

# PRODUCT SUMMARY



**FLOW • LEVEL • PRESSURE • TEMPERATURE • ACCESSORIES**



# KOBOLD INSTRUMENTS



For over 40 years, **KOBOLD** has been a world leader in process measurement and control solutions. We offer one of the industry's broadest lines of sensors, switches, and transmitters to measure and control flow, pressure, level, and temperature. The **KOBOLD** brand is synonymous with quality, craftsmanship, technological advancement, and cost effectiveness.

**KOBOLD** instrumentation has historically set the bar for innovation and excellence, helping to shape the field of industrial instrumentation into what it is today. Always on the leading edge, we offer a comprehensive portfolio of reliable instrumentation that is found in a vast array of applications all over the world. Our technologies offer a solution-oriented way to control the most diverse variables.



The KOBOLD Group's production plants are located all over the world.

## MEASURE, CONTROL, AUTOMATE

KOBOLD's technical solutions can be easily integrated into a wide variety of systems in many industrial sectors. Thanks to internationally recognized BUS interfaces, most of our models can be easily adapted into already established automated processes. Our innovative instrumentation delivers the highest standards of service and can handle complex processes. Because our solutions are both sophisticated and easy to use, they are very popular among end users.



## YOU ARE OUR PRIORITY

Our years of experience and excellence in customer service and technical support have built our reputation as the partner of choice. Serving and supporting our customers and our products is our priority. Our expert engineers are ready to help you choose your KOBOLD solution, and their experience is an asset that we are proud of. We are here to help you select the best solution for your application, and eliminate the challenges in selecting equipment that is both optimal and economical.



## ABOVE AND BEYOND THE STANDARD

While KOBOLD offers a wide variety of instrumentation that meets most standard application needs, we are also able to meet extraordinary application needs. Our familiarity with exotic materials allows us to offer solutions for variables that are frequently hard to accommodate. Because we are the manufacturer, we also have the flexibility of being able to provide customized solutions in certain circumstances, based on the exact application needs.

# THE KOBOLD PRODUCT LINE:

 **Flow..... 6 - 30**



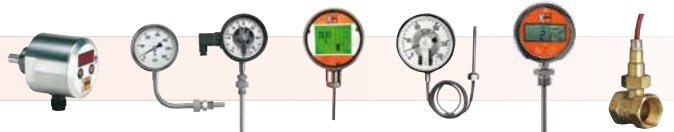
 **Level..... 31 - 37**



 **Pressure..... 38 - 42**



 **Temperature..... 43 - 45**



 **Accessories..... 46 - 47**



## Feature Icons: Look for our "at a glance" icons in our product listings



High Quality - Low Cost



Stainless Steel Design



For Chemicals



Shock Resistant



Heating Jacket



Battery Powered/ External Power Supply



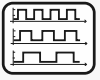
Battery Powered



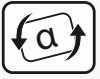
Sensor Supply



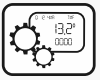
Installation Under Process Conditions



Scalable Analog Output



Rotatable Display



Configurable Display



Bi-directional



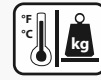
Resettable and Grand Total



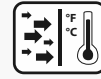
Configurable Outputs



Operational with Gloves



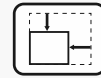
Temperature and Pressure Measurement



Temperature and Flow Measurement



Energy Measurement



Space Saver



NFC

## Quick Reference Product Table

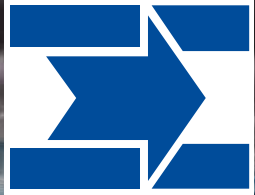
Model	PG	Model	PG	Model	PG	Model	PG	Model	PG	Model	PG	Model	PG	Model	PG
ADI	47	DPE	17	FPS	16	KPK	41	MAN-Z	38	NGM	36	OMG	20	SMV	15
ANU	23	DPL	18	HND-F	17	KPL	23	MFR	46	NGR	36	OPT	35	SMW	15
AUF	46	DPM	18	HND-P	41	KPW	37	MIK	24	NGS	34	OVZ	19	SV	14
BA	37	DPT	17	HND-T	44	KSK	12	MIM	24	NIR	35	PAD	40	SVN	12
BGF	14	DPU	16	HPC	22	KSM	12	MIS	24	NK	35	PAS	42	SWK	13
BGK	13	DRB	17	KAH	21	KSR	12	MM	36	NKP	33	PDA	41	SZM	37
BGN	14	DRG	19	KAL	21	KSV	12	MMA	45	NMC	36	PDD	42	TBE	44
BVB	16	DRH	19	KAL-A	21	KZA	20	MPT	47	NMF	35	PEL	18	TBS	43
BVO	14	DRM	39	KAL-D	21	LFM	19	MPV	47	NML	36	PIT	25	TDA	43
DAA	26	DRS	17	KAL-K	21	LNK	34	MSR	46	NMT	36	PLS	35	TDD	43
DAB	27	DRZ	19	KAL-L	21	LNM	34	MWD	45	NRF	36	PMP	40	TGK	44
DAF	26	DSD	38	KDF	12	LNR	34	MWE	45	NSC	36	PNK	40	TGL	44
DAG	47	DTB	44	KDG	12	LNZ	34	MZB	40	NSD	35	PPS	16	TIR	44
DAK	27	DTE	45	KDS	13	LSP	16	NAB	33	NSE	34	PS	16	TM	22
DAR	27	DTK	19	KEC	22	LTS	45	NAD	46	NSM	33	PSD	42	TMA	45
DAT	27	DUC	26	KEL	24	M	33	NBA	33	NSP	33	PSE	16	TMU	22
DAZ	27	DUK	26	KFA	46	MAN	39	NBE	33	NST	34	PSR	16	TND	44
DF	19	DUS	23	KFD	46	MAN-C	38	NBK	37	NSV	35	PUM	40	TNF	43
DFT	19	DVE	25	KFF	18	MAN-D	39	NCG	33	NTB	37	RCD	24	TNK	43
DIG	26	DVH	25	KFG	18	MAN-F	38	NCM	33	NUS	37	RCM	24	TNS	43
DIH	26	DVK	21	KFR	12	MAN-K	38	NCP	33	NV	33	REG	46	TSA	44
DKB	27	DVT	23	KM	45	MAN-LC	39	NCS	33	NVI	35	RFS	33	TSH	43
DKF	27	DVZ	25	KME	22	MAN-LD	38	NCW	35	NVM	46	RL	46	TSK	17
DMS	22	DWD	17	KMT	22	MAN-N	38	NDT	35	NVN	46	S	15	TSP	43
DOE	20	DWN	16	KP46	41	MAN-P	38	NE	34	NWP	35	SCH	42	TSR	43
DOG	25	DWS	16	KPA	41	MAN-R	38	NEC	33	NWS	35	SEN	41	TST	44
DON	20	DWU	16	KPF	42	MAN-S	39	NEH	34	NZJ	37	SFL	18	TTE	45
DON-H	20	DZR	20	KPG	41	MAN-T	38	NEK	34	OEM	33	SMN	15	TTL	45
DOT	18	EPS	25	KPH	42	MAN-U	38	NEO	37	OME	20	SMO	15	TUR	17

### Brand Directory:

Tri-Clamp® is a registered trademark of Tri-Clover Inc. of the Alfa-Laval Group.  
 Trogamid® is a registered trademark of Evonik Resource Efficiency GmbH.  
 Hastelloy® is a registered trademark of Haynes International Inc.

Ryton® is a registered trademark of Chevron Phillips Chemical Company.  
 Monel® is a registered trademark of Special Metals Corporation.





# FLOW

## WE EXCEL IN FLOW SOLUTIONS

**KOBOLD** offers a wide variety of flowmeters, flow regulators, flow indicators, flow switches, flow monitors, and flow sensors. Our flow instrumentation line includes a wide variety of technologies such as: variable area, ultrasonic, mass flow, thermal dispersion, turbine, electromagnetic, vortex, oval gear, positive displacement, differential pressure, Coriolis, helical or screw gear, rotameter, rotary piston, baffle plate, calorimetric, paddle wheel, and multi-parameter meters. We also offer portable and clamp-on instrumentation for short term installations. There are also models for accommodating bi-directional measurement. **KOBOLD** has a wide variety of instrumentation that is compatible with common communication protocols, such as HART®, PROFIBUS®, Foundation Fieldbus®, and Modbus®.

