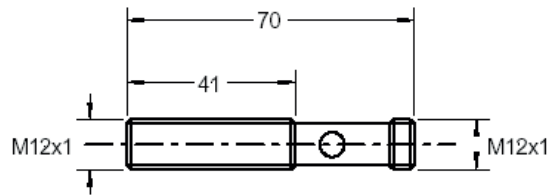
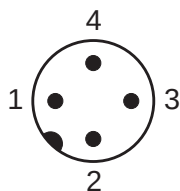




ULTRASONIC SENSORS

Dimensions mm

TECHNICAL CHARACTERISTICS

DETECTION TYPE		DIRECT REFLECTION
Detection range	mm	20 ÷ 200
Hysteresis	mm	≤ 1
Operating frequency	KHz	~ 400
Switching speed max.	Hz	13
VDC voltage (Ripple ≤10%)	V	10 ÷ 30
Mean consumption	mA	~ 30
Status indicator		LED yellow/red
Operating temperature	°C	-25 ÷ +70
Protection class		IP65
Housing material		Nickel plated brass
Electrical connection		H - 4 pin

WIRING DIAGRAM

VIEW OF MALE CONNECTOR H

- 1 = Brown / +24VDC
- 2 = White / teach
- 3 = Blue / 0V
- 4 = Black / output PNP

DETECTION RANGE

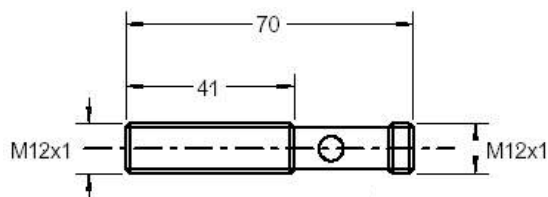

Unit of measurement : mm

- The detection beam of an ultrasonic sensor has the shape of a cone. The size depends on the target and its sound reflecting characteristics.
- The cones of sensitivity of two different ultrasonic sensors with the same operating frequency must NEVER intersect , or they do not work properly.

- CYLINDRICAL METALLIC HOUSING M12x1
- ANALOGUE OUTPUT 0...10V



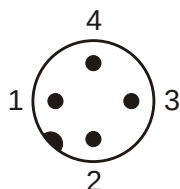
Dimensions mm



TECHNICAL CHARACTERISTICS

DETECTION TYPE		DIRECT REFLECTION
Detection range	mm	20 ÷ 200
Analogue output (RL min.1Kohm)	V	0 ÷ 10
Operating frequency	KHz	~ 400
VDC voltage (Ripple ≤10%)	V	15 ÷ 30
Mean consumption	mA	~ 30
Status indicator		LED yellow/red
Operating temperature	°C	-25 ÷ +70
Protection class		IP65
Housing material		Nickel plated brass
Electrical connection		H - 4 pin

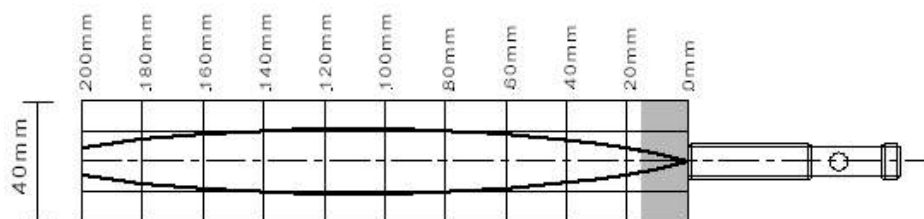
WIRING DIAGRAM



VIEW OF MALE CONNECTOR H

- 1 = Brown / +24VDC
 2 = White / teach
 3 = Blue / 0V
 4 = Black / output 0...10V

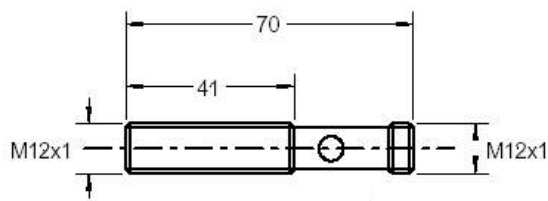
DETECTION RANGE



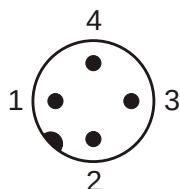
Unit of measurement : mm

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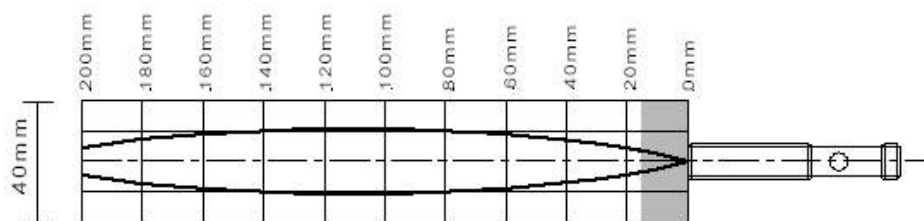
- CYLINDRICAL METALLIC HOUSING M12x1
- ANALOGUE OUTPUT 0...20mA


Dimensions mm

TECHNICAL CHARACTERISTICS

DETECTION TYPE		DIRECT REFLECTION
Detection range	mm	20 ÷ 200
Analogue output (RL max. 300ohm)	mA	4 ÷ 20
Operating frequency	KHz	~ 400
VDC voltage (Ripple ≤10%)	V	10 ÷ 30
Mean consumption	mA	~ 30
Status indicator		LED yellow/red
Operating temperature	°C	-25 ÷ +70
Protection class		IP65
Housing material		Nickel plated brass
Electrical connection		H - 4 pin

