PT. HANANG GEMA INSTRUMENT
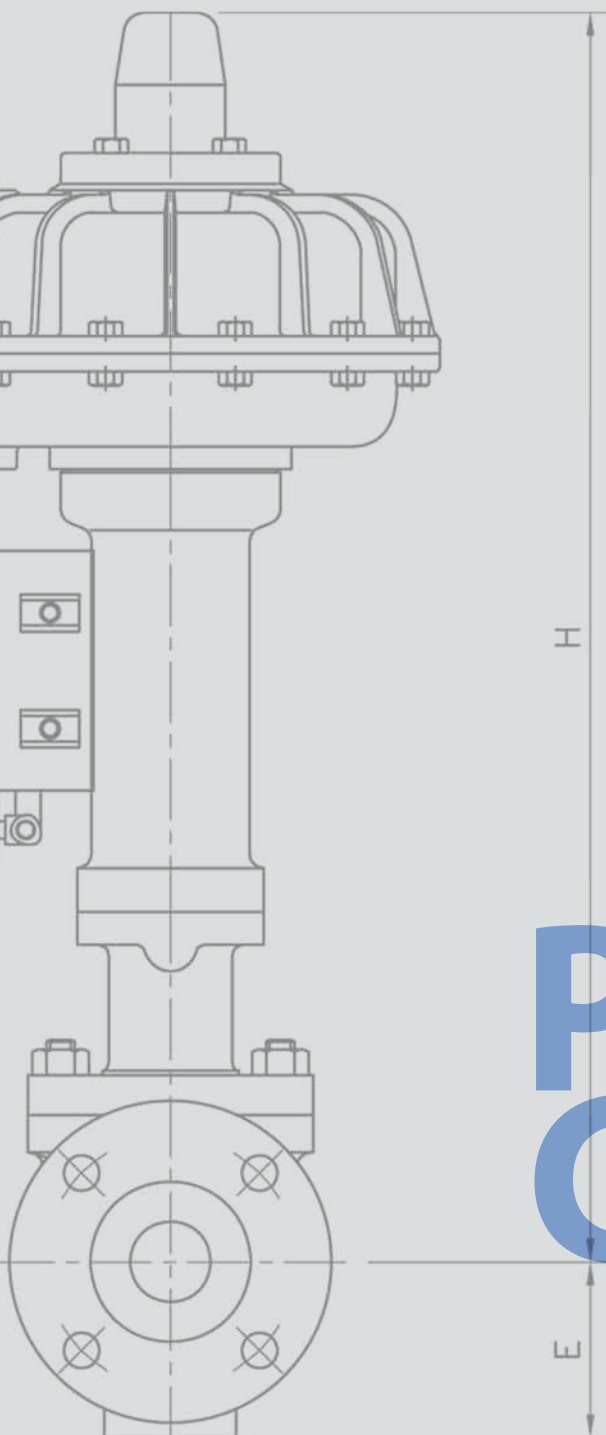
Expert in Process Control And Instrumentation

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Honeywell

HAWK

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FLOWLINE

systec CONTROLS

Advanced Instruments Inc.

Williamson
Innovators in Noncontact Temperature Measurement

Weidmüller
MANN SERIES

Sensorex®

PRODUCT CATALOG

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PT. HANANG GEMA INSTRUMENT
Expert in Process Control And Instrumentation

PT. Hanang Gema Instrument is a company specializing in process control & instrumentation, based in Jakarta, Indonesia. This catalog's publication coincides with the 20th year that we have been serving our customers. This milestone has given us great confidence that we have been serving our customers well and we will strive to improve our service for the future.

In this second volume of our company catalog, you will be able to find many products that we represent. The product range is one of the main ways we have been able to serve our customers. We constantly review our products to ensure that we offer quality products to meet our customer needs.

Since the last catalog publication, PT. Hanang Gema Instrument has grown to better serve the needs of our customers. We have been expanding our engineering capabilities in order to tackle more complex projects. We have been focusing on providing engineering expertise on top of the instrumentation equipments. We believe that this provides the maximum value and consistent high quality at the lowest cost for our clients.

We would like to thank our loyal customers, without whom the past two decades would never have been possible. PT. Hanang Gema Instrument is a company dedicated to provide control instrumentation solutions for our customers. We hope to be able to continue building successful partnerships and we look forward to creating new and lasting relationships with our future customers.

Yours sincerely,
Handoko Susanto
Director

Honeywell

HAWK

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Honeywell

Honeywell Industrial Process Control provides a comprehensive lineup of control products for your industrial process measurement and control requirements, and safety products for machine control. Honeywell IPC comprises three businesses: Process Controls, Field Measurement, and Machine Control & Safety. A broad range of solutions and support services are available globally, whenever and wherever you need them.

Products include Distributed Control System (DCS), Hybrid Controller, PLC, HMI SCADA, Pressure Transmitters, Temperature Transmitter, Flowmeters, Control Valves, Positioner, Electric Actuators, Smart Sensors and Analytical Instruments, PID Controllers and Indicators, Circular and Strip Chart Recorders, Paperless Recorders, Machine Safety Products, and more.

hanang

PT. HANANG GEMA INSTRUMENT

PlantCruise by Experion

As a member of Honeywell's Experion family, PlantCruise by Experion is specifically designed to meet the customer needs in emerging markets, through integrating state-of-the-art technology from the award-winning Experion Process Knowledge System (PKS) with innovative design of Series 8 I/O modules and cabinets, easier engineering and maintenance capabilities, and integrator-friendly programs and tools.

PlantCruise is the perfect flexible platform for sites with small to medium complexity. Any sized installation has access to a robust historian, controller-based batch sequencing, advanced control, change control for validated sites and reporting capabilities. The solution can scale from one engineering station, one operator station and one controller to multiple operator stations, redundancy and batch management. In addition, the system provides reliable communication with third-party devices and drives.
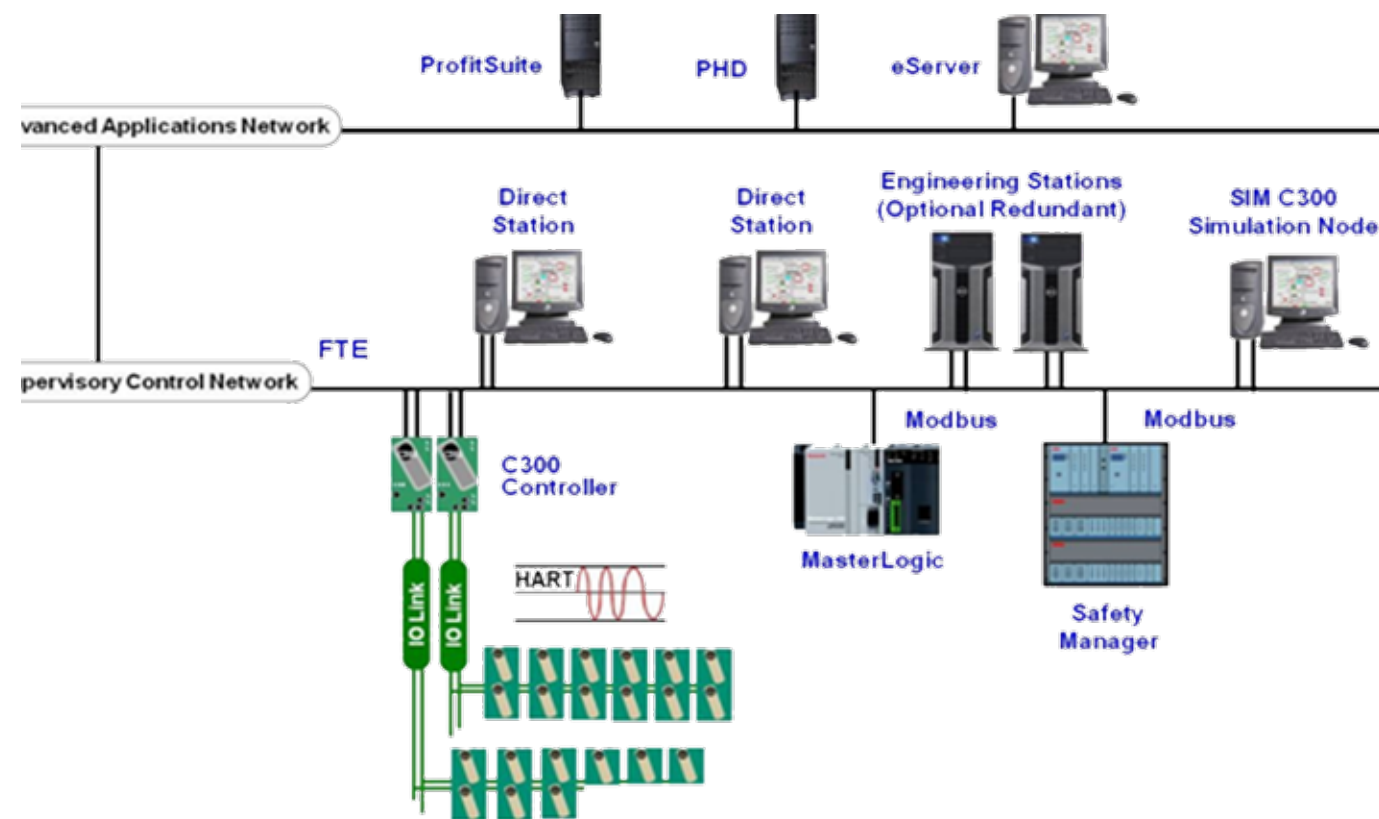
PlantCruise Engineering Station

A PlantCruise Engineering Station or redundant Engineering Station combination functions as a system-wide historian and global database. The PlantCruise Engineering Station also supports communication to SCADA point sources, DSA point sources, OPC clients and Engineering Stations and holds the system event journal, system configuration files, custom applications and server scripts. The Engineering Station is the source for data, alarms, events, etc. for the client connected applications. One or more PlantCruise Engineering Stations are required for an PlantCruise system.

PlantCruise Direct Station
Direct Stations can directly access process data, alarms and messages from C300. With no loss of viewing critical data and alarms when the engineering station fails, an operator can control and monitor the process adequately.

Safety Manager

Safety Manager performs on Integrated Safety Integrity Level (SIL) 3 capability level which is the highest safety level required for most process industries. Process security is maintained independently from the main control system. The result is a unified safety system solution that elevates safety and process availability—as well as production and profitability.

PlantCruise C300 Controller

Honeywell's C300 Controller provides powerful and robust control for the PlantCruise system. The C300 is a node in operating Honeywell's field-proven deterministic Control Execution Environment (CEE) core software. The CEE software provides a superior control execution and scheduling environment. Control strategies for each controller node are configured and loaded through a common Control Builder, an easy and intuitive engineering tool. In addition to a standard and robust library of pre-built function blocks and algorithms, the C300 Controller also supports Custom Algorigthm Blocks (CABs). Custom Algorithm Blocks are similar in purpose and structure to the standard function blocks that are distributed with Control Builder. However, CABs have user-defined algorithms and data structures, , allowing custom tailored strategies to be developed to specific requirements.
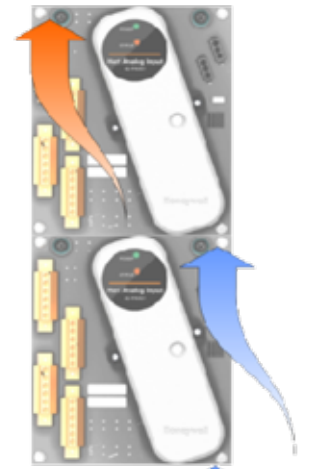
Heat flows uniformly over Series 8 modules to improve product reliability

PlantCruise Series 8 I/O modules & cabinets

Series 8 I/O modules offer the following high-availability features:

• The innovative slanted angle directs heat flow evenly through the cabinet, keeping components   \ cooler to improve product lifecycle.

• With no common backplane, opportunities for failure are eliminated; and more importantly, the scope of loss of multiple components is significantly

• Fuses are not required due to enhanced Field Wiring Protection

• Modules are available in redundant configurations.

With a redundant base assembly, a second module can be added at any time to create a redundant pair.

• Honeywell's patented Fault Tolerant Ethernet provides the backbone between the modules, delivering a robust and cost-effective infrastructure.

Fault Tolerant Ethernet Improves Industrial Plant Performance

Fault Tolerant Ethernet (FTE) is a high-performance, low-cost networking solution for industrial plants. FTE reduces commissioning and maintenance costs and increases system availability by providing the performance, determinism and security required for industrial control applications.

Control Execution Environment (CEE) Provides Reliable Execution and Scheduling

The Control Execution Environment (CEE) is the foundation for PlantCruise controllers, providing a deterministic and reliable execution and scheduling environment in Honeywell control platforms, including :
• C300 Process Controller
• C300 Simulation Environment

ProfitLoop – patented by Honeywell

By anticipating future changes, Profit Loop knows exactly how much to move the process to meet desired control objectives. This innovative model-based technology increases control performance while reducing maintenance costs by as much as $100,000 per year on critical loops. Profit Loop technology can be applied to any regulatory control strategy where PID control is used. This efficient technology allows customers to use Profit Loop on every loop in the plant or mill, without additional license fees nor does it reduce performance in their C300 Process Controllers.

Distributed System Architecture for Easy Scalability

Honeywell's innovative Distributed System Architecture (DSA) enables one to integrate multiple PlantCruise clusters into a single operational system through LAN without extra engineering configuration efforts. All the points, alarms and displays defined in another cluster can be accessed by any user as if they are in the same system. A low cost yet high performance solution is available for possible expansion of a plant where separate PlantCruise systems are located in different places.

View Data from Multiple Systems from a Single Operator Interface

Honeywell's patented HMIWeb technology merges process, application and business data seamlessly from the secure Experion Station environment or directly from standard Internet technologies, such as HTML and XML.

PlantCruise delivers the integrated benefits of a DCS with the flexibility of system size for projects involving 1,000 to 133,000 points. PlantCruise offers improved lifecycle costs over alternative solutions due to the innovative design of Series 8 I/O modules and cabinets, many COTS options validated by Honeywell, easier engineering and maintenance, and flexibility that come with the system.

PlantCruise - C300 CPU

With the C300 and the CEE, customers can:

• Improve engineering productivity and maintenance with rich function libraries and one seamless intuitive user environment,
• Maximize process uptime with a robust deterministic software environment and full hardware redundancy
• Reduce production costs with flexible and efficient control strategies, on-process migration, and efficient hardware processing power.

"Honeywell can provide a truly integrated, flexible and highly reliable approach to batch process control for small and simple to large and complex applications."

John Blanchard, ARC Briefing

Experion HS

Experion HS is a powerful software platform that incorporates innovative applications for human machine interface applications (HMI) and supervisory control and data acquisition (SCADA). Built upon the proven technologies of the Experion platform, Experion HS is an integrated and affordable solution for smaller unit operations.

Since its launch, Honeywell's Experion® Process Knowledge System (PKS) has successfully helped thousands of customers worldwide improve productivity and profitability. Experion HS extends this proven technology to meet the demands of specific industry segments. Experion HS is as robust and powerful as Experion PKS and can efficiently fulfill the requirements of small to medium size applications. It is an easy and intuitive solution that can be used by plant managers, plant maintenance engineers, process engineers and operators in many industries including oil & gas, mining, metals & minerals, chemicals, life sciences, power, cement & glass and food & beverage.

Features :

• Complete Client/Server System Out-of-the-Box with real-time database & open connectivity
• Standard History Collection limited only by storage media size
• Flex Station's Versatile Operator Interface with Static Station for full time operation or Rotary Station for staffs who do not need full time access
• Powerful Trending Increases Operator Effectiveness with up to 32 pens per trend display
• Group Displays Provide Intuitive Operation
• Integrated Alarm and Event Management. Alarm and event analysis feature improvements are based on research relative to technologies for improving the handling of process upset conditions.
• Honeywell Safety Manager Integration
• Honeywell MasterLogic Integration   Honeywell HC900 Integration
• Experion DNP3 Interface & Historical Back-filled   Recipe Management
• Built-in Reporting   Scripting capability
• Flexible Access to Data : ODBC Driver, Microsoft Excel Data Exchange, OPC Server
• Efficient Engineering Environment : HMIWeb Display Builder, Quick Builder Database Tool, Embeded comprehensive documentation.
• Alarm Pager Option : When important information needs to reach people outside the control room or site, the Alarm Pager uses paging, SMS, e-mail or SNMP traps to escalate operational and system alarms.
• Point Control Scheduler Option allows the user to schedule supervisory control actions at specified times.

Features continued:

- **Electronic Signatures Option.** Experion HS provides enhanced capabilities to support the pharmaceutical industry and other U.S. Food and Drug Administration (FDA) regulated industries and their unique requirements related to regulations such as 21 CFR Part 11.
- **OPC History Data Access Option.** The optional OPC History data access client further complements the open connectivity portfolio of Experion HS. OPC HDA can be used to retrieve historical process data into other databases.
- **Experion IEC-870 Communication Driver Option**, provides SCADA communication and data exchange between RTUs using standard IEC protocols such as 60870-5-101 and 60870-5-104.
- **Honeywell Digital Video Manager.** Combined with Experion HS, operators can view and control video as well as monitor and control the plant or mill from a single user interface, greatly improving productivity.
- **Experion eServer Option,** enables users from any location on the business network to view Experion HS custom process graphics securely, from their web browser.
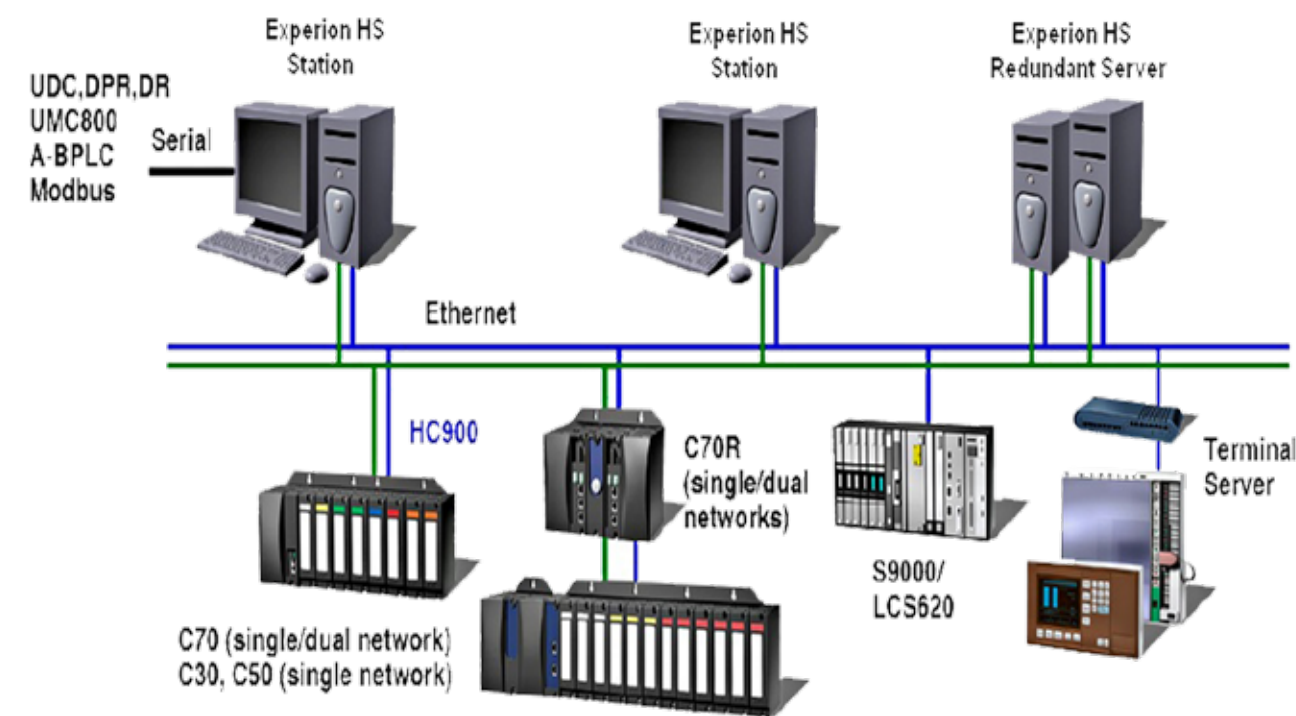
HS SCADA Architecture

HC900 Hybrid Controller

HC900 Controller (4 and 12 slot I/O racks) with 900 Control Station and Hybrid Control Designer software

HC900	Control Designer Software
Configuration	Off-line, with run mode editing
Operating Environment	Windows NT, 2000 or XP
PC	Pentium, 200 MHz with 64 MB RAM minimum, SVGA or greater screen resolution
Cable	9-pin RS232 null modem cable configuration port or Ethernet 10Base T (crossover)
Modem Support	Monitor, upload, download configutariton

HC900	Controller		
Analog Inputs	Up to 480 universal analog inputs, 960 high level		
Accuracy	$\pm$0.1% of span (field calibration to $\pm$0,05% of span)		
Analog Outputs	Up to 200; user specified span from 0 to 20 mA maximum, 12 bits, 0.1% Accuracy		
Digital Inputs/Outputs	Up to 1920, contract D, 24 Vdc DI/DO 120 Vac DI/DO, 240 Vac DI/DO, relay DO		
Function Blocks	C70, C70R CPU-5000; C50 CPU-2000; C30 CPU-400		
I/O Racks Per System	Up to 5 total		
Control Loops	PID, on/off, cascade, ratio, %C, RH, dewpoint		
Control Output Types	Current, time-proportioning, position proportioning, three-position step		
Setpoint Programmers	50 segments each, 16 event outputs, profiles stored in controller		
Setpoint Scheduller	50 segments, 8 ramp/soak outputs, 8 auxiliary outputs, 16 events, schedules strored in controller		
Recipes	50 variables each		
Communication	Ethernet 10base T; Modbus/TCP protocol; up to 5 Ethernet host; up to 9 peer to peer controllers; Serial Modbus RTU; RS485 or RS232, Slave (up to 16) or master operation		
Power Supply	120 Vac to 240 Vac or 24 Vdc		
Operating Temp.	0o to 60o C (0o to 140o F)		
Humacity	10% RH to 90% RH, non-condensing		
Rack Sise	4 Slot 266.7 mm (10.5 in)	8 Slot 419.1 mm (16.5 in)	12 Slot 571.5 mm (22.5 in)

Controller:
- Modular L/C design
- Multiloop PID Control
- Setpoint programmers, scheduller
- Process logic, timers, counters
- Process algorithme, calculations
- Universal analog inputs
- Stores setpoint profiles, recipes
- Remote Terminal Panel (RTP)
- Redundant CPU's, power supplies

Control Designer Software:
- Windows NT, 2000 or XP
- Drag & drop soft wiring of function block object
- Configures operator displays
- Load configuration via ethernet, serial communications modem or floppy disk
- Graphic hard copy records
- Load/upload, monitor configuration via modem
- Database export in CSV or TAB DELIMITED format

Modular design creates board application versality

900 Operator Interface   HC900 Controller Rack   SCADA PC

Remote Rack   Remote Rack   Remote Rack   Remote Rack
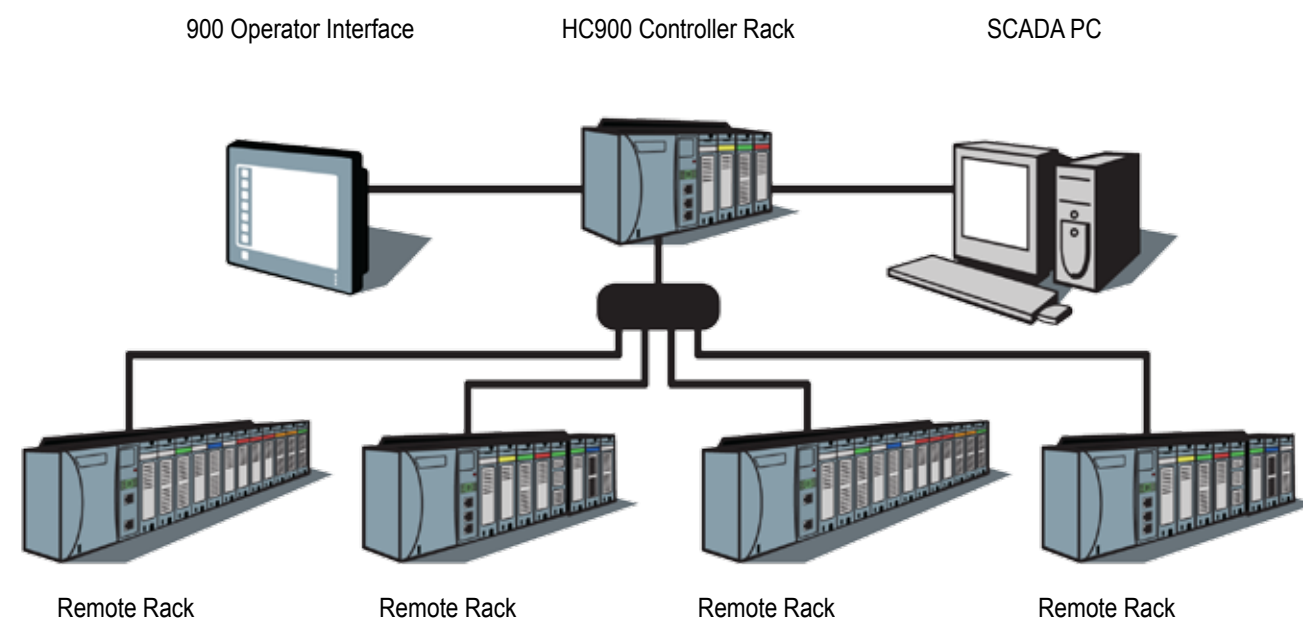
Function	Point Per Module	Max. for C30 CPU	Max. for C50 CPU	Max. for C70/C70R/CPU
Analog In	Universal: 8 High level: 16	Universal: 96 High level: 192	Universal: 480 High level: 960	Univesal: 480 High level: 960
Analog Out	4, 8, 16	40	200	200
Analog Out (External power)	8, 16	192	960	960
Digital In	16 or 32	384	1920	1920
Digital Out	8 AC or 16 DC, 32	384	1920	1920
Function Blocks	n/a	400	2000	5000

Master Logic 200

The size of MasterLogic-200 can be deceptive. It looks so small and compact. But, just install them in a cabinet and power on for ac control application. The power, performance and versatility of ML-200 would be simply amazing.
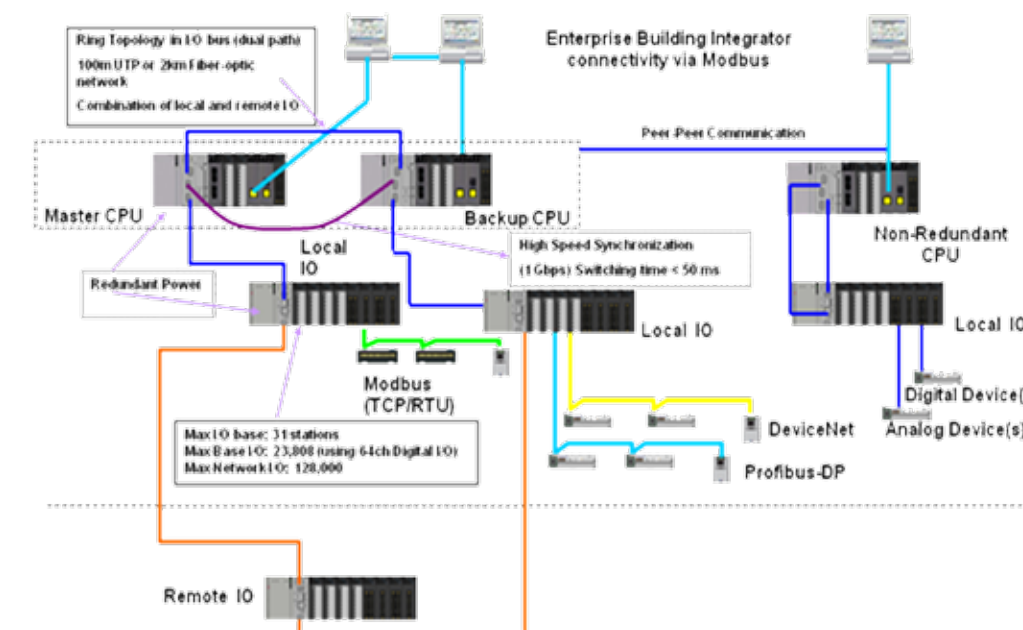
Modular and Scalable

MasterLogic 200 PLC is modular, scalable and rack-based. The PLC can be either stand-alone or distributed with peer-to-peer connections. The CPUs, power supplies and rack sizes are available in various models to best fit a particular application.

