

## Load Cells

### Load cell accessories

#### SIWAREX DB digital junction box

##### Overview



SIWAREX DB digital junction box in stainless steel and aluminum

SIWAREX DB is a digital junction box for enhanced diagnostics and monitoring options in conjunction with SIWAREX WP weighing electronics.

Thanks to individual channel monitoring, error states such as wire break and overload can be identified in a targeted manner. Connecting SIWAREX DB to a SIWAREX WP electronic weighing system ensures seamless integration in the SIMATIC world.

##### Benefits

SIWAREX DB offers the following key advantages:

- Additional diagnostics options due to evaluation of individual load cells
  - Integration in SIMATIC by connection to SIWAREX WP electronic weighing system
  - Seamless communication between control and field levels supports retention of order number and location designation
  - Easy replacement of analog junction boxes:
  - Suitable for use in harsh environments thanks to IP66
  - Simplified service: multimeter no longer required
  - Rapid initial diagnostics with LEDs
- Advantages of single channel evaluation:
- Wire break signal: load cell no longer correctly connected
  - Impedance monitoring: change in load cell resistance
  - Monitoring of overload/underload
  - Current load factor of each load cell: determination of the center of gravity is possible

##### Application

SIWAREX DB is the optimum solution wherever strain-gauge sensors such as load cells, force sensors and torque measuring shafts are used for measuring in the SIMATIC environment and optimum diagnostics options are needed.

SIWAREX DB is suitable for all weighing applications, particularly level measurement, platform weighing and proportioning. SIWAREX DB can be connected to the following SIWAREX WP electronic weighing systems:

- SIWAREX WP231 (7MH4960-2AA01)
- SIWAREX WP321 (7MH4138-6AA00-0BA0)

##### Design



Internal view of SIWAREX DB

The SIWAREX DB digital junction box has a die-cast aluminum or stainless steel enclosure. The enclosure is dust-protected and splashproof according to the IP66 degree of protection. Cables are fed in through metric cable glands. Plug-in terminals reduce wiring effort during commissioning. Connection to SIWAREX WP electronic weighing systems is via the RS 485 interface.

##### Function

In order to avoid incorrect measurements, such as for filling levels, weighing modules must work precisely. A prerequisite is complete transparency about the device states. With SIWAREX DB it is possible to connect scales with up to four load cells, offering maximum versatility for system planning.

A special feature is the individual channel monitoring. Wire break, impedances as well as the current utilization of each and every load cell can be identified in a targeted manner and rectified if required. For direct connection to a SIMATIC S7 CPU, the SIWAREX WP231 is available for the SIMATIC S7-1200 system. SIWAREX WP321 should be selected for the SIMATIC ET 200SP distributed I/O system. Seamless communication between SIWAREX und SIMATIC ensure reduced overhead during commissioning.

The SIWAREX DB can also replace the structurally identical analog SIWAREX JB junction box in existing installations. This enables older systems to be retained and given a digital retrofit with a minimum of effort.

SIWAREX DB supplies diagnostic data which can be completely integrated in the SIMATIC world. Error messages are displayed centrally on the SIMATIC Controller and the HMI. The seamless connection between the control unit and the SIWAREX modules enables instant diagnostics, thereby simplifying and accelerating servicing and minimizing downtimes.

## Selection and ordering data

	Article No.
<b>SIWAREX DB digital junction box</b> For enhanced diagnostic and monitoring options in conjunction with SIWAREX WP electronics. Enclosure made of: <ul style="list-style-type: none"> <li>Aluminum</li> <li>Stainless steel incl. ATEX and IECEx approval II 3 G Ex ec IIC T4 Gc and II 3 D Ex tc IIIC T120 °C Dc</li> </ul>	7MH5001-0AD20 7MH5001-0AD01
<b>Spare part</b>	
<b>SIWAREX DB printed-circuit board and plug</b> SIWAREX DB printed-circuit board incl. plug for connecting load cells to SIWAREX WP electronic weighing systems as a spare part.	A5E50551831
<b>Accessories</b>	
<b>EMC gland</b> For SIWAREX aluminum junction boxes. Content: <ul style="list-style-type: none"> <li>4 × EMC cable glands M16</li> <li>2 × blanking plugs M16</li> </ul>	7MH5002-0AA30
<b>Cable Li2Y 1 × 2 × 0.75 ST + 2 × (2 × 0.34 ST) – CY</b> For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. Suitable for both aluminum and stainless steel variants. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature: -40 ... +80 °C (-40 ... +176 °F). Sold by the meter.	7MH4702-8AG