WIRING DIAGRAM

VIEW OF MALE CONNECTOR H

- 1 = Brown / +24VDC
 2 = White / teach
 3 = Blue / 0V
 4 = Black / output 4...20mA

DETECTION RANGE


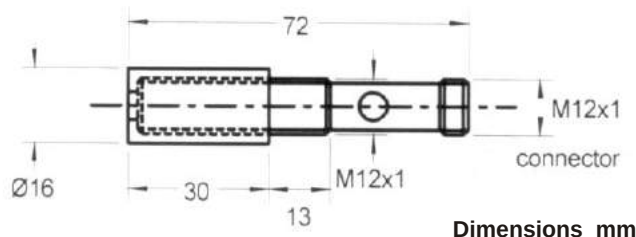
Unit of measurement : mm

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- CYLINDRICAL METALLIC HOUSING M12x1
- ANALOGUE OUTPUT 0...10V

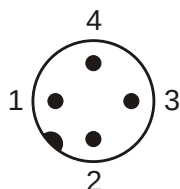


TECHNICAL CHARACTERISTICS



DETECTION TYPE		DIRECT REFLECTION
Detection range	mm	20 ÷ 150
Analogue output (RL min.1Kohm)	V	0 ÷ 10
Operating frequency	KHz	~ 400
VDC voltage (Ripple ≤10%)	V	15 ÷ 30
Mean consumption	mA	~ 30
Status indicator		LED yellow/red
Operating temperature	°C	-25 ÷ +70
Protection class		IP65
Housing material		Nickel plated brass
Electrical connection		H - 4 pin

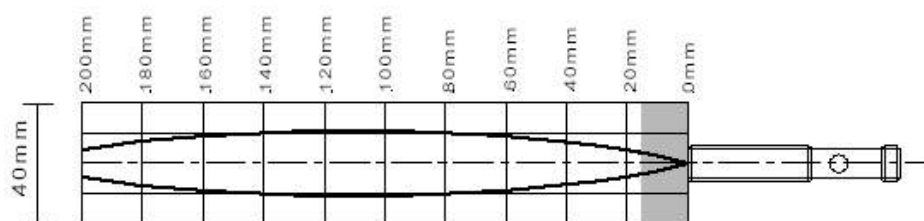
WIRING DIAGRAM



VIEW OF MALE CONNECTOR H

- 1 = Brown / +24VDC
 2 = White / teach
 3 = Blue / 0V
 4 = Black / output 0...10V

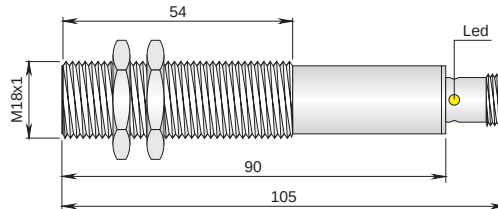
DETECTION RANGE



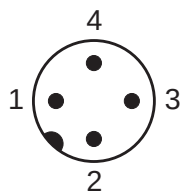
Unit of measurement : mm

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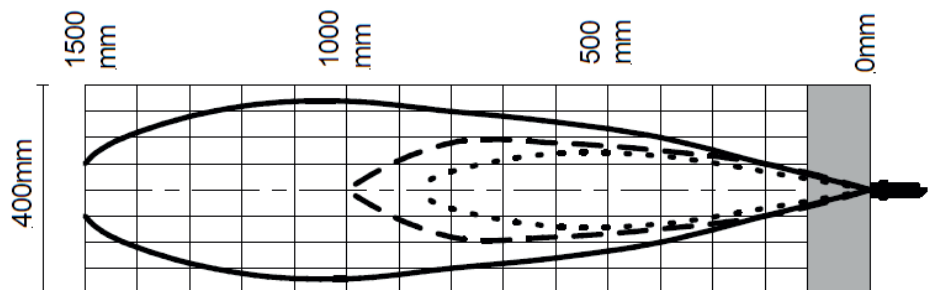
- CYLINDRICAL METALLIC HOUSING M18x1
- ANALOGUE OUTPUT 0...10V / 0...20mA


Dimensions mm

TECHNICAL CHARACTERISTICS

DETECTION TYPE		DIRECT REFLECTION
Detection range	mm	120 ÷ 1500
Analogue output		0...10V (RL min 10KΩ) 4...20mA (RL max 400Ω)
Operating frequency	KHz	~ 180
VDC voltage (Ripple ≤10%)	V	11 ÷ 30
Mean consumption	mA	~ 45...65
Status indicator		LED yellow/red
Operating temperature	°C	0 ÷ +60
Protection class		IP67
Housing material		Nickel plated brass
Electrical connection		H (M12) - 4 pin

WIRING DIAGRAM

VIEW OF MALE CONNECTOR H

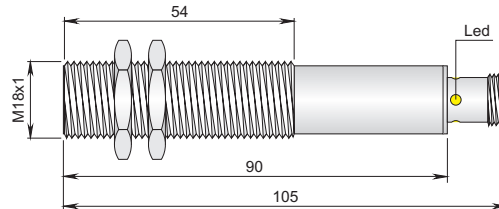
- 1 = Brown / +24VDC
- 2 = White / teach
- 3 = Blue / 0V
- 4 = Black / output 0..10V / 4..20mA