**KOBOLD** is able to accommodate most common liquid application media, such as: oils, lubricants, water, wastewater, chemicals, corrosives, abrasives, coolant, paints, coatings, adhesives, sealants, and fuels. Our instrumentation can also handle most types of gaseous media, such as: steam, clean gas, dirty gas, ammonia gas, combustible gas, compressed air, natural gas, and nitrogen flow. **KOBOLD** flow instrumentation can be found providing dependable and lasting service in common application fields, such as: irrigation, oil and gas, automotive, power generation, general manufacturing, machining, cement/aggregates, chemicals, petrochemicals, test measurement, laboratories, research and development, aerospace, HVAC, water, wastewater, building automation, pulp and paper, metals, mining, surface treatment, semiconductors, pumping, agriculture, marine, aviation, boilers, brewing, refrigeration, turbines, utilities, and welding.



# MIM

## COMPACT MAGMETER



The new MIM magmeter delivers a revolutionary design for measuring and monitoring the flow and temperature of conductive liquids in pipes. The compact design offers exceptional features and functions, at an economical price.

Engineered to exceed the competition, the MIM triumphs with: a superior measuring accuracy, four times the turndown ratio, easy onsite programming, batching functionality, and bi-directional flow measurement.

The MIM is built to last, with a rugged stainless steel body. The multiparameter, touch screen display is both configurable and rotatable. The MIM is an ideal solution for a variety of applications; with ranges from 0.16...16 GPH to 0.4...90 GPM, temperatures up to 280 °F, and pressures up to 230 PSI.

IO-Link



Learn More on Page 24



Water/  
Wastewater



Metal  
Rolling



Flue Gas  
Scrubbing



Beer/Wine  
Making



Food  
Production



Chemical  
Injection



Pharma



Glass  
Production



Cement  
Mixing

Other potential application areas include: automotive production, cooling water, pulp and paper production, energy generation, and agriculture. The MIM offers a repeatability of  $\pm 0.2\%$  of full scale and an accuracy of  $< \pm(0.8\%$  of reading +  $0.5\%$  of full scale). The minimum media conductivity is  $\geq 20 \mu\text{S/cm}$ .

# MIS

**NEW**

**IO-Link**



## All-Metal Magnetic Inductive Flowmeter

The KOBOLD MIS is a unique full bore magmeter that combines cost efficiency and extensive features with quality. It offers technological advantages, reduced commissioning time, and competitive pricing.

Analog, frequency, and pulse outputs are standard along with alarm, batching, and totalizing features. The totalizer offers both a grand and resettable function. The MIS can accommodate all flow directions, due to the rotating digital TFT display screen. It is also equipped to measure bi-directional flow. The rugged cast steel flow bodies are available with a variety of linings, electrode materials, and fittings.

The MIS features a convenient IO-Link, especially useful for industry 4.0 compliance. It offers a flow rate of 3.3 to 33 feet per second, a maximum pressure of 230 PSI and a maximum temperature of 158 °F. Accuracy is held to a high standard, at  $< \pm (0.5\% \text{ reading} + 0.5\% \text{ of the full scale})$ .

### Application Examples:

- *Water Recovery*
- *Water Treatment*
- *Wastewater*
- *Storm Water Monitoring*
- *Water Distribution*
- *Effluent Monitoring*
- *Filtration Systems*
- *Water Hydrant Testing*
- *Machine Tools*
- *Industrial Applications*

[Learn More on Page 24](#)



# REGulation

- ✓ Flow Regulation
- ✓ No Power Needed
- ✓ Cost-efficient



## Superior Flow Regulation:

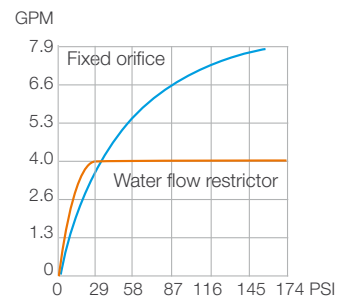
Unlike other models, our unique REG design does not use any rubber. Temperature, chemical influence, and aging affect the molecular structure of rubber and reduces its elasticity. Once the rubber is compromised the flow can no longer be regulated. Our all metal design provides reliable service. The REG excels in protecting pumps from water hammer, cavitation, and overheating from sudden lack of flow. They are also extremely useful in guaranteeing maintenance free and tamper proof allocation of flow for water circuits subject to uneven distribution.

## Features:

- Provides a Constant Flow Rate
- Lifelong Service Provides Significant Cost Savings
- Ideal for Batching, Distribution, and Restriction
- Protects Against Water Hammer, Overheating, and Overload
- Simple and Effective
- Flow is Limited, Regardless of Pressure Fluctuations
- High Quality Stainless Steel Build
- Completely Maintenance-free
- No Auxiliary Power Needed to Operate
- Secure from Tampering or Manipulation
- Uniform Supply for Multiple Consumers



## Differential Pressure Curve



Example of a flow rate of 4 GPM in relation to a fixed orifice



Watering



Cooling circuit



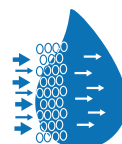
Humidification



Livestock



Heat exchange



Filtration



Batching



Eyewash



Building technology



# Viscous Media has Met its Match

## DON Oval Gear Flowmeter

The economical DON and DON-H oval gear, positive displacement flowmeters are the preferred choice for measuring clean, low and high viscosity liquids. They deliver precision measurement over a very wide range of viscosities, up to 1,000,000 cPs. Media properties have a minimal effect on the performance.

*Common Media: Oil, Grease, Paste, Petroleum, and Fuels*

The DON and DON-H flowmeters are built with stainless steel or aluminum bodies and are easy to install in small spaces. They can be used with vertical or horizontal flows and no flow profile conditioning is required. They are available with: a pulse output, an LCD display, 4-20 mA, alarms, and mechanical totalizers. Optional features include: cooling fins, check valves, and bi-directional flow sensing with an optional quadrature output.

Line sizes are available from 1/8" to 4", in both NPT and ANSI flange fittings. Flow ranges are from 0.13 to 9.5 GPH up to 40 to 660 GPM. Models are available for temperatures up to 300 degrees Fahrenheit and pressures up to 1,450 PSIG. Higher pressure models are also available up to 5,800 PSIG. The DON delivers excellent accuracy at 0.2% to 1% of the reading.

*Precision Machined Oval Gears*



DON and DON-H oval gear flowmeters contain two oval gear rotors that measure a constant volume per rotation. The rotation is detected via magnets embedded within the rotors that transmit a high resolution pulse output.

[Learn More on Page 20](#)



# TMU-W and HPC

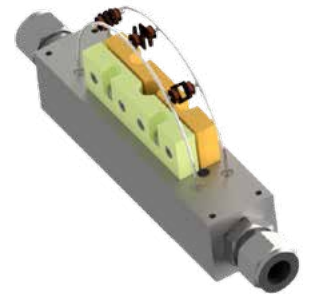
*New Innovations in Coriolis Flowmeters*



The new KOBOLD TMU-W was specially designed for hydrogen fueling dispensation units. The unique design provides the highest possible stability and unrivaled measuring accuracy. It is certified to international standard OIML R 139 2018 for hydrogen fueling stations, with an accuracy class of 1.5. The TMU-W is also suitable for other high pressure application areas for liquids or gases, such as: injection skids, fracking, or extrusion. It is pressure resistant to 1,000 bar and provides two 4-20 mA current output signals.