## Technical specifications

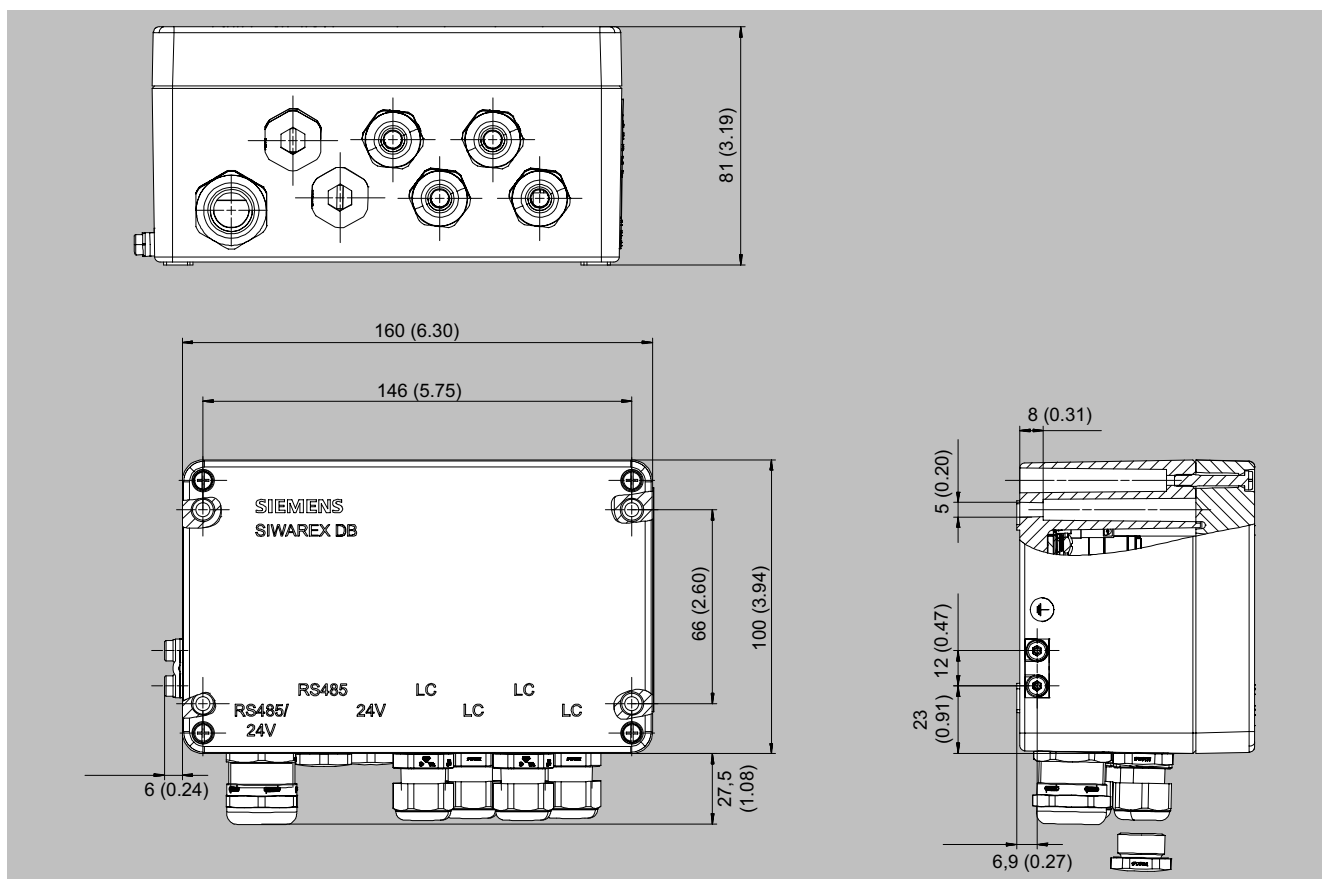
SIWAREX DB digital junction box	
Integration in SIMATIC S7-1200 and S7-1500 automation systems	SIWAREX WP electronic weighing system <ul style="list-style-type: none"> <li>SIWAREX WP231 (7MH4960-2AA01)</li> <li>SIWAREX WP321 (7MH4138-6AA00-0BA0)</li> </ul>
Communication interfaces	RS 485 (connection to SIWAREX WP electronic weighing system)
Measuring accuracy	See SIWAREX WP electronic weighing system
Measuring frequency	100 / 120 Hz
Load cells	Full-bridge strain gauges in 4-wire or 6-wire system
<b>Load cell powering</b>	
Supply voltage	4.85 V DC
Permissible load resistance	<ul style="list-style-type: none"> <li><math>R_{Lmin}</math> &gt; 330 Ω</li> <li><math>R_{Lmax}</math> &lt; 4 100 Ω</li> </ul>
<b>Load cell characteristic</b>	1 ... 4 mV/V
<b>IP degree of protection to EN 60529</b>	IP66
<b>Permissible ambient temperature</b>	-20 ... 80 °C
Cable glands	<ul style="list-style-type: none"> <li>For load cells 4 × M16</li> <li>For signal cables / power supplies 1 × M20</li> </ul>
<b>Auxiliary power supply</b>	
Nominal voltage	24 V DC
Max. power consumption	100 mA at 24 V DC

