

A comprehensive solution for industrial applications

ULTRASONIC SENSORS

microsonic-App



Free download.

Available on the
App Store



Extract from our online catalogue:

crm+ ultrasonic sensors

Current to: 2015-01-12

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Wear-resistant PEEK film protects the sensor membrane from chemicals, contamination and caking.



Highlights

- › **Ultrasonic transducer protected by PEEK film** ::: for simple cleaning and high resistance to wear
- › **Stainless-steel housing**
- › **Digital display with direct measured value output in mm/cm or %**
- › **Numeric configuration of the sensor using digital display** ::: permits the complete advance configuration of the sensor
- › **Automatic synchronisation and multiplex operation** ::: for simultaneous operation of up to ten sensors in close quarters

Basics

- › **1 or 2 switching outputs 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 using T1 or T2 buttons**
- › **0.025 mm to 2.4 mm resolution**
- › **Temperature compensation**
- › **9–30 V operating voltage**
- › **LinkControl** ::: for configuration of sensors from a PC

Description

Sensor membrane with wear-resistant protective film

In many filling processes, spray on the sensor membrane simply cannot be avoided. These sprays often harden so that after longer periods of operation contamination can only be removed from the sensor membrane by mechanical means. The new protective film of the crm+ sensors now makes it easy to remove caked-on soiling, such as hardened casting compound and cement spatter.

The protective film is also highly resistant to corrosive media. The threaded sleeve is made of 1.4571 stainless steel.



TouchControl with LED display - Wear-resistant PEEK protective film

There are three output stages available for all five detection ranges:



1 switching output in pnp switching technology



2 switching outputs in pnp switching technology



1 analogue output 4–20 mA and 0–10 V

The crm+ sensors with switching output have three operating modes:

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

With TouchControl

all configuration can be done right at the sensor. The easily legible three-digit LED display continually shows the current distance value and automatically switches between millimetre and centimetre displays.

Setting a switching or analogue output

can optionally be carried out by numeric input of the desired distance values, or using a teach-in procedure. This permits the user to select the configuration method preferred.

The crm+ sensors support synchronisation and multiplex operation and have extensive parameterisation options via LinkControl.

For detailed information, please see at mic+ sensors.

LinkControl

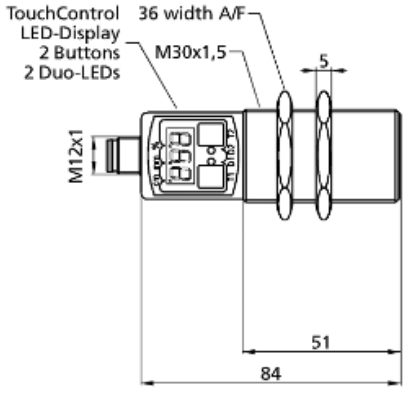
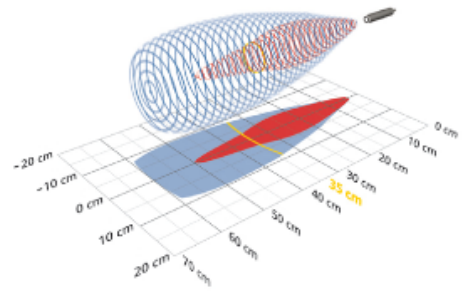


consists of the LinkControl adapter and the LinkControl software and facilitates the configuration of the crm+ sensors via

a PC or laptop with any conventional Windows® operating system.



