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PRESSURE • TEMPERATURE • LEVEL • FLOW

Welcome to the Hycontrol shortform product catalogue

Hycontrol has been established for over 20 years, manufacturing and distributing an extensive range of instrumentation to a wide and varied customer base including: Water and Waste, Food and Beverage, Chemical and Petrochemical, Environmental and Utilities and the Quarry Process Industry. With our knowledge and experience with proven technology we have provided pressure, level, flow and temperature solutions on media as diverse as chocolate and sulphuric acid, cornflakes and sewage. Our products have been fitted to everything from Challenger Tank to Offshore Oil rigs!

Why do so many people choose Hycontrol?

The answer is simple!

"Our customers' satisfaction is our primary objective and we realise there is no such thing as a routine application, no matter what industry you are in".

Hycontrol pays particular attention to the details of the application and uses the experience gained over 20 years to offer the best solution to solve your problem, finding better, faster and more cost effective technologies to get the results you are looking for. We have a team of regional based engineers who can visit you and determine the exact requirements of your application along with a back up team of technical staff based at our head office at Redditch, Worcestershire.

Technical advice is just a telephone call away and if you need information 24 hours a day then simply look at our website at **www.hycontrol.com**

On site training and technical support are often as important as the product itself and this is a key feature often requested by our customers and we provide this as part of our 'product package' in finding a total solution for your application.

Delivery for stock items is offered on a next day service and can be delivered at weekends for emergency breakdown situations.

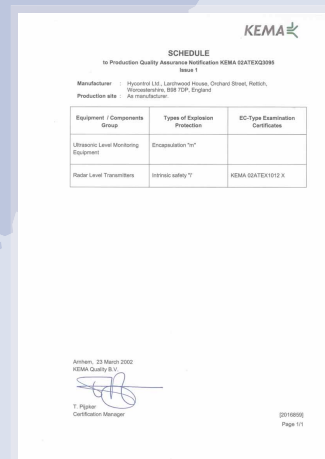
If you combine our product range, experience, competitive prices and sound technical advice backed by a quality system to ISO9002, then our goal of achieving total customer satisfaction can be achieved readily.



ISO 900 Certificate



ATEX Certificate



ATEX Certificate

HYCONTROL

Level Section

Ultrasonic - non contact for liquids and solids



- | | | | |
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Radar - non contact and contact for liquid and solids



- | | |
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| 12. Reflex Radar VG | 13. Reflex TDR Radar VF |
|---------------------|-------------------------|

14. Thruwall - non contact for liquids



15. Vibrating Probe - level switch for solids

16. Conductivity - level switch for liquids

16. Float Switches - level switches for liquids



16. Capacitive Level Switches - for liquids and solids

Pressure Section

17. Pressure Switch-OEM - high volume general purpose

18. Pressure Switch-Process - industries hazardous area



20. Solenoid Valves - for process - OEM and general purpose

22. Solenoid Valves - for hazardous area/offshore Petrochem applications



23. Solenoid Valves Manifold Mount



24. Control Air - Precision Pneumatic Controls - I/P, E/P, Air Cylinders, Regulators



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Flow Section

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Temperature Section

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29. Customer Reference List

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Level measurement products overview

	Miniflex	Microflex	Liquiflex	Multiflex	Twinflex	PPSC	CSO 1	Reflex	Scanflex	Through Wall	Radar VF	Radar VG	Conductivity	Vibrating
Ultrasonic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Measuring Range of Liquids (m)	6	6	10	15	6	6	6	50	50	20	24	20	2	
Measuring Range of Solids (m)	2			15				35	35		24	20		8
Alarm/Control Relays	2		5	5				5	2/4	4	❖	❖	1	1
2 Wire Transmitter		✓									✓	✓		
Analogue Output 0-20 / 4-20	✓	✓	✓	✓	✓	✓	▲	✓	✓	✓	✓	✓		
Measuring Points	1	1	1	1	2	1	1	1	10	2	1	1		
Supply Voltage 24 DC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Supply 110/230 Volts AC	✓		✓	✓	✓			✓	✓				✓	✓
Battery Operated							✓							
Mounting Wall/Panel	W	W	W/p	W/p	W	*	W	W	W	W/p			P	
Hazardous Area Approval	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

Transducer Range

RZV15	✓	✓	✓		✓	✓	✓							
RXV15	✓			✓				✓	✓					
RXM19								✓	✓					
RXM19ER								✓	✓					
RZT15	✓	✓	✓		✓	✓	✓							
RZV15T	✓		✓		✓			✓	✓					

* OEM printed circuit board only

▲ 0-2.5 volt output

❖ 2 or 4 relay option with display controller

Which technology for your application?

LEVEL PRINCIPLES

Ultrasonic Theory

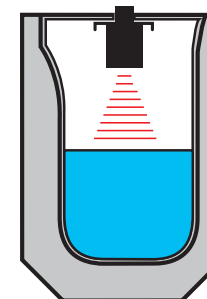
The principle of operation is 'time of flight'. That is the time taken from when the ultrasonic pulse leaves the transducer, hits the surface of the material to be measured and then is reflected back to the transducer. This time is directly proportional to distance travelled.

Advantages

Low cost
Suits wide range of applications
Non contact
Multiple outputs
Simple set-up
Windowing software to avoid false echoes

Disadvantages

Measurement affected by:
Vapours
Pressure < 1 bar
Temperature
Foam does not reflect sound



Ultrasonic



Radar Theory

The TDR 'VF' Series is commonly referred to as 'radar on a rope'. This contact technology uses a microwave signal which is guided along the rope and detects the position where it is surrounded by the target material.

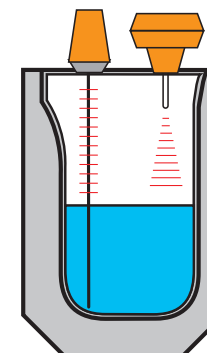
The 'VG' Series is a non-contact FMCW radar sending microwave signals out and measuring the frequency change of the return pulse signal.

Advantages

2-wire loop powered
Measurement not affected by:
Temperature
Pressure / Vacuum
Vapour or gases
Empty tank obstruction removal

Disadvantages

Medium costs
PC set-up



Radar



Through Wall

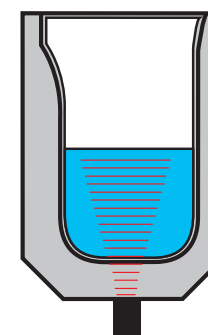
This instrument transmits a pulse of high frequency sound from a transducer attached to the outside of the tank wall. This sound passes through the tank base and through the fluid until it reaches the fluid surface. It is then reflected back, and the time taken is proportional to the distance and level measurement. Simple level switching can also be achieved by mounting on the side of the vessel.

Advantages

Simple installation
Unaffected by surface foam
Non-intrusive
Low cost

Disadvantages

Liquids only - no solid content
Affected by aeration / bubbles
Must be perpendicular to surface for continuous measurement



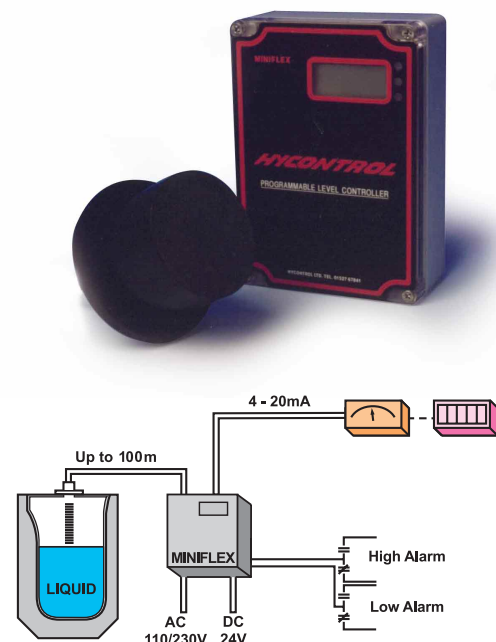
Through Wall



Ultrasonic

Miniflex PLC

Non Contact Level Controller for Liquids and Solids up to 6m Range



The new Miniflex is designed for use on a range of level control applications for liquids, slurries and pastes up to a maximum measuring range of 6 metres. Miniflex provides a simple level control solution.

Miniflex Features:

- Programmable display for level, distance or percentage
- Two fully programmable relays
- Continuous analogue output (4-20 mA)
- Integral pump routines for duty/standby and duty/assist and alternating duty cycles
- Alarm functions for high/low or loss of echo
- AC and DC supply voltage
- Transducers certified for hazardous zones 1 and 2

Miniflex Benefits:

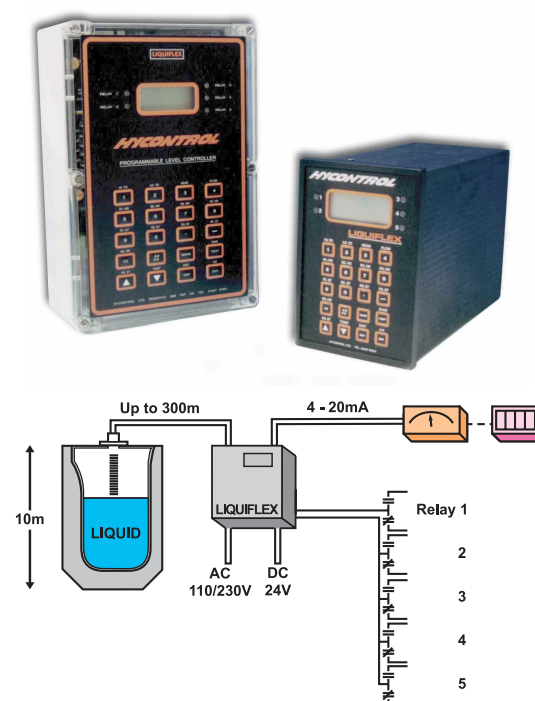
- Easy installation with separate transducer and controller
- Simple 5 button 12 parameter program set-up
- Dual Function
- Low cost

Liquiflex PLC

Non Contact Level and Flow Controller for Liquids up to 10m Range

Ultrasonic

Flo



Primarily designed for the Water Industry as a multi-functional instrument to satisfy most common applications, Liquiflex is now also used extensively within the process industries and incorporates the very latest developments for level, flow, differential and pump control.

Liquiflex Features:

- Programmable for open channel flow, pump control, differential control, level measurement and penstock control
- 5 fully programmable relays for alarm or control
- Continuous analogue output (4-20, 0-20mA)
- AC and DC supply voltage
- Hazardous area approval for transducer
- IP68 Transducer
- Wall or Panel mount enclosure

Liquiflex Benefits:

- Multi-functional for a range of applications
- Simple Installation
- Competitive Price

Ultrasonic

Microflex PLC

Ultrasonic Two Wire Level Transmitter for Liquids up to 6m range



The new Microflex is a unique two part transmitter and is designed for use on a range of level control applications for liquids, slurries and pastes up to a maximum measuring range of 6 metres. Microflex provides a simple level control solution.

