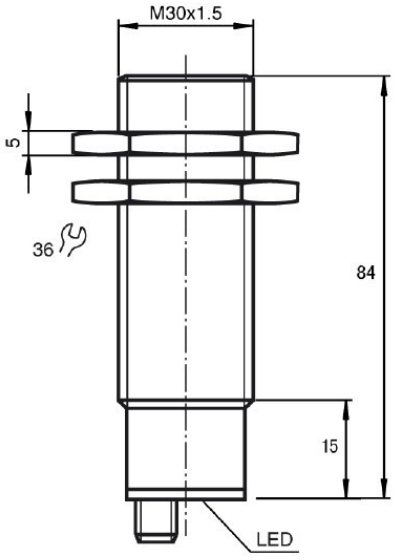
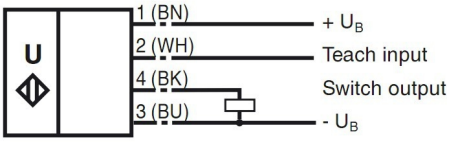
Ultrasonic sensor

UB2000-30GM-E5-V1

Technical data	
General Specifications	
Sensing distance	80…2000mm
Adjustment range	120…2000mm
Unusable area	0…80mm
Standard target plate	100mm×100mm
Transducer frequency	About 112kHz
Response delay	About 195ms
Indicators/Operating means	
LED blue	Power on
LED yellow	indication of the switching state Flashing:program function object detected
LED red	permanently red: Error Red,flashing:program function,object not detected
Electrical specifications	
Operating voltage U_B	10…30VDC,ripple10%ss
No-load supply current	≤20mA
Input	
Input type	1 TEACH-IN input Operating distance A1:-U_B…+1V,operating distanceA2:+6…+ U_B Input impedance:＞4.7KΩ TEACH-IN programmable pulse :≥1S
Output	
Output type	1 switch output E5,PNP NO/NC,programmable
Rated operational current	200mA,short-circuit/overload protected
Default setting	Switching point A1:70mm Switching point A2: 800mm
Voltage drop	≤ 3V
Repeat accuracy	≤ 1%
Switching frequency f	≤ 4HZ
Range hysteresis H	1% of the set operating distance
Temperature influence	± 1.5% of full-scale value
Ambient conditions	
Ambient temperature	-25…70℃(248...343K)
Storage temperature	-40…85℃(233...358K)
Mechanical specifications	
Protection grade	IP67
Connection	V1 connector(M12×1),4-pin
Material Housing	brass,nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane,cover PBT
Weight	25g
Compliance with standards and di	
Standard conformity	EN 60947-5-2:2007 IEC 60947-5-2:2007

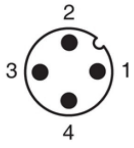


Standard symbol/Connections:
(version E5, pnp)



Core colours in accordance with EN 60947-5-2.

V1 Connector



Adjusting the switching points

The ultrasonic sensor features a switch output with two teachable switching points. These are set by applying the supply voltage - U_B or + U_B to the TEACH-IN input. The supply voltage must be applied to the TEACH-IN input for at least 1 s.LEDs indicate whether the sensor has recognised the target during the TEACH-IN procedure. Switching point A1 is taught with - U_B,A2 with +U_B. Five different output functions can be set.

1. Window mode, normally-open function.
2. Window mode, normally-closed function.
3. One switching point,normally-open function
4. One switching point,normally-closed function.
5. Detection of objet presence.

Switching point, Setting distance only after power on. The internal clock can assure can't be changed after 5 mins when power on. If want to change the switching point, the user can only setting the request distance after power restart.

TEACH-IN window mode,normally-open function

-Set target to near switching point

-TEACH-IN switching point A1 with - U_B

-Set target to far switching point

-TEACH-IN switching point A2 with + U_B

TEACH-IN window mode,normally-closed function

-Set target to near switching point

-TEACH-IN switching point A2 with + U_B

-Set target to far switching point

-TEACH-IN switching point A1 with - U_B

TEACH-IN switching point, normally-open function

-Set target to near switching point

-TEACH-IN switching point A2 with + U_B

-Cover sensor with hand or remove all objects from sensing range

-TEACH-IN switching point A1 with - U_B

TEACH-IN switching point, normally-closed function

-Set target to near switching point

-TEACH-IN switching point A1 with - U_B

-Cover sensor with hand or remove all objects from sensing range

-TEACH-IN switching point A2 with + U_B

TEACH-IN detection of objects presence

-Cover sensor with hand or remove all objects from sensing range

-TEACH-IN switching point A1 with - U_B

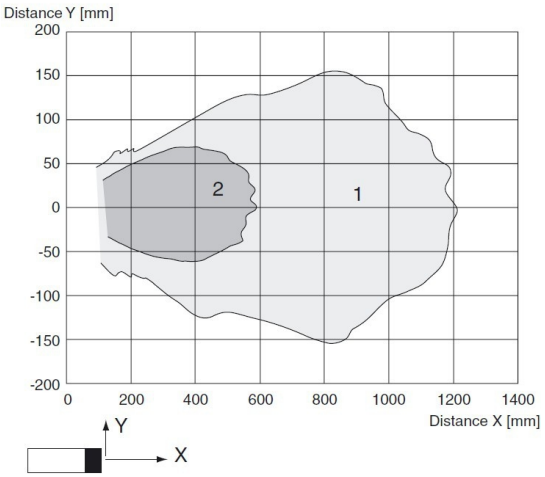
-TEACH-IN switching point A2 with + U_B

Default setting of switching point

A1=blind range,A2=nominal distance

LED displays		
Displays in dependence on operating mode	Red LED	Yellow LED
TEACH-IN switching point		
Object detected	off	flashes
No object detected	flashes	off
Object uncertain(TEACH-IN invalid)	On	off
Normal operation	off	Switching state
Fault	on	Previous state

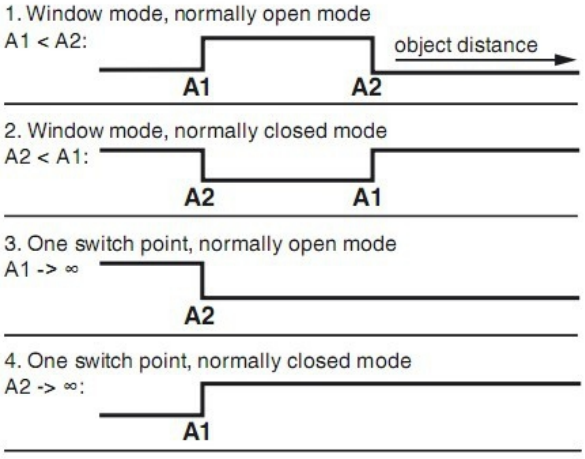
Characteristic response curve



Curve1:flat surface 100mm×100mm

Curve2:round bar,Φ25mm

Programmable output modes



5. A1 -> ∞, A2 -> ∞: Object presence detection mode
   Object detected: Switch output closed
   No object detected: Switch output open

Installation conditions

If the sensor is installed at the environment temperature fall below 0℃,It should do well on the protective measures. In case of direct mounting of the sensor in a through hole using the steel nuts, it has to be fixed at the middle of the housing thread.