Sensor connected to the PC via LCA-2 for programming

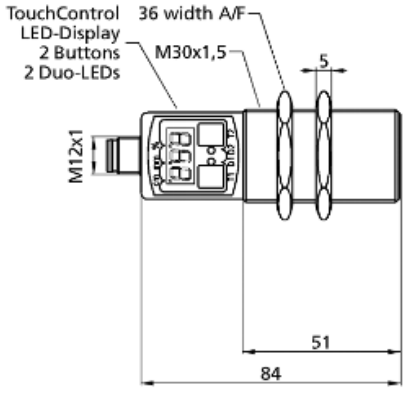
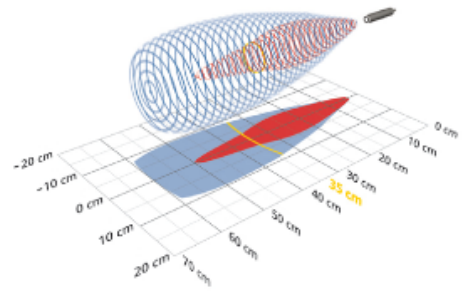


crm+35/D/TC/E

scale drawing	detection zone
	
 1 x pnp	 600 mm
operating range	85 - 350 mm
design	cylindrical M30
operating mode	proximity switch/reflective mode reflective barrier window mode
particularities	high chemical resistance stainless steel version display
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	400 kHz
blind zone	85 mm
operating range	350 mm
maximum range	600 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.025 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	≤ 80 mA
type of connection	5-pin M12 initiator plug

crm+35/D/TC/E

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 synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

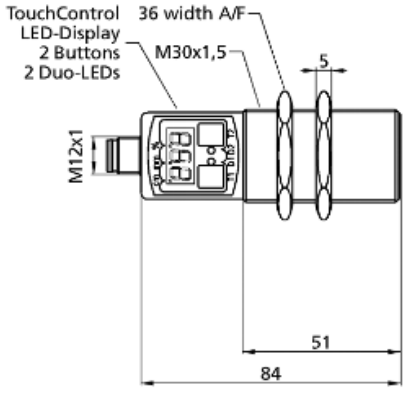
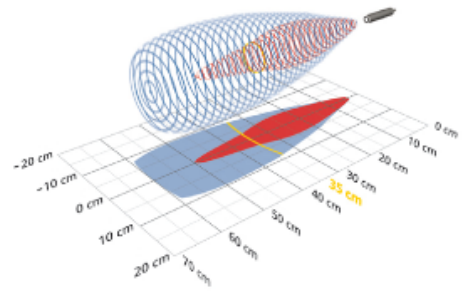


crm+35/DD/TC/E

scale drawing	detection zone
	
 2 x pnp	 600 mm
operating range	85 - 350 mm
design	cylindrical M30
operating mode	proximity switch/reflective mode reflective barrier window mode
particularities	high chemical resistance stainless steel version display
ultrasonic -specific	
means of measurement	echo propagation time measurement
transducer frequency	400 kHz
blind zone	85 mm
operating range	350 mm
maximum range	600 mm
angle of beam spread	please see graphics detection zone
resolution/sampling rate	0.025 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	≤ 80 mA
type of connection	5-pin M12 initiator plug

crm+35/DD/TC/E

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
output 2	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 synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
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particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

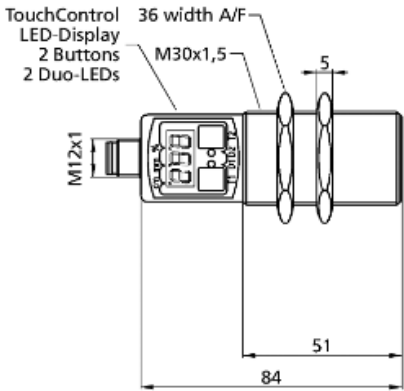
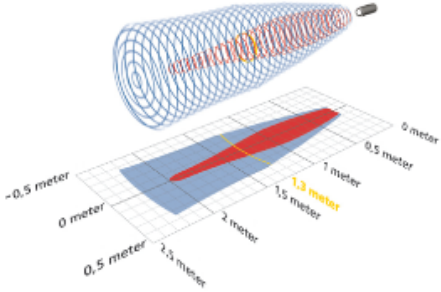


