CH2 External switch input 2 closed.  
 K1 Internal relay safety output contacts closed.  
 K2 Internal relay safety output contacts closed.

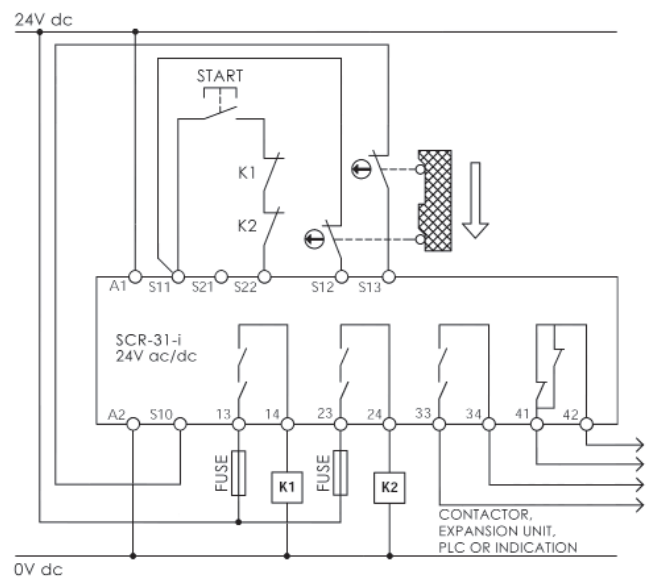
13	23	33	41
A1	S11	S21	S22
SCR-31-i			
○	POWER		
○	RESET		
○	CH1		
○	CH2		
○	K1		
○	K2		
VIPER			
S12	S13	S10	A2
14	24	34	42

# VIPER Safety Relays Type: SCR-31-i (with added diagnostics)

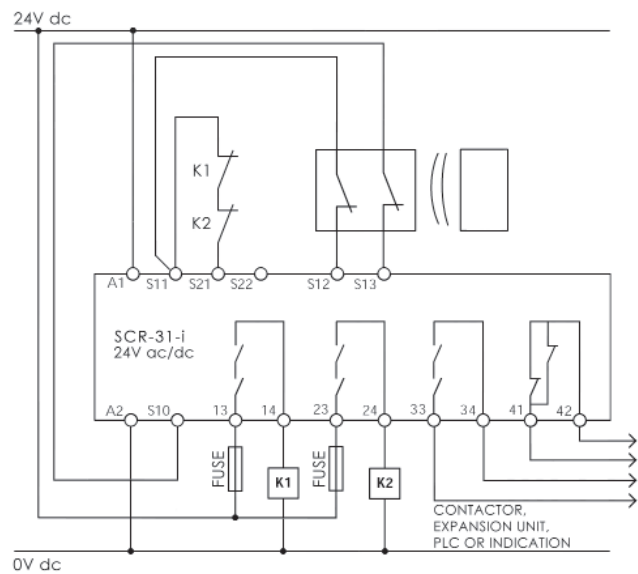
## DIMENSIONS:



## MANUAL RESTART MODE (Dual Channel) MECHANICAL SWITCHES:



## AUTOMATIC RESTART MODE (Dual Channel) NON CONTACT:



## SELECTION CHART & ORDERING:

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	OUTPUT CONTACTS
280002	SCR-31-i	Standard Screw Terminals	24Vac/dc	2NC	3NC 1NO
280002-P	SCR-31-i	Pluggable Screw Terminals	24Vac/dc	2NC	3NC 1NO

# VIPER Safety Relays Type: SCR-31P-i (with added diagnostics)

## DESCRIPTION:

The Viper Safety Relays range from IDEM are designed to meet the latest safety standards and offer enhanced LED diagnostics and simplified wiring. Applications include the monitoring of safety interlock switches (guard door monitoring), emergency stop devices and sensors.

The SCR-31P-i is designed to be compatible with devices offering OSSD outputs (e.g. safety light curtains), LPZ, KLP-Z, KLM-Z, KLM-Z-4ST, KL3-SS-Z.

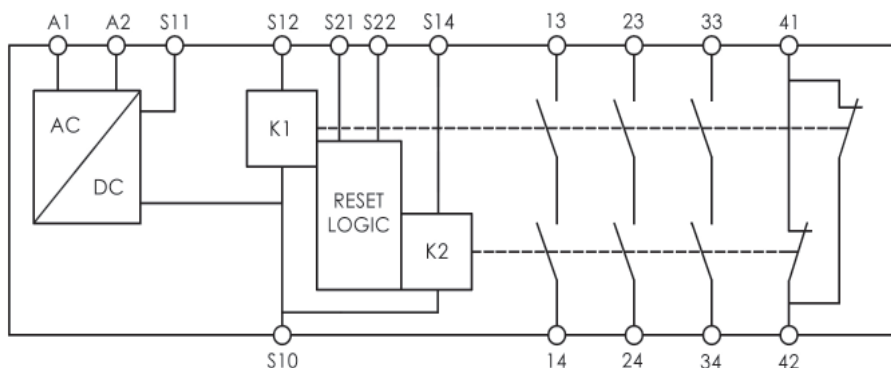


## FEATURES:

- Outputs 3NC contacts and 1NO contact.
- Feedback circuit to monitor external contacts.
- Easy diagnosis of status via visual indication of LEDs.
- Up to PLe, SILCL 3, Category 4.
- Monitored manual or automatic start.
- Single and dual channel operation.
- Output expansion units available to increase number of outputs.



## BLOCK DIAGRAM AND ELECTRICAL CONNECTION:



### Electrical Connection

A1 A2	Power 24Vac/dc
S11	Control Output
S10 S14 S12	Control Inputs
S21	Auto Reset Input
S22	Manual Reset Input
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2
33-34	Safety Output Contact 3
41-42	Auxiliary Output Contact

## SPECIFICATIONS:

STANDARDS			
EN ISO13849-1	EN62061	EN60204-1	EN ISO12100
POWER SUPPLY CIRCUIT			
Operating Voltage	24V AC/DC		
Operating Voltage Tolerance	85-110%		
Rated Supply Frequency	50Hz-60Hz		
Power Consumption	2.5W (24V AC/DC)		
CONTROL CIRCUITS			
Rated Output Voltage	24V DC (S11)		
Output Current	100mA (S11)		
Response Time	100ms		
Release Time	25ms		
Recovery Time	90ms		
OUTPUT CIRCUITS			
Rated Output Voltage	250V AC		
Maximum Current per Output	6A		
Maximum Total Current all Outputs	8A		
Safety Contact Breaking Capacity AC	250V, 1500VA, 6A, Ohmic 230V, 4A for AC-15		
	DC 24V, 30W, 1.25A, Ohmic		
Minimum Contact Load	10V 10mA		
Minimum Contact Fuses	4A slow blow, 6A fast blow		
Contact Material	AgSnO <sub>2</sub>		
Contact Service Life	10 x 10 <sup>6</sup>		
GENERAL DATA			
Rated Impulse Withstand Voltage	4kV		
Rated Insulation Voltage	250V		
Degree of Protection	IP20		
Temperature Range	-20C to +55C		
Degree of Contamination	2		
Overvoltage Category	III		
Weight	160gr (5.5 oz.)		
Mounting	Any position		

SAFETY CHARACTERISTICS	
EN62061	SIL3
ISO13849-1	PLe Category 4
PFH	4.1E-10 1/h (0.4% of SIL3 (1 E-07 1/h))
PFD Av. (T=20a)	3.6E-05 (3.6% of SIL3 (1 E-03))
MTTFd	142a (High)
DC Av.	99% (High)

## LED DIAGNOSTICS:

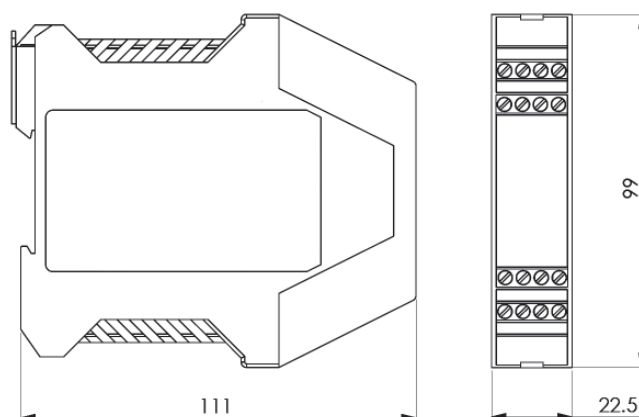
### WHEN SAFETY RELAY IN OPERATION

Power	Power applied to device
Reset	Reset Circuit is closed.
CH1	External switch input 1 closed.
CH2	External switch input 2 closed.
K1	Internal relay safety output contacts closed.
K2	Internal relay safety output contacts closed.

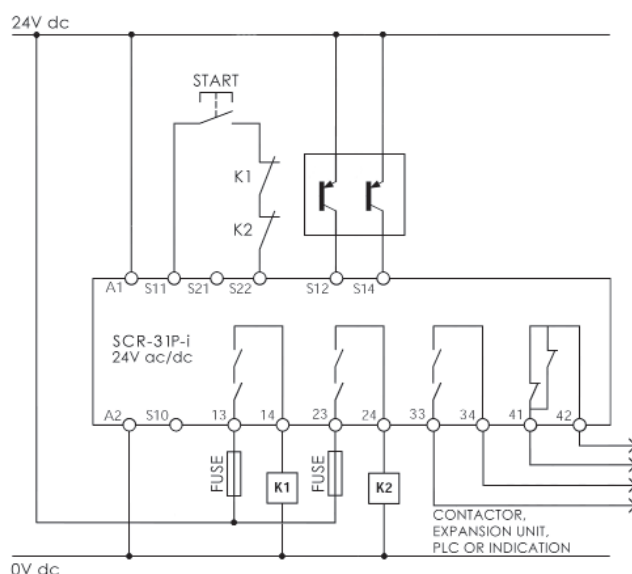
13	23	33	41
A1	S11	S21	S22
SCR-31P-i			
○	POWER		
○	RESET		
○	CH1		
○	CH2		
○	K1		
○	K2		
VIPER			
S12	S14	S10	A2
14	24	34	42

# VIPER Safety Relays Type: SCR-31P-i (with added diagnostics)

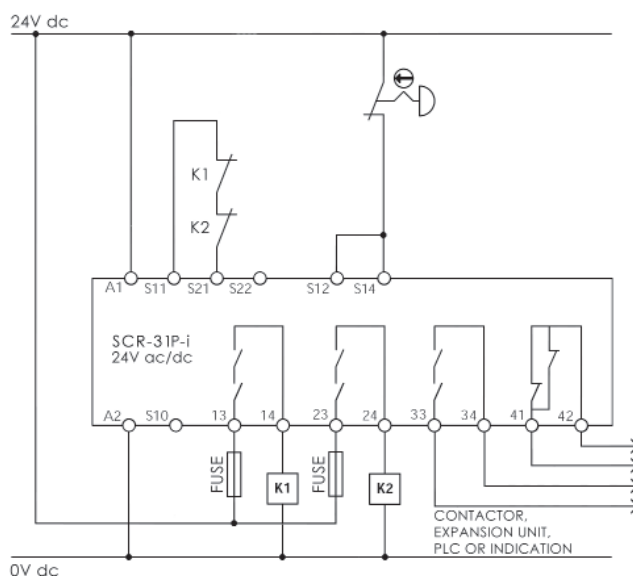
## DIMENSIONS:



## MANUAL RESTART MODE (Dual Channel) PNP INPUTS:



## AUTOMATIC RESTART MODE (Single Channel) E-STOP INPUT:



## SELECTION CHART & ORDERING:

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	OUTPUT CONTACTS
280003	SCR-31P-i	Standard Screw Terminals	24Vac/dc	2NC	3NC 1NO
280003-P	SCR-31P-i	Pluggable Screw Terminals	24Vac/dc	2NC	3NC 1NO

# VIPER Safety Relays Type: SCR-73-i (with added diagnostics)

## DESCRIPTION:

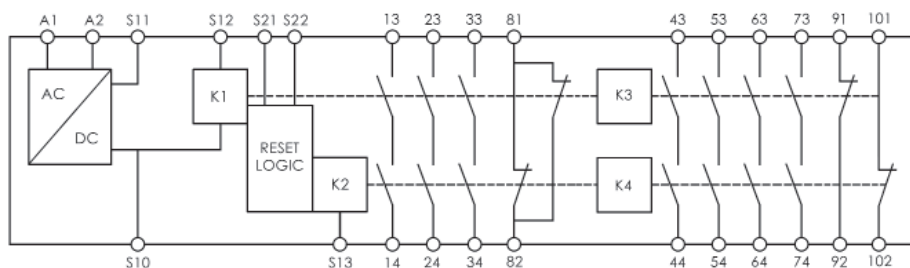
The Viper Safety Relays range from IDEM are designed to meet the latest safety standards and offer enhanced LED diagnostics and simplified wiring. Applications include the monitoring of safety interlock switches (guard door monitoring), emergency stop devices and sensors.

