



Junction Box Unit

JBU-1xx, JBU-2xx

The JBU is a modular, configurable junction box for reliable integration of sensors and conditioners, offering flexible wiring and robust protection in demanding industrial settings.

KEY FEATURES

- Flexible junction box units for sensors and conditioners
- Immune to EMI and ground loops
- High protection rating for industrial environments
- Two case sizes for compact or extended setups
- Customizable cable entries and terminal configurations
- Pre-drilled and pre-assembled options available
- Designed for fast, ready-to-install integration

MONITORING INTEGRATION



Shaft & bearing vibration



Axial thrust position



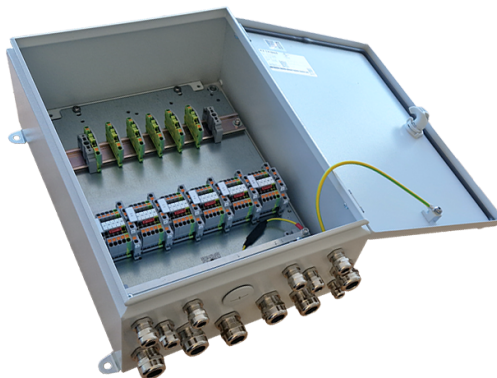
Phase reference & speed



Air gap



Magnetic flux



DESCRIPTION

The Junction Box Unit (JBU) series is a rugged, industrial-grade enclosure designed to protect and organize electrical connections. Built from powder-coated steel for long-term durability, the JBU offers high protection against moisture, dust, and mechanical impacts, making it suitable for both indoor and outdoor environments.

Available in multiple sizes, the JBU-1xx and JBU-2xx are fully customizable to accommodate MC-monitoring sensors and conditioners. The JBU-1xx supports configurations of up to 3 sensors and/or DIN-rail-mounted conditioners, while the larger JBU-2xx offers space for up to 6 sensors and/or DIN-rail-mounted

conditioners.

For configurations requiring backplate-mounted conditioners, a dedicated variant—**JBU-23x**—is available. It supports up to 4 backplate-mounted conditioners, typically used for AGT systems, and must be used with the SPR-AS flexible metallic conduit (44.902.00x) to ensure proper mechanical integration.

Additionally, the JBU-23x can accommodate one MFT system. In this configuration, one of the four available backplate-mounted conditioner slots is allocated to the MFT conditioner.

The JBU series is ideal for rotating machinery such as hydropower units and other demanding industrial applications requiring robust and flexible connection management. By providing a centralized, ready-to-install solution, the JBU simplifies wiring, access, and maintenance of critical equipment.

Important: The JBUs are shipped unassembled. The customer is responsible for the final assembly of the junction box using the provided parts and the user manual. Assembly service can be provided by MC-monitoring upon request and will be subject to additional service charges.

GLOBAL SPECIFICATIONS

HOUSING

Material	Steel sheet for both the box and the lid
Finish	Electrophoretic primer and exterior powder coating with a textured lacquer
Color	RAL 7035
Protection category	NEMA 1, 3R, 4, 12
IP protection rating	IEC 60 529: IP 66
Type	UL 50E: Type 1, 3R, 4, 12
Code IK	IK08
Components	Junction box with lid and mini-cam lock
Thickness	1.25mm for both lid and box
Fixing brackets	Vertically or horizontally orientation

MOUNTING PRE-DRILLED BACKPLATE

Voltage	Nominal 800V
Current	Nominal 24A
Connection type	Push-in
Nominal cross section	2.5mm ²
Wire section range	0.14mm ² - 4mm ²
Mounting type	Pre-installed on DIN rail (ready to mount)
Color	Grey and yellow/green

FILTERING CAPACITOR

Protection	Included by default for protection against EMI (electromagnetic interference) and to prevent ground loops
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INPUT CABLE GLANDS

Thread sizes

- M16x1.5 and M12x1.5

For direct cable entry, depending on cable diameter

Reducer/Adapter options

- M16 to M12 thread reducer

Reducer insert allowing M12 cable gland installation in an M16x1.5 threaded opening

