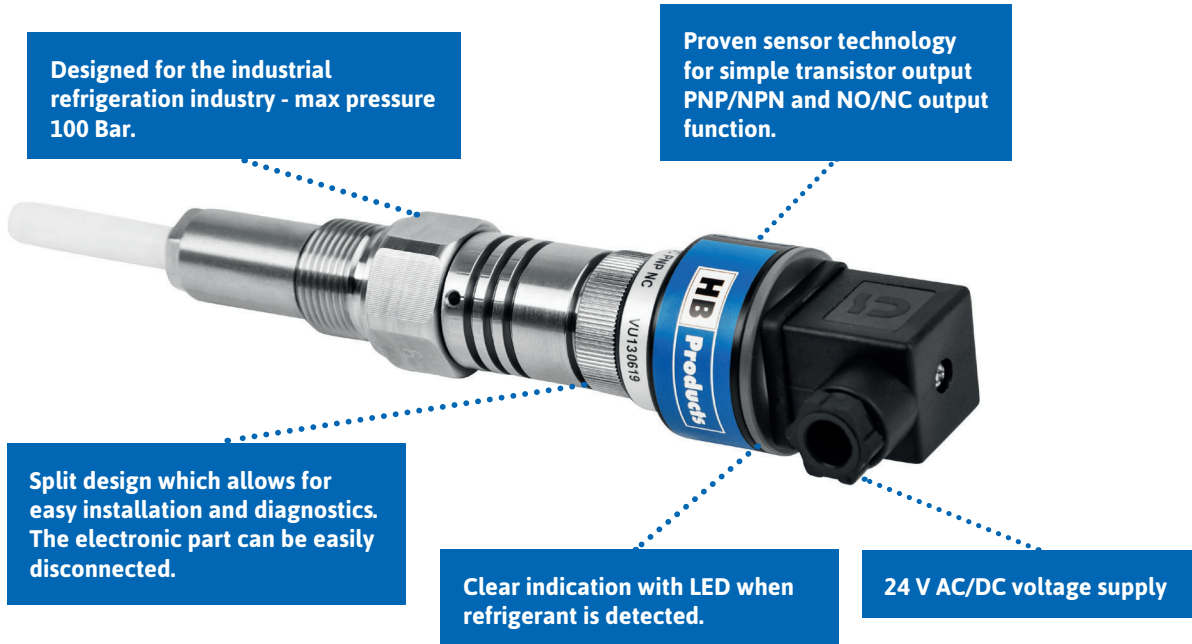


NH₃ Refrigerant Level Switch - 24 V AC/DC

Category: HBSR-U & HBSR-U-L

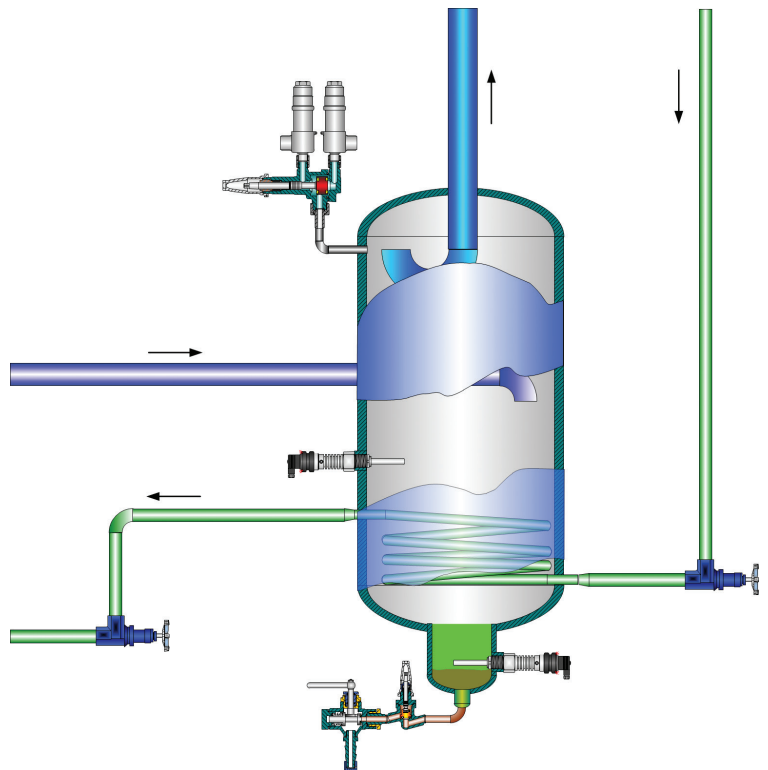


Functional description

HBSR-U is a level switch for the detection of NH₃ and Brine refrigerants.

