

# IDEM SCR21 Series Single/Dual Channel Viper Safety Relays



SCR21-280001

The Viper Safety Relay series from IDEM are designed with enhanced LED diagnostics and simplified wiring. Applications include guard door monitoring, emergency stop devices and sensors. The SCR21 series' 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.

**Note:** Not for use with safety light curtains

## Features

- Single or dual channel operation
- Monitored manual or auto start /reset
- Up to 2 safety output contacts and 1 auxiliary output contact
- Easy diagnostics of status via 6 LEDs
- Compact 22.5 mm housing suitable for DIN rail mounting

## Safety Data per EN 13849-1

|                          |             |
|--------------------------|-------------|
| <b>Category</b>          | 4           |
| <b>Performance level</b> | Ple         |
| <b>MTTF<sub>d</sub></b>  | 142a (High) |
| <b>DC<sub>avg</sub></b>  | 99% (High)  |

## Safety Data per IEC/EN 62061, IEC/EN 61508

|                                |                  |
|--------------------------------|------------------|
| <b>Sil CL</b>                  | SIL CL 3         |
| <b>Sil</b>                     | SIL3             |
| <b>HFT</b>                     | 1 (Dual channel) |
| <b>DC<sub>avg</sub></b>        | 99% (High)       |
| <b>SFF</b>                     | 90-99%           |
| <b>PFH<sub>d</sub> (t-20a)</b> | 3.60E-05         |

## SCR21 Series Single/Dual Channel Safety Relays

| Part Number           | Price    | Type                              | Voltage   | Outputs     | Connection            |
|-----------------------|----------|-----------------------------------|-----------|-------------|-----------------------|
| <b>SCR21-280001</b>   | \$159.00 | Single and dual channel operation | 24V AC/DC | 2 NO / 1 NC | Fixed screw terminals |
| <b>SCR21-280001-P</b> | \$159.00 |                                   |           |             | Pluggable terminals   |



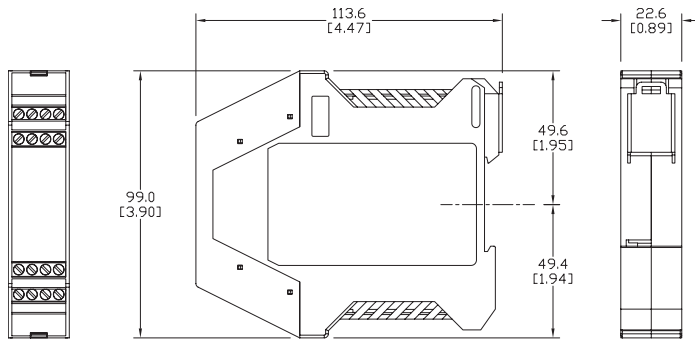
## SCR21 Series Specifications

| General Specifications             |                                                                                                                                             |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature                        | -20° to +55°C [-4° to +131°F]                                                                                                               |
| Altitude                           | < 2,000 meters                                                                                                                              |
| Vibration Resistance               | Tested to IEC 60068-2-6                                                                                                                     |
| Degree Of Protection               | IP20                                                                                                                                        |
| Housing                            | UL 94V-0 Thermoplastic                                                                                                                      |
| Weight                             | 150g (5.3 oz)                                                                                                                               |
| Agency Approvals and Standard      | cULus file E258676, CE, TUV                                                                                                                 |
| Terminal Designation per EN 50 005 | 1 x 4 mm <sup>2</sup> stranded ferruled (isolated) or 2 x 1.5 mm <sup>2</sup> stranded ferruled (isolated) or 2 x 2.5 mm <sup>2</sup> solid |
| Wire Fixing                        | M3.5 terminals with self-lifting wire protection or cage clamp terminals                                                                    |
| Input Specifications               |                                                                                                                                             |
| Nominal Voltage                    | 24V AC/DC                                                                                                                                   |
| Voltage Range                      | 85-110%                                                                                                                                     |
| Maximum Consumption                | 2.5 W (24VDC)                                                                                                                               |
| Nominal Frequency                  | 50Hz-60Hz                                                                                                                                   |
| Control Voltage                    | 24VDC (S11)                                                                                                                                 |
| Control Current                    | 100mA (S11)                                                                                                                                 |
| Short Circuit Protection           | Internal PTC (Positive Temperature Coefficient resistor)                                                                                    |
| Over Voltage Protection            | Internal VDR (Voltage Dependent resistor)                                                                                                   |
| Output Specifications              |                                                                                                                                             |
| Electrical Contact Life            | 6A / 250VAC 100,000 cycles, 1A / 250VAC 1,000,000 cycles                                                                                    |
| Mechanical Life                    | 10 x 10 <sup>6</sup>                                                                                                                        |
| Contact Type                       | 2 NC positively driven and 1 NO auxiliary contacts                                                                                          |
| Operate Delay                      | 100ms                                                                                                                                       |
| Release Delay                      | 25ms                                                                                                                                        |
| Nominal Output Voltage             | 250VAC                                                                                                                                      |
| Thermal Current (I <sub>th</sub> ) | Max. 6A                                                                                                                                     |
| Short Circuit Strength             | Minimum Contact Fuses - 4A slow blow, 6A fast blow                                                                                          |
| Switching Capacity                 | AC - 250V, 1500V, 6A, Ohmic 230V, 4A for AC-15 ; DC - 24V, 30W, 1.25 A, Ohmic                                                               |
| Switching Frequency                | Max. 360 switching cycles/hr                                                                                                                |