DETECTION RANGE


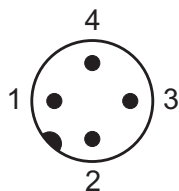
Unit of measurement : mm

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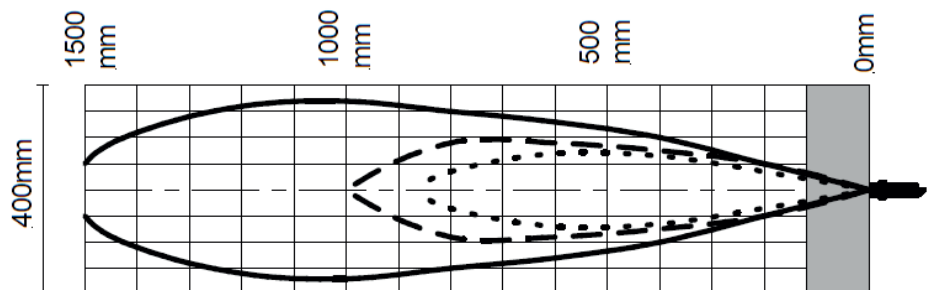
- CYLINDRICAL METALLIC HOUSING M18x1
- BINARY OUTPUT PNP NO/NC


Dimensions mm

TECHNICAL CHARACTERISTICS

DETECTION TYPE		DIRECT REFLECTION
Detection range	mm	120 ÷ 1500
Binary output		PNP NO/NC
Operating frequency	KHz	~ 180
VDC voltage (Ripple ≤10%)	V	11 ÷ 30
Mean consumption	mA	~ 45
Status indicator		LED yellow/red
Operating temperature	°C	0 ÷ +60
Protection class		IP67
Housing material		Nickel plated brass
Electrical connection		H (M12) - 4 pin

WIRING DIAGRAM

VIEW OF MALE CONNECTOR H

- 1 = Brown / +24VDC
 2 = White / teach
 3 = Blue / 0V
 4 = Black / output PNP NO/NC

DETECTION RANGE


Unit of measurement : mm

- The detection beam of an ultrasonic sensor has the shape of a cone. The size depends on the target and its sound reflecting characteristics.
- The cones of sensitivity of two different ultrasonic sensors with the same operating frequency must NEVER intersect, or they do not work properly.

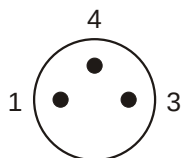
- PLASTIC HOUSING
"R-SHAPE" STANDARD

- ADJUSTABLE SENSITIVITY
- ADJUSTABLE T_{off} OUTPUT



Dimensions mm		TOP VIEW
TECHNICAL CHARACTERISTICS		
DETECTION TYPE		DIRECT REFLECTION
Adjustable sensing distance (Sn)	mm	120 ÷ 500
Hysteresis	% Sn	10
Operating frequency	KHz	175
Switching frequency	Hz	2
Max switching time (On)	ms	10
Max switching time (Off) adj.	S	0.4 ÷ 8
VDC voltage (Ripple ≤10%)	V	12 ÷ 28
Max output current	mA	100
Mean consumption (output On)	mA	55
Short circuit protection		present
Status indicator		LED red
Operating temperature	°C	-20 ÷ +50°C
Protection class		IP67
Housing		Polyamide
Plug		H1 - 3 pin

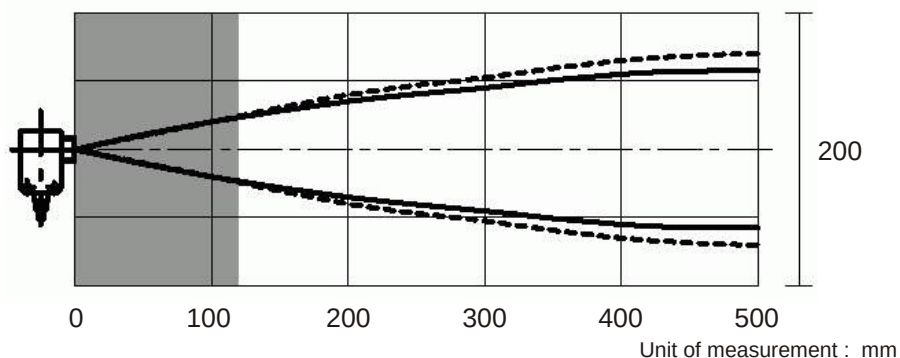
WIRING DIAGRAM



VIEW OF MALE CONNECTOR H1

- 1 = Brown / +
3 = Blue / -
4 = Black / output

DETECTION RANGE



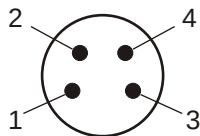
- The cone of sensitivity can vary in function of the detected object. Two typical curves of the cone are shown in the graphic.
- The cones of sensitivity of two different ultrasonic sensors with the same operating frequency must NEVER intersect, or they do not work properly.

