



**TEMPERATURE | PRESSURE
DENSITY | LEVEL | FLOW**

Our Brands



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OIL & GAS

Mechanical & Electronic Recorders (p.5), Orifice Plates/Multi Stages (p.6), Canongate Technology Products (p.10), Temperature Assemblies (p.15), HNL Switches & Minifolds (p.20) and Pressure & Temperature Gauges (p.21)



HEAT TREATMENT

Mechanical & Electronic Recorders (p.5), Temperature Assemblies (p.15), HNL Switches & Minifolds (p.20) and Pressure & Temperature Gauges (p.21)



POWER GENERATION

Mechanical & Electronic Recorders (p.5), Orifice Plates/Multi Stages (p.6), Temperature Assemblies (p.15), HNL Switches & Minifolds (p.20) and Pressure & Temperature Gauges (p.21)



FOOD & BEVERAGE

Mechanical & Electronic Recorders (p.5), Orifice Plates/Multi Stages (p.6), Canongate Technology Products (p.10), Temperature Assemblies (p.15) and Pressure & Temperature Gauges (p.21)



WASTE/WATER

Mechanical & Electronic Recorders (p.5), Orifice Plates/Multi Stages (p.6), HNL Switches & Minifolds (p.20) and Pressure & Temperature Gauges (p.21)



DEFENCE

Pressure & Temperature Gauges (p.21) according to Def-Stan 66-2 Approval



REFINING & PETROCHEMICAL

Mechanical & Electronic Recorders (p.5), Canongate Technology Products (p.10), Temperature Assemblies (p.15), HNL Switches & Minifolds (p.20) and Pressure & Temperature Gauges (p.21)



TRANSPORT

Canongate Technology Products (p.10)



PHARMACEUTICAL & MEDICAL

Canongate Technology Products (p.10) and Temperature Assemblies (p.15)



DAIRY

Mechanical & Electronic Recorders (p.5) and Pressure & Temperature Gauges (p.21)



AEROSPACE

Pressure & Temperature Gauges (p.21)

Mechanical Recorder (12")

Clearscan



- Any Combination of Temperature, Pressure and Flow: 1, 2 or 3 pen
- 1% measurement accuracy
- 12 inch chart sizes
- Panel, wall, pipe mounting or portable options available
- Battery or mechanical chart drive
- Very robust and proven design
- Light weight construction (<10kg)
- Standard Steel Epoxy coated case or Stainless Steel case available for harsh environments
- Simple installation and maintenance

Mechanical Recorder (9")

RPO/RTO



- Any combination of pressure and temperature recording: 1,2 or 3 pen
- Small tough compact Steel Epoxy coated case
- 1% measurement accuracy
- 9 inch chart sizes
- Panel, wall and pipe mounting or portable options available
- Battery or mechanical chart drive
- Very robust and proven design
- Low cost solution for chart recording

Electronic Recorder

Sentinel



- Any Combination of Temperature, Pressure, Flow and Humidity: 1, 2 or 3 pen
- IP66 construction
- Panel or surface mounting
- Configurable via front panel keypad
- 0.1% measurement accuracy
- Weight: 7 kg (Single Pen), 7.7 kg (3 pens)
- Alarms available
- Steel case
- Transmitter model SME162 required for humidity measurement

Pens, Charts & Accessories

For Rototherm Chart Recorders



A complete range of charts, pens and accessories suitable for all Rototherm recorders are kept in stock, many of our accessories are interchangeable with other manufacturer's recorders.

Restriction Orifice Plates

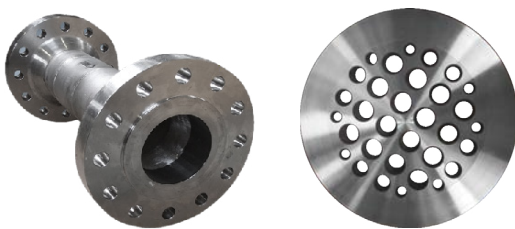
ROs



- Most common and widely used differential pressure producer
- Suitable for a wide range of flow restriction measurement applications in line sizes of 50mm and above
- Wide range of materials including exotics such as monel, hastelloy, as well as ceramic
- Orifice sizing on request
- Proven technology
- Range of Orifice Types
 - Concentric Square Edge
 - Conical Entrance
 - Quarter Circle
 - Segmental
 - Eccentric

Multi-Stage & Multi-Hole Restriction Orifice Assemblies

MSROs



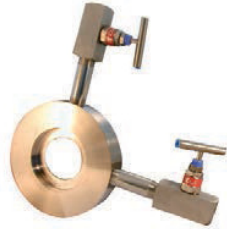
Flanged assembly consisting of a series of orifice plates to produce a specified reduction in line pressure or to create a critical flow, giving controlled flow rate regardless of changes in downstream conditions. In-house expertise covers all aspects of design and manufacture associate with restriction of pressure for control purposes.

