



REFLEX LR

ULTRASONIC LEVEL

MEASUREMENT

NON-CONTACT ULTRASONIC LEVEL MEASUREMENT



REFLEX LR

Reflex LR pushes the boundaries of non-contact ultrasonic level measurement. This new range of Smart Level instruments is capable of measuring distances in excess of 60 metres and is suitable for both solids and liquids.

Using new technology developed with low frequencies this new range is capable of measuring in extremely difficult applications, including very dusty and dirty environments, where most traditional ultrasonics will fail. Level measurement on difficult solids applications in excess of 60m is now possible with two wire technology.

This new range can be programmed remotely using Hycontrol's Vision System II software and using this option instruments can be connected, via the GSM LINK, to a Hycontrol Service Engineer in our UK office to analyse and overcome any commissioning issues which may be experienced in the field, without having to

actually visit site and incur any additional call-out charges. The Reflex LR is designed to be used with the new range RVT transducers which have a wide range of process connections available to suit most applications.

REFLEX LR

The REFLEX LR with integral display is available with six different acoustic frequencies capable of reliably tracking the level of solid and liquid products under extreme conditions. It is easily programmed via a four button keypad and an integral menu driven display to simplify commissioning.

The Reflex LR controller is available as a two wire loop powered instrument or, alternatively, as a three or four wire 80-260vac or 24vdc version. Optional relay outputs are also available on the ac versions if required. Options for HART, Modbus and Profibus DP are also available.

Hazardous areas for dust and gases pose no threat to this new series of transmitters with ATEX options of EExia IIAT4 and ExII 1 D T85.

FALSE ECHO REJECTION

Reflex LR utilises enhanced false echo rejection software which enables the instrument to ignore fixed obstructions in its path. For simple process control, based on level, distance or volume measurement, nothing can match the convenience reliability, cost effectiveness, ultra low frequency and zero maintenance benefits of this instrument.

REFLEX LR ADVANTAGES

- ◆ Non-contact ultrasonic technology with no moving parts
- ◆ Versatile technology for liquids, slurries, solids, pellets and powders
- ◆ Long measuring range up to 60m with two wire technology
- ◆ Advanced echo extraction to avoid spurious signals and avoid dust issues
- ◆ Wide range of outputs including HART, analogue, serial comms, Modbus
- ◆ Remote connectivity for programming and commissioning via GSM LINK software
- ◆ Wide range of supply voltages including 2, 3 and 4 wire configurations
- ◆ Hazardous area approved for gases and dusts
- ◆ Chemically resistant transducer range for flexibility on applications
- ◆ Simple setup via PC Software or integral push button
- ◆ Separate electrical terminal compartment for better isolation risk
- ◆ Wide range of flange options and process connections
- ◆ Ultra low power options available
- ◆ Unaffected by dielectric constant properties



Chemical Resistant



Remote interrogation



Simple push button setup



30kHz transducer

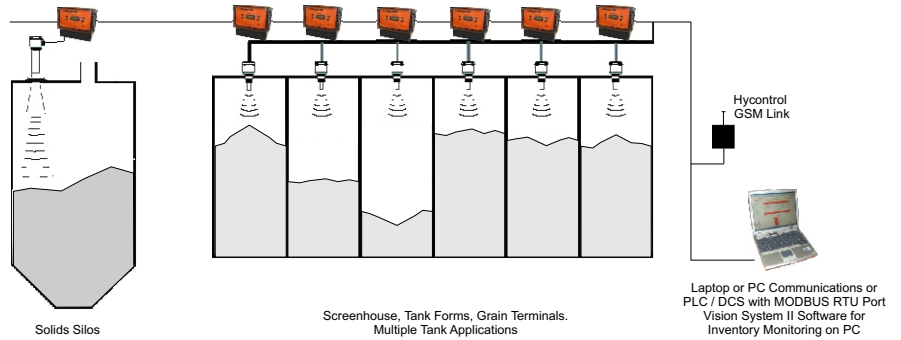


Quick connect terminals

MULTI-DROP CAPABILITY

Up to 32 Reflex LR transmitters can be used on a Multipoint Comms network utilising Modbus or Vision System II software. This offers significant cable savings and can be expanded to a maximum of 256 instruments on a single pair of wires.

Typical applications for this are on tank farms, screen houses and water treatment plants etc.

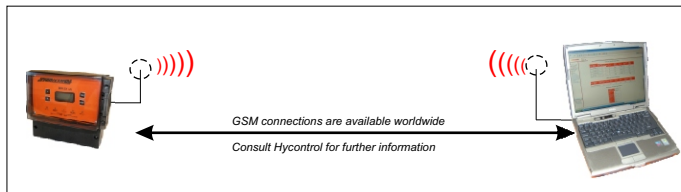


REMOTE COMMISSIONING & FAULT DIAGNOSIS

Vision System II Remote Communications and Commissioning Software.