The SCR-73-i internal logic uses force guided relays to achieve cross monitoring, this ensures that a single fault does not lead to the loss of the safety function and that all faults are detected at or before the next safety demand.

## FEATURES:

- Outputs 7NC contacts and 3NO contact.
- Feedback circuit to monitor external contacts.
- Easy diagnosis of status via visual indication of LEDs.
- Up to PLe, SILCL 3, Category 4.
- Monitored manual or automatic start.
- Single and dual channel operation.
- Output expansion units available to increase number of outputs.

## BLOCK DIAGRAM:



### Electrical Connection

A1 A2	Power 24Vac/dc	13-14	Safety Output Contact 1	63-64	Safety Output Contact 6
S11	Control Output	23-24	Safety Output Contact 2	73-74	Safety Output Contact 7
S10 S13 S12	Control Inputs	33-34	Safety Output Contact 3	81-82	Auxiliary Output Contact K1/K2
S21	Auto Reset Input	43-44	Safety Output Contact 4	91-92	Auxiliary Output Contact K3
S22	Manual Reset Input	53-54	Safety Output Contact 5	101-102	Auxiliary Output Contact K4

## SPECIFICATIONS:

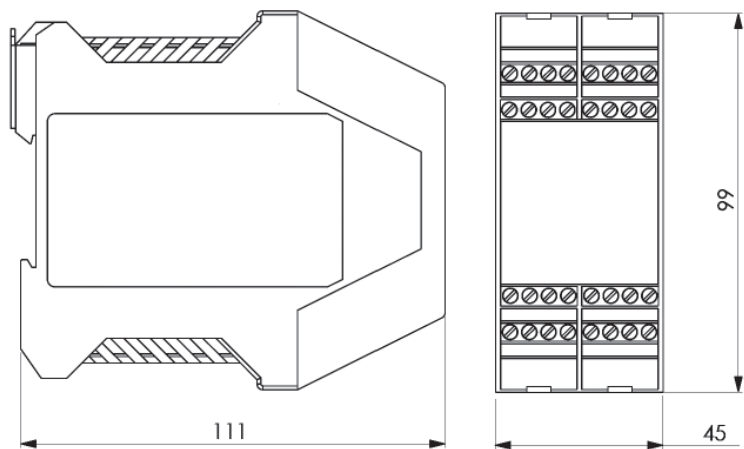
STANDARDS			
EN ISO13849-1	EN62061	EN60204-1	EN ISO12100
POWER SUPPLY CIRCUIT			
Operating Voltage	24V AC/DC		
Operating Voltage Tolerance	85-110%		
Rated Supply Frequency	50Hz-60Hz		
Power Consumption	5W (24V)		
CONTROL CIRCUITS			
Rated Output Voltage	24V DC (S11)		
Output Current	100mA (S11)		
Response Time	100ms		
Release Time	25ms		
Recovery Time	90ms		
OUTPUT CIRCUITS			
Rated Output Voltage	250V AC		
Maximum Current per Output	6A		
Maximum Total Current all Outputs	8A		
Safety Contact Breaking Capacity AC	250V, 1500VA, 6A, Ohmic 230V, 4A for AC-15		
	DC 24V, 30W, 1.25A, Ohmic		
Minimum Contact Load	10V 10mA		
Minimum Contact Fuses	4A slow blow, 6A fast blow		
Contact Material	AgSnO <sub>2</sub>		
Contact Service Life	10 x 10 <sup>6</sup>		
GENERAL DATA			
Rated Impulse Withstand Voltage	4kV		
Rated Insulation Voltage	250V		
Degree of Protection	IP20		
Temperature Range	-20C to +55C		
Degree of Contamination	2		
Overvoltage Category	III		
Weight	300gr (10.5 oz.)		
Mounting	Any position		

SAFETY CHARACTERISTICS	
EN62061	SIL3
ISO13849-1	PLe Category 4
PFH	8.4E-10 1/h (0.8% of SIL3 (1 E-07 1/h))
PFD Av. (T=20a)	7.2E-05 (7.2% of SIL3 (1 E-03))
MTTFd	71a (High)
DC Av.	99% (High)

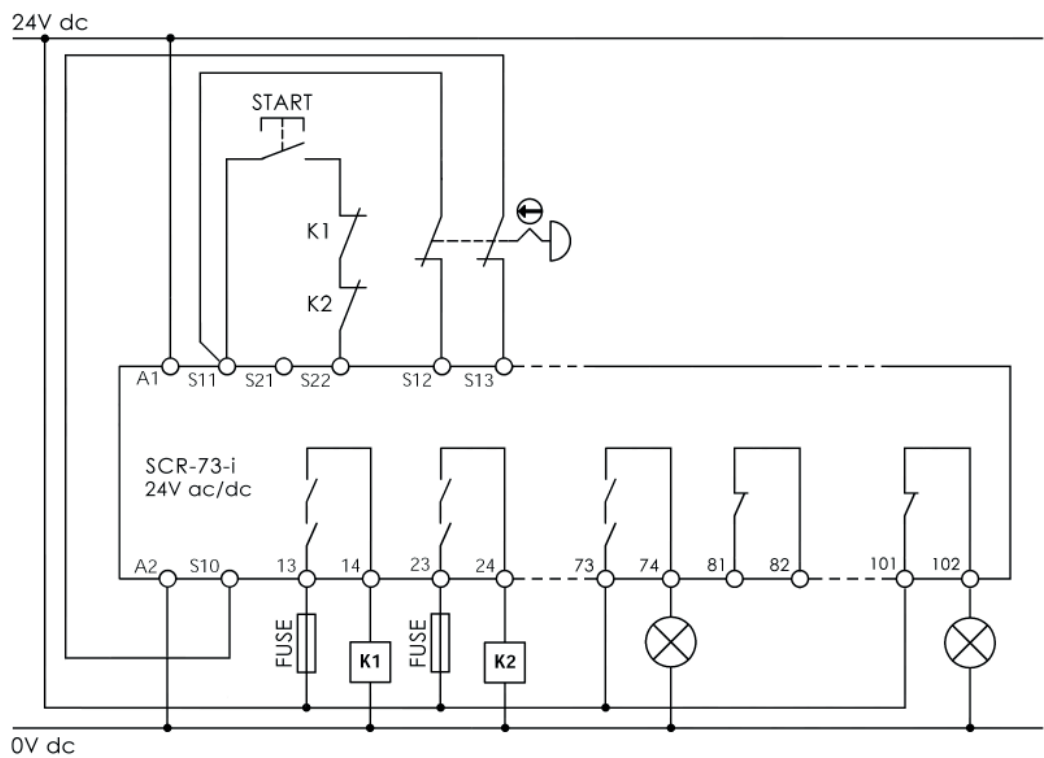


# VIPER Safety Relays Type: SCR-73-i (with added diagnostics)

## DIMENSIONS:



## MANUAL RESTART MODE (Dual Channel) E-STOP:



## LED DIAGNOSTICS:

### WHEN SAFETY RELAY IN OPERATION

- Power Power applied to device
- Reset Reset Circuit is closed.
- CH1 External switch input 1 closed.
- CH2 External switch input 2 closed.
- K1 Internal relay safety output contacts closed.
- K2 Internal relay safety output contacts closed.

13	23	33	81	43	53	63	73
A1	S11	S21	S22	91	92	101	102
SCR-73-i							
○ POWER							
○ RESET							
○ CH1							
○ CH2							
○ K1							
○ K2							
VIPER							
S12	S13	S10	A2				
14	24	34	82	44	54	64	74

## SELECTION CHART & ORDERING:

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	OUTPUT CONTACTS
280005	SCR-73-i	Standard Screw Terminals	24Vac/dc	2NC	7NC 3NO
280005-P	SCR-73-i	Pluggable Screw Terminals	24Vac/dc	2NC	7NC 3NO



# VIPER Safety Relays Type: SCR-31-42TD-i (added diagnostics)

## DESCRIPTION:

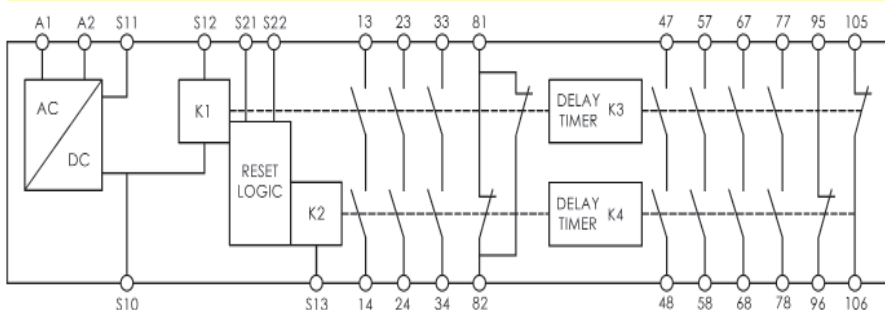
The Viper Safety Relays range from IDEM are designed to meet the latest safety standards and offer enhanced LED diagnostics and simplified wiring. Applications include the monitoring of safety interlock switches (guard door monitoring), emergency stop devices and sensors.

The SCR-31-42TD-i internal logic uses force guided relays to achieve cross monitoring, this ensures that a single fault does not lead to the loss of the safety function and that all faults are detected at or before the next safety demand.

## FEATURES:

- Output contacts: 3NC 1NO Delayed contacts: 4NC and 2NO (0-30 seconds).
- Feedback circuit to monitor external contacts - used for reinforcement of contacts.
- Easy diagnosis of status via visual indication of LEDs.
- Up to PLe, SILCL 3, Category 4.
- Monitored manual or automatic start.
- Single and dual channel operation.
- Output expansion units available to increase number of outputs.

## BLOCK DIAGRAM:



### Electrical Connection

A1 A2	Power 24Vac/dc	13-14	Safety Output Contact 1	57-58	Delayed Safety Output Contact 2
S11	Control Output	23-24	Safety Output Contact 2	67-68	Delayed Safety Output Contact 3
S10 S13 S12	Control Inputs	33-34	Safety Output Contact 3	77-78	Delayed Safety Output Contact 4
S21	Auto Reset Input	81-82	Auxiliary Output Contact K1/K2	95-96	Delayed Auxiliary Output Contact K3
S22	Manual Reset Input	47-48	Delayed Safety Output Contact 1	105-106	Delayed Auxiliary Output Contact K4

## SPECIFICATIONS:

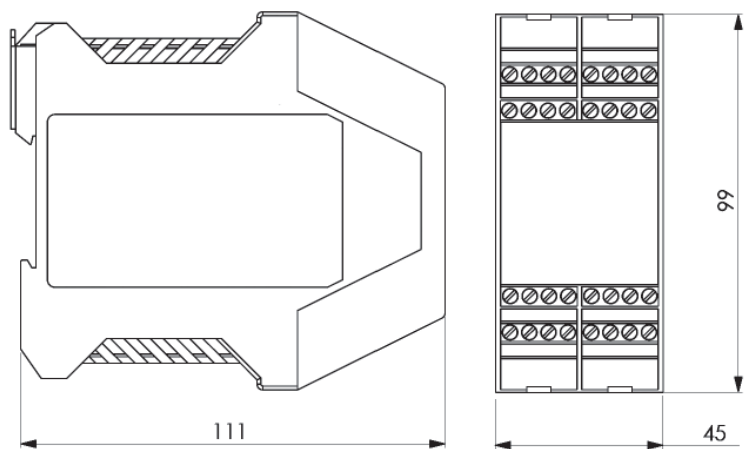
STANDARDS			
EN ISO13849-1	EN62061	EN60204-1	EN ISO12100
POWER SUPPLY CIRCUIT			
Operating Voltage	24V AC/DC		
Operating Voltage Tolerance	85-110%		
Rated Supply Frequency	50Hz-60Hz		
Power Consumption	5W (24V AC/DC)		
CONTROL CIRCUITS			
Rated Output Voltage	24V DC (S11)		
Output Current	100mA (S11)		
Response Time	100ms		
Release Time	25ms		
Recovery Time	1s approx.		
OUTPUT CIRCUITS			
Rated Output Voltage	250V AC		
Maximum Current per Output	6A		
Maximum Total Current all Outputs	8A		
Safety Contact Breaking Capacity AC	250V, 1500VA, 6A, Ohmic 230V, 4A for AC-15		
	DC 24V, 30W, 1.25A, Ohmic		
Minimum Contact Load	10V 10mA		
Minimum Contact Fuses	4A slow blow, 6A fast blow		
Contact Material	AgSnO <sub>2</sub>		
Contact Service Life	10 x 10 <sup>6</sup>		
GENERAL DATA			
Rated Impulse Withstand Voltage	4kV		
Rated Insulation Voltage	250V		
Degree of Protection	IP20		
Temperature Range	-20C to +55C		
Degree of Contamination	2		
Overvoltage Category	III		
Weight	300gr (10.5 oz.)		
Mounting	Any position		