- 2 INDIVIDUALLY ADJUSTABLE BINARY OUTPUTS



Dimensions mm		
TECHNICAL CHARACTERISTICS		
		1 2 Pot. Led
DETECTION TYPE		DIRECT REFLECTION
Adjustable sensing distance (Sn)	mm	400 ÷ 5000
Hysteresis of binary output	mm	~ 80
Operating frequency	KHz	~ 80
Switching frequency	Hz	2
Max switching time (T _{on})	ms	~ 700
Max switching time (T _{off})	ms	~ 140
VDC voltage (Ripple ≤10%)	V	15 ÷ 30
Max output current	mA	100
Mean consumption (output On)	mA	65
Short circuit protection		Present
Status indicator		LED red/green
Operating temperature	°C	-20 ÷ +50°C
Protection class		IP67
Housing		Polyamide
Plug		H1 - 4 pin

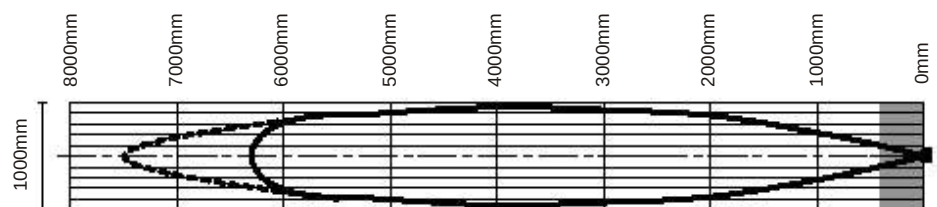
WIRING DIAGRAM



VIEW OF MALE CONNECTOR H1

- 1 = Brown / +
- 2 = White / output 2
- 3 = Blue / -
- 4 = Black / output 1

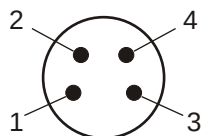
DETECTION RANGE



- The cone of sensitivity can vary in function of the detected object. Two typical curves of the cone are shown in the graphic.
- The cones of sensitivity of two different ultrasonic sensors with the same operating frequency must NEVER intersect, or they do not work properly.

Dimensions mm			
TECHNICAL CHARACTERISTICS			
		1 2 Pot. Led	
DETECTION TYPE		DIRECT REFLECTION	
Adjustable sensing distance (Sn)	mm	250 ÷ 2500	
Hysteresis	mm	~ 40	
Operating frequency	KHz	~ 120	
Switching frequency	Hz	3	
Max switching time (T _{on})	ms	~ 200	
Max switching time (T _{off})	ms	~ 120	
VDC voltage (Ripple ≤10%)	V	15 ÷ 30	
Max output current	mA	100	
Mean consumption (output On)	mA	60	
Short circuit protection		Present	
Status indicator		LED red/green	
Operating temperature	°C	-20 ÷ +50°C	
Protection class		IP67	
Housing		Polyamide	
Plug		H1 - 4 pin	

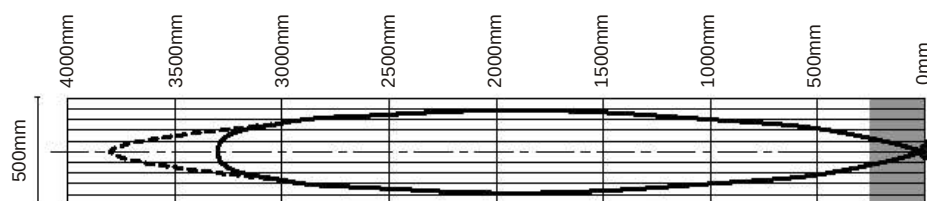
WIRING DIAGRAM



VIEW OF MALE CONNECTOR H1

- 1 = Brown / +
 2 = White / output 2
 3 = Blue / -
 4 = Black / output 1

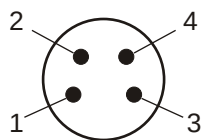
DETECTION RANGE



- The cone of sensitivity can vary in function of the detected object. Two typical curves of the cone are shown in the graphic.
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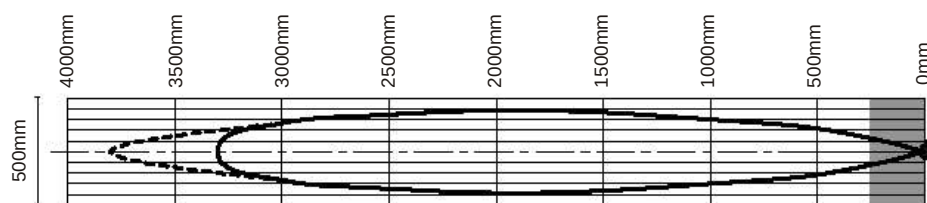
- 1 BINARY OUTPUT PNP NO
- 1 ANALOGUE OUTPUT 0...10V
- PLASTIC HOUSING

Dimensions mm			
TECHNICAL CHARACTERISTICS			
		DETECTION TYPE	
		DIRECT REFLECTION	
Adjustable sensing distance (Sn)	mm	250 ÷ 2500	
Hysteresis of binary output	mm	~ 40	
Analogue output (RL min.10Kohm)	V	0...10	
Operating frequency	KHz	~ 120	
Switching frequency	Hz	3	
Max switching time (T _{on})	ms	~ 200	
Max switching time (T _{off})	ms	~ 120	
VDC voltage (Ripple ≤10%)	V	15 ÷ 30	
Max output current (binary output)	mA	100	
Mean consumption (output On)	mA	60	
Short circuit protection		Present	
Status indicator		LED red	
Operating temperature	°C	-20 ÷ +50°C	
Protection class		IP67	
Housing		Polyamide	
Plug		H1 - 4 pin	