Flow Restriction Benefits:

- Cavitation Elimination
- Preventing flashing in liquid flows
- Choked flow in gases
- Noise/Vibration Reduction
- Permanent Pressure Reduction
- Feed & Vent Flow
- Pressure drop
- Preventing cavitation and flashing in liquid flows
- Choked flow in gases
- Excessive noise/ vibration

Orifice Carrier Assemblies

Orifice Carrier Assemblies



- Orifice carriers are supplied for applications where existing pipework has no facilities for tappings
- Wide range of materials
- Suitable for 1" lines and above
- Range of Carrier Types:
 - Single Ring, Corner Tappings
 - Double Ring, Flange Tappings
 - Double Ring, Corner Tappings
 - Double Ring, Annular Chambers
- Orifice sizing on request

Orifice / Flange Union

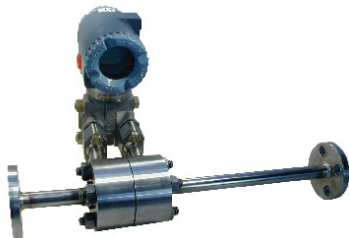
Orifice Assemblies



- Orifice flange assemblies consist of a pair of flanges, studs, nuts, gaskets, jacking screws and plugs (where requested)
- Orifice flanges ensure best flow measurement accuracy with an economic solution
- Wide range of materials, including ASTM A105N Carbon Steel, ASTM A350 LF2 Carbon Steel, ASTM A182 F316L Stainless Steel as standards
- Exotic materials used depending on application
- Ratings from 300 lb to 2500 lb
- Sizes from 1" Nominal Bore
- Corner Tapping Versions Available

Meter Runs

Orifice Flange Meter Run



- Typically consisting of a factory assembled section of pipe with an orifice plate mounted between two flanges near the bottom third of the run, terminated with a flange at each end connected to the process
- Can be supplied with temperature pockets if required
- Building the assembly in the factory allows us to control all the variables which can lead to inaccuracies which can arise if the system is assembled by untrained personnel on site

Venturi

Classical Venturi Tubes



- Classical Venturi Tubes - used on applications where a low permanent pressure loss is required
- Can be used on clean and dirty fluid in line sizes from 1" to 60"
- Calculation, design and manufacture to BS EN ISO 5167:1
- Fabricated from plate or machined from bar/ forgings
- Flanged or weld-in construction
- Wide range of material grades
- Calibration service on request

Flow Nozzle

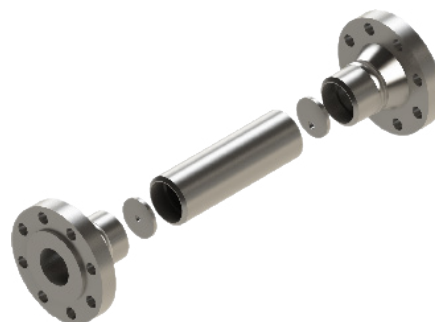
Flow Nozzle



- If high temperatures and velocities are present, the flow nozzle may provide a better solution than an orifice plate
- Its construction makes it substantially more rigid and flow coefficient data at high Reynolds number is better documented
- The inlet is contoured, and may be either radius entrance (ISA1932) or elliptical entrance (ASME long radius)
- The flow nozzle has about 65% greater flow capacity than an orifice with the same diameter
- Flow nozzles are also suitable for erosive fluids where the sharp edge of an orifice plate could quickly deteriorate

Multi-Stage Restriction Orifice (RO) Assembly for High Pressure Gas Blowdown

Multi-Stage ROs are typically required to reduce pressure down to atmospheric. This solution is increasingly common on offshore platforms where higher pressure drops and flow rates exist and control valves are expensive to install and maintain. For example, a multistage restriction orifice assembly is installed at the downstream of blow down valves. When blowdown valve opens to release the high pressure on its upstream, the RO at its downstream ensures that the flow is not excessive to overload the flare header. Usually the pressure drop in a blowdown circuit across an RO can be very high.



When designing a solution, Rototherm engineers always consider four critical factors:

- High pressure drop – ensuring that the required pressure drop is achieved with proven design
- Noise – achieving the lowest noise level (<85dBA according to international noise standards)
- Joule-Thompson Effect – considering the change in temperature across the assembly and subsequent impact on bore size and plate thickness
- Length – meeting the process requirements in the shortest overall length, especially when space is tight and limited

Multi-Hole Restriction Orifice (RO) Assembly for Cooling Water Recycling Lines

Multi-hole ROs are typically used in LNG terminals, LNG producing plants, chemicals, petrochemicals and refineries. This type of solution is a cost effective method for managing pressure within the water system. For example, a multi-hole restriction orifice assembly is used to manage a constant recirculation flow.

The recirculation ensures that cavitation and starvation cannot happen in the pump, as well as ensuring noise levels are kept to a safe level (<85dBA).



Rototherm designs' also account for the impact of Acoustic Induced Vibration (AIV), which can cause significant damage to surrounding equipment if such resonance levels are reached as a result of the process flow. Material selection and manufacturing capability is another critical factor to ensure the long-term success of a solution in the field. Our engineers always work in depth with process design teams to ensure successful solutions can be implemented.

