



COMPACT NON-CONTACT RADAR

80 GHz LEVEL SENSORS



Mini Yet Mighty.

The CNCR series of compact non-contact radar level sensors uses 80 GHz narrow beam technology for accurate measurement in bins, tanks, or silos. They are easy to setup using Bluetooth on a phone and then send level measurement data to BinCloud® software, a local display, or a PLC. The sensors offer a measuring range up to 98 feet and install in existing vessel openings or non-intrusively when measuring levels in plastic vessels.

BinMaster.com | 1-800-278-4241 | Info@BinMaster.com

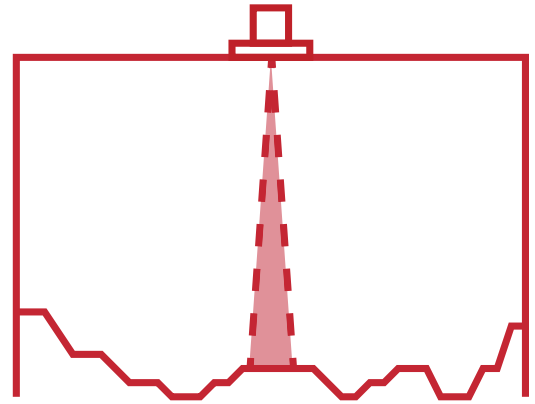
HOW DOES CNCR WORK?

The Basics

The sensor transmits a continuous 80 GHz radar signal through the face of the antenna. The signal is reflected off the material surface and received as an echo by the antenna. The frequency difference between the sent and received signals is converted to a measurement that represents the distance to the material surface.

The distance is calculated based upon the vessel height programmed into the unit when it is set up. Setup can be performed without the vessel being emptied to save time.

The measurement output is the distance from the face of the antenna to the material surface. Measurements are displayed in inches, feet, or meters.



80 GHz Technology

The CNCR family of radar level sensors is an alternative to using ultrasonic sensors or pressure transmitters to measure levels in bins, tanks, silos, or open-air applications. These sensors utilize 80 GHz technology that narrowly focuses the radar signal in an eight-degree beam angle. This technology is extremely reliable in dust, condensation, turbulence, and foam. The narrow beam can be used in confined vessels or standpipes and aimed to avoid structure that could interfere with the signal.

Non-contact radar technology delivers extremely high measurement accuracy of +/- 0.2 inches. Measurements are not affected by changing process conditions such as fluctuating temperature or pressure.



Bluetooth® Simplifies Setup

CNCR sensors are set up using a Bluetooth app downloaded to a cell phone or tablet. Setup can also be done on a PC using a Bluetooth USB adapter. Viewing of level measurements and changes to bin parameters can be done via the app. This allows for level monitoring and parameter adjustments to be made without climbing tanks.



RELIABLE LEVELS, FAST UPDATES

When To Use

BinMaster's CNCR series of compact radar level sensors are used for non-contact level measurement of many types of materials of varying densities. These sensors are appropriate for use across many process industries in indoor and outdoor environments.

The continuous level sensors also reliably measure in excessive dust, humidity, steam, vapor, and are unaffected by noise. The 80 GHz technology performs accurately if condensation or moderate buildup occurs on the sensor face.



Mounting

BinMaster's CNCR series of compact radar level sensors are used for non-contact level measurement of many types of materials of varying densities. These sensors are appropriate for use across many process industries in indoor and outdoor environments.

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If aiming is desired, select one of our 1.5-inch swivel mounts. All CNCR sensors except the CNCR-190 can also be used with a powder-coated, carbon steel 1.5-inch NPT mounting plate in 0°, 5°, 10°, and 30° angles. The CNCR-190 uses a 1.0-inch mounting plate.



1.0" Bracket



1.5" Bracket



Mounting Plate



SWVL-15



SWVL-15 (12" Extension)



SWVL-40

WHY CHOOSE A CNCR?