- M16 to PG7 adapter

Adapter insert for MCm LVS sensors with integrated cable (fits into M16x1.5 cable gland)

- SPR-AS conduit adapter

For AGT cable protection (JBU-23x only)

Included by default:

- **JBU-1xx:** 3x M16x1.5 glands, 3x M12x1.5 glands, 3x M16 to M12 thread reducer, and 3x M16 to PG7 adapter
- **JBU-21x:** 6x M16x1.5 glands, 6x M12x1.5 glands, 6x M16 to M12 thread reducer, and 6x M16 to PG7 adapter
- **JBU-22x:** 6x M16x1.5 glands, 6x M12x1.5 glands, 6x M16 to M12 thread reducer, and 6x M16 to PG7 adapter
- **JBU-23x:** 4x SPR-AS conduit adapter, 1x M25x1.5¹

Screw plugs are included for all unused cable entries. The customer is responsible for installing them as needed to ensure proper enclosure sealing and protection.

¹For configurations including an MFT system, one pre-drilled M25×1.5 cable entry (typically used for output wiring) is allocated as an input to accommodate larger cable diameters.

OUTPUT CABLE GLANDS

The JBU offers two output configurations:

- **Multiwire output:** A single consolidated output using an M32x1.5 cable gland.
- **Individual outputs:** Using separate cable glands (ranging from M25 to M16) for dedicated, independent cable routing.

Thread sizes

- M32x1.5

For multiwire output (1x consolidated cable); two glands provided with clamping ranges 21.0–25.5 mm and 11.0–21.0 mm

- M25x1.5 and M16x1.5

For individual cable output

Reducer options

- M25 to M16 thread reducer

Reducer insert allowing M16 cable gland installation in an M25x1.5 threaded opening

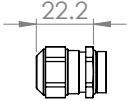
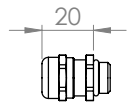
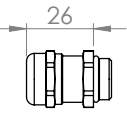
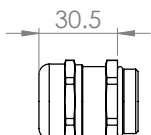
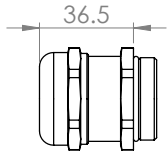
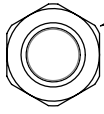
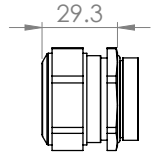
Note: The output configuration is defined by the third digit in the JBU product code: 1 = multiwire output, 2 = individual outputs.

Included by default:

- **JBU-xx1:** 1x M32x1.5 gland (clamping range 21.0–25.5 mm), and 1x M32x1.5 gland (clamping range 11.0–21.0 mm)
- **JBU-1x2:** 3x M25x1.5 glands, 3x M16x1.5 glands, and 3x M25 to M16 thread reducer
- **JBU-212:** 6x M25x1.5 glands, 6x M16x1.5 glands, and 6x M25 to M16 thread reducer
- **JBU-222:** 6x M25x1.5 glands, 6x M16x1.5 glands, and 6x M25 to M16 thread reducer
- **JBU-232:** 4x M25x1.5 glands, 4x M16x1.5 glands, and 4x M25 to M16 thread reducer

Screw plugs are provided for all outputs. The customer is responsible for installing either the cable glands or the appropriate plugs in accordance with the chosen output configuration.

CABLE GLAND SELECTION GUIDE FOR MC-MONITORING SENSORS

	 M25 to M16 thread reducer
	 M16 to M12 thread reducer
	 M16 to PG7 adapter Compatible with: - LVS-x01 sensors with integral cable (C1 option)
 22.2	 Cable gland for AGT systems with flexible metal conduit SPR-AS (diam. 17mm), P/N: 44.902.00x
 20	 M12 x 1.5 cable gland Clamping range: 3.0 to 7.0mm Compatible with: - PPT-x80 sensors without protection tube - SPS systems without armored cable - PAS/PVS sensors without armored cable
 26	 M16 x 1.5 cable gland Clamping range: 4.5 to 10.0mm Compatible with: - LVS-x01 sensors with push-pull connector (C3 option) - SPS systems with armored cable - PAS/PVS sensors with armored cable
 30.5	 M25 x 1.5 cable gland Clamping range: 9.0 to 17.0mm Compatible with: - Cable LiH(ST)CH 2x2x0.75mm ² (P/N: 901.0871)
 36.5	 M32 x 1.5 cable gland Clamping range: 11.0 to 21.0mm Compatible with: - Cable EDV-PiMF-CY 4x2x0.75mm ² (P/N: 901.1131) - Cable EDV-PiMF-CY 6x2x0.75mm ² (P/N: 901.1263) - Cable EDV-PiMF-CY 8x2x0.75mm ² (P/N: 901.1132)
 29.3	 M32 x 1.5 cable gland Clamping range: 21.0 to 25.5mm Compatible with: - Cable EDV-PiMF-CY 16x2x0.75mm ² (P/N: 901.1264)