The HPC breaks the barriers of low-flow measurement for Coriolis flow meters. Most low-flow options employ a single tube design where external interference increases dramatically, requiring costly decoupling. Another challenge most low-flow options face is that the weight influence of the sensor coils compared to the pipe diameter limits the potential design size. The patented, revolutionary design of the HPC employs lightweight magnets that are mounted onto the pipes themselves. This provides the sensor with significantly noise-reduced and predictable dynamic behavior, capable of functioning at higher frequencies, further decoupling the sensor's measurement from any external vibrations. The HPC also integrates up to 4 sensor coils which increases the resolution accordingly. HPC sensor coils are mounted between the pipes, not on them. This new concept delivers an extremely small meter with exceptional accuracy and resistance to external interference. Using state of the art technology, KOBOLD is positioned to quickly overcome the barriers of challenging applications, delivering optimum customer-oriented solutions





# Flow - Variable Area

## KSR/SVN - FLOW SWITCH FOR WATER OR AIR



- Materials: Stainless Steel, Glass, FKM
- Micro-flow Switches
- Control for Very Small Flow Rates
- Proximity Switch or Reed Contact
- Vertical Connection for Inline Mounting
- Anodized Aluminum Housing

Water: 0.03...4 GPH  
 Air: 0.1...13 SCFH  
 $t_{max}$  160 °F;  $p_{max}$  230 PSIG  
 Connection: 1/4" NPT

## KSV - ECONOMICAL MICRO-FLOWMETER



- Polysulfone Body; Brass or SS Fittings
- Excellent Resistance to Acids and Alkalines
- Compact
- Easy to Read
- Easy Installation
- Convenient Panel Mount
- Highly Repeatable
- Optional Needle Valve

Water: 0.04...0.4 GPH to 2...20 GPH  
 Air: 0.3...3 SCFH to 10...100 SCFH  
 $t_{max}$  250 °F;  $p_{max}$  87 PSIG  
 Connection: 1/8" NPT  
 Accuracy:  $\pm$  6% of Full Scale

## KFR - ACRYLIC FLOWMETER FOR LIQUID OR GAS



- Material: Clear Acrylic
- Clear, Easy to Read Scales
- Compact Size, Low Cost
- Durable Construction
- Metric Scales Available
- Inherently Stable Float Design
- Bridges Micro-flow and Large Ranges
- With or Without Control Valves
- PVC or Metal Fittings for Durability

Water: 0.2...2 GPH to 2...20 GPM  
 Air: 0.1...1 SCFH to 10...100 SCFM  
 $t_{max}$  150 °F;  $p_{max}$  100 PSIG  
 Connection: 1/8" NPT, 1/4" NPT, 1" NPT  
 Accuracy:  $\pm$  2 - 5% of Full Scale

## KSK - ALL-PLASTIC FLOWMETER WITH OPTIONAL SWITCH



- Materials: Polyamide, Polysulfone
- Compact Design
- Polysulfone Version Highly Resistant to Acidic and Alkaline Solutions
- Transistor or Reed Switch Contacts
- Can be used to Monitor and Alarm for Flow Upset Conditions
- LED Switching Indication Available
- Vertical, Flow Up Orientation

Water: 0.006...0.05 GPM to 0.44...4.4 GPM  
 Air: 0.06...0.27 SCFM to 3.5...18.3 SCFM  
 $t_{max}$  140 °F;  $p_{max}$  145 PSIG  
 Connection: 3/8"...1" NPT or Socket Glue-in Connection  
 Accuracy: Cl. 4 According to VDI

## KSM - ALL-PLASTIC FLOWMETER WITH OPTIONAL SWITCH



- Materials: Polyamide, Polysulfone
- For Liquid or Gas
- Direct Reading Scales for Water or Air
- Excellent Choice for Aggressive Media
- Large, Easy to Read Scale
- Shock and Corrosion Resistant
- Two Adjustable Markers
- Optional Reed Switch Contact

Water: 0.06...0.66 GPM to 35...264 GPM  
 Air: 0.5...3 SCFM to 50...400 SCFM  
 $t_{max}$  140 °F;  $p_{max}$  145 PSIG  
 Connection: 1"...2-1/2" NPT or Socket Glue-in Connection  
 Accuracy: Cl. 4 According to VDI

## URB - GLASS TUBE FLOWMETER



- Material: PVC
- Operates on the Suspended Float Principle
- Vertical Installation Position
- Flow from Bottom to Top
- Simple, Economical Solution

Water: 2.6...26 GPH to 26...260 GPH  
 Air: 11...110 SCFH to 110...1,100 SCFH  
 $t_{max}$  150 °F;  $p_{max}$  43 PSIG  
 Connection: 1/2"...1-1/4" NPT  
 Accuracy:  $\pm$  2 - 2.5%,  $q_G = 50\%$

## KDF-2/KDG-2 - MICRO-FLOWMETER AND SWITCH



- Materials: Stainless Steel, Glass, FKM
- Integral Flow Control Valve
- Easy to Read Scale
- Compact Design
- Direct Reading Scales for Water or Air
- Low Flow Switching
- Precision Metering Valve
- Optional Panel Mount Kit
- Optional Adjustable Inductive Proximity Switches (NAMUR Relay Required)

Water: 0.025...2.5 l/h to 16...160 l/h  
 Air: 0.5...5 NI/h to 500...5,000 NI/h  
 $t_{max}$  100 °C;  $p_{max}$  16 bar  
 Connection: 1/4" NPT, G 1/4, 8 mm Hose  
 Accuracy:  $\pm$  2.5%  $q_G = 50\%$

## KDF-9/KDG-9 - MICRO-FLOWMETER AND SWITCH



- Materials: Stainless Steel, Glass, FKM
- Integral Flow Control Valve
- Easy to Read Scale
- Compact Design
- Direct Reading Scales for Water or Air
- Low Flow Switching
- Precision Metering Valve
- Optional Panel Mount Kit
- Optional Adjustable Inductive Proximity Switches (NAMUR Relay Required)

Water: 0.02...0.25 l/h to 10...100 l/h  
 Air: 2...20 NI/h to 300...3000 NI/h  
 $t_{max}$  100 °C;  $p_{max}$  16 bar  
 Connection: 1/4" NPT, G 1/4, 8 mm Hose  
 Accuracy:  $\pm$  3%  $q_G = 50\%$





## SWK - COMPACT VARIABLE AREA FLOWMETER AND SWITCHES



- Materials: Brass, Stainless Steel, PVC
- Compact Size
- Low Cost
- High Reliability
- Universal Mounting
- Adjustable Switch or Switch with Indicator
- Operates by the Suspended Float Principle

Water: 0.05...0.1 L/min to 13...24 L/min  
 $t_{max}$  210 °F;  $p_{max}$  3,600 PSIG  
 Connection: G 1/2  
 Accuracy:  $\pm$  4% of Full Scale

## URM - GLASS TUBE FLOWMETER



- Material: Stainless Steel
- Measures Flow Rates in Closed Pipe Systems
- Designed for Low Operating Pressures
- Large Sight Glass for Direct Observation
- Optional Proximity Switches
- Common Applications: Cooling Circuits, Plant Engineering, Water Treatment, Machine Tools, Solar Heating, Welding, Glass Melting Pots, Extrusion Machines, and Induction Furnaces

Water: 0.06...0.6 GPH to 11...110 GPM  
 Air: 0.11...1.1 SCFH to 30...300 SCFM  
 $t_{max}$  210 °F;  $p_{max}$  230 PSI  
 Connection: 1/4"...3" NPT  
 Accuracy:  $\pm$  2 - 2.5%,  $q_c$  = 50%

## URK - VARIABLE AREA FLOWMETER WITH FIXED FLANGE



- Material: Cast Iron, Stainless Steel
- Measures Flow Rates in Closed Pipe Systems
- Designed for Low Operating Pressures
- Large Sight Glass for Direct Observation
- Optional Proximity Switches
- Common Applications: Cooling Circuits, Plant Engineering, Water Treatment, Machine Tools, Solar Heating, Welding, Glass Melting Pots, Extrusion Machines, and Induction Furnaces

Water: 0.004...0.04 GPM to 66...220 GPM  
 Air: 0.011...0.11 SCFM to 30...300 SCFM  
 $t_{max}$  210 °F;  $p_{max}$  230 PSIG  
 Connection: 1/2"...3" ANSI  
 Accuracy:  $\pm$  2 - 2.5%,  $q_c$  = 50%

