

A comprehensive solution for industrial applications

ULTRASONIC SENSORS

microsonic-App



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Extract from our online catalogue:

mic ultrasonic sensors

Current to: 2015-01-12

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These completely metal mic sensors are available in two device designs with five different detection ranges.



Highlights

- > **M30 housing and M12 circular connector in metal design** ::: for harsh usage conditions
- > **Automatic synchronisation** ::: for simultaneous operation of up to ten sensors in close quarters

Basics

- > **1 switching output in pnp variant**
- > **Analogue output 4–20 mA and 0–10 V** ::: with automatic switching between current and voltage outputs
- > **5 detection ranges with a measurement range of 30 mm to 8 m**
- > **microsonic Teach-in on pin 5**
- > **0.18 mm to 2.4 mm resolution**
- > **Temperature compensation**
- > **9–30 V operating voltage**
- > **LinkControl** ::: for configuration of sensors from a PC

Description

This very solid construction

is fully made of metal from the M30 housing to the M12 circular connector. Since the sensors do not contain any operating elements or signal lamps, they are especially suited for application under extreme ambient conditions with high mechanical loads for housing and plug connector. The sensors are available in five detection ranges and cover a measuring range of 30mm up to 8m.

Two output levels

are available for all five detection ranges:



1 pnp switching output



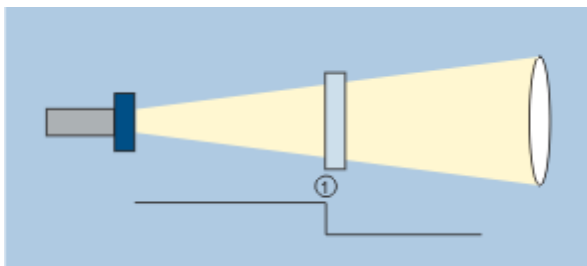
1 analogue output 4-20 mA
and 0-10 V

Sensors with switching output have three operating modes:

- > Single switching point
- > Two-way reflective barrier
- > Window mode

Teach-in of a single switching point

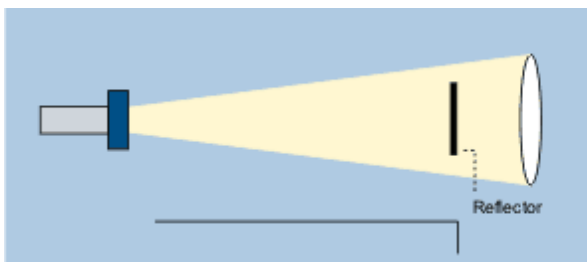
- > Place object to be detected (1) at the desired distance
- > Apply +UB to pin 5 for about 3 seconds
- > Then apply +UB to pin 5 again for about 1 seconds



Teach-in of a switching point

Teach-in of a two-way reflective barrier with a fixed reflector

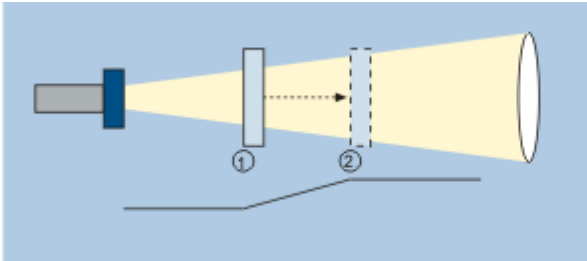
- > Apply +UB to pin 5 for about 3 seconds
- > Then apply +UB to pin 5 again for about 10 seconds



Teach-in of a two-way reflective barrier

For configuration of a window

- > Place object at the near edge of the window (1)
- > Apply +UB to pin 5 for about 3 seconds
- > Then move the object to the far edge of the window (2)
- > Then apply +UB to pin 5 again for about 1 seconds



Teach-in of an analogue characteristic or a window with two switching points

NCC/NOG

and rising/falling analogue characteristic curve can also be set via pin 5.

LinkControl

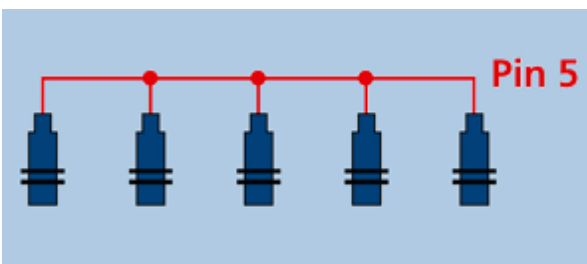
optionally permits the extensive parameterisation of mic sensors. The LCA-2 LinkControl adapter, which is available as an accessory, can be used to connect mic sensors to the PC.