SAFETY CHARACTERISTICS	
EN62061	SIL3
ISO13849-1	Ple Category 4 (instant contacts)
	Ple Category 3 (delayed contacts)
PFH	2.3E-9 1/h (2.3% of SIL3 (1 E-07 1/h))
PFD Av. (T=20a)	2.0E-04 (20% of SIL3 (1 E-03))
MTTFd	134a (High)
DC Av.	95% (Medium)

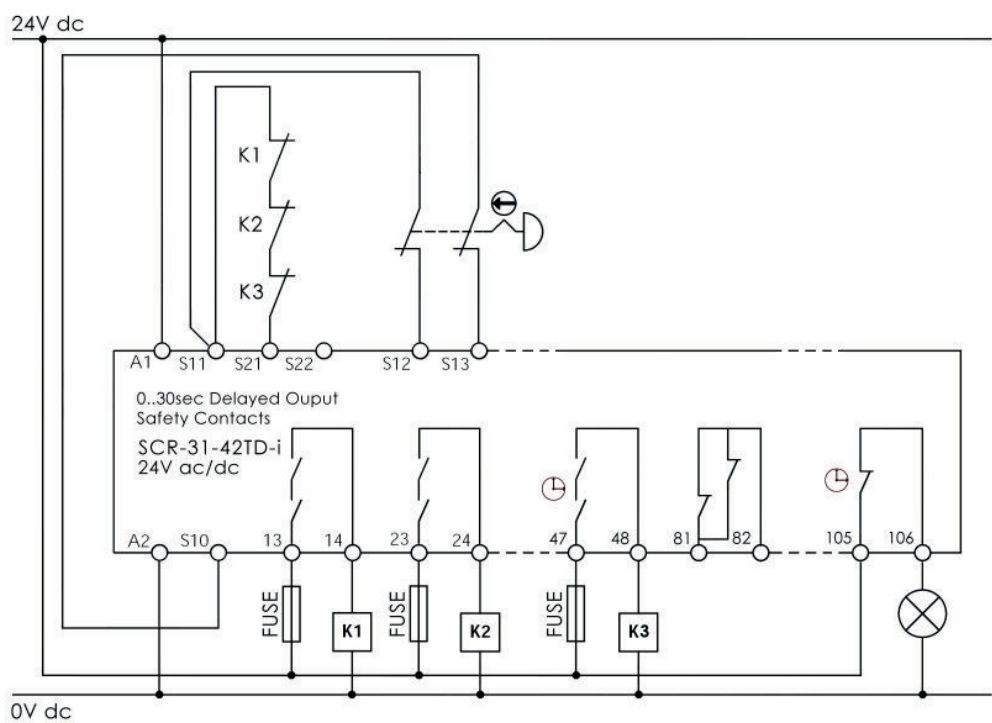


# VIPER Safety Relays Type: SCR-31-42TD-i (added diagnostics)

## DIMENSIONS:



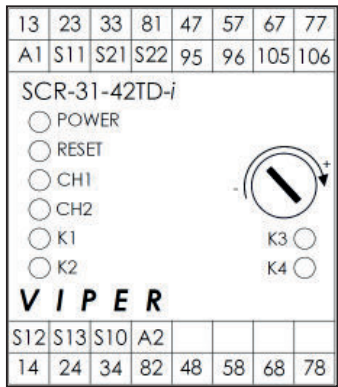
## AUTOMATIC RESTART MODE (Dual Channel) E-STOP:



## LED DIAGNOSTICS:

### WHEN SAFETY RELAY IN OPERATION

- Power Power applied to device
- Reset Reset Circuit is closed.
- CH1 External switch input 1 closed.
- CH2 External switch input 2 closed.
- K1 Internal relay safety output contacts closed.
- K2 Internal relay safety output contacts closed.
- K3 Internal relay safety output contacts closed.
- K4 Internal relay safety output contacts closed.



## SELECTION CHART & ORDERING:

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	OUTPUT CONTACTS	DELAYED CONTACTS
280006	SCR-31-42TD-i	Standard Screw Terminals	24Vac/dc	2NC	3NC 1NO	4NC 2NO
280006-P	SCR-31-42TD-i	Pluggable Screw Terminals	24Vac/dc	2NC	3NC 1NO	4NC 2NO



# VIPER Safety Relays Type: SEU-31TD-i (added diagnostics)

## DESCRIPTION:

The Viper Safety Relays range from IDEM are designed to meet the latest safety standards and offer enhanced LED diagnostics and simplified wiring. Applications include the monitoring of safety interlock switches (guard door monitoring), emergency stop devices and sensors.

The SEU-31TD-i is an expansion unit with the added benefit of Time Delayed contacts.

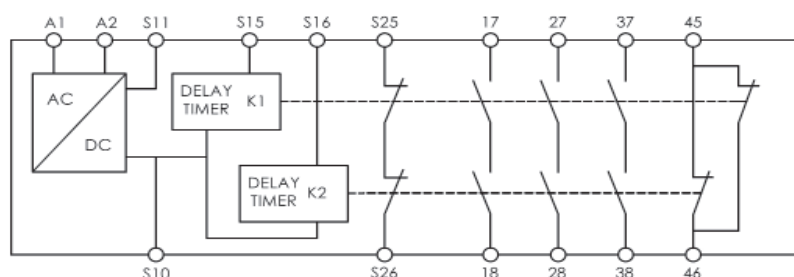
It has been designed to connect to a standard SCR-i relay to offer extra time delayed output contacts to the end user.

## FEATURES:

- Delayed contacts: 3NC 1NO (0-30 seconds).
- Feedback circuit to monitor external contacts - used for reinforcement of contacts.
- Easy diagnosis of status via visual indication of LEDs.
- Up to PLd, SILCL 2, Category 3.
- Monitored manual or automatic start.
- Single and dual channel operation.
- Output expansion units available to increase number of outputs.



## BLOCK DIAGRAM AND ELECTRICAL CONNECTION:



### Electrical Connection

A1 A2	Power 24Vac/dc
S11	Control Output
S15 S16 S10	Control Inputs
S25 S26	Feedback Check Contacts
17-18	Delayed Safety Output Contact 1
27-28	Delayed Safety Output Contact 2
37-38	Delayed Safety Output Contact 3
45-46	Delayed Auxiliary Output Contact

## SPECIFICATIONS:

STANDARDS			
EN ISO13849-1	EN62061	EN60204-1	EN ISO12100
POWER SUPPLY CIRCUIT			
Operating Voltage	24V AC/DC		
Operating Voltage Tolerance	85-110%		
Rated Supply Frequency	50Hz-60Hz		
Power Consumption	2.5W (24V)		
CONTROL CIRCUITS			
Rated Output Voltage	24V DC (S11)		
Output Current	100mA (S11)		
Response Time	10 0ms		
Release Time	25ms		
Recovery Time	90ms		
OUTPUT CIRCUITS			
Rated Output Voltage	250V AC		
Maximum Current per Output	6A		
Maximum Total Current all Outputs	8A		
Safety Contact Breaking Capacity AC	250V, 1500VA, 6A, Ohmic 230V, 4A for AC-15		
	DC 24V, 30W, 1.25A, Ohmic		
Minimum Contact Load	10V 10mA		
Minimum Contact Fuses	4A slow blow, 6A fast blow		
Contact Material	AgSnO <sub>2</sub>		
Contact Service Life	10 x 10 <sup>6</sup>		
GENERAL DATA			
Rated Impulse Withstand Voltage	4kV		
Rated Insulation Voltage	250V		
Degree of Protection	IP20		
Temperature Range	-20C to +55C		
Degree of Contamination	2		
Overvoltage Category	III		
Weight	160gr (5.5 oz.)		
Mounting	Any position		

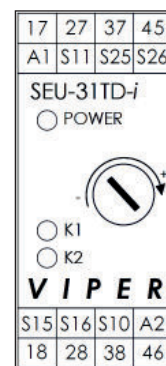
### SAFETY CHARACTERISTICS

EN62061	SIL3
ISO13849-1	Plc Category 4 (instant contacts)
	Plc Category 3 (delayed contacts)
PFH	2.3E-9 1/h (2.3% of SIL3 (1 E-07 1/h))
PFD Av. (T=20a)	2.0E-04 (20% of SIL3 (1 E-03))
MTTFd	134a (High)
DC Av.	95% (Medium)

## LED DIAGNOSTICS:

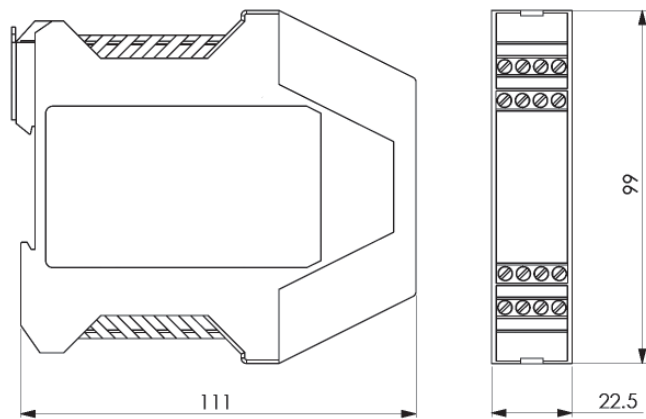
### WHEN SAFETY RELAY IN OPERATION

- Power Power applied to device
- K1 Internal relay safety output contacts closed.
- K2 Internal relay safety output contacts closed.

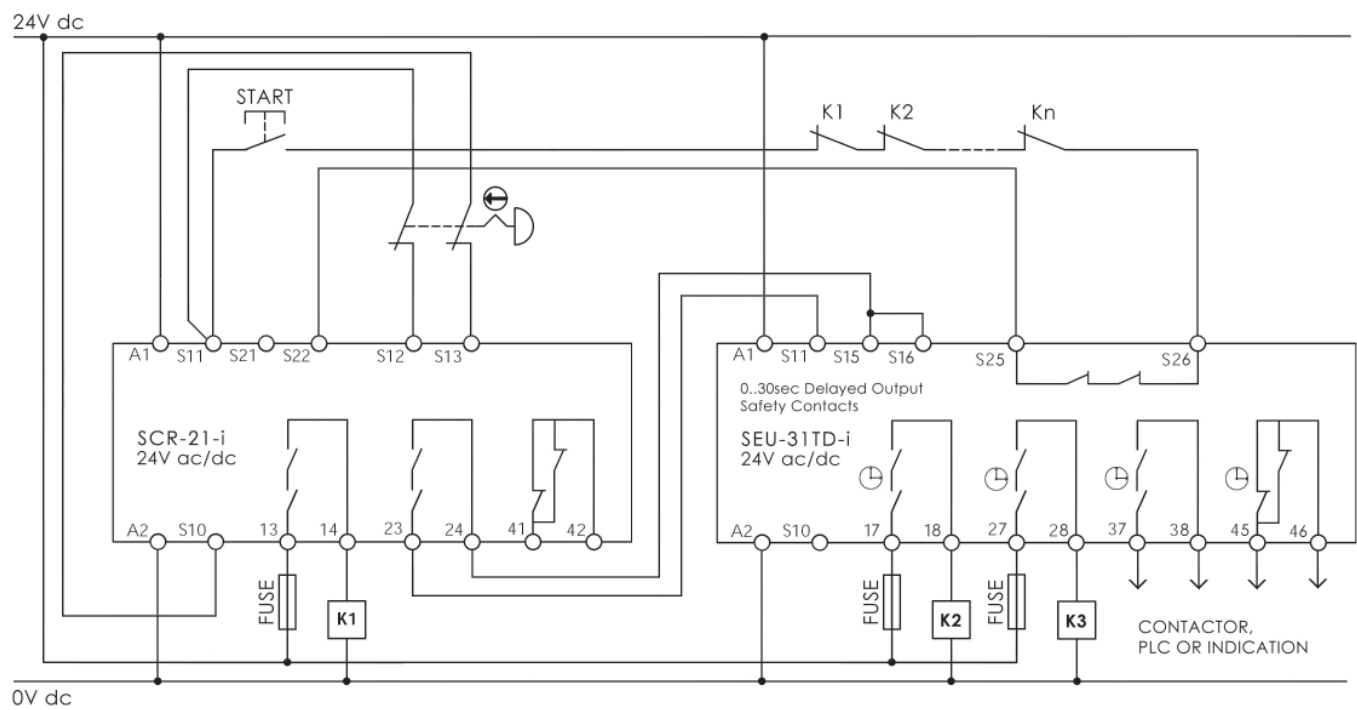


# VIPER Safety Relays Type: SEU-31TD-i (added diagnostics)

## DIMENSIONS:



## MANUAL RESTART MODE (Dual Channel) E-STOP:



## SELECTION CHART & ORDERING:

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	DELAYED CONTACTS
280008	SEU-31TD-i	Standard Screw Terminals	24Vac/dc	2NC	3NC 1NO
280008-P	SEU-31TD-i	Pluggable Screw Terminals	24Vac/dc	2NC	3NC 1NO

# Safety Relays Type: SCR-1

## OVERVIEW:

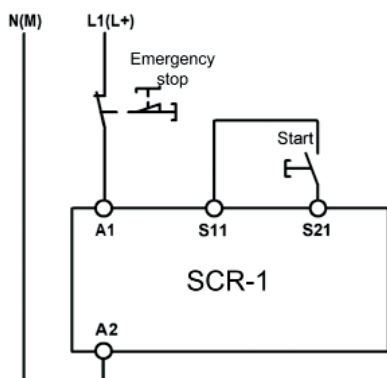
The SCR-1 is a low cost all purpose Safety Relay that ensures the quick and safe deactivation of the moving parts of a machine in case of danger. Internal fault monitoring takes place during restart via the start button.