crm+35/IU/TC/E

scale drawing	detection zone
	
 1 x analogue 4-20 mA + 0-10 V	 600 mm
<p>operating range</p> <p>design</p> <p>operating mode</p> <p>particularities</p>	<p>85 - 350 mm</p> <p>cylindrical M30</p> <p>analogue distance measurements</p> <p>high chemical resistance</p> <p>stainless steel version</p> <p>display</p>
<p>ultrasonic -specific</p> <p>means of measurement</p> <p>transducer frequency</p> <p>blind zone</p> <p>operating range</p> <p>maximum range</p> <p>angle of beam spread</p> <p>resolution/sampling rate</p> <p>reproducibility</p> <p>accuracy</p>	<p>echo propagation time measurement</p> <p>400 kHz</p> <p>85 mm</p> <p>350 mm</p> <p>600 mm</p> <p>please see graphics detection zone</p> <p>0.069 mm to 0.16 mm, depending on the analogue window</p> <p>± 0.15 %</p> <p>± 1 % (temperature drift internally compensated)</p>
<p>electrical data</p> <p>operating voltage U_B</p> <p>voltage ripple</p> <p>no-load current consumption</p> <p>type of connection</p>	<p>9 - 30 V d.c., reverse polarity protection</p> <p>± 10 %</p> <p>≤ 80 mA</p> <p>5-pin M12 initiator plug</p>

crm+35/IU/TC/E

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 synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

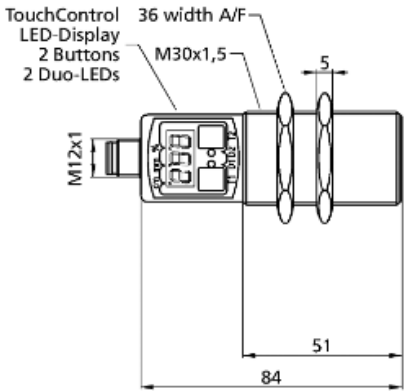
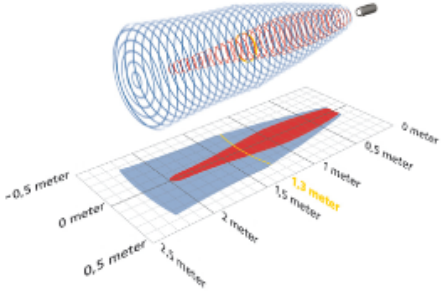


crm+130/D/TC/E

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	high chemical resistance stainless steel version display
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	≤ 80 mA
type of connection	5-pin M12 initiator plug

crm+130/D/TC/E

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 synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	



crm+130/DD/TC/E

scale drawing	detection zone
 <p>TouchControl LED-Display 2 Buttons 2 Duo-LEDs</p> <p>36 width A/F</p> <p>M30x1,5</p> <p>5</p> <p>M12x1</p> <p>51</p> <p>84</p>	 <p>0 meter</p> <p>0,5 meter</p> <p>1 meter</p> <p>1,5 meter</p> <p>2 meter</p> <p>0,5 meter</p> <p>-0,5 meter</p>
 2 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	high chemical resistance stainless steel version display
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	≤ 80 mA
type of connection	5-pin M12 initiator plug

crm+130/DD/TC/E

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
output 2	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 synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

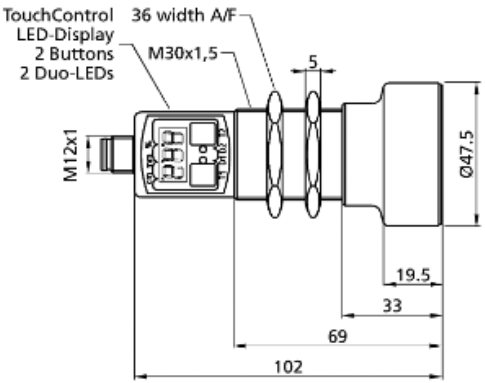
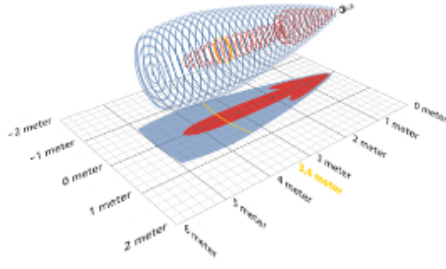


