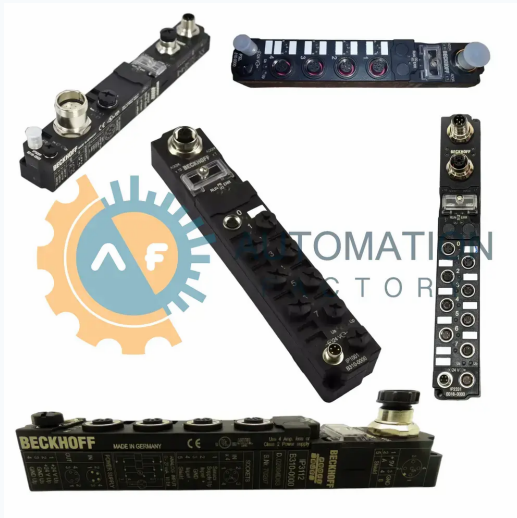


## Beckhoff — IP Compact Box Units

# IP3112-B510-0000



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The **IP3112-B510-0000** is an IP67 compact box unit produced by Beckhoff within the IP Compact Box Units series. Intended for field-level data collection, the enclosure mounts directly on machinery and converts voltage or current signals from sensors into digital data that the controller can read. Integrated electronics perform signal conversion and provide electrical protection, so the unit acts as a decentralized analog acquisition point in distributed industrial automation.

Four differential channels accept instrumentation inputs. The module provides **4 analog inputs** that share an internal common ground but have no interchannel isolation, so all measurement references are connected. A channel-to-control barrier rated at **500 V** shields upstream electronics, while dedicated control-to-fieldbus isolation prevents ground loops between the CPU and the network. Common-mode voltage must remain below **35 V**, and the front-end impedance is **80 Ω**. Ten selectable digital filter profiles allow noise suppression, and each full acquisition is completed in **140 ms**. With a maximum deviation of less than  $\pm 0.3\%$  of full scale, the inputs provide suitable accuracy for general motion and process monitoring.

For host communication, the box publishes its data over **CANopen**. Every scan inserts the converted values into a process image occupying **4 × 16 bits** in the telegram. The analog-to-digital converter has a native resolution of **15 bits plus a sign bit**, enabling signed representation of bipolar ranges. Supply power enters through one four-pin M8 plug and exits through an identical socket for daisy-chain wiring. The sensor side terminates at a secure **M12 screw-in connector**. These interfaces allow direct signal and power connections without requiring the unit to be

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mounted inside a control cabinet. Differential measurement and galvanic barriers also help maintain reliable signal acquisition when the unit is installed directly on machinery.

## Specifications

|                                       |                           |                                       |                 |                                  |                                         |
|---------------------------------------|---------------------------|---------------------------------------|-----------------|----------------------------------|-----------------------------------------|
| <b>Channels To Control Isolation:</b> | 500 V                     | <b>Common Ground:</b>                 | Internal common | <b>Common Mode Voltage Max:</b>  | 35 V                                    |
| <b>Connection Type:</b>               | Connector, M12 x 1        | <b>Control To Fieldbus Isolation:</b> | Yes             | <b>Conversion Time:</b>          | 140 ms                                  |
| <b>Dimensions:</b>                    | M18 x 1                   | <b>Fieldbus System:</b>               | CANopen         | <b>Housing Material:</b>         | Brass, Nickel-plated                    |
| <b>Input Filter Variants:</b>         | 10                        | <b>Input Resistance:</b>              | 80 ?            | <b>Input Type:</b>               | Differential                            |
| <b>Installation Type:</b>             | Flush                     | <b>Interchannel Isolation:</b>        | No              | <b>Measurement Error:</b>        | < ±0.3% FS                              |
| <b>Number Of Channels:</b>            | 4 analog inputs           | <b>Operating Temperature Range:</b>   | -25...+70 °C    | <b>Operating Voltage:</b>        | 10...30 VDC                             |
| <b>Output Function:</b>               | PNP, NO                   | <b>Polarity Reversal Protection:</b>  | Yes             | <b>Power Connectors:</b>         | 1 x M8 connector + 1 x M8 socket, 4-pin |
| <b>Process Image Input:</b>           | 4 x 16 bits               | <b>Protection Degree:</b>             | IP67            | <b>Repeat Accuracy:</b>          | <= 0.02 mm                              |
| <b>Resolution:</b>                    | 15 bits + arithmetic sign | <b>Sensing Range:</b>                 | 5 mm            | <b>Short-circuit Protection:</b> | Yes                                     |
| <b>Signal Connection:</b>             | M12 screw-in              | <b>Switching Frequency:</b>           | 2 kHz           | <b>Last Verified:</b>            | 10/23/2026 7:12 PM                      |

## Contact Us

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## Shipping Options



## Payment Methods



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