Benefits

- › 80 GHz technology, narrow 8° beam works reliably in challenging conditions
- › Simple installation and setup, fast setup using Bluetooth on a cell phone
- › Chemical resistant enclosure, IP Rated for protection against dust and water ingress
- › Compact design fits in tight spaces, installs through existing openings
- › Real-time measurement to BinCloud® software or integrated into a plant's PLC
- › Increases safety, no climbing tanks, working over open tanks or sumps, or in confined spaces
- › No maintenance, low cost of ownership

100 SERIES MODELS

About the CNCR-100 Series

The CNCR-110, 120, 130, and 190 all install using a polyurethane pigtail connection cable available in 16, 32, or 82-foot lengths. These sensors are rated to IP66/IP68 (3 bar) with housings made from durable PVDF material that has excellent chemical, abrasion, and flame resistance and UV stability. The FKM seal provides heat and chemical resistance for long-lasting durability. Most CNCR-100s are available with agency approvals for use in hazardous locations.



CNCR-110

The 110 model is the ideal sensor for non-contact level measurement at distances up to 26 feet in applications requiring a high level of environmental protection. It features a two-wire 4-20 mA output and is offered with either a 1.5-inch threaded or straight NPT connection. The cable outlet is on the top of the sensor. The CNCR-110 is offered only with a 32-foot connection cable. They are for use in unclassified areas, non-EX environments, and have general purpose FM/CSA/CE certifications.

CNCR-120 & CNCR-130

The 120 and 130 sensors are suited for non-contact level measurement at distances up to 49 feet in applications requiring a high level of environmental protection. They are offered with either a two-wire 4-20 mA/HART or four-wire Modbus output and a choice of a 1.5-inch threaded or straight NPT connection. The 120 model has the cable outlet on the top for mounting on the top of the vessel, whereas the 130 model has the cable outlet on the side. The 120 and 130 have general purpose FM/CSA/CE approvals for unclassified areas and are offered with a variety of hazardous location approvals.



CNCR-120

CNCR-130



CNCR-190

The 190 model is for non-contact level measurement at distances up to 98 feet in applications where a high level of environmental protection from the elements is required. It is offered with either a two-wire 4-20 mA/HART or four-wire Modbus output and features a 1.0-inch threaded or straight NPT connection. The cable outlet is on the top of the sensor. The 190 has general purpose FM/CSA/CE approvals for unclassified areas or are offered with a variety of hazardous location approvals for classified environments.

100 SERIES SPECIFICATIONS

CNCR-110

CNCR-120

CNCR-130

CNCR-190

MODE OF OPERATION

MEASURING RANGE	26 ft (8 M) liquids, 12 ft (3.7 M) solids	49 ft (15 M) liquids, 24 ft (7.3 M) solids	49 ft (15 M) liquids, 24 ft (7.3 M) solids	98 ft (30 M) liquids, 48 ft (14.6 M) solids
FREQUENCY	80 GHz	80 GHz	80 GHz	80 GHz
BEAM ANGLE	8°	8°	8°	4°
DEAD ZONE	None (Liquids) Up to 8" (Solids)	None (Liquids) Up to 8" (Solids)	None (Liquids) Up to 8" (Solids)	None (Liquids) Up to 8" (Solids)
ACCURACY	≤ 0.2" (5 mm)	≤ .08" (2 mm)	≤ .08" (2 mm)	≤ .08" (2 mm)
VOLTAGE	12 to 35 VDC	12 to 35 VDC, 8-30 VDC	12 to 35 VDC, 8-30 VDC	12 to 35 VDC, 8-30 VDC
OUTPUT	2-wire 4-20 mA	2-wire 4-20 mA, 4-wire Modbus, HART	2-wire 4-20 mA, 4-wire Modbus, HART	2-wire 4-20 mA, 4-wire Modbus, HART
ENCLOSURE MATERIAL	PVDF	PVDF	PVDF	PVDF
SEAL MATERIAL	FKM	FKM	FKM	FKM
ENCLOSURE RATING	IP66/IP68 (3 bar)	IP66/IP68 (3 bar)	IP66/IP68 (3 bar)	IP66/IP68 (3 bar)
MOUNTING	1.5" Threaded NPT, 1.5" Threaded Straight	1.5" Threaded NPT, 1.5" Threaded Straight	1.5" Threaded NPT, 1.5" Threaded Straight	1.0" Threaded NPT, 1.0" Threaded Straight
CONNECTION	32 ft. (10 m)	16 ft. (5 m), 32 ft. (10 m), 82 ft. (25 m)	16 ft. (5 m), 32 ft. (10 m), 82 ft. (25 m)	16 ft. (5 m), 32 ft. (10 m), 82 ft. (25 m)
APPROVALS	Ordinary locations	Ordinary locations	Ordinary locations	Ordinary locations