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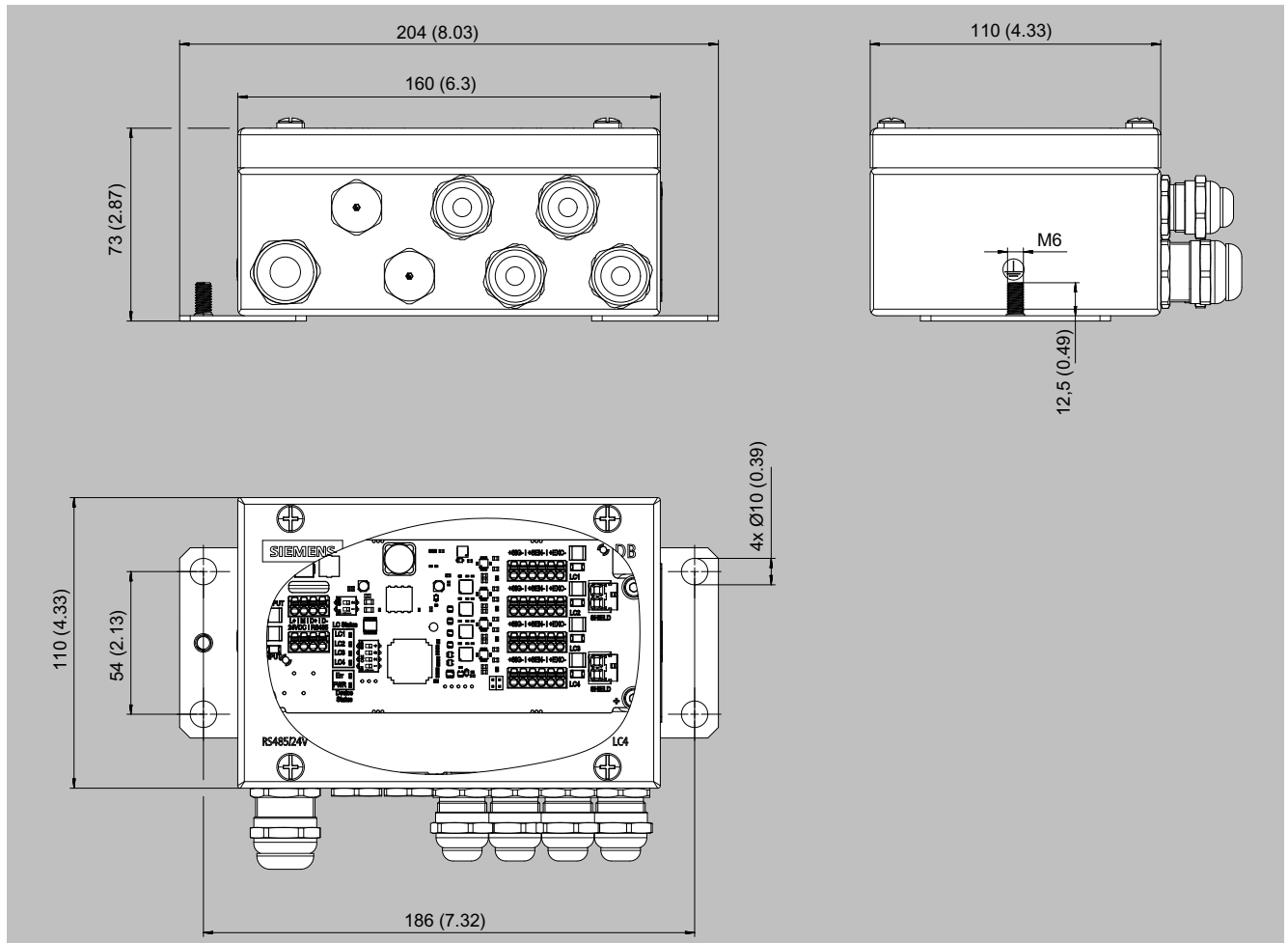
#### SIWAREX DB digital junction box

#### Dimensional drawings



SIWAREX DB digital junction box (7MH5001-0AD20), aluminum, dimensions in mm (in)

## Dimensional drawings (Continued)



SIWAREX DB digital junction box (7MH5001-0AD01), stainless steel, dimensions in mm (in)