

Beckhoff — EPP EtherCAT P Box Modules

EPP1258-0002



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The **EPP1258-0002** is a digital input box manufactured by Beckhoff for the EPP EtherCAT P Box Modules series. Mounted close to sensors, it feeds electrically isolated signals directly into an EtherCAT P line that carries both data and 24-volt power. By combining input acquisition with the protocol's Distributed Clocks mechanism, the unit lets machine controllers timestamp field events with sub-microsecond precision, supporting deterministic motion sequences and fault analysis in industrial automation plants.

Every channel complies with **EN 61131-2 Type 3** and passes through a hardware filter with a response time of **10 µs**, so transient noise is suppressed before the PLC detects a state change. The module offers **8 inputs**, with each standard input drawing only **6 mA** at the nominal 24-volt level to minimize sensor loading. The Up supply delivers operating voltage at **24 VDC** to the internal electronics and connected field devices. Distributed Clocks logic aligns each detected edge with the global network time base without software intervention. Automatic input-delay compensation maintains consistent synchronous sampling across multiple boxes installed along the same EtherCAT trunk.

Communication is daisy-chained through **two M8 sockets with four-pin, P-coded, red connectors**, while sensor cables connect through the dedicated **four M12 sockets**. The Up power line can supply a maximum of **3 A** to downstream loads. Two special timestamp channels capture fast events at a resolution of **1 ns**, registering edge positions with an accuracy of 10 ns plus the input delay. These high-speed inputs draw only 3 mA from their 24-volt reference. The control circuitry draws 100 mA from the Us rail, and this auxiliary supply can provide a cumulative 3

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A to additional logic devices connected after the module.

Specifications

Aoe0A Signal Voltage:	-3A-+5 V (similar to EN 61131-2, type 3)	Aoe1A Signal Voltage:	11A-30 V (similar to EN 61131-2, type 3)	Bus Interface:	2 x M8 socket, P-coded, shielded
Distributed Clock Precision:	< 100 ns (channel 0/1)	Distributed Clocks:	Yes	Ethercat Port:	2 x M8 Socket, 4-Pin, P-Coded, Red
Input Connections:	M12 x 1, 5-pin, a-coded	Input Count:	8	Input Current:	6 mA At 24 VDC
Input Filter:	10 µs	Input Standard:	EN 61131-2 Type 3	Nominal Input Voltage:	24 V DC (-15%/+20%)
Number Of Inputs:	8, 2 with timestamp	Protocol:	EtherCAT	Resolution Timestamp:	1 ns (channel 0/1)
Sensor Supply:	from control voltage, max. 0.5 A, short-circuit proof in total	Signal Interface:	4 x M12 Socket	Specification:	EN 61131-2, type 1/3
Timestamp Accuracy:	10 ns + Input Delay	Timestamp Current:	3 mA At 24 VDC	Timestamp Inputs:	2
Timestamp Resolution:	1 ns	Up Rated Voltage:	24 VDC	Up Sum Current:	3 A Max.
Us Current Draw:	100 mA	Us Nominal Voltage:	24 VDC	Us Sum Current:	3 A Max.
Last Verified:	10/23/2026 2:26 AM				

Contact Us

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