Typically it is installed in/on the refrigerant vessels, pump separators, economizers or heat exchanger.

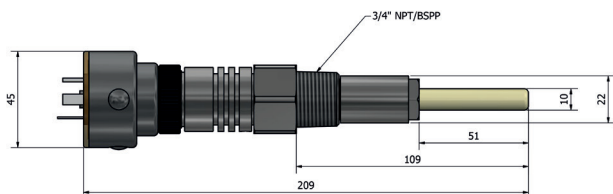
The sensor is specially built to resist high pressure and low temperatures.



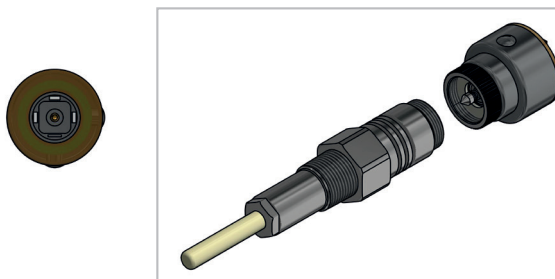
Technical data

Power supply		Mechanical specifications	
Voltage	24 V AC/DC + 10%	Thread connection	NPT / BSPP / BSPT
Max. current output	Max 50 mA	Material – mechanical parts	AISI 304 / PTFE
Current consumption	< 10 mA	Material – electronic parts	Nylon 6 (PA)
Plug connection	DIN 43650 - 4 pins	Dimensions for HBSR-U	209x51x45
Output		Dimensions for HBSR-U-L	259x101x45
Output type	PNP or NPN - 50 mA	Environmental conditions	
Output function	NC or NO	Ambient temperature	-30...+50°C
LED indication	4 x LED (red)	Refrigerant temperature*	-60...+80°C
Cable specification*		Max pressure	100 bar
Cable size	3 x 0.34 mm ²	Protection degree	IP65
Cable glands	PG7 / M8	Vibrations	IEC 68-2-6 (4g)
Cable resistance	500 Ω/Km		
Approvals			
CE	EN 61000-2		

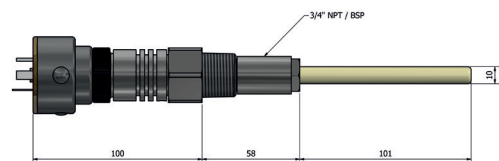
Mechanical dimensions for HBSR-U



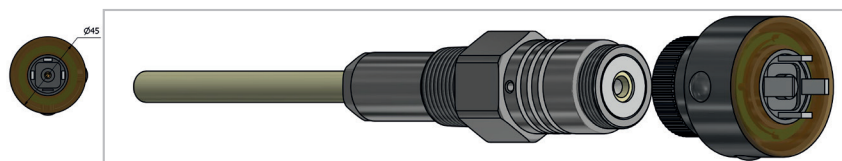
Thread to be sealed with conductive liquid sealing to ensure ground connection.



Mechanical dimensions for HBSR-U-L

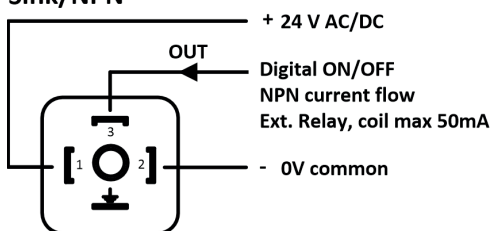


Thread to be sealed with conductive liquid sealing to ensure ground connection.

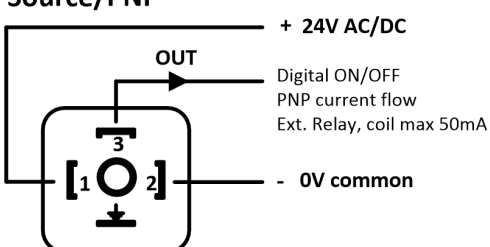


Electrical installation

Sink/NPN



Source/PNP



Sensor relay specifications:

- A) Voltage: 24 V,
B) Max coil resistance: 475 ohm
C) Coil effect: 1.2 W

Example on relay types:

- SCHRACK type MT221024
- OMRON type G22A-432A

Function of charge output on pin 3 & 4

- NC: no signal when it is red
NO: signal when it is red

4 x LED are always activated when approximately half of the sensor is covered or immersed in ammonia

