



Technical Documentation

Microwave Sensor Type MB 110

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No guarantee is issued for the correctness of this manual. In spite of all the efforts, put into the creation of this document, errors cannot be completely avoided. We always appreciate suggestions on how to improve our manual.

On occasions, the description may differ from the delivered hard and/or software. The displays shown in this document are examples; therefore they may vary from the delivered product.

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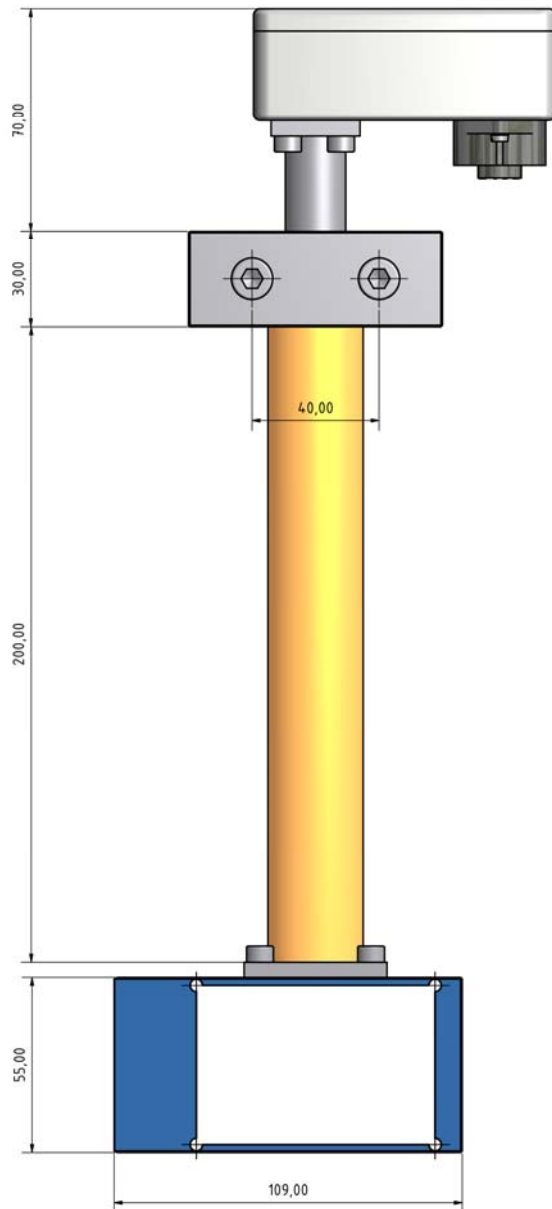
Contents

Dimensions	4
Connection.....	7
Wiring.....	7
Voltage supply.....	8
EMC.....	8
Measurement output in Volt (voltage output)	8
Installation.....	8
Connecting the sensor to the BTS-5000	10
Technical data.....	11
Installation.....	11

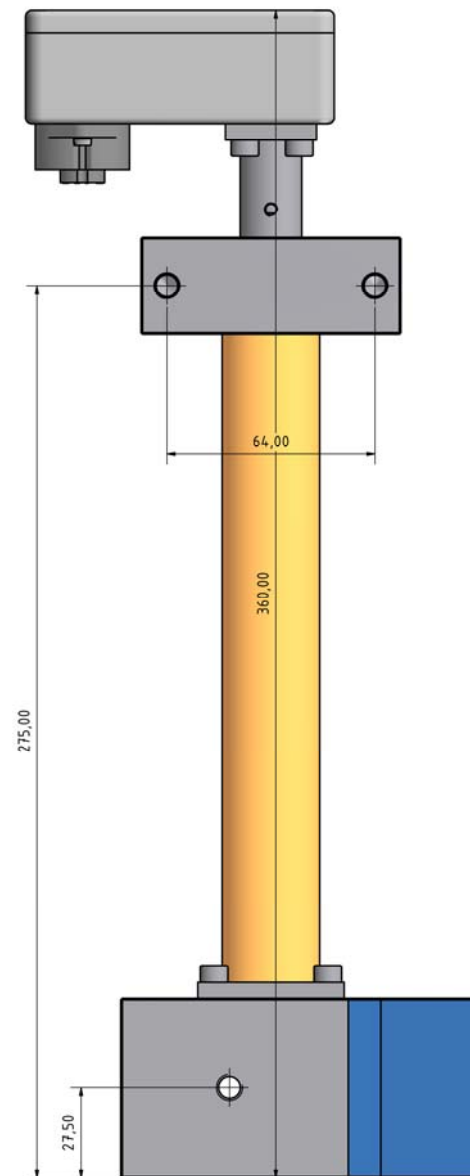
Microwave Belt Sensor for Measuring the Sand Moisture on Belts