Microflex Features

- Two-wire loop powered
- Two-part system
- IP68 transducer and IP65 transmitter
- Local practical display
- Local and easy programming
- Proven transducer and echo extraction routines

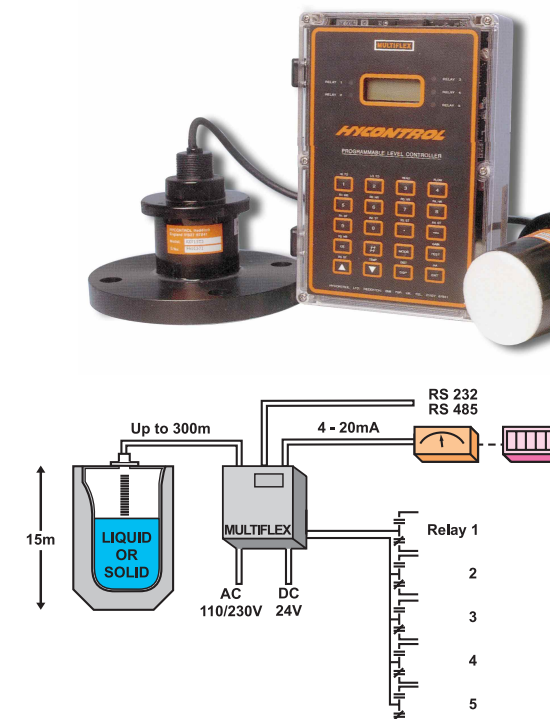
Microflex Benefits

- Simple to install
- Reduced costs with no additional display
- Safer to set up with transmitter at ground level
- Option to mount at tank top or ground level
- Reduced commissioning costs

Multiflex PLC

Non Contact Level and Flow Controller for Liquids and Solids up to 15m Range

Ultrasonic



Multiflex is designed for the process industries with a high instrument specification and the capability to measure liquids and long range solids. With all the functionality of Liquiflex but also providing serial communications, this unit is used on a wide range of applications including stone crusher bowls and acid tanks.

Multiflex Features

- Programmable for contents, level flow, differential, pump and penstock control
- 5 fully programmable relays for alarm or control
- Continuous analogue output 4-20, 0-20mA
- Hazardous area approval for transducer
- AC and DC supply
- Wall or panel mount enclosure
- Serial communications RS232/RS485

Multiflex Benefits

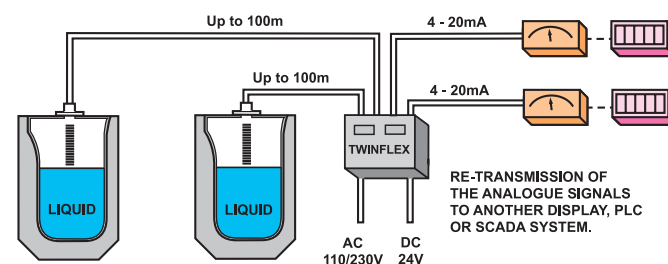
- Simple installation
- Multi-functional for wide range applications
- Competitive price

Ultrasonic

Twinflex PLC



Short Range Non Contact Programmable Dual Level Controller.



The new Twinflex ultrasonic level management system, builds on the proven reliability and performance of the Miniflex system, offering additional dual tank capability at reduced installation costs.

Twinflex Features

- Low cost dual tank monitor
- Simple to program, just 5 buttons
- Display to show level or distance
- Two continuous 4-20mA outputs
- Two continuous LCD displays
- Separate transducers to ease installation
- Transducers certified EExmII T6
- AC or DC supply

Twinflex Benefits

- Reduced installation costs
- Reduced cost per point
- Reduced spares

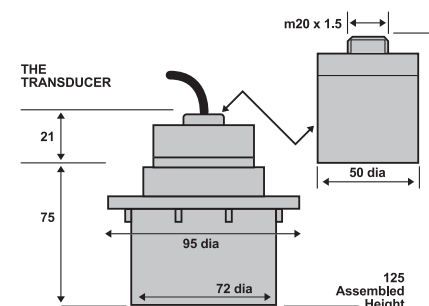
Ultrasonic

PPSC OEM



A Low Cost Non-Contact Alternative to Floats

THE PCB		THE TRANSDUCER	
Supply Voltage	20-30 Volts DC	Model	RZV15
Temp Range	-20 +50°C	Materials	Xenoy/Polyurethane
Analogue Output	0-10 volt DC	Certification	EExm IIT6
Adjustable Range	0.3 - 6.0 m	Cable length	10 m
Blanking	Adjustable (min 0.3m)	Protection Rating	IP68
Damping	0.1 - 10.0m/min	Temp Range	-40 +90°C
Resolution	2mm or 0.1% of distance	Options	Temperature
Dimensions of PCB	170 x 125mm		compensation, PTFE
Mounting Options	22.5X11.25		corrosion resistant facing
	22.5X11.75		ANSI flange mounting



Designed for Original Equipment Manufacturers, as a low cost, non-contact alternative to floats and other contacting level switches.

The package consists of a single printed circuit board for mounting in your control panel or enclosure and an ultrasonic transducer for mounting over the liquid to be measured. The two parts can be separated by up to 50 metres using twin core screened cable.

The unit can be shipped, pre-programmed, or a hand-held plug-in programmer can be used to set up each installation.

The transducer is submersible to IP68 and certified for use in hazardous areas.

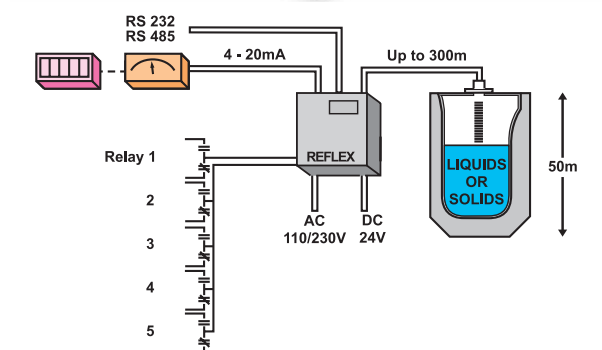
The 0-10v dc level output from the circuit board is designed to be fed into a low cost logic controller like the Crouzet Millennium, allowing up to 6 relays to be controlled, as well as timing and logic functions.

- A small PCB that can be mounted in your own control panel or enclosure which provides a 0-10v dc output proportional to level
- A non contact hazardous area ultrasonic transducer for mounting above the liquid to be measured
- A simple low cost way to move ahead of your competitors

Reflex PLC

Single Point Non Contact Ultrasonic Level Measurement System

Ultrasonic



Incorporating all the latest technological developments, Reflex is the most powerful instrument in the Hycontrol Ultrasonic range. It combines reliable non-contact Ultrasonic level measurement of liquids and solids with the ability to expand into a 10 point scanning system by simply adding a multiplexor and additional transducers.

With an excellent signal to noise ratio and a variety of echo extraction algorithms available, Reflex's proven software is capable of tracking the right echo in the most difficult environments.

Five relays, isolated analogue output, dual serial ports, integral keypad and multiline display provide a complete stand-alone instrument capable of taking control of any application.

Multiple Power Supplies

Reflex accepts power supplies of 110 or 230 volt AC and will automatically detect which one is being used. A separate 24 volt DC input is provided on every unit for those who want to operate on a safe DC voltage or provide back-up in case of a power failure.

Multi-functional

5 programmable relays allow alarms and controls to be set with variable hysteresis anywhere throughout the instrument's span and the analogue output can be configured to go full scale, anywhere within the overall range of the Reflex.

Features

- Single or 10 point Scanning
- Easy Installation - reduces cable costs
- Transducers and electronics can be separated by up to 300 metres to bring calibration away from the bin top and into the control room
- Fully isolated analogue output allows direct connection to PLC's, Scada systems or telemetry outstations.
- RS 232 and RS 485 serial ports allow direct connection to process computers and easy commissioning.
- Enhanced echo extraction algorithms provide stable readings under all conditions.
- Integral keypad with security code - no separate programmer required.
- Removable two-part terminals ease installation.

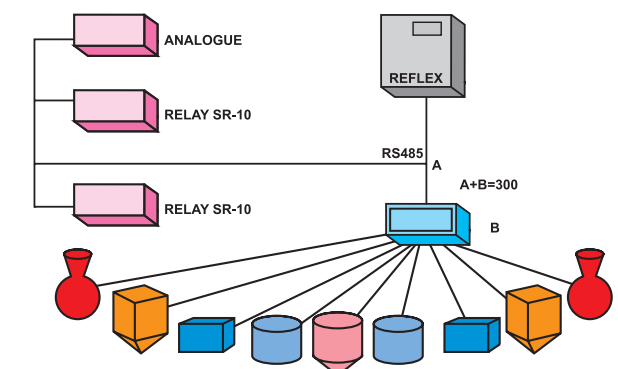
Multiline Display Provides

- At a glance barograph showing 0-100% level
- Digital display of level and volume
- Relay status
- System status
- Easy programming / set-up

Scanflex PLC

Multi-tank Monitor

Ultrasonic



Typical application for large number of different sized vessels requiring contents measurement with hi/low level option.

CS01

Non contact battery operated level monitor



For remote applications or where power is unavailable, the CS01 unit is designed to run for long periods on battery power. This is ideal for combined sewer overflow applications, stream or river monitoring, or simple level indication at reservoirs or lakes.

This unit is designed to interface with the Hycontrol DATAFLEX system which can log flow or level over long periods and which can be remotely accessed by GSM or PSTN phone giving a total remote monitoring package powered by batteries!

PERFORMANCE SPECIFICATION		HARDWARE SPECIFICATION	
Measuring Principle	Non-contact Ultrasonic	Power Supply	20-30 VDC
Measuring Range	6 metres maximum on liquids	Power Consumption	0.12 watts
Measuring Modes	Level or distance	Ambient Temp.	-40 to +70 Deg C
Accuracy of change in levels	±/± 0.25% of measured distance	Display	4 digit 12mm LCD
Resolution	2mm or 0.1% of empty distance	Interface	5 push buttons
Damping	Fully adjustable	Temp. Compensation	Integral in RZT Transducer
Blanking	Adjustable (min 0.3m)	Enclosure	IP65 Polycarbonate 170x120x55
		Approvals	Certified ExmIT6 Transducer (zones 1+2)
		Options	Datalogger (stores 32,000 readings)
			Solar Power Panel
			Modem for PSTN or GSM
			Various Weatherproof Enclosures
			Batteries (Specify life required)

Dataflex PLC

Access the contents of any tank from anywhere!



The Hycontrol Dataflex range of loggers provide easy, efficient and reliable data acquisition over a wide range of level measurement applications. These units can be installed on a new or existing site to operate with any level controller and can be configured either locally or remotely via a PC with the aid of Dataflex software.