Self Powered Contents Gauge

The 100 Series



- Converts the hydrostatic head pressure of liquid in a vented tank to give accurate continuous remote contents gauging.
- Completely self-powered without the need of batteries, electrical or pneumatic supply.
- Safe for use in flameproof/explosion proof and Zone 0 areas.
- Ideal for tanks or compartments with foaming, vaporising, or turbulent liquids.
- Supplied complete, no need for additional services, site programming or calibration.

Electronic Level Transmitter

The 200A Series

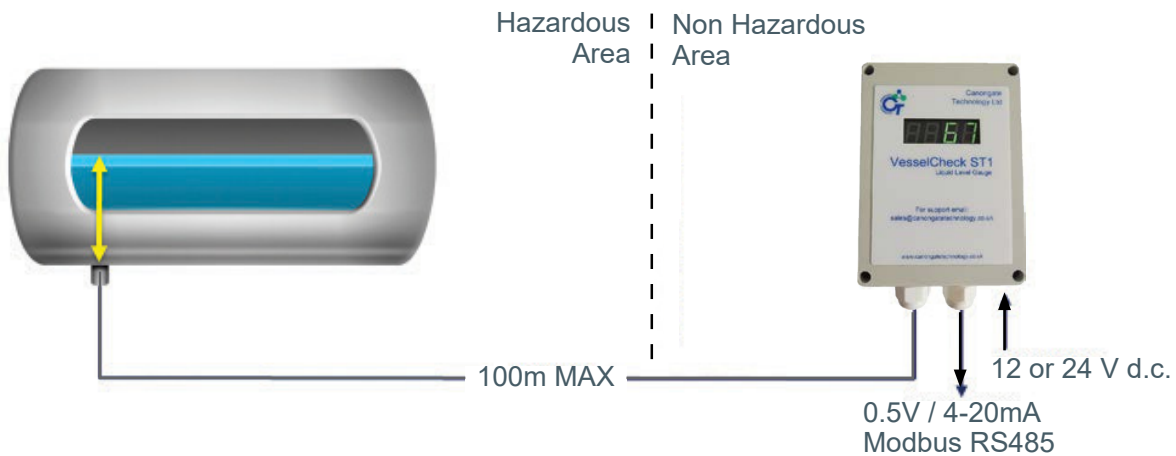


- Measures liquid level directly by the hydrostatic head pressure principle.
- Not subject to the inherent limitations and errors of buoyancy, capacitance change, or reflecting type sensors when applied to foaming, vaporising, or turbulent liquids.
- Ideally suited to marine and vehicular duties where the tank is subject to pitching and rolling.
- Use of a flush Hastelloy diaphragm
- Cable outer sheath in Teflon®
- Improved temperature coefficient, over a wider range
- Meeting International requirements for RFI/EMI and surge immunity
- Reduced sensor mass
- Optional integral digital indicator
- Wider choice of process connections
- Split architecture improves stability and accuracy by removing the electronics from the process liquid and process temperature.
- Easy installation, can be screwed or flanged to the process tank or vessel, or alternatively submerged within the liquid.
- Industry standard two wire 4-20mA 24V dc output.

Non-Invasive Tank Level Gauge

VesselCheck ST1

- Used extensively across Oil & Gas, Beverage, Chemical and Pharmaceutical industries
- Truly non-invasive
- Sensors bonded to outside of tank
- Fits tank of most shapes and sizes
- Output to Telemetry system – various options
- Low cost, reliable & accurate tank gauging
- Not affected by pressure
- Easy installation – no tank break-in
- Simple retrofit to existing tanks
- No down-time during installation
- No moving parts – no maintenance
- Temperature integrated sensors available



Hazardous Area Non-Invasive Tank Level Gauge

VesselCheck ST1AD

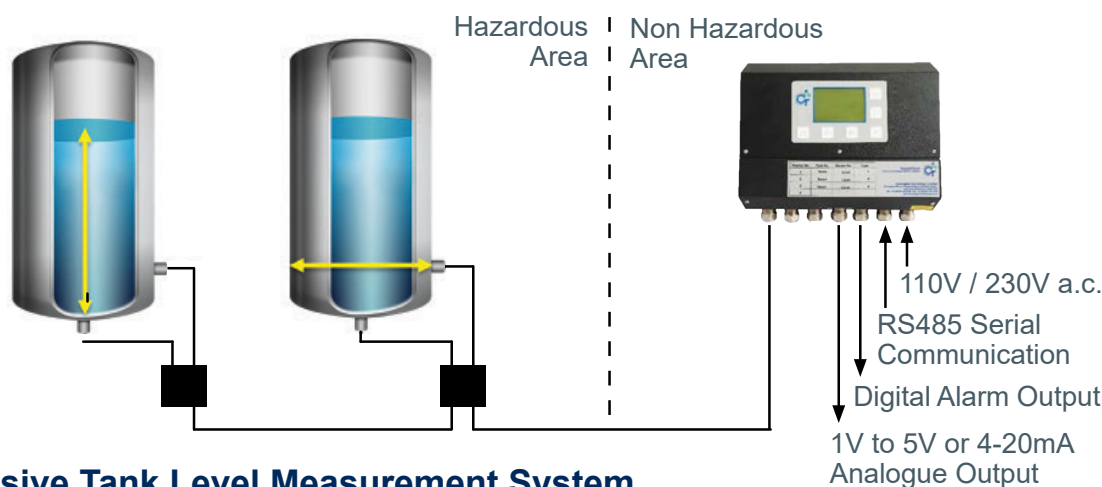
- Approved for hazardous area
- Used extensively across Oil & Gas, Beverage, Chemical and Pharmaceutical industries
- Truly non-invasive
- Transceiver bonds to outside of tank
- No tank break-in
- Easy installation
- Ambient temperature compensated (temperature measurement in display unit)
- No down-time during installation
- Suitable for tanks of most shapes and materials
- Not affected by pressure
- No moving parts – no maintenance
- Low cost & reliable tank gauging