Applications include single and dual channel emergency stop circuits or dual channel safety guard monitoring using Tongue Switches.

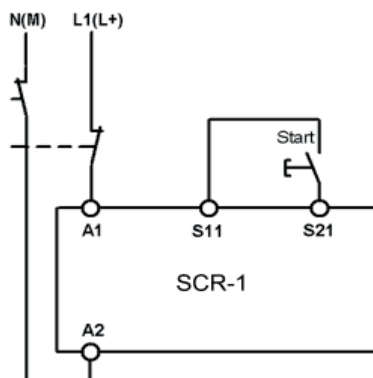
## FEATURES:

- 2 Safe, redundant safety output contacts
- Standards: EN60204-1, ISO13849-1, EN62061
- Up to Category 3 to ISO13849-1
- Up to PLd to ISO13849-1 SILCL2 EN62061
- Single or Dual Channel input - LED indication of input status
- Redundancy and cycle monitoring
- Feedback loop for monitoring contactors or expansion modules
- 22.5mm Din Rail Mounting

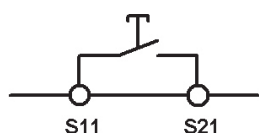
## APPLICATIONS:



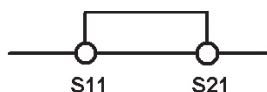
Single Channel Interlocking to PLC ISO13849-1 and Cat1



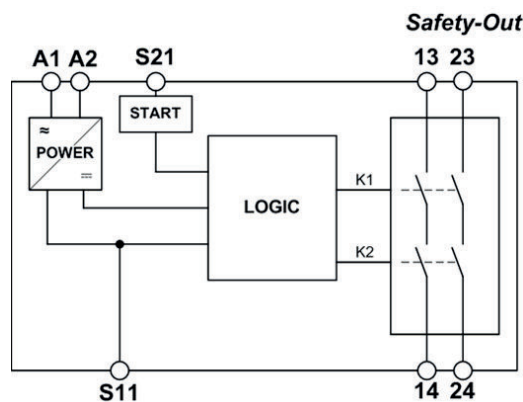
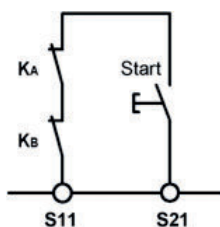
Dual Channel Interlocking to PLd ISO13849-1 and Cat3



Manual Start



Automatic Start



Block Diagram and Electrical Connection

- A1 A2 Power
- S11 24Vdc Control Voltage
- S21 Control Line
- 13-14 Safety Output Contact 1
- 23-24 Safety Output Contact 2

### Feedback Circuit

The feedback circuit monitors machine contactors or expansion modules

**Standards:** EN60204-1 EN292 ISO13849-1  
EN954-1 EN1088 ISO14119 EN62061

**Safety Classification and Reliability Data:** Specified PL or SILCL were determined under worst case conditions

Monitored Safety Inputs Circuits	2NC or 1NC
Safety Switching Outputs	2NC positively guided
Operating Voltage	24Vac/dc 3VA approx.
Supply Deviation	+/-10%
Control Voltage at S11	24Vdc
Control Current S11 to S14	40mA approx.
Monitored Reset Circuit Loop	Auto or Monitored Manual Reset
Maximum Line Conductor Cross Section	2.5 sq mm
Maximum Length of Control Line	1000m with 0.75 sq mm
Contact Material	AgNi
Indication - Green	LED1 internal relay K1 energised LED2 internal relay K2 energised LED1 and 2 OSSD closed
Contact Service Life	Mechanical 1x10 <sup>7</sup> Electrical 1x10 <sup>5</sup>
Safety Contact Breaking Capacity	AC 250V, 1500VA, 6A, ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A, ohmic 24V, 30W, 2.0A for DC-13
External Fuse Protection - Safety Outputs	4A slow blow or 6A quick blow
Minimum Voltage and Current	24V, 20mA dc
Response Time on Output Opening	90ms
Rated Insulation Voltage	250V
Degree of Protection	IP20
Rated Impulse Withstand Voltage	4kV
Operating Temperature	-15C to +40C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	160g approx.

<b>ISO13849-1</b>	
Performance Level	d
Category (ISO13849-1)	3
MTTFd	848 years
DC (average)	96.6%
Proof Test Interval (Life)	20 years
Safety Data Annual Usage	365 days per year 24 hours per day Test cycle 3600 seconds/cycle Full load AC15

<b>EN62061</b>	
SILCL	2
Proof Test Interval (life)	20 years
Hardware Fault Tolerance	1
DC (average)	96.6%
PFHd	1.03 x 10 <sup>-7</sup>

SALES NUMBER	TYPE	SUPPLY VOLTAGE	ISO13849-1 CATEGORY	SWITCH INPUT CIRCUITS	OUTPUT CONTACTS
180009	SCR-1	24Vac/dc	Up to Cat3	2NC	2NC



# Safety Relays Type: SCR-2

## OVERVIEW:

The SCR-2 is an all purpose Safety Monitoring Relay that ensures the quick and safe deactivation of the moving parts of a machine in case of danger.

Applications include single and dual channel emergency stop circuits or dual channel safety guard monitoring using Tongue Switches or Non Contact Switches.

## FEATURES:

- 2 Force guided safety output contacts
- Standards: EN60204-1, ISO13849-1, EN62061
- Stop Category: 0
- Up to PLe to ISO13849-1
- SILCL3 EN62061
- Single or Dual Channel input - LED indication of input status
- Redundancy and cycle monitoring
- Feedback loop for monitoring contactors or expansion modules
- Short circuit and earth fault monitoring
- 22.5mm Din Rail Mounting

## FUNCTION:

The SCR-2 is designed in accordance with EN60204-1 for safety circuits and they may be applied for up to PLe ISO13849-1 or SILCL3 to EN62061.

The internal logic system closes the relay safety outputs when the start button is pressed.

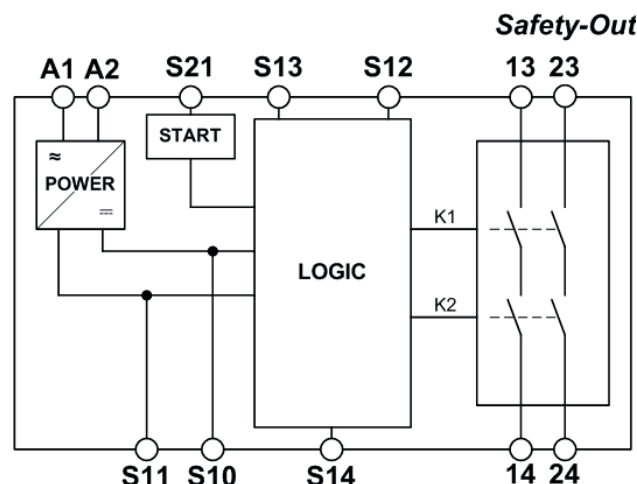
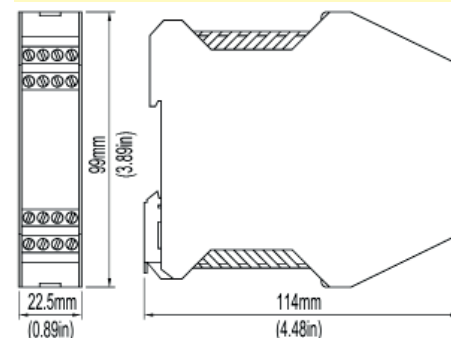
If the control lines are opened by operation of a Safety Switch or Emergency Stop button then the safety output contacts are opened and safely switch off the supply to the machine.

It is ensured that a single fault does not lead to the loss of the safety function and that cyclic monitoring means that any fault is detected no later than the next start up.



## Safety Monitoring Relay 2NC Outputs

## DIMENSIONS:



## Block Diagram and Electrical Connection

A1 A2	Power
S11	24Vdc Control Voltage
S10 S13 S14 S12	Control Lines
S21	Start Control Line
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2

**Standards:** EN60204-1 ISO13849-1 EN62061

Monitored Safety Inputs Circuits	2NC or 1NC
Safety Switching Outputs	2NC positively guided
Operating Voltage	24Vac/dc
Supply Deviation	+/-10%
Control Voltage at S11	24Vdc
Control Current S11 to S14	40mA approx.
Monitored Reset Circuit Loop	Auto or Monitored Manual Reset
Maximum Line Conductor Cross Section	2.5 sq mm
Maximum Length of Control Line	1000m with 0.75 sq mm
Contact Material	AgNi
Indication - Green	LED1 internal relay K1 energised LED2 internal relay K2 energised LED1 and 2 OSSD closed
Contact Service Life	Mechanical 1x10 <sup>7</sup> Electrical 1x10 <sup>5</sup>
Safety Contact Breaking Capacity	AC 250V, 1500VA, 6A, ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A, ohmic 24V, 30W, 2.0A for DC-13
External Fuse Protection - Safety Outputs	4A slow blow or 6A quick blow
Minimum Voltage and Current	24V, 20mA dc
Response Time on Output Opening	90ms
Rated Insulation Voltage	250V
Degree of Protection	IP20
Rated Impulse Withstand Voltage	4kV
Operating Temperature	-15C to +40C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	170g approx.

**Safety Classification and Reliability Data:** Specified PL or SILCL were determined under worst case conditions

<b>ISO13849-1</b>	
Performance Level	e
Category (ISO13849-1)	4
MTTFd	848 years
DC (average)	99%
Proof Test Interval (Life)	20 years
Safety Data Annual Usage	365 days per year 24 hours per day Test cycle 3600 seconds/cycle Full load AC15

<b>EN62061</b>	
SILCL	3
Proof Test Interval (life)	20 years
Hardware Fault Tolerance	1
DC (average)	99%
PFHd	1.2 x 10 <sup>-8</sup>

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	OUTPUT CONTACTS
180001	SCR-2	Standard Screw Terminals	24Vac/dc	2NC	2NC
180001-P	SCR-2	Pluggable Screw Terminals	24Vac/dc	2NC	2NC

Safety Relays    Type: SCR-3

OVERVIEW:

The SCR-3 is an all purpose Safety Monitoring Relay that ensures the quick and safe deactivation of the moving parts of a machine in case of danger.

Applications include single and dual channel emergency stop circuits or dual channel safety guard monitoring using Tongue Switches or Non Contact Switches.

FEATURES:

- 3 Force guided safety output contacts
- 1 Auxiliary output contact
- Standards: EN60204-1, ISO13849-1, EN62061
- Stop Category: 0
- Up to PLe to ISO13849-1
- SILCL3 EN62061
- Single or Dual Channel input - LED indication of input status
- Redundancy and cycle monitoring
- Feedback loop for monitoring contactors or expansion modules
- Short circuit and earth fault monitoring
- 22.5mm Din Rail Mounting
- Choice of 24Vac/dc, 110Vac or 230Vac supply (by Sales No.)

FUNCTION:

The SCR-3 is designed in accordance with EN60204-1 for safety circuits and they may be applied for up to PLe ISO13849-1 or SILCL3 to EN62061.

The internal logic system closes the relay safety outputs when the start button is pressed.

