BOSCHE

Digital Junction Box
DBB

DBB-11

DBB-14
DBB-44

Operating manual

- Translation of the original -

(keep for future use)

Last revised: 2024-12-16

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EXAMPLE TYPE PLATE

Typ:	**DBB**
S/N:	2305162012
Max:	3000 kg
Division:	1 kg

BOSCHE Wägetechnik

The type plate is located in the centre of the cable box cover.

Foreword

These operating instructions provide you with detailed information about the Digital Junction Box DBB.

These instructions contain safety instructions to guarantee safe use of the volume and weight measurement system.

The manufacturer strives to improve their products on an ongoing basis. They reserve the right to carry out any and all modifications and improvements that they consider to be necessary. However, this means that there is no obligation to carry out retrospective modifications in this connection.

Danger
Before using the Digital Junction Box, you must have read and understood the operating instructions and the safety regulations that they contain.

Note
Errors and omissions in the documentation reserved. If necessary, please inform the Bosche GmbH & Co. KG of any errors in the documentation. We would also be grateful for any suggestions for improvements that you may have.

The manufacturer's contact data is listed on the reverse of the title page. If you have any queries or problems, please contact the manufacturer without delay.

Note
If you have any questions for Bosche GmbH & Co. KG, please have the serial number to hand.

Table of contents

1 Safety

This chapter warns against possible risks when handling the Digital Junction Box. The information for detection of risks contained in this chapter is intended to allow a save and correct operation.

It is important to read and adhere to this operating manual and particularly this chapter prior to operating this Digital Junction Box.

1.1 For your safety

1.1.1 General

In addition to safety information, the operating manual includes:

- A general product description
- Information about installation and connection of the Digital Junction Box
- Instructions to operate the Digital Junction Box
- Maintenance and care instructions
- Troubleshooting and remedy instructions
- Technical data

Always keep this operating manual and additional documents for your personnel at hand in the direct vicinity of the Digital Junction Box.

1.1.2 Safety symbols in this manual

The following symbols are used on all important positions in this manual. Particularly observe these notes and treat very carefully.

Danger
This note indicates the danger of injuries and/or danger to life, if specific behaviour rules are not observed.
When this symbol appears in the operating manual, please take all required safety measures.

Attention
This note warns against damage to assets as well as financial disadvantages and responsibility under criminal law (e.g. loss of the warranty, cases of third party risks, etc.).

Note
Important notes and information about efficient, economic and environmental friendly handling are specified here.

1.2 Intended use

The Digital Junction Box DBB converts the analogue output signals of the connected load cells into a digital weight value.

Any further use is considered as not in accordance with the intended use. The manufacturer does not assume any liability for resulting damage.

The intended use also includes:

- Observance of all notes, information, instructions contained in the documentation as well as in all manuals supplied by the manufacturer,
- Adherence of the maintenance and service conditions and intervals prescribed by the manufacturer and
- Observance of technical data.

Adhere to the attendant accident prevention regulations as well as other generally approved technical safety rules.

1.3 Liability and warranty

The BOSCHE company offers a restricted warranty for components, which became faulty due to strain or material faults. The warranty starts with the date of delivery. The BOSCHE company retains the right to repair or replace components. Repair work executed during the warranty period will not extend the period of warranty. The warranty becomes null and void:

- In the event of incorrect use / use other than the intended use or incorrect installation
- Incorrect electric connection
- Use of an incorrect or non-licensed analogue / digital converter
- Non-observance of the specifications in the operating manual
- Conversion, modification or opening of the Digital Junction Box.
- Unintentional or mechanical damage and damage caused by media, liquids, natural wear.

