



## ELX5151-0090 | 1-channel incremental encoder interface NAMUR, 32 bit, Ex i, TwinSAFE SC



The ELX5151-0090 EtherCAT Terminal allows the direct connection of an intrinsically safe incremental encoder from Zone 0/20 and 1/21 hazardous areas. The terminal supplies the encoder with 8.2 V DC and evaluates a diagnostic-capable NAMUR signal according to IEC 60947-5-6. In this way, a wire breakage or short circuit can be detected in addition to the switching state. The ELX5151-0090 can also be used as an up/down counter and allows switching between 16- and 32-bit counting.

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. To do this, EtherCAT I/Os from the areas of analog input, position measurement or communication (4...20 mA, incremental encoder, IO-Link, etc.) are extended by the TwinSAFE SC function. The properties typical for the signals and the standard functions of the I/O components are retained. TwinSAFE SC I/Os differ optically from standard I/Os by a yellow stripe on the front of the housing.

The TwinSAFE SC technology enables communication via a TwinSAFE protocol. These connections can be distinguished from the usual secure communication via Safety over EtherCAT.

The data from the TwinSAFE SC components is fed via a TwinSAFE protocol to the TwinSAFE Logic, where it can be used in the context of safety-relevant applications. Detailed examples confirmed/calculated by the TÜV SÜD for the correct application of the TwinSAFE SC components and the respective normative classifications can be found in the TwinSAFE application manual.

Technical data	ELX5151-0090
Technology	NAMUR
Specification	IEC 60947-5-6
Number of channels	1
Sensor inputs	1
Encoder connection	A, B
Encoder operating voltage	8.2 V DC
Open circuit voltage	typ. 8.2 V DC
"0" signal current	≤ 1.2 mA
"1" signal current	≥ 2.1 mA
Switching hysteresis	0.2 mA
Short-circuit current	typ. 9 mA
Fault detection	I ≤ 200 µA (cable break), I ≥ 6.0 mA (short circuit)
Supply voltage electronics	24 V DC (via power contacts), ELX9560 power supply
Current consumption power contacts	typ. 15 mA + load
Current consumption E-bus	typ. 80 mA
Distributed clocks	yes
Special features	up/down counters, TwinSAFE SC
Weight	approx. 60 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/see documentation

<b>Approvals/Markings</b>	CE, ATEX, IECEx
<b>Ex-Marking</b>	II 3(1)G Ex ec [ia Ga] IIC T4 Gc II (1)D [Ex ia Da] IIIC I (M1) [Ex ia Ma] I Ex ec [ia Ga] IIC T4 Gc [Ex ia Da] IIIC [Ex ia Ma] I

<b>further Ex components</b>	
<b>ELXxxxx</b>	EtherCAT Terminals with intrinsic safe in- and output
<b>ELXxxxx-0090</b>	EtherCAT Terminals with intrinsic safe in- and output and TwinSAFE SC
<b>CPXxxxx</b>	Multi-touch Panel PCs and multi-touch Control Panels for use in hazardous areas, Zone 2/22