WIRING DIAGRAM

VIEW OF MALE CONNECTOR H1

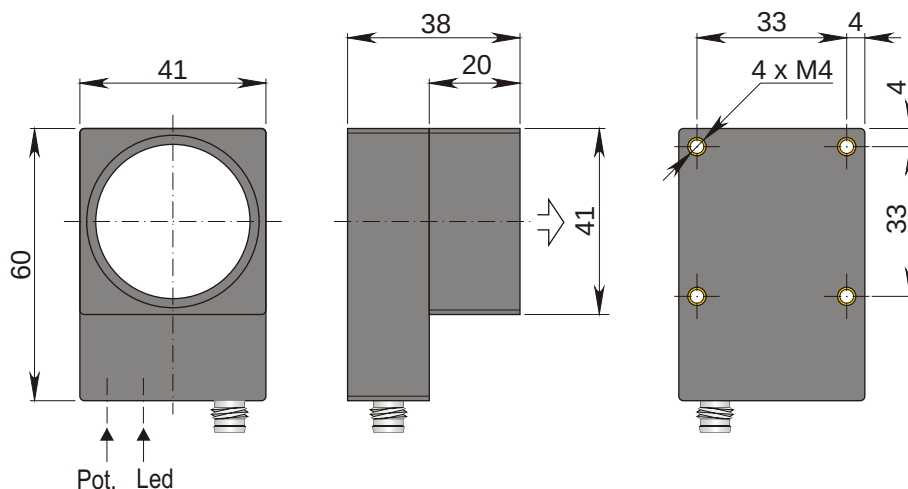
- 1 = Brown / +
 2 = White / analog output
 3 = Blue / -
 4 = Black / binary output

DETECTION RANGE

- The cone of sensitivity can vary in function of the detected object. Two typical curves of the cone are shown in the graphic.
- The cones of sensitivity of two different ultrasonic sensors with the same operating frequency must NEVER intersecate , or they do not work properly.

- 1 BINARY OUTPUT PNP NO
- 1 ANALOGUE OUTPUT 0...10V
- PLASTIC HOUSING (POLYAMIDE)

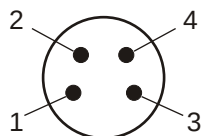
Dimensions mm



TECHNICAL CHARACTERISTICS

DETECTION TYPE		DIRECT REFLECTION
Adjustable sensing distance (Sn)	mm	400 ÷ 5000
Hysteresis of binary output	mm	~ 80
Analogue output (RL min.10Kohm)	V	0...10
Operating frequency	KHz	~ 80
Switching frequency	Hz	2
Max switching time (T _{on})	ms	~ 700
Max switching time (T _{off})	ms	~ 140
VDC voltage (Ripple ≤10%)	V	15 ÷ 30
Max output current (binary output)	mA	100
Mean consumption (output On)	mA	65
Short circuit protection		Present
Status indicator		LED red
Operating temperature	°C	-20 ÷ +50°C
Protection class		IP67
Plug		H1 - 4 pin

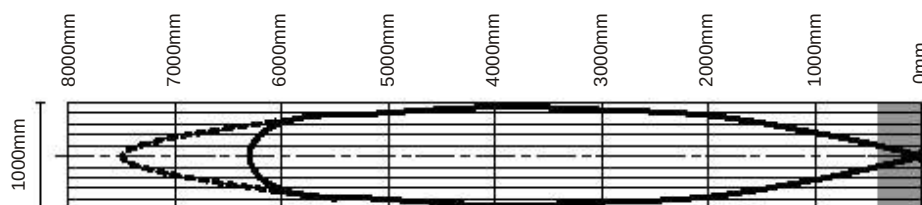
WIRING DIAGRAM



VIEW OF MALE CONNECTOR H1

- 1 = Brown / +
 2 = White / analog output
 3 = Blue / -
 4 = Black / binary output

DETECTION RANGE

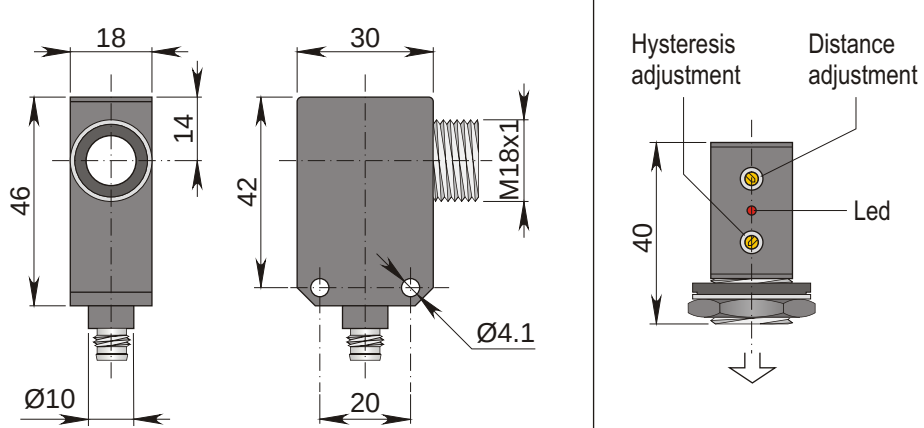
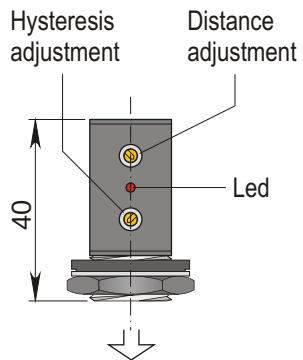