## URL - GLASS TUBE FLOWMETER WITH FLANGE



- Materials: PVC, PTFE
- Plastic Version is Chemically Resistant
- Designed for Low Operating Pressures
- Large Sight Glass for Direct Observation
- Optional Proximity Switches
- Common Applications: Cooling Circuits, Plant Engineering, Water Treatment, Machine Tools, Solar Heating, Welding, Glass Melting Pots, Extrusion Machines, and Induction Furnaces

Water: 0.26...2.6 GPH to 66...660 GPH  
 Air: 0.35...3.5 SCFH to 350...3,500 SCFH  
 $t_{max}$  212 °F;  $p_{max}$  145 PSIG  
 Connection: 1/2"...1-1/2" ANSI  
 Accuracy:  $\pm$  2 - 2.5%,  $q_c$  = 50%

## V31 - HIGH ACCURACY VARIABLE AREA FLOWMETER/SWITCH



- Materials: Stainless Steel, PVC, PVDF, PTFE
- For Liquids or Gas
- Scale Shows Flow Rate as Volume
- Borosilicate Glass Tube
- Up to 2 Optional Limit Switches
- Calibrated for Density and Viscosity

Water: 0.3...3.3 GPH to 4.4...44 GPM  
 Air: 0.088...0.88 SCFM to 10.6...106 SCFM  
 $t_{max}$  176 °F;  $p_{max}$  210 PSIG  
 Connection: 1/4"...2" NPT, 1/2"...1" ANSI  
 Accuracy:  $\pm$  1.6% Liquids,  $\pm$  2.5% Gases (VDI)



## KDS - ALL METAL, LOW VOLUME VARIABLE AREA FLOWMETER



- All-Metal Design in Stainless Steel
- For Liquids or Gases
- For Measurement of Low Flow Rates
- Compact Size
- Rugged Mechanical System with a Low Rate of Wear
- Horizontal or Vertical Connections
- Special Versions for High Pressures

Water: 0.026...0.26 GPH to 5...50 GPH  
 Air: 0.1...1 SCFH to 20...200 SCFH  
 $t_{max}$  260 °F;  $p_{max}$  580/910 PSIG  
 Connection: 1/4" NPT  
 Accuracy:  $\pm$  3% of Full Scale  
 Options: Analog Output, Inductive Contacts



## BGK - ALL METAL, LOW VOLUME VARIABLE AREA FLOWMETER



- Material: Stainless Steel
- Measures Low Flow Rates
- For Liquids or Gases
- Compact Size
- Provides Flow Rate in Volume or Mass per Unit of Time
- Rugged Mechanical System
- Low Rate of Wear

Water: 0.026...0.26 GPH to 5...50 GPM  
 Air: 0.1...1 SCFH to 20...200 SCFH  
 $t_{max}$  260 °F;  $p_{max}$  580 PSIG  
 Connection: 1/2"...1" ANSI  
 Accuracy:  $\pm$  3% of Full Scale  
 Options: Analog Output, Inductive Contacts



## USR - GLASS TUBE FLOWMETERS WITH MANIFOLD VALVES



- Material: Brass, PTFE, SS, FKM
- For Water and Water-based Liquids
- For Centralized Flow Measurement, Such as Cooling Systems
- Up to 24 Flowmeters Pre-assembled in a Block
- Glass Tube Allows for Direct Flow Observation
- Independent Control Valves

Water: 0.01...0.1 GPM to 0.25...2.5 GPM  
 $t_{max}$  210 °F;  $p_{max}$  230 PSIG  
 Inlet Connection: 1" NPT  
 Outlet Connection: 1/4" or 3/8" NPT, or Hose Conn.  
 Accuracy:  $\pm$  2 - 2.5%,  $q_c$  = 50%



# Flow - Variable Area

## UVR/UTR - GLASS TUBE VARIABLE AREA FLOWMETER



- Materials: Stainless Steel, POM
- For Liquids or Air
- Simple, Economical
- With or Without Needle Valve
- Low Pressure Loss
- Glass Tube Allows for Direct Observation
- Common Applications: Cooling Water, Gas Monitoring for Burners, Inert Gas Cooling

Water: 2.6...26 GPH to 52.8...528 GPH  
 Air: 3.5...35 SCFH to 176...1,760 SCFH  
 $t_{max}$  210 °F;  $p_{max}$  145 PSI  
 Connection: 3/8" NPT, 1/2" NPT  
 Accuracy:  $\pm 2 - 2.5\%$ ,  $q_G = 50\%$

## UMR/UXR/URA - VARIABLE AREA FLOWMETER



- Materials: Stainless Steel, POM
- For Liquids or Air
- Simple, Economical
- With or Without Needle Valve
- Low Pressure Loss
- Glass Tube Allows for Direct Observation
- Table-Top Mount Models Available

Water: 1...10 LPH to 13...130 LPH  
 Air: 0.01...0.1 Nm<sup>3</sup>/h to 0.25...2.5 Nm<sup>3</sup>/h  
 $t_{max}$  100 °C;  $p_{max}$  16 bar  
 Connection: 1/4" NPT  
 Accuracy: Cl. 4 Acc. to VDI/VDE

## UTS - VARIABLE AREA FLOWMETER FOR GAS BURNERS



- Materials: Brass, Stainless Steel
- Ideal for Small Installation Spaces
- Easy to Change Measuring Tube
- Impact Resistant Polystyrene Protective Cover
- Vertical Installation Position, Flow From Bottom
- Protection: IP65

Air: 0.35...3.5 SCFH to 10.6...105 SCFH  
 $t_{max}$  150 °F;  $p_{max}$  45 PSIG  
 Connection: 1/4" NPT, G 1/4, M18x1.5  
 Accuracy: 4 Acc. VDI/VDE

## BGN - ALL METAL, ARMORED VARIABLE AREA FLOWMETER



- Materials: SS, Special Materials on Request
- For Vertical Up Installations
- Ideal for Difficult Applications Requiring High Pressure or Temperature, or Low Pressure Loss
- Direct Reading Scales Calibrated for Viscosity, Density, Pressure, and Temperature
- Analog Output, HART®, Profibus-PA® Available
- 316 SS, PTFE-lined SS, Hastelloy® C-22 Tubes

Water: 0.002...0.02 GPM to 60...570 GPM  
 Air: 0.008...0.08 SCFM to 140...1,400 SCFM  
 $t_{max}$  660 °F;  $p_{max}$  580 PSIG  
 Connection: 1/2"...6" ANSI, 1/4"...2" NPT  
 Options: Analog Output 4-20 mA, Contacts  
 Accuracy:  $\pm 1.6 - 2.2\%$  of Full Scale

## BGN - HIGH PRESSURE ARMORED FLOWMETER



- Materials: SS, Special Materials on Request
- For Vertical Up Installations
- Ideal for Difficult Applications Requiring High Pressure or Temperature, or Low Pressure Loss
- Direct Reading Scales Calibrated for Viscosity, Density, Pressure, and Temperature
- Analog Output, HART®, Profibus-PA® Available
- 316 SS, PTFE-lined SS, Hastelloy® C-22 Tubes

Water: 0.002...0.02 GPM to 60...570 GPM  
 Air: 0.008...0.08 SCFM to 140...1,400 SCFM  
 $t_{max}$  660 °F;  $p_{max}$  8,700 PSIG  
 Connection: 1/2"...6" ANSI  
 Options: Analog Output, BUS-Interface  
 Accuracy:  $\pm 1.6 - 2.2\%$  of Full Scale

## BGF - ALL METAL, ARMORED FLOWMETER



- Materials: SS, Special Materials on Request
- For Horizontal or Vertical Installations
- Unique Guided Float with Spring Return
- Ideal for Difficult Applications Requiring High Pressure or Temperature, or Low Pressure Loss
- Direct Reading Scales Calibrated for Viscosity, Density, Pressure, and Temperature
- Analog Output, HART®, Profibus-PA® Available

Water: 0.044...0.44 GPM to 26.4...264 GPM  
 Air: 0.17...1.7 SCFM to 100...1000 SCFM  
 $t_{max}$  390 °F;  $p_{max}$  580  
 Connection: 1/2"...3" ANSI, 1/4"...2" NPT  
 Options: Analog Output, BUS-Interface  
 Accuracy:  $\pm 1.6\%$  of Full Scale