Vision System II is a powerful software package which enables remote programming, multi-drop facility and silo monitoring in the same package.

Reflex LR has been designed to make the commissioning of more difficult applications less complex by building in remote access capability via the Hycontrol GSM LINK (HGSM). With this option Hycontrol engineers can dial into the GSM LINK connected to, or enclosed in, Reflex LR from Vision System II software anywhere in the world. Once connected, the Reflex LR can be programmed, commissioned and monitored from the comfort of your own office.



Using the Modbus option with Vision System II, up to a maximum of 256 instruments can be connected on a single loop. Each one of these levels can be displayed in multiples of nine per display screen on the Vision System II software.

HIGH POWER & LOW FREQUENCY

There are many manufacturer's who produce high frequency short range ultrasonic sensors but many of these are designed to work in ideal clean environment conditions such as simple water tanks, drum roll diameters etc. When the application becomes more demanding and this is typical in industry, such as a dusty Cement silo with continuous fill, these simple sensors will not work. There are basically two reasons for this;

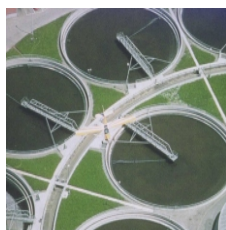
First is the power, these low cost units have very low power transducers which just cannot produce a large enough signal to transmit through the media hit the target and return. The signal is absorbed by the particulate on transmission and also absorbed into the product surface with only a small amount being reflected back. Hycontrol RVT transducers with Reflex LR have extremely high power which is many times stronger than conventional ultrasonic sensors. The main reason for this is that they utilise patented high gain multi crystal stacks which achieve an extremely high power amplification output.

Secondly, high frequencies do not travel as far as low frequencies especially if there is media present such as dust. The Hycontrol range of RVT low frequency transducers increases the measuring distance by many times compared to the standard range even with dust present! Hycontrol RVT transducers will operate as low as 5Khz which achieves a measuring range up to 60m.

APPLICATIONS FOR ALL INDUSTRIES



QUARRY



WATER & WASTE



FOOD / PROCESS



CHEMICAL

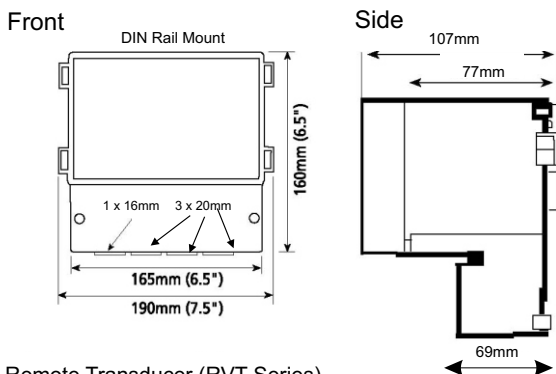


OFFSHORE

SPECIFICATION

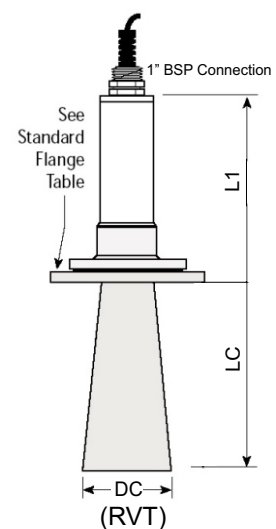
Instrument Type	: Reflex LR Controller
	: Reflex LR2 DC - 24 volt dc powered Reflex LR234 - 234 wired ac/dc
Range	: Up to 60 metres
Blanking	: Variable from 0.3 metres
Process media	: Liquids or Solids
Analogue Output	: 4-20mA (750 Ohms User Supply 24v) (400 Ohms Internal Supply)
Power Supply	: 12 - 30v DC / 90 - 260v AC 50/60Hz
Relays	: 5 Form C SPDT rated 0.5 amp at 240v ac
Resolution	: 1mm up to 20 metre range / 4mm from 20-60 metre range
Accuracy	: +/- 0.25% of maximum range
Operating temperature	: -40°C to + 80°C
Ambient temperature	: Electronics -40°C to + 80°C
Display	: 2 line 8 digit LCD
Enclosure	: IP65 (Nema 4x)
Dimensions	: 160h x 165l x 106d
Key Pad	: Integral 4 button
Weight	: 1Kg
Cable Entries	: 3 x 20mm 1 x 16mm Knockouts only, located on enclosure
Max.System Pressure	: 2 bar
Comms	: Modbus / HART /Profibus : Multi-drop capability, up to 32 units : Vision System II : Hycontrol GSM Link (GSM/CDMA connectable)
Certification	: Reflex LR2DC - ATEX EEx ia / Reflex LR234 - ATEX DIP
Transducers	: RVT Series
Operating Temperature	: -40°C to +80°C (-40°C to +150°C option)
Transducer IP Rating	: Sealed IP68
Certification	: ATEX EEx m* when connected to any Reflex LR : ATEX DIP* when connected to any Reflex LR : ATEX EEx ia* when connected to Reflex LR2DC