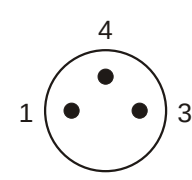
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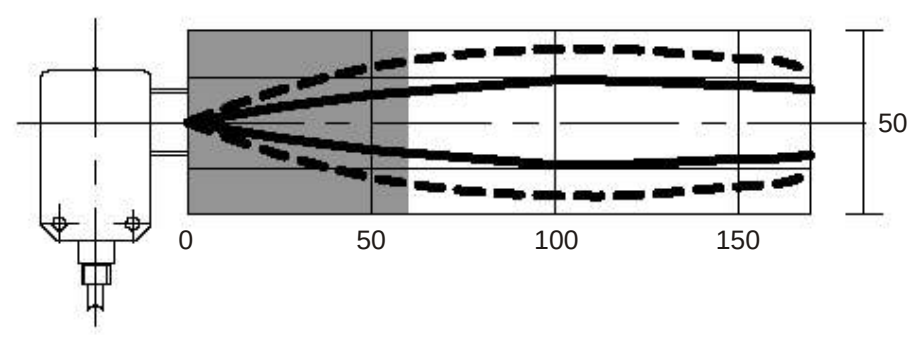
- PLASTIC HOUSING
"R-SHAPE" STANDARD

- ADJUSTABLE SENSITIVITY
- ADJUSTABLE HYSTERESIS

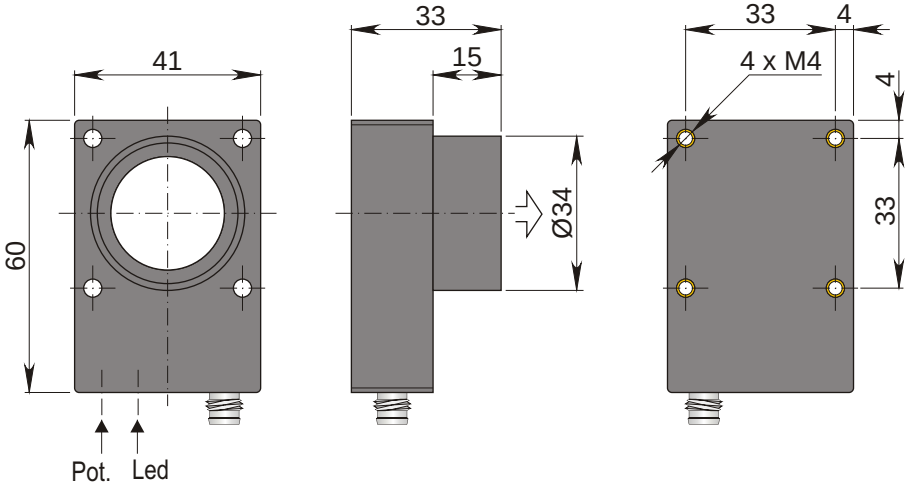


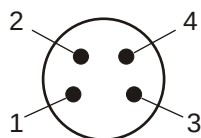
Dimensions mm 	TOP VIEW 
TECHNICAL CHARACTERISTICS	DETECTION TYPE
DETECTION TYPE	DIRECT REFLECTION
Adjustable sensing distance (Sn)	mm
Hysteresis (Adjustable)	% Sn
Operating frequency	kHz
Switching frequency	Hz
Max switching time (On)	ms
Max switching time (Off)	s
VDC voltage (Ripple $\leq 10\%$)	V
Max output current	mA
Mean consumption (output On)	mA
Short circuit protection	present
Status indicator	LED red
Operating temperature	°C
Protection class	IP67
Housing	Polyamide
Plug	H1 - 3 pin

WIRING DIAGRAM
 VIEW OF MALE CONNECTOR H1 1 = Brown / + 3 = Blue / - 4 = Black / output

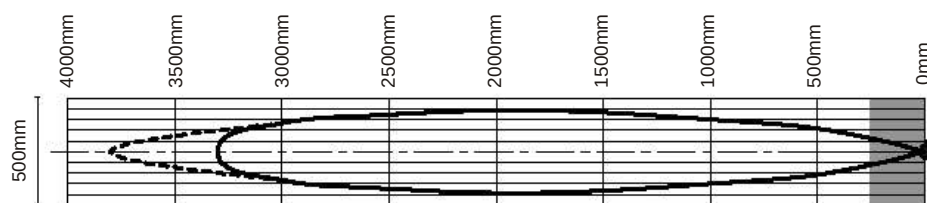
DETECTION RANGE
 Unit of measurement : mm - The cone of sensitivity can vary in function of the detected object. Two typical curves of the cone are shown in the graphic. - The cones of sensitivity of two different ultrasonic sensors with the same operating frequency must NEVER intersect, or they do not work properly.

- 1 BINARY OUTPUT PNP NO
- 1 ANALOGUE OUTPUT 4...20mA
- PLASTIC HOUSING

Dimensions mm			
TECHNICAL CHARACTERISTICS			
		DETECTION TYPE	
		DIRECT REFLECTION	
Adjustable sensing distance (Sn)	mm	250 ÷ 2500	
Hysteresis of binary output	mm	~ 40	
Analogue output (RL max. 400Ohm)	mA	4 ... 20	
Operating frequency	KHz	~ 120	
Switching frequency	Hz	3	
Max switching time (T _{on})	ms	~ 200	
Max switching time (T _{off})	ms	~ 120	
VDC voltage (Ripple ≤10%)	V	15 ÷ 30	
Max output current (binary output)	mA	100	
Mean consumption (output On)	mA	80	
Short circuit protection		Present	
Status indicator		LED red	
Operating temperature	°C	-20 ÷ +50°C	
Protection class		IP67	
Housing		Polyamide	
Plug		H1 - 4 pin	