Sensor connected to the PC via LCA-2 for programming

Synchronisation

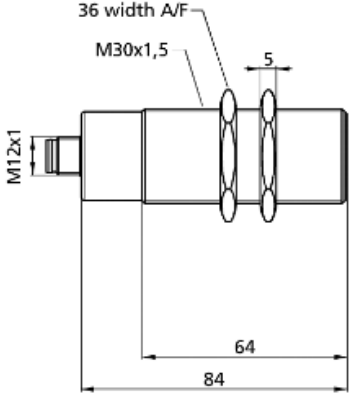
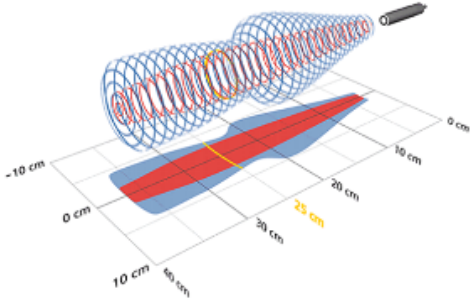


permits the simultaneous use of multiple mic sensors in an application. To avoid mutual interference, the sensors can be synchronised with one another. To do this, all the sensors are electrically connected on pin 5.



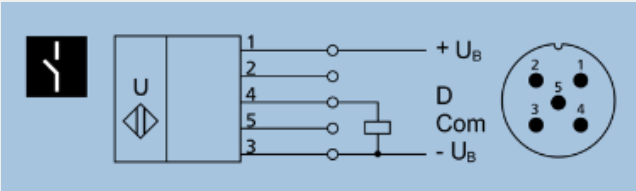
Synchronisation using pin 5

If more than 10 sensors need to be synchronised, this can be carried out with the SyncBox1, which is available as an accessory.

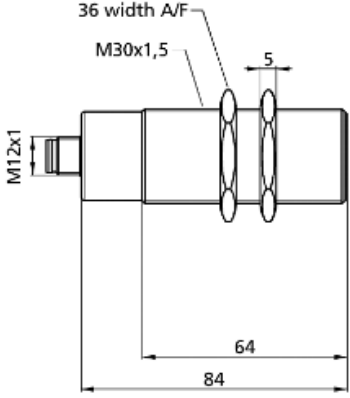
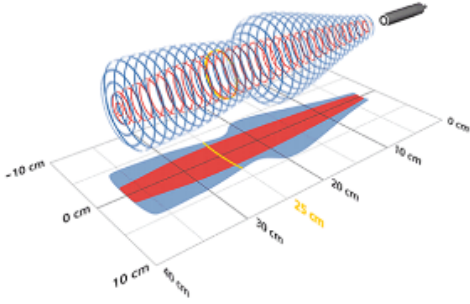


mic-25/D/M

scale drawing	detection zone
	
 1 x pnp	 350 mm
operating range	30 - 250 mm
design	cylindrical M30
operating mode	proximity switch/reflective mode reflective barrier window mode
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	320 kHz
blind zone	30 mm
operating range	250 mm
maximum range	350 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

mic-25/D/M

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
switching hysteresis	3 mm
switching frequency	25 Hz
response time	32 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	140 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	

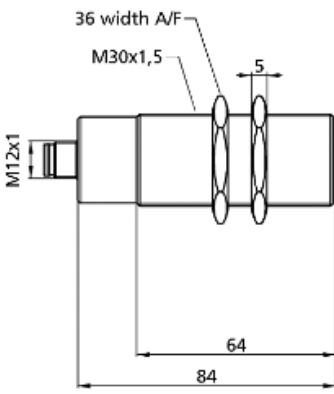
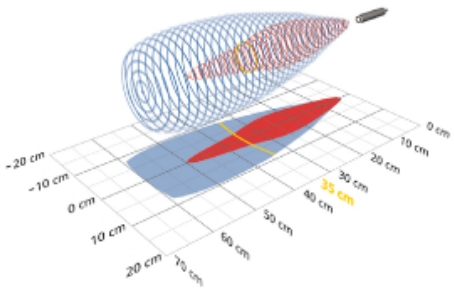


mic-25/IU/M

scale drawing	detection zone
	
 1 x analogue 4-20 mA + 0-10 V	 350 mm
operating range	30 - 250 mm
design	cylindrical M30
operating mode	analogue distance measurements
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	320 kHz
blind zone	30 mm
operating range	250 mm
maximum range	350 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

