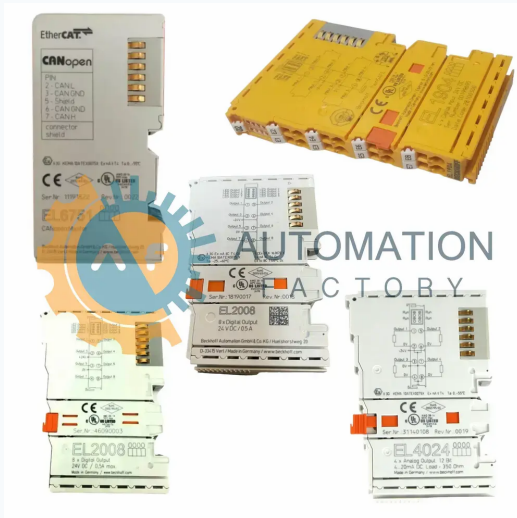




Beckhoff — EL EtherCAT Terminals

EL3044

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The **EL3044** is an analog input terminal produced by Beckhoff for the EL EtherCAT Terminals series. It converts industrial 0-20 mA process currents into digital words that can be transported across the EtherCAT fieldbus, allowing controllers to sample sensors without separate analog wiring looms or remote amplifiers. Installed side by side with other I/O cards, the unit draws logic power from the internal E-bus and forwards communication to the next terminal, supporting distributed yet tightly synchronized data acquisition in automation lines.

The module provides **4 single-ended input channels**, each rated for currents between **0 and 20 mA**. Incoming signals pass through an analog front end with an internal resistance of 85 Ω and then through a one-pole RC network that provides a **1 kHz** input filter. This attenuation limits high-frequency noise before conversion. A successive-approximation converter with **12 bits** of true resolution digitizes the signals and presents each result to the controller in a 16-bit data frame. The converter processes one channel every **0.625 ms** under typical operating conditions. The channels are scanned through a multiplexing scheme, so the effective sampling interval for each channel depends on the total conversion cycle. Within an ambient temperature range of 0 to 55 °C, the measuring error remains below $\pm 0.3\%$ of full scale, supporting consistent process readings.

The input side must remain below **30 V** to maintain dielectric isolation, while the logic side draws a typical current of **130 mA** from the E-bus. This current demand should be considered when calculating the available backplane power. Reliable operation is maintained from **-25 to +60 °C**, and the terminal can be stored at temperatures as low as -40 °C without damage. All channels share a common ground, which simplifies loop wiring but requires attention

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to ground-potential differences. The terminal has an **IP20** protection rating, so it must be installed inside a suitable cabinet that prevents contact with conductive dust and exposed electrical parts.

Specifications

Analog Inputs:	4	Approvals/markings:	CE, CCC, UL, ATEX, IECEx, DNV GL, cFMus	Conversion Time:	0.625 ms typ.
Current Consumption E-bus:	typ. 130 mA	Dielectric Strength:	30 V max.	E-bus Current:	130 mA typ.
Ground Reference:	Single-Ended	Input Filter:	1 kHz	Input Filter Limit Frequency:	1 kHz
Internal Resistance:	85 ? typ.	Measurement Error/uncertainty:	~0.3% (relative to full-scale value)	Measuring Error:	<±0.3% FS (0...55 °C)
Number Of Inputs:	4 (single-ended)	Operating Temperature:	-25...+60 °C	Power Supply:	via the E-bus
Protection Rating:	IP20	Resolution:	12 bits (16-bit presentation)	Sampling Type:	Multiplex
Signal Current:	0...20 mA	Storage Temperature:	-40...+85 °C	Last Verified:	10/25/2026 7:35 AM

Contact Us

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Shipping Options



Payment Methods



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