2 Technical Data

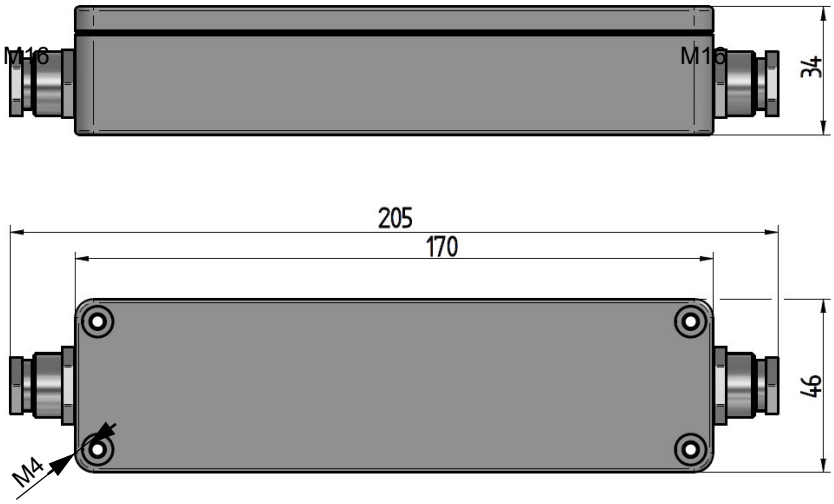
	DBB-11	DBB-14 / DBB- 44
Operating temperature	0°C - 40 °C	
Relative air humidity	max. 80 % (non-condensing)	
Power supply (external)	9 - 30 V DC	
Calibration	Extern	
Max. resolution	intern 1/1.000.000	
Housing	Aluminium	
Dimensions (B x L x H) in mm	205 x 46 x 34	194 x 79 x 34
Weight	approx. 320 g	approx. 450 g
Protection class	IP 65	
Interface RS 232	RS-232 Bi-directional	
Interface RS 485	RS-485 Half-duplex, bus operation possible max. 32 pieces	
Load cell sensitivity	2 mV/V ~ 3 mV/V	
Number of load cells	1 load cell min. 90 Ω	**DBB-14**: Up to 4 load cells á 350 Ω or 8 pieces á 1000 Ω. **DBB- 44**: Up to 4 load cells min. á 90 Ω.

2.1 Construction

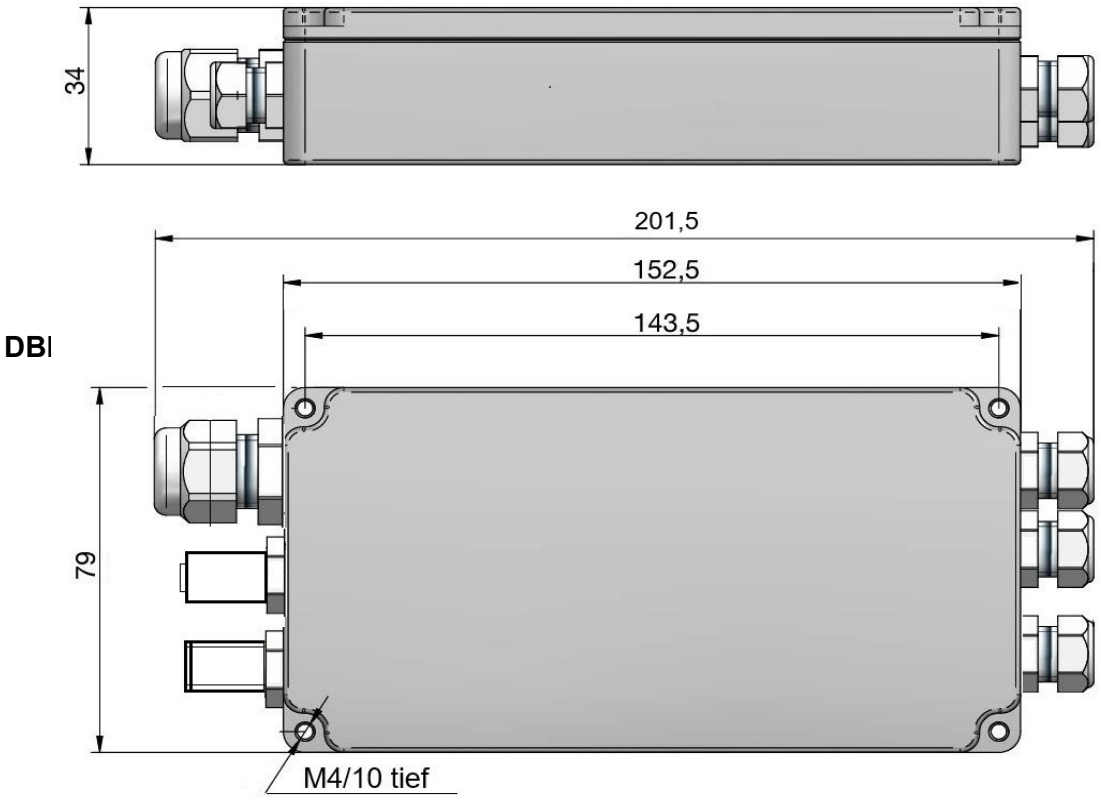
Note
To close/open the junction box, you need a 3 mm allen key, the tightening torque is 2.5 Nm.