WIRING DIAGRAM**VIEW OF MALE CONNECTOR H1**

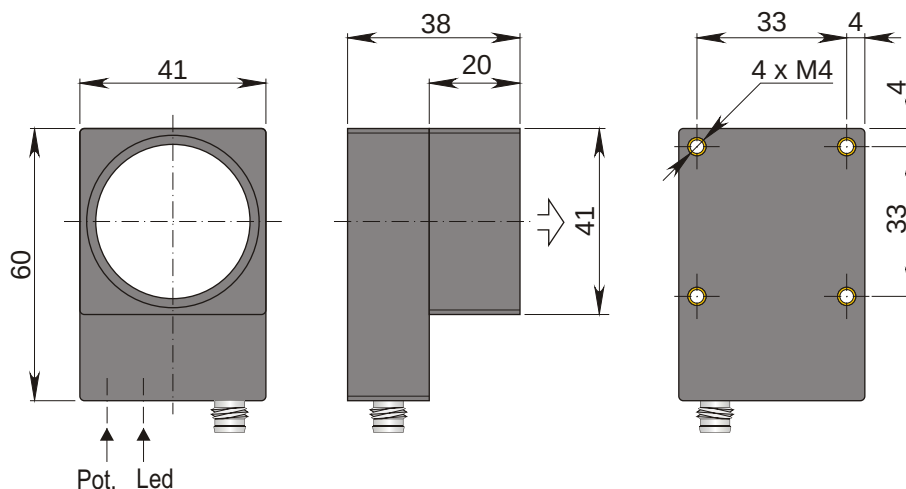
- 1 = Brown / +
 2 = White / analog output
 3 = Blue / -
 4 = Black / binary output

DETECTION RANGE

- The cone of sensitivity can vary in function of the detected object. Two typical curves of the cone are shown in the graphic.
- The cones of sensitivity of two different ultrasonic sensors with the same operating frequency must NEVER intersecate , or they do not work properly.

- 1 BINARY OUTPUT PNP NO
- 1 ANALOGUE OUTPUT 4...20mA
- PLASTIC HOUSING (POLYAMIDE)

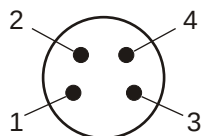
Dimensions mm



TECHNICAL CHARACTERISTICS

DETECTION TYPE		DIRECT REFLECTION
Adjustable sensing distance (Sn)	mm	400 ÷ 5000
Hysteresis of binary output	mm	~ 80
Analogue output (RL max.400Ohm)	mA	4...20
Operating frequency	KHz	~ 80
Switching frequency	Hz	2
Max switching time (T _{on})	ms	~ 700
Max switching time (T _{off})	ms	~ 140
VDC voltage (Ripple ≤10%)	V	15 ÷ 30
Max output current (binary output)	mA	100
Mean consumption (output On)	mA	85
Short circuit protection		Present
Status indicator		LED red
Operating temperature	°C	-20 ÷ +50°C
Protection class		IP67
Plug		H1 - 4 pin

WIRING DIAGRAM



VIEW OF MALE CONNECTOR H1

- 1 = Brown / +
 2 = White / analog output
 3 = Blue / -
 4 = Black / binary output

DETECTION RANGE

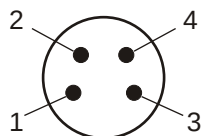


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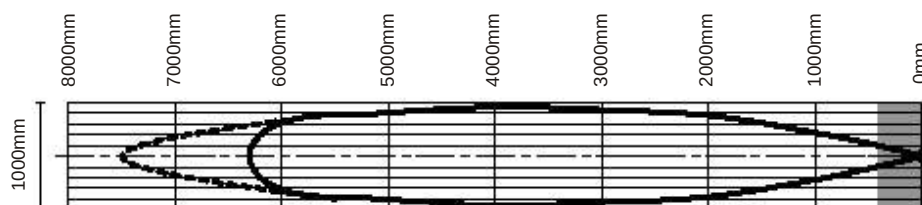
- 1 ANALOGUE OUTPUT 0...10V with "zero" (V_{MIN}) and "full scale" (V_{MAX}) adjustable
- 1 ANALOGUE OUTPUT 4...20mA with "zero" (I_{MIN}) and "full scale" (I_{MAX}) adjustable
- PLASTIC HOUSING (POLYAMIDE)



Dimensions mm		
TECHNICAL CHARACTERISTICS		
		Pot.2 = "Full scale" adjustment V _{MAX} /I _{MAX} Pot.1 = "Zero" adjustment V _{MIN} /I _{MIN}
DETECTION TYPE		DIRECT REFLECTION
Adjustable sensing distance (S _n)	mm	400 ÷ >5000
Analogue output (R _L max.400Ohm)	mA	4...20
Analogue output (R _L min.10KOhm)	V	0...10
Operating frequency	KHz	~ 80
Switching frequency	Hz	2
Max switching time (T _{on})	ms	~ 700
Max switching time (T _{off})	ms	~ 140
VDC voltage (Ripple ≤10%)	V	15 ÷ 30
Mean consumption	mA	85
Operating temperature	°C	-20 ÷ +50°C
Protection class		IP67
Plug		H1 - 4 pin

