



EL5021-0090 | TwinSAFE SC: 1-channel SinCos encoder interface, 1 V_{PP}

The EL5021-0090 SinCos EtherCAT Terminal allows direct connection of a measuring sensor, e.g. a linear measuring scale with sinusoidal voltage output 1 V_{PP}. The measuring signal is processed, interpolated and made available as a 32 bit value. At the same time, an offset, gain and phase error compensation is carried out. The input frequency for the measuring signal inputs is 250 kHz with a signal period resolution of max. 13 bit. In addition, the reference mark can also be stored as a 32 bit value.

With the aid of the TwinSAFE SC technology (TwinSAFE Single Channel) it is possible to make use of standard signals for safety tasks in any network or fieldbus. The standard functions and features of the I/Os remain available. The data from these TwinSAFE SC I/Os is fed to the TwinSAFE Logic, where they undergo safety-related multi-channel processing. In the Safety Logic the data originating from different sources is analysed, checked for plausibility and submitted to a "voting". This is done by certified function blocks such as Scale, Compare/Voting (1oo2, 2oo3, 3oo5), Limit, etc. For safety reasons, however, at least one of the data sources must be a TwinSAFE SC component. The remainder of the data can originate from other standard I/Os, drive controllers or measuring transducers.

With the aid of the TwinSAFE SC technology it is typically possible to achieve a safety level equivalent to PL d/Cat. 3 in accordance with EN ISO 13849-1 or SIL 2 in accordance with EN 62061.

Technical data	EL5021-0090
Technology	SinCos encoder interface for differential 1 V _{PP} signal
Number of channels	1
Encoder connection	A, A (inv), B, B (inv), C, C (inv)
Input frequency	250 kHz (scanning of the input signals with 70 MHz)
Commands	set count, evaluate reference mark latch (C/C [inv]), change of direction, frequency control
Power supply	24 V via power contacts
Current consumption	130 mA
Nominal voltage	24 V at power contact, 5 V encoder supply built in
Sensor supply	5 V DC from power voltage, 0.5 A max.
Resolution	max. 13 bit, 1024 steps per period
Signal input	1 V _{PP}
Current consumption power contacts	typ. 50 mA without connected sensor
Current consumption E-bus	typ. 120 mA
Distributed clocks	yes
Special features	TwinSAFE SC, latch, reset, amplitude and frequency error recognition, frequency-dependent period resolution, frequency counter max. 24 bit
Electrical isolation	500 V (E-bus/field potential)
Weight	approx. 55 g
Operating/storage temperature	0...+55 °C/-25...+85 °C
Relative humidity	95 %, no condensation
Vibration/shock resistance	conforms to EN 60068-2-6/EN 60068-2-27
EMC immunity/emission	conforms to EN 61000-6-2/EN 61000-6-4
Protect. class/installation pos.	IP 20/variable
Approvals	CE, UL, Ex

Option for the second channel	
EL5151	1-channel incremental encoder interface, 32 bit
EL5101	Incremental encoder interface with differential input, 16/32 bit
EL5001	1-channel SSI encoder interface
EL5032	2-channel EnDat 2.2 interface
EL5042	BiSS-C interface, unidirectional, 5/9 V DC, IP 20

Related products	
EK1960	TwinSAFE Compact Controller
EL6910	TwinSAFE Logic (TwinCAT 3)

System	
TwinSAFE SC	For further TwinSAFE SC products please see the system overview .