Key Features

- Powerful and versatile processors – high speed i.e.42 nanosec/step, 7MB program (including system emory), 4MB system memory, 2MB data memory, 16MB built-in flash memory for program and data backup
- Full redundancy (CPU, power and network) – same CPU can operate in both redundant & non-redundant mode.
- Compact pocket size modules – rack room and cabinet space saver
- IEC61131-3 standard programming – LD/ SFC/ ST/IL language option
- A vast library of standard function blocks and support new or user-defined function blocks
- Over 50 types of I/O modules – digital/ analog (isolated), HSC, RTD, TC, position/ motion control
- Open network protocols with field devices – Profibus™ DP, DeviceNet™, MODBUS (Ethernet & Serial)
- Open communication with external systems – Ethernet, fiber-optic (100MBPS), serial RS232/RS422
- Peer-to-peer communications between PLCs – Dedicated Ethernet 100 MBPS or Fiber-optic option
- Smart I/O modules (DIN rail) on open protocols – Profibus-DP, DeviceNet, MODBUS expanding I/O capacity, remote I/O applications or as RTUs for other manufacturers' PLC
- Hot swapping, Interrupt programs, user-defined Events (for SOE data in ms)
- Smooth Integration with PlantCruise by Experion and Experion HS.
- Self-diagnostics – network diagnostics, system logs, Auto scan, monitoring system
- Engineering software – ease of configuration and trouble-shooting
- Program simulator to test programs offline without PLC/CPU.

Close Integration with PlantCruise by Experion, Experion HS, Experion LS
MasterLogic PLCs are tightly integrated with the Experion architecture. They directly reside on the FTE or Ethernet network of PlantCruise by Experion and the Ethernet network of Experion HS and Experion LS, eliminating the need for any intermediate gateway equipment.

Typical Applications
• Process Industries: oil and gas, steel, cement, power generation, chemicals, petrochemicals
• Automobile industries
• Food and Beverage
• Healthcare and Pharmaceuticals
• Textiles
• Material handling
• Water Treatment
• Semi-conductors
• Printers and Publishers
• Paints and Plastics
• OEM – partnerships with packaged equipment

MasterLogic 50
Compact PLC
ML50 series is extremely compact providing both powerful functions and performance. The dual combination of Compactness & Performance is what makes ML50 such an ideal product.

C40HH-15SB-XBI
or
C40HH-30SB-XBI

TG7-1H40S

TG7-1H40S

-05S-XBM3
or
-10S-XBM3
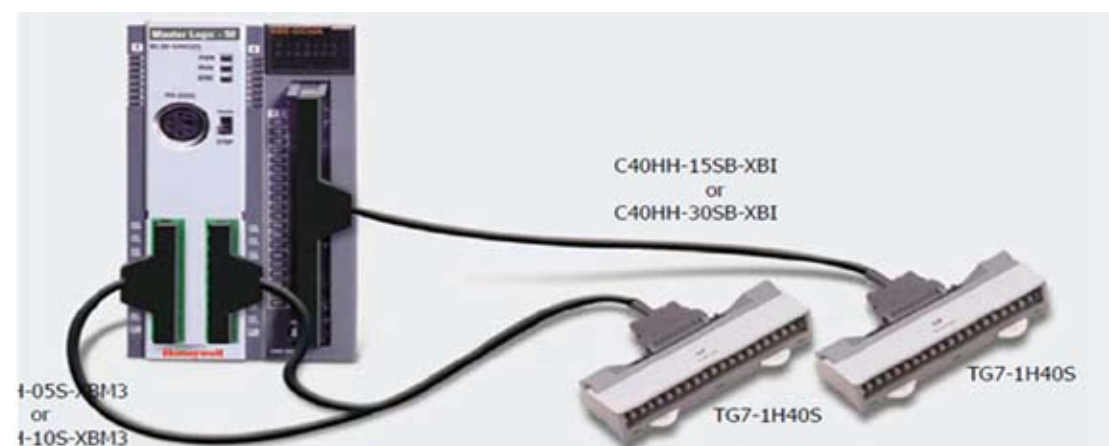
Wiring with Smart Link Cable Set

H-type CPU– Max. 10 expansion I/O Modules

S-type CPU – max. 7 expansion I/O Modules

Fast Ethernet Network
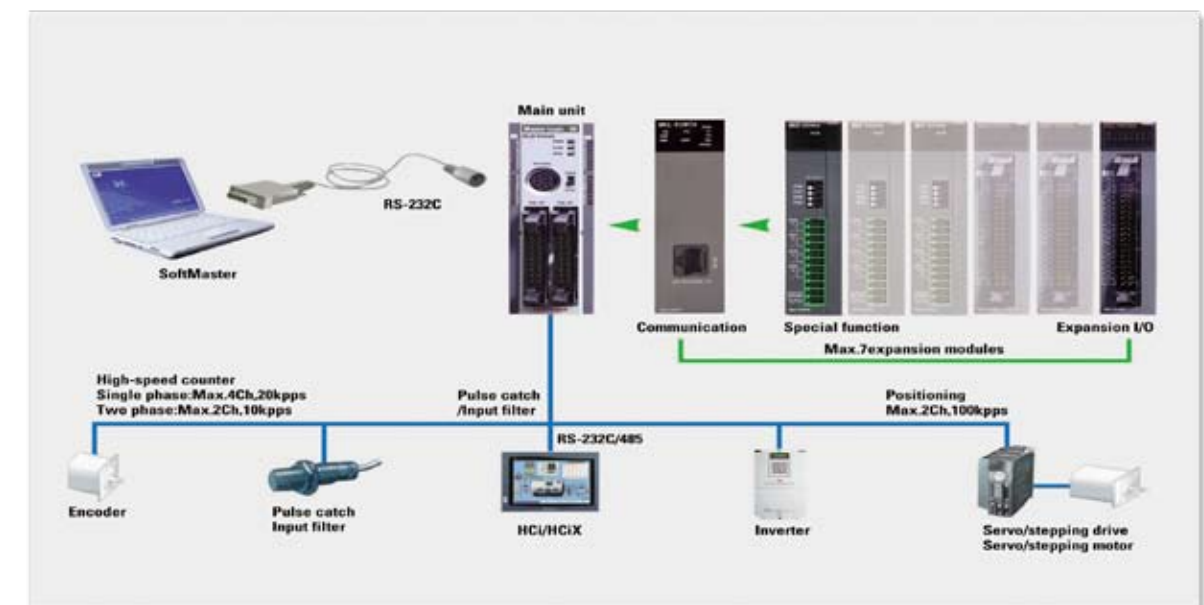
Master Logic 50 Configuration

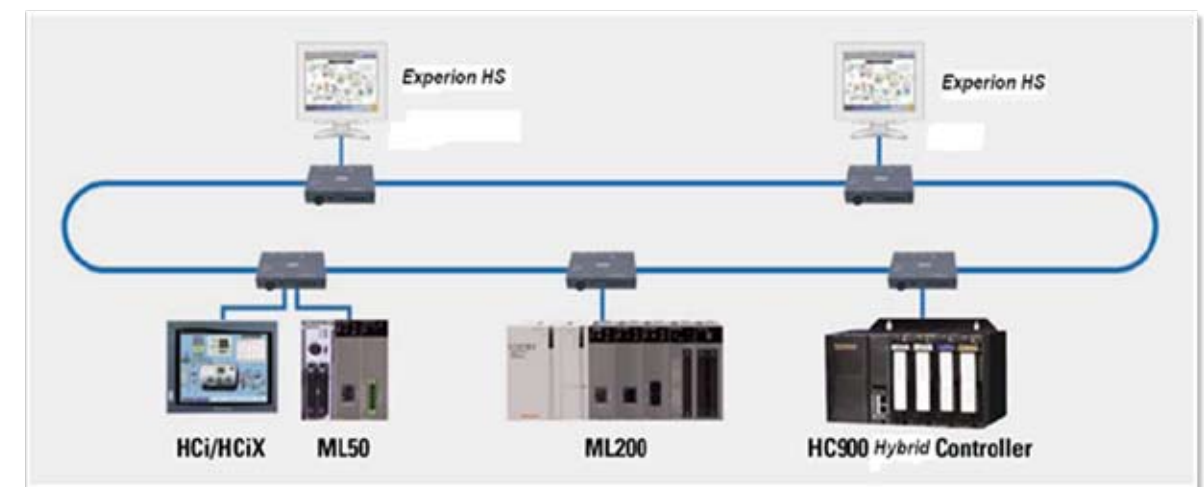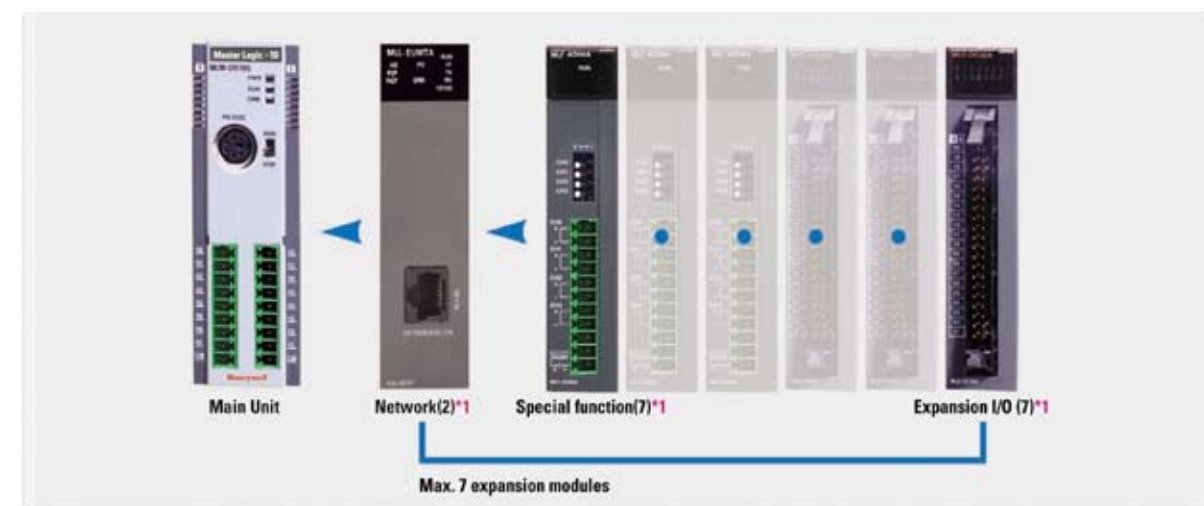| Universal Digital Controllers	UDC 1700	UDC 2500	UDC 3200	UDC 3500
Product Description	The UDC 1700 is a 1/8 DIN microprocessor based controller. It provides high quality and performance at low cost	The UDC 2500 is a low-cost digital controller providing multi-language prompts (FR, EN, GE, IT, SP) and code for unmatched operating simplicity	The UDC 3200 is a 1/4 DIN general purpose digital controller offering a high degree of functionality and operating simplicity	The UDC 3500 with dual loop and math capability is ideal for process applications
Front Face Format	48 x 96 mm (1.89 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)
Analog Inputs	1	1 high level, 1 universal	2 universal	4 high levels, 1 universal
Input Signal Types	Thermocouples, RTDs, mV, V, mA	Thermocouples, RTDs, mV, V, mA, RH, Radiamatic	Thermocouples, RTDs, mV, V, mA, RH, Radiamatic, carbon, oxygen	Thermocouples, RTDs, mV, V, mA, RH, Radiamatic, carbon, oxygen
Digital Inputs	1	2	2	4
Analog Outputs	Up to 3	2 (4 to 20 mA)	2 (4 to 20 mA)	3 (4 to 20 mA)
Digital Outputs Control	Up to 2	Up to 2	Up to 2	Up to 4
Digital Outputs Alarm	Up to 2	Up to 2	Up to 2	Up to 4
Accuracy (at ref. cond.)	±0.1% of span	±0.25% of span	±0.2% of span	±0.10% of span
Loops	1	1	1	2
Networking	RS485 ASCII or Modbus	Ethernet or Modbus RTU	Ethernet or Modbus RTU	Ethernet or Modbus RTU
Infrared Port	Yes	Yes	Yes	Yes

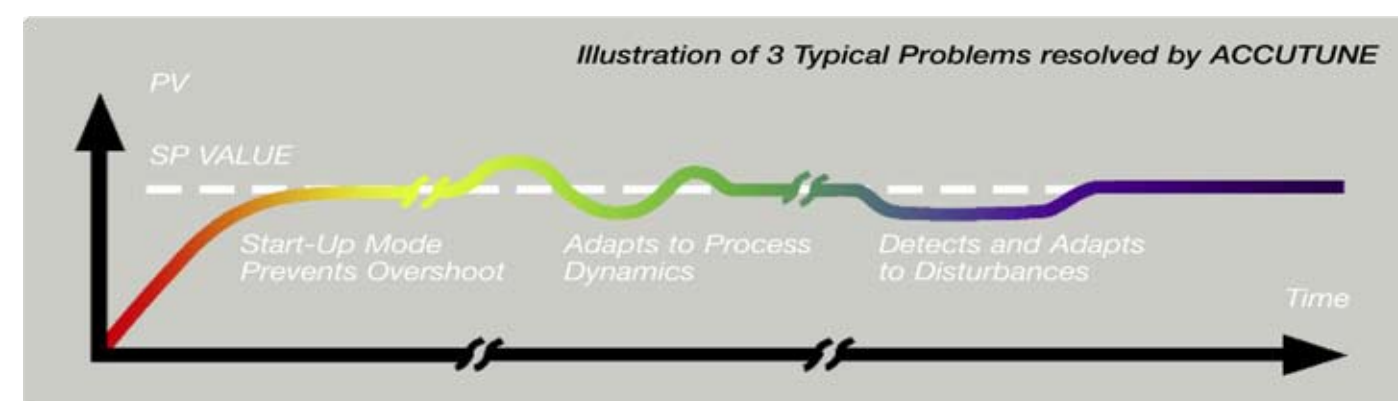| Digital Controller Programmers	DCP 50	DCP 100	DCP 300	DCP 550
Product Description	The low-cost DCP 50 is ideal for set point programming applications where space is at a premium.	The low-cost, 1/4 DIN format DCP 100 programmer is an entry-level product in the Set Point Programmer range. It provides an attractive price/ performance ratio.	The general-purpose DCP 300 programmer is fully dedicated to execute control of temperature, humidity, pressure, flow and other variables.	The high-performance DCP 550 programmer provides advanced setpoint programming, sensing, SP generation, ramp and soak switching and timing in one unit.
Front Face Format	48 x 48 mm (1.89 x 1.89 in)	96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	144 x 144 mm (5.67 x 5.67 in)
Programs	4	8	19	99
Segments Per Program	16	16	30	99 (2000 total max)
Analog Inputs	1	1	1 or 2	1 or 2
Digital Inputs	1	6	12	16
Analog Outputs	Up to 3	Up to 3	Up to 3	Up to 3
Digital Outputs	Up to 2	8	8	16 events
Accuracy (at ref. cond.)	±0.25% of span	±0.25% of span	±0.1% of span	±0.1% of span
Loops	1	1	1 or 2	1 or 2
PID Group	1	1	8	9
Networking	RS485 Modbus	RS485 ASCII or Modbus	-	RS485 ASCII

Indicators	UDI 1700
Product Description	The UDI 1700 is a horizontal, 1/8 DIN format, low-cost indicator for most process variable types.
Size (L x H x D)	96 x 48 x 100 mm (3.78 x 1.89 x 3.94 in)
Accuracy	±0.10% of span
Analog Inputs	1 universal
Input Signal Types	Thermocouples, RTDs, mV, V, mA
Display Types	4 digits-LED (red)
Alarm Set Points	3
Digital Input	Yes
Transmitter Power	Yes
Networking	RS485 ASCII or Modbus

Universal Digital Controllers	DC 1000
Product Description	DC 1000 family of microprocessor based controllers combine a high degree of functionality and reliability at a very low price in 4 different DIN sizes.
Front Face Format	48 x 48 mm (1.89 x 1.89 in) 48 x 96 mm (1.89 x 3.78 in) 72 x 72 mm (2.83 x 2.83 in) 96 x 96 mm (3.78 x 3.78 in)
Analog Inputs	1 or 2
Input Signal Types	Thermocouples, RTDs, mV, V, mA
Digital Inputs	N/A
Analog Outputs	Up to 2
Digital Outputs Control	Up to 2
Digital Outputs Alarm	Up to 3
Accuracy (at ref. cond.)	±0.5% of F.S.
Loops	1
Networking	RS232 or RS485 ASCII

Illustration of 3 Typical Problems resolved by ACCUTUNE

PV

SP VALUE

Start-Up Mode Prevents Overshoot

Adapts to Process Dynamics

Detects and Adapts to Disturbances

Time

Paperless Recorders	eZtrend QXe	Minitrend QX	Multitrend SX
Displays	127 mm (5.0 in) Color (QVGA)	140 mm (5.5 in) Color TFT (QVGA)	307 mm (12.1 in) Color (SVGA)
Analog Inputs	Up to 12	Up to 16	Up to 48
Data Storage	USB Memory Key	Compact flash/USB Memory Key	Compact flash/USB Memory Key
Sample Rate	100/200/500ms	20/100/200/500ms	20/100/200/500ms
Digital I/O	Up to 8DI/8DO	Up to 16DI/16DO	Up to 48DI/48DO
Networking	Ethernet/RS485, OPC Server, Web	Ethernet/RS485 Modbus, OPC Server, Web	Ethernet/RS485 Modbus, OPC Server, Web
Math Functions/Math Scripts	Yes/No	Yes/Yes	Yes/Yes
Reference Accuracy	±0.1% Typical-TC	±0.1% Typical-TC	±0.1% Typical-TC
Configuration	PC or front panel	PC or front panel	PC or front panel
Remote Viewing	Internal Web Page	Internal Web Page	Internal Web Page
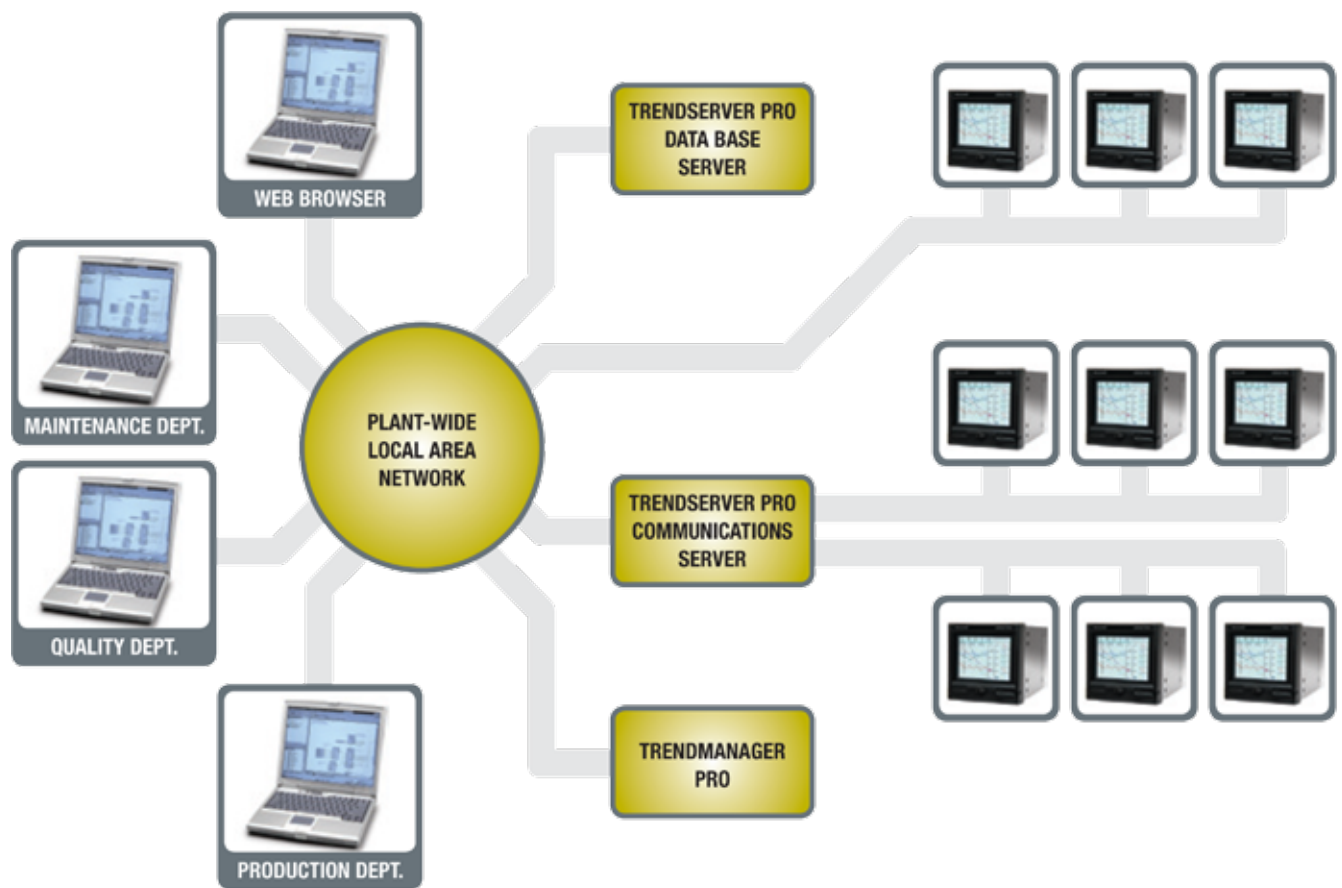
Circular Chart Recorders	DR4300 Basic	DR4300	DR4500 Classic	DR4500 Truline
Chart Size	254 mm (10 in)	254 mm (10 in)	305 mm (12 in)	305 mm (12 in)
Reference Accuracy	0.35%	0.20%	0.10%	0.10%
Analog Inputs	2	2	2	4
Digital Display	N/A	Yes	Yes	Yes
Chart Type	Preprinted	Preprinted	Preprinted	Self-printing thermal paper
Control	N/A	2 loops	2 loops	2 loops
Math	N/A	Totalization	Yes	Yes
Networking	N/A	Modbus RTU	Modbus RTU	Modbus RTU
Optional Software	N/A	Trend Manager Pro/Specview	Trend Manager Pro/Specview	Trend Manager Pro/Specview

WEB BROWSER

MAINTENANCE DEPT.