OPERATING CONDITIONS

PROCESS PRESSURE	-14.5 to +43.51 psi (-1 to +3 bar/-100 to +300 kPa)	-14.5 to +43.51 psi (-1 to +3 bar/-100 to +300 kPa)	-14.5 to +43.51 psi (-1 to +3 bar/-100 to +300 kPa)	-14.5 to +43.51 psi (-1 to +3 bar/-100 to +300 kPa)
PROCESS TEMPERATURE	-40° to +140°F (-40° to +60°C)	-40° to +176°F (-40° to +80°C)	-40° to +176°F (-40° to +80°C)	-40° to +176°F (-40° to +80°C)
AMBIENT TEMPERATURE	-40° to +140°F (-40° to +60°C)	-40° to +176°F (-40° to +80°C)	-40° to +176°F (-40° to +80°C)	-40° to +176°F (-40° to +80°C)

200 SERIES MODELS

About the CNCR-200 Series

The 210, 220, and 230 all mount using a 1.5" threaded NPT or NPS. The enclosures are rated IP66/IP67, Type 4X to protect them from dust and water damage. They are ideal sensors for non-contact level measurement. They are suitable for use in process or storage tanks containing liquids, powders, or bulk solids, or for measuring levels in plastic tanks or IBC containers through the tank walls.



CNCR-210

The compact 210 is a continuous level sensor with a measuring range up to 26 feet. It features a two-wire 4-20 mA output and is offered with either a 1.5-inch NPT or NPS connection. It can be used for measuring levels in metal or plastics storage vessels or through the tank wall when using on a plastic storage tank or an IBC container.

CNCR-220

The 220 is much like the 210, but offers an extended measuring range up to 49 feet. It features a two-wire 4-20 mA/HART output and is offered with either a 1.5-inch NPT or NPS connection. It can be used for measuring levels in metal or plastics storage vessels or through the tank wall when using on a plastic storage tank or an IBC container.



CNCR-230

The 230 offers an LED display on the sensor housing making level readings accessible from the sensor. It can be used for measurements ranging up to 49 feet. It features a two-wire 4-20 mA/HART output and is offered with either a 1.5-inch NPT or NPS connection. It can be used for measuring levels in metal or plastics storage vessels or through the tank wall when using on a plastic storage tank or IBC container.

200 SERIES SPECIFICATIONS

CNCR-210

CNCR-220

CNCR-230

MODE OF OPERATION

MEASURING RANGE	26 ft (8 M) liquids, 12 ft (3.7 M) solids	49 ft (15 M) liquids, 24 ft (7.3 M) solids	49 ft (15 M) liquids, 24 ft (7.3 M) solids
FREQUENCY	80 GHz	80 GHz	80 GHz
BEAM ANGLE	8°	8°	8°
DEAD ZONE	None (Liquids) Up to 6" (Solids)	None (Liquids) Up to 6" (Solids)	None (Liquids) Up to 6" (Solids)
ACCURACY	≤ 0.2" (5 mm)	≤ .08" (2 mm)	≤ .08" (2 mm)
VOLTAGE	12 to 35 VDC	12 to 35 VDC	12 to 35 VDC
OUTPUT	2-wire 4-20 mA	2-wire 4-20 mA, HART	2-wire 4-20 mA, HART
ENCLOSURE MATERIAL	PVDF	PVDF	PVDF
SEAL MATERIAL	FKM	FKM	FKM
ENCLOSURE RATING	IP66/IP67, Type 4X	IP66/IP67, Type 4X	IP66/IP67, Type 4X
MOUNTING	None	None	LED Display
CONNECTION	1.5" Threaded NPT 1.5" Threaded NPS	1.5" Threaded NPT 1.5" Threaded NPS	1.5" Threaded NPT 1.5" Threaded NPS
APPROVALS	Ask your sales representative for the most recent updates		