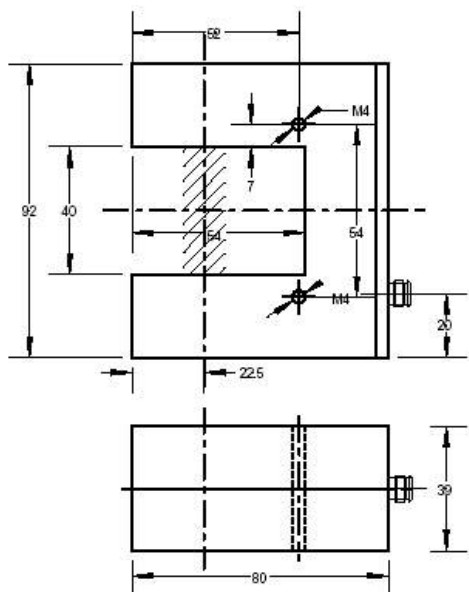
WIRING DIAGRAM

VIEW OF MALE CONNECTOR H1

- 1 = Brown / +
 2 = White / analog output 0...10V
 3 = Blue / -
 4 = Black / analog output 4...20mA

DETECTION RANGE


- The cone of sensitivity can vary in function of the detected object. Two typical curves of the cone are shown in the graphic.
- The cones of sensitivity of two different ultrasonic sensors with the same operating frequency must NEVER intersecate , or they do not work properly.

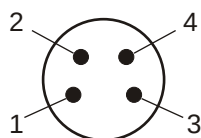
Dimensions mm



TECHNICAL CHARACTERISTICS

Fork width	mm	40
Detection width	mm	~ 13 (±6.5)
Ultrasonic frequency	KHz	~ 130
Output signal	V	0...10
VDC voltage (Ripple ≤10%)	V	8 ÷ 30
Current consumption @24VDC	mA	35
Power indicator		Yellow LED in connector
Operating temperature	°C	0 ÷ +60
Protection class		IP65 (on demand IP67)
Housing material		Black anodized aluminum
Electrical connection		H1 - 4 pin

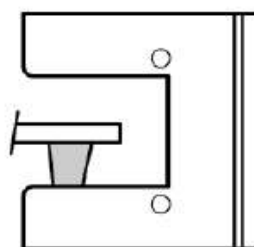
WIRING DIAGRAM



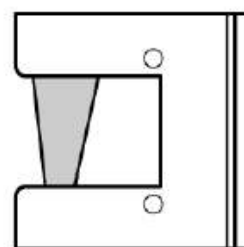
VIEW OF MALE CONNECTOR H1

- 1 = Brown / + 24VDC
 2 = White / analogue output 0...10V
 3 = Blue / 0V
 4 = Black / synchronization input

DETECTION RANGE



0 V DC

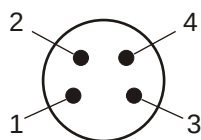


10 V DC

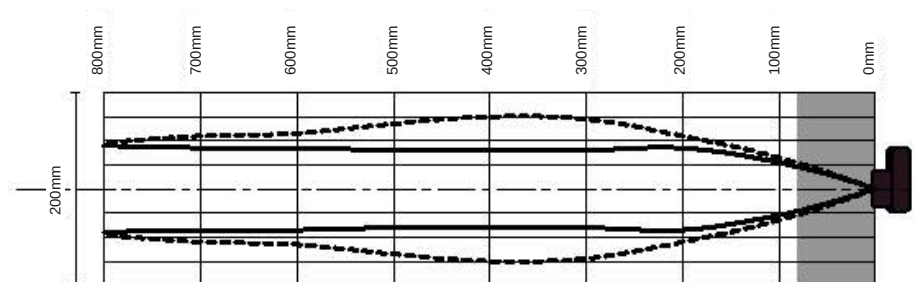
- 1 ANALOGUE OUTPUT 0...10V with "zero" (V_{MIN}) and "full scale" (V_{MAX}) adjustable
- 1 ANALOGUE OUTPUT 4...20mA with "zero" (I_{MIN}) and "full scale" (I_{MAX}) adjustable
- PLASTIC HOUSING (POLYAMIDE)



Dimensions mm		
TECHNICAL CHARACTERISTICS		
		Pot.2 = "Full scale" adjustment V _{MAX} /I _{MAX} Pot.1 = "Zero" adjustment V _{MIN} /I _{MIN}
DETECTION TYPE		DIRECT REFLECTION
Adjustable sensing distance (S _n)	mm	80 ÷ 500
Analogue output (R _L max.400 Ohm)	mA	4...20
Analogue output (R _L min.10 KOhm)	V	0...10
Operating frequency	KHz	~ 180
Switching frequency	Hz	~ 8
Max switching time (T _{on})	ms	~ 50
Max switching time (T _{off})	ms	~ 80
VDC voltage (Ripple ≤10%)	V	15 ÷ 30
Mean consumption	mA	~ 60
Operating temperature	°C	-20 ÷ +50°C
Protection class		IP67
Plug		H1 - 4 pin

WIRING DIAGRAM

VIEW OF MALE CONNECTOR H1

- 1 = Brown / +
 2 = White / analog output 0...10V
 3 = Blue / -
 4 = Black / analog output 4...20mA

DETECTION RANGE


- The cone of sensitivity can vary in function of the detected object. Two typical curves of the cone are shown in the graphic.
- The cones of sensitivity of two different ultrasonic sensors with the same operating frequency must NEVER intersect, or they do not work properly.



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