



Beckhoff — IE Extension Box Units

IE3112-0000



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The **IE3112-0000** is an analog input extension box unit manufactured by Beckhoff for the IE Extension Box Units series. It is intended to capture field-level sensor signals and forward digitized measurement data to EtherCAT I/O systems in distributed industrial automation. A rugged metal housing and overmolded connectors allow the module to mount directly on machines, so no additional protective enclosure is required. By adding four differential channels to a machine network, the device expands process-monitoring density without occupying cabinet space.

The module provides **4 analog inputs** that are galvanically isolated from the logic domain by a channel-to-control barrier rated at **500 V**. Each channel is converted within **140 ms**, so the complete block refreshes quickly enough for slow- to medium-speed closed-loop tasks. Raw values are digitized with a resolution of **15 bits plus a sign bit**, allowing small voltage changes to be detected even amid electrical noise on the plant floor. The enclosure has an **IP65/IP66/IP67 rating** for protection against dust and washdown liquids, making the unit suitable for food-processing, packaging, and outdoor equipment. Total linearity, offset, and gain drift remain within **±0.3% of full scale**, which keeps sensor accuracy within common process tolerances without separate calibration routines. Ten selectable digital filter modes allow the user to balance response time against improved rejection of power-line or mechanical interference.

A downstream EtherCAT segment or second box connects through **one 4-pin M8 socket**, while the upstream supply and communication signals arrive through an identical M8 power feed. The analog front end has an input impedance of **80 Ω**, making it compatible with typical bridge or shunt sources that can deliver modest current.

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Sensor excitation can be looped from the load circuit at a **maximum of 30 VDC**, eliminating the need for an additional supply rail. An M12 screw-in port secures field wiring against vibration. A 4 × 16-bit process image is mapped directly into the controller for deterministic data exchange.

Specifications

Channel/control Isolation:	500 V	Common Mode Voltage:	35 V max.	Connection Type:	M12 connector, 4-pin
Conversion Time:	140 ms	Current Rating:	<= 200 mA	Downstream Connection:	1 x M8 socket, 4-pin
Housing Material:	Brass, nickel-plated	Input Architecture:	Differential	Input Filter Modes:	10
Input Resistance:	80 ?	Internal Ground:	Common internal	Measurement Error:	< ±0.3% full scale
Number Of Channels:	4 analog inputs	Operating Temperature Range:	-25°C to +60°C	Operating Voltage:	10 ... 30 V DC
Output Function:	Normally open (NO)	Output Type:	PNP	Polarity Reversal Protection:	Yes
Power Feed:	1 x M8 connector, 4-pin	Power Supply Indicators:	Status LEDs	Process Image Input:	4 x 16 bits
Protection:	IP67	Protection Class:	IP65/IP66/IP67	Resolution:	15 bits + sign
Sensor Supply:	Load supply, 30 VDC max.	Short-circuit Protection:	Yes	Signal Connection:	M12 screw-in
Switching Distance:	4 mm	Switching Frequency:	1000 Hz	Thread Size:	M12 x 1
Type:	Inductive sensor	Last Verified:	10/24/2026 9:12 PM		

Contact Us

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