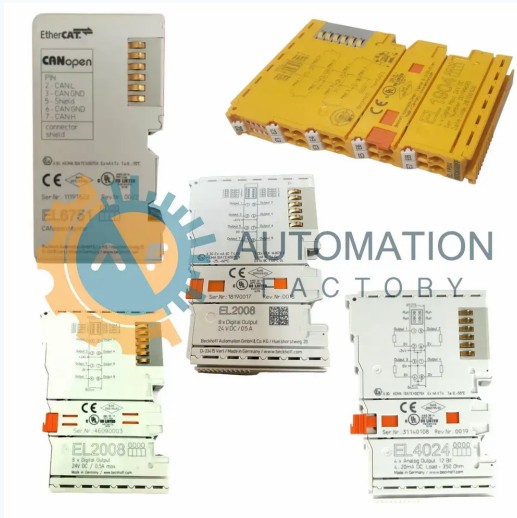


Beckhoff — EL EtherCAT Terminals

EL3124



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The **EL3124** is an analog input terminal produced by Beckhoff for its EL EtherCAT Terminals series. It digitizes low-level sensor voltages and forwards the sampled words to the EtherCAT process image, allowing a PLC to supervise four separate measurement channels through the E-bus backplane. The module fits into the compact slice format commonly used in decentralized control cabinets and supports deterministic data exchange inside time-sensitive automation cells.

This terminal provides **4 differential input channels**, each converted with a resolution of **16 bits**. A built-in analog front end applies a **5 kHz filter** so that higher-frequency noise is attenuated before sampling. The common-mode range extends to **10 V**; within that window, the converter maintains linearity without clipping relative to the internal ground reference. Protection circuitry tolerates wiring errors up to **30 V on any pin**, safeguarding the bus coupler and upstream sensors during installation. The terminal updates the EtherCAT process image with four 16-bit measurement words while reporting channel diagnostics through four 8-bit status bytes. It can also synchronize conversions to Distributed Clocks for network-wide time alignment.

The input electronics draw up to **40 mA from the E-bus supply**, which simplifies power distribution because no external terminal voltage is required. An **IP20 housing** protects the circuitry from accidental finger contact but is suitable only for clean cabinet interiors. The terminal uses **multiplex sampling** to connect each channel sequentially to the converter, keeping the component count low while meeting typical control-loop bandwidth requirements. Its **differential inputs** reduce the effects of ground loops when sensors are installed far from the

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control panel. This input arrangement also improves rejection of electrical interference shared by both conductors. Status data allows the controller to identify channel conditions separately from the measured process values.

Specifications

Analog Inputs:	4	Common Mode Voltage:	10 V	Common-mode Voltage:	max. 10 V
Conversion Time:	~ 100 µs	Distributed Clocks:	Yes	Ground Reference:	Differential
Input Filter:	5 kHz	Input Filter Limit Frequency:	5 kHz	Internal Resistance:	typ. 85 ? + diode voltage
Max Fault Voltage:	30 V	Max Input Current:	40 mA	Measurement Error/uncertainty:	< ±0.3% (relative to full scale value)
Mounting Rail:	35 mm	Number Of Inputs:	4 (differential)	Operating Temperature:	-25...+60°C
Power Supply:	via the E-bus	Process Image Inputs:	4 x 16 bit	Process Image Status:	4 x 8 bit
Protection Class:	IP20	Resolution:	16 bit	Sampling Type:	Multiplex
Signal Current:	4...20 mA	Storage Temperature:	-40...+85°C	Supply Voltage:	Via E-bus
Weight:	approx. 60 g	Last Verified:	10/23/2026 11:08 PM		

Contact Us

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