Dataflex - Two versions are available:-

1. DF10 - Which is for local download of data (current or historical via hard wire or infra red connection. This provides logged data of flow or level which is downloaded in graphical or tabular format.
2. DF10TA - System is the same as the above but can be interrogated via a modem or GSM connection.

Many suppliers of bulk materials are installing this system so that they can access their customers sites and ensure that they do not run out of raw materials and cause problems such as stopping production! Dataflex can also be programmed to dial up the suppliers when certain levels are reached, to ensure continuity of supply.



Transducer Specifications

FOR USE WITH:
MINIFLEX
LIQUIFLEX
MICROFLEX
TWINFLEX
PPSC / CS01

	Body Mtrl	Face Mtrl	Temp Comp	Freq KHz	Beam Angle	Max. Range Liquids	Max. Range Solids	Temp °C	Hazardous Area Approval	Prot.	Mntng Thread
RZV15	Xenoy	U		41.5	10	10(6)M	2	-40 to +90	*Zone 1&2	IP68	M20
RZT15	Xenoy	U	✓	41.5	10	10(6)M	-	-40 to +90	*Zone 1&2	IP68	M20
RZV15T	Xenoy	T		41.5	10	10(6)M	-	-40 to +90	*Zone 1&2	IP68	M20
RZV15T3	Xenoy	T		41.5	10	10(6)M	-	-40 to +90	*Zone 1&2	IP68	Flange
RZT15T	Xenoy	T	✓	41.5	10	10(6)M	-	-40 to +90	*Zone 1&2	IP68	M20

FOR USE WITH:
REFLEX-MULTIFLEX
-SCANFLEX

RXV15	Xenoy	U		41.5	10	15M	10M	-40 to +90	*Zone 1&2	IP68	M20
RXT15	Xenoy	U	✓	41.5	10	15M	10M	-40 to +90	*Zone 1&2	IP68	M20
RXV15T	Xenoy	T		41.5	10	15M	-	-40 to +90	*Zone 1&2	IP68	M20
RXV15T3	Xenoy	T		41.5	10	10M	-	-40 to +90	*Zone 1&2	IP68	Flange
RXV15P	Xenoy	P		41.5	10	15M	15M	-40 to +90	*Zone 1&2	IP68	M20
RXT15T	Xenoy	T	✓	41.5	10	15M	-	-40 to +90	*Zone 1&2	IP68	M20

FOR USE WITH:
REFLEX/SCANFLEX

RXM19	Polypropylene	P		19	10	30M	25M	-20 to +60	No	IP65	M20
RXM19ER	Polypropylene	P		19	5	50M	35M	-20 to +60	No	IP65	M20

ALL RXV range can also be used with Reflex

* Temp rating for Zone 1&2 is -20 to +60°C.

Note: If you require a non-standard flange or fitting please ask for a quotation

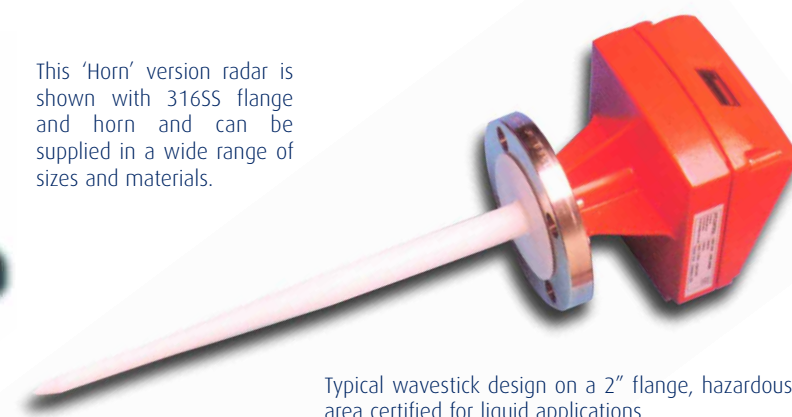
U - Urethane T - PTFE P - Polypropylene

Reflex radar VG

2 Wire Radar Level Measurement



This 'Horn' version radar is shown with 316SS flange and horn and can be supplied in a wide range of sizes and materials.



Typical wavestick design on a 2" flange, hazardous area certified for liquid applications.

The Hycontrol VG Series FMCW system provides state of the art Microwave Radar Technology offering a number of unique features in the field of 2 wire microwave level transmitters

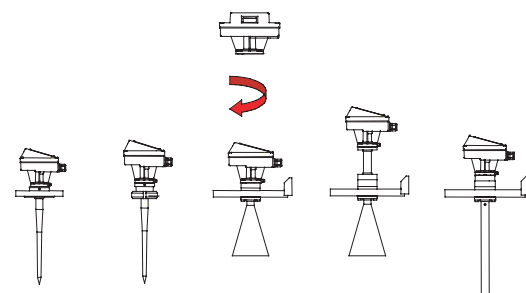
The unique features of the VG series

- 2 Wire Frequency Modulated Continuous Wave (FMCW)
- Empty Tank Spectrum (ETS)
- Tank Bottom Following (TBF)
- Interchangeability

Through air, an FMCW system gives far superior object differentiation compared to that of traditional technologies. This enables the instrument to be used on vessels with very complex internal structures. The ETS system can mask out these various objects and reliably track the product surface.

In applications tracking very low dielectric materials the microwave signal can pass through the product to the tank bottom. The TBF system in the Reflex VG Series overcomes the problems this can cause.

Modular construction of the VG series allows a wide variety of flanges and materials to be used, satisfying most installation requirements. This modular design incorporating the encapsulated antenna allows the customer to remove the electronics housing from the unit without having to shut down the process or open the vessel!



Above displays the modular design principle



The Reflex Radar VG is unaffected by the the following process conditions:

- Dielectric
- Pressure
- Vacuum
- Humidity
- Temperature
- Viscosity
- Foam

Features include:

- Maximum range 20m
- Use on liquids, slurries and pastes
- Horn antenna option
- Wave stick antenna option
- Wave guide antenna option
- Wide range of process options
- Wide range of process connections
- Wide range of materials of construction

Reflex TDR VF

2 Wire Radar Level Measurement



The TDR VF Series

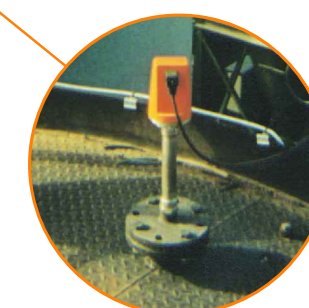
Whilst this is a true microwave system, it is commonly referred to as "radar on a rope". This contact technology uses a microwave signal which is guided along the rope or rod and detects the position where it is surrounded by the target material.

The advantages of the VF Series

- Can handle liquids, slurries, granules and powders
- HART compatible
- Ease of installation
- Process connection 1" BSPP
- Minimum dielectric 1.5
- Can be used in very confined space
- Measuring ranges up to 24m
- Pressures up to 40 bar
- Product temperature up to 600°C
- Five different probe designs
- Six different probe materials
- Remote or local programming

Apart from the obvious advantages of being able to operate in vacuum, high pressure, elevated and subzero temperatures, the VFR series radar offers some other very practical benefits for both liquid and solids level measurement. On liquid application for instance, accuracy is $\pm 15\text{mm}$ over a 15 metre range, that equates to just 0.1% and if this isn't good enough we have a high accuracy version that limits the error to $\pm 5\text{mm}$.

On powder materials where ultrasonic instruments have real difficulty maintaining a signal under filling conditions Reflex VF radar carries on as though nothing has happened.



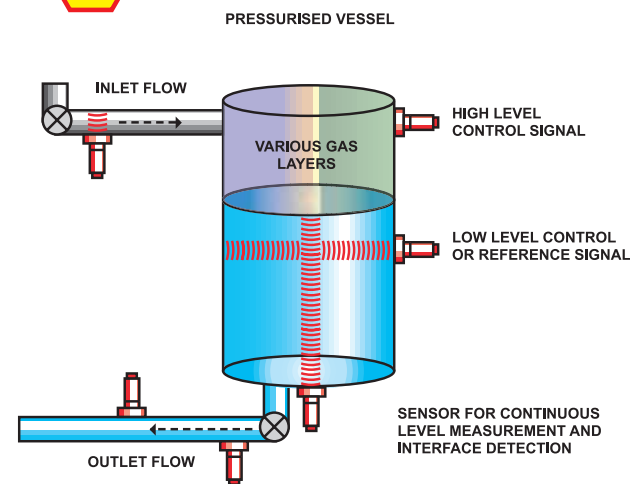
Reflex VF TDR offers practical reliable level measurement on liquids and solids under very adverse operating conditions. Compared with other methods of level measurement it also comes at a very competitive price.

The installation shown below is on a long-range sand bin and it was imperative that it worked under dusty fill conditions where other methods of level measurement had previously failed.



This is a typical application on hot liquid bitumen at temperatures up to 200°C which is particularly difficult to measure as it has a tendency to coat everything it comes into contact with. Shown opposite is the high temperature version screwed into a 1" BSP socket providing continuous level measurement and high level alarm protection.

Hycontrol can also provide tanker driver alert panels for high alarm indication at the tank fill point for additional safety.



Level measurement using ultrasonic 'through the air' principles has been widely used in the process industries for many years, but it has its limitations with regard to the application. Pressurised vessels, varying vapour densities and surface foam can all cause loss of the echo signal. Hycontrol's new non-contact ultrasonic instruments are capable of monitoring levels with novel 'through the wall' techniques which overcome these fundamental problems.

This enables level measurement in totally enclosed vessels without the need to enter or cut into it. These systems provide a wide range of control options, from single point level switching to continuous level measurement and can be installed on a wide range of applications including hazardous and aggressive media.

The Principle

The instrument transmits a pulse of high frequency sound from the transducer attached to the outside of the vessel. This pulse passes through the wall and liquid until it reaches the surface. It is then reflected back to the transducer and is received as a transit echo. The micro controller times this echo and with the aid of patented window technology, calculates the distance accurately and reliably.

Container or pipe materials

- Steel, stainless steel and most other metals
- All types of plastic including PVC and compound materials
- Enamelled containers
- Glass and glass lined vessels



Application Examples

- Level measurement of liquids and liquified gases
- Wet and dry pipe detection
- Pump protection from dry running and airlocks
- Distance measurement in pressure vessels
- Ice level detection
- Detection of air and gas bubbles in pipes and flexible tubes
- Leakage detection of double lined tanks
- Cylinder position sensing
- Interface detection between different liquids e.g. oil and water
- Overflow protection
- Emptying and filling process controls

The Advantages

- Easy to install as the sensors are fastened to the outside of the vessel or pipe and there is no interruption of the process
- Simple to install on an existing plant
- Ideal for aggressive, toxic, pressurised and sterile applications as there is no contact with the product
- Measurement is possible even with foam on liquid surface
- Suitable for hygienic applications
- Hazardous area certified for zones 1 and 2 (code EExmIIT6)
- Will not interfere with cleaning processes
- Fixed installation and portable units available



Above shows the Diamond point range

The Diamond Point range of DP120-DP140-DP150 vibrating level probes provide single point switching to control the levels of solids, powders, granules, pellets and flakes etc, whilst being unaffected by in-flight material.