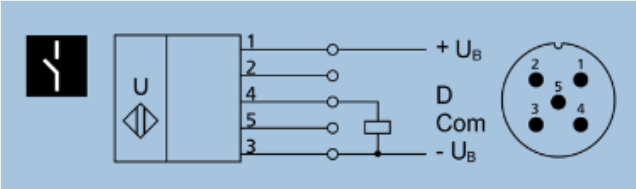
mic-25/IU/M

outputs	
output 1	analogue output current: 4-20 mA / voltage: 0-10 V (at $U_B \geq 15$ V), short-circuit-proof switchable rising/falling
response time	32 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	140 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	

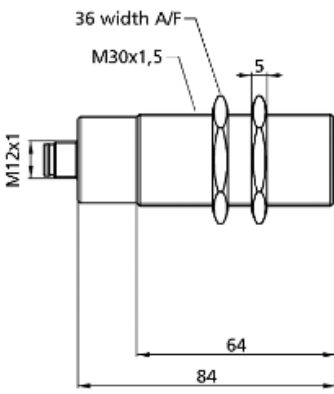
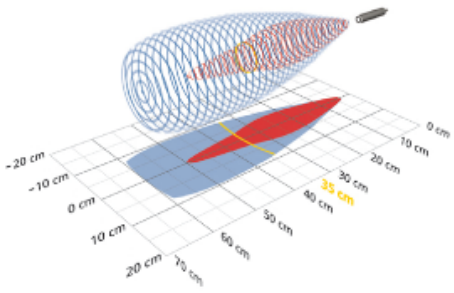


mic-35/D/M

scale drawing	detection zone
	
 1 x pnp	 600 mm
operating range	65 - 350 mm
design	cylindrical M30
operating mode	proximity switch/reflective mode reflective barrier window mode
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	400 kHz
blind zone	65 mm
operating range	350 mm
maximum range	600 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

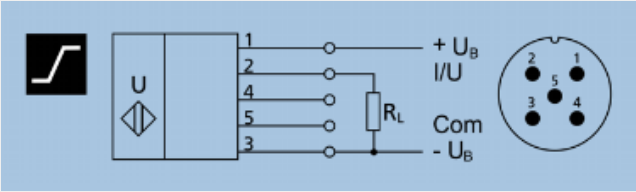
mic-35/D/M

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
switching hysteresis	5 mm
switching frequency	8 Hz
response time	70 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	140 g
further versions	cable connection (on request)
further versions	mic-35/D/M/K6
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	

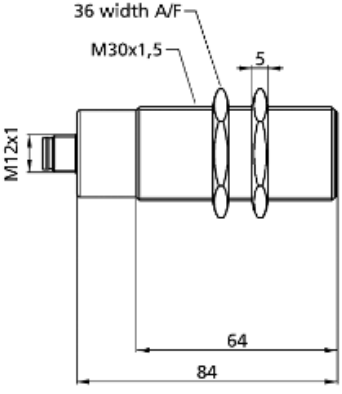
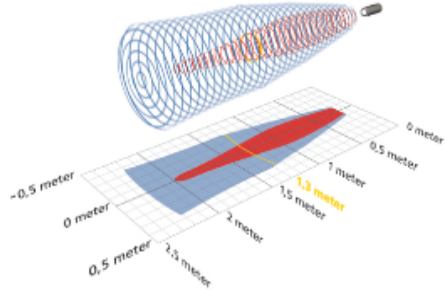


mic-35/IU/M

scale drawing	detection zone
	
 1 x analogue 4-20 mA + 0-10 V	 600 mm
operating range	65 - 350 mm
design	cylindrical M30
operating mode	analogue distance measurements
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	400 kHz
blind zone	65 mm
operating range	350 mm
maximum range	600 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