QUALITY DEPT.

PRODUCTION DEPT.

PLANT-WIDE LOCAL AREA NETWORK

TRENDSERVER PRO DATA BASE SERVER

TRENDSERVER PRO COMMUNICATIONS SERVER

TRENDMANAGER PRO
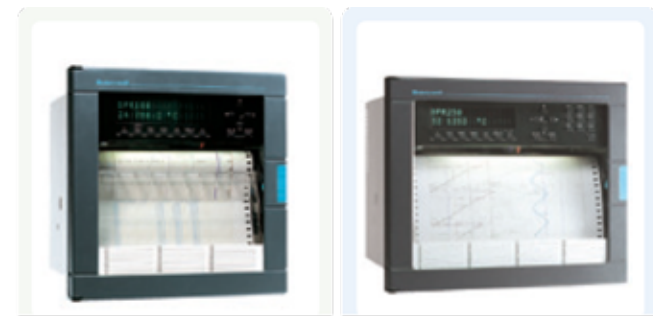
Strip Chart Recorders	DPR180	DPR250
Display	Digital	Digital
Paper Width	180 mm (7.09 in)	250 mm (9.84 in)
Reference Accuracy	0.05%	0.05%
Multipoint Channels	24	64
Continuous Pens	N/A	N/A
Roll or Fan-Fold Charts	Yes	Yes
Configuration	PC or Keyboard	PC or Keyboard
Data Storage	PCMCIA; Compact Flash	PCMCIA; Compact Flash
Networking	ASCII, Modbus, RTU	ASCII, Modbus, RTU Modbus TCP/IP
Optional Software	Trend Manager Pro/Specview	Trend Manager Pro/Specview

Redefining Smart—A New Level of Pressure Measurement

Honeywell's SmartLine® series smart measurement system sets a new standard for total performance in harsh process environments, featuring the industry's first modular and most robust pressure transmitters. The SmartLine pressure transmitter delivers total value across the entire plant lifecycle, from construction, operations to maintenance. With better performance, modular construction, an advanced display and the best integration features available when used with Experion® PKS or PlantCruise DCS, Honeywell helps our customers reduce project costs and startup time, avoid unplanned downtime, improve product quality, reduce spare parts inventory and shorten time to repair.

**Honeywell transmitters are recognized for their unsurpassed accuracy and performance.
Now, the SmartLine series has enhanced that reputation even further with industry leading total performance:**

- Transmitter stability — 0.01%/year
- Reference accuracy — 0.035% span standard, 0.025% span optional
- Total probable error as good as 0.12%
- Response time — 80mS or faster
- In-built /on-board static pressure and temperature compensation
- Rangeability / Turndown of up to 400:1
- Unequaled local display capabilities
- External zero, span and configuration capability
- Polarity-insensitive electrical connections
- Comprehensive on-board diagnostic capabilities
- Integral dual-seal design for safety based on ANSI/NFPA 70-202 and ANSI/ISA 12.27.0
- World-class static pressure rating—4500psig with the option up to 6000psig
- Full compliance to SIL 2/3 requirements as a standard
- Available 15-year warranty
- Multiple performance tiers available: ST 800 and ST 700

Modular Design
All SmartLine pressure transmitters are modular in design, making it easy to replace hardware, add indicators, change electronic modules or even meter bodies without affecting overall performance or infringing on approval body certifications.

Advanced Graphics LCD Display:
- Up to eight separate screens with three formats to meet unique display requirements: process variable, bar graph and trend
- Full library of engineering units with the ability to add custom units
- Configurable screen rotation timing
- Supports multiple languages
- Two diagnostic indications
- 90-degree position adjustments to facilitate all installation positions
- Square root display capabilities may be set separately from the 4-20 mA DC output signal

Flexible Configuration
In addition to configuring with any handheld device or through asset management DTMs, users can configure the transmitters through externally accessible buttons, even in an intrinsically safe, Class I, Div. 1 environment. This can be done both on the bench for set up and in the field without needing a handheld device.

Polarity Insensitivity
SmartLine transmitter wiring can be reversed without damaging or effecting the normal operation of the transmitter. This avoids costly rework on large installations where multiple contractors may use different wiring standards and eliminates return trips to re-wire "incorrectly wired" devices.

Integration with Experion PKS or PlantCruise DCS
It provides the operator with a summary health status of a transmitter or group of transmitters. Device identification in the field is simplified using our unique transmitter messaging capability. Safe maintenance modes are also confirmed through maintenance mode indication. These together identify the right product, the right maintenance activity and a safe mode to perform maintenance.

Project Planning
Reduce initial costs and provide flexibility for post-start up modifications

Startup and Commissioning
Reduce project startup time

Plant Lifecycle

Maintenance
Lower total maintenance costs, reduce repair time and enhance safety

Operations
Lower operating costs, avoid unplanned downtime and improve product quality

Smart Temperature Transmitter - Model STT170

STT171
- Analog 4-20 mA output
- RTD or Ohm input
- DIN form B headmount
- NAMUR NE43 sensor error response
- Configurable using STT17C configuration tool and PC

STT173
- Analog 4-20 mA output
- RTD, T/C, Ohm or mV input
- DIN form B headmount
- NAMUR NE43 sensor error response
- Configurable using STT17C configuration tool and PC

STT17H
- HART™ /4-20 mA output
- RTD, T/C, Ohm or mV input
- Single or dual (difference in average) sensor input
- DIN form B headmount
- HART Multidrop capable
- NAMUR NE43 sensor error response
- Galvanic isolation

STT800
Temperature Measurement Assembly

The STT800 is an installation-ready temperature measurement assembly for any of the STT3000 transmitters, sensor heads, thermo wells and process connections. It is available in short delivery cycles and comes with custom calibration and agency approvals. These are high quality probes with an exceptional level of support that provide ease of engineering, procurement and installation.

The STT800 is offered in three models:
- STT820 - Rigid probe assembly
- STT830 - Threaded and socket weld thermo well assembly
- STT840 - Drilled and flanged thermo well assembly
- ATEX, CSA, FM Approvals available on all the STT800 assemblies

STT250
Smart Temperature Transmitters
- Universal sensor inputs
- Compact size allows direct head mounting
- Broad selection of housings and materials
- Remote communications
- Available with integral engineering units meter
- Dual input model with advanced diagnostics and redundant sensor for critical applications
- Support 4-20/HART Version 5 and 6/DE Output
- Sensor matching function
- Supports EDDL and DTM
- TUV SIL2 Certification for safety applications

STT350
Smart Temperature Transmitters
- For applications requiring the ultimate in performance and advanced solutions
- One model for most thermocouples or RTDs (2-, 3-, or 4-wire)
- No board change, potentiometer adjustment, or calibration required
- Remote configurability and rangeability
- Explosion-proof housing on DIN rail mounting
- Remote communications for configuration or diagnostics, Delta T, and redundant sensor capabilities are standard

MCT202
Honeywell MC Toolkit
Model MCT202 Honeywell MC Toolkit handles multiple communication protocols, letting you configure, monitor, diagnose, and manage smart devices from Honeywell and other suppliers.

- Configures both DE and HART protocols
- Automatically verifies device identification and database configuration
- Provides full self-diagnostic and device diagnostic support
- Configures any HART Device with a published HART Device Descriptions (DD), regardless of device manufacturer

SCT3000
Smartline Configuration Toolkit
This PC-based tool allows quick, error-free configuration of Smartine products.

- Access to configuration database parameters
- Verifies all parameters are correct
- Enables "Management of Change"
- Microsoft Windows 95b, 98, NT (4.0), 2000 and XP

Calculation and control done in DCS, PLC or Flow computer

$$Q_m = NCE_v Y_1 d^2 \sqrt{h_w \rho}$$

FIC

DP   Pressure   Temp.

The "Old" Flow Approach

Dynamic compensation of Flow inside SMV 3000

$$Q_m = NCY_1 d^2 \sqrt{h_w \rho}$$

Control done in DCS, PLC or Single Loop Controller

FIC

SMV 3000 Transmitter

Temperature Probe
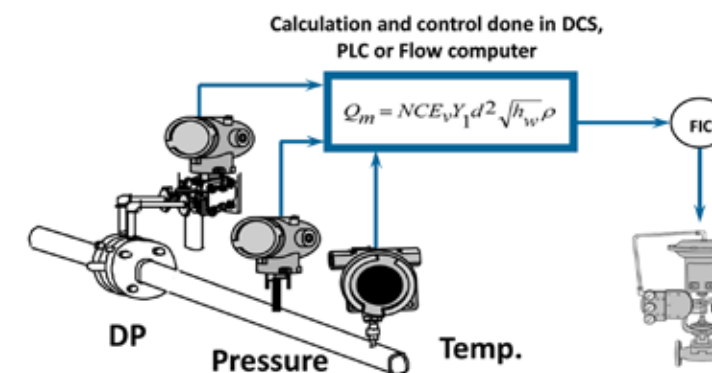
The "New" Flow Approach
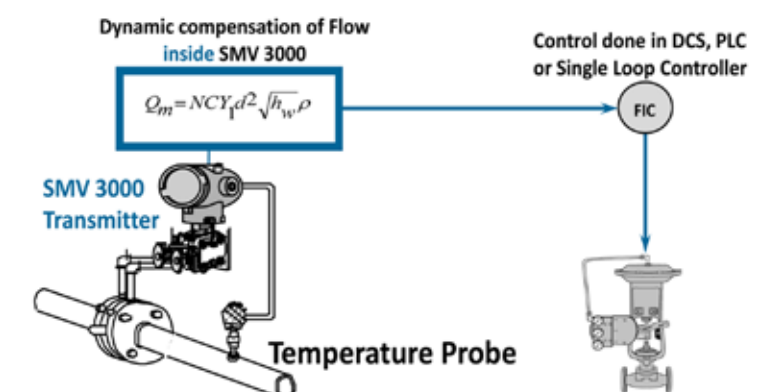
Accurate and reliable flow measurements for the most demanding applications.

VersaFlow	Electromagnetic Flow Meter	Coriolis Mass Flow Meter	Vortex Flow Meter	Clamp-on Ultrasonic Flow Meter
Benefits	Proven technology	Improved safety	Reduced installation cost and improved performance	Reduced installed cost and improved performance
	Expanded application capabilities	A wide range of flow applications	Rugged, long-lasting design for the toughest applications	Low cost to service and maintain
	Wide range of process conditions	Reduced maintenance cost and worry	Easy to install and maintain	
	Easy to install and operate	Improved performance	Multiple parameter monitoring	
	Sizes to fit your requirements	Reduced maintenance time and cost		
	Resistant to acids and alkalis			
Features	250,000 units in operation	Secondary pressure containment around sensor	2-wire device with integrated pressure & temperature compensation	Minimized uncertainty
	Conductivity down to 1 µS/cm	Pressure-resistant jacket up to 100 bar (1450 psi)	Non-wearing, fully welded stainless steel construction with high corrosion, pressure and temperature resistance	Easy sensor mounting
	Temperature up to 180°C/356°F	0.3 to 430,000 kg/h of flow		Optimized reliability
	Easy to select, fit and forget	Easily drained and easy to clean		Installation wizard
	Available sizes: 0.1 to 80 inch (DN 2.5 - 3000)	Excellent zero stability	Optimal process reliability thanks to ISP (Intelligent stable readings, free of external signal processing)	Minimal maintenance
	Various electrode materials available	Rapid signal processing even with product and temperature changes and sudden changes in density	Ready to use–plug-and-play	All in one system
	Standard liners: PTFE, PFA, ETFE, hard rubber and polyurethane	Modular electronics concept & data redundancy–sensor and plug-and-play electronics easy to replace	Maintenance-free sensor design	Efficient regreasing concept
			Pressure and temperature can be called up via HART	Portable configuration is available
Applications	Suitable for all conductive applications	Viscous or shear-sensitive products	Superheated and saturated steam measurement	Chemical addition
	From clean liquids to slurries and pastes with high solids content	Products requiring low flow velocities	Steam boiler monitoring	Potable water
	Abrasion, chemical and vacuum resistant	In homogeneous mixtures	Monitoring of compressor output	General process control
	Suitable for high temperatures	Products with entrained solids or gas	Measurement of consumption in compressed air systems	Purified water
	Custody Transfer Applications	Flow and purity measurement	Measurement of consumption of industrial gases	Broad range of refined hydrocarbons
		Density, temperature and concentration measurement	SIP and CIP processes in the food, beverage and pharmaceutical industries	Sanitary flow rate measurements
		Custody Transfer Applications	Measurement of conductive and non-conductive liquids	De-ionized and demineralized water
				Cooling water/district heating water

1. Optional touch screen with 4-button operation
2. Two-wire level meter
3. Same housing for Ex and Non-Ex
4. One converter for all applications
5. Rotatable housing
6. Optional Metaglas barrier
7. Antenna extention (for long nozzles)

SmartLine Non-Contact Radar Level Meter

Highlights
- Standard accuracy ±3 mm (±0.04 in)
- Reliable measurement in difficult process conditions
- Operates up to a flange temperature of 200°C (390°F) and 40 barg (580 psig)
- Measuring range up to 80 m (260 ft)
- Long antenna versions can be extended to suit nozzle length
- Configuration software and HART DTMs included as standard
- Optional second current output
- Direct-accessible graphic touchscreen/wizard (option)
- Converter rotates 360°
- Triple barrier gas-tight protection available for working with dangerous gases (using pre-stressed fused glass)
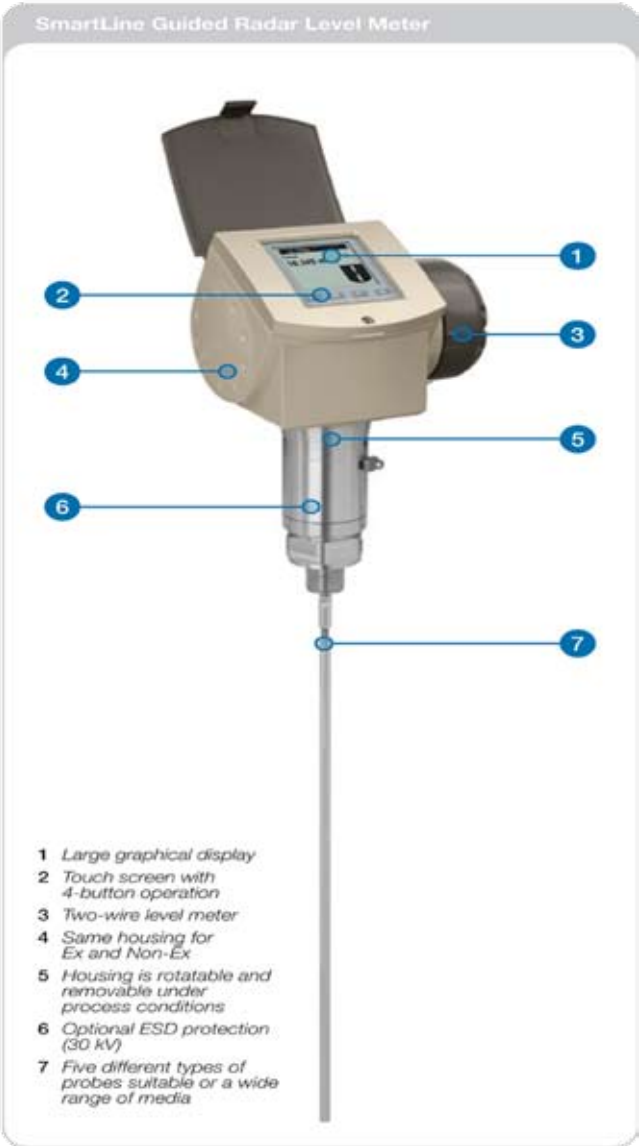
SmartLine Guided Radar Level Meter

Highlights
- Displays level and interface
- Easy navigation using a touch screen without opening the housing (installation wizard)
- Configuration software and DTMs included as standard
- Optional second current output–used for displaying interface measurements, for example
- Higher signal dynamics and sharper pulse improve accuracy
- Display in 9 languages–Including Chinese, Japanese & Russian

1. Large graphical display
2. Touch screen with 4-button operation
3. Two-wire level meter
4. Same housing for Ex and Non-Ex
5. Housing is rotatable and removable under process conditions
6. Optional ESD protection (30 kV)
7. Five different types of probes suitable or a wide range of media

The Honeywell OneWireless™ Network is a multi-application network that can be tailored to offer the wireless coverage needed for industrial applications; from a simple field instrument network (ISA 100.11a) to a completely integrated, plant-wide multi-application network (Wi-Fi and ISA100.11a). OneWireless solutions offer several benefits beyond avoiding wiring costs; helping customers optimize plant productivity, ensure safety, meet regulatory compliance and improve asset reliability. Supporting XYR 6000 wireless transmitters and the OneWireless Adapter, this network delivers a global solution with robust security, predictable power management and multi-speed monitoring. Attributes and benefits include:

- Single plant wide wireless infrastructure for lowest total cost of ownership
- Open, standards based system providing choice of product and supplier
- Best integrated industrial security available today
- Extremely reliable mesh system—field proven for best uptime
- Flexible and scalable for designing the network that best fits the application need
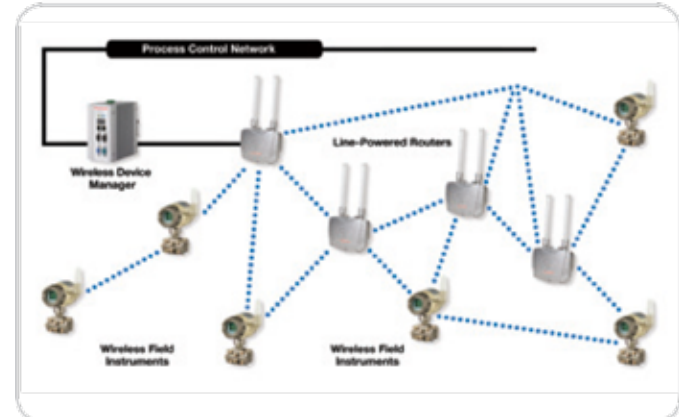
XYR 6000 Transmitters

XYR 6000 transmitters provide highly accurate pressure, temperature, analog input, valve position, digital input measurements or a digital output, and transmit the
measured value wirelessly using the 2.4 GHz ISM band and ISA100.11a open protocol to a Honeywell Mutinode or Field Device Access Point gateway. XYR 6000 transmitters
provide the ability to obtain data from remote and hazardous measurement locations without the need to run wires.

OneWireless Adapter

The OneWireless Adapter (OWA) transforms a HART device into an ISA100.11a compliant wireless device,
transmitting this valuable information back to a host system wirelessly. The OWA provides access to: 4 HART dynamic variables (PV, SV, TV, FV), multivariable data, calibration and diagnostic information, device configuration parameters.

XYR 3000 Wireless Multiplexer I/O, Modems and Gateways

XYR 3000 products provide a simple and reliable means of implementing a wireless solution for applications with
high-density I/O concentrations, providing the lowest cost per wireless measurement point, enabling new applications. Gateway and modem products provide wireless interfaces between data buses such as Ethernet, RS232 and RS485.

Transmitters	XYR 6000 Transmitters (condensed specifications)	XYR 5000 Transmitters (condensed specifications)
Radio Frequency:	2.4Ghz, License Free, Direct Sequence Spread Spectrum (DSSS) Technology; ISA100.11a Compliant	868/900Mhz, License Free, Frequency Hopping Spread Spectrum Technology
Sensors Radio Power:	125-400 mW	31mW, 17.8mW Typical
Range:	1000ft (305m) with Integral 2 dBi Antenna	2000ft (610m)
Transmitter Power:	2 "D" size 3.6 V Li - Non Rechargeable Batteries	"C" size 3.6 V Li - Non Rechargeable Battery
Battery Life:	Up to 10 years	Up to 5 Years
Diagnostics:	Extensive Device Status Capability	Low Battery, "Out of Spec"
Wireless Solutions:	OneWireless Compatible and ISA100 Compliant	Event Driven Transmission Rates
Software:	Local and Software Configurable	Local and Software Configurable
LCD Display:	Local, Alpha Numeric, 8 Segment, Always On	Local Display
Operating Temperature:	-40° to 85° C (-40° to 185° F)	-40° to 85° C (-40° to 185° F)
Hazardous Approvals:	FM, CSA, ATEX, IECEx, InMetro, SAEx	FM&CSA Class I, Division II, Groups A-G, ATEX EEx ia IIC, EEx nl IIC with CE Mark
Enclosures:	NEMA Type 4X, IP 66/67 and NEMA 8 (Explosion Proof), Stainless Steel Housing Available	NEMA Type 4X, IP 66
Connection:	Optional 4dBi Integral, Remote 8 dBi Omni Directional or 14dBi Directional antennas	Integrated Yagi (Analog and Temperature Units) for Ranges Up to 5000ft (1500m); Remote High Gain for Ranges Up to 5000ft (1500m)
Differential Pressure		
Ranges:	400" H$_2$O (1,000 mbar), 600" H$_2$O (1500mbar), 100 psi (7,000 mbar), 3000 psi (210,000 mbar)	100" H$_2$O (24.91kPa), 300" H$_2$O (74.73kPa), 25 psi (172.37kPa), 100 psi (698.48kPa) and 300 psi (20.68 bars)
Gauge Pressure		
Ranges:	500, 3000, 6000 and 10,000 psi (35, 210, 415 and 690 bar) In-Line Meter Body; 500 and 3000 psi, Dual-Head Meter Body	30, 250, 1000 and 5000 psi (206.84kPa, 17.24bars, 68.95 bars, 344.74 bars)
Absolute Pressure		
Ranges:	500 psia (35 barA)	30 and 250 psi (206.84 kPa and 17.24 bars)
Flange Mount:		
Ranges:	400" H$_2$O (1000 mbar), 600" H$_2$O (1500 mbar) Pseudo Flange, 100 psi (7000 mbar)	Not Available
Remote Seal:		
Ranges:	400" H$_2$O (1000 mbar), 100 psi (7000 mbar) DP; 500 psi (35 bar), 3000 psi (210 bar) GP; 500 psia (35 barA) AP	15 psi (1.03 bar), 30 psi (2.1 bar), 100 psi (6.9 bar) GP, 250 psi (17.2 bar), 1000 psi (69 bar), 10000 psi (690 bar)
Temperature/DI	Temperature + DI; 3 TC Max, 2 RTD Max, 3 DIs Max	Temperature + DI/DO; TC and RTD Includes Discrete Input Option
Remote Probe:	Integral and Remote Probe Configurations Available	Remote Probe Configuration is NEMA 4
Analog Input	4-20 or 0-20ma/0-5 or 1-5V	4-20 ma / 0-10V; Two Inputs; Includes Discrete Input Option
Accuracy:	±0.10%	±0.10%
Discrete Inputs	Three Inputs; Dry Contact Only, No Voltage or Current; 1 Kohm Maximum Impedance	Two Inputs; Dry Contact Only, No Voltage or Current; 1 Kohm Maximum Impedance
Position:	Provides position monitoring for items like linear distances or valve position	Not Available
Acoustic:	Not Available	Main Frequency Detection: 40 KHz; Bandwidth: 5 KHz
Base Radio:	FDAP, Multinode/Gateway; 2-802.11 a/b/g (Wifi/Wireless Ethernet) 1-(ISA100 Compliant) Sensor Radio 2-Ethernet Cables for Optional Connections to Wired Devices	Multiple Devices per Base Radio Analog/Digital Outputs: Up to 25 Modules per Base Radio Three Options: 4 AO, 8 DO, 4 AO/8 DO
Power:	24 VDC ±10% at 25 Watts; -40° to 167° F (-40° to 75° C); IP 66, NEMA 4X Enclosure; Class 1 Div2/ATEX Zone II Certified; Integral and Remote Antennas Available	24 VDC; NEMA: Type 4; Local Display

The Most Versatile Multiple Input Analyzer

UDA2182 Series Universal Dual Analyzer
pH, ORP, Conductivity, Dissolved Oxygen

- Mix-n-Match process measurements
- Fast & Easy commissioning – even wireless configuration
- Entire status at a glance – graphic LED display
- Full global support of Honeywell Process Solutions

The UDA2182 Series is a versatile, dual or single input analyzer that measures pH, ORP, contacting Conductivity and Dissolved Oxygen. The "mix-and-match" PWB design offers the user flexibility for a wide range of applications. Its common form, fit and function to older Honeywell analyzers make it a quick and easy retrofit into existing panels and installations

- Single or dual input for pH, ORP, contacting Conductivity or Dissolved oxygen
- Dual input in any combination of measurements
- PID control option
- Up to 3 analog outputs
- Up to 4 alarm relays
- Backlit graphical LED display
- Nema 4X/IP66 case
- Infrared PC & Pocket PC configuration
- FM/CSA Class 1, Div 2 approval

APT 2000/4000 Analyzers & Transmitters:

Honeywell's APT Series offers both an analyzer and a transmitter design. It has a large, easy to read display with a user interface that is easy to understand.
- USP26 Alarm Capabilities
- FM Class I, Div 1 (I.S) rating
- 120/240 Vac or 24 Vdc loop power
- pH, Conductivity (contacting & toroidal), and ORP models

7773 Series
Multi-purpose pH and ORP
Electrode Mountings

7777 Series
In-Line or Submersion
pH/ORP Electrode
Mountings

7758 Series
Pipeline Electrode Mountings
for Industrial pH and ORP

TL1000 Twist
Lock Electrode Mounting

7774 pH Series and ORP Electrode
Insertion/Removal Assemblies

Model 7794
Sanitary Durafet II pH Mounting

HPW7000 Hi-pHurity Water pH Measurement System

Accuracy and stability are combined with simplicity in this electrode mounting assembly for measuring pH in high purity water applications. A specially designed flow chamber provides optimal flow patterns and volume. The electrode cover and holder is eyed so that proper alignment is maintained during installation.