Non-Invasive Tank Level Measurement System

VesselCheck ST2

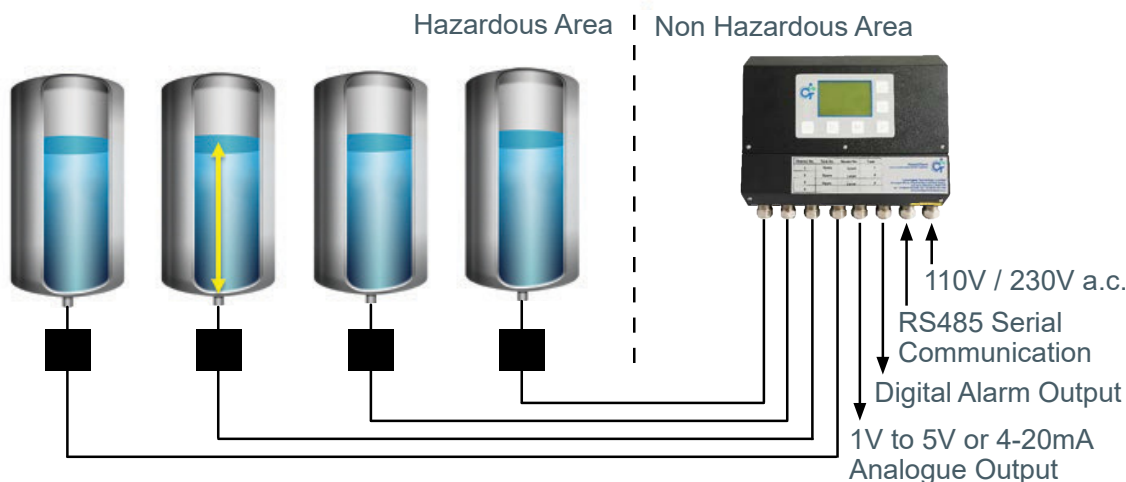
- Level measurement for 2 tanks
- Truly non-invasive technique
- Sensors bonded to outside of tank base and side wall
- 20 point calibration table
- 4 - 20mA / 1.5 V analogue outputs
- RS485 / 232 Modbus serial communications
- ATEX / IECEx approved sensors for hazardous areas available
- Optional local display keypad
- Fast, reliable and accurate tank contents measurement
- Easy installation – no tank break-in
- Easy retrofit to existing tanks
- No down-time during installation
- No moving parts – little or no maintenance required



Non-Invasive Tank Level Measurement System

VesselCheck ST4

- Level measurement for up to 4 tanks
- Truly non-invasive technique
- Sensors bonded to outside of tank base and side wall
- 20 point calibration table
- 4 - 20mA / 1 - 5V analogue outputs
- RS485 / 232 Modbus serial communications
- ATEX / IECEx approved sensors for hazardous areas available
- Optional local display & keypad
- Fast, reliable and accurate tank contents measurement
- Easy installation – no tank break-in, easy retrofit to existing tanks
- No down-time during installation
- No moving parts - little or no maintenance required



Non-Invasive Point Level Detector for Tanks & Pipes (Hi-Lo Alarm)

SpotCheck 1000/4000

- Non-invasive liquid level switch for use in applications where avoiding contact is vital
- Uses ultrasonic “footprint” to determine presence or absence of liquids inside a tank or pipe
- Sensor is clamped externally to the wall of the pipe or vessel
- Enables tank high / low level alarm
- Response time of 1 second

Applications include:

- Pump run dry protection
- Pig detection
- Tanker off-load pump control
- Overfill alarm
- Hygienic level switch for foodstuffs, liquids, pharmaceuticals and chemicals



Pneumatic and Electronic Level & Pressure Transmitter

CT Hollege

- Suitable for hygienic applications
- High accuracy
- Long term proven reliability
- Rugged construction
- Simple installation and set-up
- Standard and bespoke units
- Pneumatic systems for hazardous areas
- Liquid and slurry continuous level measurement
- Continuous pressure monitoring
- Low cost, reliable & accurate tank gauging
- Not affected by pressure
- Easy installation – no tank break-in
- Simple retrofit to existing tanks
- No down-time during installation
- No moving parts – no maintenance