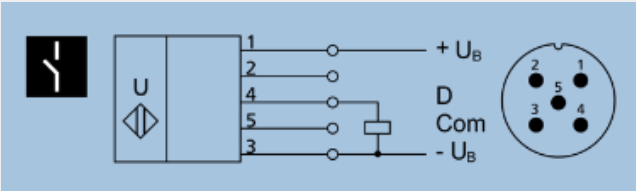
mic-35/IU/M

outputs	
output 1	analogue output current: 4-20 mA / voltage: 0-10 V (at $U_B \geq 15$ V), short-circuit-proof switchable rising/falling
response time	70 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	140 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	

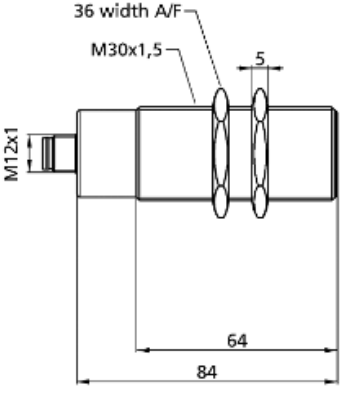
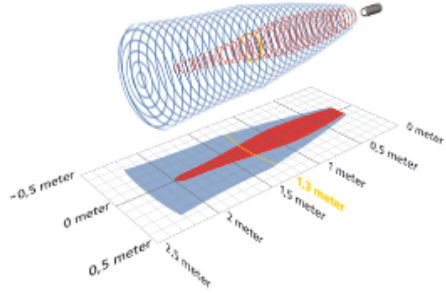


mic-130/D/M

scale drawing	detection zone
	
 1 x pnp	 2,000 mm
operating range	200 - 2.000 mm
design	cylindrical M30
operating mode	proximity switch/reflective mode reflective barrier window mode
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	200 kHz
blind zone	200 mm
operating range	1,300 mm
maximum range	2,000 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

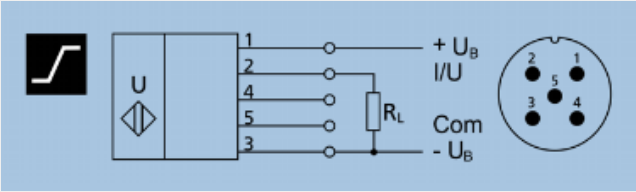
mic-130/D/M

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
switching hysteresis	20 mm
switching frequency	6 Hz
response time	110 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	140 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	



mic-130/IU/M

scale drawing	detection zone
	
 1 x analogue 4-20 mA + 0-10 V	 2,000 mm
operating range	200 - 2.000 mm
design	cylindrical M30
operating mode	analogue distance measurements
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	200 kHz
blind zone	200 mm
operating range	1,300 mm
maximum range	2,000 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm to 0.57 mm, depending on the analogue window
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

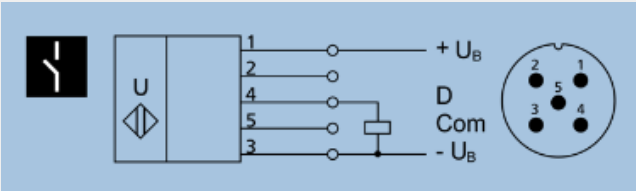
mic-130/IU/M

outputs	
output 1	analogue output current: 4-20 mA / voltage: 0-10 V (at $U_B \geq 15$ V), short-circuit-proof switchable rising/falling
response time	110 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	140 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	



mic-340/D/M

scale drawing	detection zone
 1 x pnp	 5,000 mm
operating range	350 - 3,400 mm
design	cylindrical M30
operating mode	proximity switch/reflective mode
	reflective barrier
	window mode
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	120 kHz
blind zone	350 mm
operating range	3,400 mm
maximum range	5,000 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

mic-340/D/M

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
switching hysteresis	50 mm
switching frequency	3 Hz
response time	180 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	200 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	