crm+130/IU/TC/E

scale drawing	detection zone
 1 x analogue 4-20 mA + 0-10 V	 2,000 mm
<p>operating range</p> <p>design</p> <p>operating mode</p> <p>particularities</p>	<p>200 - 2.000 mm</p> <p>cylindrical M30</p> <p>analogue distance measurements</p> <p>high chemical resistance</p> <p>stainless steel version</p> <p>display</p>
<p>ultrasonic -specific</p> <p>means of measurement</p> <p>transducer frequency</p> <p>blind zone</p> <p>operating range</p> <p>maximum range</p> <p>angle of beam spread</p> <p>resolution/sampling rate</p> <p>reproducibility</p> <p>accuracy</p>	<p>echo propagation time measurement</p> <p>200 kHz</p> <p>200 mm</p> <p>1,300 mm</p> <p>2,000 mm</p> <p>please see graphics detection zone</p> <p>0.18 mm</p> <p>± 0.15 %</p> <p>± 1 % (temperature drift internally compensated)</p>
<p>electrical data</p> <p>operating voltage U_B</p> <p>voltage ripple</p> <p>no-load current consumption</p> <p>type of connection</p>	<p>9 - 30 V d.c., reverse polarity protection</p> <p>± 10 %</p> <p>≤ 80 mA</p> <p>5-pin M12 initiator plug</p>

crm+130/IU/TC/E

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 synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

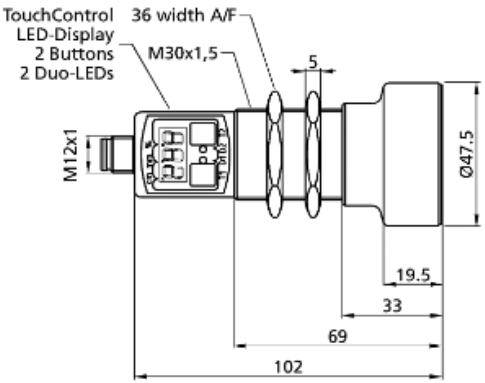
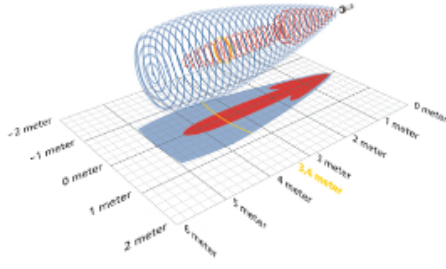


crm+340/D/TC/E

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	high chemical resistance stainless steel version display
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	≤ 80 mA
type of connection	5-pin M12 initiator plug

crm+340/D/TC/E

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	< 380 ms
inputs	
input 1	com input synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	165 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

crm+340/DD/TC/E

scale drawing	detection zone
	
 2 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	high chemical resistance stainless steel version display
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	≤ 80 mA
type of connection	5-pin M12 initiator plug

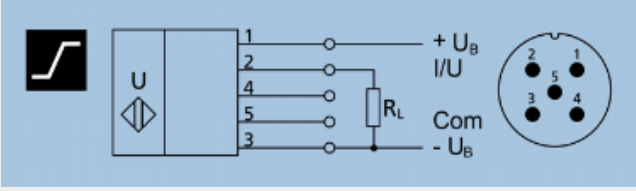
crm+340/DD/TC/E

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
output 2	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	< 380 ms
inputs	
input 1	com input synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	165 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