General Purpose Probes

1RPT, 1PRS, 1RIP, 1TPT, 1TPS, 1TIP



- RTD probes for stable, repeatable measurements and excellent performance in high levels of shock/vibration - Sensor PT100 class A, B, AA, 1/5, 1/10 DIN
- Thermocouple probes for wider temperature ranges - sensor inputs type K, J, T and N
- Field bendable, Inconel or stainless steel sheath
- Measuring range minimum -200°C to +1200°C

Fast Response Probes

1RFR, 1TFR



- Fast response probe with low mass element to react quickly to temperature changes
- Sensor PT100 class A, B, AA, 1/5, 1/10 DIN. Thermocouple inputs type K, J, T and N.
- Measuring range dependant on sensor selection minimum -200°C to +1200°C

Spring Loaded Probes

1RSP, 1TSP



- Spring loaded, tip sensitive RTD and thermocouple probes
- Sensor PT100 class A, B, AA, 1/5, 1/10 DIN. Thermocouple inputs type K, J, T and N.
- Measuring range dependant on sensor selection minimum -200°C to +1200°C
- Insulated or bonded junction hot end and a selection of cold end seals and terminal blocks to suit application

Bayonet Mount Probes

1RBM, 1TBM, 1RBF, 1TBF



- Easy and inexpensive spring loaded installation of probes in solids
- Lock cap and spring for twist-and-release spring loading
- Thermocouple or RTD probes options
- Accurate sensing from -50°C to +260°C

Bearing RTD

1RBS, 1RBO



- High precision RTDs for fast, stable, repeatable measurements where there are space limitations
- RTD sensor Pt100 Class, B, A, AA, 1/10 DIN
- Measuring range of -200°C to +260°C
- Field bendable
- Moisture proof and oil seepage proof

Conduit Style

1RSD, 1RBS, 1 RBC, 1TSD, 1TBC



- Armoured cable protects the leads of thermocouples types E, J, K, N & T
- Well suited for industrial environments where unprotected probes may be cut or broken
- Metal sheaths made to your required length

Temperature Probes & Thermowells

Magnetic Mounted RTD

1RMM



- Magnet Mount Thermocouples can be utilised on any ferrous metals as an easy means to measure surface temperature of an object
- Provide a portable means of surface measurement that takes the hassle out of mounting a surface probe to a metal object

High Temperature Probes

ITCL, ITPG



- Thermocouple probes type R, S and B
- Measuring range up to 1700°C

Miniature Embedded Probes

1MN1



- Small, rugged RTDs to withstand rough handling and harsh environments
- Sensor Pt100 Class AA, A, B
- Measuring range from -50°C to +260°C

Thermowells

Solid Drilled

4WSS, 4WSF, 4WSW, 4WSV



- Drilled from solid bar for process pressure
- Wide Range of Materials including Stainless Steels and exotic materials
- Parallel or tapered stems
- Flat, domed or round tips
- Choice of Process Connections: Flanged, Screwed, Weld-In
- One piece Forgings
- ASME IX Coded Welding
- Special Coatings
- Non Destructive Testing

Fabricated

4WFS, 4WFF



- Fabricated thermowells manufactured from pipe, tube or bar which are then sealed by a solid welded tip
- Low cost alternative to solid drilled construction when high pressure not a design consideration
- Wide Range of Materials
- Choice of process connections
- ASME IX Coded Welding
- Special Coatings
- Non Destructive Testing

Velocity Collar

4WVF, 4WVV



- Range of solid drilled thermowells constructed with the addition of a velocity collar which is a metal ring machined onto profile of thermowell
- Reduces the unsupported length of the thermowell
- Reduces vibration

Temperature Assemblies with Thermowells

Standard Assembly

3AFR, 3AFT, 3ASR, 3AST



- Standard assemblies fitted with available MI probes (specified in Probe Section)
- Numerous connection head & transmitter options available
- Options for explosion proof and flameproof rating for hazardous areas
- RTD or Thermocouple assemblies - Sensor PT 100 class, A, B, AA, 1/5, 1/10 DIN Thermocouple inputs type K, J, T, and N
- Measuring range dependant on sensor selection: -200°C to +1200°C

High Temperature Ceramic

3AHC



- High temperature ceramic assemblies
- Measuring range up to +1700°C
- Options for explosion proof or flame proof rating for hazardous areas

Temperature Assemblies without Thermowells

Pipe Clamp

2RSM, 2PBR, 2TPR



- Easily fitted to pipe - No need for thermowell in pipe
- Accuracy and response is similar to immersed thermowell assembly
- Numerous connection head and transmitter options available
- Options for explosion proof and flameproof rating for hazardous areas
- RTD or Thermocouple sensors available
- Sensor PT100 class A, B, AA, 1/5, 1/10 DIN
- Thermocouple inputs type K, J, T and N
- Measuring range dependant on sensor: -200°C to +300°C

General Purpose

2GPR, 2GET, 2GER, 2GGR, 2GPT, 2GGT



- Standard assemblies fitted with available MI probes (specified in Probe Section)
- Numerous connection head and transmitter options available
- Options for explosion proof and flameproof rating for hazardous areas
- RTD or Thermocouple assemblies - Sensor PT 100 class, A, B, AA, 1/5, 1/10 DIN
- Thermocouple inputs type K, J, T, and N
- Measuring range dependant on sensor selection: -200°C to +1200°C