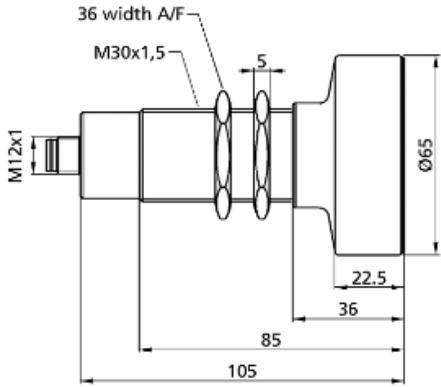
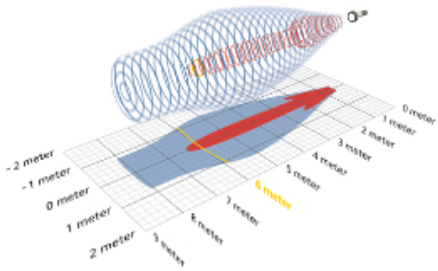


mic-340/IU/M

scale drawing	detection zone
 1 x analogue 4-20 mA + 0-10 V	 5,000 mm
operating range	350 - 3,400 mm
design	cylindrical M30
operating mode	analogue distance measurements
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	120 kHz
blind zone	350 mm
operating range	3,400 mm
maximum range	5,000 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm to 1.5 mm, depending on the analogue window
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

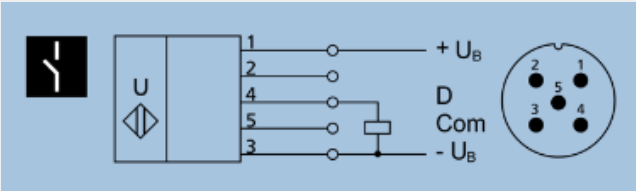
mic-340/IU/M

outputs	
output 1	analogue output current: 4-20 mA / voltage: 0-10 V (at $U_B \geq 15$ V), short-circuit-proof switchable rising/falling
response time	180 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	270 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	

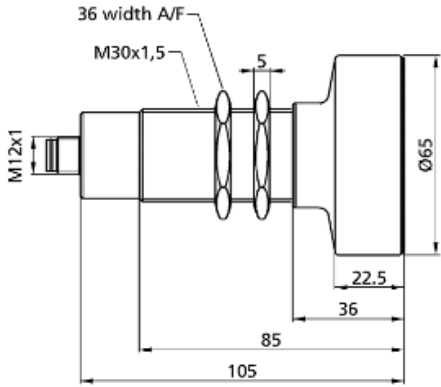
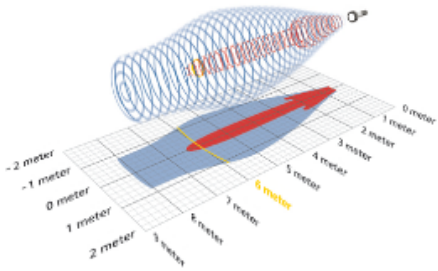


mic-600/D/M

scale drawing	detection zone
	
 1 x pnp	 8,000 mm
operating range	600 - 6,000 mm
design	cylindrical M30
operating mode	proximity switch/reflective mode reflective barrier window mode
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	80 kHz
blind zone	600 mm
operating range	6,000 mm
maximum range	8,000 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

mic-600/D/M

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
switching hysteresis	100 mm
switching frequency	2 Hz
response time	240 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	260 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	

mic-600/IU/M

scale drawing	detection zone
	
 1 x analogue 4-20 mA + 0-10 V	 8,000 mm
operating range	600 - 6,000 mm
design	cylindrical M30
operating mode	analogue distance measurements
particularities	metal plug for harsh operational conditions
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	80 kHz
blind zone	600 mm
operating range	6,000 mm
maximum range	8,000 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.18 mm to 2.4 mm, depending on the analogue window
reproducibility	± 0.15 %
accuracy	± 1 % (temperature drift internally compensated)
electrical data	
operating voltage U_B	9 - 30 V d.c., reverse polarity protection
voltage ripple	± 10 %
no-load current consumption	≤ 55 mA
type of connection	5-pin M12 initiator plug

mic-600/IU/M

outputs	
output 1	analogue output current: 4-20 mA / voltage: 0-10 V (at $U_B \geq 15$ V), short-circuit-proof switchable rising/falling
response time	240 ms
delay prior to availability	< 300 ms
inputs	
input 1	com input teach-in input
housing	
material	brass sleeve, nickel-plated, plastic parts, PBT
ultrasonic transducer	polyurethane foam, epoxy resin with glass contents
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	320 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	com input control input
scope for settings	Teach-in via com input on pin 5 LCA-2 with LinkControl
synchronization	yes
multiplex	no
indicators	no
particularities	metal plug for harsh operational conditions
documentation (download)	
pin assignment	