Dimensions

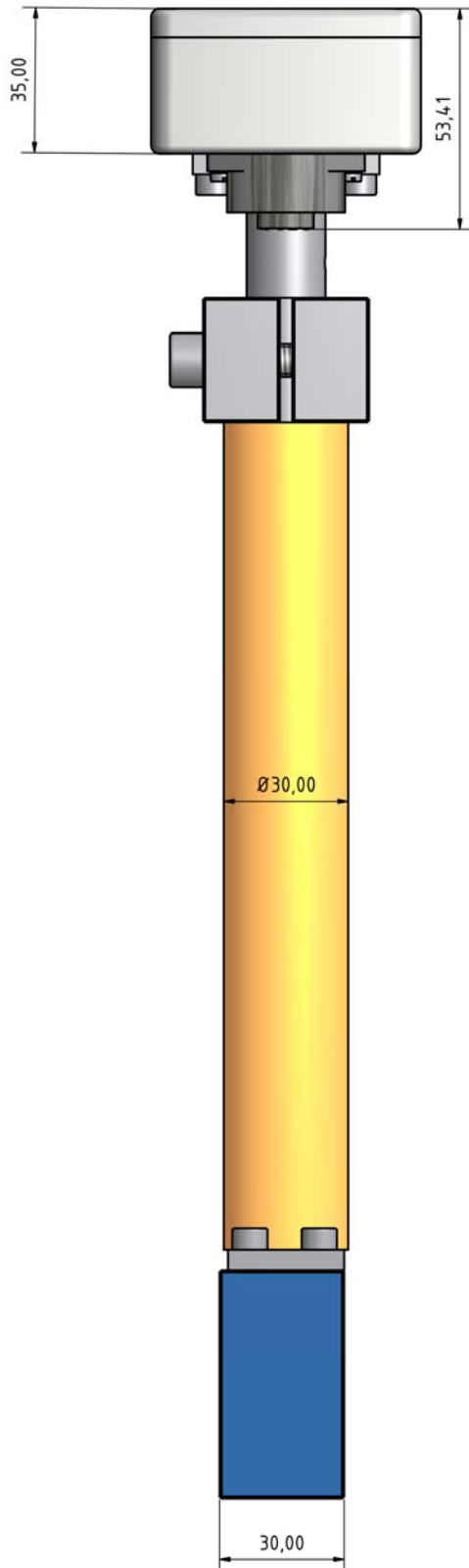
View front side



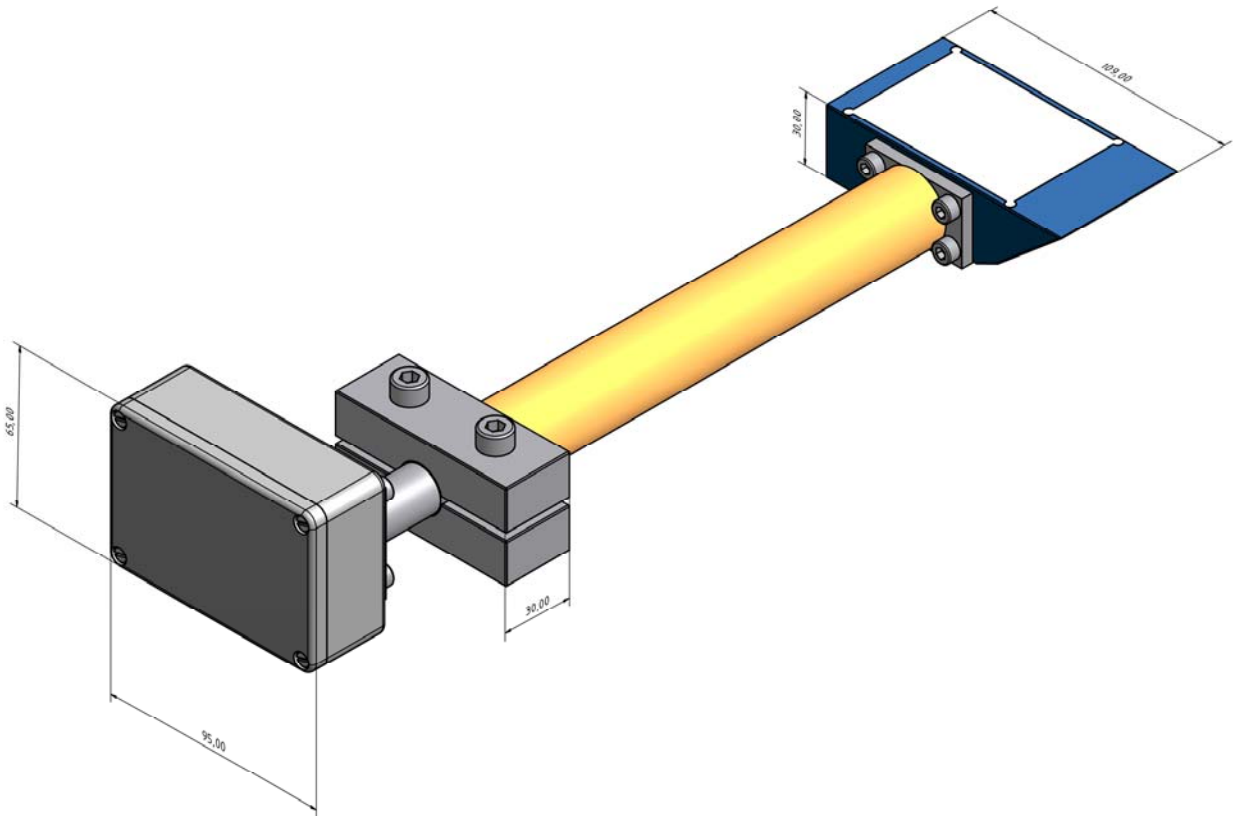
View back side



View side



View recumbently



Connection

You connect the sensor with the included connection cable of 3 m.

If necessary, you can extend the cable to 150 m.

Type of cable:

up to 50 m: shielded PVC control cable type: **LIYCY 3 X 0.5 mm²**
up to 100 m: shielded PVC control cable type: **LIYCY 3 X 0.75 mm²**
up to 150 m: shielded PVC control cable type: **LIYCY 3 X 1.5 mm²**

The diameters indicated are minimum diameters. It is also possible to use a bigger cable diameter for shorter distances.

Please make sure that the clamping units are waterproof, vibration-proof and strain-relieved.

The sensor delivers a direct current between 0 and 20 mA, analogue to the measured moisture.

On delivery, the sensor is calibrated and needs no further electrical adjustment.

Wiring

BROWN	15-24 V DC	Supply voltage
GREEN	0-20 mA	Current output of the measured value, channel 1
WHITE	GND	Ground potential - 0V

Voltage supply

A direct current of 15-24 V DC and a connection with the **correct polarity** is necessary for operation. Please ensure that the equipment has **zero-potential**.

If you operate the sensor without a Bikotronic analyzing device, the power supply used must fulfill the following requirements:

- The DC supply voltage must be stabilized, hum-free and failure-free.
- The voltage must not be lower than 15 V or higher than 28 V.
- The power supply used should supply at least 0.5 A.

We recommend using high-quality industry top hat rail power supplies with 24 V DC / 2.5 A.

EMC

The shield connector of the cable can be connected to the control system with an EMC shield clamp (ground).

The connection cable of the sensor / K-Box should be laid separately from other heavily disturbing cable installations. The minimum distance is 20-30 cm.

Measurement output in Volt (voltage output)

The output of the measured value is preset as a 0-20 mA current loop output. This ensures a high transmission security for long cables.

If you prefer a voltage output for the measured value, you can clamp an ohmic resistance of 500 Ohm (0.6 W) between conductor green and conductor white. For example, 2 resistances of 1000 Ohm (1 K Ω) can be connected in parallel. This makes a total resistance of 500 Ohm.

The measured value is then output as voltage between 0-10 Volt.

Installation

For fastening the sensor, the two M8 threads of the clamping jaws on the back side are used with the corresponding screws (stainless steel).

Attention!

**You must never weld on or near the sensor
even if it is switched off!**

The electronic components of the sensor can be irreparably destroyed by the arising current / voltage impulses.