Features

- Unique single diamond blade profile
- robust blade construction
- self - cleaning action
- adjustable sensitivity

Due to the unique principle of the Diamond Point range, the vibrating action produces a self cleaning effect when used on materials that may adhere to the probe or tank wall.

The Diamond Point design incorporates one oscillating leg within another and thus eliminates the common "bridging" problem associated with vibrating fork designs which can cause false alarms.

The Diamond Point range is available in 3 versions; the standard probe, the steel tube extension and the steel cable version with lengths up to 10 metres.

Applications

The Diamond Point range is suitable for most types of bins and hoppers requiring min/max level detection. The following are examples of applications to date.

- powdered milk
- beans
- coffee beans
- freeze dried coffee
- salt
- gravel
- polystyrene foam
- animal feed
- spices
- tobacco
- sawdust
- polystyrene chips
- finely ground glass
- powdered clay
- cement
- carbon black
- frozen potato chips
- sugar
- coffee-grounds
- tea leaves
- flour
- polystyrene powder
- soot
- pellets
- peanuts
- foundry sand
- chalk
- powdered cellulose
- plastic granules
- kaolin
- dehydrated mud

SPECIFICATIONS	
Power Requirements	110/220 a.c. 50/60Hz
Optional	24VDC 24/48V A.C.
Enclosure	Diecast Aluminium
Protection	IP67
Mounting	1 1/2 inch BSPT
Probe Construction	Stainless/Steel AISI 304
Ambient Temperature	-40°C to 60°C
Material Temperature	-40°C to 90°C
Weight (DP120)	2Kg
Minimum Material Bulk Density	30 grams/litre
Maximum Pressure in Vessel	10 bar
Time Delay on Activation after Covering Probe	1 second
Time Delay on Activation after Uncovering Probe	2-5 seconds
Adjustments	Fail-safe Low or Fail-safe High Selectable. Selectable Level of sensitivity
Output	1 SPDT form C voltage-free relay contact rated 10 amps at 230/50 non-inductive LED on PCB indicates switching



New CV600

The CV600 is a vibration type level control instrument that detects the minimum or maximum level in bins, silos and hoppers. Due to its small size the CV600 is ideal for use in small hoppers filled with granular solids or pellets such as granular plastics, foods, grains etc.

The CV600 is best for detecting materials with bulk densities of 100 grams per litre and higher.

Conductivity

Level Switch

Electronic Level Control with Resistive Probes

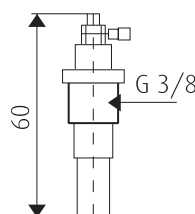
This unit is designed for simple pump control or alarm indication. The electrodes are mounted on the tank top via their holders (EA18) and St/St rod is fitted to suit the required switch points.

The electronic level controls together with resistive probes are suitable for the control and monitoring of the levels of conductive liquids. The operation of the controller is dependant on the conductivity of the liquid. It is therefore not suitable for use with liquids such as gas oils, lubricant oils, petroleum and oil derivatives etc. The level is determined by the length of the electrodes linked to the controller.

The controller case is manufactured from shock resistant thermoplastic and is designed for side by side multi installation.

Technical Features

- Voltage between the probes 8V
- Operating temperature from -10°C to 50°C
- Sensitivity range field from 2 to 20 K
- Max. cable length 800m, insulation 600V
- Insulating resistance 100mΩ
- Dielectric strength 1500V for 1 minute
- Output through electromagnetic relay connected via volt free terminals
- Load 5A at 220 VAC



EA18	
Max. working pressure	10 bars
Max. working temperature	160°C
Male connection	3/8" BSP

Probe holder in stainless steel AISI 303 to be equipped with Ø3.5mm stainless steel electrode.

Float Switches

Low Cost Level Switches

A wide variety of simple liquid level float switches is available for process and low cost OEM applications. With materials ranging from stainless steel to polypropylene.

Please ask for further information.



Capacitive

Non Contact Level Switch

Capacitive Proxistors sense both electrically conducting and non-conducting materials, solids and liquids, without making contact. Adjustable sensitivity allows them to be tuned to differentiate between various materials or cope with different installations.

Features

- -30 to 100°C operating range
- Adjustable sensitivity to sense different targets
- Adjustable range 1 - 40mm depending on switch & target
- LED for switch state. Connector versions include power on LED
- Tough chemically resistant GRP housing
- 5m and 10m cable options are available, please call the factory

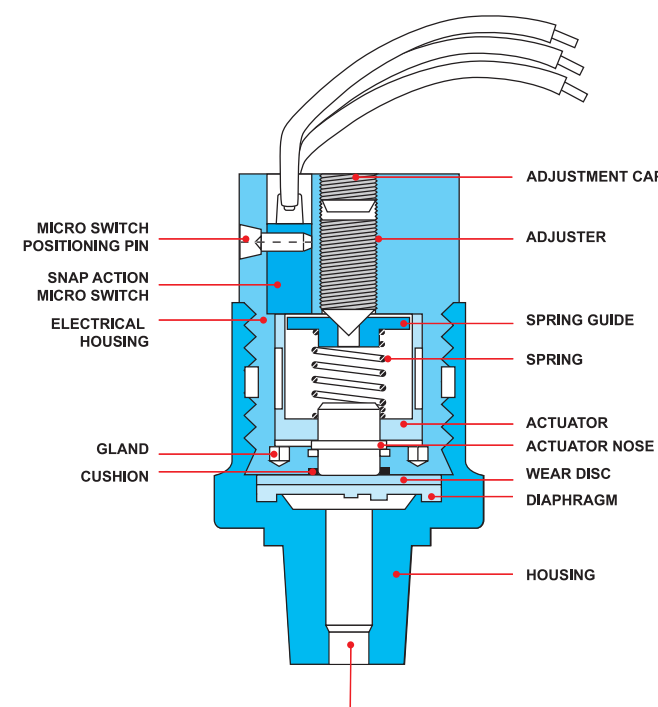
Typical Applications

- Non invasive contents detection through non metallic containers
- Level detection or flow indication of solids or liquids e.g. for filling processes, hoppers, silos, pipelines, granules, powders, confectionery, foodstuffs or inks.

Low cost OEM applications

Pressure Switches

Temp witches



THE RATE OF PRESSURE RISE, ESPECIALLY IN PRESS TYPE APPLICATIONS, CAN ADVERSELY EFFECT THE SWITCH LIFE CYCLE. IN SUCH APPLICATIONS A SNUBBER FITTED IN THE INLET PORT REDUCES THE RATE OF PRESSURE RISE.



Typical OEM pressure switches available in a wide range of materials and different electrical configurations.

The Hycontrol Pressure-Vacuum and Temperature Switches are sealed, vibration resistant and ruggedly built to provide reliable protection for automatic control of equipment and processes. They are designed for direct or remote mounting and offer a quality product at a competitive price.

Each pressure vacuum and temperature switch contains a precision, snap-action microswitch which meets or exceeds industrial standards for reliability, electrical capacity and long life.

Setting - The set point of each switch is preset at the factory as follows:

- Field adjustable series - bottom of range
- Factory set series - at the desired set point

The switches can be ordered for operation with either rising or falling temperature, vacuum or pressure. Reset of the microswitch depends on the deadband or differential of the particular model.

Switch Protection - Standard Hycontrol switches offer excellent protection and long life in most applications. They are also sealed for weatherproof protection. The corrosion-resistant materials in the wetted areas and the standard nitrile diaphragm are suitable for most media. Where required the switches are available with VITON® or EPDM diaphragms and, in some cases, optional steel, brass or stainless steel housings and wetted areas.v

ADJUSTMENT RANGES FOR TEMPERATURE SWITCH

MODEL	ADJUSTMENT RANGES		SETTING TOLERANCE	AVERAGE DEADBAND
	INCREASING	DECREASING		
PDTF	20-140°C	20-140°C	3°C	9°C

ADJUSTMENT RANGES FOR VACUUM SWITCH

MODEL	ADJUSTMENT RANGES		AVERAGE DIFFERENTIAL	STANDARD WETTED AREA MATERIAL
	IN HG	MILLIBAR		
1	5/15	160/500	The differential is less than 10% of full set point range	Kapton Membrane and Zinc Plated Steel
2	12/30	400/1000		

ADJUSTMENT RANGES FOR PRESSURE SWITCH

MODEL	ADJUSTMENT RANGES		AVERAGE DIFFERENTIAL	STANDARD WETTED AREA MATERIAL
	PSI	BAR		
1	2/10	.15/.7	The differential is less than 5% of full set point range	Kapton Membrane and Brass
2	7/25	.5/1.7		
3	20/60	1.4/4		
4	50/150	3.5/10		

* High Pressure available on request.

Above is a small sample of our switch range. Please contact the office with your specification

Ex

Hycontrol's Custom Control Sensor range is widely used in applications where a 'fit' and 'forget' solution is of paramount importance. They are used because they provide the following advantages.

- Set points stay set - not sensitive to shock, vibration, temperature variations, or other ambient conditions.
- No "tracing" of fluctuating pressures - no "teasing" of the microswitch. The switch is either "on" or "off".
- Reduces the adverse effects of pump ripple, contact chatter, fatigue, and premature wear.
- Maximum life expectancy with lifelong reliability and precise repeatability.

A selection of some of our popular industrial and process models

All CCS DUAL-SNAP Pressure and Temperature switch models are available with a choice of SPDT or DPDT micro-switches including gold contacts for intrinsically safe applications. All certified models have hermetically sealed electrical assemblies as standard. For electrical termination options we offer a choice of approved junction boxes, DIN connectors [weatherproof, compact models] or free leads.

On corrosive or sour service, wetted process parts can be supplied as standard in 316 Stainless Steel, Monel or Hastelloy all in full compliance with the latest NACE [National Association of Corrosion Engineers] specifications. A choice of corresponding elastomer seal is available.

Adjustable pressures from 38 mmH2O to 1100 bar. Temperatures from -34 to 343°C.