An easy to remove clamp secures the cover and makes electrode removal for calibration or maintenance fast and easy. Electrode and cable shielding ensures a stable pH reading. The reference electrode is easy to refill and maintain. A calibration cup holder allows the user to calibrate right at the assembly and saves calibration time.

4905
In-Line, Flow Chamber, or Immersion
Mountings/General Purpose Conductivity

4909
Ball Valve Mounting for
Insertion/Removal

4973
In-Line or Flow Chamber
Mountings for Low
Conductivity Measurements

Process Measurements don't have to be Complicated

The DirectLine family of sensor modules provides an easy solution to simplify common process measurements. Honeywell's patented sensor technology ensures reliable and stable measurements. The DirectLine architecture combines the sensors and transmitters into a single easy to use device.

DirectLine® Series

- Easy-To-Install: Integral sensor/electronics reduces wiring, cable runs and panel cutouts
- Easy-To-Use: Local display and keypad allows easy set-up, calibration and operation
- Easy-To-Maintain: Plug-in sensors make replacements a snap!

DirectLine Sensor Module at a Glance
- Measurement: pH, ORP, Contacting Conductivity, Dissolved Oxygen
- Mounting: Integral to the sensor or remote mounted; pipe, wall, or DIN rail
- Enclosure: Type 4X, IP 66, Plastic Case
- Display: LCD 4-Digit, 7-Segment
- Output: One 4–20 mA
- Power: 16-42 Vdc Loop Powered
- Approvals: CE, UL, CSA, FM

Sodium Analyzer Series 2131C

Overview :

The 2131C Sodium Analyzer is the most advanced on-line instrument specifically developed for use in continuous measurement and determination of sodium ion concentration.

Features :
- Wide analysis range: 0.01ppb – 10ppm
- Low maintenance
- Very low reagent and standard consumption
- Self diagnostics
- Stable pH through vapor buffering
- No change of diffusion tubing
- Automatic range selection
- Process calibration – calibrate to sample
- Two 4-20 mA isolated current outputs
- 3 relay contacts for high, low and general alarm
- Large, easy-to-read 128 x 64 pixel graphic LCD display
- Internal diagnostics to show probe status
- Protection of sensor from "Hot Sample"
- Automatic temperature compensation
- Communication interface via RS-232 & RS-485 using MODBUS RTU protocol
- User-configurable settings for recorder outputs and alarm set points
- Automatically stores last 10 calibrations and alarm logs
- Wide range of input power supply: 90VAC – 250VAC
- No use of highly toxic reagents such as diisoethylamine or diisopropylamine

Silica and Phosphate Analyzer Series 2341 and 2342
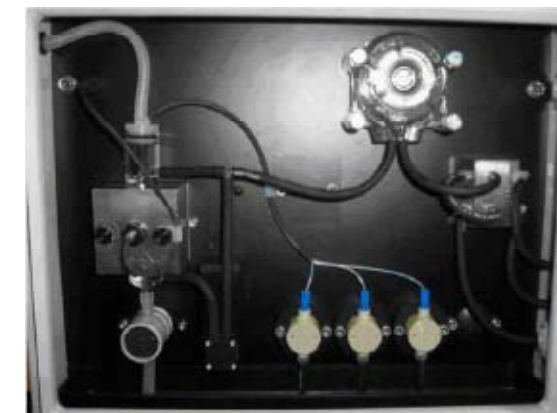
Overview :

Honeywell's latest 2341 and 2342 colorimetric analyzers provide exceptional results for online measuring of silica, phosphate and other parameters. Small size and compact layout make the 2341 and 2342 an excellent choice for a variety of applications and environments.

Common application points in a boiler system for online silica measurement include: make-up water, condensate, boiler feedwater, saturated steam/main steam and cooling water. Application points for phosphate include: boiler water and cooling water, cycles, ensuring accuracy and reliability with every application.

Features :
- Accurate and wide-range analysis
- Multi-stream (up to eight streams)
- Short cycle time
- Automatic reagent detection
- Adjustable cycle and calibration frequency
- Automatic calibration and validation (QA/QC)
- Small size
- Touchscreen display
- Grab sample
- Internal datalogger
- Automatic start/stop based on sample flow detection

Hydrazine Analyzer Series 2171C

Overview :

The 2171C Hydrazine Analyzer is the most advanced hydrazine instrument specifically developed for use in continuous measurement and determination of hydrazine concentration in boiler feed-water.

Features :
- Wide analysis range: 0.01ppb – 1ppm
- Low maintenance
- Very low reagent and standard consumption to be changed only every two months
- Self diagnostics
- Stable pH through vapor buffering
- No change of diffusion tubing
- Automatic range selection
- Process calibration – calibrate to sample
- Two 4-20 mA isolated current outputs
- 3 relay contacts for high, low and general alarm
- Large, easy-to-read 128 x 64 pixel graphic LCD display
- Internal diagnostics to show probe status
- Protection of sensor from "Hot Sample"
- Automatic temperature compensation
- Communication interface via RS-232 & RS-485 using MODBUS RTU protocol
- User-configurable settings for recorder outputs and alarm set points
- Automatically stores last 10 calibrations and alarm logs
- Wide range of input power supply: 90VAC – 250VAC
- Rechargeable hydrazine cell

HYDROGEN TRIPPLE RANGE GAS ANALYZER

Thermal Conductivity

A thermal conductivity system that measures concentrations of hydrogen purity and CO2 gas. This measurement is typically made in hydrogen-cooled generators.

### 7866 Digital Thermal Conductivity Analyzer

The 7866 Thermal Conductivity Analyzer is designed to provide a highly sensitive and accurate analysis of a binary (2-components) mixture of gases. It uses the principles of thermal conductivity, to determine the concentration of sample gas through the measurement of thermal loses from to highly stable, matched thermistor probes inserted in a stainless steel block.

7872 Gas Sampling System

The pre-package 7872 Sampling System provides a complete pre-engineered panel designed specifically for hydrogen-cooled generator applications in utility, paper mills and other co-generation applications.

Sampling System	7872 Sample Panel
Construction	12 gauge steel, enamel finish, with components mounted piped and tested
Dimensions (W x H x D)	53.7 x 76.2 x 15.4 cm (21 x 30 x 6 in)
Weight (approx.)	50 lbs (22.5 kg)
Calibrating Gases	CO_2, H_2 and 75% H_2 in N_2
Sample Temperature	Up to 104ºC (220ºF)
Sample Pressure	1 to 100 psig (6.9 to 69 kPa)

H_2 Purity Gas Analyzer	7866 Analyzer
Accuracy	± 2% of span
Response Time (for H_2)	Initial, <1 sec 63%, 13 sec, 90%, 23 sec, 99%, 40sec
Measuring Range	1, 2 or 3 as specified
Sample Requirement (Sensing Unit)	0.2 to 4.2 cfh flow 37 mm Hg Pressure min.
Power Requirement (Control Unit)	Universal 90 to 264 Vac, 50 to 50 Hz
Weight (Sensing Unit/Control Unit)	8.5 kg (18 3/4 lb)/1.3 kg (3.0 lbs)

7866 Sensor

7872 Sample

7866 Control

Today's Solution
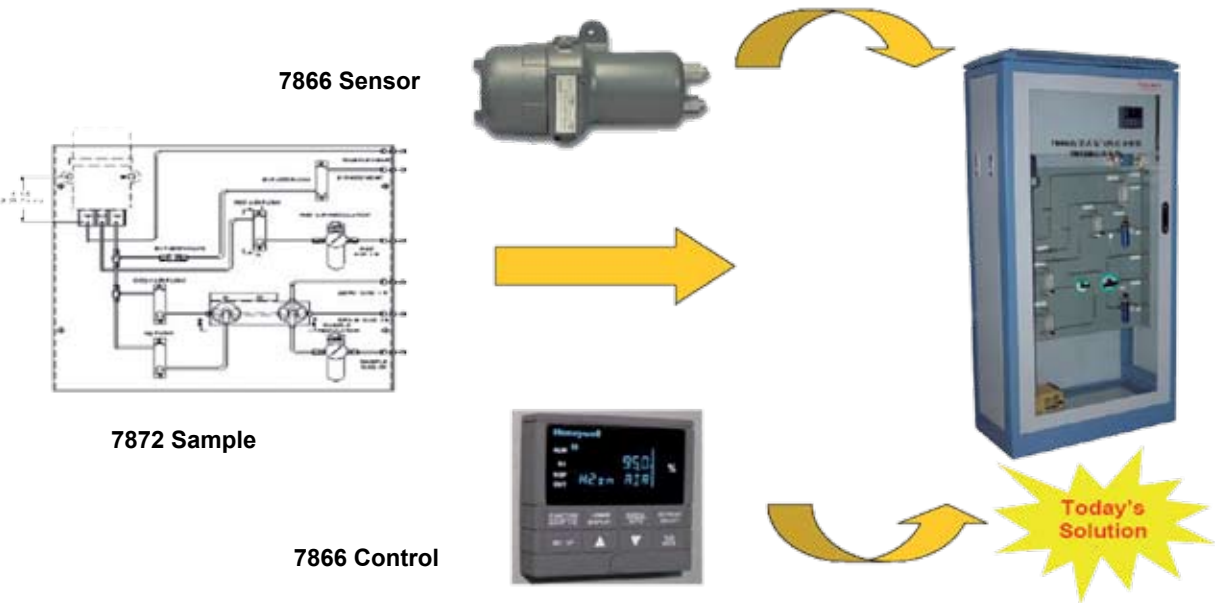
HercuLine Electric Actuators	HercuLine 2000	HercuLine 2001 / HercuLine 2002	HercuLine 10260A / HercuLine 10260S
Product Description	Low torque electric actuator	Low torque electric actuator	Medium torque industrial electric actuator
Torque	50 to 400 in-lb (6 to 45 N-M)	50 to 400 in-lb (6 to 45 N-M)	10 to 300 lb-ft (14 to 400 N-M)
Stroke/Speed	90º to 150º / 6 to 75 sec	90º to 150º / 7.5 to 120 sec	90º /10/20/40/60 sec
Input Signal	Floating, Pos. prop., Open/Close	1-5 Vdc, 4 to 20 mA	0/1-5 Vdc, 0/4-20 mA, Floating, Pos. prop., Open/Close
Position Feedback	1000 ohms potentiometer	0/1-5 Vdc, 0-16 Vdc, 0/4-20 mA, SW emulation	0/1-5 Vdc, 0-16 Vdc, 0/4-20 mA, SW emulation 1000 ohms potentiometer
Position Sensing	1000 ohms potentiometer	2001 : slidewire 2002 : contacless	Contactless
Environmental	-40º to 185º F (-40º to 85º C)	-40º to 170º F (-40º to 75º C)	-20º to 170º F (-30º to 75º C)
Duty Cycle	Continuous	Continuous	Continuous
Repeatability	N/A	0.2% of 90º span	0.2% span
Dead-Band	N/A	Adj. 2% to 5% span	Adj. 2% to 5% span
Local Auto/Man Switch	Optional	Optional	Optional
Local Keypad/Display	N/A	Optional	10260S : Optional
RS485 Modbus Comms.	N/A	Yes	10260S : Yes

Herculine Electric Actuators

Herculine Electric Actuators are engineered for exceptional reliability, accurate positioning of dampers and quarter-turn valves, they perform especially well in extremely demanding environments requiring continuous duty, high reliability and low maintenance. With non-contact sensing, the maintenance problems and unexpected shutdowns associated with slide wires and potentiometer waer are eliminated.

Herculine Smart Actuators

Honeywell's new actuators incorporated all of the quality and reliability features of the Herculine actuators with the added benefits of microprocessor-based electronics. These benefits make it easier to install, set up and commision the actuator, while allowing you to monitor the health parametes for proactive maintenance planning.

- RS485/Modbus communications for remote access
- Programmable: Alarm and relay outputs; Characterization, failsafe functions, dead-band, and filtering; Direction of rotation
- Diagnostic Parameters: Maximum Hi and Lo temperature; Stall and accumulated stall time; Total travel

Series 9120 Seated Angle Valves
ANSI 150 - 600 / JIS 10K-40K DIN/BS 4504 PN10-PN40

Series 9110 Single/Double Seated Globe Valves ANSI 150 - 600
/ JIS 10K-40K DIN/BS 4504 PN10-PN40

General

The Series 9120 Angle-type control valve is indispensable to control fluid of high differential pressure, slurry, high viscosity, or adhesive. They are provided with a number of features such as low resistance of passage, antiwear quality within the valve, and easy maintenance and inspection.

Performance :

High Cv to body size ratio
Streamlined flow passages to optimize capacity
High Cv to valve weight ratio
Excellent flow control rangeability

Design Flexibility :
- Modular construction design available with a range of different connections and styles.
- All trim components removable from the top for easy of maintenance.
- Wide range of supplementary noise control options Inherently characterized trim offered in equal percentage, linear, quick opening and modified-parabolic (options)
- Multi trim sizes available.
- Full range of body and trim material options.
- Fully rationalized and interchangeable features.
- Full range of bonnet and packing designs to suit .various temperatures and fluids.

General

The Series 9110 control valves has been developed to provide a cost effective solution to the " final control element" used in modern plants.The valve design combines the successful high integrity features of the series 9110 with a high capacity, economic design philosophy as well as excellent control.

Performance :

High Cv to body size ratio.
Streamlined flow passages to optimize capacity. High Cv to valve weight ratio.
Excellent flow control rangeability.

Design Flexibility :

Modular construction design available with a range of different connections and styles.
All trim components removable from the top for easy of maintenance.
Wide range of supplementary noise control coptions.
Inherently characterized trim offered in equal percentage, linear, quick opening and modified-parabolic (options).
Multi trim sizes available.
Full range of body and trim material options.
Fully rationalized and interchangeable features.
Full range of bonnet and packing designs to suit various temperatures and fluids.

Specification

Valve Type	Diaphragm Operated Angle Control Valve										
Valve Model	Series 9210										
Trim Type	S-P, C-B, C-P, C-S, C-B-S, C-D, Optional Special Valve										
Valve Size (in)	1/2	3/4	1	1.1/2	2	2.1/2	3	4	5	6	
(mm)	15	20	25	40	50	65	80	100	125	150	
Pressure Rating	ANSI 150#~600# (JIS 10K~40K, PN 10~40)										
End Connection	RF, FF, SW, BW, Screw, RTJ										
Body Materials	A216WCB, A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on										
Bonnet Type	Plain(-17°c to 230°c), Extension(-45°c to -17°c over 230°c), Cryogenic(-196°c to -45°c)										
Packing	Graphite foil, Carbon fiber, Teflon fiber										
Gasket	Spiral Wound Metal gasket										
Guiding	Top/Cage										
Seat Type	Metal/Soft										
Valve Plug Shapes	Contoured/ Cage/ Pilot										
Plug Characteristic	Equal Percentage/Linear/Modified-Parabolic/Quick Opening										
Trim Materials	A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on										

Specification

Valve Model	Series 9110															
Body Type	Conventional, Teflon block, Small body, Double seat															
Trim Type	S-P, C-B, C-P, C-S, C-B-S, C-D, Optional Special Valve															
Valve Size (in)	1/2	3/4	1	1.1/2	2	2.1/2	3	4	5	6	8	10	12	14	
(mm)	15	20	25	40	50	65	80	100	125	150	200	250	300	350	
Pressure Rating	ANSI 150#~600# (JIS 10K~40K, PN 10~40)															
End Connection	RF, FF, SW, BW, Screw, RTJ															
Body Materials	A216WCB, A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on															
Bonnet Type	Plain(-17°c to 230°c), Extension(-45°c to -17°c. over 230°c), Cryogenic(-196°c to -45°c)															
Packing	Graphite foil, Carbon fiber, Teflon fiber															
Gasket	Spiral Wound Metal gasket															
Guiding	Top/Cage															
Seat Type	Metal/Soft															
Valve Plug Shapes	Contoured/ Cage/ Pilot															
Plug Characteristic	Equal Percentage/Linear/Modified-Parabolic/Quick Opening															
Trim Materials	A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on															

Series 9130 Mixing / Diverting Seated 3-Way Valves
ANSI 150 - 600 / JIS 10K-40K DIN/BS 4504 PN10-PN40

Series 9210 High Performance Butterfly Valves
ANSI 150-300 / JIS 10K-20K DIN/BS 4504 PN10-PN25

General
Three-way type control valves are used for controlling the fluids mutually to three directional pipings, i.e., mixing service and diverting service.

Performance :
High Cv to body size ratio
Streamlined flow passages to optimize capacity
High Cv to valve weight ratio
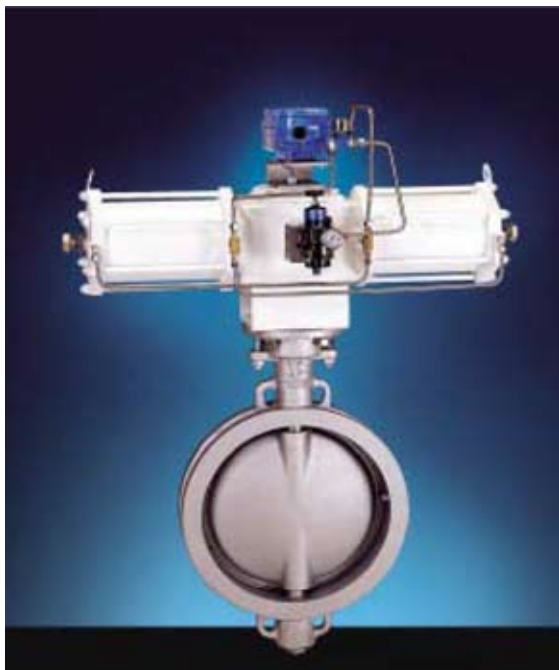Excellent flow control rangeability

Design Flexibility :
- Modular construction design available with a range of different connections and styles.
- All trim components removable from the top for easy of maintenance.
- Wide range of supplementary noise control options. Inherently characterized trim offered in equal percentage, linear, quick opening and modified-parabolic (options).
- Multi trim sizes available.
- Full range of body and trim material options.
- Fully rationalized and interchangeable features.
- Full range of bonnet and packing designs to suit various temperatures and fluids.

General
The series 9210 butterfly valves has been developed for a large number of applications throughout process industries.
The series 9210 high performance butterfly valves is mainly used for the control of fluids flowing in large valve at low differential pressure. It offers additional advantages such as simple structure and low cost.

Performance :
High Cv to valve weight ratio compared to conventional control valves.
Throttling controls 60° rotation, on-off controls 90° rotation.
Excellent control range ability.

Design Flexibility :
- Swing through and tight shut-off seated trim design. Flange connection versions available.
- Full range of bonnet and packing design to suit various temperatures and fluids.
- Provides fire safe sealing, which combines a soft seal ring and metal seal ring.
- Full range of body and vane material options, with availability of hard factings.

Design Integrity :
Wafer type as standard. Double eccentric mechanism.
Actuator mounting flange dimensions in accordanc with ISO 5211/1-1977

Quality Manufacturing :
Rigorously tested to ensure specified performance on site. Quality assurance systems in accordance with ISO 9001.

Specification

Valve Type	Diaphragm Operated 3-way Control Valve												
Valve Model	Series 9130												
Body Type	Mixing/Diverting												
Valve Size (in)	3/4	1	1.1/2	2	2.1/2	3	4	5	6	8	10	12	
(mm)	20	25	40	50	65	80	100	125	150	200	250	300	
Pressure Rating	ANSI 150#~600# (JIS 10K~40K, PN 10~40)												
End Connection	RF, FF, SW, BW, Screw, RTJ												
Body Materials	A216WCB, A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on												
Bonnet Type	Plain(-17℃ to 230℃), Extension(-45℃ to -17℃, over 230℃), Cryogenic(-196℃ to -45℃)												
Packing	Graphite foil, Carbon fiber, Teflon fiber												
Gasket	Spiral Wound Metal gasket												
Guiding	Top/Cage												
Seat Type	Metal/Soft												
Valve Plug Shapes	Contoured/ Cage												
Plug Characteristic	Linear												
Trim Materials	A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on												

Specification

Valve Type	Diaphragm/Cylinder Operated Butterfly Control Valve											
Valve Model	Series 9210											
Body Type	High Performance/Damper/TFE Lining/Rubber Lining											
Valve Size (in)	3	4	5	6	8	10	12	14	16	18	20	24
(mm)	80	100	125	150	200	250	300	350	400	450	500	600
Pressure Rating	ANSI 150#~300# (JIS 10K~20K, PN 10~25)											
End Connection	WF, RF, FF											
Body Materials	A216WCB, A351CF8/CF8M											
Bonnet Type	Plain(-17°c to 230°c), Extension(-45°c to -17°c, over 230°c), Cryogenic(-196°c to -45°c)											
Packing	Teflon, EPDM											
Gasket	Graphite											
Guiding	Bushing											
Seat Type	Metal/Soft											
Valve Plug Shapes	VANE											
Plug Characteristic	Inherent											
Trim Materials	A351CF8/CF8M, A351CF3/CF3M, and so on											

Series 9310 V-Notch Ball Valves
ANSI 150-300 / JIS 10K-20K DIN/BS 4504 PN10-PN25

General
Series 9310 Valve is Top Entry, Full Bore, Trunnion, and stem ball type v-notched ball valve, which is exclusively designed for excellent proportional control as much as globe type control valves and manual valves.
Series 9310 have special shape of disc which is suitable for accurate throttling control and on-off service not only general fluids but also critical condition in powders, slurry, gummy, fibrous material and other fluids having special characteristics.

Performance :
High Cv body size ratio (Full bore) Controls through 90° rotation Excellent flow control rangeability Easy maintenance
ISO standard Mounting Hole

Design Flexibility :
• Direct Mounting Actuator Design Flexibility
• Control any fluids
• Flow push seat design
• Full range of body and trim material options with available of hard facings
• Seat changeability
• Dual characteristics (Equal or Linear) Self-cleaning and tight seating Double-eccentric disc options

Specification

Valve Type	Diaphragm/Cylinder Operated V-notch Ball Control Valve														
Valve Model	Series 9310														
Valve Size (in)	1/2	3/4	1	1.1/2	2	2.1/2	3	4	5	6	8	10	12	14	16
(mm)	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400
Pressure Rating	ANSI 150#~300# (JIS 10K~20K, PN 10~25)														
End Connection	RF, FF, SW, BW, Screw, RTJ														
Body Materials	A216WCB, A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on														
Bonnet Type	Plain(-17℃ to 230℃), Extension(-45℃ to -17℃, over 230℃), Cryogenic(-196℃ to -45℃)														
Packing	Graphite foil, Carbon fiber, Teflon fiber														
Gasket	Spiral Wound Metal gasket														
Guiding	Bushing														
Seat Type	Metal/Soft														
Valve Plug Shapes	V-port														
Plug Characteristic	Equal Percentage/Linear														
Trim Materials	A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on														

Series 9410 Full Bore Seated Ball Valves
ANSI 150 - 600 / JIS 10K-40K DIN/BS 4504 PN10-PN40

General
Series 9410 ball valves are off-the-shelf standard valves that incorporate many special features. This series of valves is designed for both pressure and vacuum service. The valves have multiple fire safe guards : a secondary metal seat ; a blowout-proof stem ; and a static electric grounding device. The Valves are available with a full bore and reduced bore.

Standard Specifications
Flanged end, 2-pcs split body construction, Floating ball design, Full bore or reduced bore, Fields serviceable, wrench/gear/actuator mounted.

Valve Class : ANSI 150-600

Test Pressure : As per API 6D Std.

- Shell -
(Hydrostatic) Class 150 ; 425 psi (30 kg/cm2) Class 300 ; 1100 psi (77 kg/cm2)
- Seat -
(Air) Class 150 ; 80 psi (6 kgf/cm2) Class 300 ; 80 psi (6 kgf/cm2)

Face to Face Dimension :
Per Apl 6D Std.(refer to dimension tables)

End Connections :
Flanged, conforming to ANSI B 16.5 The ball valves comply with one or more of the following standard specifications as to pressure, temperature ratings and dimensions: ANSI, API, BS, DIN, MSS.