Temperature Transmitters & Accessories

Transmitters

Fixed Range Transmitter

7T48



- Manufactured to a high specification
- Fixed range for RTDs, Thermocouples, Resistance – sensor, mV
- Easily adjustable zero and span potentiometers
- Analogue output 4 ... 20mA, invertible, 2 – wire design

Programmable Tx

7T32



- Programmable for RTDs, Thermocouples, Resistance – sensor, mV
- Output linear to temperature with input signal from RTDs and Thermocouples
- Analogue output 4 ... 20mA, 2 wire design
- Signal configurable for sensor burnout and sensor short circuiting
- 7T32: Hart Protocol, ATEX Approved

Accessories

Enclosures

8EAL, 8EPO, 8EPT



- Wide range available
- Wall or panel mount
- Industrial, heavy duty, clean room options
- Polyester, aluminium or stainless steel materials
- Suitable for range of transmitters

Components & Wire

Accessories



- Range of glands
- Range of olives
- Numerous plug & socket connectors
- Various extension cable wire for both thermocouple and RTD probes
- Extensions - barrel nipple, nipple-union-nipple, hex nipple and nipple-union-hex available

Terminal Blocks

8PBT, 8PBE, 8BRY, 8BCE



- Range of materials options
- Heavy duty / flameproof, EExde, EExe & EExn Certified.

Connection Heads

8HH7, 8HBZ, 8HBS, 8HKE, 8HKN, 8HTD



- PBT, PET, Ryton or ceramic materials available
- Configuration up to 8 terminals
- Spring loaded baseplate if required
- Weatherproof
- Selection of cable and process adapters
- 1/2 BSP, 3/4 BSP, M24 instrument connections

Elements

5REW



- Ceramic wire wound elements manufactured in-house
- Class B, A, 1/3, 1/5 and 1/10 DIN
- 2 wire, 3 wire or 4 wire options
- Range of sizes to suit application
- -200°C to +660°C
- Many items held ex-stock

Elements & Extensions

5REL



- Fitted with extension wire to allow for fast installation into application
- Extension wire type and length to suit requirement
- Class B, A, 1/3, 1/5 and 1/10 DIN
- Range of sizes to suit application
- -200°C to +660°C
- Many items held ex-stock

Slot RTDs

6SR1



- Install between stator winding for continuous protection of motors and generators
- Sensor Element: Pt100, Class B, A, AA

Custom Designs

Multipoint Assembly

Multipoint Assembly



- Typically used for temperature profiling in furnaces, chemical reactors and process lines.
- Lower installed cost with up to 60 independent measuring points
- Replaceable inserts for easy measurement
- Custom designs for any application by one of our specialist engineers
- Can be supplied as just the probe or as a 'package solution' including transmitters/controllers for implementing into on-site control systems

Bespoke Designs

Custom Solutions



- For non-standard designs, Rototherm's temperature engineers can analyse your temperature measurement needs and design a bespoke solution that can be manufactured at our extensive UK facility
- The engineers will typically work with you through the design process to ensure all needs are met
- Our large service team can be available for installation, commissioning and operation to ensure success

The 300 Series Pressure switches offer **accurate, reliable and repeatable switching** in a robust aluminum or stainless steel cast enclosures. **Compact design** for limited spaces.

Standard

Series 300



- Designed to provide electrical output switching for non-hazardous area applications
- Ranges from -1 to +600 Bar
- High overload ratings
- Wide range of output switches
- Wide range of diaphragm materials
- Simple maintenance and field adjustable
- IP66 ingress protection

Pneumatic

Series 300



- Designed to provide the switching of a compressed gas supply, typically air
- Ranges from -1 to +600 Bar
- High overload ratings
- 2 or 3 port output valves
- Low switching differentials
- Wide range of diaphragm materials
- Simple maintenance and field adjustable
- IP66 ingress protection

The **extended range** of 700 Series Pressure and Differential Pressure switches offer **accurate, reliable and repeatable switching** in a robust Al or SS cast enclosures with **integral vent ring safety feature**.

Standard

Series 700



- Designed to provide electrical output switching for non-hazardous area applications
- Ranges from -1 to +600 Bar
- High overload ratings
- Wide range of output switches
- Wide range of diaphragm materials
- Simple maintenance and field adjustable
- IP66 ingress protection

Pneumatic

Series 700



- Designed to provide the switching of a compressed gas supply, typically air
- Ranges from -1 to +600 Bar
- High overload ratings
- 2 or 3 port output valves
- Low switching differentials
- Wide range of diaphragm materials
- Simple maintenance and field adjustable
- IP66 ingress protection

Temperature Switches & Electronic Switches

Designed to compliment the extensive range of Pressure and Differential Pressure switches, Series 700 Temperature switches offer **accurate, reliable and repeatable switching** in a robust aluminium or stainless steel cast enclosure. All models are field adjustable and require **simple maintenance**.