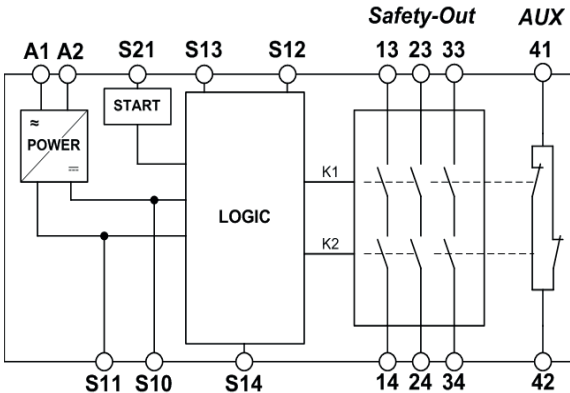
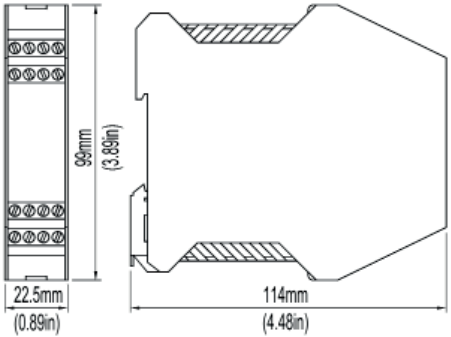
If the control lines are opened by operation of a Safety Switch or Emergency Stop button then the safety output contacts are opened and safely switch off the supply to the machine.

It is ensured that a single fault does not lead to the loss of the safety function and that cyclic monitoring means that any fault is detected no later than the next start up.



Safety Monitoring Relay  
3NC 1NO Outputs

DIMENSIONS:



Block Diagram and Electrical Connection

A1 A2	Power
S11	24Vdc Control Voltage
S10	Control Line
S21	Start Control Line
S13 S14 S12	Control Lines
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2
33-34	Safety Output Contact 3
41-42	Auxiliary Output Contact

Safety Classification and Reliability Data: Specified PL or SILCL were determined under worst case conditions

Standards:	EN60204-1 ISO13849-1 EN62061
Monitored Safety Inputs Circuits	2NC or 1NC from safety switches
Safety Switching Outputs	3NC positively guided
Auxiliary Outputs	1NO
Operating Voltage	24Vac/dc 110Vac or 230Vac
Supply Deviation	+/-10%
Control Voltage at S11	24Vdc
Control Current S11 to S14	40mA approx.
Monitored Reset Circuit Loop	Auto or Monitored Manual Reset
Maximum Line Conductor Cross Section	2.5 sq mm
Maximum Length of Control Line	1000m with 0.75 sq mm
Contact Material	AgNi
Indication - Green	LED1 internal relay K1 energised LED2 internal relay K2 energised LED1 and 2 OSSD closed
Contact Service Life	Mechanical 1x10 <sup>7</sup> Electrical 1x10 <sup>5</sup>
Safety Contact Breaking Capacity	AC 250V, 2000VA, 8A, ohmic 230V, 3A for AC15 DC 24V, 48W, 2.0A DC-13 (Max. total current 15A)
Auxiliary Contact Breaking Capacity	AC 250V, 500VA, 2A DC 50V, 30W, 1.25A ohmic
External Fuse Protection - Safety Outputs	4A slow blow or 6A quick blow
Minimum Voltage and Current	24V, 20mA dc
Response Time on Output Opening	90ms
Rated Insulation Voltage	250V
Degree of Protection	IP20
Rated Impulse Withstand Voltage	4kV
Operating Temperature	-15C to +40C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	160g approx.

ISO13849-1	
Performance Level	e
Category (ISO13849-1)	4
MTTFd	567 years
DC (average)	99%
Proof Test Interval (Life)	20 years
Safety Data Annual Usage	365 days per year 24 hours per day Test cycle 3600 seconds/cycle Full load AC15
EN62061	
SILCL	3
Proof Test Interval (life)	20 years
Hardware Fault Tolerance	1
DC (average)	99%
PFHd	1.2 x 10 <sup>-8</sup>

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	OUTPUT CONTACTS
180002	SCR-3	Standard	24Vac/dc	2NC	3NC 1NO
180003	SCR-3	Screw	230Vac	2NC	3NC 1NO
180004	SCR-3	Terminals	110Vac	2NC	3NC 1NO
180002-P	SCR-3	Pluggable	24Vac/dc	2NC	3NC 1NO
180003-P	SCR-3	Screw	230Vac	2NC	3NC 1NO
180004-P	SCR-3	Terminals	110Vac	2NC	3NC 1NO



# Safety Relay with combined Time Delay Type: SCR-4-TD

## OVERVIEW:

The SCR-4-TD Range of all purpose Safety Monitoring Relays combine time delayed and non time delayed contacts in a compact 22.5mm housing.

This permits dangerous components of a system to be switched off quickly and safely, whilst at the same time other circuits are still supplied with voltage for up to 30 seconds (adjustable on the SCR-4-TD by a potentiometer).

## FEATURES:

- Force guided safety output contacts - available in 3 variants
- Standards: EN60204-1, ISO13849-1, EN62061
- Stop Category: 0 (non time delayed) 1 (time delayed)
- Up to PLe to ISO13849-1
- SILCL3 EN62061
- Single or Dual Channel input - LED indication of input status
- Redundancy and cycle monitoring
- Feedback loop for monitoring contactors or expansion modules
- Short circuit and earth fault monitoring
- 22.5mm Din Rail Mounting

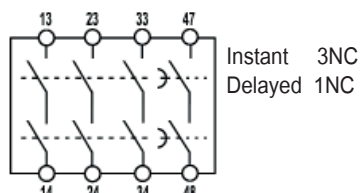
## FUNCTION:

If the application requires time delayed opening of a safety circuit following activation of the stop signal then the SCR-4-TD range will provide a combination of instant and variable delayed contacts.

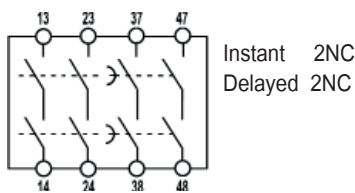
This may be useful for applications that rely on PLC control to provide an initial controlled shutdown but ultimately requires a delayed opening of a safety circuit.

## VARIANTS:

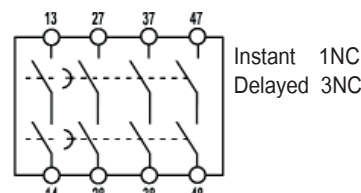
### SCR-4-TD-1



### SCR-4-TD-2



### SCR-4-TD-3



**Standards:** EN60204-1 ISO13849-1 EN62061

Monitored Safety Inputs Circuits	2NC or 1NC
Safety Switching Outputs	4NC
Delayed Time	1-30 seconds continuously adjustable
Operating Voltage	24Vac/dc
Supply Deviation	+/-10%
Control Voltage at S11	24Vdc
Control Current S11 to S14	190mA approx.
Monitored Reset Circuit Loop	Auto or Monitored Manual Reset
Maximum Line Conductor Cross Section	2.5 sq mm
Maximum Length of Control Line	1000m with 0.75 sq mm
Contact Material	AgNi
Indication - Green	LED1 internal relay K1 energised LED2 internal relay K2 energised LED1 and 2 OSSD closed
Contact Service Life	Mechanical 1x10 <sup>7</sup> Electrical 1x10 <sup>5</sup>
Safety Contact Breaking Capacity	AC 250V, 1500VA, 6A, ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A, ohmic 24V, 30W, 2.0A for DC-13
External Fuse Protection - Safety Outputs	4A slow blow or 6A quick blow
Minimum Voltage and Current	24V, 20mA dc
Response Time on Output Opening	90ms
Rated Insulation Voltage	250V
Degree of Protection	IP20
Rated Impulse Withstand Voltage	4kV
Operating Temperature	-15C to +40C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	250g approx.

**Safety Classification and Reliability Data:** Specified PL or SILCL were determined under worst case conditions

### ISO13849-1

Performance Level	e
Category (ISO13849-1)	Non Delayed: 4 Delayed: 3
MTTFd	73.36 years
DC (average)	Non Delayed: 99% Delayed: 90%
Proof Test Interval (Life)	10 years
Safety Data Annual Usage	261 days per year 16 hours per day Test cycle 180 seconds/cycle Low load AC1

### EN62061

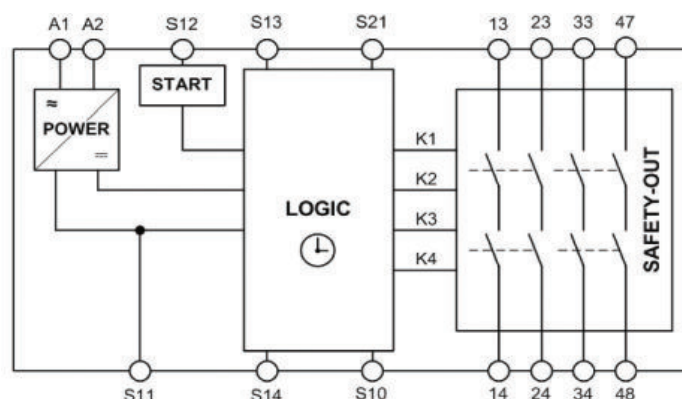
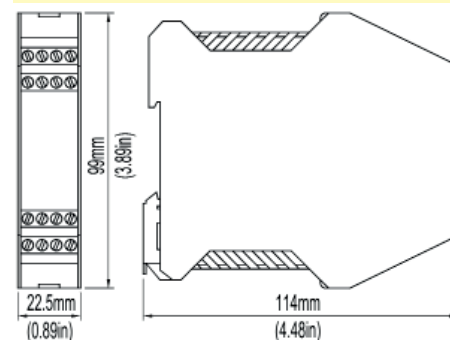
SILCL	Non Delayed: 3
Proof Test Interval (life)	20 years
Hardware Fault Tolerance	1
DC (average)	Non Delayed: 99% Delayed: 90%
PFHd	Non Delayed: 4.22 x 10 <sup>-8</sup> Delayed: 8.84 x 10 <sup>-8</sup>

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	INSTANT OUTPUT CONTACTS	DELAYED OUTPUT CONTACTS
180005	SCR-4-TD-1	Standard	24Vac/dc	2NC	3NC	1NC
180006	SCR-4-TD-2	Screw	24Vac/dc	2NC	2NC	2NC
180007	SCR-4-TD-3	Terminals	24Vac/dc	2NC	1NC	3NC
180005-P	SCR-4-TD-1	Pluggable	24Vac/dc	2NC	3NC	1NC
180006-P	SCR-4-TD-2	Screw	24Vac/dc	2NC	2NC	2NC
180007-P	SCR-4-TD-3	Terminals	24Vac/dc	2NC	1NC	3NC



## Safety Monitoring Relay

## DIMENSIONS:



**Block Diagram and Electrical Connection SCR-4-TD-1**

A1 A2	Power
S11	24Vdc Control Voltage
S10 S13 S14 S21	Control Lines
S12	Start Control Line



# Expansion Module for use with SCR-2 or SCR-3 Type: SEU-1

## OVERVIEW:

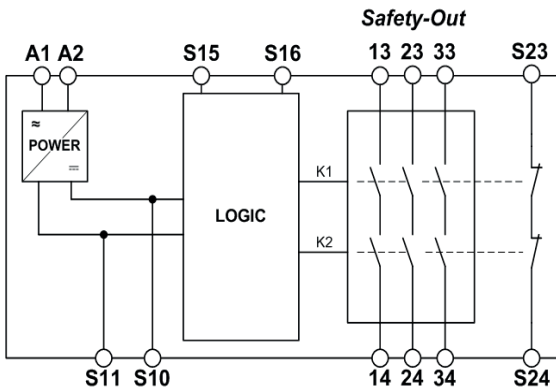
The SEU-1 is an expansion unit which offers 3 additional NC Safety Output Contacts.

An existing system using SCR-2 or SCR-3 can be expanded modularly.

The safety actuation is achieved from the basic SCR-2 or SCR-3 Safety Relay.