# IDEM SCR21 Series Single/Dual Channel Viper Safety Relays

## Dimensions

mm [in]



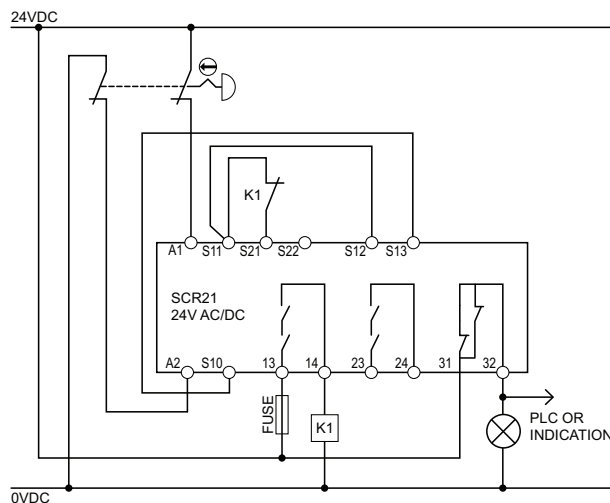
## LED Diagnostics

### When safety relay in operation

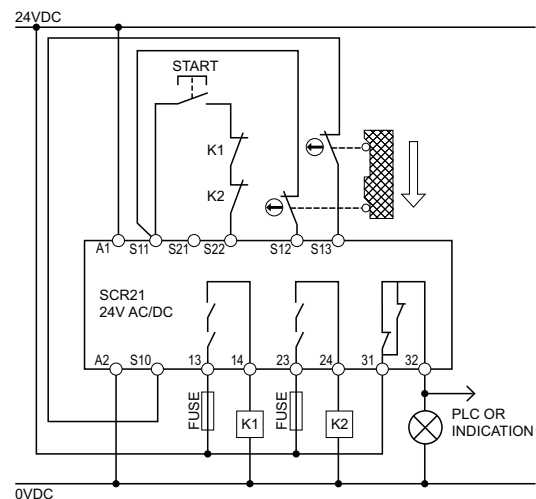
|       |                                              |
|-------|----------------------------------------------|
| Power | Power applied to device                      |
| Reset | Reset circuit is closed                      |
| CH1   | External switch input 1 closed               |
| CH2   | External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

|                  |     |     |     |
|------------------|-----|-----|-----|
| 13               | 23  |     | 31  |
| A1               | S11 | S21 | S22 |
| SEU-21- <i>i</i> |     |     |     |
| ○ POWER          |     |     |     |
| ○ RESET          |     |     |     |
| ○ CH1            |     |     |     |
| ○ CH2            |     |     |     |
| ○ K1             |     |     |     |
| ○ K2             |     |     |     |
| VIPER            |     |     |     |
| S12              | S13 | S10 | A2  |
| 14               | 24  |     | 32  |

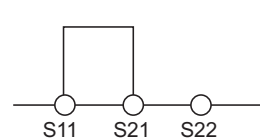
## Applications



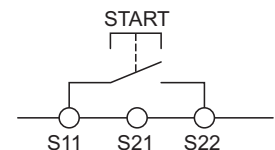
Automatic restart mode (single channel) E-Stop



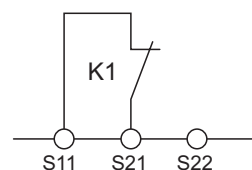
Manual restart mode (dual channel) guard



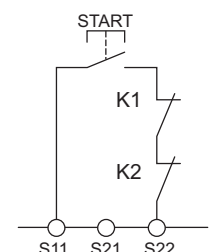
Auto Reset



Manual Reset



Contactor Auto Feedback



Contactor Manual Feedback

Note: A power supply unit with electrical isolation from the mains supply must be connected. External fusing of each safety output contact is necessary, a 4A slow-blow or 6A (quick action) must be provided. The maximum cabling and connecting resistance of control lines must not be exceed 300 Ohms.

# Safety Products



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