Note
You will need a 19 mm and a 24 mm open-end spanner for the cable glands.

2.1.1 DBB-11



2.1.2 DBB-14 / DBB-44

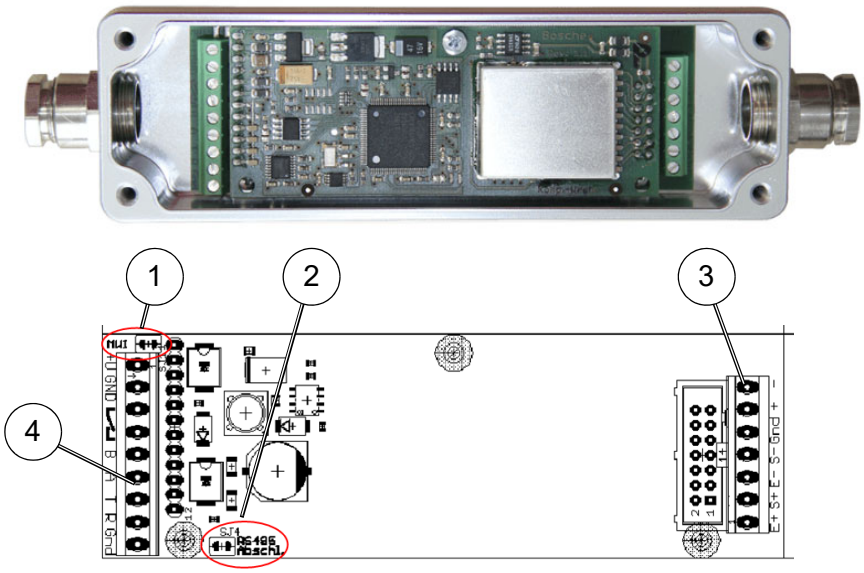


DBI

DBI

2.2 Connections

2.2.1 DBB-11



Pos.	Description
1	MWI - soldering jumper
2	RS 485 terminating resistor - soldering jumper
3	Load cell connections
4	Power supply, data transfer

Power supply, data transfer

1. UB+ -> 9 - 30 V DC
2. GND -> Ground
3. TA Connection of an external key for taring the scale
4. TA
5. A -> 2-wire RS 485
6. B -> 2-wire RS 485
7. TXD -> Data transfer to the PC
8. RXD -> Receiving data from the PC
9. GND -> Ground for data transfer

Load cell connections

1. E+ --> EXC + (Supply voltage cell 5V DC)
2. S+ --> Sense +
3. E- --> EXC - (Supply voltage cell 5V DC)
4. S- --> Sense -
5. Gnd --> Ground
6. + --> Signal +
5. - --> Signal -

MWI - soldering jumper (voltage supply of the cells)