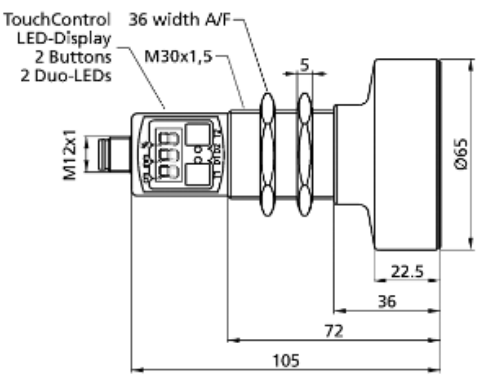
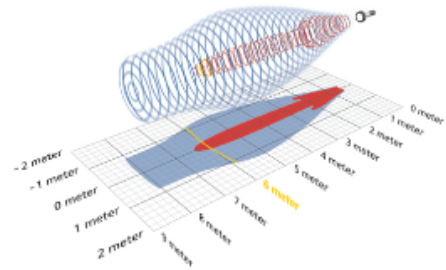


crm+340/IU/TC/E

scale drawing	detection zone
1 x analogue 4-20 mA + 0-10 V	5,000 mm
<p>operating range</p> <p>design</p> <p>operating mode</p> <p>particularities</p>	<p>350 - 3,400 mm</p> <p>cylindrical M30</p> <p>analogue distance measurements</p> <p>high chemical resistance</p> <p>stainless steel version</p> <p>display</p>
<p>ultrasonic -specific</p> <p>means of measurement</p> <p>transducer frequency</p> <p>blind zone</p> <p>operating range</p> <p>maximum range</p> <p>angle of beam spread</p> <p>resolution/sampling rate</p> <p>reproducibility</p> <p>accuracy</p>	<p>echo propagation time measurement</p> <p>120 kHz</p> <p>350 mm</p> <p>3,400 mm</p> <p>5,000 mm</p> <p>please see graphics detection zone</p> <p>0.18 mm</p> <p>± 0.15 %</p> <p>± 1 % (temperature drift internally compensated)</p>
<p>electrical data</p> <p>operating voltage U_B</p> <p>voltage ripple</p> <p>no-load current consumption</p> <p>type of connection</p>	<p>9 - 30 V d.c., reverse polarity protection</p> <p>± 10 %</p> <p>≤ 80 mA</p> <p>5-pin M12 initiator plug</p>

crm+340/IU/TC/E

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	< 450 ms
inputs	
input 1	com input synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	165 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

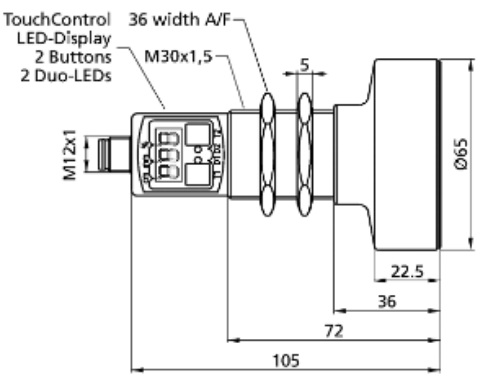
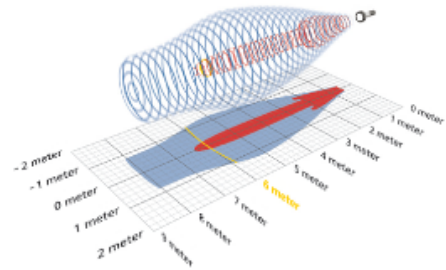


crm+600/D/TC/E

scale drawing	detection zone
 <p>TouchControl LED-Display 2 Buttons 2 Duo-LEDs</p> <p>36 width A/F</p> <p>M30x1,5</p> <p>5</p> <p>22.5</p> <p>36</p> <p>72</p> <p>105</p> <p>Ø65</p> <p>M12x1</p>	 <p>0 meter</p> <p>1 meter</p> <p>2 meter</p> <p>3 meter</p> <p>4 meter</p> <p>5 meter</p> <p>6 meter</p> <p>1 meter</p> <p>2 meter</p> <p>3 meter</p> <p>4 meter</p> <p>5 meter</p> <p>6 meter</p> <p>0 meter</p> <p>-1 meter</p> <p>-2 meter</p>
 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	high chemical resistance stainless steel version display
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	≤ 80 mA
type of connection	5-pin M12 initiator plug

crm+600/D/TC/E

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	< 450 ms
inputs	
input 1	com input synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	230 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

