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COMPLETE EQUIPMENT

OVERSPEED SIL3 MODULE

PROTECTION SYSTEM BASED ON TDSP RACK FOR ROTATING EQUIPMENT WITH SIL3 REQUIREMENTS

FEATURES

- SIL3 / IEC 61508-X:2010 2nd Edition certified
- Three channels - stand-alone basis
- Usable with different type of speed transducers, with analogue and digital inputs/outputs
- Overspeed thresholds settable by TDSP Setup software
- Digital outputs connected to safety contacts in 2oo3 architecture
- Ethernet port available on the front for configuring the board and connecting to external diagnostic systems and/or DCS.

FUNCTION

The Overspeed SIL3 protection module is a stand-alone rack which provides a highly reliable and redundant tachometer system specifically uses as part of an overspeed protection system. It is SIL3 / IEC 61508-X:2010 2nd Edition certified.

GENERAL DESCRIPTION

The system is based on the TDSP processing module, with two redundant power supplies, three independent channels for rotating speed measurement and an integrated safety PLC that can operate on a stand-alone basis. The architecture is 2oo3 in accordance with IEC 61508-X:2010 2nd Edition.

Its terminal board makes it possible to connect to different types of “non-contact” sensors that must to be faced to a polar wheel.

The ethernet port on the front of each CPU module is used for configuring the board and makes it possible to connect to a dedicated PC that can be used for presenting data and for connecting to external diagnostic systems and/or DCS.

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OVERSPEED SIL3 MODULE

ORDERING CODE

OVERSPEED SIL3 / A ☐ / B ☐

A POWER SUPPLY

A1	90 ÷ 264 Vac (50/60 Hz)
A2	19 ÷ 32 Vdc
A3	85 ÷ 110 Vdc

B TYPE OF RPM SENSORS

B3	eddy current T-NC/8-API
B4	electromagnetic sensor T6-R
B5	hall effect sensor T6-H

TECHNICAL CHARACTERISTICS

INPUTS

Power supply	■ See Ordering code
Speed signal input types	■ See Ordering code

OUTPUTS

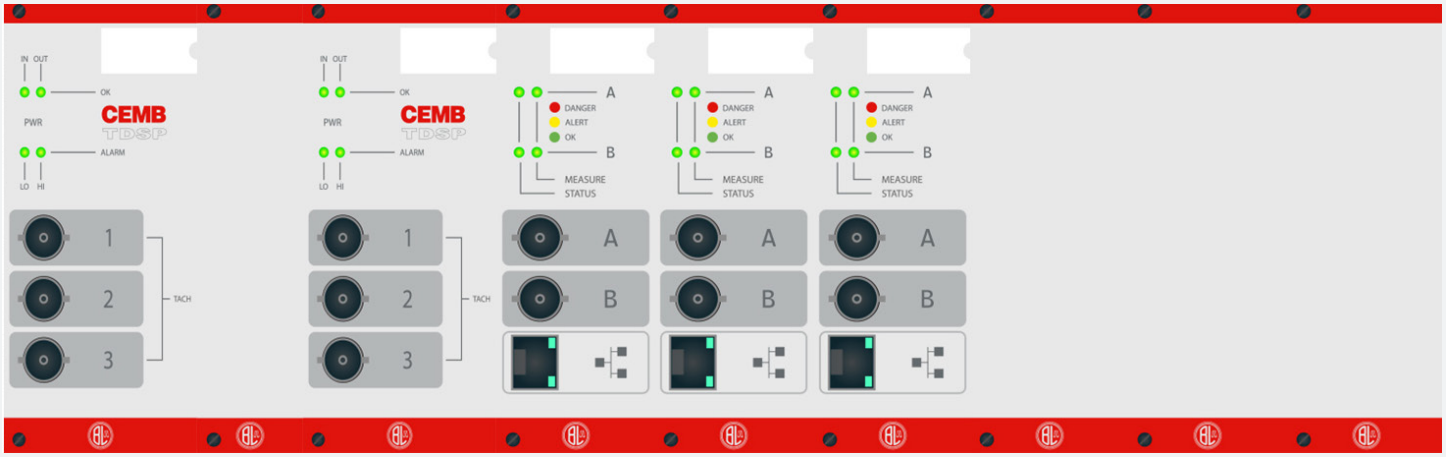
CPU analog outputs	■ 4 ÷ 20 mA each channel
CPU digital outputs	■ No.6 Single-pole, double-throw (SPDT) relays each channel ■ Each relay is switch selectable for Normally De-energized or Normally Energized
SAFE TRIP digital outputs	■ No.4 Single-pole, double-throw (SPDT) ■ voting 2oo3 safety logic (2-out-of-3)