## FEATURES:

- 3NC Relay outputs
- 1NO Auxiliary contact (fault monitoring)
- Standards: EN60204-1, ISO13849-1, EN62061
- Stop Category: 1
- Up to PLe to ISO13849-1
- SILCL3 EN62061
- 3 Force guided contacts
- Fault monitoring by basic SCR device



Block Diagram and Electrical Connection SEU-1

A1 A2	Power
S11	24Vdc Control Voltage
S10 S15 S16	Control Lines
S23 S24	Fault Monitoring
13-14	Safety Contact 1
23-24	Safety Contact 2
33-34	Safety Contact 3

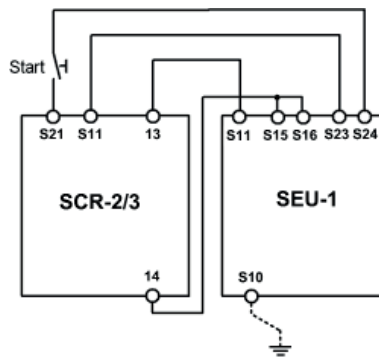
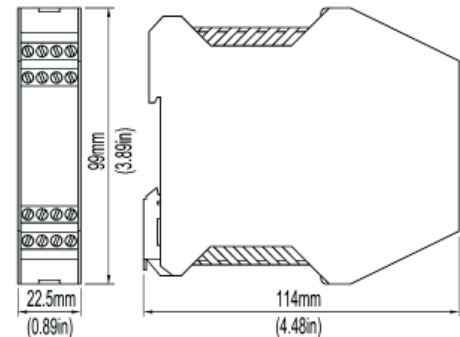
**Standards:** EN60204-1 ISO13849-1 EN62061

Safety Switching Outputs	3NC
Auxiliary Contact	1NO
Operating Voltage	24Vac/dc 110Vac or 230Vac
Supply Deviation	+/-10%
Control Voltage at S11	24Vdc
Control Current S11 to S14	40mA approx.
Maximum Line Conductor Cross Section	2.5 sq mm
Maximum Length of Control Line	1000m with 0.75 sq mm
Contact Material	AgNi
Indication - Green	LED1 and LED2 OSSD closed
Contact Service Life	Mechanical 1x10 <sup>7</sup> Electrical 1x10 <sup>5</sup>
Safety Contact Breaking Capacity	AC 250V, 1500VA, 6A, ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A ohmic 24V, 30W, 2.0A for DC-13
External Fuse Protection - Safety Outputs	4A slow blow or 6A quick blow
Minimum Voltage and Current	24V, 20mA dc
Rated Insulation Voltage	250V
Degree of Protection	IP20
Rated Impulse Withstand Voltage	4kV
Operating Temperature	-15C to +40C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	170g approx.

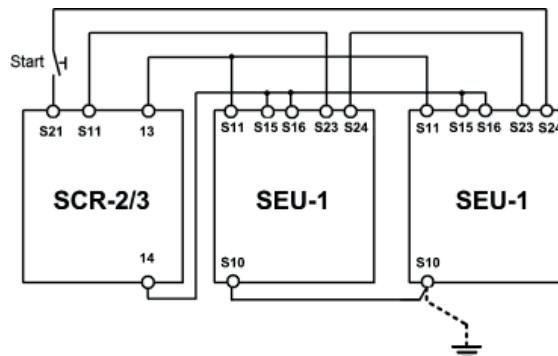


**Safety Expansion Relay  
3NC Outputs**

## DIMENSIONS:



Connection of an SEU-1 to a basic device SCR-2 or SCR-3



Connection of several SEU-1 to a basic device SCR-2 or SCR-3

**Safety Classification and Reliability Data:** Specified PL or SILCL were determined under worst case conditions

<b>ISO13849-1</b>	
Performance Level	e
Category (ISO13849-1)	4
MTTFd	567 years
DC (average)	99%
Proof Test Interval (Life)	20 years
Safety Data Annual Usage	365 days per year 24 hours per day Test cycle 3600 seconds/cycle Full load AC15

<b>EN62061</b>	
SILCL	3
Proof Test Interval (life)	20 years
Hardware Fault Tolerance	1
DC (average)	99%
PFHd	1.2 x 10 <sup>-8</sup>

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	OUTPUT CONTACTS	AUXILIARY OUTPUT CONTACTS
180010	SEU-1	Standard	24Vac/dc	3NC	1NO
180011	SEU-1	Screw	110Vac	3NC	1NO
180012	SEU-1	Terminals	230Vac	3NC	1NO
180010-P	SEU-1	Pluggable	24Vac/dc	3NC	1NO
180011-P	SEU-1	Screw	110Vac	3NC	1NO
180012-P	SEU-1	Terminals	230Vac	3NC	1NO

# Expansion Module with Time Delay for use with SCR-2/3 SEU-TD-1

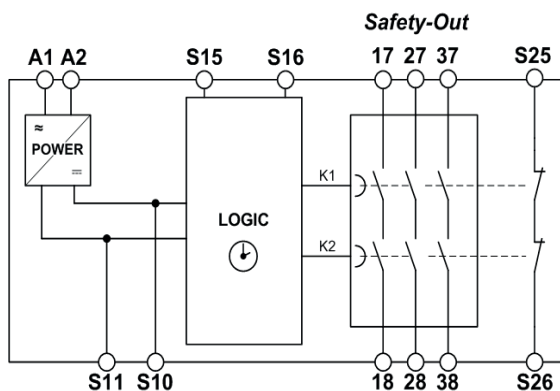
## OVERVIEW:

The SEU-TD-1 is an expansion unit which can be used with an existing system using SCR-2 or SCR-3 Safety Relays to allow delayed shutdown or timing to a safety application. Time delay is variable from 1 to 30 seconds.

The safety actuation is achieved from the basic SCR-2 or SCR-3 Safety Relay.

## FEATURES:

- 3NC Relay outputs
- 1NO Auxiliary contact
- Standards: EN60204-1, ISO13849-1, EN62061
- Stop Category: 1
- SILCL2 EN62061
- Up to PLd to ISO13849-1
- 3 Force guided contacts
- Fault monitoring by basic SCR device



Block Diagram and Electrical Connection SEU-TD-1

A1 A2	Power
S11	24Vdc Control Voltage
S10 S15 S16	Control Lines
S25 S26	Fault Monitoring
17-18	Safety Contact 1
27-28	Safety Contact 2
37-38	Safety Contact 3

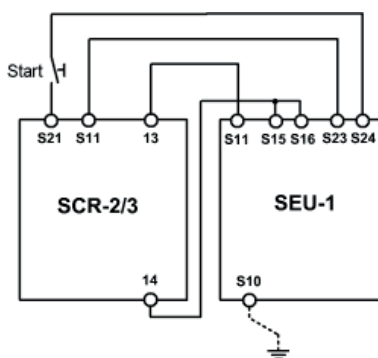
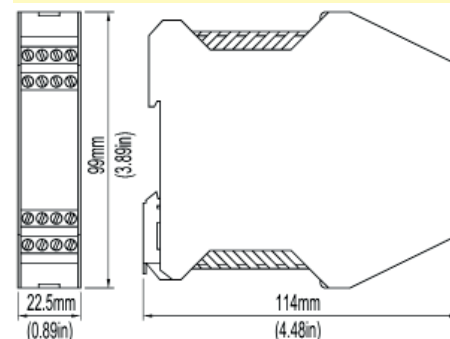
**Standards:** EN60204-1 ISO13849-1 EN62061

Safety Switching Outputs	3NC 1-30 secs continuously adjustable
Auxiliary Contact	1NO monitoring contact for basic device
Operating Voltage	24Vac/dc 110Vac or 230Vac
Supply Deviation	+/-10%
Control Voltage at S11	24Vdc
Control Current S11 to S14	40mA approx.
Monitored Reset Circuit Loop	Auto or monitored, manual reset
Maximum Line Conductor Cross Section	2.5 sq mm
Maximum Length of Control Line	1000m with 0.75 sq mm
Contact Material	AgNi
Indication - Green	LED1 and LED2 OSSD closed
Contact Service Life	Mechanical 1x10 <sup>7</sup> Electrical 1x10 <sup>5</sup>
Safety Contact Breaking Capacity	AC 250V, 1500VA, 6A, ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A ohmic 24V, 30W, 2.0A for DC-13
External Fuse Protection - Safety Outputs	4A slow blow or 6A quick blow
Minimum Voltage and Current	24V, 20mA dc
Rated Insulation Voltage	250V
Degree of Protection	IP20
Rated Impulse Withstand Voltage	4kV
Operating Temperature	-15C to +40C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0.25kg approx.

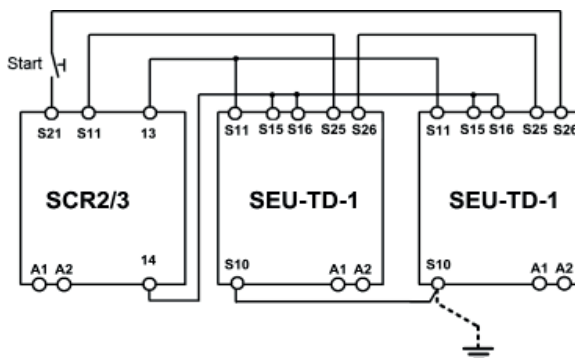


Safety Expansion Relay offering Delayed Outputs

## DIMENSIONS:



Connection of an SEU-TD-1 to a basic device SCR-2 or SCR-3



Connection of several SEU-TD-1 to a basic device SCR-2 or SCR-3

**Safety Classification and Reliability Data:** Specified PL or SILCL were determined under worst case conditions

<b>ISO13849-1</b>	
Performance Level	d
Category (ISO13849-1)	3
MTTFd	487 years
DC (average)	92.1%
Proof Test Interval (Life)	20 years
Safety Data Annual Usage	365 days per year 24 hours per day Test cycle 3600 seconds/cycle Full load AC1

<b>EN62061</b>	
SILCL	2
Proof Test Interval (life)	20 years
Hardware Fault Tolerance	1
DC (average)	92.1%
PFHd	1.03 x 10 <sup>-7</sup>

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	DELAYED OUTPUT CONTACTS
180015	SEU-TD-1	Standard Screw Terminals	24Vac/dc	3NC 1NO
180016	SEU-TD-1		110Vac	3NC 1NO
180017	SEU-TD-1		230Vac	3NC 1NO
180015-P	SEU-TD-1	Pluggable Screw Terminals	24Vac/dc	3NC 1NO
180016-P	SEU-TD-1		110Vac	3NC 1NO
180017-P	SEU-TD-1		230Vac	3NC 1NO

# Safety Relay 2 Hand Type: SCR-2H

## OVERVIEW:

The SCR-2H is a compact, universal 2 hand control safety relay. It complies with EN574, Type IIIC and is intended for use in safety circuits designed in accordance with EN60204-1.

## FEATURES:

- 2 Force guided safety output contacts
- Standards: EN574, EN60204-1, ISO13849-1, EN62061
- Stop Category: 0
- Up to IIIC EN574
- Up to PLe to ISO13849-1
- SILCL3 EN62061
- Redundancy and cycle monitoring
- Short circuit monitoring
- 22mm Din Rail Mounting
- Choice of 24Vac/dc, 110Vac or 230Vac supply (by Sales No.)

## PRINCIPLE OF OPERATION:

The SCR-2H is suitable for connection of two hand buttons with one normally closed contact and one normally open contact.

When the operating voltage is applied to A1 and A2 and the feedback loop X1 and X2 is closed the SCR-2H is ready for use.

The output contacts only close when the 2 hand buttons T1 and T2 are operated simultaneously (within 0.5s). The output contacts do not close if only one button is operated or the feedback loop is open. Short or open circuits are detected. In order to trigger a new operation both buttons must have been released and the feedback loop closed.

It is important to arrange the buttons such that accidental operation or easy bypass cannot be achieved, and in accordance with EN574 and EN999.

EN574 - the buttons must be arranged such that operation of both buttons using one hand is prevented i.e. a minimum distance apart of 260mm but also so as to prevent actuation by other parts of the body (forearm, elbow, hip, etc.).

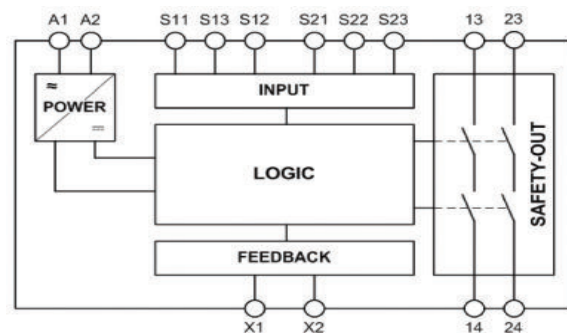
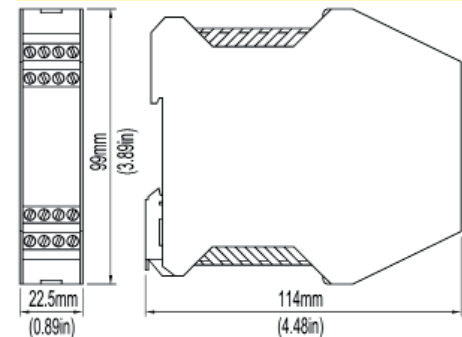
EN999 - it is necessary to maintain a minimum distance between the 2 hand buttons and the hazard on the machine.