Specification

Valve Type	Cylinder Operated Ball Valve											
Valve Model	Series 9410											
Body Type	2-way, 3-way, 4-way											
Valve Size (in)	3	4	5	6	8	10	12	14	16	18	20	24
(mm)	80	100	125	150	200	250	300	350	400	450	500	600
Pressure Rating	ANSI 150#~600# (JIS 10K~40K, PN 10~40)											
End Connection	RF, FF, SW, BW, Screw, RTJ											
Body Materials	A216WCB, A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on											
Bonnet Type	Plain(-17°c to 230°c), Extension(-45°c to -17°c, over 230°c)											
Packing	Teflon, EPDM											
Guiding	O-ring											
Seat Type	Metal/Soft											
Valve Plug Shapes	Ball											
Plug Characteristic	On-off											
Trim Materials	A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on											

Series 6100 Multispring Diaphragm Actuators

General
The Series 6100 Diaphragm actuators has been designed to control accurately the flow and pressure of fluid in response to demand of fine process control as well as various plant systems. These actuators have been developed for powerful and high performance pneumatic actuating of linear motion valves as well as rotating valves. It consist of four spring which are produced for high stiffness that is defined as the ability of the actuator to with stand suddenly changing dynamic force of fluids acting on the valve stem. The action of valves can be changed by removing of the cap and four mounting bolts, turning the actuator over, and replacing the cap.
Simple cost effective design
Long stroke and wide application
Strong seating force
Compact and light weight

Performance :
Reliability High Power Full response
Low Hysteresis
Field Reversible

Design Flexibility :
Reversible fail action without extra parts in the field.
Wide selection of optional accessories available.
Compact and simple design.
Inviolate rolling diaphragm simplifies actuator design.
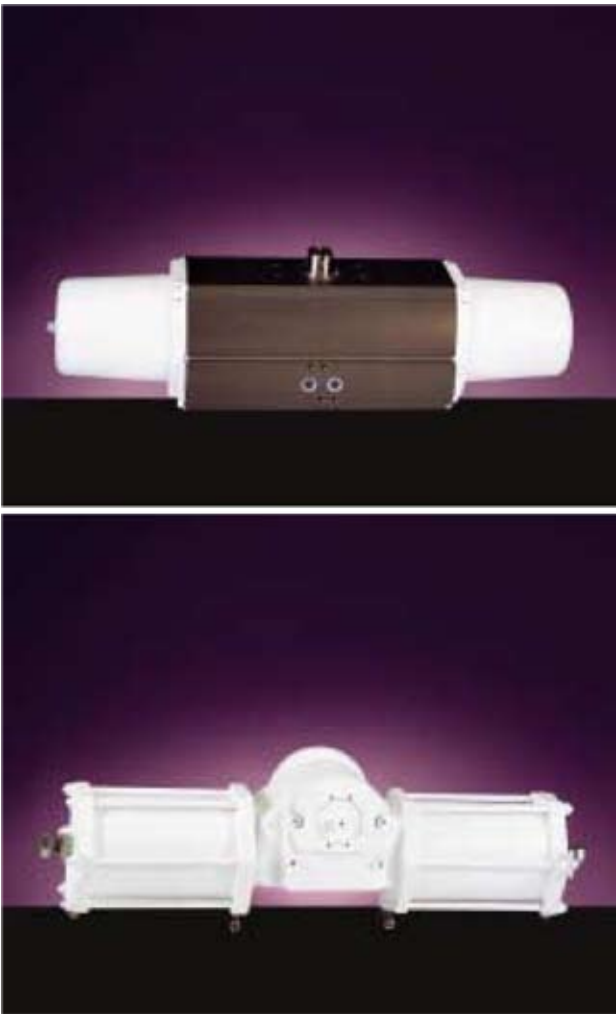Variable stroke up to 5".

Design Integrity :
Multi spring construction.
One piece spindle on top and bottom dry bushing guide. Low stressed alloy steel springs.
Quality Manufacturing :
High quality material with trace ability throughout manufacture.
Quality Assurance system in accordance with ISO 9001.
Comprehensively tested to ensure specified preference on site.

Series 6200 Rotary Piston Actuators

General
The Series 6200 Rotary piston actuator is designed to operate rotating valves, such as Ball valves, Butterfly valves and V-Notch valves for throttling or on-off service. This actuators are unique linkage type which converts linear motion torque at beginning which usually corresponds to the closed position of valves, and another peak of torque is produced at 60 degree of valves which correspond to the dynamic torque.

Performance :
Ideal high torque Reliability
Low hysteresis
Light weight
Easy maintenance

Design Flexibility :
Double acting and spring return acting
Single piston and double piston
Wide selection of optional accessories available
Wide adjustable range (maximum rotating angle - 110°)
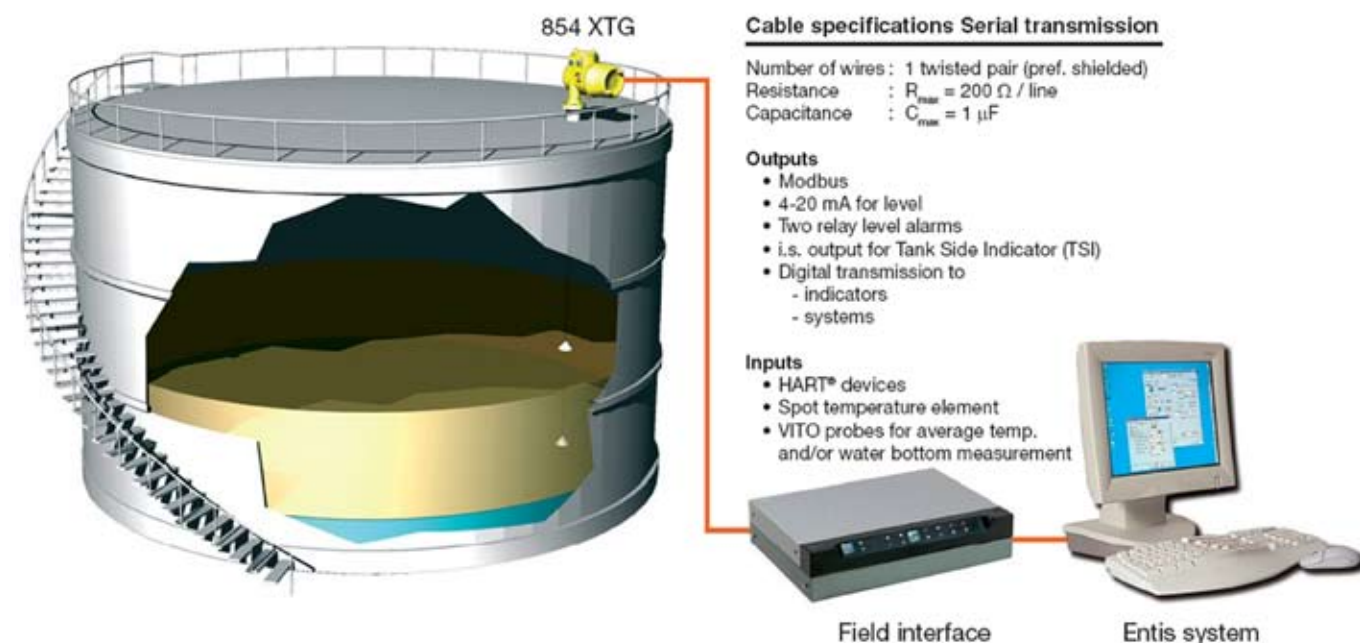
Design Integrity :
Maximum torque at beginning and another peak torque is produced at 60 - 80 degree in respond to torque of rotating valves
Mounting flange dimensions in accordance with ISO 5211

Kind of Actuators :
Scotch Yoke Type
S(Spring Return Single Cylinder) D(Double Acting Single Cylinder) Linkage Type
SD(Spring Return Double Cylinder)
DD(Double Acting Double Cylinder)

Specification

Actuator Type	Multispring Diaphragm Actuator								
Actuator Model	Series 6100								
Actuator Size (Model)	T-0	T-1	T-2	T-3	T-3	T-4	T-4	T-5	T-5
Stroke (mm)	15	20	25	38	50	50	100	100	130
Supply Pressure Range	Standard : 4.0kgf/cm²(G), Range : 3.5 ~ 5.0 kgf/cm²								
Spring Range	1.0~3.0 kgf/cm²(G)								
Body Materials	AL2024 / AC2B								
Diaphragm Materials	EPDM/NBR								
Guiding	Bushing								
Movement	Reciprocate, Rotary (with rotary box)								

Specification

Actuator Type	Double Acting/Spring Return Type Cylinder Actuator								
Actuator Model	Series 6200								
Body Type	Scotch yoke, Linkage, Piston Type								
ACtuator Size (Model)	AC06	AC08	AC10	AC12	AC14	AC17	AC20	AC25	AC30
Supply Pressure Range	Standard : 4.0kgf/cm2(G), Range : 3.5 ~ 5.0 kgf/cm2								
Spring Range	2.0~3.0 kgf/cm2(G)								
Body Materials	FCD450								
Guiding	Bushing								
Movement	Rotary (Scotch yoke, Linkage), Reciprocate (Piston)								

Enraf

Enraf

854 XTG

Cable specifications Serial transmission

Number of wires : 1 twisted pair (pref. shielded)
Resistance : R_{max} = 200 Ω / line
Capacitance : C_{max} = 1 μF

Outputs
• Modbus
• 4-20 mA for level
• Two relay level alarms
• i.s. output for Tank Side Indicator (TSI)
• Digital transmission to
    - indicators
    - systems

Inputs
• HART® devices
• Spot temperature element
• VITO probes for average temp.
    and/or water bottom measurement

Field interface   Entis system

854 ATG Servo Advanced Tank Level Gauge

Features:
• Measuring range: 0 to 131 feet (0 to 40 m)
• Accuracy: ± 3mm
• Variety of antenna options to fit any tank
• Outputs: HART® and 4-20 mA analog signals, Modbus, or Foundation Fieldbus
• Input boards for spot RTD, VITO probes for average temperature and water measurement, HART® devices
• Modbus communication standard via RS-232C or RS-485

854 ATG Servo Advanced Tank Level Gauge

Features:
• Measuring range: Up to 246 feet (75 m); Resolution: 0.001 feet (0.1mm)
• Accuracy: Varies by model, ±0.4 mm, ±1 mm or ±3 mm
• Variety of antenna options to fit any tank
• Outputs: Standard Enraf Bi-Phase Mark for linking 10 devices with 1 single pair, up to 6 miles apart; Standard Modbus RTU RS-232 and RS-485, HART®; 900 series includes four SPDT alarm contact relays
• Integrates with multiply spot and averaging spot temperature probes
• Full galvanic isolation transformers for lightning protection
• Approvals: Weights & Measures, API, ISO, IML, and OIML R85 (varies by model)

854 ATG Servo Advanced Tank Level Gauge

Features:
• Measuring range: 88 feet (27m) standard; Up to 492 feet (150m) optional
• Accu racy: Level: ± 0.4mm
• 2" 150 Lb or 200 Lb ANSI flange connection
• Cast aluminum enclosure, cast aluminum or stainless steel drum compartment, stainless steel drum and shaft
• Outputs: 4-20 mA analog output plus two SPDT alarm relays
• Input boards for spot RTD, VITO probes for average temperature and water measurement, HART® devices
• Modbus communication standard

854 XTG Servo Transmitting Tank Level Gauge

Features:
• Measuring range: 88 feet (27m) standard; Up to 492 feet (150m) optional
• Accuracy: Level: ± 1mm
• 2" 150 Lb or 200 Lb ANSI flange connection
• Cast aluminum enclosure, stainless steel measuring drum and shaft
• Outputs: 4-20 mA analog output plus two SPDT alarm relays
• Input boards for spot RTD, VITO probes for average temperature and water measurement, HART® devices
• Modbus communication standard

854 ATG Servo Advanced Tank Level Gauge

Features:
Measuring range and angle:
Antenna diameter   40 mm 0 to 10 m
                                48 mm 0 to 15 m
                                75 mm 0 to 30 m
                                95 mm 0 to 30 m
Instrument accuracy: 3 mm for free space
Measuring resolution: 1 mm
Ambient temperature: -40ºC to +80ºC without display and programming module
                                -20ºC to +70ºC with integrated display and programming module
Output signal: 4-20 mA analogue signal, max 22 mA
                        4-20 mA analogue with HART® communication
                        Profibus PA digital communication. constant 10 mA
                        Foundation fieldbus H1 digital communication, constant 10 mA

Electronic Pressure Switch PS, PST, PST-R series

FEMA

Electronic pressure switch, with LCD display for the field of plant construction, fluidics, process technology, and pneumatics, as well as in the monitoring and control of pumps and compressors. Models available with the following output types:

- All models: switch output open collector 14..36 Vdc, 250 mA
- PST-series: transmitter output; 0..10 Vdc or 4..20 mA
- PST..R-series: relay output with gold plated SPDT contact
- Pressure range from 1-600 bar
- Relative and absolute pressure
- Process connection: G 1/2" or G 3/4" flush
- Protection standaard IP65

Differential Pressure Switch

Range of adjustment (differential pressure)			Switching diff. (Mean value)		Max.** allowable pressure		Material	Type	
4	– 25	mbar	2	mbar	0.5	bar	Aluminium + Perbunan	DDCM	252*
10	– 60	mbar	15	mbar	1.5	bar		DDCM	662*
20	– 160	mbar	20	mbar	3	bar		DDCM	1602*
100	– 600	mbar	35	mbar	3	bar		DDCM	6002*
–0.1	– 0.4	bar	0.15	bar	15	bar	Stainless steel 1.4305 + 1.4571	DDCM	014*
0.2	– 1.6	bar	0.13	bar	15	bar		DDCM	1
1	– 4	bar	0.2	bar	25	bar		DDCM	4*
0.5	– 6	bar	0.2	bar	15	bar		DDCM	6
3	– 16	bar	0.6	bar	25	bar		DDCM	16
4	– 25	mbar	2	mbar	0.5	bar	Aluminium + Perbunan	Ex-DDCM	252*
10	– 60	mbar	15	mbar	1.5	bar		Ex-DDCM	662*
20	– 160	mbar	20	mbar	3	bar		Ex-DDCM	1602*
100	– 600	mbar	35	mbar	3	bar		Ex-DDCM	6002*
-0.1	– 0.4	bar	0.15	bar	15	bar	Stainless steel 1.4305 + 1.4571	Ex-DDCM	014*
0.2	– 1.6	bar	0.13	bar	15	bar		Ex-DDCM	1
1	– 4	bar	0.2	bar	25	bar		Ex-DDCM	4*
0.5	– 6	bar	0.2	bar	15	bar		Ex-DDCM	6
3	– 16	bar	0.6	bar	25	bar		Ex-DDCM	16

Pressure Switch

Range of adjustment			Switching difference (Mean value)		Max. allowable pressure		Materials	Type	
Switching difference not adjustable									
10	– 100	mbar	12	mbar	10	bar	NBR + Ms	DCM	1000
0.04	– 0.25	bar	0.03	bar	6	bar	Cu + Ms	DCM	025
0.1	– 0.6	bar	0.04	bar	6	bar	Cu + Ms	DCM	06
0.2	– 1.6	bar	0.04	bar	6	bar	Cu + Ms	DCM	1

TST series Smart Temperature Switch

FEMA

- Temperature range from -50ºC...+400ºC
- Housing mounted and cable-mounted sensors
- Different sensors immersons lengths
- Fully configurable 2-channel switch, one analog output, optional relay output
- Protection standard IP 65

TX series Thermostat

- Mounting position is optional
- Single pole changeover
- Protection standard IP 54 to DIN 40 050
- Switching temperature from outside using a screwdriver

Tam series Capillary Tube Thermostat

Range of adjustment		Switching diff. (Mean value)	Max. allowable temperature on sensor
Switching differential not adjustable			
-20/+20	°C	1.5 K	110 °C
+10/+50	°C	1.5 K	110 °C
+40/+90	°C	2.0 K	125 °C
+80/+130	°C	2.0 K	150 °C

Flow Switch

Specification	S6040A1003	S6065A1003	S6065A2001
Flow medium	air	non-aggressive liquid	aggressive liquid
Mounting	vertically through a 20 mm hole in the duct; mount paddle inside	Rp 1" (ISO 7/1)	Rp 1" (ISO 7/1)
Maximum duct/pipe temperature	85 °C	120 °C	120 °C
Pressure	0.25 bar	11 bar	30 bar
Paddle material	1.4301	1.4401	1.4401
Lever	yellow brass	yellow brass	1.4404
Sensor body	zinc-plated steel	yellow brass	1.4404
Housing dimensions	108 x 70 x 72 mm	113 x 70 x 65 mm	108 x 70 x 72 mm
Weight	700 g	850 g	850 g
Approvals	–	TÜV-approved	TÜV-approved

Serial SSW Flow Switch for Liquids and Gases
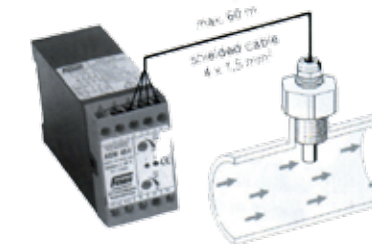
Serial SWL Air Flow Switch
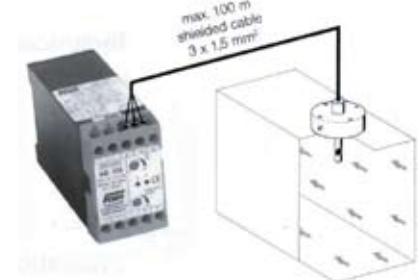
Solenoid Valve

LG1093
UV Flame Sensor for industrial Gas Turbine

	LG1093AA	LG1093AB	LG1093AC
Mounting Interface	3/4 inch internal NPT	1.73 inch O.D. by 0.14 inch wide flange	
Control Panel Connection	Teflon shielded cable with one inch external conduit thread.	Two pin connector	Two conductor armored cabel.
Operating Temperature	-40º F to 350º F		
Special Certifications	EMC Certification (CE Mark) Directive 89/336/EEC Factory Mutual Explosion Proof Class I. Divisions 1 and 2 Groups B, C, and D CENELEC approval, models AA34/35/36 Directive 76/117/EEC	None	EMC Certification (CE Mark) Directive 89/336/EEC
Cable Length	AA24/AA34: 16ft (4.9m) AA25/AA35: 42ft (12.8m) AA26/AA36: 61ft (18.6m)		AC01/AC02: 9ft (2.7m) AC05: 25ft (7.3m)

Flame Detector

C7027/35   **C7012**   **C7076**

Flame Switch EC/RM7823   **Burner Control EC/RM7800**
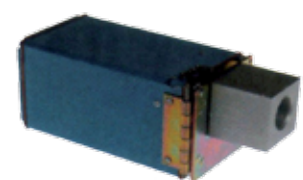
Combination Gas Valves
The most extensive flames safeguard valve offering:
- Fluid power valves and actuators
- Solenoid valves
- Diaphragm valves
- Integrated gas valves trains

Communication
Web access to burner control, network with building or industrial system
- Flamenet web server
- Modbus Networking Module

Air to Fuel Control System   **P7810 Electronic Boiler Pressure Control**

satronic

Gas Control Boxes DKG 97X

Ignition Devices ZT870/ZT9XX

Flame Sensors: Photo Cells IR-Flicker Detector UV Detectors

FlameSwitch BC1000 Series
The BC1000A/B series is a flame switch for intermittent operation to indicate presence or absence of a flame and to be applied in commercial or industrial burner installations. The BC1000A can also be used as a primary control for manually operated burner systems using a start/stop station.

C437/C637   C6097 Gas / Air Pressure Switches
These are safety devices used in positive pressure or differential pressure system to sense gas or air pressure system.
C6097 Standard ranges
- 1-10mbar   - 2.5-50 mbar   - 30-150 mbar   - 100-500 mbar
C437/C637 Gas air pressure switches used for pressure and differential pressure limit controls for industrial gas systems

L404 Pressuretrol Controllers
Provide operating control, automatic or manual reset limit protection for pressure system up to 300 psi.
Use with steam, air, non combustible gases or other fluids non corrosive to pressure sensing elements.

L91 Pressurerol Controllers
Provide modulating pressure operating control for regulation of liquid or air and other non corrosive gasses.
Use withs team, air, non combustible gasses or other fluids non corrosive to the brass or phos-bronze (300 psi model) below.
Siphon loop included with the models for 10 to 300 psi ranges.

Modutrol IV Motors
Modutrol IV Motors replace all present generation. Modutrol motors and set new, certifiable standard for industry.
These motors following features:
Dual Shaft
Nema 3 housing
Higher holding torques
Improve spring return holding torque
Reduced power consumption

Modutrol IV Motors

Modutrol IV Motors replace all present generation. Modutrol motors and set new, certifiable standard for industry.
These motors following features:
Dual Shaft
Nema 3 housing
Higher holding torques
Improve spring return holding torque
Reduced power consumption

VE400AA

AC solenoid gas valve, normally closed, Class "A" AC powered, Safety Shutoff Solenoid Gas Valve with threaded connection. For pilot and small burner applications in gas power burners, ovens, furnaces and other gas consuming appliances
Gas Valve Type
- non regulated ON/OFF normally closed, fast opening.
- Media
- Natural gas, propane, air.

VE4000B1

Solenoid gas valve, normally closed, with flow rate adjustment. Class "A" Safety Shutoff Solenoid Gas Valve with threaded connection and maximum flow rate adjustment.
For control and regulation of gaseous fluids in gas power burners, ovens, furnaces and other gas consuming appliances
Gas Valve Type
- non regulated ON/OFF normally closed, fast opening.
- Media
- Natural gas, propane, air.

VE4000C

Solenoid gas valve, normally closed, with characterized opening, Class "A" Safety Shutoff Solenoid Gas Valve with threaded connection and characterized opening.
For control and regulation of gaseous fluids in gas power burners, ovens, furnaces and other gas consuming appliances
Gas Valve Type
- - non regulated ON/OFF normally closed, fast opening.
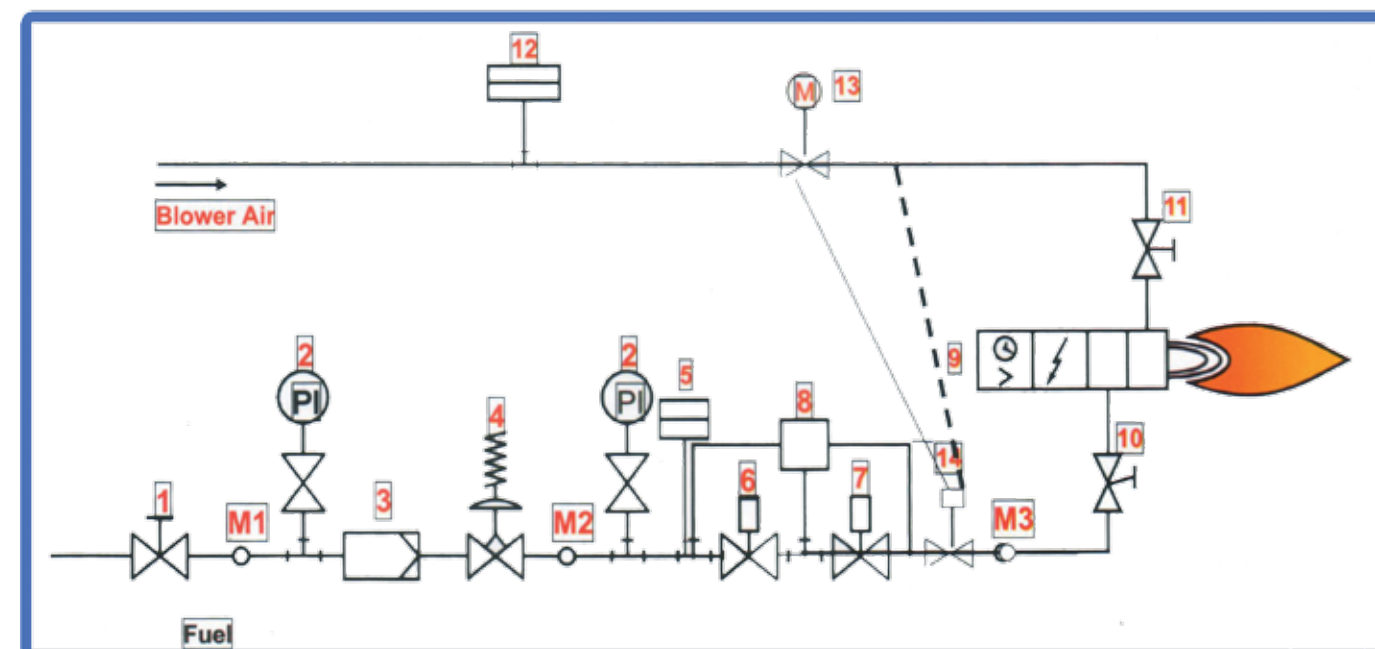- Media
- - Natural gas, propane, air.
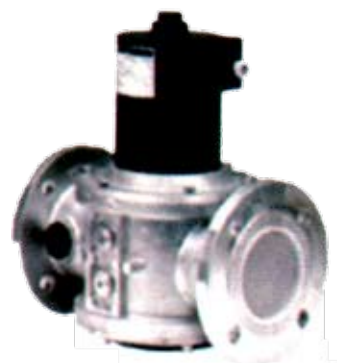
VE4000B3

Solenoid gas valve, normally closed, Class "A" Safety Shutoff Solenoid Gas Valve with flanged connection. For control and regulation of gaseous fluids in gas power burners, ovens, furnaces, and other gas consuming appliances.
Media
- Natural gas, propane, air

Typical Line Diagram of Single Burrner Gas Train System

1. Shut off Cock
2. Pressure gauge
3. Gas filter
4. Pressure regulator
5. Gas pressure switch
6. First safety shut off valve
7. Second safety shut off valve (if required)
8. Valve proving system or vent valve (if required)
9. Burner
10. Gas pressure adjustable clock
11. Air regulating sleeve
12. Air pressure switch
13. Motorized butterfly valve
14. Gas flow control

U2 Uniscan2
All in One Industrial Flame Monitoring

Honeywell's industrial flame monitoring systems are perfect for industries such as petroleum, refineries, petrochemical, pulp, paper, power plant, metals processing and many more. The ability to discriminate in the toughest environments, tailors them for industrial process boilers, black liquor recovery boilers, co-generation boilers, grate fired boilers, cement or lime kiln, Claus reactorsH2S), thermal oxidizers and gas turbines. Honeywell's industrial flame monitoring systems uniquely suited for single or multiple burner applications, exotic fuels, hostile environments and burner types including combinations, low NOx, opposed fired, hydrogen, duct and register. In addition, Honeywell's flame detection systems interface with a broad range of Industrial process burner management systems.

