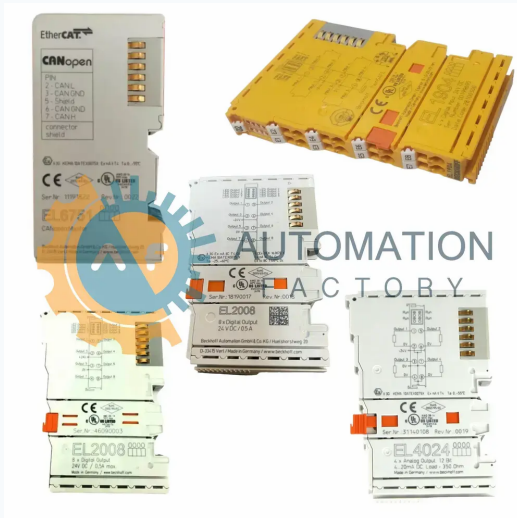




Beckhoff — EL EtherCAT Terminals

EL3111



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The **EL3111** is an analog input EtherCAT terminal produced by Beckhoff within the EL EtherCAT Terminals series. The module interfaces field sensors with the controller and translates differential voltage signals into a digital process image used by automation systems. By occupying just one slot on a 35 mm DIN rail, the device provides high-resolution data acquisition for machine monitoring and closed-loop control tasks. Its compact format also allows additional EtherCAT terminals to be installed beside it without requiring a separate signal-conversion assembly.

The terminal accepts **one analog input channel** and digitizes the incoming signal with a **16-bit resolution**. Its internal filter attenuates higher-frequency components above **5 kHz**, so typical industrial noise is suppressed before sampling. The module uses **simultaneous conversion**, aligning acquisition timing with other synchronized terminals in the EtherCAT network. The front end tolerates up to **10 V** of common-mode voltage between the input and local ground, helping prevent measurement errors when ground potentials differ. The acquired value is transferred to the controller as a single process-data word, while a separate one-byte status field reports limit or error conditions. EtherCAT Distributed Clocks provide sub-microsecond synchronization with neighboring modules. Nonvolatile storage retains parameter settings after a power cycle.

The analog front end uses a **differential input configuration**, so the sensor lines are measured against each other rather than against local ground. This arrangement improves immunity to common-mode electrical noise in industrial equipment. The shield terminal can carry up to **100 mA**, allowing shield currents to be routed safely to

ground. Signal wires connect through contacts rated for **40 mA**, which is adequate for the terminal's input connections. The **IP20** enclosure protects against accidental contact with hazardous internal parts but does not provide protection against water. The module is therefore intended for installation inside a suitable control cabinet. It snaps onto the DIN rail and connects to adjacent EtherCAT terminals through integrated side contacts, reducing the amount of separate wiring required within the terminal assembly.

Specifications

Analog Inputs:	1	Connection Method:	3-wire	Conversion Time:	<= 1 ms
Current Consumption From E-bus:	Approx. 70 mA	Diagnostics:	Short circuit and wire break detect	Dimensions (w X H X D):	12 mm x 100 mm x 68 mm
Distributed Clocks:	Yes	Filter Limit Frequency:	5 kHz	Ground Reference:	Differential
Input Contact Capacity:	40 mA	Input Filter:	Software configurable	Input Signal:	0...20 mA or 4...20 mA
Input Type:	Current	Max Common Mode Voltage:	10 V	Mounting:	DIN rail
Mounting Rail:	35 mm	Nocoestorage Support:	Yes	Number Of Inputs:	1
Operating Temperature:	0...55 °C	Process Image Inputs:	1 x 16 bit	Process Image Status:	1 x 8 bit
Protection Class:	IP20	Resolution:	16 bit	Sampling Type:	Simultaneous
Shield Contact Capacity:	100 mA	Last Verified:	10/25/2026 3:58 AM		

Contact Us

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