



RC SERIES 24 GHz
RD SERIES 80 GHz

**RADAR LEVEL GAUGES
FOR SOLIDS**



HYCONTROL

WHY USE RADAR FOR SOLIDS LEVEL MEASUREMENT?

Unaffected by Changes In:

- ◆ Dielectric
- ◆ Pressure
- ◆ Vacuum
- ◆ Humidity
- ◆ Dust
- ◆ Viscosity
- ◆ Temperature

Key Features Include:

- ◆ Measuring range of up to 100 m (328 ft) with accuracy of +/- 2 mm (0.08")
- ◆ Versatile technology for solid products including powders, granules, pellets and more
- ◆ Measures level, distance or volume
- ◆ Selection of antenna types to suit differing, challenging applications
- ◆ Two-wire loop powered 24VDC
- ◆ Compact, durable IP66/68 design suitable for tough industrial environments
- ◆ Profibus outputs
- ◆ HART Protocol output for ease of system compatibility
- ◆ ATEX Ex ia hazardous area options available
- ◆ Powerful K-band 24 GHz (LPR and TLPR) or W-band 80 GHz transmitters
- ◆ Simple to install and retrofit with a wide selection of process connections
- ◆ 80 GHz ideal for low dielectric materials or materials with limited reflectivity
- ◆ Unaffected by solid product angle of repose within the vessel
- ◆ Empty tank spectrum function eliminates false reflections caused by silo internals

Applications in Many Industries

- ◆ Wastewater
- ◆ Quarry
- ◆ Chemical
- ◆ Food
- ◆ Plastics
- ◆ Power Generation
- ◆ Oil & Gas
- ◆ Construction
- ◆ Pharmaceutical
- ◆ Pulp & Paper
- ◆ Animal Feed
- ◆ Recycling

Effective Replacement For:

- ◆ Capacitance transmitters
- ◆ Yo-yo/plumbob
- ◆ TDR
- ◆ Ultrasonic transmitters

Manufactured to ISO9001 Q.M.S.



The standard of all Hycontrol products is strictly monitored to conform to all ISO quality requirements.

This ensures we meet the needs of customers as well as statutory and regulatory requirements.



Lime



Pellets



Plastics



Flakes



Fly ash



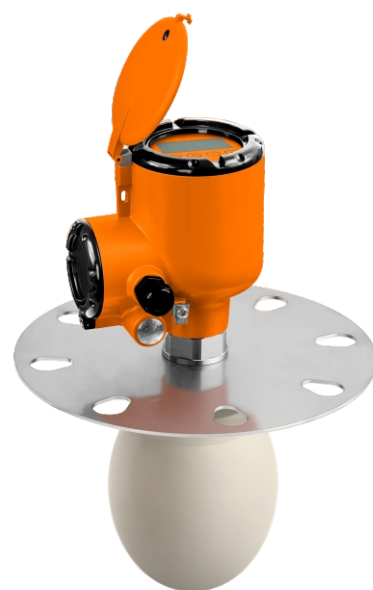
Granules

REFLEX RC SERIES RADAR - SOLIDS

The RC Series is a two-wire 24 GHz FMCW radar level transmitter for basic applications with **solid products**. It provides continuous, non-contact level measurement of **stones, granules, flakes and other such solid products** for a variety of industries. The level transmitter can be equipped with a **metallic horn antenna** or **PP and PTFE drop antennas**. The drop antenna design minimises product build-up and is **unaffected by the angle of repose**, eliminating the need for antenna aiming kits or purging systems.

The RC Series provides accurate and reliable readings, even with uneven product surfaces. Due to its small beam angle and high dynamic range, the 24 GHz radar can measure distances **up to 100 m/328 ft**. This makes it a cost-effective, more powerful alternative to pulse radar transmitters. **Hazardous area approvals** are available. The transmitter offers flange or thread connections, with optional antenna extensions to suit any nozzle length. HART®7 comes as standard.

