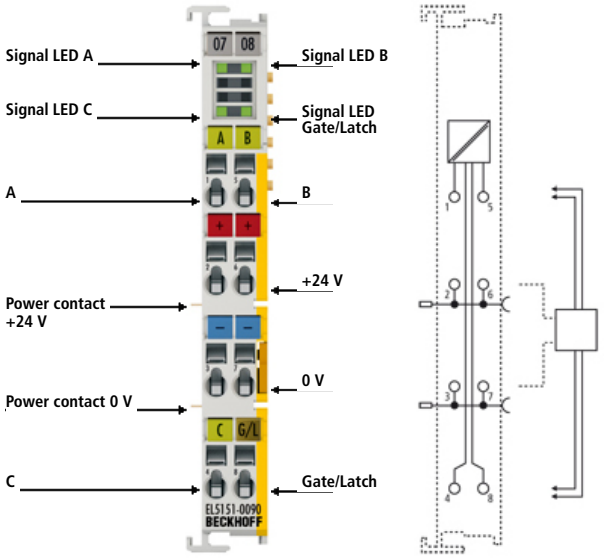

Top view

Contact assembly

EL5151-0090 | TwinSAFE SC: 1-channel incremental encoder interface

The EL5151-0090 EtherCAT Terminal is an interface with 24 V inputs for the direct connection of incremental encoders. With the EL5151, a 32 bit counter with a quadrature decoder and a 32 bit latch for the zero pulse can be read, set or enabled. Alternatively, the EL5151 can be used as up/down counter terminal with gate.

The EL5151-0090 supports the synchronous reading of the encoder value, together with other input data, into the EtherCAT system via high-precision EtherCAT distributed clocks (DC).

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	EL5151-0090
Technology	incremental encoder interface 24 V DC
Number of channels	1
Encoder connection	A, B, C, gate/latch input 24 V DC, EN 61131-2, type 1, "0": < 5 V DC, "1":> 15 V DC, typ. 5 mA
Sensor inputs	1
Encoder operating voltage	24 V DC
Counter	1 x 16/32 bit switchable
Input frequency	max. 400,000 increments/s (with 4-fold evaluation)
Quadrature decoder	4-fold evaluation
Commands	read, set, latching
Input signal	24 V DC
Supply voltage	24 V DC (-15 %/+20 %)
Nominal voltage	24 V DC at power contact
Resolution	1/256 bit microincrements
Current consumption power contacts	typ. 100 mA + load
Current consumption E-bus	typ. 130 mA
Distributed clocks	yes
Special features	TwinSAFE SC, gate or latch function, microincrements, timestamping of edges, period duration and frequency measurement, up/down counters
Weight	approx. 50 g
Operating/storage temperature	-25…+60 °C/-40…+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

Pluggable wiring	for all ESxxxx terminals
Approvals	CE, UL, Ex

Option for the second channel	
EL5101	Incremental encoder interface with differential input, 16/32 bit
EL5021	1-channel SinCos encoder interface, 1 V_{PP}
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.