GROUND LOOP PREVENTION

Our JBU units are designed to prevent ground loops and ensure clean signal transmission through effective shielding and capacitive filtering. In multiwire output configurations, each shielded twisted pair is grounded through a decoupling capacitor (100 nF), connected directly to the multiwire cable shielding using the provided components and grounding accessories. In individual output configurations, shield clamps are mounted on a dedicated support bar, ensuring separate grounding for each cable shield.

These grounding strategies help isolate sensitive signal paths from high-current loops and reduce electromagnetic interference in industrial environments.

PHYSICAL CHARACTERISTICS

JBU-1xx

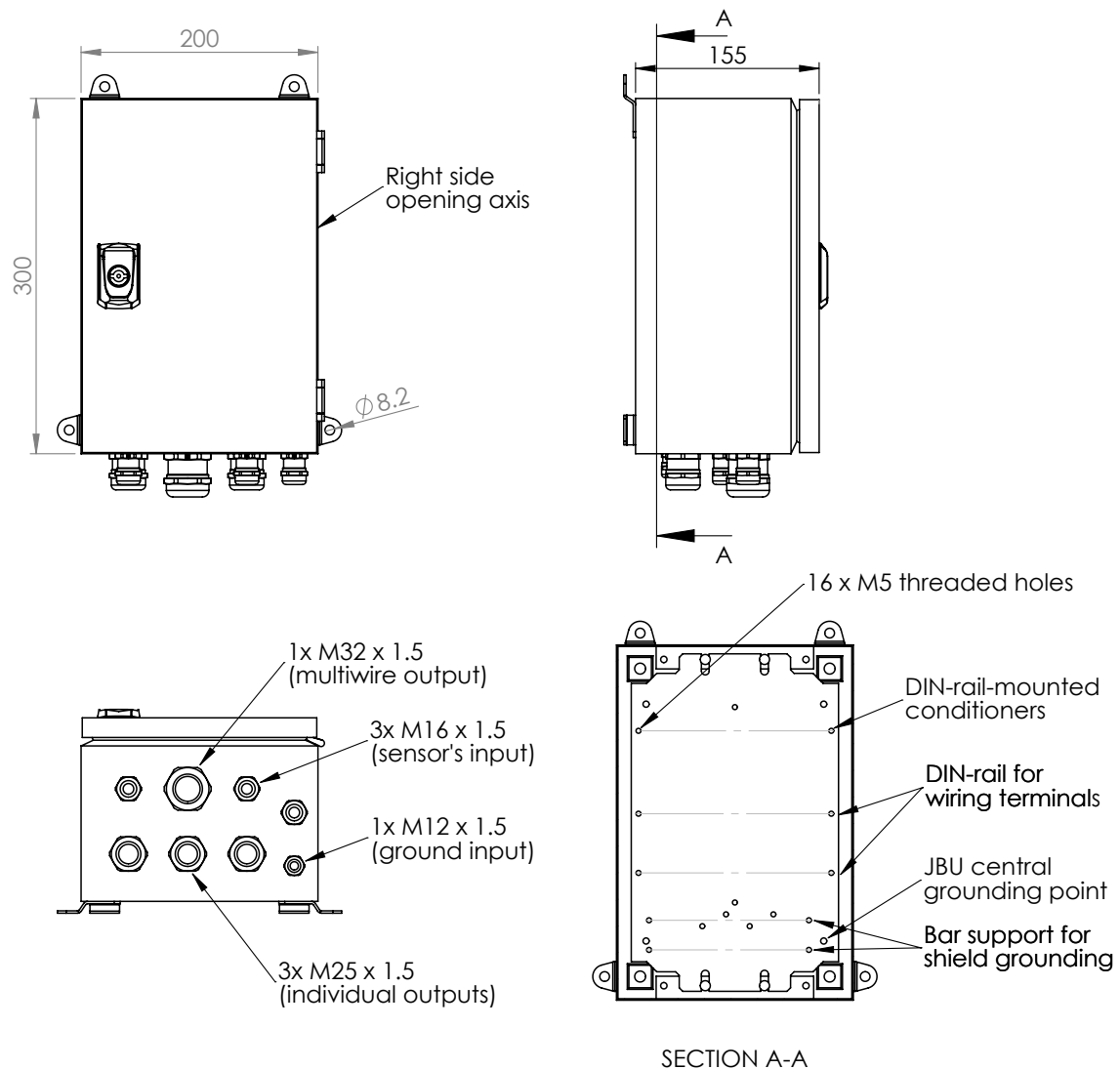
• Dimensions	200 mm × 300 mm × 155 mm (W × H × D)
• Weight	≈ 4kg (empty enclosure)
• Available configuration	Up to 3 sensors and/or DIN-rail-mounted conditioners (e.g. conditioners for SPS)

