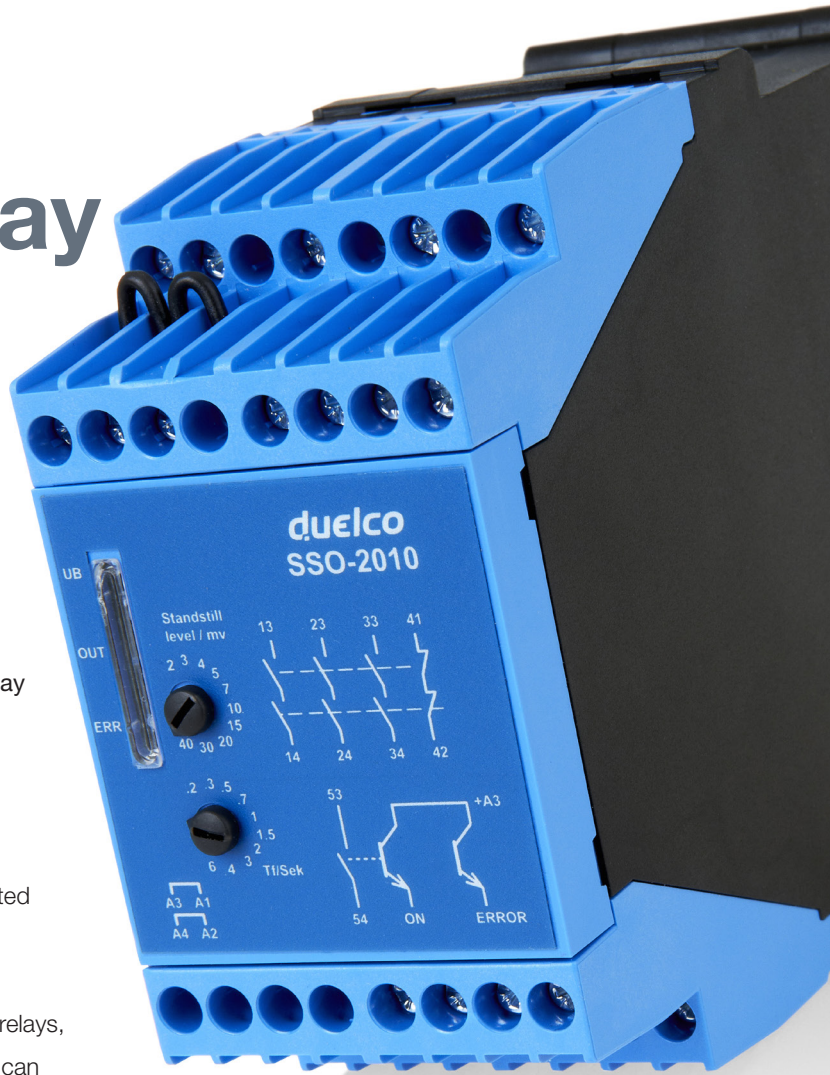




Standstill MONITORING relay

SSO-2010



- 3 NO safety outputs + 1 NC safety output
- 2 semiconductor monitoring outputs
- 1 NO monitoring output
- Delayed outputs (0 - 6 sec.)

What can the new Duelco standstill monitoring relay SSO-2010 offer you?

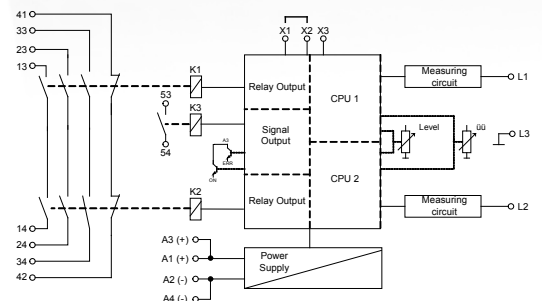
- Simplicity
- Fast and easy installation via user friendly connection examples
- Cat. 4 safety level with 3 NO and 1 NC duplicated output contacts
- Status-/fault indication
LEDs for indication of the status of the internal relays, the outputs and the supply. The LED signalling can reduce trouble shooting time.

Technical facilities regarding safety requirements:

- Performance level e
- Forced contacts
- Doubling of output contacts

User's advantages:

- 45 mm housing
- LED indication of supply + output status
- Complies with MD, EMC, LVD (98/37/EC, 89/336/EEC & 93/68/EEC)
- Broken wire detection
- No external sensors necessary
- Adjustable standstill level
- Adjustable delay



The SSO-2010 can be used for standstill detection on all 3-phase, single phase and DC motors, that generate a voltage caused by remanence when freewheeling. As the voltage level Level for standstill monitoring and the time delay Tf, after detection of standstill until the safety relays are switched on, are adjustable, the function can be adopted to different motors and applications.

The auxiliary voltage is connected to the terminals A1-A2; the LED „Ub“ lights up green. On undervoltage or missing auxiliary supply the safety outputs are disabled.