## SV/DSV - FLOAT TYPE FLOWMETER AND SWITCH



- Materials: Brass, Stainless Steel
- Small, Compact Design
- Direct Reading Scales for Water or Air
- Wide Selection of Measuring Ranges
- Vertical Connections for Easy Installation
- Cylindrical Control Tube for Float
- Borosilicate Glass Measuring Tube
- N/O or SPDT Reed Contacts as Options
- Variety of Sealing Materials Available

Water: 0.075...0.35 GPM to 2.5...40 GPM  
 Air: 0.25...1.25 SCFM to 10...150 SCFM  
 $t_{max}$  210 °F;  $p_{max}$  145 PSIG  
 Connection: 1/4"...1-1/4" NPT  
 Accuracy:  $\pm 5\%$  of Full Scale

## BVO - OEM FLOWMETER WITH SWITCH



- Materials: Brass, Stainless Steel
- Rugged Low Cost Design
- Repeatability of  $\pm 2\%$  of Full Scale
- Adjustable SPST Switch Standard

Water: 0.1...1.0 GPM to 1...13 GPM  
 $t_{max}$  210 °F;  $p_{max}$  145 PSIG  
 Connection: 1/4"...1" NPT  
 Accuracy:  $\pm 10\%$  of Full Scale



## S/DSS-SERIES - ALL METAL VARIABLE AREA FLOW SWITCH



- Materials: Brass, Stainless Steel
- For Liquids or Gas
- Compact Design
- Cost Effective
- Reliable Operation
- Vertical Connections for Easy Installation
- Excellent at Ensuring Appropriate Flow
- NBR or FKM Seals
- Up to 4 Switch Points

Water: 0.075...0.25 GPM to 1...14 GPM  
 Air: 0.2...1.1 SCFM to 3...70 SCFM  
 $t_{max}$  240 °F;  $p_{max}$  5,000 PSIG  
 Connection: 1/4"...3/4" NPT  
 Accuracy:  $\pm$  5% of Full Scale



## SMV - HIGH PRESSURE, ALL METAL FLOWMETER AND SWITCH



- Materials: Brass, Stainless Steel
- Direct Reading Scales for Water or Air
- Small, Compact Design
- Easy to Install
- Optional Set-point Switches
- Switches Mounted in a Protective Housing
- High Resistance to Pressure and Shock
- Can Handle 120% of Max. Flow

Water: 0.05...0.15 GPM to 4...40 GPM  
 Air: 0.25...1.2 SCFM to 5...130 SCFM  
 $t_{max}$  210 °F;  $p_{max}$  5,000 PSIG  
 Connection: 1/4"...1-1/4" NPT  
 Accuracy:  $\pm$  5% of Full Scale



## SMO/SMW - HIGH PRESSURE FLOWMETER/SWITCH



- Materials: Brass, Stainless Steel
- Direct Reading Scales for Water or Air
- Small, Compact Design
- Easy to Install
- Vertical or Horizontal Flows
- Optional Set-point Switches
- Switches Mounted in a Protective Housing
- High Resistance to Pressure and Shock
- Can Handle 120% of Max. Flow

Water: 0.04...0.6 GPM to 8...34 GPM  
 Air: 0.2...3.5 SCFM to 30...130 SCFM  
 $t_{max}$  210 °F;  $p_{max}$  5,000 PSIG  
 Connection: 1/4"...3/4" NPT  
 Accuracy:  $\pm$  5% of Full Scale

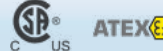


## SMN - ALL METAL FLOW SWITCH FOR LIQUIDS



- Materials: Brass, Stainless Steel
- Horizontal or Vertical Flow
- Low Switch Point
- Low Pressure Drop at High Flows
- All Metal Wetted Parts
- N/O or SPDT Reed Switch
- Typical Applications: Control of Water and Cooling Circuits, High Pressure Cleaning Devices, and Heating Systems

Water: 0.4...13 GPM  
 $t_{max}$  210 °F;  $p_{max}$  5,000 PSIG  
 Connection: 1" NPT  
 Accuracy:  $\pm$  5% of Full Scale



## VKP - ECONOMICAL PLASTIC FLOWMETER AND SWITCH



- Material: Polysulfone
- Compact Size
- Inexpensive Flow Measurement for Liquids
- Common Uses: Cooling Water, Lubrication Systems, Solar Heating
- Ideal Choice for OEM Applications
- Optional Reed Contacts
- Optional Union Fittings

Water: 0.5...5 GPM to 5...26 GPM  
 Oil: 0.5...4.5 GPM to 3...20 GPM  
 $t_{max}$  250 °F;  $p_{max}$  230 PSIG  
 Connection: 1/2", 3/4", 1" NPT,  
 Glue Connection Available  
 Accuracy:  $\pm$  5% of Full Scale

## VKG - VISCOSITY COMPENSATED FLOWMETER AND SWITCH



- Materials: Brass, Stainless Steel, NBR, FKM
- For High or Low Viscosity Media
- Largely Insensitive to Viscosity and Density Changes During Operation
- Viscosity Compensated up to 540 cSt
- Density Compensated up to 30 lb/ft<sup>3</sup>
- Direct Reading Oil Scale
- Mounting Position Independent
- In-line Connections for Easy Installation
- Extremely Versatile

Viscosity Range: 1...540 cSt  
 Oil: 0.03...0.12 GPM to 2...21 GPM  
 $t_{max}$  210 °F;  $p_{max}$  175 PSIG  
 Connection: 1/4"...1" NPT  
 Accuracy:  $\pm$  5% of Full Scale

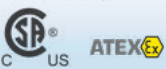


## VKM - ALL METAL, VISCOSITY COMPENSATED FLOWMETER



- Materials: Brass, Stainless Steel
- Direct Reading Scales
- Suitable for Oils and Compatible Liquids
- Install in any Position
- In-line Connections
- Viscosity Compensated up to 540 cSt
- Density Compensated up to 30 lb/ft<sup>3</sup>
- Optional: Reed Contacts, Analog Output, Compact Electronics

Viscosity Range: 1...540 cSt  
 Oil: 0.03...0.12 GPM to 2...20 GPM  
 $t_{max}$  210 °F;  $p_{max}$  5,000 PSIG  
 Connection: 1/4"...1" NPT  
 Accuracy:  $\pm$  5% of Full Scale



## VKA - OEM VISCOSITY COMPENSATED FLOWMETER



- Material: Brass
- Reliable Construction
- Affordable Pricing
- Viable Alternative to our VKG and VKM Flowmeters
- Optional Switches
- Protection: IP54 for Side Indication, IP65 Electrical Switch

Viscosity Range: 30...540 cSt  
 Oil: 2...6.3 GPM to 8...26 GPM  
 $t_{max}$  210 °F;  $p_{max}$  3,600 PSIG  
 Connection: 1/2", 3/4" NPT  
 Accuracy:  $\pm$  4% of Full Scale





# Flow - Variable Area/Paddle

## BVB - MANIFOLD VALVES FOR MULTIPLE INSTALLATIONS



- Material: Aluminum
- For Use with VKG and VKM Flowmeters
- Join up to 8 Flowmeters
- Compact Solution for Centralized Flow Measurement and Distribution
- Easy to Install
- Total Throughput up to 6.3 GPM

Suitable for Models VKG, VKM  
 $t_{max}$  210 °F;  $p_{max}$  930 PSIG  
 Connection: 1/2" NPT



## PSR - INLINE PADDLE FLOW SWITCH

TOP SELLER



- Materials: Brass, Stainless Steel
- Low Cost
- Easy to Install
- Simple, Reliable Design
- Adjustable Switch Point
- Contacts can be set N/O or N/C
- Standard SPST Switch
- Optional SPDT Switch

Switching Ranges for Water:  
 0.9...1.3 GPM to 9.2...15 GPM  
 $t_{max}$  230 °F;  $p_{max}$  1,450 PSIG  
 Connection: 1/4"...1-1/2" NPT



## PS/PSE - INSERTION PADDLE FLOW SWITCH



- Materials: Brass, Stainless Steel
- Low Cost
- Easy to Install
- Simple, Reliable Design
- Adjustable Switch Point
- Contacts can be set N/O or N/C
- Standard SPST Switch
- Optional SPDT Switch