Features :

- Triple Sensor capability, integrated and separate model available. UV tube for best performance sensing on gas fuel, UV Solid state sensor for best performance in all type of fuels, and IR flicker base sensor for best performance in Oil fuel and Coal.
- High range of UVTRON, UV Tube, and IR sensing sensitivity.
- Plug and Play installation and set up.
- Touchscreen menu and simple programming system.
- Modbus communication available.
- Explosion Proof housing Class 1 Div 2*. NEMA 4X IP66. And SIL3 approved.
- Microprocessor based processing with Electronic Self Checking.
- X-Rays and Gamma Rays immune.
- Output type : Flame relay SPDT, Analog 4-20mA, Fault relay output for fault diagnostic and backup.

Dual UV and IR Viewing Head

Dual UV and IR sensing capabilities are housed within the CS550B detector to provide application flexibility. With the RP532 signal processors, the UV and IR flame components may be monitored simultaneously or separately. Additionally, the RP532 processors allow a total of three viewing heads; two individual CS55xB series detectors and one CS700/CS800 detector, which may be used for pilot monitoring. A detachable programming plate on the RP531 saves on large installations. Processors are compatible with Modbus communications for remote monitoring and diagnostics. It's the perfect solution to many difficult flame detection applications.

Individual UV and IR Viewing Head

Multiple housing sizes and gain settings in both UV and IR to fit your application. Perfect for single and multiple burner applications and pilot monitoring.

Typical Applications

Honeywell-IRIS flame monitoring systems are perfect for industries such as petroleum and petrochemical, power generation, pulp, paper and metals processing. Their ability to discriminate in the toughest environments tailors them for industrial process boilers, black liquor recovery boilers, co-generation boilers, grate fired boilers, cement or lime kilns, Claus reactors (H2S), thermal oxidizers and gas turbines. Honeywell's industrial flame monitoring systems are uniquely suited for multiple burner applications, exotic fuels, hostile environments and burner types including combination, low NOx, tilting, opposed fired, hydrogen, duct and register.

Features :

- Wide array of products to meet broad industry needs
- Signal processors available in AC or DC versions
- Universal AC power inputs: 85-265VAC, 50/60Hz
- FM and CSA approved
- Hazardous location viewing head models: Class 1, Div 2, Group A, B, C, D, T5 and T4A
- Monitor UV and IR simultaneously or separately
- Independent configuration for each sensor
- Automatic or manual calibration
- Proportional 0/4-20mA Flame Signal Output
- Adjustable UV and IR gain settings for each viewing head
- Multiple high pass IR flicker frequency settings
- Electronic shutter for UV viewing head self-check
- Quick disconnect cable connection included
- Viewing head temperature indication

Key App licat ion Att ributes

- Lifecycle Costs: Separate signal processor and viewing head for ease of maintenance
- Set-Up:
  > Adjustable "Flame On" and "Flame Off" points for added discrimination
  > Digital processing means you work with numbers – reduced field set-up time
  > Ability to set-up and store settings in memory for ease of replacement
  > Wide gain adjustment and multiple flicker frequency setting capability to prevent flame out in single or multiple burner (tangential / opposed) applications

Burner Management System Interface

Each signal processor has a 0/4-20mA scalable flame signal output, two SPDT or SPST flame relays, and one SPDT or SPST self-check relay. The RP532 and RP531 signal processors also have a 24VDC auxiliary output and three N.O. alarm relays. Signal processors may also be linked to BMS using Modbus RTU protocol for monitoring and diagnostics.

Remote Configuration, Monitoring, Diagnostics

Easily interface multiple signal processors through FlameTools software for remote configuration, monitoring and diagnostics. Each signal processor is Modbus RTU capable with selectable parity and baud rate settings. Link up to 31or 63 signal processors (model dependent), in a single daisy chain loop, to FlameTools software. Refer to the applicable manual for connection method (RJ-11, RJ-45, 2-wire twisted pair, stereo jack).

Limit Switch-HLS Series

Characteristic:
* Design small, small mounting space
* Special design, easy to wire, enough wining space
* SPDT No contacts
* Rating 10A/250VAC
* Die-cast chassis, plastic housing
* standard Asia mounting dimension
* Long machinery and electric life
* Pre-form flexile cable, easy and fast wiring
* Oil tight, water tight, dust tight:IP65
* Variety of different actuator styles
* CE, CCC approvals

Limit Switch-SL Series

Characteristic:
* Standarad asia mounting dimension
* Save mounting space
* Rating 10A/250V
* Machinery life: 1x107 ops
* Variety of different actuator styles
* UL, CCC, CE approvals
* Environment rating:IP64

Weather-Sealed Explosion-Proof Switch-LSX

Characteristic:
* Sealing- applicble portions of NEMA1,3,4,6,7,9 and 13
* Tracking intercahngeability with MICRO SWITCH ML-E1 and HDLS
* Variety of heads and non-sparking actuators
* Field adjustability matches switch to application
* Momentary, maintained, random sequence, or center neutral action
* 10 amps continuous carry electrical rating
* Choice of silver or gold contacts
* 1/2 or 3/4 inch conduit opening
* UL Listed, file #E61730
* CSA Certified, file #LR57327
* Internal grounding screw

Cable Pull Safety Switch-CPS

Attributes: Single/dual head-rope pull
Potential Applications: Conveyor applications
Housing: Die-cast
Approvals: UL/CSA,CE
IEC/NEMA rating: IP66/67; NEMA 1,4,12,13
Body Dimensions: 165.1x79.8x325.9 mm
Temperature: -40ºCto85ºC [-40ºFto185ºF]

Limit Switch-GLS Series

Characteristic:
* Designed to IEC standard for world-wide applications
* UL, CSA, CE approvals
* International conduit sizes
* Direct PLC interface compatible (two circuit)
* Modular construction reduces maintenance parts costs
* Designed for ease of installation
* Variety of basic switch versions
* Wide choice of actuators

Limit Switch-SZL-VL Series

Characteristic:
* Design small, small mounting space
* Special design, easy to wire, enough wining space
* SPDT No contacts
* Rating 10A/250VAC
* Die-cast chassis, plastic housing
* standard Asia mounting dimension
* Long machinery and electric life
* Pre-form flexile cable, easy and fast wiring
* Oil tight, water tight, dust tight:IP65
* Variety of different actuator styles
* UL, cUL listed, CE, CCC approved

Proximity Switch AA Series

Characteristic:
* Dimension of standard M8,M12 and M30
* Square17x17, 25x25, 40x40
* M8 fast connection
* M12 fast connection
* M30 fast connection
* Oil tight, water tight, dust tight:IP67
* AC and DC available

Limit Switch-ZLA Series

Characteristic:
* IEC EN 50041 standard
* Long machinery and electric life
* Oil tight, water tight, dust tight:IP67
* Zinc/alumunium die-cast body
* Variety of different actuator styles
* Contact block for easy change available
* Variety of contacts available
* Galvanically isolated contacts
* NO contacts
* Cable entry available: M20 and 1/2"NPT UL, cUL listed, CE, CCC approved

Limit Switch-HDLS Series

Characteristic:
* Characteristic:
* Wide variety of operating heads
* Field adjustable operating modes, for reduced inventory
* Convenience of on-the-spot adjustment instructions
* Complete choice of circuitry and electrical ratin goptions, including solid state switching
* Plug-in and non plug-in versions have identical operating characteristics and are dimensionally interchangeable
* NEMA1, 3 ,4 ,4X, 6, 6P and 13
* UL, CSA approved
* UL listed, file #E37138
* CSA Certified, file #LR57326

APPLICATIONS
* Construction/ag machines
* Conveyors
* Crane boom/jib/skew position
* Door position
* Grain diverters or flaps
* Hose attachment verification
* Lifts
* Material handling
* Movable machinery
* Presses
* Remote or temporary equipment
* Specialty machines
* Valve position

Limitless Wireless Solutions

Hawk is a world leader in level, positioning and flow measurement, providing cutting edge equipment to the global industrial market. We have 30 years of experience and provide industry leading technology and cost effective solutions.

The company`s built factory and head office is located in Melbourne Australia. The facility provides for efficient production and research and development activities. The company produces its own products and has developed an efficient production process.

The ORCA Series Sonar transmits a sound pulse through the water (liquid) towards the blanket/interface at the bottom of the tank.
The pulse is reflected off the blanket/interface back to the sonar transducer, which is interpreted by the sonar transmitter, compensated for temperature and provides a distance reading to the blanket/interface or height of blanket/interface from the bottom up.

Typical Applications

SEWAGE and WASTE WATER TREATMENT
> Primary Sedimentation – Blanket level.
> Secondary and final Clarifiers – RAS Blanket and fluff/pin floc layer.
> Thickeners and DAF – Bed level and clarity of water.
> Sequential Batch Reactors – Blanket monitoring (floating sonar).
> Lagoons – Bed sludge level.

WATER TREATMENT
> Primary Sedimentation – Floc blanket level and clarity.
> Thickener – Bed level and clarity of water.
> Lamella Clarifier – Bed level and floc level.

MINING / PROCESS
> Clarifiers – Bed level and clarity of liquid.
> Thickeners – Bed level and clarity of liquid.
> CCD's – Bed level and clarity of liquid.
> Settling Ponds/Lagoons – Bed sludge level.
> Water Treatment – Floc level and clarity.
> Carbon Columns – Carbon granular level.
> Circular or Rectangular, moving bridges or fixed bridge installation possible.

Feature

- Dual independent analogue outputs to track two different interfaces, or clarity simultaneously, with the one sonar sensor.
- Full range of sonar transducers to optimize detection of heavy and light density interfaces.
- Calibration using DENSITY input to track specific density inter faces. eg: RAS blanket - 4g/l, floc/fluff layer - 1g/l.
- Control room graphics of tanks and interfaces.
- Industrial scum cleaning mechanism's, that do not require maintenance. No wiper blade assemblies.
- Range to 30 metres — Option: 60 metres 2 x 4-20mA (Isolated) analogue outputs.
- 500 metre sonar transducer/sonar transmitter separation.
- Modbus, Profibus, HART Comms capability.
- Relay alarms.
- GSM module for remote diagnostic support, International capability.

Sultan 234(H) Series

The SULTAN 234(H), is a non intrusive acoustic wave transmitter with flexibility, used for measuring liquids and solids, to a maximum range of 120 metres.
- Universal Supply:
  - 2 Wire Loop Powered.
  - 3 Wire DC.
  - 4 Wire AC/DC.
- Universal Transducer Inputs: 50, 40, 30, 20, 15, 10, 9, 5, 4 kHz.
- GSM/CDMA Capability
- Communications: GOSHAWK, HART, MODBUS,
- FOUNDATION FIELDBUS, PROFIBUS & DEVICENET (pending)
- Certification: CE, ATEX, SAA, FM, CSA, (pending)
- Multiple Head Configuration: 1 to 128 Transducer Locations

PRIMARY AREAS OF APPLICATION
- Mining: Surge bins, ore passes, stockpile, stackers, reclaimers, storage silos etc.
- Power Stations: Boiler bunkers, raw coal bunkers, fly ash silos, etc.
- FOOD • CEMENT • PLASTICS • GRAIN • CHEMICALS
- PAPER • IRRIGATION • QUARRIES

Sultan Smart Series

The SULTAN SMART is a non intrusive acoustic wave transmitter with all the features and performance you expect from a SULTAN 234 in an all in one package, without the costly display and keypad parts.

- Flexible Supply :
  - 2 wire loop powered
  - 3 wire DC
- Universal Transducer options :
- 50kHz, 40kHz, 30kHz, 20kHz, 15kHz, 10kHz, 9kHz, 5kHz, 4kHz
- Communications :
- GOSHAWK, HART, MODBUS, GSM/CDMA connectable
- FOUNDATION FIELDBUS, PROFIBUS, DEVICE NET (pending).
- Certification : CE, ATEX, SAA, FM, CSA (pending).

Liquid

- The HAWK LIQUID series emits a high powered acoustic wave transmit pulse which is reflected from the surface of the liquid to be measured.
- The reflected signal is processed using specially developed software to enhance the correct signal and reject false or spurious echoes. Due to the high powered emitted pulse, any losses have a far less effect than traditional ultrasonic devices.

GLADIATOR

VS1000 Vibration Level Switch

The piezo-electrically stimulated osciliating probe vibrates at its mechanical frequency of resonance of 125 Hz. If the probe is covered by the bulk material. The damping thus generated is registered electronically and a corresponding signal output is actuated. The oscillation of the device ensures that it features certain self cleaning properties.

Typical Application:
- Building Industry - Materials, moulding sand etc.
- Food Industry - Milk powder, flour, salt etc.
- Plastics Industry - Powder, granules etc
- Timber Industry, Chemical Industry, Mining etc.

AS2000 Admittance Level Switch

The AS2000 Admittance switch monitors a change in current flow which is proportional to the admittance between the sensing probe, the product and the vessel wall. It features excellent temperature stability and switch point repeatibility. It has the capability to neglect conductive and non conductive product build up on the probe. PC Connectable.

Typical Application:
- Aluminium Smelters • Flour Plants • Coal Plants • Coke Plants
- Soft Drink Plants • Fertilizer Plants • Steel Mills • Food Plants
- Water Treatment Plants • Asphalt Plants • Glass Plants • Paint Plants
- Brewerys • Paper Plants • Cement Plants • Chemical Plants
- Power Stations • Sewage Treatment Plants • Automotive Plants

CS3000 Conductivity Liquid Switch

The CS3000 Conductivity switch is used for level monitoring of electrically conductive liquids, muds etc in all kinds of metallic and non-metallic containers. In the case of a metallic tank the conductivity between the front of the probe and the container wall is measured. In the case of a non metallic tank the conductivity occurs between the two probes. PC Connectable.

Typical Application:
- Sump pump control • Chemicals • Liquids • Water Level

RS4000 Rotation Switch - Blade type

Function
The slowly rotating measuring wing is stopped when covered by bulk material. The reaction torque thus generated is converted into an electrical signal.

Typical Application:
- Building Industry - Materials, moulding sand etc. • Food Industry - Milk powder, flour, salt etc.
- Plastics Industry - Powder, granules etc • Timber Industry, Chemical Industry, Mining etc.

TRIMEC

Trimec Industries is an Australian owned ISO9001:2008 quality certified company specializing in the design and manufacture of a proprietary range of positive displacement oval gear, impeller paddlewheel, turbine flow meters, ancillary flow hardware and dedicated electronic flow instrumentation. The meters measure the flow of clean liquids and are produced in a wide variety of materials and configurations to suit most markets including the food, chemical, cosmetic, ink, pharmaceutical, paint, petroleum and additive industries.

The Oval gear meters are approved by the Australian National Measurement Institute (NMI) as an instrument for resale purposes (custody transfer). Most Trimec products have ATEX and IECEx approvals for explosion proof areas.

The success of Trimec is attributed to the experience and knowledge acquired over a period of 40 years by its key personnel in the flow measurement industry. Trimec is committed to developing and expanding its range of proprietary flow products to meet the ever changing needs of industry.

SMALL CAPACITY OVAL GEAR FLOWMETERS

MICROPULSE GEAR - Small capacity meters

The Micropulse Oval series PD flowmeters offer a high level of accuracy turndown & repeatability. These precision meters are used for flow rate measurement in flow monitoring & control application and for totalizing in dispensing and batching.

Micropulse gear meters are suitable for use with a wide range of clean liquids including viscous lubricants, chemicals, food bases & non-conductive low viscosity solvents either pumped or gravity fed.

FEATURES :
• High accuracy & repeatability.
• Measure low & high viscosity liquids.
• Optional electronic registers.
• Certified Exd hazardous area versions in all sizes.
• No need for flow conditioning (straight pipe run etc.)
• Quadrature pulse output option & bi-directional flow.
• Specialty high pressure meters for mining & exploration.

STANDARD OPTIONS :
High resolution output, Explosionproof, integral and remote LCD totaliser-batch totaliser, flow rate totalisers, scaled pulse, 4~20mA & flow alarm outputs, electronic batch controllers and pulse processing modules

GENERAL SPECIFICATIONS

Model prefix :	MG004	MG006	MG008
Nominal size (inches)	4mm (1/8")	6mm (1/4")	8mm (3/8")
* Flow range - litres / hr	0.5 ~ 36	2 ~ 100	15 ~ 550
(US gal./hr)	(0.13 ~ 9.5)	(0.5 ~ 27)	(4 ~ 145)
Accuracy @ 3cp	±1% o.r. (± 0.2% with optional NL correction)		
Repeatability	typically ± 0.03%		
Temperature range	-20ºC ~ +120ºC (-4ºF ~ +250ºF)		
Maximum pressure	bar (PSI)		
aluminium	15 (220)		
316L stainless	34 (500)		
high pressure stainless	Refer Page 9		
Protection class	IP66/67 (NEMA4X), optional Exd IIB T6 or I.S.		
Recommended filtering	75 micron (200 mesh) minimum		
Electrical - for pulse meters (see also optional outputs)			
Output pulse resolution pulses / litre (pulses / US gallon) - nominal			
Reed switch	2800 (10600)	1050 (4000)	355 (1345)
Hall effect	2800 (10600)	1050 (4000)	710 (2690)
High Resolution Hall effect	11220 (42470)	4200 (15900)	N/A
** Reed switch output	30Vdc x 200mA max.		
Hall effect output (NPN)	3 wire open collector, 5~24Vdc, 20mA max.		

* Max. flow is to be reduced as viscosity increases, max. pressure drop 100Kpa. (15 psi)

MEDIUM CAPACITY OVAL GEAR FLOWMETERS

LARGE CAPACITY OVAL GEAR FLOWMETERS

MULTIPULSE GEAR - Medium capacity meters

The Multipulse Oval series PD flowmeters offer a high level of accuracy turndown & repeatability. These precision meters are used for flow rate measurement in flow monitoring & control applications and for totalizing in dispensing and batching.

Multipulse gear meters are suitable for use with a wide range of clean liquids including additives, fuels, viscous lubricants, chemicals, food bases & non-conductive low viscosity solvents either pumped or gravity fed.

FEATURES :
- High accuracy & repeatability.
- Measure low & high viscosity liquids.
- Optional mechanical & electronic registers.
- Certified Exd hazardous area versions in all sizes.
- No need for flow conditioning (straight pipe run etc.)
- Quadrature pulse output option & bi-directional flow.
- High pressure meters for mining & exploration.

STANDARD OPTIONS :
Flanged and hygienic process connections, Explosionproof, integral and remote LCD totaliser-batch totaliser, flow rate totalisers, scaled pulse, 4~20mA & flow alarm outputs, electronic batch controllers and a mechanical register.

GENERAL SPECIFICATIONS

Model prefix :	MG015	MG025	MG040	MG050
Nominal size (inches)	15mm (1/2")	25mm (1")	40mm (1.5")	50mm (2")
* Flow range (litres / min)	1 ~ 40	10 ~ 150	15 ~ 250	30 ~ 450
* Flow range (USgal / min)	0.26 ~ 10.6	2.6 ~ 40	4 ~ 66	8 ~ 120
Accuracy @ 3cp	± 0.5% of reading (± 0.2% with optional NL correction)			
Repeatability	typically ± 0.03%			
Temperature range	-20ºC ~ +120ºC (-4ºF ~ +250ºF)			
Maximum pressure (threaded meters)	Bar (psig)			
aluminium	68 bar (1000)	68 bar (1000)	30 bar (440)	20 bar (300)
316L stainless	68 bar (1000)	68 bar (1000)	30 bar (440)	38 bar (560)
high pressure stainless	400 bar	400 bar	400 bar	300 bar
Protection class	IP66/67 (NEMA4X), optional Exd IIB T6 or I.S.			
Recommended filtering	150 microns (100 mesh) minimum			
Electrical - for pulse meters (see also optional outputs)				
Output pulse resolution : pulses / litre (pulses / US gallon) - nominal				
Reed switch	83 (314)	27 (102)	14 (53)	6.5 (25)
Hall effect	166 (628)	107 (405)	56 (212)	26 (99)
Quadrature Hall option	166 (628)	53.5 (203)	28 (106)	13 (50)
Reed switch output	30Vdc x 200mA max.			
Hall effect output (NPN)	3 wire open collector, 5~24Vdc, 20mA max.			

* Max. flow is to be reduced as viscosity increases, max. pressure drop 100Kpa. (15 psi)

MAXIPULSE GEAR - Large capacity meters

Trimec large capacity flowmeters are suited for receipt verification, loading, un-loading & distribution management at petroleum depots, mine sites, marine, aviation & industrial facilities.

Common applications involve fuels, oils, solvents, alcohols along with the blending of Bio-fuels & ethanol fuels either pumped or gravity fed. The meters are compact & light weight in construction, important benefits when used in mobile installations or within confined spaces.

FEATURES :
- High accuracy & repeatability.
- Measure low & high viscosity liquids.
- Optional mechanical & electronic regiters.
- Certified Exd hazardous area versions in all sizes.
- No need for flow conditioning (straight pipe run etc.)
- Quadrature pulse output option & bi-directional flow.
- Optional integral check valves.

STANDARD OPTIONS :
Flanged process connections, Explosionproof, Mechanical registers, integral and remote LCD totaliser-batch totaliser, flow rate totalisers, scaled pulse, 4~20mA & flow alarm outputs, electronic batch controllers and pulse processing modules.

GENERAL SPECIFICATIONS

Model prefix :	MG080E	MG100
Nominal size (inches)	80mm (3")	100mm (4")
* Flow range (litres / min)	50 ~ 1000	75 ~ 1500
* Flow range (gal / min)	13 ~ 260	20 ~ 400
Accuracy @ 3cp	± 0.2% of reading (15:1 turndown) ± 0.5% for 20:1	
Repeatability	typically ± 0.03%	
Temperature range	-20ºC ~ +120ºC (-4ºF ~ +250ºF)	
Maximum pressure (threaded meters)		
aluminium	12 bar (180 psig)	10 bar (150 psig)
Ductile iron	12 bar (180 psig)	10 bar (150 psig)
Protection class	IP66/67 (NEMA4X), optional Exd IIB T6 or I.S.	
Recommended filtering	350 microns (40 mesh) minimum	
Electrical - for pulse meters (see also optional outputs)		
Output pulse resolution	pulses / litre (pulses / US gallon) - nominal	
Reed switch	1.55 (5.87)	1.1 (4.15)
Hall effect	6.2 (23.5)	4.4 (16.6)
Quadrature Hall option	3.1 (11.8)	2.2 (8.3)
** Reed switch output	30Vdc x 200mA max.	
Hall effect output	3 wire NPN open collector, 5~24Vdc, 20mA max.	

* Max. flow is to be reduced as viscosity increases, max. pressure drop 100Kpa. (15 psi)

TURBINE FLOWMETERS

TURBOPULSE – small & large capacity meters

TM Turbopulse mini & the larger TP Turbopulse turbine series measure flows of low viscosity liquids from 3 to 7,000,000 litres/hr in a range of sizes from ¼" to 20" (6mm~500mm).

The TM mini series have a tangential rotor with integral flow conditioning ports whilst the TP series have an axial rotor and flow guides, the TP series needs to be installed in straight sections of pipe either horizontal or vertical so that the flow is conditioned. The TP series have Exd & Intrinsically Safe (I.S.) approvals.

Both meter series are robust, compact & take little space in the piping system. Applications include fuels, alcohols, solvents, insecticides, milk, chemicals, water & light hydraulic oils.

FEATURES :
- High accuracy & repeatability.
- Low cost of ownership, wide flow range.
- Rugged & compact design.
- Certified Exd & I.S. hazardous area versions.
- Quadrature pulse output option.
- Integral or remote pre-amplifiers & flow instruments.
- ±0.15% custody transfer models available.