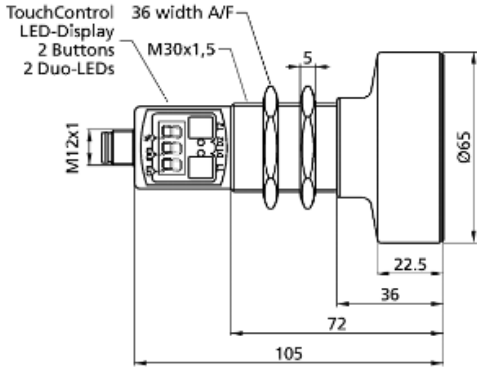
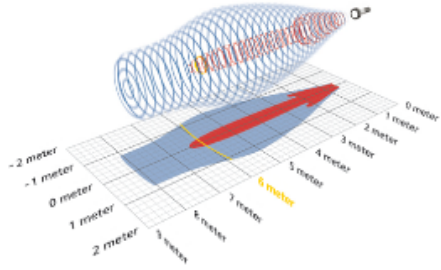


crm+600/DD/TC/E

scale drawing	detection zone
 <p>TouchControl LED-Display 2 Buttons 2 Duo-LEDs</p> <p>36 width A/F</p> <p>M30x1,5</p> <p>5</p> <p>22.5</p> <p>36</p> <p>72</p> <p>105</p> <p>Ø65</p> <p>M12x1</p>	
 2 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	high chemical resistance stainless steel version display
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	≤ 80 mA
type of connection	5-pin M12 initiator plug

crm+600/DD/TC/E

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
output 2	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	< 450 ms
inputs	
input 1	com input synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	230 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

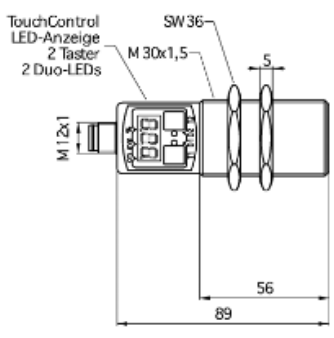
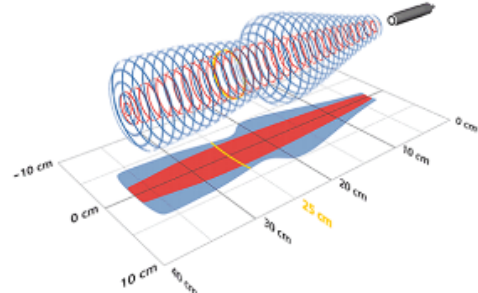


crm+600/IU/TC/E

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

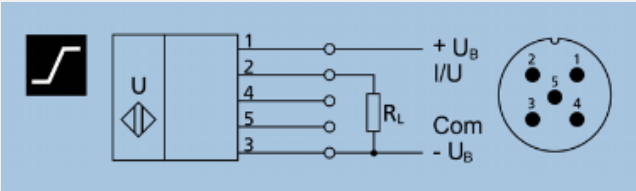
crm+600/IU/TC/E

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	< 450 ms
inputs	
input 1	com input synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	210 g
further versions	cable connection (on request)
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