A TYPICAL DUAL-SNAP PRESSURE SWITCH WITH THE FOLLOWING FEATURES

Series 6905GZE/PE**-7042	
• CENELEC Certified	
• CENELEC Code: EExdIICT6 (Tamb-34°C to +71°C) & T5 (Tamb-34°C to +86°C)	
• BASEEFA Number: EX90C1218X	
Electrical Connection (Fitted Terminal boxes available as an option)	
M20 thread	
Earthing Connection	
Switching Element 11 AMP SPDT - HERMETICALLY SEALED (also available DPDT and Gold Contacts for intrinsically safe circuits)	
Actuator Assembly	
Actuator Pin	
Flameproof Enclosure SST Construction	
Disk Spring "DUAL SNAP" "ON-OFF" operation	
Weatherproof Enclosure IP67	
Adjustable Helical Spring (for set point adjustment)	
Wheel for Precise wide-range adjustment	
Vent Valve Prevents pressure build-up in chamber	
Pressure Plate	
316 Stainless Steel (options available) Diaphragm or Piston and TFE/Viton O-Ring Pressure Seal	
Pressure Port 316 Stainless Steel (options available)	

Typical Hazardous Area Switch for 'Offshore' environments

604 SERIES	
PRESSURE/DIFFERENTIAL PRESSURE/VACUUM:	
Wide range Diaphragm and Piston versions	
Externally adjustable set-point	
Weatherproof - IP66	
Pressure ranges 0.05 to 345 Bar [0.8 to 5000 PSI]	
Vacuum range 88 to 724 mmHg	
DP range 0.05 to 5.2 Bar [0.8 to 75 PSID]	
Process wetted parts standard options: Aluminium, Brass, 316SS, Monel and Hastelloy	
TEMPERATURE:	
Direct mount and Capillary options	
Range from -34 to 343°C [-30 to 650°F]	
Standard capillary lengths 1.5, 3, 4.5 and 7.6 metres [5, 10, 15 and 25 ft.]	
Thermowells [for all series]:	
316SS, 3/4" or 1/2" NPTM sizes with standard insertion lengths of 114, 190, 266, and 342 mm [41.5", 71.5", 10.5" and 13.5"]	
Flanged types on request	



646 SERIES*

PRESSURE/DIFFERENTIAL PRESSURE/VACUUM:
Wide range Diaphragm and Piston versions
Externally adjustable set-point
Explosion-proof certified to UL, CSA and/or BASEEFA - IP66
Pressure ranges 0.08 to 345 Bar [1.2 to 5000 PSI]
Vacuum range 88 to 724 mmHg
DP range 0.08 to 5.2 BarD [1.2 to 75 PSID]
Process wetted parts standard options: Aluminium, 316SS, Monel and Hastelloy



6900/6904/6905 SERIES*

PRESSURE/DIFFERENTIAL PRESSURE/VACUUM:
Compact size wide range Diaphragm and Piston versions
Flush Diaphragm
Externally adjustable set-point
Weatherproof and Explosion-proof options - IP66/67
Explosion-proof models certified to UL, CSA and CENELEC
Pressure ranges 0.21 to 1100 Bar [3 to 16000 PSI]
DP range [1.2 to 5.2 BarD] 1.2 to 75 PSID
Process wetted parts options: Aluminium, 316SS, Monel and Hastelloy



611 SERIES*

PRESSURE/VACUUM:
Compact size low range Diaphragm
Internally adjustable set-point
Weatherproof and Explosion-proof options - IP66
Explosion-proof models certified to UL and CSA
Pressure ranges 0.1 to 12.4 Bar [1.5 to 180 PSI]
Vacuum range 101 to 724 mmHg
Process wetted parts options: Aluminium, Brass and 316 Stainless Steel



672/673/674 SERIES*

DIFFERENTIAL PRESSURE:
Low, medium and high range Diaphragm
Factory set and externally adjustable set-point models
Weatherproof and Explosion-proof IP66/67
Explosion-proof certified to UL, CSA and CENELEC
Ranges 0.48 to 55 BarD [7 to 800 PSID]
Process wetted part options: Aluminium, 316SS

TEMPERATURE:

Direct mount and Capillary options
Range from -34 to 343°C [-30 to 650°F]
Capillary lengths same as for 604 series



TEMPERATURE:

Direct mount and Capillary options
Range from -7 to 343°C [20 to 650°F]
Capillary lengths same as for 604 models

TYPICAL APPLICATIONS



MOD fighting vehicles



Ships including the Royal Navy



Offshore oil rigs

For Process / Automation / High Temperatures / Heating / OEM



SERIES CRYOGENIC

TEMPERATURES

Maximum Temp	65°C
Minimum	-196°C

Series Cryogenic solenoid valves are designed to withstand low working temperatures with cryogenic liquids such as oxygen, argon, nitrogen and liquid carbon dioxide.

The CRYOGENIC solenoid are used in applications such as:

- Freezing systems
- Electrical medical equipment
- Liquid nitrogen shotblasting machines
- Electronics industry



GENERAL PURPOSE

SERIES 20

Maximum Pressure	155 bar
Minimum	0

Series 20 solenoid valves have a direct action and do not require a minimum differential pressure to operate.

Series 20 solenoid valves are ideal for controlling a large range of media compatible with stainless steel and the seal material.

Some typical application examples:

- Automation systems
- Instruments
- Water treatment systems
- Automatic dispensers
- Spraying equipment
- Dental equipment
- Machines for the food industry



HIGH FLOW

SERIES 28

Maximum Pressure	105 bar
Minimum	1 bar

Series 28 solenoid valves have a piloted piston for actuating high pressure systems and require a minimum differential pressure to operate.

Series 28 solenoid valves are used in systems where a high flow rate of the media is required with a high working pressure.

Some typical application examples:

- Hot pressing systems
- Compressors
- Car wash plants
- Pumps
- High pressure cleaning machines
- Spraying systems



BUBBLE TIGHT

SERIES 30

Maximum Pressure	14 bar
Minimum	0

Series 30 solenoid valves are direct operated and do not require a minimum differential pressure to operate.

Series 30 Solenoid valves are used in applications which require actuation and automatic discharge for moving systems in the areas listed below

Some typical application examples:

- Automation systems
- Instruments
- Automatic dispensers
- Food industry
- Pharmaceutical industry
- Batch machines
- Zootechnical industry



VACUUM VALVES

SERIES 123

Maximum Pressure	5 bar
Minimum	0

Series 123 solenoid valves are ideal for automatic control of media for a wide range of uses which require zero or very low differential pressures.

Some examples of applications are:

- Thermohydraulic systems
- Hydrocleaners
- Industrial dishwashers
- Instruments
- Food industry equipment
- Closed circuits
- Polyurethane systems
- Metal smelting plants
- Environmentally-friendly systems
- Suction pad manipulators

In vacuum applications series 123 valves can be used in a range from 10⁻³ to 10⁺³ torr.



LOW FLOW RATES

SERIES 131.4

Maximum Pressure	8 bar
Minimum	0

Some examples of applications are:

- Diesel oil burners
- Gas analysers
- Lubrication systems
- Measurement and control instruments

Series 131.4 solenoid valves are direct operated. They are used for general applications with media such as inert gases and light oils. Series 131.4 solenoid valves are used for the automatic control of media where low flow rates are required.

- Fumes analysers
- Distribution of light oils
- Welding machines with controlled atmosphere

LUCIFER / PARKER / SKINNER



ZERO DIFFERENTIAL

SERIES 136

Maximum Pressure	5.5 bar
Minimum	0

Series 136 solenoid valves are direct operated and do not require a minimum differential pressure to operate.

Series 136 solenoid valves are ideal for the automatic control of media for the following applications:

- Water purification plants
- Generating sets
- Industrial refrigerators
- Sterilisers
- Distribution of light oils
- Air dehumidifiers

For air applications the maximum differential pressure (MOPD) can be increased by 25%.



UNIVERSAL OPERATION

SERIES 139

Maximum	10 bar
Minimum	0°C

Series 139 solenoid valves are universal and may be used as normally closed, normally open for bypass and mixer applications depending on the flow pattern chosen way. Series 139 solenoid valves are used in applications which require actuation and automatic discharge of moving systems. They enable the flow to be diverted towards a single outlet or to select one flow from two.

Some typical application examples:

- Pneumatic systems
- Air compressors
- Pilot valves
- Batch systems
- Hydrocleaners
- Dryers
- Instruments
- Hygiene-health systems
- Paper and board manufacturing machines
- Automatic dispensers



NORMALLY CLOSED

SERIES 141

Maximum	15 bar
Minimum	0

Series 141 solenoid valves are direct operated and do not require a minimum differential pressure to operate. Series 141 solenoid valves are used in applications which require actuation and automatic discharge of moving systems in the following applications.

- Espresso coffee machines
- Sterilisers
- Diesel oil burners
- Air compressors
- Polyurethane plants
- Pilot valves
- Water treatment plants



LOW COST

SERIES 174

Maximum	20
Minimum	0

Series 174 solenoid valves have direct action and therefore do not require a minimum differential pressure to operate. Series 174 solenoid valves are ideal for the automatic control of media with low flow rates. Some typical application examples:

- Espresso coffee machines
- Sterilisers
- Compressed air systems
- Welding machines
- Wood working machines
- Electrical medical equipment
- Shoe-manufacturing machines



LOW POWER

SERIES 179

Maximum	10 bar
Minimum	0

Series 179 solenoid valves have direct action and are used in systems for pressurisation and automatic discharge of media when small overall dimensions and low electric absorption are required.

Series 179 solenoid valves are ideal for automatic control of media where low flow rates are required.

Some typical application examples:

- Exhaust gas analysers
- Sterilisers
- Scientific equipment
- Automatic dispensers
- Electrical medical equipment
- Pilot valves



Large orifice



High flow



316 ST ST construction



Manual reset option

3/2 Solenoid Control Valves 316 Stainless Steel for petrochemical, chemical and offshore applications

Extremely severe operating conditions prevailing on North Sea offshore platforms, combined with high safety requirements due to hazardous locations, require design features not generally found in conventional solenoid valves.

The 316 stainless steel range solenoid valves described here is the result of several years cooperation between the North Sea offshore industry, Haakon Ellingsen A/S and Parker Lucifer SA, a world leader in the design and development of high technology solenoid valves.

The valves are manufactured against a severe Quality Assurance and Materials traceability program and are supplied with the corresponding certificates.

Used or specified as actual control or fail-safe valves with either CENELEC encapsulated increased safety or intrinsically safe electrical parts, the valves offer today the ultimate in quality, reliability and safety.

Does your process control circuit require a solenoid valve you can forget once it is installed? Then call Hycontrol now.



BASIC MODELS

2/2 VALVES, NORMALLY CLOSED	
U 121 V types	1.0 mm orifice
inlet pressure	9800 kPa max.

3/2 VALVES, CLOSED WHEN DE-ENERGISED	
U 131 F types	2.5 mm flow orifice
inlet pressure	1000 to 1400 kPa max.