<b>Standards:</b>	EN60204-1 ISO13849-1 EN574 EN62061
Safety Switching Outputs	2NC positively guided
Operating Voltage	24Vac/dc 110Vac or 230Vac
Supply Deviation	+/-10%
Control Voltage at S11	24Vdc
Control Current S11 to S14	20mA approx.
Release Time for the NC Contacts after Release of Buttons	<20ms
Synchronisation Time	<0.5s
Maximum Line Conductor Cross Section	2.5 sq mm
Maximum Length of Control Line	1000m with 0.75 sq mm
Contact Material	AgNi
Indication - Green	LED1 internal relay K1 energised LED2 internal relay K2 energised LED1 and 2 OSSD closed
Contact Service Life	Mechanical 1x10 <sup>7</sup> Electrical 1x10 <sup>5</sup>
Safety Contact Breaking Capacity	AC 250V, 1500VA, 6A, ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A, ohmic 24V, 30W, 2.0A for DC-13
Auxiliary Contact Breaking Capacity	AC 250V, 500VA, 2A DC 50V, 30W, 1.25A ohmic
External Fuse Protection - Safety Outputs	4A slow blow or 6A quick blow
Minimum Voltage and Current	24V, 20mA dc
Rated Insulation Voltage	250V
Degree of Protection	IP20
Rated Impulse Withstand Voltage	4kV
Operating Temperature	-15C to +40C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	200g approx.

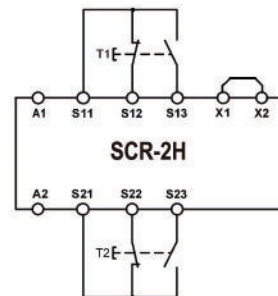


**Safety Monitoring Relay  
2 Hand Control**

## DIMENSIONS:



**Block Diagram and Electrical Connection SCR-2H**



**Safety Classification and Reliability Data:** Specified PL or SILCL were determined under worst case conditions

<b>ISO13849-1</b>	
Performance Level	e
Category (ISO13849-1)	4
MTTFd	96.6 years
DC (average)	99%
Proof Test Interval (Life)	10 years
Safety Data Annual Usage	261 days per year 16 hours per day Test cycle 7.6 seconds/cycle Low load AC1

<b>EN62061</b>	
SILCL	3
Proof Test Interval (life)	10 years
Hardware Fault Tolerance	1
DC (average)	99%
PFHd	1.2 x 10 <sup>-8</sup>

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	OUTPUT CONTACTS
180030	SCR-2H	Standard Screw Terminals	24Vac/dc	2NC
180031	SCR-2H		230Vac	2NC
180032	SCR-2H		110Vac	2NC
180030-P	SCR-2H	Pluggable Screw Terminals	24Vac/dc	2NC
180031-P	SCR-2H		230Vac	2NC
180032-P	SCR-2H		110Vac	2NC

# VIPER Safety Relays Type: SCR-21-i (with added diagnostics)

## DESCRIPTION:

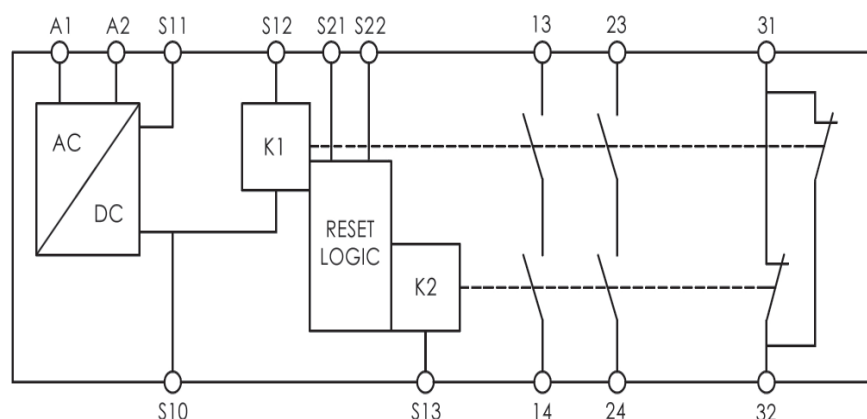
The Viper Safety Relays range from IDEM are designed to meet the latest safety standards and offer enhanced LED diagnostics and simplified wiring. Applications include the monitoring of safety interlock switches (guard door monitoring), emergency stop devices and sensors.

The SCR-21-i internal logic uses force guided relays to achieve cross monitoring, this ensures that a single fault does not lead to the loss of the safety function and that all faults are detected at or before the next safety demand.

## FEATURES:

- Outputs 2NC contacts and 1NO contact.
- Feedback circuit to monitor external contacts.
- Easy diagnosis of status via visual indication of LEDs.
- Up to PLe, SILCL 3, Category 4.
- Monitored manual or automatic start.
- Single and dual channel operation.
- Output expansion units available to increase number of outputs.

## BLOCK DIAGRAM AND ELECTRICAL CONNECTION:



### Electrical Connection

A1 A2	Power 24Vac/dc
S11	Control Output
S10 S13 S12	Control Inputs
S21	Auto Reset Input
S22	Manual Reset Input
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2
31-32	Auxiliary Output Contact

## SPECIFICATIONS:

STANDARDS				
EN ISO13849-1	EN ISO13849-2	EN62061	EN60204-1	EN ISO12100
POWER SUPPLY CIRCUIT				
Operating Voltage	24V AC/DC			
Operating Voltage Tolerance	85-110%			
Rated Supply Frequency	50Hz-60Hz			
Power Consumption	2.5W (24V AC/DC)			
CONTROL CIRCUITS				
Rated Output Voltage	24V DC (S11)			
Output Current	100mA (S11)			
Response Time	100ms			
Release Time	25ms			
Recovery Time	90ms			
OUTPUT CIRCUITS				
Rated Output Voltage	250V AC			
Maximum Current per Output	6A			
Maximum Total Current all Outputs	8A			
Safety Contact Breaking Capacity AC	250V, 1500VA, 6A, Ohmic 230V, 4A for AC-15			
	DC 24V, 30W, 1.25A, Ohmic			
Minimum Contact Load	10V 10mA			
Minimum Contact Fuses	4A slow blow, 6A fast blow			
Contact Material	AgSnO <sub>2</sub>			
Contact Service Life	10 x 10 <sup>6</sup>			
GENERAL DATA				
Rated Impulse Withstand Voltage	4kV			
Rated Insulation Voltage	250V			
Degree of Protection	IP20			
Temperature Range	-20C to +55C			
Degree of Contamination	2			
Overvoltage Category	III			
Weight	160gr (5.5 oz.)			
Mounting	Any position			

### SAFETY CHARACTERISTICS

EN62061	SIL3
ISO13849-1	Ple Category 4
PFH	4.1E-10 1/h (0.4% of SIL3 (1 E-07 1/h))
PFD Av. (T=20a)	3.6E-05 (3.6% of SIL3 (1 E-03))
MTTFd	142a (High)
DC Av.	99% (High)

## LED DIAGNOSTICS:

### WHEN SAFETY RELAY IN OPERATION

- Power Power applied to device  
 Reset Reset Circuit is closed.  
 CH1 External switch input 1 closed.  
 CH2 External switch input 2 closed.  
 K1 Internal relay safety output contacts closed.  
 K2 Internal relay safety output contacts closed.

13	23	31
A1	S11	S21
S12	S14	S10
14	24	32

SCR-21-i

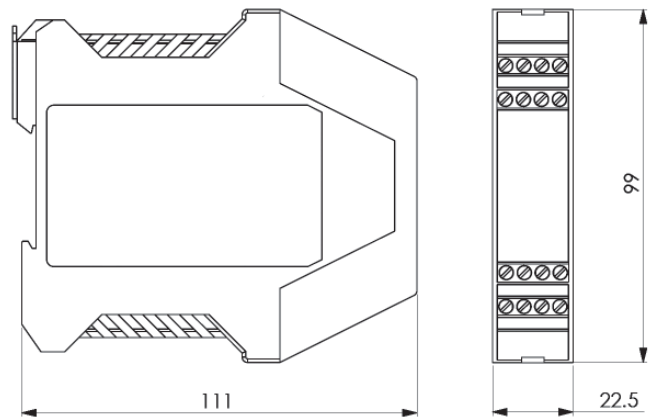
○ POWER  
 ○ RESET  
 ○ CH1  
 ○ CH2  
 ○ K1  
 ○ K2

VIPER

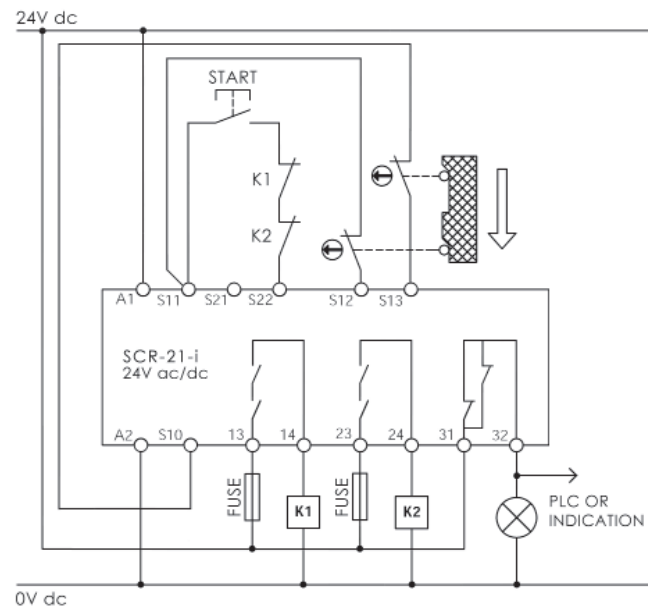


# VIPER Safety Relays Type: SCR-21-i (with added diagnostics)

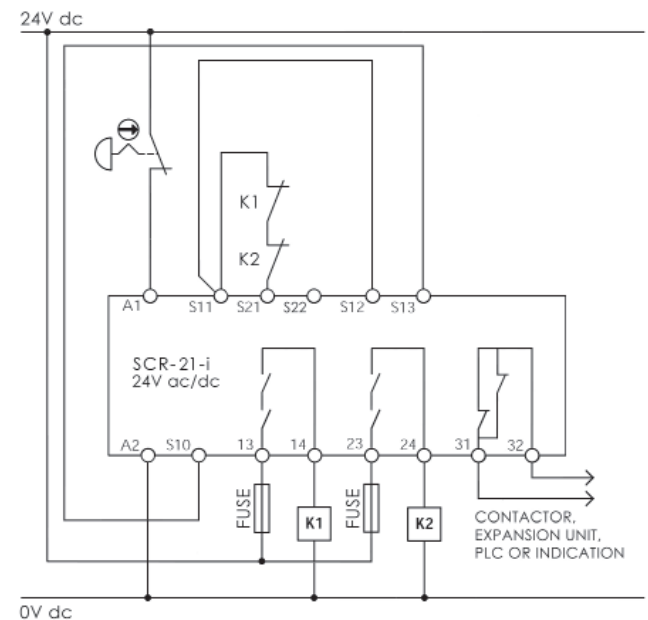
DIMENSIONS:



MANUAL RESTART MODE (Dual Channel) GUARD:



AUTOMATIC RESTART MODE (Single Channel) E-STOP:



SELECTION CHART & ORDERING:

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	OUTPUT CONTACTS
280001	SCR-21-i	Standard Screw Terminals	24Vac/dc	2NC	2NC 1NO
280001-P	SCR-21-i	Pluggable Screw Terminals	24Vac/dc	2NC	2NC 1NO



# VIPER Safety Relays Type: SEU-31-i (with added diagnostics)

## DESCRIPTION:

The Viper Safety Relays range from IDEM are designed to meet the latest safety standards and offer enhanced LED diagnostics and simplified wiring. Applications include the monitoring of safety interlock switches (guard door monitoring), emergency stop devices and sensors.

The SEU-31-i is an expansion unit designed to connect to a standard SCR-i relay to offer extra output contacts to the end user.

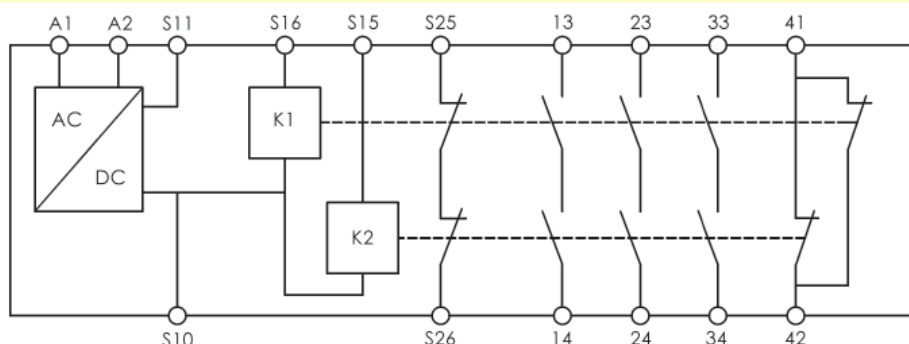


## FEATURES:

- Output contacts: 3NC 1NO.
- Easy diagnosis of status via visual indication of LEDs.
- Up to PLe, SILCL 3, Category 4.
- Monitored manual or automatic start.
- Single and dual channel operation.
- Output expansion units available to increase number of outputs.