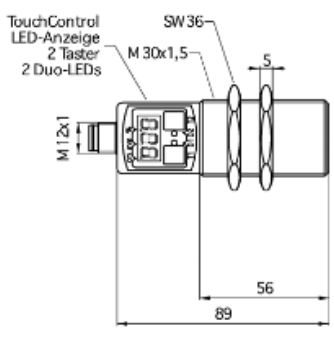
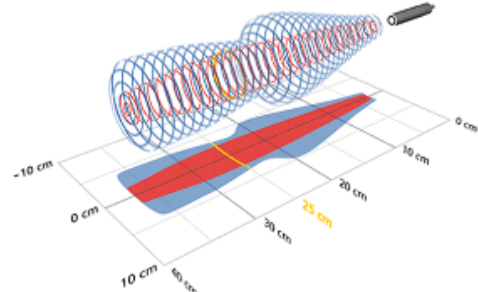


crm+25/IU/TC/E

scale drawing	detection zone
	
 1 x pnp	 350 mm
<p>operating range</p> <p>design</p> <p>operating mode</p> <p>particularities</p>	<p>30 - 250 mm</p> <p>cylindrical M30</p> <p>analogue distance measurements</p> <p>high chemical resistance</p> <p>stainless steel version</p> <p>display</p>
<p>ultrasonic -specific</p> <p>means of measurement</p> <p>transducer frequency</p> <p>blind zone</p> <p>operating range</p> <p>maximum range</p> <p>angle of beam spread</p> <p>resolution/sampling rate</p> <p>reproducibility</p> <p>accuracy</p>	<p>echo propagation time measurement</p> <p>320 kHz</p> <p>30 mm</p> <p>250 mm</p> <p>350 mm</p> <p>please see graphics detection zone</p> <p>0.025 mm</p> <p>± 0.15 %</p> <p>± 1 % (temperature drift internally compensated)</p>
<p>electrical data</p> <p>operating voltage U_B</p> <p>voltage ripple</p> <p>no-load current consumption</p> <p>type of connection</p>	<p>9 - 30 V d.c., reverse polarity protection</p> <p>± 10 %</p> <p>≤ 80 mA</p> <p>5-pin M12 initiator plug</p>

crm+25/IU/TC/E

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 synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

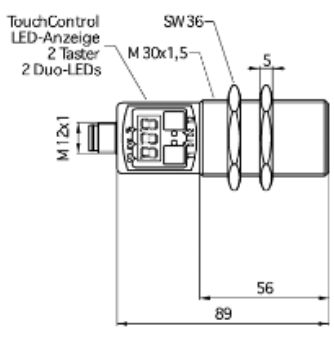
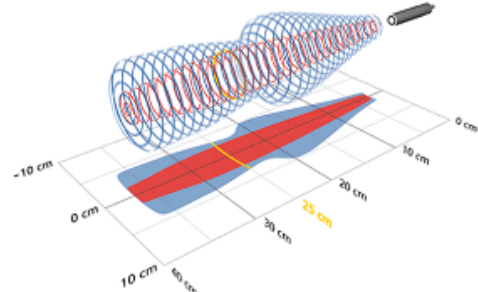


crm+25/DD/TC/E

scale drawing	detection zone
	
 2 x pnp	 350 mm
operating range	30 - 250 mm
design	cylindrical M30
operating mode	proximity switch/reflective mode reflective barrier window mode
particularities	high chemical resistance stainless steel version display
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	0.025 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	≤ 80 mA
type of connection	5-pin M12 initiator plug

crm+25/DD/TC/E

outputs	
output 1	switching output pnp: $I_{max} = 200 \text{ mA}$ ($U_B - 2V$) NOC/NCC adjustable, short-circuit-proof
output 2	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 synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	

crm+25/D/TC/E

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	high chemical resistance stainless steel version display
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	0.025 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	≤ 80 mA
type of connection	5-pin M12 initiator plug

crm+25/D/TC/E

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 synchronisation input
housing	
material	stainless steel, plastic parts: PBT, TPU
ultrasonic transducer	coated with PEEK film, PTFE O-ring
class of protection to EN 60529	IP 67
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
technical features/characteristics	
temperature compensation	yes
controls	2 push-buttons + LED display (TouchControl)
scope for settings	Teach-in and numeric configuration via TouchControl LCA-2 with LinkControl
synchronization	yes
multiplex	yes
indicators	3-digit LED display, 2 x three-colour LED
particularities	high chemical resistance stainless steel version display
documentation (download)	
pin assignment	