3/2 VALVES, UNIVERSAL FUNCTION	
U 133 V types	2.5 mm flow orifice 850 kPa max. inlet pressure
U 133 X types	5 mm flow orifice 1000 kPa max. inlet pressure
U 033 X types	5 mm flow orifice 1000 kPa max. inlet pressure

COMMON FEATURES

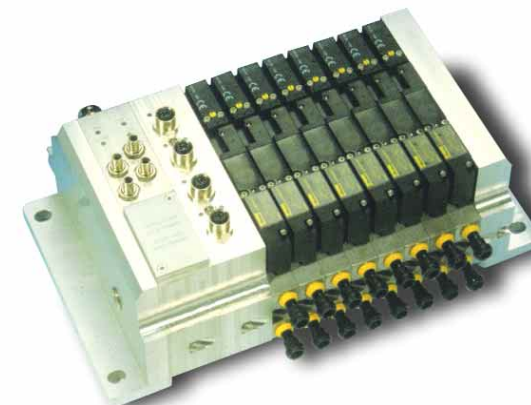
Poppet design, Viton, PUR, seat discs
Safe body working pressure:
10 500 kPa for F and V types
2 000 kPa for X types

Direct Pipe mounting	V & X types
Sub-base mounting:	F types
Mounting Position	indifferent
Materials	body: 316 L stainless steel valve trim: Buna (NBR), Viton (FKM), Polyurethan seat discs: stainless steel & polyamid-imid
Medium:	Instrument or industrial air, dry or lubricated, nitrogen (121 V types)
Filtration	50 µ or better



If space is a premium or you are cooking to simplify value connections, then the Hycontrol manifold range should cover all of your requirements.

From simple safe area applications on pilot operation of large control valves to state of the art EExpress which is a complete value system suitable for mounting directly into a hazardous area with profibus communications.



This smart EEx bus manifold package has been designed for the control of pneumatic actuators in Process Industries with hazardous environments **Zone 1 or Zone 2** to industries such as:

- Chemical & Pharmaceutical
- Gas and solvent handling
- Powder transportation
- Refining

The EEx Profibus Manifold is a stackable system composed of:

- 1 x End plates Kit
- X x Solenoid valve module
- X x Input sensor module
- 1 x Gateway

The Pofibus Explosion-proof manifold 5/2 valve island design uses the **EEx [ia] pm protection**.

Up to 32 valves per island require one bus address only.



Din Rail Mount Solenoid Valves

The only range of Manifold Mount Solenoid Valves without a Manifold!

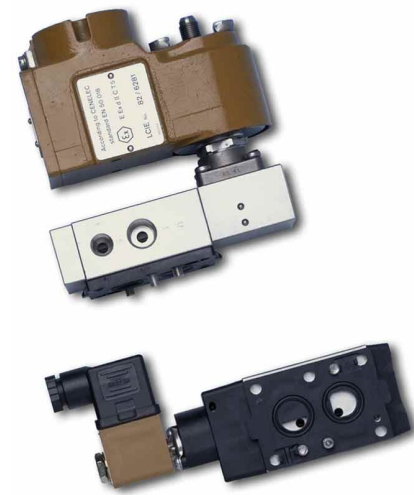
- **Simple and easy** to assemble in single or multi-valve manifolds
- **Reduced costs** as no additional sub base manifolds required
- **Optional mounting** on either DIN rail or multi-stack arrangement
- **Integrated exhaust** for pollution free environments such as food or pharmaceutical
- **Quick installation** with 6 or 8mm push in pipe fittings.
- **Low power** coils for energy savings & reduced heat build up > 2.5 watts
- **Hazardous area** coil options available, EExme II T4/T5
- **Very competitive price** compared to other manifold arrangements

Namour Mount Solenoid Valves

Unique universal configuration for 3/2 or 5/2 operation with the same valve.

This series offers unique features and characteristics and in particular the integrated conversion plate which from mounting in a different orientation determines whether it is a 3/2 or 5/2 operation. Other features include integrated exhaust in the pilot assembly and the sliding spool assembly within the valve which eliminates the possibility of the valve sticking while in service.

- Operating range -40 to +80 deg C
- Hazardous area options
- Universal operation 3/2 or 5/2
- Competitive price



TYPE 100

PRECISION AIR PRESSURE REGULATORS		
Flow capacity SCFM (m ³ /hr)*	14 (25)	
Exhaust Capacity SCFM (m ³ /hr)	2 (3.4)	
Sensitivity [Inch/WC (mm)]	0.125 (3.2)	
Supply Pressure Max [PSIG (kPa)]	150 (1050)	
Approximate Size (inches)	2.0 x 2.06 x 4.26	
Approximate Size (mm)	52 x 52 x 108	



RANGE PSIG (kPa)	PORT SIZE NPT	MODEL
2-40 (15-280)	1/8	100-AA
	1/4	100-BA
	3/8	100-CA
2-60 (15-420)	1/8	100-AB
	1/4	100-BB
	3/8	100-CB
2-120 (15-840)	1/8	100-AC
	1/4	100-BC
	3/8	100-CC

Multi-stage regulator provides the highest level of regulation accuracy and repeatability available. Output pressure is controlled to within 0.1% of full range.

- Very sensitive to changes in supply pressure and flow
- Able to hold set pressure over long periods of time
- High relief capacity, plunger operated, manifold mounted, and low range models are available.

TYPE 400

GENERAL SERVICE PRESSURE REGULATOR		
Flow capacity SCFM (m ³ /hr)*	20 (33.6)	
Exhaust Capacity SCFM (m ³ /hr)	0.1 (0.17)	
Sensitivity [Inch/WC (mm)]	1.0 (25.0)	
Supply Pressure Max [PSIG (kPa)]	250 (1700)	
Approximate Size (inches)	DIA 2.5 H 5.63	
Approximate Size (mm)	DIA 63 H 143	



RANGE PSIG (kPa)	PORT SIZE NPT	MODEL
0-10 (0-70)	1/4	400-BD
0-30 (0-210)	1/4	400-BA
0-60 (0-420)	1/4	400-BB
0-120 (0-840)	1/4	400-BC

General purpose regulator provides reliable performance under variable operating conditions. This quality unit is ideal as an economical alternative for control of industrial process applications.

- Aspirator tube design helps

maintain set pressure and minimise “droop” at higher flow levels

- Repeatable pressure output
- Corrosion-resistant construction
- Low cost makes this unit ideal for high volume OEM applications

TYPE 700BP

PRECISION BACK PRESSURE REGULATOR		
Flow capacity SCFM (m ³ /hr)*	50	
Exhaust Capacity SCFM (m ³ /hr)	N/A	
Sensitivity [Inch/WC (mm)]	0.125	
Supply Pressure Max [PSIG (kPa)]	250 (1700)	
Approximate Size (inches)	DIA 3.0 H 6.0	
Approximate Size (mm)	DIA 76 H 152	



RANGE PSIG (kPa)	PORT SIZE NPT	MODEL
0-2 (0-14)	1/4	710-BA
	3/8	710-CA
	1/2	710-DA
0-15 (0-105)	1/4	710-BC
	3/8	710-CC
	1/2	710-DC
0-30 (0-210)	1/4	710-BD
	3/8	710-CD
	1/2	710-DD
0-60 (0-420)	1/4	710-BE
	3/8	710-CE
	1/2	710-DE
0-150 (0-1050)	1/4	710-BF
	3/8	710-CF
	1/2	710-DF

Provides sensitive protection against over pressurisation in the downstream portion of a pneumatic system. Operates as a high precision relief valve with an adjustable set-point.

- Provides quick response to controlled system pressure variation
- Flow capacity up to 50 SCFM
- Compensating flow control from venturi tube design

TYPE 300

INSTRUMENT AIR FILTER REGULATOR		
Flow capacity SCFM (m ³ /hr)*	20 (33.6)	
Exhaust Capacity SCFM (m ³ /hr)	0.1 (0.17)	
Sensitivity [Inch/WC (mm)]	1.0 (25.0)	
Supply Pressure Max [PSIG (kPa)]	250 (1700)	
Approximate Size (inches)	3.13 x 3.13 x 7.5	
Approximate Size (mm)	80 x 80 x 190	



RANGE PSIG (kPa)	PORT SIZE NPT	MODEL
0-10 (0-70)	1/4	300-BD
0-30 (0-210)	1/4	300-BA
0-60 (0-420)	1/4	300-BB
0-120 (0-840)	1/4	300-BC

Designed to provide clean, accurate air pressure to instruments, valves, and other control equipment. Durable materials of construction in combination with an epoxy paint finish provide long lasting corrosion resistance in harsh industrial environments.

- Provides constant control of pressure under variable flow rates and supply pressures
- High capacity, long lasting depth filter
- Epoxy finish is standard
- Low droop
- Through body mounting

TYPE 700

PRECISION HIGH FLOW PRESSURE REGULATOR		
Flow capacity SCFM (m ³ /hr)*	40-80 (68-140)	
Exhaust Capacity SCFM (m ³ /hr)	4 (7.0)	
Sensitivity [Inch/WC (mm)]	0.250 (6.4)	
Supply Pressure Max [PSIG (kPa)]	250 (1700)	
Approximate Size (inches)	DIA 3.0 H 6.0	
Approximate Size (mm)	DIA 76 H 152	



RANGE PSIG (kPa)	PORT SIZE NPT	MODEL
0-2 (0-14)	1/4	700-BA
	3/8	700-CA
	1/2	700-DA
0-15 (0-105)	1/4	700-BC
	3/8	700-CC
	1/2	700-DC
0-30 (0-210)	1/4	700-BD
	3/8	700-CD
	1/2	700-DD
0-60 (0-420)	1/4	700-BE
	3/8	700-CE
	1/2	700-DE
0-150 (0-1050)	1/4	700-BF
	3/8	700-CF
	1/2	700-DF

Ideal for applications that require high flow capacity and accurate pressure control.

- Allows flow capacity up to 80 SCFM
- Dampening action of aspirator tube provides stability under varying flow conditions
- Sensitive to minute changes in down stream pressure

TYPE 800

SUBMINIATURE PRECISION AIR PRESSURE REGULATOR		
Flow capacity SCFM (m ³ /hr)*	5 (8)	
Exhaust Capacity SCFM (m ³ /hr)	0.4 (0.68)	
Supply Pressure Max [PSIG (kPa)]	250 (1700)	
Approximate Size (inches)	DIA 1.0 H 3.4	
Approximate Size (mm)	DIA 24.5 H 86.4	



RANGE PSIG (kPa)	PORT SIZE 1/16 NPT	PORT SIZE M5
0-5 (0-35)	800-AA	800-BA
0-15 (0-105)	800-AB	800-BB
0-30 (0-210)	800-AC	800-BC
0-60 (0-420)	800-AD	800-BD
0-100 (0-700)	800-AE	800-BE

Compact unit that supplies precise air pressure regulation for applications where space is limited.

