



Top view

ELX3312-0090 | 2-channel analog input terminal thermocouple/mV measurement, 2-wire connection, 16 bit, Ex i, TwinSAFE SC



The ELX3312 analog input terminals allows the direct connection of thermocouples located in hazardous areas classified Zone 0/20 or 1/21. The circuitry of the ELX3312 can operate sensors with 2-wire technology. Linearisation is possible over the entire freely selectable temperature range. The error LEDs indicate a broken wire. Compensation for the cold junction is achieved through internal temperature measurement. Millivolt measurement is also possible with ELX3312.

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	ELX3312-0090
Technology	temperature measurement
Sensor types	thermocouples type K, J, L, E, T, N, U, B, R, S, C (default: type K)
Number of inputs	2 (differential)
Connection method	2-wire
Measuring range	depending on sensor type, default type K: -200...+1350 °C, voltage measurement: ±30...±100 mV, for further types and details see documentation
Resolution	0.1 °C per digit
Measuring error	< ±0.3 % (relative to full scale value)
Internal resistance	typ. ≥ 10 kΩ (differential)
Input filter limit frequency	typ. 1 kHz; depending on sensor length, conversion time, sensor type
Conversion time	10...5000 ms (adjustable, default: 270 ms)
Supply voltage electronics	24 V DC (via power contacts), ELX9560 power supply
Current consumption power contacts	typ. 10 mA
Current consumption E-bus	typ. 70 mA
Special features	limit value monitoring, digital filter and characteristic curve linearisation integrated, 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
Approvals/Markings	CE, ATEX, IECEx

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