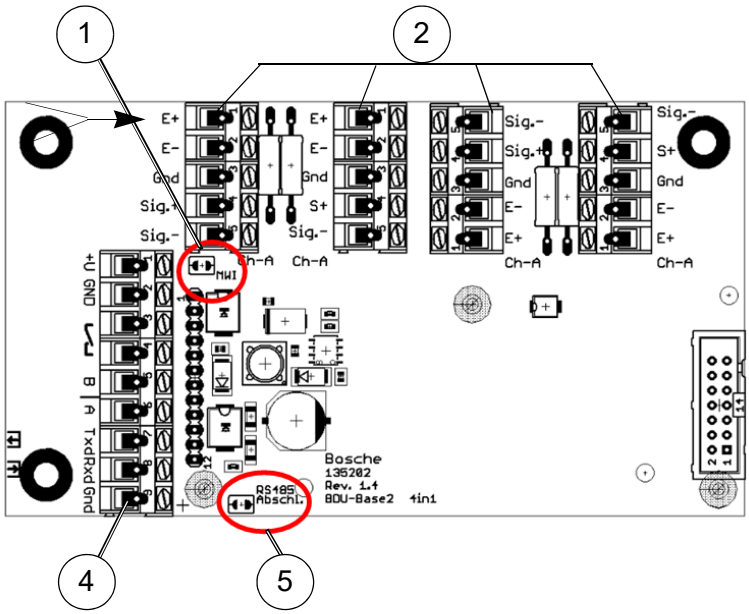
If the DBB digital cable box is connected directly to an MWI / MCI / EWI, the MWI soldering jumper must be closed.The MWI soldering jumper is open with external voltage supply.

RS 485 terminating resistor - soldering jumper

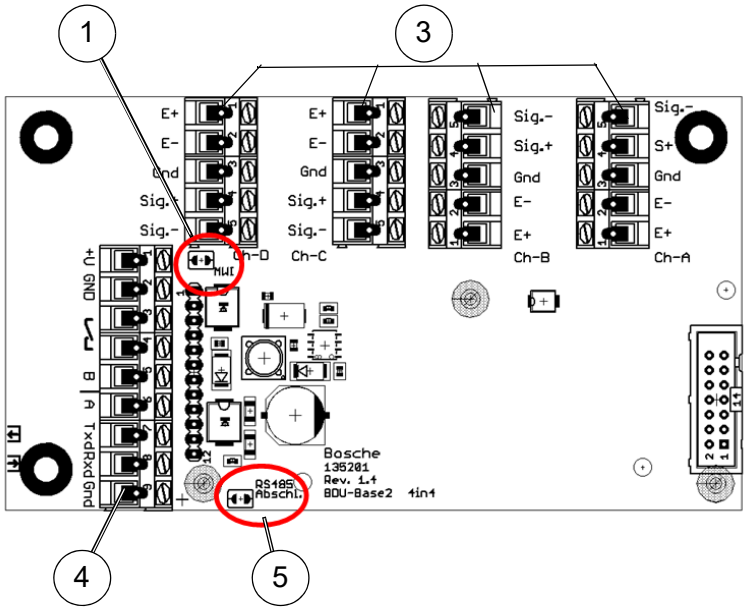
The RS-485 terminating resistor - soldering jumper is used to connect a 120 Ω resistor for the existing RS 485 interface, if required. By default, this soldering jumper is opend on all DBB-11 boards.

