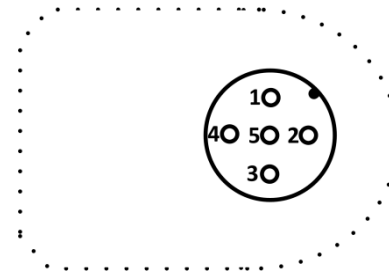## Electrical Connection

The sensor must be wired with a 4-cord cable with an M12 connection plug. Colour codes in the diagram below are related to the cables delivered by HB. The supply voltage is limited to 24V AC/DC.

**Supply 24 V AC/DC**
1 = Brown +
2 = White -
3 = Blue – DO, Alarm, PNP/NPN, 1A
4 = Black – AO, Control output, 4-20 mA
5 = Grey – Data communication

## LED Indication

LED indication:
1) Green LED indicates 24 V AC/DC power supply
2) Red LED indicates ALARM at 100 %

| LED signal | ON/OFF/Frequency | Functionality |
|---|---|---|
| Green | ON | Power supply |
| | OFF | No power supply |
| Red | ON | Alarm to be activated at 100% level. The liquid level has to drop below hysteresis |
| | OFF | No alarm |

## Further Information

Extended and detailed manuals are available on our homepage www.hbproducts.dk.

# Quick Installation Guide for: HBLT-WIRE

## Mechanical Installation



100 % / 20 mA
50 mm
0 % / 4 mA
RECEIVER
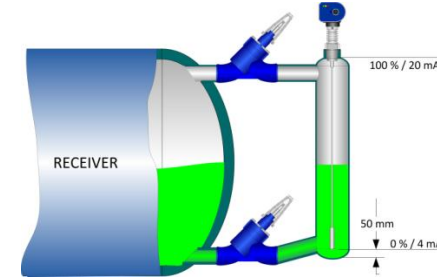
The sensor is installed in the standpipe or directly in the tank. The sensor length is determined by standpipe length or tank height. Please **leave 50 mm** space between the let and the bottom of the pipe. Steel wire and Teflon hose most be cut to desired length with wire cutters or a bolt cutter, in the end where the let must be installed. Teflon hose must be mounted outside on the wire.

Standpipe must be insulated to avoid boiling in the stand pipe.

To install the HBLT-wire, you must use a 2.5 mm Allen key, shifting spanner, wire cutter and liquid gasket.

Loosen the electronic part from mechanical part.

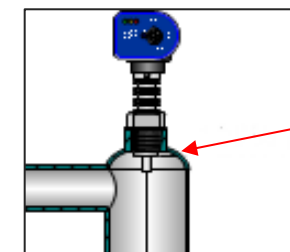Define the sensor length from the standpipe height. Shorten the wire and Teflon hose to required length.

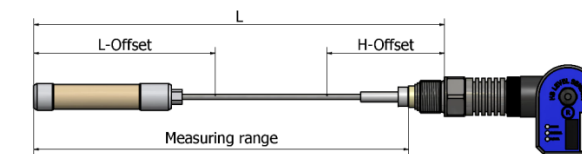Teflon hose must be 20 mm shorter than the wire.

Make sure that wire is in bottom of the hole.

Tighten the 2 setscrews to fix the wire.

When sealing the conical thread, you must use liquid conductive sealant, which creates a ground connection between the standpipe/tank and the sensor, since the sensor uses the standpipe/tank as reference. If Teflon is used, it must only be used on part of the thread so that the ground connection is established. If you are in doubt regarding the ground connection, measuring the resistance between the tank and sensor is recommended. This should be approx. 0 ohms. For cylindrical thread, an alu sealing ring is included.

L = Programmable sensor length
L= Wire length + 86 mm
Teflon hose most be 20 mm shorter than wire length.
Insert wire in let part and tighten the 2 setscrews. Turn the top cover plastic part on the metal part (right-hand thread).
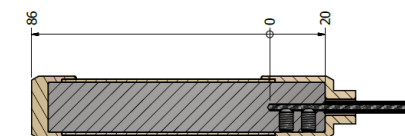
# Configuration with PC and HB-TOOL

The HBLT-Wire sensor should be configured to the actual application. The software program can be downloaded at www.hbproducts.dk. Programming cable has been included. The actual sensor settings can be displayed by pressing the "Show current figuration" button.

| Setup | Factory settings | Configuration options |
|---|---|---|
| Refrigerant | NH3* | NH3/HFC |
| Sensor probe length | Sensor length* | 600…4000 mm |
| Standpipe size in inches | DN40-1½"* | DN25, DN32, DN40, DN50, DN65, DN80, DN100 |
| Offset from max level | 0 mm | 0…8000 mm |

The above shows the factory settings and configuration possibilities in an HBLT-Wire sensor. *

Select the refrigerant type here

Sensor length (L) should be input here

Standpipe size shall be selected here

H-offset: Input offset value here. The measureent span – programmable sensor length = Offset [mm]. E.g. if 100 % should be at 1400 mm and the sensor length is 1600 mm, the offset length should be 200 mm.