Switching Ranges for Water:  
 16...22 GPM to 101...141 GPM  
 $t_{max}$  230 °F;  $p_{max}$  1,450 PSIG  
 Connection: 1/2" NPT



## PPS - PLASTIC PADDLE FLOW SWITCH



- Material: Polysulfone
- Reliability at a Competitive Price
- Easy to Install
- Bi-directional
- Low Maintenance
- Low Pressure Drop
- For Pipes 1" and Larger
- Switch Status Visible through Housing
- N/O, N/C, or SPDT Contacts
- Requires Straight Run of 3x Pipe Diameter

Water: 5...9.5 GPM to 19... 28.5 GPM  
 $t_{max}$  225 °F;  $p_{max}$  145 PSIG  
 Connection: 1" NPT  
 Repeatability:  $\pm$  3% of Switchpoint

## FPS - INSERTION PADDLE SWITCH FOR LIQUIDS



- Material: Brass, Stainless Steel
- Suitable for Water and Compatible Low-viscosity Liquids
- Used for Min/Max Flow Control, Pump Protection, and Monitoring Cooling Circuits
- High Capacity SPDT Mechanical Switch
- Position Independent Installation
- Externally Adjustable Switch Point
- Tolerates Dirty Media

Water: 0.9...4.4 GPM to 375...760 GPM  
 $t_{max}$  250 °F;  $p_{max}$  435 PSIG  
 Connection: 1" NPT

## LSP - AIR FLOW SWITCH FOR HVAC DUCTS



- Material: Galvanized Steel, Brass, SS
- For Horizontal Square/Rectangular HVAC Ducts
- Dust-tight SPDT Micro-switch
- Adjustable Switch Point
- ABS and Polycarbonate Housing
- Common Uses: Air Ducts, Exhaust Gas Channels, Pneumatic Conveyors, Filters, Cooling and Drying Plants, Monitoring Ventilator Performance

Air: 195...1575 FPM  
 $t_{max}$  185 °F;  $p_{max}$  Atmospheric  
 Connection: Flange

## DWN/DWS/DPU - PADDLE BELLOWS FLOW SWITCH



- Materials: Brass, Stainless Steel
- Ideal for Use in Applications where Dirt and Solid Grain Contaminants are a Concern
- Large Internal Clearances
- Orientation Independent
- High Current Switching Capability
- Insensitive to Magnetic Fields

Liquid: 0.26...1.3 GPM to 4,950...19,800 GPM  
 $t_{max}$  210 °F;  $p_{max}$  230 PSIG  
 Connection: 1/2"...2" NPT, 1/2"...2" ANSI,  
 Weld-on Flange for 1-1/2"...24" Pipe  
 Accuracy:  $\pm$  3 - 5% of Full Scale



## DWU/DPU - PADDLE BELLOWS FLOWMETER AND SWITCH



- Materials: Brass, Stainless Steel
- Ideal for Use in Applications where Dirt and Solid Grain Contaminants are a Concern
- Large Internal Clearances
- Orientation Independent
- High Current Switching Capability
- Insensitive to Magnetic Fields

Liquid: 0.26...1.3 GPM to 4,950...19,800 GPM  
 $t_{max}$  210 °F;  $p_{max}$  230 PSIG  
 Connection: 3/8"...2" NPT, 1/2"...2" ANSI,  
 Weld-on Flange for 1-1/2"...24" Pipe  
 Accuracy:  $\pm$  3 - 5% of Full Scale





## DPT - TARGET TYPE FLOWMETER



- Materials: Brass, Stainless Steel
- Unique, Patented Target System
- Simple, Reliable Design
- Virtually No Wear Components
- Low Pressure Loss
- Generally Immune to Problems Caused by Liquids with a High Solids Content
- Flow Rate Display, Adjustable Setpoint Switches, or an Analog Flow Signal

Water: 1.5...8 GPM to 225...500 GPM  
 $t_{max}$  175 °F;  $p_{max}$  580 PSIG  
 Connection: 3/8" ...3" NPT  
 Accuracy:  $\pm$  3% of Full Scale

## DWD - PADDLE BELLOWS FLOWMETER AND SWITCH



- Materials: Brass, Stainless Steel, PVC
- Very Low Pressure Loss
- Linear Output Signal
- Resistant to Dirt and Small Debris in the Media
- Universal Mounting
- Factory Configured According to Customer Specifications
- Optional RS-232C Serial Interface

Water: 0.26...2.6 GPM to 1,580...15,800 GPM  
 $t_{max}$  250 °F;  $p_{max}$  360 PSIG  
 Connection: 3/8" ...2" NPT, 3/8" ...2" ANSI,  
 Weld-on Flange 1-1/2" ...20" Pipe  
 Accuracy:  $\pm$  1.5% of Full Scale

## TSK - FLAP STYLE FLOWMETER



- Materials: SS, PTFE, Hastelloy®
- Unique Design for Low Head Loss
- For Horizontal or Vertical Piping Runs
- Tolerates Dirty Liquids and Suspended Solids
- Superior Damping System for Stability
- Calibrations for Density Available
- Optional Set-point Switches, 4-20 mA with HART® or Profibus-PA®

Water: 6.6...26.4 GPM to 880...6,600 GPM  
 $t_{max}$  570 °F;  $p_{max}$  580 PSIG  
 Connection: 1-1/2" ...20" ANSI Wafer  
 Accuracy:  $\pm$  2.5% of Full Scale



## HND-F - HAND-HELD MEASURING UNIT



- Measures Flow, Humidity, and Temperature
- Large Selection of Electrodes and Accessories
- Serial Interface, MIN/MAX Memory
- Hold Function, Clock, Log Function
- User-Friendly
- Common Applications: Air Conditioning, Exhaust Ventilation Systems, and General Humidity Measurement

Water: 0.16...16 ft/sec  
 Air: 1.8...65 ft/sec  
 Humidity: 0...100% rH  
 Temperature: -40...250 °F, -110...480 °F  
 Accuracy: from  $\pm$  0.1% of Full Scale

## DRS - OEM TURBINE FLOW SENSOR



- Materials: Brass, Stainless Steel, PPO
- Quality Solution at an Economical Price
- Ideal for OEM Applications
- For Clear or Opaque Liquids
- Pulse Frequency, 4-20 mA, Digital Display, Electronic Pointer Indicator
- Optional PT-100 RTD Output for Temperature Measurement

Water: 0.6...10.5 GPM  
 $t_{max}$  300 °F;  $p_{max}$  2,900 PSIG  
 Connection: 1/2" NPT, 3/4" NPT  
 Accuracy:  $\pm$  1.5% of Full Scale

## TUR - ALL-PLASTIC TURBINE FLOWMETER



- Materials: PVC, PVDF
- For Water-like Liquids with Viscosities under 8 cSt
- High Resistance to Acids, Lyes, and Other Aggressive Media
- Installation in Any Orientation
- Pulse Outputs, Analog Outputs, Digital Totalizers and Batchers

Water: 5...88 GPM to 11...440 GPM  
 $t_{max}$  160 °F;  $p_{max}$  145 PSIG  
 Connection: 2" or 4" ANSI  
 Accuracy:  $\pm$  1% of Full Scale

## DPE - PADDLE WHEEL FLOWMETER



- Materials: Brass, Stainless Steel
- Unique Insertion Impeller Design
- Low Pressure Loss
- Outputs: Pulse Frequency, 4-20 mA Analog, Digital Display, and Switches
- Tolerates Dirty Liquids and Solids
- Common Uses: Cooling Water, Mechanical Engineering, Waste Water Treatment, and Chemical Industry

Water: 1.5...8 GPM to 15...200 GPM  
 $t_{max}$  175 °F;  $p_{max}$  580 PSIG  
 Connection: 1/2" ...3" NPT  
 Accuracy:  $\pm$  2.5% of Full Scale

