



## EL3174-0090 | TwinSAFE SC: 4-channel analog input, -10/0...+10 V, -20/0/+4...+20 mA, 16 bit

The EL3174 analog input terminal has four individually parameterisable inputs. Signals in the range from -10/0 to +10 V or -20/0/+4 to +20 mA can be processed via each channel. Physically, the voltage and current signals should be connected to different terminal points. Each channel should then be set by the controller/TwinCAT to U or I mode via CoE. The voltage inputs operate differentially; the current inputs are single-ended. All inputs are digitised with a resolution of 16 bits and transmitted, electrically isolated, to the higher-level automation device. With a technical measuring range of  $\pm 107\%$  of the nominal range, the terminal also supports commissioning with sensor values in the limit range and diagnostics according to NAMUR NE43.

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	EL3174-0090
Number of inputs	4
Power supply	via the E-bus
Technology	U differential, I single-ended
Oversampling factor	–
Distributed clocks	yes
Distributed clock precision	$\ll 1 \mu\text{s}$
Internal resistance	$> 200 \text{ k}\Omega$   typ. $85 \Omega$
Input filter limit frequency	5 kHz
Common-mode voltage $U_{\text{CM}}$	max. 35 V (voltage measurement)
Dielectric strength	max. 30 V (current measurement)
Conversion time	minimum 150 $\mu\text{s}$
Measuring range, nominal	-10/0...+10 V   -20/0/+4...+20 mA
Measuring range, technical	-10.73...+10.73 V   -21.47...+21.47 mA
Resolution	16 bit (incl. sign)
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
Configuration	no address or configuration setting
Special features	TwinSAFE SC, U/I parameterisable, ExtendedRange, standard and compact process image, activatable FIR/IIR filters
Weight	approx. 65 g
Operating/storage temperature	0...+55 °C/-25...+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

Option for the second channel	
<b>EL6224</b>	EtherCAT Terminal, IO-Link master, IP 20
<b>EL3054</b>	4-channel analog input terminal 4...20 mA, single-ended, 12 bit, 4 x 2-wire system
<b>EL3064</b>	4-channel analog input terminal 0...10 V, single-ended, 12 bit, 4 x 2-wire system
<b>EL3602</b>	2-channel analog input terminal $\pm 10$ V, $\pm 5$ V, $\pm 2.5$ V, $\pm 1.25$ V, differential input, 24 bit

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> .