Ordering codes for HBSR-U-L

Output	Thread type (G)	Length	Ordering code
PNP / NO	3/4" NPT	160 mm	HBSR-U-L-PNP/NO-2
PNP / NC	3/4" NPT	160 mm	HBSR-U-L-PNP/NC-2
PNP / NO	3/4" BSPT	160 mm	HBSR-U-L-PNP/NO-4
PNP / NC	3/4" BSPT	160 mm	HBSR-U-L-PNP/NC-4
PNP / NO	3/4" BSPP	160 mm	HBSR-U-L-PNP/NO-6
PNP / NC	3/4" BSPP	160 mm	HBSR-U-L-PNP/NC-6
NPN / NO	3/4" NPT	160 mm	HBSR-U-L-NPN/NO-2
NPN / NC	3/4" NPT	160 mm	HBSR-U-L-NPN/NC-2
NPN / NO	3/4" BSPT	160 mm	HBSR-U-L-NPN/NO-4
NPN / NC	3/4" BSPT	160 mm	HBSR-U-L-NPN/NC-4
NPN / NO	3/4" BSPP	160 mm	HBSR-U-L-NPN/NO-6
NPN / NC	3/4" BSPP	160 mm	HBSR-U-L-NPN/NC-6

Ordering codes for HBSR-U

Output	Thread type (G)	Ordering code
PNP / NO	1/2" NPT	HBSR-U-PNP/NO-1
PNP / NC	1/2" NPT	HBSR-U-PNP/NC-1
PNP / NO	3/4" NPT	HBSR-U-PNP/NO-2
PNP / NC	3/4" NPT	HBSR-U-PNP/NC-2
PNP / NO	3/4" BSPT	HBSR-U-PNP/NO-4
PNP / NC	3/4" BSPT	HBSR-U-PNP/NC-4
PNP / NO	1/2" BSPP	HBSR-U-PNP/NO-5
PNP / NC	1/2" BSPP	HBSR-U-PNP/NC-5
PNP / NO	3/4" BSPP	HBSR-U-PNP/NO-6
PNP / NC	3/4" BSPP	HBSR-U-PNP/NC-6
NPN / NO	1/2" NPT	HBSR-U-NPN/NO-1
NPN / NC	1/2" NPT	HBSR-U-NPN/NC-1
NPN / NO	3/4" NPT	HBSR-U-NPN/NO-2
NPN / NC	3/4" NPT	HBSR-U-NPN/NC-2
NPN / NO	3/4" BSPT	HBSR-U-NPN/NO-4
NPN / NC	3/4" BSPT	HBSR-U-NPN/NC-4
NPN / NO	1/2" BSPP	HBSR-U-NPN/NO-5
NPN / NC	1/2" BSPP	HBSR-U-NPN/NC-5
NPN / NO	3/4" BSPP	HBSR-U-NPN/NO-6
NPN / NC	3/4" BSPP	HBSR-U-NPN/NC-6

Spare parts for HBSR-U, HBSR-U-L & HBSR

Position	Specification	Type	Ordering code
HBSR-U	Electronic parts	PNP/NO	HBSR-U-EL/PNP/NO
		PNP/NC	HBSR-U-EL/PNP/NC
		NPN/NO	HBSR-U-EL/NPN/NO
		NPN/NC	HBSR-U-EL/NPN/NC
HBSR-U	Mechanical parts	1/2" NPT	HBSR-U-MEK-1
		3/4" NPT	HBSR-U-MEK-2
		3/4" BSPT	HBSR-U-MEK-4
		1/2" BSPP	HBSR-U-MEK-5
		3/4" BSPP	HBSR-U-MEK-6
HBSR-U-L	Electronic parts	PNP/NO	HBSR-U-L-EL/PNP/NO
		PNP/NC	HBSR-U-L-EL/PNP/NC
		NPN/NO	HBSR-U-L-EL/NPN/NO
		NPN/NC	HBSR-U-L-EL/NPN/NC
HBSR-U-L	Mechanical parts	3/4" NPT	HBSR-U-L-MEK-2
		3/4" BSPT	HBSR-U-L-MEK-4
		3/4" BSPP	HBSR-U-L-MEK-6
HBSR	Electronic parts	PNP/NO	HBSR-EL/PNP/NO
		PNP/NC	HBSR-EL/PNP/NC
		NPN/NO	HBSR-EL/NPN/NO
		NPN/NC	HBSR-EL/NPN/NC