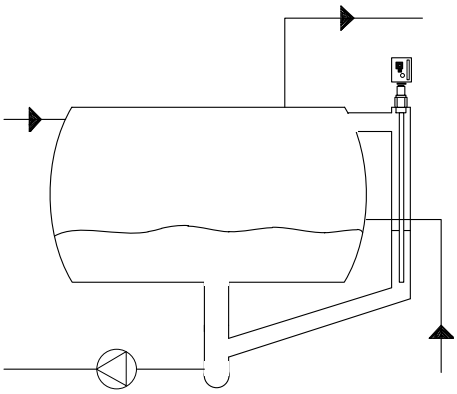
Quick guide

HBLT-A1 LIQUID LEVEL TRANSMITTER

for measuring liquid level in refrigerant vessels

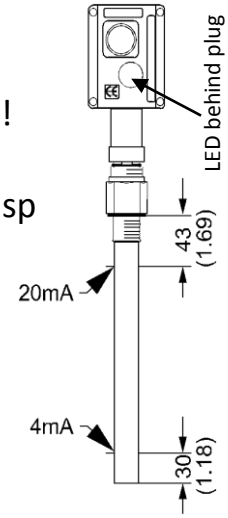


NOTE!
To avoid accumulation of oil in the stand pipe a 10deg. slope on the connection pipe is recommended.

Introduction and function

HBLT-A1 capacitive liquid level transmitters used to measure liquid levels in refrigerant vessels

- Transmits an active 4-20 mA signal proportional to the liquid level
- Electronics converts the measured change in capacitance to a signal in proportion to the level
- **Factory calibrated for R717 (NH_3)**



This **'quick guide'** only highlights the use of the HBLT on R717 (NH_3) systems!
For all other refrigerants and full documentation please review the **'instruction manual'** available online www.hbproducts.dk/documentation.asp

Technical data

Supply voltage and load:
24 V AC/DC ±10% (50/60Hz), 1.5 W
Signal output: 4-20 mA
Liquid refrigerants:
R717 (NH_3) (factory setting)
R22, R404A, R134a, R744 (CO_2) and R718 (H_2O)

Liquid temperature range:
-60/+120°C (-76/+248°F)
Max. working pressure:
100 bar (1450 psig)
Enclosure: IP65
Connection: 4-pole DIN plug

NOTE! When used in refrigerants with **temperatures above +60°C (140°F)** (e.g. heat pump applications) a **minimum calibration must be carried out after 1 week of operation**. Subsequently a minimum calibration once a year is needed (see how to do so below).

Factory setting

The HBLT comes **factory calibrated for R717 (NH_3)**, so that it will cover 4 to 20 mA throughout the rod's whole measuring range. (4 mA when the transmitter does not register liquid and 20 mA when the entire transmitter is surrounded by liquid).

Setting of refrigerant

For refrigerant: R717 (NH_3) it is not necessary to change the settings. The factory setting can be used.
For all other refrigerants and full documentation please review 'instruction manual' available online www.hbproducts.dk/documentation.asp

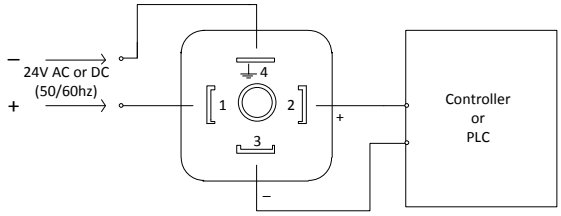
Minimum calibration (0% = 4mA)

1. Apply supply voltage
2. Empty the vessel/standpipe
3. Activate the push button for about 5 sec.
Indication: Control LED lights up (ON). When ready for calibration the LED switches OFF
4. Activate the push button once.
Indication: Control LED flashed once. When green LED flashes normally the calibration is complete.

If calibration button is not activated within 10 seconds, it will automatically leave calibration mode !

Installation instruction
Mount the sensor tube in a standpipe or vessel with ¾"NPT respectively 1"BSP thread connection.
When installed on ammonia systems just apply power and the transmitter is in operation.

Electrical connection



LED indication
When voltage is applied the LED will flash rapidly as many times as it has been calibrated through its lifetime. The current mA output is activated as soon as the flashing sequence has changed from rapid to slowly.

Normal operation:
At normal operation the Green LED will be flashing slowly.
Generally the Green LED is ON every time calibration push button is activated.

Trouble shooting

Symptom	Cause	How to detect/repair defect
No function	No supply voltage Wrong supply voltage	Check power supply and connection cable
It takes a long time after power up before the 4-20 mA signal is updated	Min./Max calibration has been carried out several times on site.	After power up the green LED flashes rapidly as many times as it has been calibrated through its lifetime. First after this green LED flashes changes to slowly the 4-20 mA is updated
4-20 mA output signal is to low	Oil has been accumulated in the standpipe. Oil falls to the bottom on ammonia systems	Drain oil out of standpipe. If a very big amount of oil is present it may be necessary to take out the sensor rod and clean it for oil
No 4-20 mA output	Not wired correctly	Green LED continues to flash rapidly. If correct 24 AC/DC supply: Check polarity
4-20 mA signal does not correspond to actual liquid level	Wrong refrigerant selected	Set correct refrigerant
No 4-20 mA output and green LED is OFF	Electronics defect	Replace HBLT electronics
4-20 mA signal does not correspond to actual liquid level	Operator has calibrated wrongly	Fulfil a factory reset

Further information
For further information please check our website www.hbproducts.dk or send an e-mail to: support@hbproducts.dk