2.2.2 DBB-14 / DBB-44

DBB-14



DBB-44



Pos.	Description
1	MWI - soldering jumper
2	Load cell connections on channel A (DBB-14)
3	Load cell connections each on one channel A/B/C/D (DBB-44)
4	Power supply, data transfer
5	RS 485 terminating resistor - soldering jumper

Power supply, data transfer

1. UB+ -> 9 - 30 V DC
2. GND -> Ground
3. TA Connection of an external key for taring the scale
4. TA
5. A -> 2-wire RS 485
6. B -> 2-wire RS 485
7. TXD -> Data transfer to the PC
8. RXD -> Receiving data from the PC
9. GND -> Ground for data transfer

Load cell connections

1. E+ --> EXC + (Supply voltage cell 5V DC)
2. E- --> EXC - (Supply voltage cell 5V DC)
3. Gnd --> Ground/shield
4. Sig+ --> Signal +
5. Sig- --> Signal -

MWI - soldering jumper (voltage supply of the cells)

If the DBB digital cable box is connected directly to an MWI / MCI / EWI, the MWI soldering jumper must be closed.The MWI soldering jumper is open with external voltage supply.

RS 485 terminating resistor - soldering jumper

The RS-485 terminating resistor - soldering jumper is used to connect a 120 Ω resistor for the existing RS 485 interface, if required. By default, this soldering jumper is opend on all DBB-14/-44 boards.

3 Installation

Note
For configuring and parameterising the evaluation electronics:

Standard interface RS 232:
56000 baud, data bits 8, stop bit 1, no parity

Standard interface RS 485:
115000 baud, data bits 8, stop bit 1, no parity

3.1 Connecting the board

- Loosen the housing screws and place the cover aside.
- Now insert the cables of the scale as well as the data cable through the cable glands into the housing.
- Then screw the cable gland so that the cable will not release in light train from the gland.
- Now connect the individual wires to the board.

Load cell connections (DBB-11)

1. E+ --> EXC + (Supply voltage cell 5V DC)
2. S+ --> Sense +
3. E- --> EXC - (Supply voltage cell 5V DC)
4. S- --> Sense-
5. Gnd --> Ground
6. + --> Signal +
7. - --> Signal -

Load cell connections (DBB-14/-44)

1. E+ --> EXC + (Supply voltage cell 5V DC)
2. E- --> EXC - (Supply voltage cell 5V DC)
3. Gnd --> Ground
4. Sig+ --> Signal +
5. Sig - --> Signal -

Bosche load cells have the following standard wire allocation:

EXC +	-->	red
EXC -	-->	black
Signal +	-->	green
Signal -	-->	white
Shielding	-->	purple/blue/yellow

Note
If you are using load cells from other manufacturers, please refer to the cable assignment from the data sheets of the load cell.

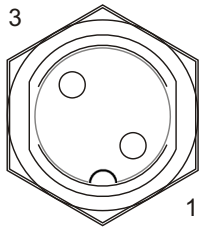
3.2 Connections (DBB-14/-44)

3.2.1 Power supply

Pin assignment socket (A-coded):

1. +V
3. GND

Voltage range: 12 - 24 VDC



3.3 Interfaces (DBB-14/-44)

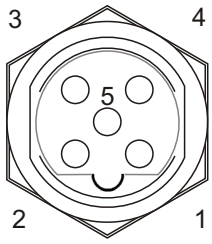
3.3.1 RS 232

The weighing terminal is connected via this interface (COM 1) to a PC or a printer, it prints the weighing results along with the selected weighing unit.

5-pin socket connection for interface RS232

Pin assignment socket (B-coded):

1. NX
2. TxD (Transmitted Data from PC)
3. NC
4. RxD (Received Data from PC)
5. GND (Ground)



3.4 Calibrating the scale with LPC commands

Note
Please refer to the separate operating instructions for the "Bosche LPC Scale" software.

4 Maintenance, care, disposal

4.1 Cleaning

Attention
Do not use aggressive cleaning agents.

- Before cleaning, please disconnect the unit from the operating voltage.
- Remove dust and other soiling with a moistened cloth.
- Wipe all surfaces with a dry, soft cloth after use.

Note
Please observe the cleaning instructions for protection class IP 66.

4.2 Disposal

Disposal of packaging and equipment must be carried out by the operator according to valid national or regional law of the user location.

BOSCHE
WEIGHING SYSTEMS

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