## DRB - PADDLE WHEEL FLOWMETER



- Materials: Brass, Stainless Steel
- Unique Insertion Impeller Design
- Low Pressure Loss
- Outputs: Pulse Frequency, 4-20 mA Analog, Digital Display, and Switches
- Tolerates Dirty Liquids and Solids
- Common Uses: Cooling Water, Mechanical Engineering, Waste Water Treatment, and Chemical Industry

Water: 1.5...8 GPM to 15...200 GPM  
 $t_{max}$  175 °F;  $p_{max}$  230 PSIG  
 Connection: 1/2" ...3" NPT  
 Accuracy:  $\pm$  3.0% of Full Scale



# Flow - Rotating Vane

## TUV - TURBINE FLOWMETER



- Material: Stainless Steel
- For Low Viscosity Liquids
- Media Examples: Fuel, Liquefied Gas, Solvents, Light Heating Oil, Tap and Demineralized Water
- Pulse Output
- Viscosity Range: 1...30 mm<sup>2</sup>/s
- Calibrated by Factory for Viscosity

Water: 0.3...1.5 l/min to 35...400 l/min  
 $t_{max}$  350 °C;  $p_{max}$  640 bar  
 Connection: G 1/4...1-1/2  
 Linearity:  $\pm$  1% of Reading



## SFL - HIGH PRECISION TURBINE FLOW SENSOR



- Materials: PVDF, Stainless Steel
- For Clean, Transparent Media
- Infrared Sensing
- Bearingless Design for Long Life
- Universal Mounting Position
- Linear, Square Wave Pulse Output
- Very High Turndown Over Entire Range
- Compact Size

Water: 0.5...20 l/min  
 $t_{max}$  90 °C;  $p_{max}$  250 bar  
 Connection: G 3/8  
 Accuracy:  $\pm$  1% of Full Scale

## DOT - TURBINE FLOWMETER



- Material: Stainless Steel
- For Low Viscosity Liquids
- Rugged and Reliable Turbine Meter
- Tungsten Carbide Bearings
- Long Service Life
- Low Pressure Drop
- Pulse and 4-20 mA Signal Outputs
- Optional LCD Display for Batching, Totalizing

Water: 0.5...5 GPM to 240...2,400 GPM  
 $t_{max}$  250 °F;  $p_{max}$  3,600 PSIG  
 Connection: 1/2"...2" NPT, 1/2"...6" ANSI, (Larger Sizes upon Request)  
 Accuracy:  $\pm$  0.5% of Full Scale



## PEL - LOW VOLUME TURBINE FLOWMETER



- Materials: Stainless Steel, Aluminum
- Pelton Wheel Principle
- For Liquids
- High Reliability
- Long Service Life
- Pulse Output
- Media Examples: Fuel, Distilled Water, Hot Grease

Water: 0.004...0.06 l/min to 0.1...28 l/min  
 $t_{max}$  135 °C;  $p_{max}$  345 bar  
 Connection: R 1/4...R 1/2, Wafer Flange DN 40/50, 1/2" Glue-in Connection, Hose-Connection  
 Accuracy:  $\pm$  2% of Full Scale

## DPM - PELTON WHEEL FLOW SENSOR



- Material: Brass, Stainless Steel
- For Water-based, Low Viscosity, Optically Transparent Liquids
- For Low Flow Rates
- Compact Design
- No Straight Piping Requirements
- Mount in any Orientation with Axle Remaining in the Horizontal Plane
- Long-life Sapphire Axle and Bearings
- Outputs: Pulse Frequency, 4-20 mA Analog, Transistor Switch Signal

Water: 0.24...4.8 GPH to 0.8...80 GPH  
 $t_{max}$  175 °F;  $p_{max}$  230 PSIG  
 Connection: 1/8" NPT, 1/4" NPT  
 Accuracy:  $\pm$  1 - 2.5% of Full Scale

## DPL - ALL PLASTIC LOW FLOW PADDLE WHEEL SENSOR



- Material: Polypropylene
- Precision Water Flow Transmitter
- Accuracy at a Low Cost
- Compact Design
- Resistant to Aggressive Media
- Sapphire Bearings
- Standard Pulse Frequency Output
- Optional Analog Output and/or Digital Indication

Water: 0.4...8 GPH to 16...400 GPH  
 $t_{max}$  160 °F;  $p_{max}$  145 PSIG  
 Connection: G 1/2, Hose Barb  
 Accuracy:  $\pm$  2.5% - 5% of Full Scale

## KFF/KFG-1 - LOW VOLUME, ROTATING VANE FLOWMETER



- Material: Brass, PTFE, PPS
- Can Measure Very Low Flow Rates
- Models for Liquid or Gas
- For a Wide Variety of Industrial, Commercial, or Laboratory Applications
- Pulse or 0-5 V<sub>DC</sub> Output
- Highly Repeatable
- 12.5 V<sub>DC</sub> or 24 V<sub>DC</sub> Input Power
- Local LCD Display for 3000 Series

Water: 13...100 mL/min to 1...10 L/min  
 Air: 20...100 mL<sub>N</sub>/min to 100...500 L<sub>N</sub>/min  
 $t_{max}$  120 °F;  $p_{max}$  500 PSIG  
 Connection: 1/8"...1/2" Compression  
 Accuracy:  $\pm$  3% of Full Scale

## KFF/KFG-3 - LOW VOLUME, ROTATING VANE FLOWMETER



- Materials: Brass, PPS
- Can Measure Very Low Flow Rates
- Models for Liquid or Gas
- For a Wide Variety of Industrial, Commercial, or Laboratory Applications
- Pulse or 0-5 V<sub>DC</sub> Output
- Highly Repeatable
- 12.5 V<sub>DC</sub> or V<sub>DC</sub> Input Power
- Local LCD Display for 3000 Series

Water: 13...100 mL/min to 1...10 L/min  
 Air: 20...100 mL<sub>N</sub>/min to 100...500 L<sub>N</sub>/min  
 $t_{max}$  120 °F;  $p_{max}$  500 PSIG  
 Connection: 1/8"...1/2" Compression  
 Accuracy:  $\pm$  3% of Full Scale



## DF - PADDLE WHEEL FLOWMETERS/TOTALIZERS/TRANSMITTERS



- Materials: Polysulfone, Brass, SS
- Available with Switches
- Easy to Install
- Rugged and Reliable
- No Straight Run Required
- Multiple Material Combinations
- NPN Frequency Output or Analog Output
- Compatible with Water-based, Low Viscosity Liquids and Aggressive Water-based Chemicals

Water: 0.02...0.14 GPM to 1.5...36 GPM  
 $t_{max}$  180 °F;  $p_{max}$  1,450 PSIG  
 Connection: 1/8" ... 1-1/2" NPT  
 Accuracy:  $\pm$  2.5% of Full Scale

## DFT - COMPACT PADDLE WHEEL FLOW SENSOR



- Material: Brass or PTFE
- Compact, Economical Design
- No Straight Run Requirements
- Standard Frequency Output
- Two Different Material Combinations
- Optional Analog and Controller Outputs, LCD Displays, Analog Flow Transmitters, Programmable Relays, Totalizers or Batch Controllers

Water: 0.05...0.5 GPM to 0.8...15 GPM  
 $t_{max}$  180 °F;  $p_{max}$  230 PSIG  
 Connection: 1/4" ... 3/4" NPT  
 Accuracy:  $\pm$  2.5% of Full Scale

## DRH - PADDLE WHEEL FLOW SENSOR



- Materials: POM, PVDF, Brass, SS
- Economical Pricing
- Industrial or OEM Applications
- For a Wide Range of Water-like, Low-viscosity Liquids or Aggressive Chemicals
- Seven Material Combinations
- Frequency, 4-20 mA Analog, Transistor Switches, Digital/Analog Display

Water: 0.05...0.2 GPM to 0.66...13.2 GPM  
 $t_{max}$  175 °F;  $p_{max}$  580 PSIG  
 Connection: 3/8" NPT, 1" NPT  
 Accuracy:  $\pm$  2.5% of Full Scale

## DRG - PADDLE WHEEL FLOW SENSOR



- Materials: Polypropylene, Brass, SS
- Perfect OEM Flow Sensor
- Compact, Versatile, Economical
- Five Material Combinations
- All-plastic Version Suitable for High Purity Water and Aggressive Water-based Chemicals
- Outputs: Pulse Frequency, 4-20 mA Analog, Transistor Switches, Digital/Analog Display

