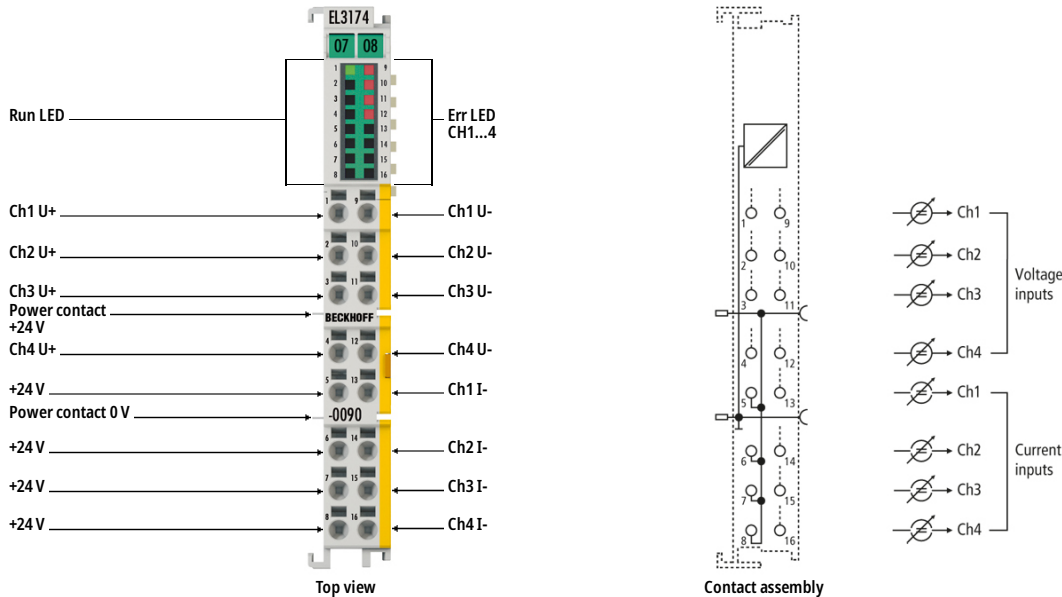
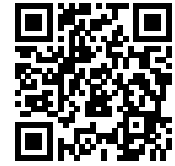


# EL3174-0090 | EtherCAT Terminal, 4-channel analog input, multi-function, $\pm 10$ V, $\pm 20$ mA, 16 bit, TwinSAFE SC



**Product status:** regular delivery

The EL3174 analog input terminal has four individually parameterizable 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 digitized 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. 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.

## Product information

## Technical data

Technical data	EL3174-0090
Number of inputs	4
Ground reference (input)	voltage: differential current: single-ended
Power supply	via the E-bus
Oversampling factor	–
Distributed clocks	yes
Distributed clock precision	<< 1 $\mu$ s
Internal resistance	> 200 k $\Omega$   typ. 85 $\Omega$
Input filter limit frequency	5 kHz
Common-mode voltage $U_{CM}$	max. 35 V (voltage measurement)
Dielectric strength	max. 30 V (current measurement)
Conversion time	minimum 150 $\mu$ 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)
Measurement error/uncertainty	< $\pm$ 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 parameterizable, ExtendedRange, standard and compact process image, activatable FIR/IIR filters
Operating/storage temperature	-25...+60°C/-40...+85°C
Weight	approx. 65 g
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
Approvals/markings	CE, UL, ATEX, IECEx
Protect. rating/installation pos.	IP20/variable
Ex marking	ATEX: II 3 G Ex ec IIC T4 Gc IECEx: Ex ec IIC T4 Gc

<b>Housing data</b>	EL-12-16pin
<b>Design form</b>	HD (High Density) housing with signal LEDs
<b>Material</b>	polycarbonate
<b>Dimensions (W x H x D)</b>	12 mm x 100 mm x 68 mm
<b>Installation</b>	on 35 mm DIN rail, conforming to EN 60715 with lock
<b>Side by side mounting by means of</b>	double slot and key connection
<b>Marking</b>	labeling of the BZxxx series
<b>Wiring</b>	solid conductors (s): direct plug-in technique; fine-stranded conductors (st) and ferrule (f): spring actuation by screwdriver
<b>Connection cross-section</b>	s*: 0.08...1.5 mm <sup>2</sup> , st*: 0.25...1.5 mm <sup>2</sup> , f*: 0.14...0.75 mm <sup>2</sup>
<b>Connection cross-section AWG</b>	s*: AWG28...16, st*: AWG22...16, f*: AWG26...19
<b>Stripping length</b>	8...9 mm
<b>Current load power contacts</b>	I <sub>max</sub> : 10 A

\*s: solid wire; st: stranded wire; f: with ferrule