Standard

Series 700



- Designed to provide electrical output switching for non-hazardous area applications
- Ranges from -50°C to +400°C
- Direct and remote mounting with capillary
- Wide range of bulb and capillary lengths
- Integral vent ring safety feature
- Wide range of output switches
- IP66 ingress protection

Pneumatic

Series 700



- Designed to provide the switching of a compressed gas supply, typically air
- Ranges from -50°C to +400°C
- Direct and remote mounting with capillary
- Wide range of bulb and capillary lengths
- Integral vent ring safety feature
- 2 or 3 port output valves
- Low switching differentials
- IP66 ingress protection

The Series 800 Smartstat is a microprocessor controlled **switch, transmitter and indicator**, which enables several instruments to be replaced with a **single device producing cost savings** due to reduced equipment costs, documentation, installation, calibration and ongoing maintenance.

Pressure and Differential Pressure

Series 800 Smartstat



- Pressure Range: -1 to 1000 bar
- Differential Pressure Range: 15 mbar to 4 bar
- 24Vdc 4-20 mA loop powered
- High accuracy and repeatability
- Display of max/min pressures and mA output
- Programmable 2 x SPDT relay switching points
- IP65 Ingress Protection
- EExiallC certification available

Temperature

Series 800 Smartstat



- Temperature Range: -40°C to 400°C
- Direct and remote mounting with conduit
- Wide range of bulb and capillary lengths
- 24Vdc 4- 20mA loop powered
- High accuracy and repeatability
- Display of max/min pressures and mA output
- Programmable 2 x SPDT relay switching points
- IP65 Ingress Protection
- EExiallC certification available

Originally designed for instrument air supplies within controls panels, our **air distribution manifolds** are now available for gaseous and liquid media in petrochemical, marine and general industrial applications. Their **compact construction** is ideal for use in panels and confined spaces.

Compact Manifold

Series 900 Minifold



- Compact & cost-effective solution
- Aluminium or stainless steel construction
- From 2 to 12 outlets
- Inlet connections 3/8" BSPF
- Outlets tapped 1/4" BSPF

Compact Manifold

Series 910 Minifold



- Corrosion resistant 316 SS block
- PTFE seated 316 SS ball valves
- Quick 1/4 turn open/close handle
- Standard 4, 6 or 10 outlets can be linked in series
- Inlet connections 1/2" or 3/4" BSPT or NPT
- Outlet connections 1/4" or 1/2" BSPT or NPT
- Flanges, isolating valves and drain valves available on inlets and outlets

Compact Manifold

Series 940 & 950 Minifold



- Utilises a thermoplastic valve spindle in brass or 316 SS valve body
- Anodised aluminium block with brass outlet valve
- 316 SS block with 316 SS outlet valve
- A row of 5, 10 or 20 valves suitable for 1/4" or 6 mm tubing
- Inlet connections 3/8" or 3/4" BSPF or NPT

Standard Manifold

Series 960 Minifold



- Utilises a thermoplastic valve spindle in 316 SS valve body
- Ready to use, simply push in tube and tighten up compression nut
- Anodised aluminium block with brass outlet valve
- 316 SS block with 316 SS outlet valve
- A row of 5 or 10 valves suitable for 10 mm tubing
- Inlet connections 3/4" BSPF or NPT

Standard Manifold

Series 971 Minifold



- Utilises a thermoplastic valve spindle in anodised aluminium extruded block
- A row of 5 or 10 integral valves
- 1/4" tapped outlet connections, BSPF or NPT
- Inlet connections 1/2" BSPF or NPT
- Push-in outlet connections for direct connections of 6 mm tube

Standard Manifold

Series 975 Minifold



- Utilises a thermoplastic valve spindle in anodised aluminium extruded block
- A row of 5 or 10 integral valves
- 3/8" tapped outlet connections, BSPF or NPT
- Inlet connections 3/4" BSPF or NPT

Temperature & Pressure Gauges

Defence Standard Gauges

Defence Standard Gauge

SPGA

- Nominal Size: 63 - 300mm
- Def Stan 66.2 Issue 4
- Low range capsule pressure
- Class 1 Accuracy to EN837 (63mm dial Class 1.6)
- Simple installation and low maintenance
- Scale Range: -1 to 600 bar; 30"Hg VAC to 10,000 psi
- Full Safety Pattern Gauge
- Painted in Admiralty Grey to BS381C
- Manufactured to NSN specification



Process Gauges

Process Gauge (SS)

RPG, RCG (Stainless Steel)



- Nominal Size: 63 - 150mm
- Adjustable micrometer pointer as standard (not 63mm)
- Liquid fillable
- Low range capsule pressure
- Class 1 Accuracy to EN837
- Scale Range: -1 to 600 bar; 30"Hg VAC to 10,000 psi

Safety Pattern (Al)

SPGA (Aluminium Case)



- Nominal Size: 63 - 300mm
- Low range capsule pressure
- Class 1 Accuracy to EN837 (63mm dial Class 1.6)
- Simple installation and low maintenance
- Scale Range: -1 to 600 bar; 30"Hg VAC to 10,000 psi
- Solid front / Blow-out back

Safety Pattern (SS)

SPG (Full Stainless Steel)