REFLEX LR DIMENSIONS



Remote Transducer (RVT Series)

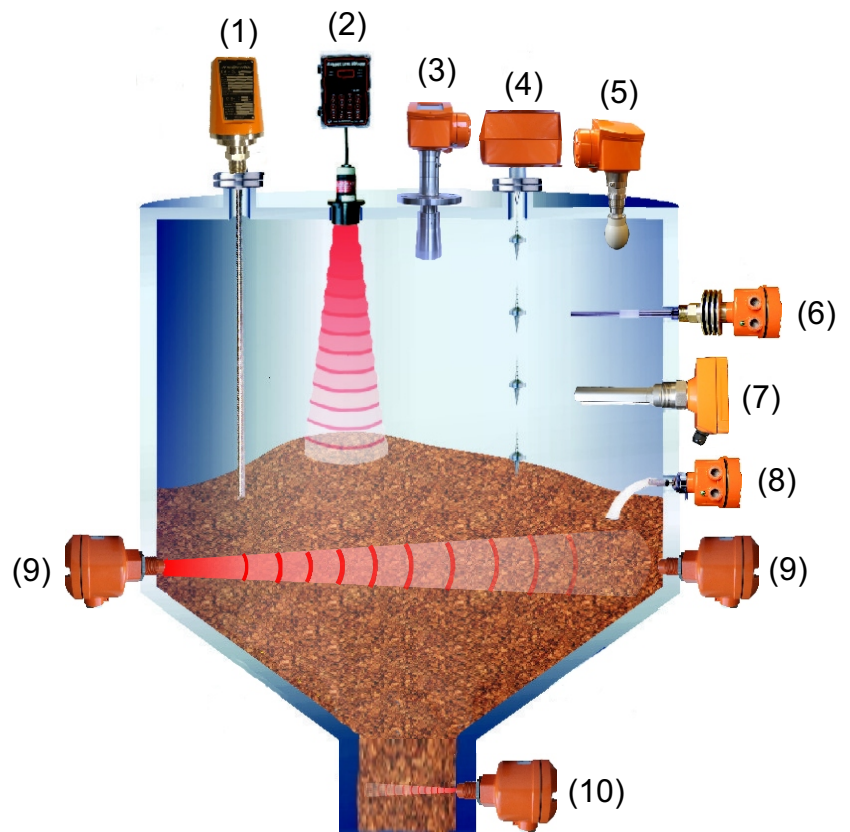
Range Metres	L1	LC Optional	D	DC Optional	Thread Size	Flange Optional
10	185	-	50	-	2"	-
20	265	272	75	98	3"	4"
40	391	413	89	236	3.5"	10"
60	673	413	89	236	3.5"	10"



HYCONTROL LEVEL TECHNOLOGIES

Product Range For Solids :-

- (1) TDR Radar For Solids
- (2) Ultrasonic, 'Through Air'
- (2) 2 Wire Ultrasonic Transmitter
- (3) FMCW 2 Wire Radar
- (4) Continuous 'Servo' Level Indicator
- (5) FMCW 2 Wire Radar
- (6) Capacitance Level Switch
- (7) Vibrating Probe Level Switch
- (8) Rotating Paddle Level switch
- (9) Microwave Level Switch
- (10) Doppler Flow Switch



Product Range For Liquids :-

- (1) By-Pass Level Indicator With Radar
- (2) TDR Radar For Liquids
- (3) 2 Wire Ultrasonic Transmitter
- (4) FMCW 'Horn' Radar 2 Wire
- (5) Magnetic Float Switches
- (6) FMCW 2 Wire Radar
- (7) Capacitance Level Switch
- (8) RF Admittance Level Switch
- (9) Side Mounting 316 SS Float Switch
- (10) Tuning Fork Level Switch
- (11) Tuning Fork Level Switch
- (12) Ultrasonics 'Through Wall'
- (13) Mini Magnetic Float Level Switch