Attention!

**The measuring surface of the sensor is made of ceramics. It
must not be exposed to mechanical blows:
danger of shivering / disruption!**

Attention!

**If you clean the equipment with a high-pressure cleaner,
please avoid pointing the water-jet directly on the sensor.**

Connecting the sensor to the BTS-5000

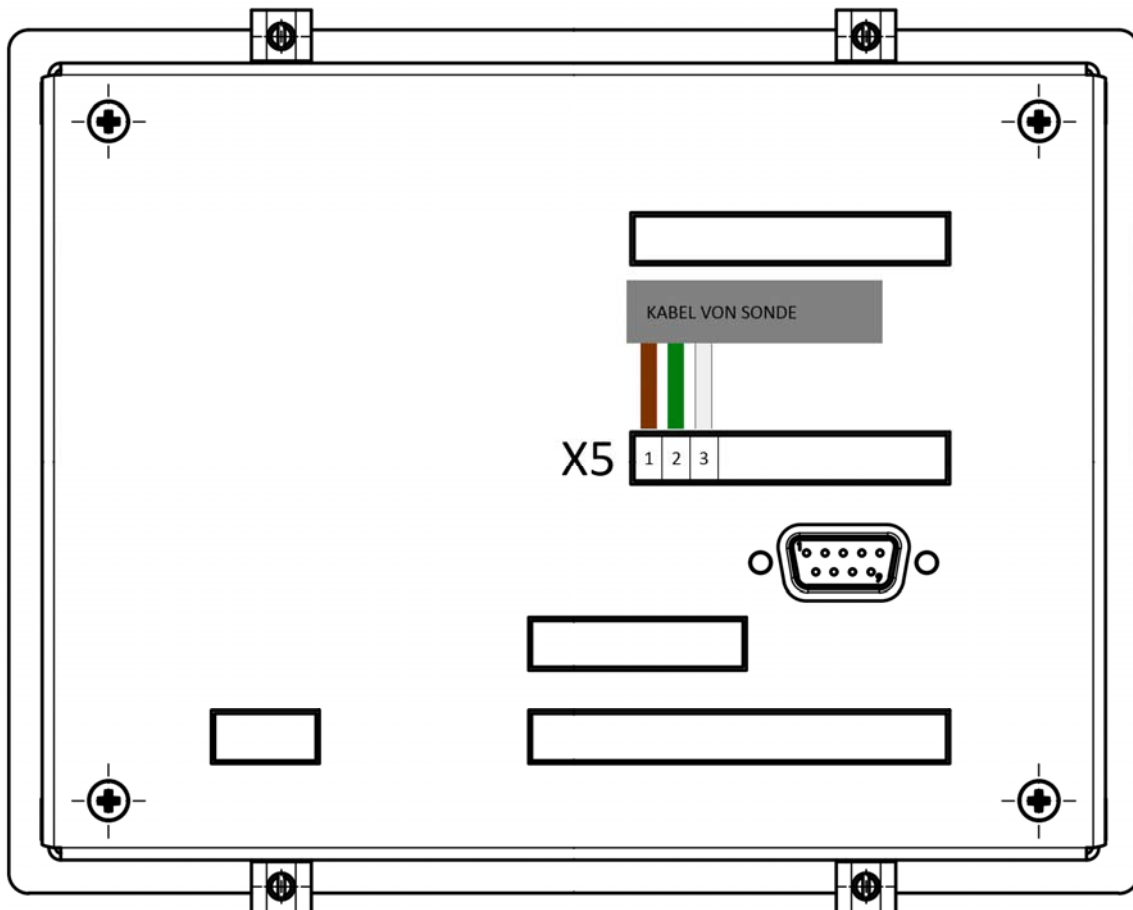
Brown wire to clamp X5-1 (power supply 0-15 V)

Green wire to clamp X5-2 (signal 0-20 mA)

White wire to clamp X5-3 (0 V potential)

Further sensors must also be connected according to this diagram, please see the BTS-5000 manual for further details.

View back side BTS-5000:



Technical data

Length	360 mm
Width	130 mm
Depth	65 mm
Weight	2.6 kg
Length connection cable	3 m
Power supply	15-24 V DC
Current consumption	150 mA maximal
Output measured value	0-20 mA
Protection class	IP 65

Installation

