



## EL3314-0090 | TwinSAFE SC: 4-channel thermocouple input terminal with open-circuit recognition

The EL3314-0090 analog input terminal allows four thermocouples to be connected directly. The EtherCAT Terminal circuit can operate thermocouple sensors using the 2-wire technique. A microprocessor handles linearisation across the whole temperature range, which is freely selectable. Compensation for the cold junction is made through an internal temperature measurement at the terminal. The EL3314-0090 can also be used for mV measurement.

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	EL3314-0090
Number of inputs	4
Power supply	via the E-bus
Thermocouple sensor types	types J, K, L, B, E, N, R, S, T, U (default setting type K), mV measurement
Distributed clocks	–
Input filter limit frequency	typ. 1 kHz; depending on sensor length, conversion time, sensor type
Connection method	2-wire
Wiring fail indication	yes
Conversion time	approx. 2.5 s up to 20 ms, depending on configuration and filter setting, default: approx. 250 ms
Temperature range	in the range defined in each case for the sensor (default setting: type K; -200...+1370 °C); voltage measurement: $\pm 30$ mV... $\pm 75$ mV
Resolution	0.1 °C per digit
Measuring error	< $\pm 0.3$ % (relative to full scale value)
Electrical isolation	500 V (E-bus/signal voltage)
Current consumption power contacts	–
Current consumption E-bus	typ. 200 mA
Bit width in the process image	4 x 32 bit TC input, 4 x 16 bit TC output
Configuration	no address setting, configuration via the controller
Special features	TwinSAFE SC, open-circuit recognition
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/variable
Approvals	CE, UL, Ex

Option for the second channel	
<b>EL3214</b>	4-channel input terminal PT100 (RTD) for resistance sensors, 16 bit, 3-wire system
<b>EL3208</b>	8-channel input terminal PT100 (RTD) for resistance sensors, 16 bit, 2-wire system
<b>EL6224</b>	EtherCAT Terminal, IO-Link master, IP 20

Related products	
<b>EK1960</b>	TwinSAFE Compact Controller
<b>EL6910</b>	TwinSAFE Logic (TwinCAT 3)

System	
<b>TwinSAFE SC</b>	For further TwinSAFE SC products please see the <a href="#">system overview</a> .