



ELX3351-0090 | 1-channel analog input terminal strain gauge, 16 bit, Ex i, TwinSAFE SC



The analog ELX3351-0090 input terminal enables direct connection of a resistor bridge or load cell from hazardous areas, Zone 0/20 and 1/21. The terminal can be connected in 4- or 6-wire technology. The ratio between the bridge voltage U_b and the supply voltage U_r is determined in 16-bit resolution, and the load value is calculated as a process value. Apart from automatic self-calibration (can be deactivated), additional functions such as Tara and Freeze as well as dynamic filters are integrated.

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	ELX3351-0090
Technology	resistor bridge, strain gauge
Sensor types	resistor bridge, strain gauge
Number of inputs	1, for 1 resistor bridge in full bridge technology
Bridge input resistance	300 Ω ...1.5 k Ω
Measuring range U_b	max. -20...+20 mV
Measuring range U_{REF}	max. -12...+12 V
Internal resistance	> 25 k Ω (U_r , differential), > 1 M Ω (U_b , differential)
Input filter limit frequency	typ. 3.6 kHz (-3 dB, low pass)
Conversion time	typ. 1.6 ms
Resolution	24 bit, 32 bit presentation
Filter	50 Hz, configurable
Measuring error	< ± 0.5 % (relative to full scale value), self-calibration activ
Power supply U_v	up to 12 V DC from power contacts, dependent on sensor
Supply voltage electronics	24 V DC (via power contacts), ELX9560 power supply
Current consumption power contacts	depends on sensor, min. 20 mA
Current consumption E-bus	typ. 85 mA
Supported nominal sensitivity	all, parameter resolution: 0.01 $\mu V/V$; recommended: 0.5...3 mV/V
Special features	self-calibration, dynamic filters, Freeze, 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

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