OPERATING CONDITIONS

PROCESS PRESSURE	-14.5 to +43.51 psi (-1 to +3 bar/-100 to +300 kPa)	-14.5 to +43.51 psi (-1 to +3 bar/-100 to +300 kPa)	-14.5 to +43.51 psi (-1 to +3 bar/-100 to +300 kPa)
PROCESS TEMPERATURE	-40° to +140°F (-40° to +60°C)	-40° to +176°F (-40° to +80°C)	-40° to +176°F (-40° to +80°C)
AMBIENT TEMPERATURE	-40° to +140°F (-40° to +60°C)	-40° to +158°F (-40° to +70°C)	-40° to +158°F (-40° to +70°C)

300 SERIES MODELS

About the CNCR-300 Series

BinMaster's CNCR-300 Series combines the accuracy and reliability of 80 GHz non-contact radar with battery-powered, wireless operation. Designed for measuring bulk solids and liquids, these compact sensors eliminate the need to run power or signal wiring to the vessel, making continuous level measurement practical for remote locations, existing installations, and sites with limited or costly electrical infrastructure.



CNCR-320

The CNCR-320 provides a compact solution for smaller bins, tanks, silos, and industrial containers. Its 1.5-inch NPT connection makes it especially well-suited for retrofits and installations where mounting space is limited. The sensor measures liquids up to 49 feet (15 m) and bulk solids up to 25 feet (7 m).

CNCR-390

With 3" Flange

For taller vessels and longer measuring distances, the CNCR-390 extends the benefits of battery-powered radar to applications up to 98 feet (30 m) in liquids and 49 feet (15 m) in solids. The 3-inch compression flange provides a practical mounting option for many bulk storage bins and silos.



CNCR-390

With 4" Flange

The 4-inch flange version of the CNCR-390 delivers the same 98-foot range for battery-powered 80 GHz radar performance using a mounting configuration for vessels equipped with larger process openings. It is an excellent choice for upgrading existing bins, silos, and tanks without adding sensor power or signal wiring.

300 SERIES SPECIFICATIONS

CNCR-320

CNCR-390

With 3" Flange

CNCR-390

With 4" Flange

MODE OF OPERATION

MEASURING RANGE	49 ft (15 m) liquids / 25 ft (7 m) solids	98 ft (30 m) liquids / 49 ft (15 m) solids	98 ft (30 m) liquids / 49 ft (15 m) solids
DIMENSIONS	4.01" × 4.02" (101.9 × 102.1 mm)	4.84" × 7.87" (123 × 200 mm)	4.96" × 8.87" (126 × 225.3 mm)
FREQUENCY	80 GHz	80 GHz	80 GHz
BEAM ANGLE	8°	4°	4°
DEAD ZONE	None (Liquids) Up to 8" (Solids)	None (Liquids) Up to 8" (Solids)	None (Liquids) Up to 8" (Solids)
ACCURACY	±0.078" (±2 mm)	±0.078" (±2 mm)	±0.078" (±2 mm)
POWER SUPPLY	Integrated, exchangeable lithium batteries, 5 × 3.6 V	Integrated, exchangeable lithium batteries, 5 × 3.6 V	Integrated, exchangeable lithium batteries, 5 × 3.6 V
OUTPUT	LoRa	LoRa	LoRa
SETUP	Bluetooth	Bluetooth	Bluetooth
ENCLOSURE MATERIAL	PVDF	PVDF	PVDF
ENCLOSURE RATING	IP66 / IP68	IP66 / IP68	IP66 / IP68
MOUNTING	1.5" NPT	3" compression flange	4" adapter flange
ANTENNA	Integrated	Integrated	Integrated
AREA CLASSIFICATION	Ordinary locations	Ordinary locations	Ordinary locations

OPERATING CONDITIONS

PROCESS PRESSURE	-14.5 to +29 psi (-1 to +2 bar / -100 to +200 kPa)	-14.5 to +29 psi (-1 to +2 bar / -100 to +200 kPa)	-14.5 to +29 psi (-1 to +2 bar / -100 to +200 kPa)
PROCESS TEMPERATURE	-40° to +176°F (-40° to +80°C)	-40° to +176°F (-40° to +80°C)	-40° to +176°F (-40° to +80°C)
AMBIENT TEMPERATURE	-40° to +176°F (-40° to +80°C)	-40° to +176°F (-40° to +80°C)	-40° to +176°F (-40° to +80°C)
PROTECTION	IP66 / IP68	IP66 / IP68	IP66 / IP68

400 SERIES MODELS

About the CNCR-400 Series

The CNCR-400 Series brings compact 80 GHz non-contact radar to hygienic processing applications in the food, beverage, and pharmaceutical industries. Designed for continuous level measurement in storage tanks, mixers, and vessels with agitators, these sensors measure up to 49 feet (15 m) and perform reliably despite turbulence, condensation, or buildup. Their compact size, approximately six inches long and 1.5 inches in diameter, fits easily into space-constrained installations.