- Flow capacity up to 5 SCFM
- Stable output
- Repeatable
- Self relieving
- Lightweight construction

TYPE 850/860

LOW COST MINIATURE AIR/WATER PRESSURE REGULATOR			
Flow capacity SCFM (m ³ /hr)*	24 (48.2)		
Exhaust Capacity SCFM (m ³ /hr)	.5 (.85)		
Supply Pressure Max [PSIG (kPa)]	250 (1700)		
Approximate Size (inches)	1.5 x 1.63 x 2.80		
Approximate Size (mm)	38.1 x 38.1 x 71.1		



RANGE PSIG (kPa)	PORT SIZE NPT	AIR MODEL	WATER MODEL
0-15 (0-105)	1/8	850-AA	860-AAN
	1/4	850-BA	860-BAN
0-30 (0-210)	1/8	850-AB	860-ABN
	1/4	850-BB	860-BBN
0-60 (0-420)	1/8	850-AC	860-ACN
	1/4	850-BC	860-BCN
0-100 (0-700)	1/8	850-AD	860-ADN
	1/4	850-BD	860-BDN

Air/Water regulator provides stable output pressure in a small, economical package.

- Relieving and non-relieving models
- Non-rising adjustment knob with locking capability
- Lightweight construction
- OEM friendly cost

TYPE 500X

TRANSDUCER (I/P, E/P)	
Flow capacity SCFM (m ³ /hr)*	4.5 (7.6)
Terminal Based Linearity(% of span)	±0.75
Repeatability (% of span)	<0.5
Supply Pressure Max [PSIG (kPa)]	100 (700)
Port Size (Pneumatic)	1/4 NPT
Port Size (Electric)	1/2 NPT
Approximate Size (inches)	2.18 x 2.18 x 4.24
Approximate Size (mm)	55.4 x 55.4 x 107.7



INPUT SIGNAL	OUTPUT RANGE PSI (kPa)	MODEL
4-20 mA	3-15 (20-100)	500-AC
4-20 mA	3-27 (20-185)	500-AD
4-20 mA	6-30 (40-200)	500-AE
4-20 mA	1-17 (7-117)	500-AF
10-50 mA	3-15 (20-100)	500-BC
10-50 mA	3-27 (20-185)	500-BD
10-50 mA	6-30 (40-200)	500-BE
0-5 V	3-15 (20-100)	500-CC
0-5 V	3-27 (40-185)	500-CD
0-5 V	6-30 (40-200)	500-CE
1-9 V	3-15 (20-100)	500-DC
1-9 V	3-27 (40-185)	500-DD
1-9 V	6-30 (40-200)	500-DE

This electronic pressure regulator converts a current or voltage input signal to a linearly proportional pneumatic output pressure.

- Output pressure from 3-15 psig to 3-120 psig
- NEMA-4X(IP65) Enclosure (optional)
- Integral volume booster
- Agency approvals
- Field reversible
- Easy span and zero adjustment

TYPE 950X

EXPLOSION-PROOF TRANSDUCER (I/P)	
Flow capacity SCFM (m ³ /hr)*	4.5 (7.6)
Terminal Based Linearity(% of span)	±0.10
Repeatability (% of span)	<0.10
Supply Pressure Max [PSIG (kPa)]	100 (700)
Port Size (Pneumatic)	1/4 NPT
Port Size (Electric)	1/2 NPT
Approximate Size (inches)	DIA 3.50 H 4.60
Approximate Size (mm)	DIA 88.9 H 116.6



INPUT SIGNAL	OUTPUT RANGE PSI (kPa)	MODEL
4-20 mA	3-15 (20-100)	950XP-AC
4-20 mA	3-27 (20-185)	950XP-AD
4-20 mA	6-30 (40-200)	950XP-AE
4-20 mA	1-17 (7-117)	950XP-AF

Compact I/P transducer in an explosion-proof housing delivers reliable performance in hazardous areas. Internal electronic feedback system maintains accurate control of output pressure.

- Explosion-proof NEMA-4X(IP65) enclosure
- RFI, EMI protected
- Shock, vibration and position insensitive
- Field-selectable outputs (optional)
- Highly tolerant of impure air
- Easy wiring

TYPE 900X

TRANSDUCER (I/P, E/P)		
Flow capacity SCFM (m ³ /hr)*	4.5 (7.6)	
Terminal Based Linearity(% of span)	±0.10	
Repeatability (% of span)	<0.10	
Supply Pressure Max [PSIG (kPa)]	100 (700)	
Port Size (Pneumatic)	1/4 NPT	
Port Size (Electric)	1/2 NPT	
Approximate Size (inches)	1.50 x 1.50 x 3.69	
Approximate Size (mm)	38.1 x 38.1 x 93.7	



INPUT SIGNAL	OUTPUT RANGE PSI (kPa)	MODEL
4-20 mA	3-15 (20-100)	900-ACA
4-20 mA	3-27 (20-185)	900-ADA
4-20 mA	6-30 (40-200)	900-AEA
4-20 mA	1-17 (7-117)	900-AAF
4-20 mA	2-60 (15-420)	900-AGA
4-20 mA	3-100 (20-700)	900-AHA
0-5 V	3-15 (20-100)	900-CCA
0-5 V	3-27 (20-185)	900-CDA
0-5 V	6-30 (40-200)	900-CEA
0-10 V	3-15 (20-100)	900-ECA
0-10 V	3-27 (20-185)	900-DEA
0-10 V	2-60 (15-420)	900-EGA
0-10 V	3-100 (20-700)	900-EHA

Internal feedback system provides accurate conversion of a variable electrical signal to a linearly proportional pneumatic output.

- Unit self-corrects to maintain precise control of output pressure
- Shock, vibration and position insensitive
- High accuracy
- Non-interactive zero and span
- NEMA-4X(IP65) Enclosure
- Supply pressures up to 100psig
- Built-in volume booster
- Wall, panel, pipe, DIN rail (optional) or manifold (optional) mounting
- Direct / reverse acting, full / split range

TYPE 925

Provides a common supply port for the Type 900X I/P, E/P. Individual shut-offs allow in use service.

- One supply line for multiple outlets
- Patented individual shut-off valve
- DIN rail mountable
- Easy set-up
- Adaptable to provide common output solenoid valves



DIAPHRAGM AIR CYLINDERS

These air cylinders utilise a rolling diaphragm to provide a low-friction dynamic seal. This design provides virtually frictionless conversion of fluid pressure to linear force.

- Standard units are easily modified to meet individual customer requirements
- Low hysteresis
- No blow-by leakage
- Available with linear ball bearings
- Various mounting options



The “Rolling Diaphragm” Air Cylinder

The advent of the long stroke rolling diaphragm as a means of low-friction dynamic sealing has led to the development of our Diaphragm Air Cylinder. These cylinders provide virtually frictionless conversion of pneumatic pressure to linear force, and offer such operating features as:

- Super Sensitivity
- Absolutely No Lubrication Required
- Low Hysteresis
- No Blow-By Leakage
- Wide Temperature Variations

ControlAir supplies each of these cylinders with quick delivery, 100% leak testing, and full product support before and after the sale.

Applications

The performance advantages of our Diaphragm Air Cylinders make them ideal for applications such as Web Tensioners, Dancer Roll Tensioners, Roll Loaders, Valve Actuators, Accumulators, Positioners, and Impact Absorbers to name a few.

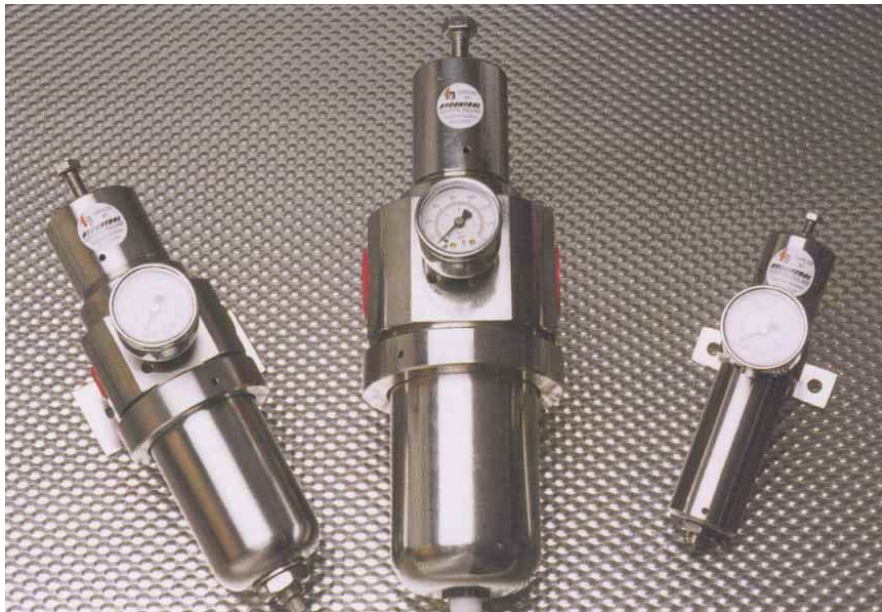
Diaphragms

The rolling diaphragm creates the perfect seal for friction free cylinders. It is durable, flexible membrane shaped like a top hat with the peak of the hat fastened to the end of the piston and the “brim” clamped to the cylinder cap. Inside of the cylinder this forms a long-lasting frictionless seal between the piston head and cylinder wall. The fabric reinforced elastomer rolling diaphragms are produced internally utilising a microprocessor controlled process that is recognised as the leading edge mode of production. Custom diaphragm material design allows for operation of the cylinders at temperatures from -75°F to 400°F.

Hycontrols regulators can cover a wide range of applications including sour gas and other corrosive gases. The range can meet all NACE requirements and its advanced design and rugged construction give it excellent stability and repeatability even in the most corrosive environments.

Whether it's a regulator, filter regulator or lubricator, Hycontrol can supply with a wide range of options in port sizes from to 1/8" to 1".

316 ST/ST FILTER REGULATORS



Manufactured from high grade 316 stainless steel, the units, which are externally 100% corrosion resistant, are ideal for many applications within the offshore, chemical and food processing industries.



- Three different size models available
- Relieving or non-relieving versions
- Port size ranging from 1/8" to 1"
- Tamper-proof adjusting screw
- NPT, BSP or BSPT thread forms
- Designed for easy installation and servicing
- Flow rates to 5,600 litres/min
- Metal bowl as standard
- Working pressures to 30 bar
- Custom-built units designed and manufactured
- 5, 25 and 50 micron filter element available
- Regulators, filters and lubricators also available
- Automatic or manual drain valve

Part Number	Port Size (NPT)	Output Range	
		(psi)	(BAR)
350-BA	1/4"	0.5-30.0	0.05-2.0
350-BB	1/4"	0.5-60.0	0.05-4.0
350-BC	1/4"	3.0-100.0	0.2-7.0
350-BD	1/4"	3.0-150.0	0.2-10.0
350-DA	1/2"	0.5-30.0	0.05-2.0
350-DB	1/2"	0.5-60.0	0.05-4.0
350-DC	1/2"	3.0-100.0	0.2-7.0
350-DD	1/2"	3.0-150.0	0.2-10.0



Site Survey and Equipment Recommendation

Expert technical advice is available, free of charge, for all new applications or projects to ensure you choose the technology most suited for your application. Whether it is a hazardous area, solenoid valve or a continuous level radar monitor, let Hycontrol offer the perfect solution with a guarantee on all systems provided.