JBU-2xx

• Dimensions	300 mm × 400 mm × 155 mm (W × H × D)
• Weight	≈ 7kg (empty enclosure)
• Available configuration	Up to 6 sensors and/or DIN-rail-mounted conditioners Up to 4 Backplate-mounted conditioners (e.g. AGT systems), including max. 1 MFT conditioner

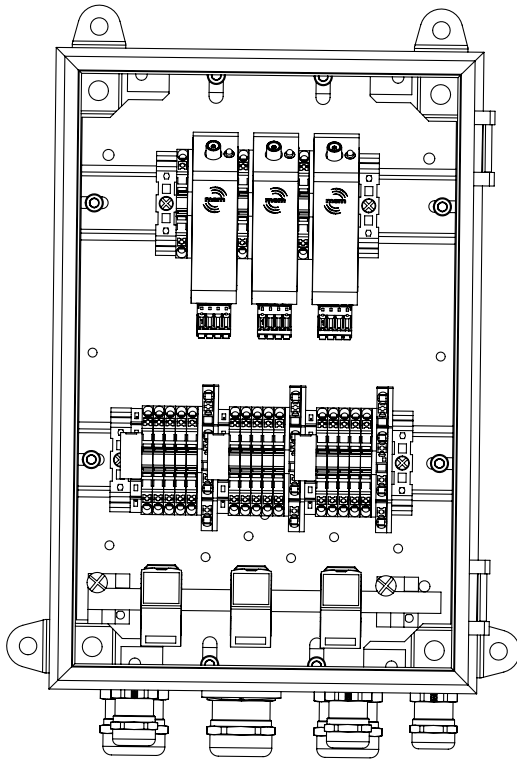
JBU-1XX MECHANICAL DRAWING

OVERVIEW

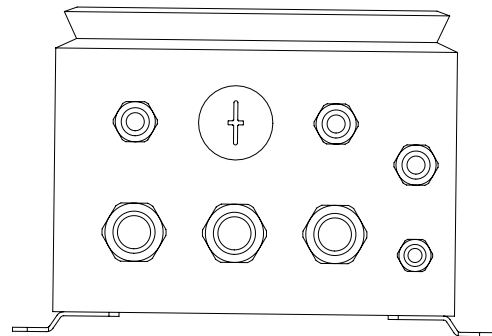


Note: The bottom-right view illustrates the standard pre-drilled backplate of the JBU-1xx. Mounting positions are prepared for DIN-rail-mounted stage terminal blocks, DIN-rail-mounted conditioners, and bar support for shield grounding. The installation of components is the customer's responsibility and depends on the selected mounting configuration and output.