If semiconductor monitoring outputs are used, their supply voltage must be connected to A3(+)-A4(-).

A motor connected to the terminals L1-L2-L3 of the SSO-

2010 generates a voltage when running down (motor is switched off). The voltage is proportional to the speed and caused by residual magnetism (remanence).

This voltage is measured redundant on 2 input channels via the terminals L2 and L3 with L1 as common reference.

If the voltage drops on both channels below the adjusted value Level, the unit detects standstill. When the terminals X1-X2 of the feedback circuit are bridged and the time delay Tf is finished, the safety contacts 13-14, 23-24 and 33-34 close while contact 41-42 opens. All 4 contact paths have 2 forcibly guided contacts of 2 safety relays wired in series. At the same time the monitoring relay energises (53-54 closes), the semiconductor output „ON“ is switched on and

the LED „OUT“ lights green. During time delay Tf this LED flashes.

If the voltage measured on terminals L1-L2-L3 of SSO-2010 rises over the adjusted value plus hysteresis in at least one channel (the motor is switched on or the shaft turns mechanically), the forcibly guided output contacts are switched off immediately (contacts 13-14, 23-24 and 33-34 open while contact 41-42 closes). The monitoring relay de-energises (53-54 opened), the semiconductor output „ON“ goes off and the LED „OUT“ lights yellow (= Level over adjusted value).

Technical data SSO-2010

Electrical data	
Supply voltage (NB! Common Power Supply)	24V DC
Voltage range	+/- 10%
Power consumption	5 VA, 3 W
Conductor data	
Max. cross section of conductor, Solid thread:	2 x 1,5 mm ²
Multewire with ferrule:	2 x 1 mm ²
Cable type	60/75°C copper wire only
Contact data	
Contact-allocation (safety)	3 NO / 1 NC
Contact-allocation (monitoring)	2 semiconductors, 1 NO
Contact type	Positive guided relay
Contact material	AgNi10+0.2µmAu, AgSnO2+0.2µmAu, AgNi10+5µmAu
Switching voltage	250V AC, 24V DC
Switching current	5 A AC/DC
Max. switching capability DIN EN 60947-5-1	2A / 24V / DC13 ; 3A / 230V / AC15
Max. switching capacity	2000 VA (ohms load)
Mechanical lifetime	>= 50 x 10 ⁶ activations
Electrical lifetime	>= 2x10 ⁵ activations (AC 230V/5A), cos = 0,5
Creeping distance and clearance DIN VDE 0160	Pollution grade 2: Over voltage category 3 / 250 V Basis isolation: Over voltage category 3 / 250 V
Mechanical data + various	
Housing material	Polyamid PA 6.6
Dimensions (WxHxD)	45 x 90 x 121 mm
Mounting	Click-fastening for DIN-Rail
Max tightening torque	0,8 Nm
Weight	400 g
Storage temperature	-40 - +75° C
Operating temperature	-25 - +55° C
Enclosure rating, Terminals, Housing	IP 20 (DIN VDE 0470); IP 40 (DIN VDE 0470)
Vibration resistance	Amplitude 0.35 mm Frequency 10...55 Hz
Certification	
Tested in acc. with	EN ISO 13849-1
PFDavg	14,0 x 10 ⁻⁴
PFHD	4.10 x 10 ⁻¹⁰ 1/h
PL / Category	e / 4
MTTFd (years)	> 30
DC	99% high achieved
CCF	

Order information:

Description	Article no.
SSO-2010 24V DC	42501241

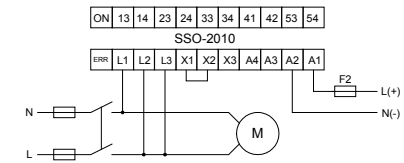
Duelco A/S - Aalborg
Systemvej 8
DK-9200 Aalborg SV

Duelco A/S - Sønderborg
Mommarkvej 5
DK-6400 Sønderborg

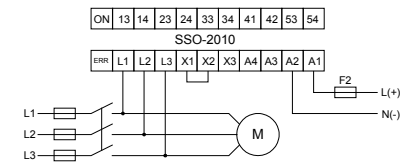
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Connection examples:

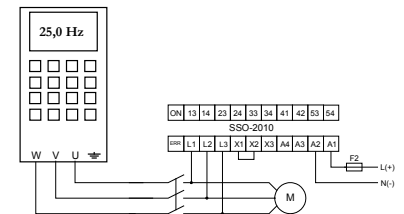
1-phase operation



2-phase operation

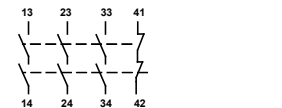


Operation with frequency converter



Terminal description

53	54		L1	L2	L3
X1	X2	X3		41	13
				23	33



				42	14	24	34
A3	A4	ON	ERR	A1		A2	