Installation

Hycontrol can offer a complete site installation if required, from installation of cables to the supply of display panels or cabinets. All work is carried out by an approved installation and engineering contractor.

Commissioning and Field Service Support

Our Service Engineers offer a full range of commissioning services, including checking cable installations, whether mechanical brackets or fixings are mounted correctly, software operating as it should and a full calibration check with certificates issued. (This applies to level control equipment only).

Service Contracts

With quality at the forefront of all leading companies, it is essential to ensure your level measurement is accurate and reliable. Planned site visits at regular intervals will always ensure that you get optimum performance from your Hycontrol equipment and ensure accurate and repeatable level measurement readings. The Service Contracts to site include full system test, software check, mechanical installation inspection, along with a full written report on current system and any recommendation if required.

Warranty

Hycontrol offer 12 months warranty on all their product range, which covers all labour and parts used for repair, free of charge, after the units have been received at Hycontrol.

Extended Warranty

With reliability of electronic components combined with a high quality product, Hycontrol can offer extended warranty an all level products at 1, 2 or 3 year options.

Please ask for a quotation.



Hycontrol commissioning engineer



Eden project level monitoring and pump control



Final assembly and test area at Redditch factory



Service contract to calibrate level measurement on site



Display Panels

Hycontrol can offer a simple panel “design and build” service principally to enable our customers to single-source their instrumentation and ensure that one company has total responsibility for the project. Hycontrol can design and manufacture a panel, arrange for the installation of cables and process connections and provide a single source solution for a complete application.



Product Assemblies

This division of Hycontrol has increased significantly over recent years as customers look for simplified purchasing with single source supply wherever possible.

This entails assembling a number of components into one complete assembly reducing the customer’s chain of suppliers, giving one key contact and ultimately one single point of supply. If you are looking to reduce suppliers please contact us.



Special Products

Hycontrol work closely with a wide range of customers on applications that require a certain degree of engineering design and management. Whether its an application to transmit data over a large distance using Radio telemetry or designing a special switch to go on a fire extinguisher application. Hycontrol can design, supply, install and commission a wide range of instrumentation from a simple pressure switch to a complete level measuring alarm panel.

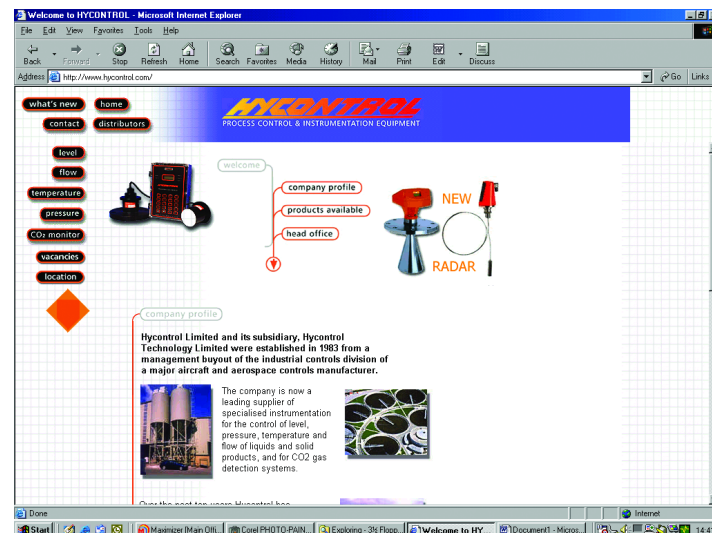
Hycontrol has supplied many thousands of instruments to a wide range of industries including:-

- Original Equipment Manufacturers
- Petrochemical
- Utilities
- Pharmaceuticals
- Food
- Chemical
- Process

Listed below is a small representation of customers who have been supplied with Hycontrol products over recent years.

INDUSTRY	COMPANY	PRODUCT
UTILITIES	WEST OF SCOTLAND WATER	FLOW & LEVEL MEASURING PRODUCTS
PROCESS	BNFL	LEVEL PRODUCTS
TYRES	GOODYEAR	SOLENOID VALVES
PAPER	WIGGINS TEAPE	LEVEL MEASUREMENT
MILITARY	VICKERS (CHALLENGERS TANK)	PRESSURE SWITCHES
PROCESS	CARADON BATHROOMS	LEVEL CONTROL
ANIMAL FEED	BOCM	LEVEL MEASUREMENT
RESALE	JEWSON	SOLENOID VALVES
PROCESS	ARMITAGE SHANKS	LEVEL & TEMPERATURE MEASUREMENT
FOOD	OAKDALE BAKERY	STORAGE BIN LEVELS
PETROCHEMICAL	BP OIL	PRESSURE SWITCHES
PETROCHEMICAL	JOHNSON MATTHEY	LEVEL MEASUREMENT
FOOD	BIRDS EYE/WALLS	SOLENOID VALVES
FOOD	ASDA	TEMPERATURE MEASUREMENT
CHEMICAL	ALCON CHEMICAL	PRESSURE SWITCHES
PROCESS	LAFARGE	LEVEL MEASUREMENT
FOOD	SAFeway	STORAGE LEVEL MEASUREMENT
FOOD	GILCHRIS CONFECTIONERY	LEVEL MEASUREMENT
OEM	THERMO	PRESSURE SWITCHES/REGULATORS
CHEMICAL	BOC GASES	SOLENOID VALVES/PRESSURE SWITCHES
PROCESS	TARMAC ROADSTONE	LEVEL MEASUREMENT
PETROCHEMICAL	BP GRANGEMOUTH	THROUGH WALL LEVEL
OEM	VICKERS DEFENCE	PRESSURE SWITCHES
AUTOMOTIVE	VAUXHALL MOTOR CO	LEVEL MEASUREMENT & PRESSURE REGULATORS
CHEMICAL	RHODIA CONSUMER SPECIALTIES	SOLENOID VALVES
UTILITIES	NORTH WEST WATER	FLOW MEASUREMENT
PETROCHEMICAL	PHILIPS PETROLEUM	SOLENOID VALVES
PROCESS	M J GLEESON	PRESSURE SWITCHES/LEVEL CONTROL
PROCESS	DENBY POTTERY	LEVEL MEASUREMENT
PETROCHEMICAL	CAC LTD	SOLENOID VALVES
FOOD	KELLOGGS	LEVEL SWITCHES
FOOD	NESTLE	LEVEL MEASUREMENT
CONTRACTS	PURAC	LEVEL & FLOW MEASUREMENT
PETROCHEMICAL	PALADON	PRESSURE SWITCHES
CHEMICAL	BAYER CHEMICALS	LEVEL MEASUREMENT
RESALE	ECONOMATICS	SOLENOID VALVES/PRESSURE SWITCHES
AUTOMOTIVE	JAGUAR CARS	LEVEL MEASUREMENT
PROCESS	CONTINENTAL CAN	PRESSURE SWITCHES
UTILITIES	NATIONAL POWER	LEVEL MEASUREMENT
OEM	PCI MEMBRANE	PRESSURE SWITCHES
FOOD / DRINK	COCA COLA/SCHWEPES	LEVEL MEASUREMENT
CONTRACTS	AMEC	LEVEL & FLOW MEASUREMENT
PROCESS	AVESTA ALLOYS	LEVEL MEASUREMENT
PROCESS	PIRELLI CABLES	SOLENOID VALVES
UTILITIES	ENVIRONMENTAL AGENCY	LEVEL & FLOW MEASUREMENT
OEM	BRUSH ELECTRICAL	PRESSURE SWITCHES
AUTOMOTIVE	ROVER CARS	LEVEL MEASUREMENT

Have you seen our website?



This is an area of continual development within Hycontrol as we try to ensure the most up-to-date information is available 24 hours a day, wherever you are in the world.

The website displays all of the Hycontrol product range in a simple format to find and use.

Please remember to review the "What's New" pages to keep up-to-date and if you wish to contact us either with an application or product query, please use the contact form provided and we will respond as soon as possible.

Please visit: www.hycontrol.com

Hycontrol China



HYCONTROL OPEN NEW OFFICE IN BEIJING, CHINA

Hycontrol have now opened their first overseas office in China. The Beijing offices will be known as Beijing Hycontrol Electronic & Technology Company Limited. This office has been opened due to the high level of business activity we have been experiencing from the Chinese market over recent years. It became clear that the normal distribution route was not suitable for the Chinese market due to the sheer size and diversity of the market and the geographical size of the country.

DISTRIBUTORS

ARGENTINA	COLUMBIA	ISREAL	NEW ZEALAND	SOUTH AFRICA
AUSTRALIA	CROATIA	ITALY	NORTHERN IRELAND	SPAIN
BAHRAIN	DENMARK	JAPAN	NIGERIA	SWEDEN
BENLUX COUNTRIES	FINLAND	KOREA	NORWAY	TAIWAN
BRAZIL	HONG KONG	KUWAIT	PERU	TURKEY
CHILE	INDIA	MALAYSIA	PORTUGAL	USA
CHINA	IRELAND SOUTH	MEXICO	SLOVENIA	VENEZUELA

Please contact our sales office if you would like further information on our distribution network or if you wish to be considered to represent Hycontrol as an unofficial distributor.

FOR FURTHER INFORMATION ON THE HYCONTROL PRODUCT RANGE, PLEASE COPY THIS SHEET, TICK AS REQUIRED AND FAX BACK YOUR DETAILS TODAY ON 01527 406810

<input type="checkbox"/>	ULTRASONIC LEVEL CONTROL EQUIPMENT
<input type="checkbox"/>	THROUGH WALL LEVEL MEASUREMENT
<input type="checkbox"/>	RADAR LEVEL MEASUREMENT
<input type="checkbox"/>	LEVEL SWITCHES - VIBRATING / ULTRASONIC / FLOAT
<input type="checkbox"/>	AIR REGULATORS / I-P / E-P / RELAYS / CYLINDERS
<input type="checkbox"/>	316SS FILTER REGULATORS
<input type="checkbox"/>	PRESSURE & TEMPERATURE SWITCHES
<input type="checkbox"/>	SOLENOID OPERATED VALVES
<input type="checkbox"/>	HAZARDOUS AREA EQUIPMENT
<input type="checkbox"/>	PROJECTS / PRODUCT ASSEMBLIES / CONTROL PANELS
<input type="checkbox"/>	ARRANGE VISIT TO DISCUSS REQUIREMENTS

NAME	POSITION
COMPANY	
ADDRESS	
TELEPHONE	FAX
EMAIL	

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