CNCR-400.SS

Compact Stainless Steel

The CNCR-400 Compact SS Radar is designed for hygienic applications where an integrated display or visual status indicator is not required. Its streamlined, all-metal housing provides a compact, easy-to-install solution for continuous non-contact level measurement. Measuring solids or liquids up to 49 feet (15 m), the CNCR-400.SS is suited for sanitary tanks, mixers, and process vessels where space is limited and dependable measurement is essential.

CNCR-400.LRI

With Light Ring Indicator

The CNCR-400 with Light Ring Indicator provides an at-a-glance visual indication of sensor status without a digital readout. Its programmable colored light ring is easily visible from a distance, making it ideal for process environments where operators need fast visual confirmation of sensor conditions. The compact 80 GHz radar measures solids and liquids up to 49 feet (15 m) and is designed for hygienic food, beverage, and pharmaceutical processes.



CNCR-400.DD

With Digital Display

The CNCR-400 with Digital Display combines compact 80 GHz radar measurement with an easy-to-read digital display directly on the sensor and integrated light ring. The display provides convenient local access to measurement information, while a programmable colored indicator light ring makes sensor status easy to identify from a distance. This model measures up to 49 feet (15 m) and is designed for hygienic process applications where operators benefit from both precise continuous measurement and immediate visual feedback at the vessel.

400 SERIES SPECIFICATIONS

CNCR-400.SS

CNCR-400.LRI

CNCR-400.DD

MODE OF OPERATION

MEASURING TYPE	Continuous Level	Continuous Level	Continuous Level
MEASURING RANGE	49 ft (15 m)	49 ft (15 m)	49 ft (15 m)
FREQUENCY	80 GHz	80 GHz	80 GHz
BEAM ANGLE	8°	8°	8°
DEAD ZONE	None	None	None
ACCURACY	≤ 0.08" (2 mm)	≤ 0.08" (2 mm)	≤ 0.08" (2 mm)
VOLTAGE	12 to 35 VDC	12 to 35 VDC	12 to 35 VDC
OUTPUT	4-20 mA, IO-Link, NPN/PNP	4-20 mA, IO-Link, NPN/PNP	4-20 mA, IO-Link, NPN/PNP
ENCLOSURE MATERIAL	Plastic, Stainless Steel	Plastic, Stainless Steel	Plastic, Stainless Steel
ENCLOSURE RATING	IP66, IP67, IP69	IP66, IP67, IP69	IP66, IP67, IP69
DISPLAY/INDICATOR	None	Programmable colored light ring	Digital display with programmable colored light ring
MOUNTING	0.75" NPT, 1" NPT	0.75" NPT, 1" NPT	0.75" NPT, 1" NPT
SETUP	Bluetooth / BinMaster Sensor App	Bluetooth / BinMaster Sensor App	Bluetooth / BinMaster Sensor App
APPROVALS	Ordinary locations (non-hazardous)	Ordinary locations (non-hazardous)	Ordinary locations (non-hazardous)

OPERATING CONDITIONS

PROCESS TEMPERATURE	Up to +266°F (+130°C)	Up to +266°F (+130°C)	Up to +266°F (+130°C)
AMBIENT TEMPERATURE	-40° to +158°F (-40° to +70°C)	-40° to +158°F (-40° to +70°C)	-40° to +158°F (-40° to +70°C)
PROTECTION	IP66, IP67, IP69	IP66, IP67, IP69	IP66, IP67, IP69
MEDIUM	Solids, Liquids	Solids, Liquids	Solids, Liquids



Interested in a Compact Non-Contact Radar?

Call or visit today for a free consultation and quote!

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