## BLOCK DIAGRAM AND ELECTRICAL CONNECTION:



### Electrical Connection

A1 A2	Power 24Vac/dc
S11	Control Output
S15 S16 S10	Control Inputs
S25 S26	Feedback Check Contacts
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2
33-34	Safety Output Contact 3
41-42	Auxiliary Output Contact

## SPECIFICATIONS:

STANDARDS			
EN ISO13849-1	EN62061	EN60204-1	EN ISO12100
POWER SUPPLY CIRCUIT			
Operating Voltage	24V AC/DC		
Operating Voltage Tolerance	85-110%		
Rated Supply Frequency	50Hz-60Hz		
Power Consumption	2.5W (24V AC/DC)		
CONTROL CIRCUITS			
Rated Output Voltage	24V DC (S11)		
Output Current	100mA (S11)		
Response Time	30ms		
Release Time	25ms		
Recovery Time	90ms		
OUTPUT CIRCUITS			
Rated Output Voltage	250V AC		
Maximum Current per Output	6A		
Maximum Total Current all Outputs	8A		
Safety Contact Breaking Capacity AC	250V, 1500VA, 6A, Ohmic 230V, 4A for AC-15		
	DC 24V, 30W, 1.25A, Ohmic		
Minimum Contact Load	10V 10mA		
Minimum Contact Fuses	4A slow blow, 6A fast blow		
Contact Material	AgSnO <sub>2</sub>		
Contact Service Life	10 x 10 <sup>6</sup>		
GENERAL DATA			
Rated Impulse Withstand Voltage	4kV		
Rated Insulation Voltage	250V		
Degree of Protection	IP20		
Temperature Range	-20C to +55C		
Degree of Contamination	2		
Overvoltage Category	III		
Weight	160gr (5.5 oz.)		
Mounting	Any position		

SAFETY CHARACTERISTICS	
EN62061	SIL3
ISO13849-1	Ple Category 4
PFH	8.4E-10 1/h (0.8% of SIL3 (1 E-07 1/h))
PFD Av. (T=20a)	7.2E-05 (7.2% of SIL3 (1 E-03))
MTTFd	71a (High)
DC Av.	99% (High)

## LED DIAGNOSTICS:

### WHEN SAFETY RELAY IN OPERATION

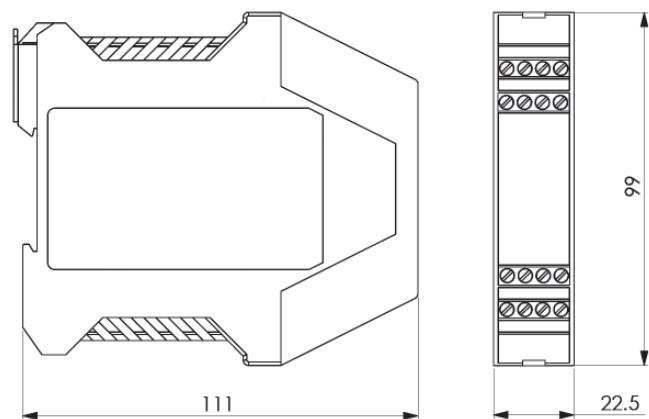
- Power Power applied to device
- K1 Internal relay safety output contacts closed.
- K2 Internal relay safety output contacts closed.

13	23	33	41
A1	S11	S25	S26
SEU-31-i			
○ POWER			
○ K1			
○ K2			
VIPER			
S15	S16	S10	A2
14	24	34	42

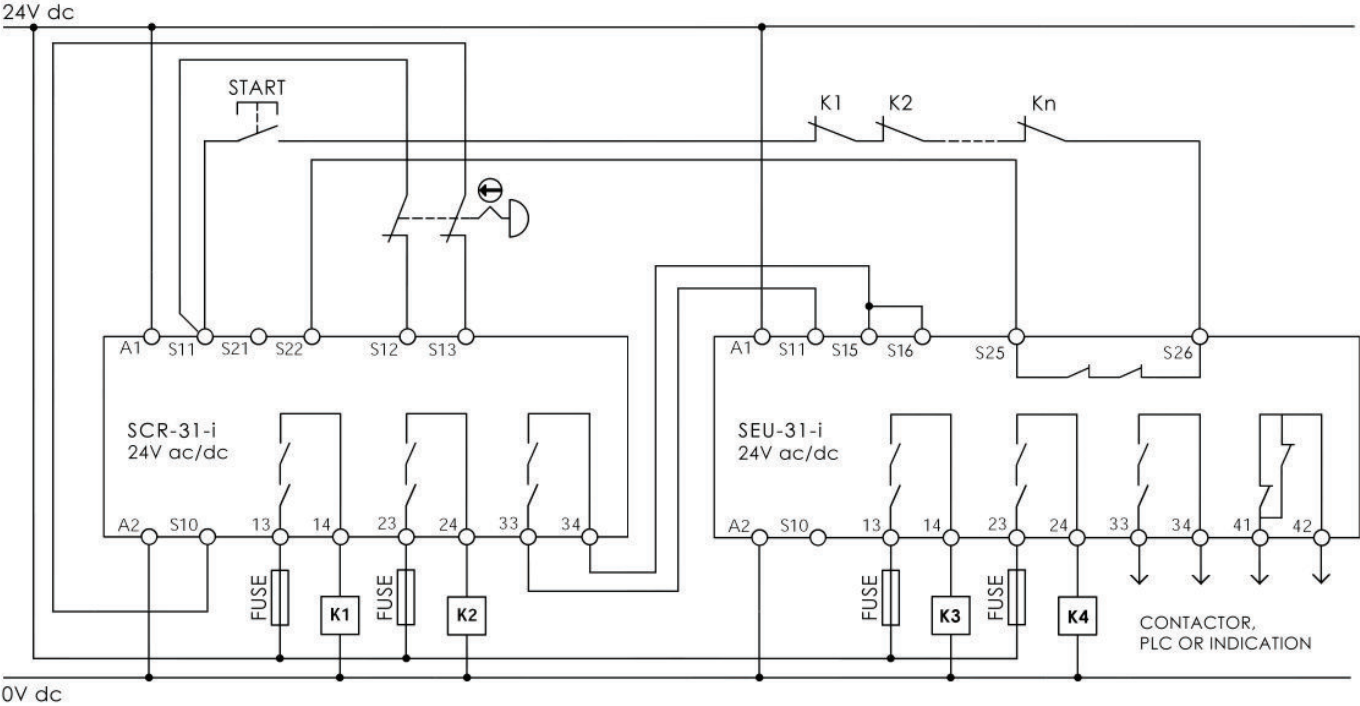


# VIPER Safety Relays Type: SEU-31-i (with added diagnostics)

## DIMENSIONS:



## MANUAL RESTART MODE (Dual Channel) E-STOP (shown with SCR-31-i):



## SELECTION CHART & ORDERING:

SALES NUMBER	TYPE	TERMINAL TYPE	SUPPLY VOLTAGE	SWITCH INPUT CIRCUITS	OUTPUT CONTACTS
280007	SEU-31-i	Standard Screw Terminals	24Vac/dc	2NC	3NC 1NO
280007-P	SEU-31-i	Pluggable Screw Terminals	24Vac/dc	2NC	3NC 1NO

# IDEM VIPER DIN Rail Power Supply TYPE DRS-2415

## DESCRIPTION:

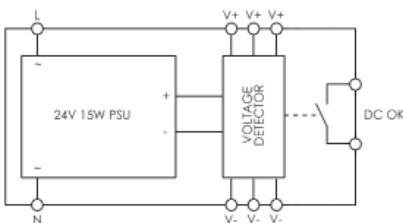
The Viper DRS-2415 Power Supply from IDEM Safety Switches has been designed to provide regulated 24VDC power to devices such as safety switches and safety relays. The DRS-2415 has both short circuit and over-voltage protection built in, this is in addition to a "DC OK" voltage free signal contact to indicate the status of the DC power.

## FEATURES:

- Wide input range (85-265V AC).
- DC OK indication and signal contact.
- 6 output voltage terminals for multiple connections.
- 22.5mm DIN rail mountable enclosure.
- 24 Vdc output 15W/0.63A.
- Over-Voltage protection.
- Short circuit protection.
- The DRS-2415 requires no maintenance, there are no serviceable parts.



## INTERNAL BLOCK DIAGRAM AND TERMINAL CONNECTION:



### Terminal Connections

L Live Connection VAC Supply  
N Neutral Connection VAC Supply  
+ +24VDC Output Connection  
- 0VDC Output Connections  
DC OK DC Status Signal Output  
Closed = 'OK'

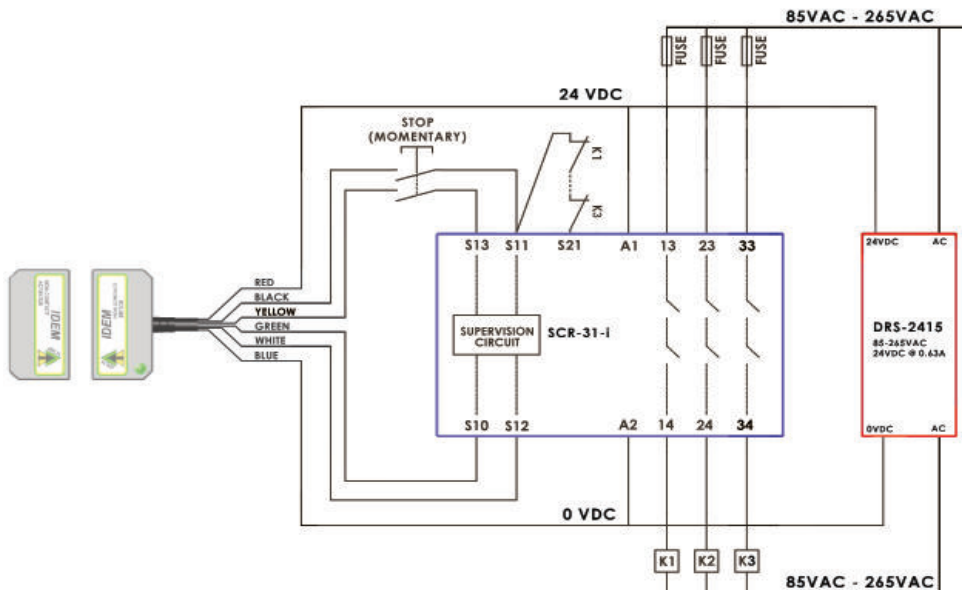
DC OK	-	-	-
DC OK	+	+	+

24VDC/0.63A DC OK

DRS-2415



## CONNECTION EXAMPLE:

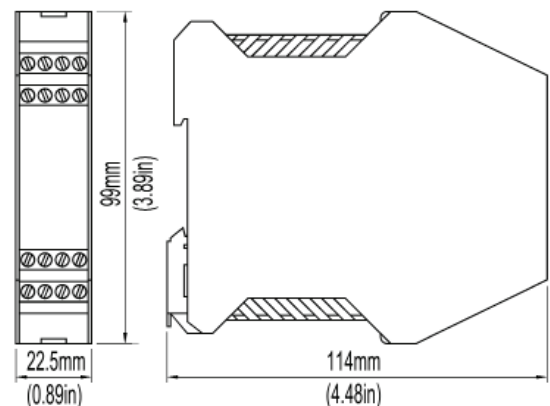


## SPECIFICATIONS:

### Specifications:

AC Input Voltage Range	85 – 265 Vac
Input Frequency	50 – 60 Hz
Inrush Current	30A at 240Vac, cold start at 25°C
Input Current (115/230VAC)	0.4 / 0.2 A
Output Voltage	24 Vdc
Output Current	0.63 A
Load Regulation	±1% (10% to 100% load)
Line Regulation	±0.5% (100-240VAC line change)
Ripple & Noise	1% or 50mV whichever is greater
Short Circuit Protection	Continuous – hiccup mode
Over-voltage Protection	130-150%, Zener clamp
Efficiency	75%
Operating Temperature	0 - +55°C
Storage Temperature	-20 - +85°C
DC OK Signal Contact Rating	24Vac/dc, 200mA

## DIMENSIONS:



SALES NUMBER	DESCRIPTION
185001	DRS-2415 DIN Rail Power Supply 85 - 265Vac