

E Stop and Tongue Switches with OSSD Outputs

Operating Instructions



READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE INSTALLING, OPERATING, OR MAINTAINING THIS EQUIPMENT.

The product is designed to be a component of a customized safety oriented control system. It is the responsibility of each manufacturer to ensure the correct overall functionality of its systems and machines. IDEM, its subsidiaries and affiliates, are not in a position to guarantee all of the characteristics of a given system or product not designed by IDEM.

APPLICATION:

The switch OSSD outputs replace traditional electro-mechanical contact blocks to provide solid state outputs and internal self-checking.



The devices are able to maintain PLe with devices connected in series due to internal self-tests. These devices can be connected in series with other 'Z' type devices (LPZ, LMZ, BMZ, BPZ, KLM-Z, KLP-Z, KL3-SS-Z, and HS-Z) to form a system. It is recommended to limit the number of switches connected in series to 30 maximum.



All supplied fitted with 8 pin M12 Male Connector on 250mm (10 inch) flying lead

ALWAYS READ THESE INSTRUCTIONS IN CONJUNCTION WITH ANY OTHER INSTRUCTIONS PROVIDED WITH THE SWITCH DEVICES.

OPERATION:

The products are designed to conform to EN60947-5-3 and be used as directed by ISO14119 and EN ISO12100.

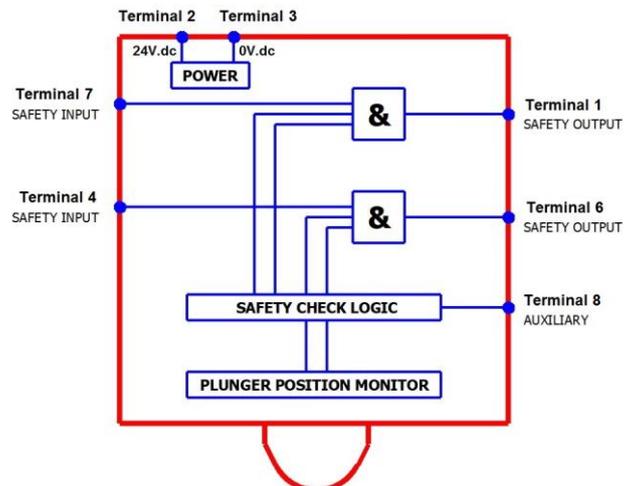
IMPORTANT:

The safety functions and mechanics must be tested regularly. For applications where infrequent use is foreseeable, the system must have a manual function test to detect a possible accumulation of faults. At least once per month for PLe Cat3/4 or once per year for PLd Cat3 (ISO13849-1). Where possible it is recommended that the control system of the machine demands and monitors these tests, and stops or prevents the machine from starting if the test is not done. (See ISO14119).

INSTALLATION:

Installation of all safety devices must be in accordance with a risk assessment for the individual application. The use of a Safety Relay or Safety Controller is required for monitoring Z-Range devices. The Safety Relay or Safety Controller will monitor 2 redundant circuits as per ISO13849-1 for up to PLe / Category 4 protection. If excessive vibration is present, consider additional fitting of anti-vibration washers. After installation always check each switch function by opening and closing each guard individually in turn and ensuring that the appropriate LEDs on the Safety Relay or Controller are illuminated when the switch is closed and are extinguished when the switch is open. Check that the machine stops and cannot be re-started when each switch is operated.

SCHEMATIC:



MAINTENANCE:

Monthly: Look for signs of mechanical damage to the switch casing. Check wiring for signs of damage. Check individual device function by operating each device to the on and off positions in turn and ensuring that the appropriate LED's on the Safety Relay or Controller are illuminated when the device is in the on position and are extinguished when the device is in the off position. Check that the machine stops and cannot be re-started when each device is in the off position. Never repair any device, actuator or integral cables. Replace any device displaying signs of mechanical damage to the casing or cables.

These requirements form part of the product warranty.



WARNING:

DO NOT DEFEAT, TAMPER, OR BYPASS THE SAFETY FUNCTION. FAILURE TO DO SO CAN RESULT IN DEATH OR SERIOUS INJURY

AVERTISSEMENT:

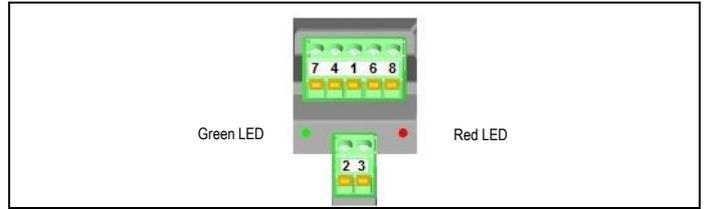
NE PAS DESACTIVER, MODIFIER, RETIRER, OU CONTOURNER CETI INTERVERROUILLAGE IL PEUT EN RESULTER DES BLESSURES GRAVES DU PERSONNEL UTILISATEUR.