- ◆ Aluminium or stainless steel housing
- ◆ Measuring range up to 100 m (328 ft)
- ◆ Unaffected by angle of repose
- ◆ Horn or drop antenna options
- ◆ Large, backlit LCD display
- ◆ Built-in surface profile configurations
- ◆ 4~20 mA & HART output
- ◆ Max. temperature 130°C (266°F)
- ◆ Purging system for horn antenna
- ◆ Variety of process connections
- ◆ Accuracy of +/- 2 mm (0.08")
- ◆ Two-wire loop powered



RC Series Technical Data

TYPE	RC SERIES FMCW RADAR
Frequency range	K-band (24 GHz)
Dielectric constant ϵ_r	>1.4 (TBF 1.1)
Measuring range	0...100 m (0...328 ft)
Accuracy	±2 mm (±0.08")
Repeatability	±1 mm (±0.04")
Housing material	Aluminium, 316L, Deep-drawn 316L
Ingress protection	IP66/68
Process connection	G1", G1½", 1" NPT, 1½" NPT, DN80...200, 3...8", 80...200 A
Gasket	FKM/FPM, EPDM, Kalrez® 6375
Ambient temperature	-40°C - +80°C (-40°F - +176°F)
Process temperature	-50°C - +130°C (-58°F - +266°F)
Process pressure	-1 - 16 bar (-14.5 - 232 psi)
Power supply	12...30 V DC (Ex i), 16...36 V DC (Ex d), 2-wire
Output	2-wire: 4-20 mA (HART®7), PROFIBUS PA (pending)
ATEX	Yes
ANTENNA TYPE	SIZES (BEAM ANGLES)
Metallic Horn (316L)	DN80...200; 3"...8" (9°...5°)
Drop (PP)	DN80; 3" (9°), DN100; 4" (7°), DN150; 6" (5°)
Drop (PTFE)	DN80; 3" (8°), DN100; 4" (7°), DN150; 6" (4°)



Solids, powders,
granules, flakes



HART®7
as standard



REFLEX RD SERIES RADAR - POWDERS & DUST

The **RD Series two-wire 80 GHz FMCW radar level transmitter** is designed for demanding applications with **powders in very dusty atmospheres**. With its small beam angle, this radar is particularly suited for continuous, non-contact level measurement in high and narrow silos or hoppers **up to 100 m/328 ft**. Due to the high signal dynamics of the FMCW radar, the level transmitter is ideal for low-reflective media, dust, uneven surfaces or complex silo internal structures. As it features a flush-mounted PEEK lens antenna, there is no intrusion of the antenna into the silo, bin or hopper.

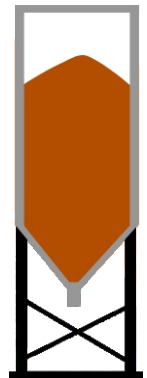
The RD Series provides **accurate and reliable readings** in process conditions with temperatures up to +150°C/302°F and pressures up to 40 bar/580 psi. It offers flange or thread connections as well as an optional 112 mm/4.4" antenna extension for the DN40/1.5" antenna. Approvals for use in hazardous areas are also available. The level transmitter comes with HART®7 communication.

- ◆ Aluminium or stainless steel housing
- ◆ Measuring range up to 100 m (328 ft)
- ◆ Unaffected by angle of repose
- ◆ PEEK antenna for zero intrusion
- ◆ Large, backlit LCD display
- ◆ Empty tank spectrum counters false echoes
- ◆ 4~20 mA & HART output
- ◆ Max. temperature 150°C (302°F)
- ◆ Suitable for dusty environments
- ◆ Variety of process connections
- ◆ Accuracy of +/- 2 mm (0.08")
- ◆ Two-wire loop powered

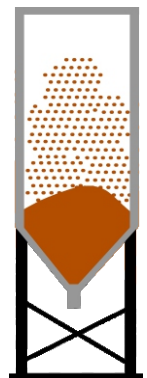


RD Series Technical Data

TYPE	RD SERIES FMCW RADAR
Frequency range	W-band 80 GHz
Dielectric constant ϵ_r	>1.4 (TBF 1.1)
Measuring range	0 ... 100 m (0 ... 328 ft)
Accuracy	±2 mm (±0.08")
Repeatability	±1 mm (±0.04")
Housing material	Aluminium, 316L, Deep drawn 316L
Ingress protection	IP66/68
Process connection	G1½", G3", 1½" NPT, 3" NPT, DN50...200, 2...8", 50...200 A
Gasket	FKM/FPM, EPDM, Kalrez® 6375
Ambient temperature	-40°C - +80°C (-40°F - +176°F)
Process temperature	-50°C - +150°C (-58°F - +302°F) -50°C - +200°C (-58°F - +392°F)
Process pressure	-1 - 40 bar (-14.5 - 580 psi)
Power supply	12...30 V DC (Ex i), 16...36 V DC (Ex d), 2-wire
Output	2-wire: 4-20 mA (HART®7), PROFIBUS PA (pending)
ATEX	Yes