MOUNTING CONFIGURATION

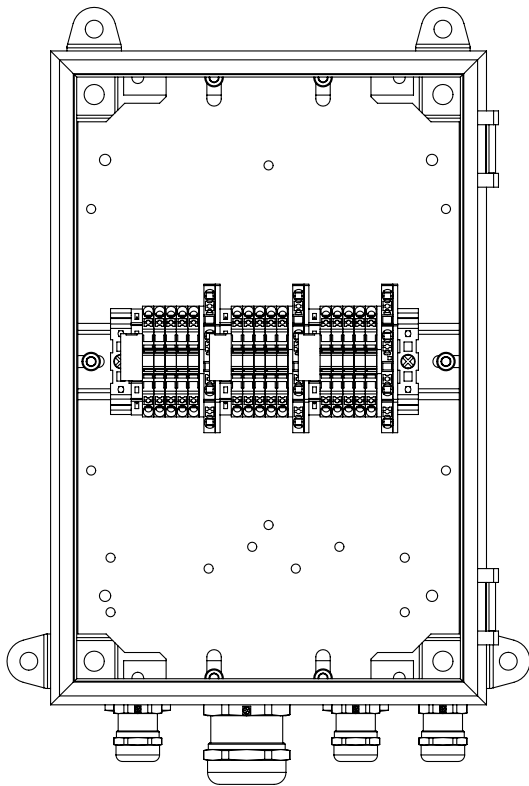


*Mounting configuration example with
DIN-rail-mounted conditioners (combinable with
sensors)*

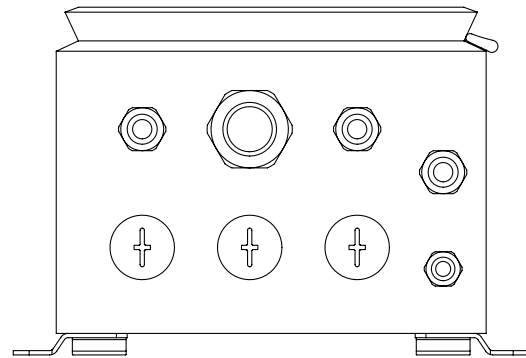


*Output example with individual outputs selected.
The unused multiwire output is sealed using the
provided screw plug to maintain enclosure
protection.*

Note: For all mounting configurations, either individual or multiwire output can be selected. Grounding differs accordingly: a shield support bar is included for individual outputs (visible in this example), while multiwire output configurations use capacitive grounding (1 nF) connected to the shared shield.



Mounting configuration example with only sensors



Output example with multiwire output selected. The unused individual outputs are sealed using the provided screw plugs to maintain enclosure protection.

JBU-1XX ORDERING INFORMATION

Part type JBU-1xx
Ordering Number 910.1**AB**.000

A	Mounting configuration	1	DIN-rail-mounted conditioners (combinable with sensors)
		2	Only sensors
B	Output	1	Multiwire
		2	Individual

Example: 910.111.000

JBU-111

DIN-rail-mounted conditioners (combinable with sensors)

