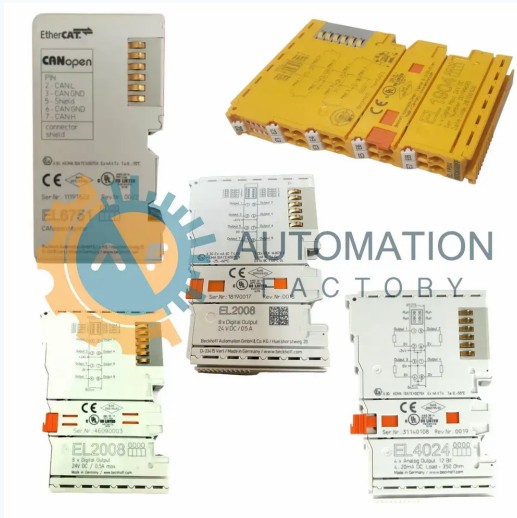


Beckhoff — EL EtherCAT Terminals

EL3142



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The **EL3142** is a two-channel analog input terminal produced by Beckhoff as part of the EL EtherCAT Terminals series. Mounted on a 35 mm DIN rail, the unit converts process currents into digital data for the EtherCAT fieldbus so that PLCs can monitor sensors without separate interface cards in the control cabinet. The terminal integrates power contacts rated at 1 A for the field supply and follows Beckhoff's I/O slice form factor for seamless expansion. Each of the **2 analog inputs** accepts a 0-20 mA or 4-20 mA process signal and has a dielectric strength of 30 V, preventing transient field voltages from reaching the backplane. The channel circuitry draws only **40 mA** from the sensor loop, allowing connection to transmitters with limited drive capability. Because the measurement path is **single-ended**, both currents share a common ground on the terminal, which simplifies wiring in compact enclosures. Conversion takes place with a **16-bit resolution**, so the controller receives 65,536 discrete values across the nominal measuring span. The circuitry performs **simultaneous sampling**, eliminating phase errors when two related signals must be captured at the same instant.

A **5 kHz input filter** attenuates high-frequency noise before conversion, preserving data integrity in installations with switching drives or relays. The measurement path presents an **85 Ω internal resistance**, which determines the voltage drop across the terminal and must be considered when long loop cables are used. Module logic and LED diagnostics are powered through the EtherCAT backplane. This function draws **170 mA from the E-bus**, a value that should be included in node power budgeting. The housing and spring terminals remain within the 12 mm slice profile, and the assembly has an **IP20** protection rating, making it suitable for installation in closed control cabinets.

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where basic protection against accidental contact is required.

Specifications

Analog Inputs:	2	Conversion Time:	~60 μs (fast mode) ~40 μs)	Dielectric Strength:	30 V max.
Distributed Clock Precision:	<1 μs	Distributed Clocks:	Supported	E-bus Current:	170 mA typ.
E-bus Current Consumption:	typ. 170 mA	FIR/IIR Filters:	Activatable	Ground Reference:	Single-Ended
Input Current Capacity:	40 mA	Input Filter Frequency:	5 kHz	Input Filter Limit Frequency:	5 kHz
Internal Resistance:	85 ? typ.	Limit Value Monitoring:	Supported	Measurement Uncertainty:	±0.3 % FS
Mounting Rail Width:	35 mm	Number of Inputs:	2 (single-ended)	Power Contact Capacity:	1 A
Power Supply:	via E-bus	Process Image:	Standard & compact	Process Input Width:	2 x 16 bit
Process Status Width:	2 x 8 bit	Protection Class:	IP20	Resolution:	16 bit
Sampling Type:	Simultaneous	Signal Current:	0...20 mA	Warranty:	1 year
Last Verified:	10/24/2026 1:22 PM				

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