GENERAL SPECIFICATIONS

Model prefix :	TM-Turbopulse mini	TP-Turbopulse
Nominal sizes	6mm (1/4" BSPF)	12~500mm (1/2"~20")
Accuracy @ 1cp	±1~2% FSD or ±0.75% o.r.	± 0.5% (10:1 turndown)
Temperature range	5~125ºC (40~250ºF)	-40~+240ºC (-40~+460ºF)
Maximum pressure		
316 stainless steel	10 bar (147 psi)	250 bar (3680 psi) 10cst max.
high pressure SS	N/A	400 bar (5580 psi), 68cst max.
Peek	10 bar (147 psi)	N/A
Protection class	IP66/67 (NEMA4X), optional Exd IIB T6 or I.S.	
Electrical (see also optional outputs - Turbopulse pick-off types)		
standard output	Hall effect sensor	Pick-off Coil

FLOW RANGES - TM Turbopulse Mini

size	model	litres/min (GPM)	Jet Ø
¼"	TM001	0.05~0.5 (0.01~0.13)	1mm
¼"	TM002	0.12~1.5 (0.03~0.4)	2mm
¼"	TM003	0.2~4.5 (0.04~1.12)	3mm
¼"	TM004	0.25~6.5 (0.05~1.7)	4mm
¼"	TM005	0.3~10 (0.08~2.64)	no jet
¼"	TM006	0.5~15 (0.13~4)	6mm

STANDARD OPTIONS :
Flanged process connections, Explosionproof, integral and remote preamplifier, LCD totaliser-batch totaliser, flow rate totalisers, scaled pulse, 4~20mA & flow alarm outputs, electronic batch controllers and pulse processing modules.

FLOW RANGES - TP Turbopulse

size	model	litres/hr (GPH)
½"	TP010	100~1100 (0.44~4.4)
¾"	TP012	220~2200 (0.97~9.7)
¾"	TP015	400~4000 (1.77~17.7)
¾"	TP020	800~8000 (3.5~35.2)
		m3/hr (GPM)
1"	TP025	1.6~16 (7~70)
1½"	TP040	3.4~34 (15~150)
2"	TP050	6.8~68 (30~300)
3"	TP080	13~135 (60~600)
4"	TP100	27~270 (120~1200)
6"	TP150	55~550 (240~2400)
8"	TP200	110~1100 (480~4800)
10"	TP250	190~1900 (840~8400)
12"	TP300	270~2700 (1200~12000)
16"	TP400	400~4000 (1800~18000)
20"	TP500	700~7000 (3000~30000)

DUAL PULSE PADDLE WHEEL FLOWMETERS

DUALPULSE – insertion flowmeters
DP490 & DP525 are cost effective stainless steel flowmeters for measuring the flow of water, fuels & other low viscosity liquids in pipes sizes 1.5"~100" (40~2500mm).

Insertion flowmeters are installed with the metering head 1/8th into the pipe resulting in very little pressure drop. They do not require external power when used with the Trimec rate totalisers however some options such as high temperature & non-magnetic models require external power.

Applications include HVAC, hot & chilled water, fire systems, water distribution (management & treatment), boiler feed water & hydrant flow testing.

FEATURES :
- IP68 (NEMA6) submersible 316SS construction.
- Low cost of ownership, wide flow range.
- Rugged & compact design.
- Intrinsically safe hazardous area versions.
- Integral or remote pre-amplifiers & flow instruments.
- DP525 version suitable for "hot tap" installation.
- BI-Directional Flow Measurement

GENERAL SPECIFICATIONS

Model prefix :	DP490	DP525
Suit pipe sizes	40~900mm (1.5"~36")	50~2500mm (2"~100")
Pipe connection	1.5" BSP or NPT	2" BSP or NPT
Flow range	0.25 ~ 6300 litres/sec (4 ~ 99600 USGM)	0.4 ~ 49000 litres/sec (6 ~ 780000 USGM)
Flow velocity range	0.3 ~ 10 metres/sec (1 ~ 33 feet/sec)	
Linearity	typically ± 1.5% with well established flow profile	
Temperature range	-40ºC ~ +100ºC (-40ºF ~ +212ºF) 200ºC max.	
Maximum pressure	80 bar (1200 psig)	
Materials	316SS body & rotor shaft, PVDF rotor	
Pulse outputs		
* Reed switch	30Vdc x 200mA max. Nom. 0~80hz	
Hall effect	3 wire NPN, 5~24Vdc, 20mA max. Nom. 0~240hz	
Voltage Pulse	self generated voltage. Nom. 0~240hz	
Intrinsically safe coil	self powered, generates 15~3000mV	
High temperature coil	self powered, 200ºC (390ºF) max.	
Non magnetic sensor	3 wire NPN, 5~24Vdc, 20mA max. Nom. 0~240hz	
Analog	loop powered 4 ~ 20mA	

Maximum thermal shock 10ºC (50ºF) / min. applies to the reed switch

IMPELLER FLOWMETES AND PACKAGED ASSEMBLIES

UTILITY – tangential flowmeters

The UM series is specifically engineered for the most common liquid transfer and monitoring applications within industrial plants, mining sites, automotive service centers and refueling installations.

Monitoring & controlling the movements of water, fuels & other low viscosity liquids under pumped or gravity conditions in small pipe sizes is widespread. The UM flowmeter provides a cost effective & reliable solution with a variety of versatile options.

FEATURES :
- High accuracy & repeatability.
- Low cost of ownership, wide flow turndown.
- Rugged & compact design.
- Intrinsically safe hazardous area versions.
- Integral flow conditioning & strainer.

STANDARD OPTIONS :
LCD totaliser-batch totaliser, flow rate totalisers, scaled pulse, 4~20mA & flow alarm outputs, packaged electronic batch control system and pulse processing modules.

GENERAL SPECIFICATIONS

Model prefix :	Flowmeter	Batch system
Nominal size	20mm (3/4" BSP or NPT male threaded)	
Flow range	1 ~ 70 litres/min (0.3 ~ 18 USGM)	
Accuracy	± 1.5% of reading (70:1 turndown) ± 0.5% for 20:1	
Temperature range	5ºC ~ 90ºC (40ºF ~ +194ºF) - 10bar (150psi)	
Maximum pressure	10 bar (150 psig)	
Power requirement	self powered or 5~30Vdc	24Vdc
Protection class	IP 66.67, optional I.S. 66/67 (NEMA 4X)	
Materials	brass body, PP impeller with ruby bearing	
Electrical (see also optional outputs)		
Output pulse resolution	Reed switch & Hall Effect 20 PPL (76 PPG)	
* Reed switch output	30Vdc x 200mA max.	
Hall effect output	3 wire NPN open collector, 5~24Vdc, 20mA max.	

* Maximum thermal shock 10ºC (50ºF) / min. applies to the reed switch

FLOW INSTRUMENTS

FLOW RATE TOTALISERS – battery powered
Trimec offer two models, the RT12 is more orientated towards the process control industry providing a range of analog & digital outputs compatible with PLC's & other plant control equipment. The new RT20 has larger digits specifically suited for liquid transfer applications requiring high visibility & back lighting.

BATCH CONTROLLERS – for digital inputs
The EB Ecobatch is fully programmable a two stage pre-set batch controller with high speed counting & automatic overrun compensation. Applications include bottle & container filling, loading systems & batch mixing.

BATTERY TOTALISER – low cost & compact
Providing resettable & accumulative totals on two lines of display, the BT11 is also available with intrinsically safe approval.

PULSE PROCESSING MODULES
The PD2 is a pulse discriminator for by-directional flow applications, the PR2 is a pulse repeater interface for high loads & the PC1 minature interface board converts an NPN solid state output to a PNP pulse output.

PULSE TO ANALOG
The FI420 is a programmable 4~20mA frequency to current converter which fits within any Trimec flowmeter.

GENERAL SPECIFICATIONS

Model prefix :	BT11	RT12	RT20	EB10
Function	Dual totaliser	Rate totaliser	Rate totaliser	Batch controller
Power source				
battery powered	yes	yes	yes	no
8~24Vdc external power	yes	yes	yes	yes
4~20mA loop powered	no	yes	no	no
LCD display				
- line 1	1 x 7.5mm	1 x 9mm	1 x 17mm	1 x 9mm
- line 2	1 x 3.6mm	- 1 x 7mm-		
accumulative total	yes	yes	yes	yes
resettable total	yes	yes	yes	no
rate display	no	yes	yes	no
backlighting	optional	optional	standard	optional
Input types				
un-powered sensors	reed switch, coil (15mV P-P min.),			
powered sensors	open collector, current pulse, namur & proximities			
low frequency cut-off	no	yes	yes	no
dual flow inputs	no	yes	no	no
10 point linearisation	no	yes	no	no
Outputs				
4~20mA output (750Ω)	no	yes	no	no
high & low flow alarms	NPN / PNP	NPN / PNP	NPN	NPN / PNP
scaleable pulse	NPN / PNP	NPN / PNP	NPN	NPN / PNP
dual SPCO relay board	no	optional (replaces solid state outputs)		
Power source				
iP66/67 (NEMA 4X)	yes	yes	yes	yes
DIN mount (optional)	no	yes	yes	yes
intrinsically safe (optional)	yes	yes	no	no
Exd Explosionproof (optional)	no	yes	no	yes
Exd Explosionproof (optional)				

STANDARD OPTIONS :
The above instruments are supplied in either field, pipe or panel mount configurations with some being available with either Aluminum or stainless steel Exd explosion proof housings.

CUSTODY TRANSFER

Pulse meter with wafer check valve, air eliminator & strainer

CUSTODY TRANSFER CLASS METERS

Medium & large capacity meters are supplied in the form of custody transfer assemblies incorporating peripheral devices to meet the requirements of industry and relevant approval bodies.

GENERAL SPECIFICATIONS

Model prefix :	MG025	MG040	MG050	MG080E	MG100
Nominal size (inches)	1"	1.5"	2"	3"	4"
Materials	aluminum body				
Minimum delivery (liters)	5	10	20	50	200
Maximum flow (L/min)	150	250	450	1000	*1500
Output options	Reed Switch & NPN Hall, Quadrature Halls				
Maximum pressure	10 bar (147psig)				

MECHANICAL METERING ASSEMBLIES

Meters 1"~4" fitted with an angle adaptor will take various combinations of large mechanical registers, presets registers, printers & associated check & cut-off valves.

GENERAL SPECIFICATIONS

Meter Size :	1"	1.5"	2"	3"	4"
Meter Material	aluminum				
Minimum delivery (liters)	5	10	20	50	200
Maximum flow (L/min)	150	250	450	1500	2500
Mechanical registers	Reset & Preset with optional printer				
Mechanical control	Two stage mechanical cut-off valve				
Maximum pressure	10 bar (147psig)				

Meter with wafer check valve, air eliminator, strainer & mechanical pre-set cut off valve

STRAINERS & AIR ELIMINATORS

The modular design of the strainers & optional air eliminator head allow fitment as a stand alone or close coupled strainer only or as a multi function strainer air eliminator check valve assembly.

Wafer back pressure check valves are fitted between the eliminator strainer (ES) and the flowmeter to aid in the extraction of air & prevent any possibility of reverse flow.

GENERAL SPECIFICATIONS

Model prefix :	ES025	ES040	ES050	ES080	ES100
Nominal size (inches)	1"	1.5"	2"	3"	4"
Materials	aluminum body, 316SS basket, viton seals				
Strainer mesh sizes	100 mesh (150 micron)				
Maximum pressure	10 bar (147psig)				
Air release head	Dual port double reed valve				
Venting capacity @ 10psig	154 CFM (4.36M 3/min @ 70kpa)				

Strainer
Strainer with air eliminator
Modular Flange Portions
Wafer Check Valves
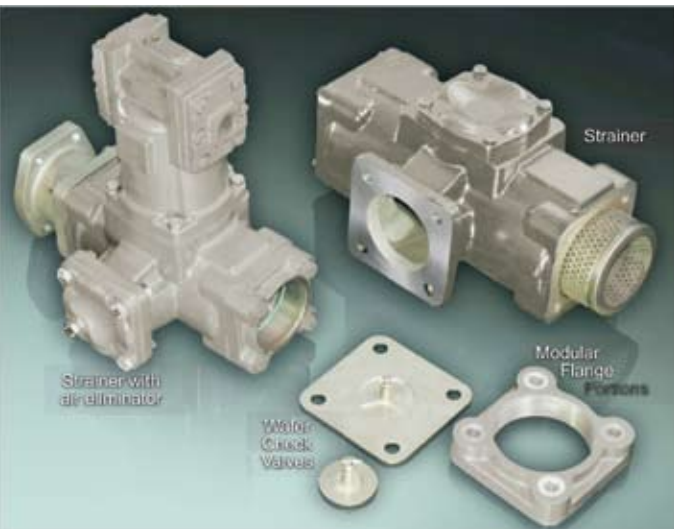
Flowline is your best source for tank inventory monitoring, automation and safety solutions. A recognized leader in non-contact ultrasonic level sensors, we offer the most reliable and cos effective solutions for the measurement and control of chemical, waste and ultrapure liquids. Flowline products are sold worldwide through our technical stocking distribution network and are broadly applied in industrial, OEM, municipal and agricultural containment applications.

We Do Your Level Best ™

General Purpose Measurement, Switching & Control

| | Measurement, Switching & Control | | | Switching | Measurement | |

DL34   DL24   DL14   DS14   DL10   DX10

	DL34	DL24	DL14	DS14	DL10	DX10
Type	Ultrasonic					
Class	GP					
Range	216.5" (5.5m)	118.1" (3m)		49.2" (1.25m)		
Output	4-20 mA			- - -	0-10V, 978-200Hz	4-20 mA
Install	Top Wall					
Mounting	2" NPT / G			1" NPT / G		
Relays	(4) SPST				No Relay	
Configuration	WebCal Software					
Temperature	140º F (60º C)					
Pressure	30 PSI (2 bar)					
Material	PVDF					

Echotouch Two-Wire Ultrasonic

CSA approved intrinsically safe for use in haz- ardous zones, the non-contact level transmitter is ideal for atmospheric bulk storage, day tank and waste sump applications up to 18' (5.4m). Compact and rugged, the push button calibrated transmitter is reliable and easy to configure. Its hazardous level made simple.

Range: 6" to 18' (15cm to 5.4m) Signal output: 4-20 mA, two-wire
Enclosure rating: IP65
Process mount: 2" NPT (2" G)

Echotouch Three-Wire Ultrasonic

Echotouch provides non-contact level measurement of atmospheric bulk storage tanks up to 24.5' (7.4m) with an integral relay for alarm or automatic fill or empty control. Compact and rugged, the push button calibrated transmitter is reliable and easy to configure. Its level measurement and control made simple.

Range: 6" to 24.5' (15cm to 7.4m)
Signal output: 4-20 mA, three-wire
Enclosure rating: IP65
Process mount: 2" NPT (2" G)

EchoSpan

The general purpose two-wire ultrasonic transmitter provides non-contact level measurement up to 32' or 10m, and is ideally suited for challenging ultrapure, corrosive or waste liquids. Push button calibrated, the transmitter is broadly selected for atmospheric bulk storage, day tank and waste sump applications. Media examples include wastewater and sodium hydroxide.
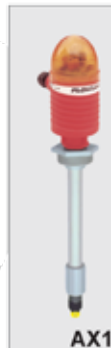
Range: 4" to 32.8' (10cm to 10m)
Signal output: 4-20 mA, two-wire
Enclosure rating: IP65
Process mount: 2" NPT (2" G)

EchoSafe

Flowline introduces Echosafe, an ultrasonic level transmiter designed for hazardous applications, where an agency certified sensor is needed. A 2-wire (loop powered) ultrasonic level transmitter that provides non-contact level measurement up to 10 m (32.8') in hazardous (classified) bulk storage, day tank, waste treatment and sump applications, and is well suited for challenging corrosive, slurry or waste media.

Multi-Point Packages

| Non-Contact | |

Single-Point Packages

| | Contact |

| EchoSwitch® II | Smart Trak™ | Float-Point™ | Switch-Pak™ | Switch-Pro™ |

LU7X   AX23   AXXX   AVX6   AV17   AX13   AX1X   AX13   AX1X

	EchoSwitch	Smart Trak		Float-Point		Switch-Pak		Switch-Pro	
	LU7X	AX23	AXXX	AVX6	AV17	AX13	AX1X	AX13	AX1X
Type	Ultrasonic	Sensors + Controller	Sensors + Junction Box		Sensor + Alarm	Sensor + Controller	Sensor + Junction Box	Sensor + Controller	Sensor + Junction Box
Class	GP								
Install	Top Wall							Side Wall	
Range	26.2' (8m)	10' (3m)		6.5' (2m)	- - -	10' (3m)		- - -	
Function	Auto Fill or Empty, High & Low Alarm, Duplexing	Auto Fill or Empty	Auto Fill or Empty, High & Low Alarm		High & Low Alarm			High & Low Alarm	
Relay(s)	(3) SPDT	(1) SPDT	(1-4) SPST	(1-5) SPST	- - -	(1) SPDT	(1) SPST	(1) SPDT	(1) SPST
Points	- - -	Adjustable				Factory			
Voltage	95-250 VAC	120-240 VAC	12-36 VDC	240 VAC/VDC	9V Battery	120-240 VAC	12-36 VAC	120-240 VAC	12-36 VDC
Temperature	140°F (60°C)	176°F (80°C)		392°F (200°C)	302°F (150°C)	176°F (80°C)			
Pressure	30 PSI (2 bar)	Atmospheric		200 PSI (13.8 bar)	250 PSI (17.2 bar)	150 PSI (10 bar)			
Material	PVDF	PP, Ryton®		316 SS		PP, Ryton®, PFA			

DeltaSpan

DeltaSpan provides contact level measurement of atmospheric storage tanks, wet wells or pond applications. The rugged stainless steel body features a flexible polyurethane cable and sensor guard for protection against debris. Its pressure level made simple.

Range: 5 psi (0.34 bar)
       10 psi (0.69 bar)
       15 psi (1.0 bar)
       20 psi (1.38 bar)
Signal output: 4-20 mA, two-wire]
Enclosure rating: IP65
Cable length: 40' (12.2m)
              60' (18.3m)

Thermo-Flow Liquid and Gas

The general purpose liquid or gas flow switch is offered in PP or PVDF with a relay for PLC, SCADA or alarm inter face. The flow switch is broadly suited for relatively clean, non-coating media in pipe or ducting. The adjustable set point makes calibration fast and simple.

Set point: 0.04 to 3 fps (0.012 to 0.91 mps)
Contact type: (1) SPST relay
Supply voltage: 12-36 VDC
Process mount: 3/4" NPT (3/4" G)

Single-Point Sensors

Ultrasonic	Vibration	Buoyancy	Optic Leak	Capacitance		Mini-Float	High-Temp Float	Mini & High-Temp Float	Float Leak
LU10	LZ12	LV10	LO10	LP15	LP50	LV20	LV35/36	LV25/35	LH29

Switch-Tek

	LU10	LZ12	LV10	LO10	LP15	LP50	LV20	LH25	LV35/36	LH35	LH29
Type	Ultrasonic	Vibration	Buoyancy	Optic	Capacitance		Float				
Class	IS		GP								
Media	Chemical	Wastewater	Water	Various	Coating	Conductive	Water		Various		
Install	Universal		Top Wall	Universal		Non-intrusive	Top Wall	Side Wall	Top Wall	Side Wall	Bottom Wall
Function	High or Low Alarm			Leak			High or Low Alarm				Leak
Relay	(1) SPST		(1) SPDT		(1) SPST						
Voltage	12-36 VDC		120 VAC/VDC	12-36 VDC			120 VAC/VDC				
Temperature	176°F (80°C)		194°F (90°C)	176°F (80°C)			149°F (65°C)		392°F (200°C)		221°F (105°C)
Pressure	150 PSI (10 bar)		25 PSI (2 bar)	150 PSI (10 bar)		- - -	10 PSI (0.7 bar)		500 PSI (34 bar)		50 PSI (3.5 bar)
Material	PP, PFA		Ryton®	PP, PVDF	PP, PFA	PP	PSO	PP, PVDF		316 SS	Valox 420

Relay Controllers

Compact		Remote	
LC1X	LC0X	LC4X	LC9X

Switch-Pro

	LC1X	LC0X	LC4X	LC9X
Type	Controller	Junction Box	Controller	
Class		GP		IS
Input	(1-2) Switch	(1-4) Switch	(1-3) Switch	
Relay(s)	(1) SPDT	- - -	(1-2) SPDT	
Strobe Alarm	Optional		- - -	
Supply	120-240 VAC	- - -	120-240 VAC	

Smart Trak Multi-Point Level Switch Fitting

The general purpose vertical float level switch is offered in PP or PVDF with a dry contact closure for PLC, SCADA or alarm interface. The baffle body dampens turbulence. The level switch is well suited for clean water and non-coating or scaling chemical solutions.

Installation: Vertical
Contact type: (1) SPDT reed
Sensor material: PP / PVDF
Process mount: 3/4" NPT (3/4" Rp)

Switch-Pak Single-Point Level Switch Fitting

The single-point Switch-Pak fitting enables users to install a Flowline level switch through the top wall of the tank to a desired switch point. Of- fered in PVC, PP and PVDF materials, the fitting is generally applied in bulk storage tanks and waste sumps.

Length: 6" to 10' (15cm to 3m)
Adjustablity: None
Fitting material: PVC, PP or PVDF
Process mount: 2" NPT (2" G)

Strobe Alert Compact Flash Alarm

Offered in AC and DC powered configurations, the Strobe Alert compact flash alarm brings immediate attention to process conditions. The NEMA 4X alarm is compatible with our round enclosures and is actuated with our level switch, flow switch or controller products.

Supply voltage:12-36 VDC / 120-240 VAC
Strobe type: Xenon tube
Enclosure rating: IP65
Enclosure material: Polycarbonate

	FluidWell	DataLoop		DataView	Commander	DataPoint	Compact Controller	Remote Controller
Series	300400	LI25 - 2001	LI25 - 1001	LI55	LI90	LC52	LC1X	LCXX
Type	Field Mount	Panel Mount			Panel, Rail Mount	Rail Mount	Sensor Mount	Rail Mount
Class	XP	IS	GP	GP				GP, Isolation
Display	LCD			LED	LCD	---		
Backlight	No	Yes		No	Yes	---		
Input	(1) 4-20 mA				(2 or 4) 4-20 mA	(1) 4-20 mA	(1) Switch	(1-2) Switch
4-20 Repeater	Yes	No		Yes (2 Input) / No (4 Input)	No	Yes	No	
Relay	---			(4) SPDT	(6) SPDT	(2) SPDT	(1) SPDT	(1-2) SPDT
Supply	10-30 VDC (Loop)	12-30 VDC (Loop)		85-265 VAC	10-30 VDC	120-240 VAC		
Function	Display			Display, Auto Fill or Empty, High & Low Alarm		Auto Fill or Empty, High & Low Alarm		
Enclosure	NEMA 4, 7 & 9	NEMA 4X Faceplate				---	NEMA 4X	---

Founded in 1974 as Planning and Engineering Agency, the members of the systec Group offer now innovative products for the most differentiated markets. With a staff of about 100 skilled and qualifi ed people in the home plant at Puchheim near Munich we develop, produce and sale sophisticated solutions for the world market.

The systec Controls Mess- und Regeltechnik GmbH, established 1994, has dedicated its efforts to the innovation of process-compatible flow measuring and environmental measuring techniques. systec Controls developed in close cooperation with renowned universities and research centres high-tech measuring engineering systems for all aspects of plant construction. The uncompromising quality and unsurpassed consultancy service account for the ever increasing market potentials of systec Controls.

Systec Controls are certified according to

DIN EN ISO 9001:2000, DIN EN 7 29-3,
AD 2000, EN 97/23/PED and complies
among others with the directives:
13. and 17. BImSchV accord. to PED
(formerly TRD), CE accord. to EMV, ATEX 100

Metering for Gas, Steam and Liquid

The deltaflow is a pitot tube which measures the flow in conduits according to the differential pressure principle. It can be used to meter gases, steams, and liquids under almost any operating condition in many different industries.

In Power Plants:

The deltaflow meters all gaseous media reliably and precisely, including fresh air, preheated air, recycled stack gas, and flue gas before and after wash scrubber, as well as media with an extremely high particulate load (when used with the LSP air purging system), live steam, medium-pressure steam, low-pres-sure steam and feed water – all tested to PED97/23/EC with CE certification

DF25 with LSP air purging system for combustion gas with high particulate content after air preheating.

In Chemical and PetroChemical:

The deltaflow is also a viable solution in the chemical and petrochemical industries - for metering products, exhaust or flue gasses, or inert or aggressive media. In an endurance test, complying with the guidelines of §13 and 17 of the Federal Emission Control Ordinances (German BImSchV), lasting several months and performed in 1996 at Wacker-Chemie in Burghau-sen, Germany, the deltaflow proved its durability measuring100% steam-saturated, aggressive and polluted flue gas

In Water and Wastewater Treatment:

The deltaflow is especially valuable for metering biogas and sewer gas in the water and wastewater treatment industry. The deltaflow proves its reliability metering air flow in aeration tanks.

deltaflow is Economical, Precise, and Versatile

- Minimal Pressure Loss Results in Minimal Energy Costs.
- Save Up To 90% in Installation Times and Costs.
- Highest metering precision thanks to optimized probe profile and high precision manufacturing.
- Patented probe profile.
- Result: The resistance coefficient remains constant throughout the entire measuring range.
- No Measuring Errors Caused by Welded Seams at Probe's Cross Section.
- Production Tolerance of <0.025 mm Through New Manufacturing Processes.
- Absence of Capillaries Prevents Measurement Errors Caused by Water Columns.
- Tested by the TÜV (German Technical Inspection Authority) for Compliance with the § 13 and § 17 of the Federal Emission Control Ordinance.
- High Pressures and Temperatures.
- Integrated Pressure and Temperature Sensors.
- Low Maintenance.