Multiwire output

ACCESSORIES

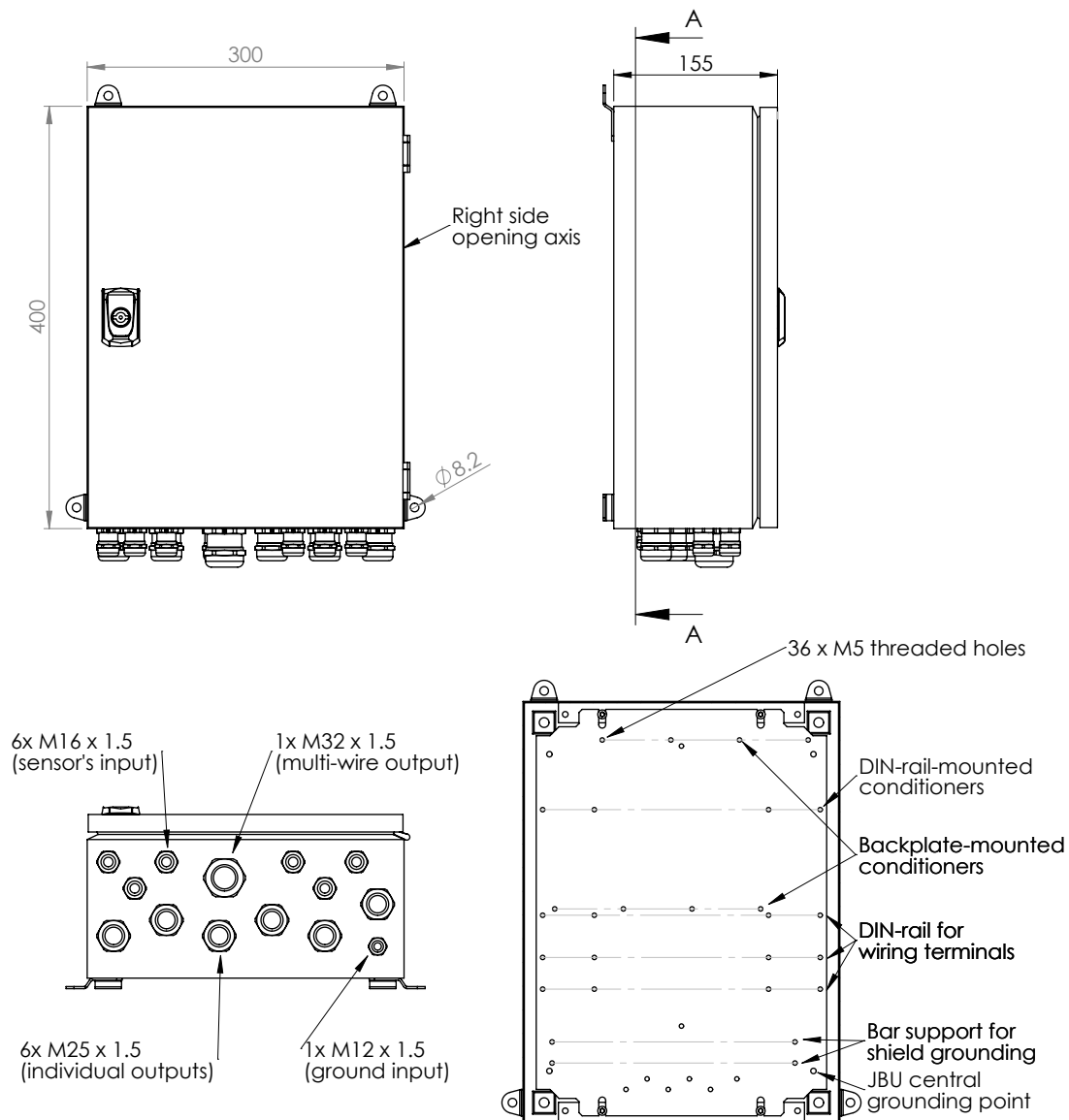
When the multiwire output option is selected, the JBU can be supplied with EDV-PiMF-CY shielded data cables, specifically designed for reliable signal transmission in industrial environments.

- **PiMF shielded twisted pairs:** Individually foil-shielded pairs with drain wire for reduced crosstalk and EMI.
- **Overall braided copper shield:** Approx. 85% coverage ensuring high EMC performance in noisy environments.
- **Low capacitance design:** Optimized for reliable transmission of low-level sensor signals.
- **Industrial-grade construction:** Fine-stranded copper conductors with PE insulation and PVC outer sheath.
- **Wide temperature range:** Fixed installation –20 °C to +80 °C.
- **Flame-retardant, certified:** Non-propagating flame per IEC / EN standards; EAC approved.

Ordering code	Description
901.1131	Cable EDV-PiMF-CY 4x2x0.75 mm ²
901.1132	Cable EDV-PiMF-CY 8x2x0.75 mm ²
901.1263	Cable EDV-PiMF-CY 6x2x0.75 mm ²

