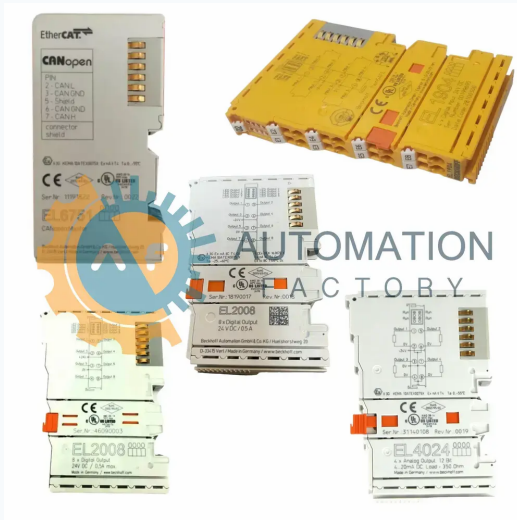




Beckhoff — EL EtherCAT Terminals

EL4002

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The **EL4002** analog output terminal is produced by Beckhoff as a member of the EL EtherCAT Terminals series. Classified as a dual-channel voltage module, it converts digital process data from an EtherCAT controller into field-level analog signals for drives, sensors, or actuators that require voltage references. Within an automation framework, it occupies one slot on the I/O rail and receives both communication and 24 V auxiliary power over the EtherCAT backplane, giving machine builders a compact method for distributing low-power analog outputs alongside digital I/O.

Each channel delivers a programmable output range of **0 to 10 V**, allowing the terminal to interface with most industrial voltage-driven devices. The conversion depth is **12-bit**, so the controller can adjust the output in 4,096 discrete steps. The module's power rail requires **24 V DC**, but its electronics are powered through the E-Bus, which draws a typical current of **140 mA**. The terminal has **two outputs** that share a single-ended ground reference. Multiplexed conversion ensures that the channels are refreshed sequentially by the internal converter. Support for distributed clocks enables submicrosecond synchronization with other EtherCAT nodes.

Channel accuracy has a measuring deviation of **±0.1% or less**, which keeps process discrepancies minimal across the full voltage range when the connected load is greater than 5 k Ω . The analog data appear in the controller as **2 × 16-bit analog output words**, matching the word size used in typical PLC variables. Field wiring is protected to **IP20**, so the terminal must be mounted inside a cabinet. The internal 0 V distribution rail can supply up to **500 mA**, while the separate power contacts for the analog stage carry approximately 40 mA. These electrical limits help

prevent the bus from being overloaded when multiple terminals are connected along the I/O rail.

Specifications

0 V Terminal Capacity:	500 mA	Approvals:	CE, UL, ATEX	Connection:	TwinSAFE, 8-pin
Conversion Time:	1 ms/channel	Dimensions (w X H X D):	15 mm x 100 mm x 69 mm	Distributed Clocks:	Yes
E-bus Current:	Typ. 140 mA	Electronics Supply:	Via E-Bus	Ground Reference:	Single Ended
Load:	> 5 k?	Measuring Error:	< ±0.1%	Number Of Outputs:	2
Operating Temperature:	0°C to +55°C	Output Current:	Up to 5 mA	Output Type:	Analog (Voltage output)
Output Voltage Range:	-10 V to +10 V	Power Contact Current:	Typ. 40 mA	Power Supply:	24 VDC
Process Image:	2 x 16-bit AO output	Protection Class:	IP20	Resolution:	12 bit
Sampling Type:	Multiplex	Signal Voltage:	0...10 V	Storage Temperature:	-25°C to +85°C
Type:	EL4002	Last Verified:	10/24/2026 11:44 PM		

Contact Us

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