Flow rate at the edge of the deltaflow is accelerated to approximately 2.3times the previous speed

The deltaflow's pecision performance has been confirmed by the Technical University at Erlangen: "Based on the calibration results, it can be stated that the deltaflow pitot tube causes less pressure and energy loss in conduits and enables more precise measurements than the orifices previously used in conduits."

(Dr. F. Durst, Professor)

ImproveIT – Installation without straight run requirements

The ImproveIT database was compiled based on years of experience and thousands of individual calibrations using the deltaflow in situations involving shortened inlet paths. Simply draw a sketch of your installation, and we will calculate the adjusted flow values for you. It really is that simple.

Here's How It Works:
When you place your deltaflow order, you include a sketch or a drawing of your application. We will make a recommendation about the best place for installation, determine your adjustment factor, and tell you what degree of precision you can expect—all free of charge!

Inlet Path A	1D	2D	3D	5D	7D	10D	15D	20D	Outlet Path A
With ImproveIT	2%	2%	1,5%	1%	1%	1%	<1%	<1%	3D
Without ImproveIT			5%	3%	3%	2%	1,5%	1%	4D
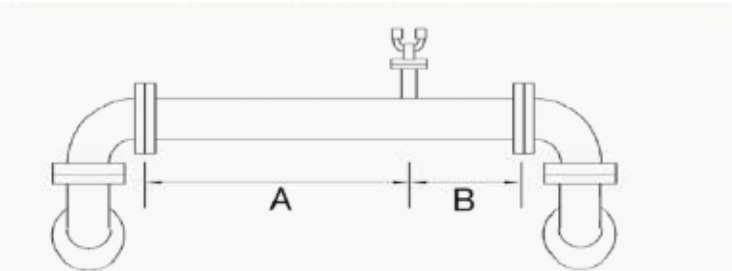
An example of a double pipe elbow on multiple levels: Most flow meters require an inlet path of 20 to 40 D. The deltaflow can be installed after only 1 D with a very small degree of error. After only 7 D, the accuracy of the deltaflow enhanced with the ImproveIT database is less than 1%.

deltaflowC – Mass Flowmeter for Gases

The deltaflowC was developed to meter air and other non-explosive and non-corrosive gases in pipes and channels in a very precise, cost effective manner. deltaflowC operates according to the highly precise differential-pressure metering method. Extremely fast sensors for differential pressure, static pressure and temperature. The mass flow is metered up to 4000 times per second. The microcontroller processes the values of a mass flow and outputs the mass flow signal, as well as the pressure and temperature signal.

High Accuracy

The deltaflowC is available in two accuracy classes. The standard type offers an accuracy of 4%. deltaflowC is also optionally available as calibrated probe with a calibration certificate and an accuracy of 2%.

Typical applications

- Pressurized air
- Building services/heating, ventilation, air-conditioning
- Combustion air regulation
- Monitoring of process air
- Pneumatics
- Exhaust gas metering
- Compressors
- Extraction units
- Exhaust gas volume metering

deltafit – Air Flow Regulation Unit

Accurate air flow regulation for aeration tasks in wastewater treatment plants

The accurate regulation of the air flow for aeration basins ensures best process quality and also helps save money as energy-intensive compressed air is applied to the basin at an optimized rate.

Insufficient oxygen supply results in incomplete decomposition of harmful substances and thus insufficient leaning performance. In the worst case, statutory limit values might be exceeded. Excessive aeration on the other and does not improve treatment performance but results in higher energy costs for air compression, thus reducing the cost efficiency of your plant. The deltafit guarantees aeration at the required level and helps save energy costs.

deltaflow pitot – Portable Pitot Tube Measurement

The handheld manometer, up to six 1m-long extension sections, the documentation, and all accessories are housed in a sturdy carrying case. An Excel file is provided with the deltaflow pitot to assist in automating the sampling analysis per DIN 2640 standards.

The handheld manometer is battery-powered, displays the differential pressure in all popular units, and comes standard with calibration instructions.

flowcom – Flow Computer for Gases or Energy

The flowcom is available in two versions: a gas-compensation computer and an heat-transfer computer. flowcom is manufactured in Germany and and has been tested for suitability by Germany's TÜV and UAL-certified under Germany's "TA-Luft" air-quality regulations and 13th and 17th Federal Emission-Control Ordinances.
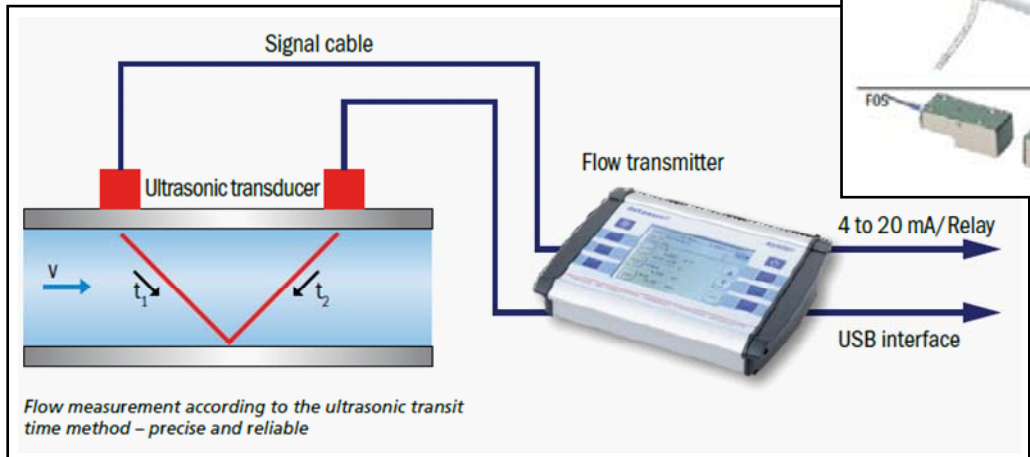
What flowcom does
flowcom compensates for flowmeter errors due to pressure or temperature variations and computes mass or normalized volume flow rates for gases or steam. It also computes heat-transfer rates, thermal-energy contents, and thermal balances between supply and return lines for saturated steam, superheated steam, water, heat-transfer media, or refrigerants.

flowcom employs the GERG8 8 - equation in handling computations for natural gas. This equation was developed for billing purposes, and is accepted by all major European natural - gas utilities, such as Ruhr - Gas (Germany), British Gas (Great Britain), Distrigaz (Belgium), Gas de France (France), N. V. Nederlandse Gasunie (The Netherlands), S.N.A.M. S.p.A. (Italy), and the PTB(Germany). GERG88 is much more accurate than the AGA - NX19.

deltawaveC-P – Portable Clamp-on Ultrasonic Flowmeter

deltawaveC-P is a portable, clamp-on flowmeter for measuring liquids in filled pipes. deltawaveC-P operates according to the proven and high-precision ultrasonic transit time method. Thanks to the use of state-of-the-art digital signal processors and analysis technologies, deltawaveC-P is an extremely precise and robust measuring device.

Type	Temperature	Internal diameter
F20	-40...150°C	DN10...DN100
F10	-40...150°C	DN32...DN400
F05	-40...80 (150)°C	DN200...DNG000

Signal cable

Ultrasonic transducer

Flow transmitter

4 to 20 mA/Relay

USB interface

Flow measurement according to the ultrasonic transit time method – precise and reliable

deltawaveC-P comes in a robust practical carrying case complete with flow transmitter, ultrasonic transducers, installation material, signal cable and coupling grease, SD memory card and power supply.

deltawaveC-F – Fixed Clamp-on Ultrasonic Flowmeter

Overview
- Operating temperature: -40 to 150 °C
- Pipe Size: DN10 – DN6000
- Pipe Material: Most common materials (ultrasonic conductible) like steel, plastics (PE, PVC, PEEK,…)
- Flow velocities: 0….+/-30 m/s
- Media: Liquids
- Accuracy: Up to 1%
- Certificates: CE / ATEX (in preparation)
- Heat quantity measurement
- 5-point calibration (Systec certificate)

deltawave – flow measurement, flow profile determination, turbidity measurement in fluids

deltawave is the first ultrasonic multimeter that can acquire, apart from the flow, the flow profile and turbidity or solid load, as well as the mean medium temperature and changes in the medium composition. deltawave measures everywhere: in filled pipes, in partially filled pipes, open canals, channels and rivers. With a deltawave measurement transducer, you can realize up to eight different measurement points.

Inflow path	Accuracies					
	> 10D			< 5D		
Paths / Crosswise measurements	2	4	6	2x2	4x2	6x2
filled pipes and filled rectangular cross-sections	1.5-2 %	0.5-1 %	0.50%	1.5-2 %	0.5-1 %	0.50%
open channels partially filled pipes, running water	3-4 %	2-3%	1-2%	3-4%	2-3%	1-2%

Williamson
Innovators in Noncontact Temperature Measurement

Williamson Corporation is passionate about the design, manufacture and world-wide distribution and after-sale support of exceptionally accurate infrared thermometers for industrial applications - especially those involving low or variable emissivity, optical obstruction or interference, misalignment, hostile operating conditions or other application challenge where our unique technical capabilities provide significant safety, product quality or productivity benefits.

Williamson specializes in short-wavelength single-wavelength sensors, dual-wavelength sensors, multi-wavelength sensors, fiber-optic sensors and application-specific sensors, with innovative and unique capabilities in each category of infrared thermometer. Innovative and unique Williamson capabilities generally pertain to thoughtful wavelength selection, proprietary single-, dual-, multi-wavelength and fiber-optic technologies and innovative mechanical design.

Petrochemical

Standard Features of Gold Series Single Wavelength Sensors

- Temperature limits: - 40˚ to 450˚ F / -40˚ to 2500˚ C
- Line of Sight, Visual Aiming, and Fiber Optic Aim Light alignment options
- A complete range of precisely selected short, long and specialty wavelengths 4-20mA and voltage sensor outputs which may be programmed with a choice of up to 5 different measured parameters
- Bi-directional RS232 andRS485 communications
- Built-in human interface with intuitive text based menu for sensor adjustment
- Stand alone sensors feature a menu selectable alarm relay or analog input for remote emissivity and alarm set point adjustments
- Optional remote interface module with a built-in AC power supply and a wide selection of output and alarm options
- NEMA 4X sensor enclosure, optional
- NEMA 7 and ATEX enclosures available

M-class

Gold 20 Class
Line-of-sight or Integrated
Laser Aiming Alignment

C-class

U-class

Gold 30 Class
Fiber Optic with Optional
Integrated Aim Light

Pro 80/100 Class
Line-of-sight or Integrated
Laser Aiming Alignment

Standard Features of Silver Series Line of Sight Single Wavelength Sensors

- 1% or +/-1°C accuracy from -40 to 1832°F (-40 to 1000°C)
- A choice of D/2, D/15, D/30 and Close Focus optics
- 8-14μm wavelength
- Line of sight alignment with optional external laser aiming
- 2-wire or 4 wire configurations
- 4-20mA and voltage outputs which are linear with temperature
- J, K or T Thermocouple outputs
- USB 2.0 interface
- OPC server capabilities
- Internal sensor and process ambient temperature output
- 3ft/1m electrical cable with optional extended lengths
- Emissivity settings are offered as fixed or adjustable
- Stainless steel NEMA4X (IP65)
- Optional accessories such as mounting brackets, watercooling, and air purge

Standard Features of PRO Series Multi Wavelength Sensors

- Temperature Limits: 200 - 4500˚F / 95 - 2500˚ C
- Line of sight, visual aiming, laser aiming and fiber optic aim light alignment options
- A selection of narrow band wavelengths for precise measurement on demandiing applications
- Use as Stand-Alone transmitter or connected to a panel meter, recorder, PID Controller or   PLC
- Programmable 4-20mA and voltage outputs, as well as RS232 and RS485 communications
- Built-in human interface with intuitive text based menu for sensor adjustments Rugged NEMA4X (IP65), NEMA7 and CENELEC enclosures

Standard Features of Pro Series Dual Wavelength Sensors

- Temperature Limits: 200 - 4500˚F / 95 - 2500˚ C
- Line of sight, visual aiming, laser aiming and fiber optic aim light alignment options
- A selection of narrow band wavelengths for precise measurement on demandiing applications
- Use as Stand-Alone transmitter or connected to a panel meter, recorder, PID Controller or PLC
- Programmable 4-20mA and voltage outputs, as well as RS232 and RS485 communications
- Built-in human interface with intuitive text based menu for sensor adjustments
- Rugged NEMA4X (IP65), NEMA7 and CENELEC enclosures

Pro 90/200 Class
Fiber Optic with Optional
Integrated Aim Light

Analytical Industries Inc., doing business in the industrial marketplace under the trade name Advanced Instruments Inc., have earned a reputation around the world for innovative solutions to gas alysis that encompasses the design and manufacture of advanced oxygen sensors and analyzer platforms, a passion for reliable quality and superior customer support. As a result, Analytical Industries Inc. has become a leading worlwide supplier of oxygen sensors (view all sensors) and oxygen analyzers to the industrial process control, natural gas, medical and diving industries.

In November 2010, Analytical Industries entered into a formal agreement with Underwriters Laboratories (UL) to have the ATEX certified products evaluated to CSA and UL standards for the purpose of obtaining a (cUL) certification for North America.

Analytical Industries Inc. dba Advanced Instruments Inc. provides gas analysis solutions through advanced sensor and analyzer technology. Performance, quality, value and world class customer service has made **AII** a global leader in supplying solutions to the process instrumentation, natural gas, diving and medical industries. Products are manufactured under a single, independently certified quality system that complies with ISO 9001:2000 and major international standards.

Oxygen Analysis below 1 PPB

Featuring the innovative Pico-Ion™ UHP series oxygen sensor and easy to use menu driven controls, the GPR-1600 UHP provides a high performance, no maintenance solution for oxygen analysis below 1 ppb at a reasonable price.

With an accuracy of $\pm$1% FS, sensitivity of 0.5% FS, .995 linearity across 4 standard ranges and auto-calibration capability with remote access, this fully equipped analyzer with its 316L VCR and orbitally welded sample system provide users with the highest ROI possible. This analyzer goes into standby mode, to protect the sensor, automatically if the power supply is interrupted.

Process Oxygen Analyzers

Advanced sensor technology is evident across the widest range of oxygen analyzers available today. The GPR-1600MS featuring the innovative Pico-Ion MS Series sensor analyzes O_2 from 10 PPB to 1000 PPM; the GPR-1600 from 100 PPB to 1% with air calibration capability; the GPR-2600 from 0.05% or 500 PPM to just under 100%; the GPR-3100 is the only electrochemical sensor based oxygen purity analyzer with 24 month sensor life in 100% O_2.

Sharing a common platform, SS wetted parts, an accuracy of $\pm$1% FS, sensitivity of 0.5% FS, .995 linearity across 4 standard ranges and auto-calibration capability with optional sample, span, zero inlet valves, these analyzers are individually optimized. The PPB and purity analyzers include a unique CSA/CE approved heater system for added stability; PPB and PPM analyzers feature fast response long life sensors and a bypass sample system which significantly increase productivity; a proprietary sensor specific compatible with up to 100% CO_2 further extends the application range.

ATEX Certified Explosion Proof Oxygen Analyzers

Sharing a common platform, stainless steel wetted parts, flame arrestors, an accuracy of $\pm$1% FS, sensitivity of 0.5% FS, .995 linearity across 4 standard ranges with long life no maintenance sensors, the GPR-18MS, GPR-18 and GPR-28 analyzers offer users a choice of PPB, PPM and percentage range oxygen analysis in hazardous areas containing hydrogen EEx d IIB+H_2 T5 or lesser flammables, such as ethylene, and dust.

A unique heater system for added stability is optional as are custom designed sample conditioning systems. This platform also includes the proprietary sensor designed specifically for gas streams containing up to 100% CO_2 which further extends the application range.

Applying the Sensor Technology

The same high performance oxygen sensors employed by the full featured Process Oxygen Analyzers above are available in several additional configurations tailored to specific applications.

Portable Analyzers

The GPR-1200 Series PPB, PPM analyzer (left) employs the process bypass sample system to justify its purchase on increased productivity alone; the GPR-2000 provides percent measurements; the GPR-3500MO is easy to use and the most accurate portable analyzer for oxygen purity analysis.

Natural Gas

The proprietary CO_2 compatible sensor; intrinsically safe design; alarms (AIS) or loop power (IS); modular sample system to remove H_2S, water and regulate inlet pressure make the GPR-1500 and GPR-2500 the preferred PPM and percent O_2 analyzers for vacuum extraction and transmission.

2 Wire 4-20 Transmitters

Advanced sensors coupled with basic electronics make the GPR-1500 and GPR-2500 (which can be configured for process, ambient and purity analysis) the most compact and economical PPM and percent analyzers available.

Weidmüller

MANN SERIES

In line with the Weidmuller vision and its dedication to the process industry, a new comprehensive range of process instruments have been introduce which includes Signal Isolators, Signal Transmitters, Indicators and Calibrators specifically developed and designed to meet the sometimes arduous and complex needs of modern process automation applications.

Key to the product range is its flexibility through its "on site user" configuration capabilities to almost any output range and measurement unit used in process automation applications. Robust construction is also a major consideration in these applications and the Weidmuller process instrument range has this covered.

ITX Plus
Universal, Loop Pwered,
Isolated Signal transmitter

Features
- Configurable input to most process signals
- 10-40Vdc loop powered supply
- Simple free PC software
- Slim 12.5mm housing

TWI-2
Loop Powered Isolator

Features
- Output Loop Powered
- Single and Dual channel versions
- Current or Voltage inputs
- Independent Zero and Span controls for each channel
- 600 ohms output drive capability at 24Vdc
- No internal adjustments needed
- Dual DIN rail mount housing
- Plug-in, screw type, terminal blocks

DFI
Dual Channel Signal Booster/Splitter/Isolator

Technical data	
Housing	Dual DIN Rail mount
Input Type	4-20mA, 0-20mA, 0-10V or -10V to +10V (Switch Select)
Channels	Single/Dual
Analogue Output	Analogue Current/Voltage (As ordered)
Power supply	Auxiliary Powered
Adjustments	20-turn potentiometers
Linearity	Typically ±0.1% of span
Isolation	1.5kVrms for 60s (AC & DC)

PTX 800A & PTX 800D
8 Digit Rate Totalizer with Alarms mA

PMX 420 Series
4 digit LED Display with Alarms

Calibrator
Portacal 275

Calibrator
Portacal 1000

Sensorex®

The Sensorex facility is located in Garden Grove, California. It has more than 2,050 m2 and incorporates the latest inovations in electrode manufacturing technology. OEM's around the world depend on Sensorex to provide premium quality and dependable sensing technology.

Sensorex areas or expertise include pH, ORP (Redox), Conductivity (contacting and inductive), galvanic Dissolved Oxygen, Free Chlorine, Chlorine Dioxide and other analytical sensors. Sensorex ships over 250,000 sensors per year worldwide.

S8000 Series pH/ORP Electrode

The Next Generation Self Cleaning Flat Surface pH/ORP Electrode
- Resist Coating
- Resist Abrasion
- Modular Plug and Play
- Configurable
- Enhanced ERP Reference System
- PPS Construction
- More than 1 million units sold worldwide

S270 Series pH / ORP

PH1 –IPOD / IPHONE / IPAD pH

- Measures pH with accuracy to .01 pH
- Displays both ambient and solution temperature
- Supports 1, 2, 3 or more calibration points
- Records measurements with timestamp and geographic coordinates
- Vies data history by date or location
- Sends readings by e-mail (induvidual or .csv file)

TX100 pH/mV Loop-Powered Transmitter Meter
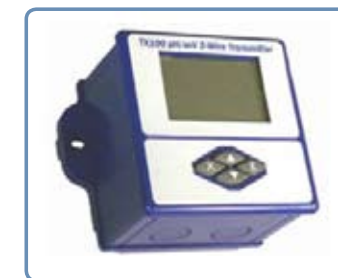
- Voltage isolated (500 V) 4-20 mA Output
- Non-volatile memory retains all stored configurations and calibration data
- Output Current Indicator for Out-of-Range and Hold Conditions prevents discrepant reading
- Large segmented display indicates pH or mV and Temperature simultaneously
- Flashing screen icon indicate mode of operation
- Programmable Probe Clean reminder flashes when it is time to clean probe (programmable from 1 to 250 days)

TX-3000 pH/mV Transmitter

- Voltage isolated (500 V) 4-20 mA Output for pH or ORP
- Voltage isolated (500 V) 4-20 mA Output for Temperature
- 2 adjustable Hi/Lo relay contacts
- Large segmented display indicates pH or mV and Temperature simultaneously
- NEMA 4x, IP65 enclosure
- Programmable was feature

TCSTX - Menu Driven Loop Powered Toroidal Conductivity Transmitter with 4 - 20 mA Isolated Output and Local Display

- 2 each Voltage Isolated (500 V) 4 - 20 mA Outputs (Conductivity or Resistivity or Salinity and Temperature)
- 2 Adjustable Hi/Lo Relay/Contacts
- Large segmented display indicates Conductivity or Resistivity or Salinity and Temperature simultaneously
- NEMA 4X, IP65 enclosure
- Programmable wash feature

TCS3000 and 3020 Series Toroidal Conductivity Sensors

- Resists coating, corrosion and fouling
- Durable Noryl construction
- Easy installation
- Optional PEEK version available soon
- Connects to Sensorex TCSMA, Rosemount or Foxboro Instrumentation

Conductivity/Resistivity Sensors with Sanitary Flange Mounting

- All 316 stainless steel constructions
- Available with automatic temperature compensation
- Cell constant values of 0.01, 0.1 and 1.0
- 1"-1.5" and 2" Tri clamp flanges available
- Sensors are steam sterilizable

CT1000-Pt Loop-Powered Blind Contacting Conductivity Transmitter

- Competitively price
- Easy-to-use & Compact Size
- 4 - 20 mA loop-powered
- Adjustable zero and span
- Fully encapsulated

CON3000 Conductivity/Resistivity/ Salinity Transmitter

- 2 each Voltage Isolated (500 V) 4 - 20 mA Outputs (Conductivity or Resistivity or Salinity and Temperature)
- 2 Adjustable Hi/Lo Relay/Contacts

- Large segmented display indicates Conductivity or Resistivity or Salinity and Temperature simultaneously
- NEMA 4X, IP65 enclosure
- Programmable wash feature

CON500 Loop-Powered Contacting Conductivity Transmitter

- Six selectable conductivity ranges for a wide range of measurements
- Isolated Output prevents output interference caused by electrical noise or leakage from the input source
- Out-of-range Output Current Indicator indicates an out-of-range measurement by emitting a 3.8 mA output current
- Hold Output Current Indicator to Indicate 'HOLD' mide during calibration or set up mode.
- Scaleable 4 - 20 mA Current Output
- Primary and secondary display for simultaneous displayt of Conductivity and Temperature values
- Easy Push Button Operation

CLD402 AND CLD410 Chlorine Dioxida Transmitter
FCL402, FCL405, and FCL 410 Free Chlorine Transmitter

The CLD series chlorine dioxide sensors and FCL series free chlorine sensors feature amperometric measurement technology. Designed for use in water treatment disinfection applications and for use with chlorine dioxide or chlorine generators, pools, etc, these sensors are available in several ranges for detecting ppm levels of chlorine dioxide or free chlorine. Choose tge CLD402 for 0-2 ppm and CLD410 for 0-10ppm of chlorine dioxide. Choose the FCL402 for 0-2 ppm, FCL405 for 0-5 ppm and FCL410 for 0-10 ppm of free chlorine.

- 4 - 20 mA Direct Output
- 500V Input to Output Isolation
- Multiple Ranges to Select From
- Replacement for other 4-20 mA ClO2 and Free Cl- Sensors

Processed Dissolved Oxygen Sensor/ Transmitter

For Aquaculture and Wastewater, our process dissolved oxigen probe are designed for a long term deployment. They feature reliable and fast responding galvanic technology with mV or 2 - 40 m outputs.

Every time you purchase from PT. Hanang Gema Instrument, the relationship has just begun. The ongoing partnership continues throughout. PT. Hanang Gema Instrument has a well trained service organization consisting of competent engineers and special educated technicians that handle repairs, field service, installation, commissioning, and training in Process Control & Instrumentation.

1. Installation
Our engineering team will install your instruments and/or process control system, ensuring it is fully operational, GUARANTEED.

2. Commissioning
Correct commissioning of devices in applications is critical to optimize the plant performance. Units will run without problem from the first day and may be covered by an application guarantee if the device is specified, installed and commissioned in a proper way.

3. Training
Training can be performed in-house or on-site. You will learn how to operate and maintain your equipment efficiently and effectively and also discover methods for preventative and corrective planned maintenance.

4. Field Service / Repair Service
We offer onsite service, repair service. With our strong engineering capability, we will try our best to provide excellent customer satisfaction, and be your expert partner in process control & instrumentation.

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