JBU-2XX MECHANICAL DRAWING

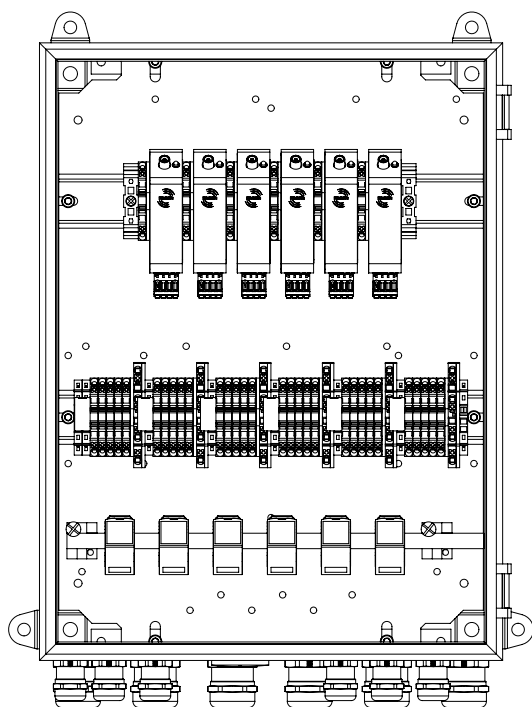
OVERVIEW



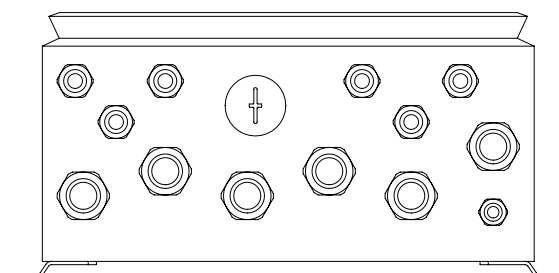
SECTION A-A

Note: The bottom-right view illustrates the standard pre-drilled backplate of the JBU-2xx. Mounting positions are prepared for DIN-rail-mounted stage terminal blocks, DIN-rail-mounted conditioners, backplate-mounted conditioners, and bar support for shield grounding. The installation of components is the customer's responsibility and depends on the selected mounting configuration and output.

MOUNTING CONFIGURATION

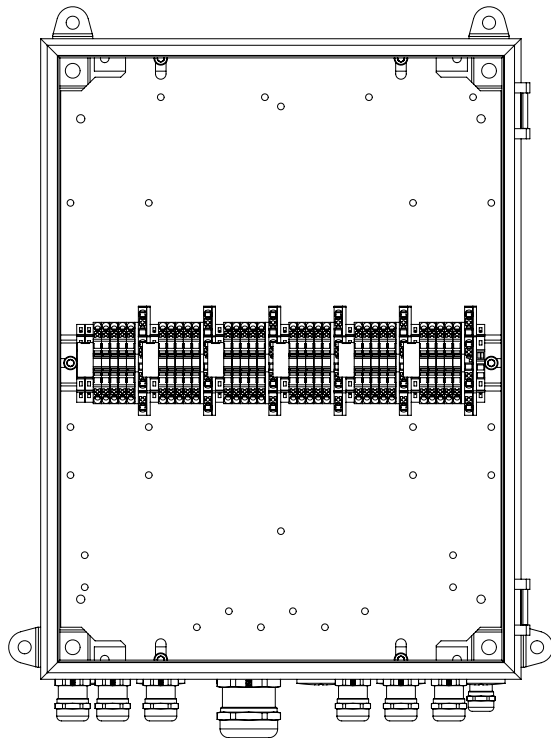


*Mounting configuration example with
DIN-rail-mounted conditioners (combinable with
sensors)*

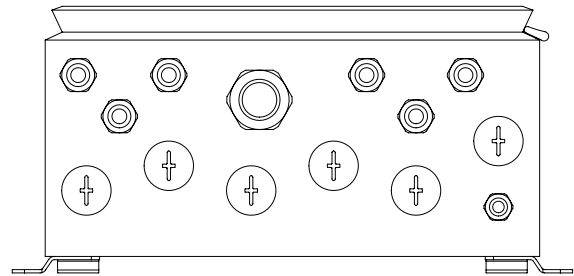


*Output example with individual outputs selected.
The unused multiwire output is sealed using the
provided screw plug to maintain enclosure
protection.*