E Stop Switch external LED Diagnostics (2 colour - visible on switch lid):

Internal LED Diagnostics (remove switch cover to view):

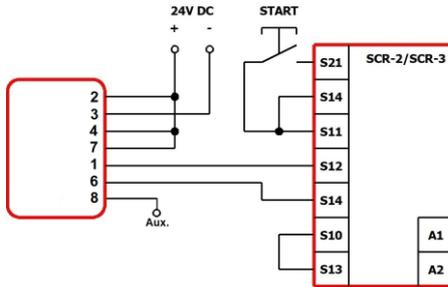


GREEN ON	Outputs enabled
RED ON	Outputs disabled
RED FLASH	Fault – check internal LED's (see above)

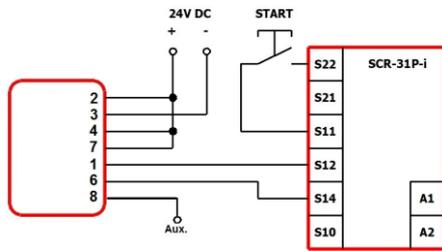


LED Function		Status
GREEN	RED	
ON	OFF	Inputs active, outputs enabled.
OFF	ON	Outputs disabled.
FLASHING	ON	Inputs missing, outputs disabled.
OFF	FLASH 2Hz	Output fault (check for wiring short circuits)
OFF	FLASH 4Hz	Internal fault

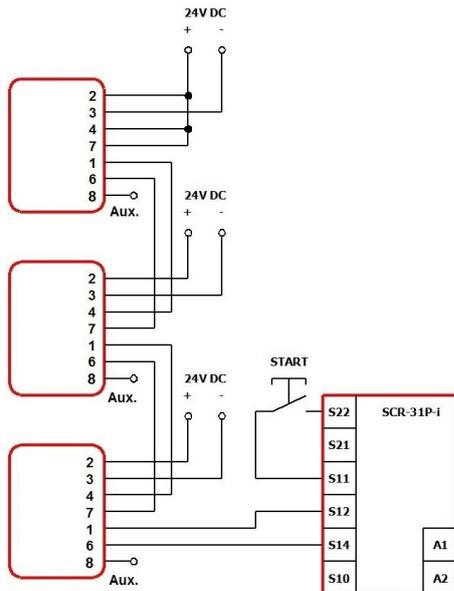
Single switch to SCR-2 or SCR-3 Safety Relay:



Single switch to SCR-31P-i Safety Relay (Viper series):



Multiple switches in series (shown with SCR-31P-i Safety Relay (Viper series)):



CBZ Internal Connections	External connections M12 Male 8 pin (on 25cm (10 inch) flying lead. Pin view from switch.	Circuit
Terminal 8	Pin 8	Aux. +24VDC out
Terminal 7	Pin 7	Safety Input 1
Terminal 1	Pin 1	Safety Output 1
Terminal 4	Pin 4	Safety Input 2
Terminal 6	Pin 6	Safety Output 2
Terminal 2	Pin 2	Supply +24V DC
Terminal 3	Pin 3	Supply 0V DC
	Pin 5	Not used

Standards:

ISO14119 EN 60947-5-3 EN 60204-1 ISO 13849-1 EN 62061 UL508 UL60947-5-1

Technical Data:

Rated Operating Voltage	24V DC -15% +10%	Use SELV/PELV
Power Consumption	0.7W	
Outputs Rated Voltage	24V DC	
Outputs max. / min.Current	0.2 A / 1mA	
Outputs Type	OSSD, PNP	
Inputs Rated Voltage / Current	24V DC / 2mA	
Auxiliary Signalling Output Rated Voltage	24V DC	
Auxiliary Signalling Output Max. Current	0.2 A PNP	
Mechanical Reliability B10d	1.5 x 10 ⁶ operations	
Response Time Guard Open	60ms max.	
Response Time Inputs Off	20ms max.	
Operating Temperature	-20 / 50C	
Dielectric Withstand	250V AC	
Body material	Polyester	

Characteristic Data according to IEC62061 (used as a sub system)

Safety Integrity Level	SIL3	
PFH (1/h)	1.0 E-09	Corresponds to 1% of SIL3
PFD	8.8 E-05	Corresponds to 9% of SIL3
Proof Test Interval T ₁	20a	

Characteristic Data according to EN ISO13849-1

Performance Level	e	
Category	4	
MTTF _e	771a	
Diagnostic Coverage DC	High	

Information with regard to U.L. Standards:

Type 1 Enclosures.
Maximum temperature 50°C. Maximum output 24V DC 100mA.
Powered by Class 2 or equivalent.

ORIGINAL INSTRUCTIONS

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