GENERICS

Data interface	■ LAN port on each CPU ■ ModBus TCP/IP communication
Response time to trip	■ 40 ms
Accuracy	■ < 100 RPM ±0,1 RPM ■ 100 ÷ 3000 RPM ±1 RPM ■ > 3000 RPM ±0,1%
Protection grade	■ IP20
Back terminal boards (PSU & CPU)	■ Screw terminal connectors, Phoenix Contact FRONT-SFL 2,5/F48
Environment condition	■ Operating temperature 0 ÷ 60°C
Safety data	■ According to certificate
Weight	■ 5 Kg approx
Dimensions (W x H x D)	■ 482,5 x 305 x 132,5 mm (19" ; 3 units height)

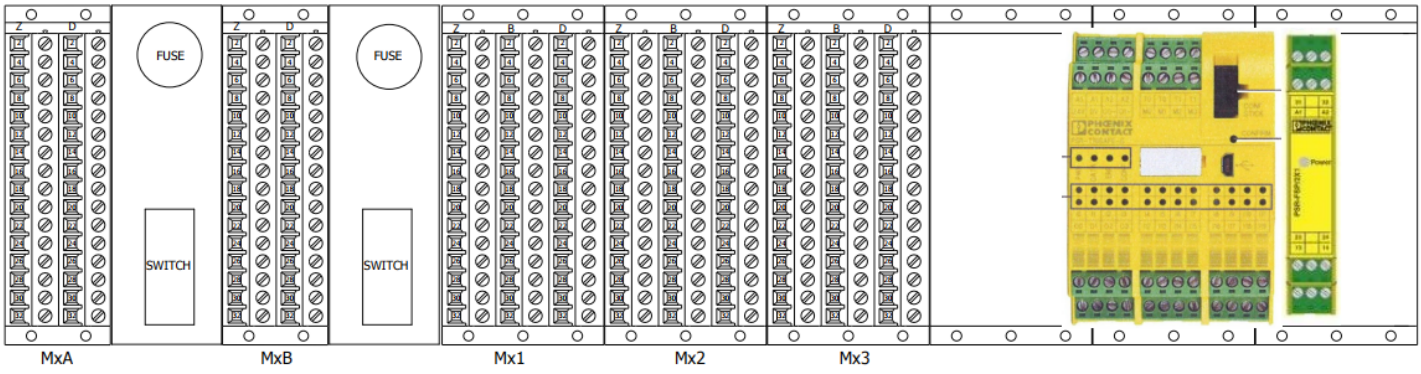
COMPOSITION OF THE SUPPLY

The Overspeed SIL3 protection module is composed by:



FRONT VIEW

POWER SUPPLY UNIT	SPEED PROCESSING UNIT	INTERNAL 2oo3 SAFETY PLC LOGIC



REAR VIEW

SOFTWARE SETTINGS

The software allows the following system settings:

- Speed thresholds / set points
- Relay configuration
- Number of teeth of the polar wheel

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ROTATING SPEED MEASUREMENT PROBES

The TDSP SIL3 Overspeed protection is certified to operate with the following types of probes:

Electromagnetic sensor T6-R

Material: Brass

Range: 1 ÷ 30 KHz

Thread: M22 x 1

Thread size: 60 mm

Temperature: -35 ÷ +105°C

Oil proof: Yes

Cable: lenght to be specified

Hall effect sensor T6-H

Material: Stainless Steel

Range: 0 ÷ 30 KHz

Thread: M14 x 1.5

Thread size: 90 mm

Temperature: -40 ÷ +120°C

Oil proof: Yes

Cable: lenght to be specified

Proximitors Eddie Current Measuring Chain composition

Transducer **T-NC/8-API**

Range: 2 mm

Temperature: -35 ÷ +75°C

Din Rail mount: optional

Pick-up **ST-NC/8**

Different probe dimension, body dimension, thread type and cable lenght are available under request

Tip diameter: 8 mm

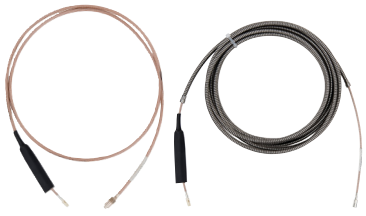
Temperature range: 0 ÷ 180°C

Material: Stainless Steel

Oil proof: Yes

Optional

Not armoured Armoured



Stainless steel armour cable: optional

Before to order it is necessary to indicate the type of probe.

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