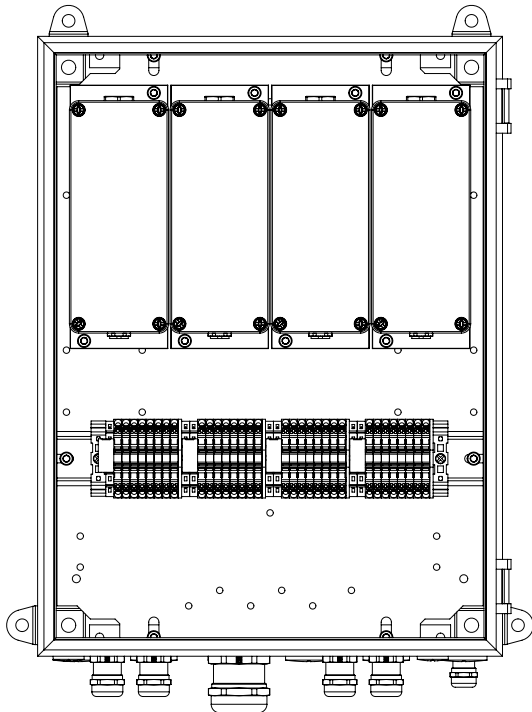
Note: For all mounting configurations, either individual or multiwire output can be selected. Grounding differs accordingly: a shield support bar is included for individual outputs (visible in this example), while multiwire output configurations use capacitive grounding (1 nF) connected to the shared shield.



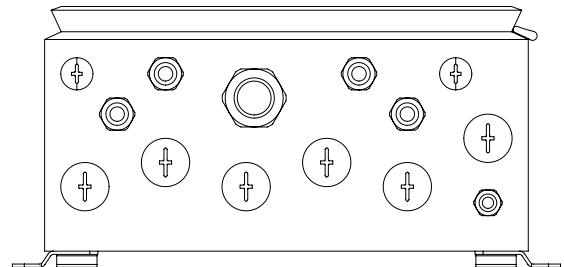
Mounting configuration example with only sensors



Output example with multiwire output selected. The unused individual outputs are sealed using the provided screw plugs to maintain enclosure protection.



*Mounting configuration example with
backplate-mounted conditioners*



Output example with multiwire output selected. The unused individual outputs are sealed using the provided screw plugs to maintain enclosure protection. In this configuration with backplate-mounted conditioners, four sensor inputs are used, along with four outputs when individual outputs are selected. For MFT configurations, one output cable entry (M25×1.5) is used as an input to accommodate the required cable diameter.

JBU-2XX ORDERING INFORMATION

Part type JBU-2xx
Ordering Number 910.2**AB**.000

A	Mounting configuration	1	DIN-rail-mounted conditioners (combinable with sensors)
		2	Only sensors
		3	Backplate-mounted conditioners
B	Output	1	Multiwire
		2	Individual

Example: 910.231.000

JBU-231

Backplate-mounted conditioners for up to 4 AGT conditioners or a combination including max. 1 MFT conditioner

Multiwire output

ACCESSORIES

When the multiwire output option is selected, the JBU can be supplied with EDV-PiMF-CY shielded data cables, specifically designed for reliable signal transmission in industrial environments.

- **PiMF shielded twisted pairs:** Individually foil-shielded pairs with drain wire for reduced crosstalk and EMI.
- **Overall braided copper shield:** Approx. 85% coverage ensuring high EMC performance in noisy environments.
- **Low capacitance design:** Optimized for reliable transmission of low-level sensor signals.
- **Industrial-grade construction:** Fine-stranded copper conductors with PE insulation and PVC outer sheath.
- **Wide temperature range:** Fixed installation -20°C to $+80^{\circ}\text{C}$.
- **Flame-retardant, certified:** Non-propagating flame per IEC / EN standards; EAC approved.

Ordering code	Description
901.1130	Cable EDV-PiMF-CY 10x2x1 mm ²
901.1131	Cable EDV-PiMF-CY 4x2x0.75 mm ²
901.1132	Cable EDV-PiMF-CY 8x2x0.75 mm ²
901.1263	Cable EDV-PiMF-CY 6x2x0.75 mm ²
901.1264	Cable EDV-PiMF-CY 16x2x0.75 mm ²

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Quality certification



Local representative

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