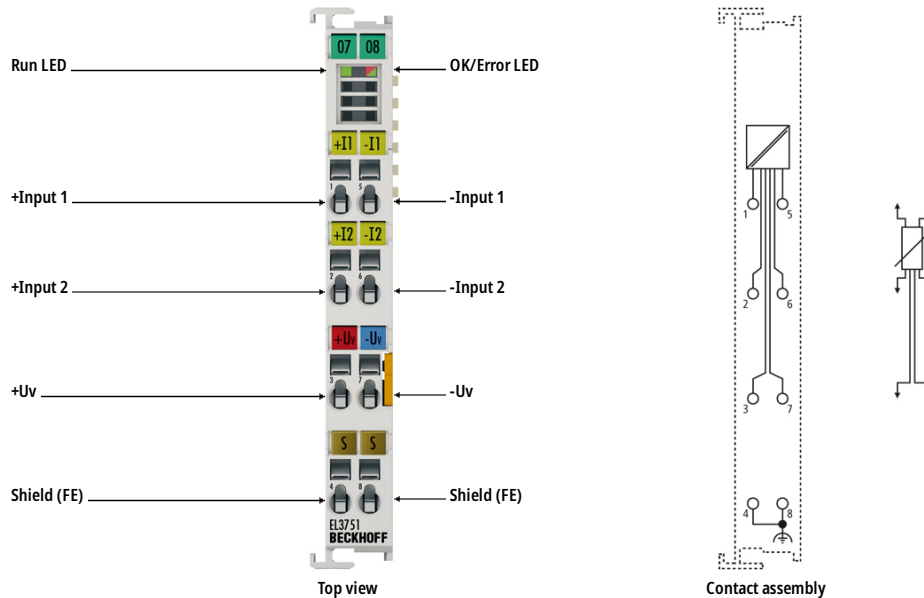


EL3751 | EtherCAT Terminal, 1-channel analog input, multi-function, 24 bit, 10 ksps



i Product status: Regular delivery

The EL3751 analog input terminal is part of the new generation of analog EtherCAT measurement terminals. The nominal measuring range of the input channel can be comprehensively parameterized, both electrically and on the software side:

- voltage measurement: ± 5 mV to ± 30 V (incl. ± 10 V), 0...10 V, 0...5 V
- current measurement: ± 20 mA, 4...20 mA, 0...20 mA, NAMUR NE43
- resistance measurement: 0...5 k Ω
- electrical resistance R in 2-/3-/4-wire connection
- RTD measurement in 2-/3-/4-wire connection
- strain gauge/load cell: $\frac{1}{4}$ bridge (350 Ω + 120 Ω), $\frac{1}{2}$ bridge (± 16 mV/V) and full bridge (± 32 mV/V) with integrated supply in 2-/3-/4-/5-/6-wire connection
- potentiometer: min. 1 k Ω

The measuring ranges generally reach accuracy class 0.01 %. For further information please refer to the documentation. Through the feature "ExtendedRange" the user has the full technical measuring range available, up to 107 % of the specified nominal measuring range, depending on the measuring range. This feature can be disabled, in order to ensure compatibility with the "LegacyRange" of the EL30xx/EL31xx series.

To suppress aliasing effects, the input channel features two configurable numeric software filters up to 39th order FIR/6th order IIR. The filters can be preselected or freely described, so that a band stop or a band pass can be realized. The measurement at the differential input channel is digitized with a resolution of 24 bit and 10 ksps and is transmitted to the higher-level automation device electrically isolated and optionally with oversampling. The data rate can be internally reduced, in which case the filters have to be adjusted accordingly. Non-linear characteristic sensor curves can be corrected flexibly through an integrated sampling points table. Simple mathematical operations are also possible.

The integrated supply and the switchable auxiliary resistors enable direct connection of a resistor bridge (strain gauge) or a load cell, a fixed ohmic resistor, a PTC or a potentiometer. The signal state of the EtherCAT Terminal is indicated by light emitting diodes. Each terminal has a unique ID number.

Product information

Technical Data

Technical data	EL3751
Number of inputs	1
Power supply	via the E-bus
Technology	differential input, 2-/3-/4-/5-/6-wire connection
Signal type	differential
Oversampling factor	n = 1...64
Distributed clocks	yes
Distributed clock precision	<< 1 μ s
Internal resistance	> 500 k Ω (30 V); > 4 M Ω (others); 150 Ω (current)
Input filter limit frequency	3 kHz
Dielectric strength	max. 36 V
Conversion time	100 μ s/10 ksps
Measuring range, nominal	$\pm 30/10/5/2.5/1.25$ V, $\pm 640/320/160/80/40/20/10/5$ mV, 0...5/10 V, ± 20 mA, 0/4...20 mA, NAMUR NE43, 0...5 k Ω , RTD, Pt100/Pt1000, Ni, KTY, $\frac{1}{4}$ bridge (350 Ω + 120 Ω), $\frac{1}{2}$ bridge (± 16 mV/V), full bridge (± 32 mV/V), potentiometer ≥ 1 k Ω
Measuring range, technical	generally 107 % of the nominal measuring range, see documentation
Resolution	24 bit (incl. sign)
Measuring error	typ. ± 0.01 % relative to the respective full scale value @ 23 $^{\circ}$ C in some measuring ranges, see documentation
Temperature coefficient	typ. < 15 ppm/K in some measuring ranges, see documentation
Electrical isolation	500 V (E-bus/signal voltage)
Current consumption power contacts	–
Current consumption E-bus	typ. 260 mA
Configuration	no address or configuration setting
Special features	integr. power supply for strain gauge 0.5...5 V, parameterizable, ExtendedRange 107 %, free numeric filter, TrueRMS, integrator/differentiator, non-linear scaling, PeakHold
Weight	approx. 65 g
Operating/storage temperature	0...+55 $^{\circ}$ C/-25...+85 $^{\circ}$ 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. rating/installation pos.	IP20/variable
Approvals/markings	CE, UL, ATEX
Ex marking	II 3 G Ex nA IIC T4 Gc

Housing data	EL-12-8pin
Design form	compact terminal housing with signal LEDs
Material	polycarbonate
Dimensions (W x H x D)	12 mm x 100 mm x 68 mm
Installation	on 35 mm DIN rail, conforming to EN 60715 with lock
Side by side mounting by means of	double slot and key connection
Marking	labeling of the BZxxx series
Wiring	solid conductor (e), flexible conductor (f) and ferrule (a): spring actuation by screwdriver
Connection cross-section	s*: 0.08...2.5 mm ² , st*: 0.08...2.5 mm ² , f*: 0.14...1.5 mm ²
Connection cross-section AWG	s*: AWG 28...14, st*: AWG 28...14, f*: AWG 26...16
Stripping length	8...9 mm
Current load power contacts	I _{max} : 10 A

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