Solids, powders, flakes



Dusty atmospheres



RD Series Antenna Options

TYPE	SIZE	BEAM ANGLE
Lens (PEEK)	DN40 (1.5")	8°
Lens (PEEK)	DN70 (2.75")	4°

HYCONTROL - THE COMPLETE LEVEL SOLUTION

Hycontrol has been at the forefront of level control and measurement technology for over thirty-five years, providing practical solutions for diverse applications across many industries ranging from quarrying to food, nuclear power to chemicals, and animal feed to waste recycling. From our manufacturing base in Redditch, Worcestershire, we have overseen thousands of applications across the UK and around the world.

At Hycontrol, we pride ourselves on providing a 'complete solution' service to our UK customers. We provide a turnkey solution for level equipment requirements, with the experience and skill to design, manufacture, install, and maintain bespoke measurement and control systems crafted to suit each customer's particular needs.

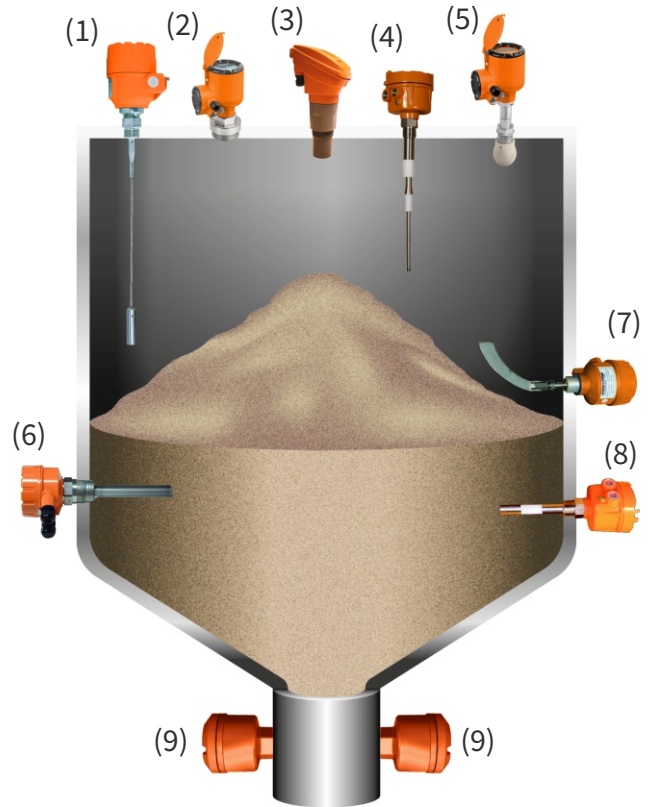
We understand the consequences of inaccurate or unreliable level systems. Therefore each Hycontrol installation is tailored precisely to match your application. Our goal is simple: to provide the best-engineered solution - without compromise.

With one of the widest ranges of level measurement technologies on the market, including award-winning silo pressure safety systems and a patented range of foam detection and control equipment, backed up by a team of highly experienced engineers and technicians, Hycontrol is a leading force in the manufacture and supply of advanced level solutions.



Product Range for Solids:

- (1) TDR radar
- (2) 80 GHz FMCW radar
- (3) 2-wire ultrasonic transmitter
- (4) RF admittance level switch
- (5) 24 GHz FMCW radar
- (6) Vibrating level probe
- (7) Rotary paddle switch
- (8) Capacitance level switch
- (9) Microwave flow & blockage switch



Product Range for Liquids:

- (1) Bypass level indicator
- (2) 80 GHz FMCW radar
- (3) Foam control system
- (4) 24 GHz FMCW radar
- (5) 2-wire ultrasonic transmitter
- (6) TDR radar
- (7) Capacitance level switch
- (8) RF admittance level switch
- (9) Tuning fork vibrating level switch

