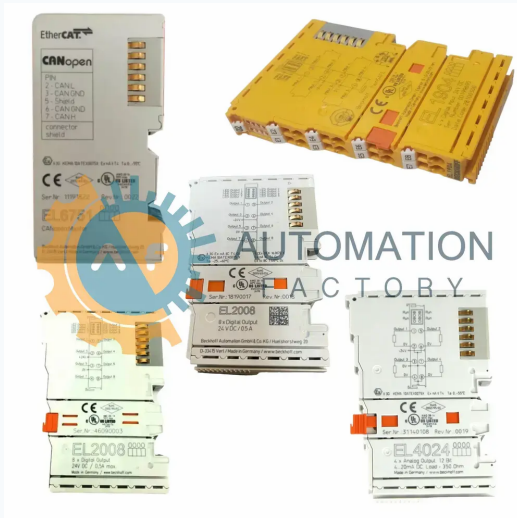




Beckhoff — EL EtherCAT Terminals

EL4012



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The **EL4012** is an analog output EtherCAT terminal manufactured by Beckhoff for the EL EtherCAT Terminals series. Integrated into an EtherCAT segment, the terminal receives process data over the E-bus and produces corresponding voltage signals at its front connectors, providing precise actuator control in distributed automation panels. Its single-ended ground reference and variable installation position simplify cabinet layout, while power and communication flow through adjacent terminals, eliminating separate wiring.

The terminal contains **2** independent output channels that share a common power rail. A digital-to-analog converter with a resolution of **12 bits** drives each channel, providing 4,096 discrete steps across the programmed range. Internal electronics are fed through the E-bus, while the output stage is supplied with **24 VDC** through the power contacts, so no external auxiliary voltage is necessary. In the cyclic process image, the device occupies a **2 × 16-bit** block, which allows the controller to update both outputs in one telegram. Electrical separation between the field side and the logic side is rated at **500 V**, protecting the EtherCAT core against transient potential differences.

Output quality is maintained with a measuring error of **< ±0.1% FS** over the operating range of 0 °C to 55 °C, and the multiplexed sampling scheme refreshes both channels for motion or dosing tasks. When the Distributed Clocks feature is enabled, channel updates align with network events to a precision of **<100 ns**, supporting deterministic control loops. The 24 V field supply can deliver up to **4 A** across the power contacts to downstream terminals, and a built-in short-circuit monitor disconnects a faulty load while preserving bus operation. The housing supports DIN-rail mounting in accordance with EN 60715 and has an **IP20** protection rating suitable for enclosed control cabinets.

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The shield capacity is 100 mA, and the permitted load resistance is below 500 ?.

Specifications

Connection:	Direct to E-Bus	Conversion Time:	<= 1 ms per channel	Diagnostics:	Short circuit and wire break detection
Dimensions (w X H X D):	12 mm x 100 mm x 68 mm	Distributed Clocks:	Yes	Electronics Supply:	Via E-bus
Field Supply:	24 VDC via power contacts	Ground Reference:	Single-Ended	Installation Position:	Variable
Isolation Voltage:	500 V	Load Resistance:	>= 2 k?	Max Load:	< 500 ?
Measuring Error (0°C To 55°C):	< ±0.1% FS	Mounting Rail:	35 mm per EN 60715	Number Of Channels:	4
Operating Temperature Range:	0 °C to +55 °C	Output Channels:	2	Output Type:	Analog, Voltage
Output Voltage Range:	0 to 10 V	Per Channel Current Output:	Max 10 mA	Power Contact Capacity:	4 A
Power Supply:	24 VDC	Power Supply Via K-bus:	Yes	Process Image Width:	2 x 16-bit AO output
Protection Class:	IP20	Resolution:	12 bit	Sampling Type:	Multiplex
Shield Capacity:	100 mA	Short-circuit Protection:	Yes	System Sync Accuracy:	< 100 ns
Weight:	Approx. 65 g	Last Verified:	10/25/2026 6:17 AM		

Contact Us

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