- Nominal size 100-150mm
- Stainless Steel full safety pattern
- Class 1 accuracy to EN837
- Low range capsule pressure
- Scale range: -1 to 1000 bar
- Available with stainless steel or monel wetted parts
- Solid front / Blow-out back
- Liquid fillable

Digital Pressure Gauges

Digital Pressure Gauge

DG1

- Nominal Size: 100mm
- High Accuracy $\pm 0.2\%$ full scale
- Stainless steel IP67 case
- Long battery life – 1 year continuous operation from 2AA batteries
- Wide selection of pressure ranges from vacuum to 400 bar
- 4 to 20mA output option available
- Intrinsically safe versions available
- Supplied with calibration certificate traceable to National Standards
- Available with MAX and MIN pressure readings
- Transmitter version available (DG1-TX)



Differential Pressure Gauges

Light Duty DP Gauge

200DPG, 200DGR, 300DGC, 400DGC, 600DGC

- Nominal Size: 50 - 150mm
- Suitable Steel case
- Scale Range: 0 to 600 mm H₂O: 0 to 10 bar
- Accuracy class $\pm 2.0\%$ FSD
- Maximum static pressure: up to 200 bar
- Switching option
- Various materials for wetted parts
- Multiple process connections



Heavy Duty DP Gauge

DP360, DP370, DP362

- Nominal Size: 100mm & 150mm
- Full safety pattern option to EN837 – solid front and blow-out back
- Accuracy class $\pm 1.6\%$ FSD ($\pm 1.0\%$ option)
- Scale Range: 0 to 160mbar; 0 to 25 bar
- Switching options
- Wetted parts in Stainless Steel or Monel
- Multiple process connections



Accessories

Accessories

Manifolds, Syphons, etc.



- Pulsation Dampeners (Snubbers)
- Syphons – “Pigtail” and “U” pattern
- Over Range Gauge Protectors
- 2VG Series In-Line 2 Valve Manifold
- 2VR Series Remote Mounting 2 Valve Manifold
- AM413 3 Valve Manifold
- AM415 5 Valve Manifold

Diaphragm Seal Units

DSU



- Available with a wide choice of threaded or flanged process connections
- Wide choice of materials including Stainless Steel, Hastelloy, Inconel, Monel.
- Wide choice of additional protective coatings
- Welded or bolted constructions
- Suitable for wide range of process medium and conditions

Pressure Transmitter

PTx



- Stainless steel construction
- Pressure Range: -1 to 400
- DIN43650 plug for easy installation
- Choice of process connections
- Ingress protection: IP67

Filled System Thermometers

Stem Thermometer

NR1 & NR2



- Nominal size: 100mm & 160mm
- Stainless steel case (316 option)
- Available with rigid stem
- Non Toxic filling
- Scale range -30...+70 to 0 to 650°C
- Available with a wide range of thermowells
- Housed in a gasket sealed diecast aluminium case with adjustable zero

Capillary Thermometer

NC2



- Nominal size: 100mm & 160mm
- Stainless steel case (316 option)
- All stainless steel construction
- Back or bottom entry versions
- Capillary type
- Non Toxic filling
- Scale range -30...+70 to 0 to 650°C
- Available with a wide range of thermowells

Bi-metallic Thermometers

Light Duty Bi-metallic Thermometers

BL1



- Nominal size: 50mm & 63mm
- All stainless steel construction
- Scale range -30...+60 to 0 to 400°C
- Wide range of temperature ranges available
- Models available with thermowells suitable for pipelines
- Models available for use on ovens, sterilizers, cabinets

Surface Temperature Thermometers

BL3



- Nominal size: 63mm
- Spring fixing suitable for mounting to pipes (Model BL301)
- Magnetic fixing suitable for mounting to horizontal or vertical surfaces
- Stainless steel case and bezel
- Scale range -30...+60 to 0 to 400°C

Heavy Duty Fixed Stem Thermometers

BH2



- Nominal size: 63mm, 100mm & 160mm
- Stainless steel construction – case and stem
- Scale range -70...+70 to 0 to 600°C
- External zero adjustment
- No contaminants – safe for food and chemical applications
- Can be supplied with a wide range of Rototherm thermowells
- Can be fitted with electrical contact heads (100mm & 160mm sizes only)
- Available with maximum or minimum value and index pointers

Heavy Duty Any Angle Thermometers

BH3



- Nominal size: 100mm, 130mm & 160 mm
- Stainless steel construction
- Scale range -70...+70 to 0 to 600°C
- External zero adjustment Silicone filling available
- No contaminants – safe for food and chemical applications
- Can be supplied with a wide range of Rototherm thermowells

Digital Thermometers

The DigiTemp range of digital thermometers employ micro processors enabling extremely low power consumption to be achieved, thus offering extended battery life. Available with either thermocouple or RTD PT1000 sensors, DigiTemp is offered in both rigid stem and remote reading versions.

Digital Thermometers

DT1 & DT2

- Thermocouple (DT1) or RTD (DT2)
- Direct reading rigid stem or remote reading capillary versions available
- Choice of cable materials and protections
- 4 to 20mA retransmission option MAX/MIN reading options
- 2 years continuous operation from 2 x AA cells





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HMA GROUP

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