L-offset: Input offset value here. If measurement should start 100 mm from end of sensor and not at the end, then input offset should be 100 mm.

Save by clicking "Save to sensor"
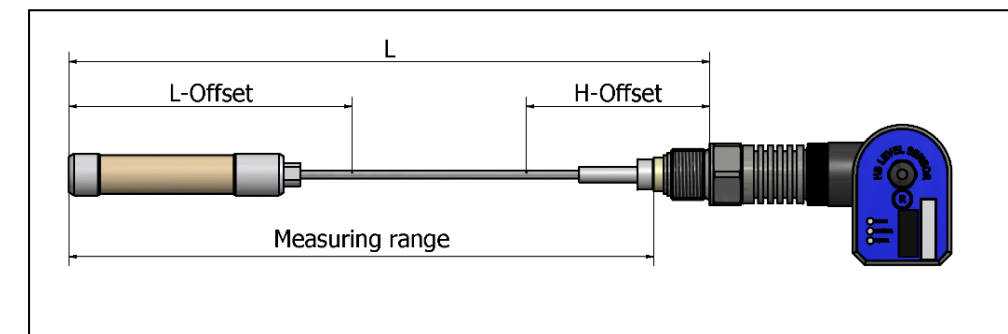
# Configuration from sensor front

In case a PC is not available, the sensor configuration can be carried out by the sensor push bottom of the front.
To enter the configuration parameters please press the "R" button for 10 seconds and then follow the steps in the table.
The yellow LED will flash in 5 seconds and after this it will be off. When it is ON again the programming can start. No change in 15 sec will interrupt the configuration. In that case please press the "R" button for 10 seconds again.

| Button Time/sequence | Parameter | Range | Display |
|---|---|---|---|
| >10 sec | Enterring the configuration mode | | CAL |
| 1 push | Enterring length configuration mode | | -L- |
| 1 push to change the length in cm. | To roll digit 3 from 1-9. | 1-9<br>1 = **1**00 cm,<br>2 = **2**00 cm,<br>3 = **3**00 cm | 0.00 |
| >5 sec | To switch to digit 2 | | 10.0 |
| 1 push to change the length in cm. | To roll digit 2 from 1-9. | 1-9<br>1 = 1**1**0 cm,<br>2 = 1**2**0 cm,<br>3 = 1**3**0 cm | |
| >5 sec | To switch to digit 3 | | 110. |
| 1 push to change the length in cm. | To roll digit 1 from 1-9. | 1-9<br>1 = 11**1** cm,<br>2 = 11**2** cm,<br>3 = 11**3** cm | |
| >5 sec | To switch to refrigeration mode | | 111 |
| 1 push to change refrigeration/liquid type | Change of refrigeration/liquid type | R717= 717<br>OIL= OIL<br>R134= 134<br>R507= 507<br>R404 = 404<br>R407= 407<br>R410= 410<br>R22 = 022<br>R123ZE = 123 | -F- |
| >5 sec | To swtich to selection of standpipe | | |
| 1 push to switch | Size of standpipe to select | DN25 = 025<br>DN32 = 032<br>DN40 = 040<br>DN50 = 050<br>DN65 = 065<br>DN80 = 080<br>DN100 = 100 | -O- |
| >5 sec | Saving all data and leaving calibration mode. | | BYE |

The sensor configuration is saved when leaving the calibration mode. The "BYE" signal is a confirmation on this.
To view the configuration parameters please press the "R" button for 10 seconds and then press 5 seconds. It will start to show programmed parameter, with a jump each 3 seconds. It will repeat the selected parameters once and then return to the actual value in %.

| Button Time/sequence | Display |
|---|---|
| 5 sec | -L- / xxx (length) |
| | -F- / xxx (type of refrigerant) |
| | -O- / xxx (stand pipe dimension) |