Water: 0.15...3 GPM to 3...37 GPM  
 $t_{max}$  175 °F;  $p_{max}$  580 PSIG  
 Connection: 1/8" ... 1" NPT  
 Accuracy:  $\pm$  3% of Full Scale

## DTK - PELTON WHEEL FLOW SENSOR



- Material: Stainless Steel
- Designed for High Volume OEM Market
- Economical Measurement of Low Flows
- For Clear or Opaque Liquids
- For Low Viscosity Liquids
- No Straight Run Requirements
- Highly Repeatable, Linear Output
- Common Applications: Volume Dosing, Laundry Machines, PCB Manufacturing, and Agricultural Machinery

Water: 0.8...9.5 GPH to 16...190 GPH  
 $t_{max}$  280 °F;  $p_{max}$  430 PSIG  
 Connection: 1/4" NPT  
 Accuracy:  $\pm$  2% of Full Scale

## LFM - DUAL-RING PENDULUM FLOWMETER



- Material: Stainless Steel
- For Low Viscosity Liquids
- Suitable for Filling/Batching Processes
- Typical Media: Additives, Perfumes, Water and Demineralized Water, Liquefied Gas
- Repeatability of  $\pm$  0.1%
- IP65 Protection

Water: 0.005...0.25 l/min  
 $t_{max}$  80 °C;  $p_{max}$  100 bar  
 Connection: 1/8" NPT, G 1/8, Swagelok® 6 mm  
 Accuracy:  $\pm$  2.5 % of Reading

## DRZ - ROTARY PISTON FLOWMETER



- Material: Brass
- Economy and High Performance
- For Clean, Lubricating Liquids
- For Viscosities from 5 to 100 cSt
- Low Pressure Drop
- Repeatability of  $\pm$  0.2%
- Maximum Throughput of 160 GPH
- Can be Combined with AUF Display

Viscosity Range: 5...100 cSt  
 Oil: 1.6...110 GPH  
 $t_{max}$  175 °F;  $p_{max}$  580 PSIG  
 Connection: 1/8" NPT, 1/4" NPT  
 Accuracy:  $\pm$  1% of Reading

## OVZ - ECONOMICAL OVAL-GEAR FLOWMETER



- Materials: POM, Aluminum
- Positive-Displacement Technology at a Rotameter Price
- Maintains Precision with Viscosity Changes
- Five Material Combinations
- Minimal Wear Components
- Typical Applications: Lubrication Systems, Filling Transmission Fluids, Hydraulic Systems
- NPN, PNP, NAMUR Configurations
- 4-20 mA and Different Display Options

Viscosity Range: 10...800 cSt  
 Oil: 0.03...0.53 GPM to 0.42...10.6 GPM  
 $t_{max}$  175 °F;  $p_{max}$  580 PSIG  
 Connection: 1/4" ... 3/4" NPT  
 Accuracy:  $\pm$  2.5% of Full Scale



# Flow - Rotating Vane

## DON - POSITIVE DISPLACEMENT FLOWMETER

TOP SELLER



Viscosity Range: up to 1,000,000 cP  
Oil: 0.13...9.5 GPH to 40...660 GPM  
 $t_{max}$  300 °F;  $p_{max}$  1,450 PSIG  
Connection: 1/8"...4" NPT, ANSI 1"...4"  
Accuracy:  $\pm$  0.2 - 1% of Reading

- Materials: Aluminum, Stainless Steel
- For Clean, High and Low Viscosity Liquids  
Like: Lubricating/Hydraulic Oils, Diesel Fuels, Resins, Pastes
- Precise Measurement over a Wide Viscosity Range
- Output Options: Analog, Frequency, LCD Totalizers, Batch Controllers
- Optional Quadrature Output

## DON-H - HIGH PRESSURE FLOWMETER

TOP SELLER



- Material: Stainless Steel
- For High Pressures, up to 5,800 PSIG
- For Clean Viscous Liquids
- Common Media: Hydraulic Oils, Diesel Fuel, Resins, and Pastes
- Pulse and 4-20 mA Signal Outputs
- Optional LCD Display for Batching, Totalizing

Viscosity Range: up to 1,000,000 cP  
Oil: 0.13...9.5 GPH to 0.26...10.6 GPM  
 $t_{max}$  250 °F;  $p_{max}$  5,800 PSIG  
Connection: 1/8"...1/2" NPT  
Accuracy:  $\pm$  0.2 - 1% of Reading

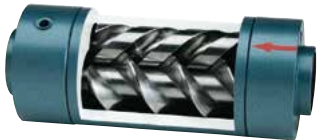
## DOE - OEM OVAL GEAR FLOWMETER



- Material: Stainless Steel
- Designed for OEM Use
- PEEK or PPS Rotors
- Media Viscosities from 2 to 1000 cP
- Hall Sensor or Hall/Reed Switch
- Pulse Frequency Signal Output
- Common Media: Petroleum, Grease, Oil, Pastes, Fuels, Chemicals, Ink
- Optional Temperature Measurement

Viscosity Range: up to 1,000 cP  
Oil: 0.14...9.5 GPH to 16...634 GPH  
Connection: 1/8"...1/2" NPT  
Accuracy:  $\pm$  1% of Reading

## OMG - HELICAL GEAR FLOWMETER



- Materials: Cast Iron, Stainless Steel
- Pulsation-free Principle of Measurement
- For Viscous, Non-abrasive Liquids
- Pulse Output
- High Reliability
- Self-cleaning Measuring Chambers
- Long Service Life
- Installation Position Independent

Viscosity Range: up to 5,000 cSt  
Oil: 0.026...2.6 GPM to 13...1,300 GPM  
 $t_{max}$  390 °F;  $p_{max}$  6,000 PSIG  
Connection: 1/2"...3" NPT, 1/2"...6" ANSI  
Accuracy:  $\pm$  0.3% of Reading

## OME - HELICAL GEAR FLOWMETER



- Material: Aluminum
- Quiet, Non-pulsating Operation
- Low Pressure Loss
- For Non-abrasive, Lubricating Liquids
- Advanced Helical-gear Technology
- Bi-directional Measurement
- High Turndown Ratio of 150:1
- No Upstream or Downstream Flow Requirements

Viscosity Range: up to 5,000 cSt  
Oil: 0.03...2.6 GPM to 0.92...92 GPM  
 $t_{max}$  250 °F;  $p_{max}$  580 PSIG  
Connection: 1/2"...1-1/2" NPT  
Accuracy:  $\pm$  0.3% of Reading

## DZR - SPHERICAL GEAR FLOWMETER



- Materials: Cast Iron, Stainless Steel
- For Viscous Liquids
- Seals of FKM, EPDM, or FEP
- Application Specific Models for Flow Measurement, Oil Batching, Consumption Measurement, Ratio Control, and Batch Control
- Protection of IP65

Viscosity Range: 20...5,000 cSt  
Oil: 0.008...2 l/min to 3...700 l/min  
 $t_{max}$  150 °C;  $p_{max}$  400 bar  
Connection: G 1/8...1  
Accuracy:  $\pm$  0.3 - 1% of Reading

## KZA - SPHERICAL GEAR FLOWMETER



- Material: Aluminum
- For Viscous, Non-abrasive Liquids
- Easy to Maintain
- Low Pressure Loss
- Low Noise Level
- Commonly Used in Mixing, Batching, and Hydraulics

Viscosity Range: 20...4,000 cSt  
Oil: 0.02...4 l/min to 1...200 l/min  
 $t_{max}$  80 °C;  $p_{max}$  160 bar  
Connection: G 1/4...1  
Accuracy:  $\pm$  0.3 - 3% of Reading



## ZDM - SPHERICAL GEAR FLOWMETER



- Materials: Cast Iron, Stainless Steel
- Rugged Build for Demanding Conditions
- Common Media: Paraffin, Kerosene, Diesel, Mineral Oil, Hydraulic Oils, Inks, Dyes, Paints, Grease, Polyurethane, Glues, Pastes, Creams, Resins, and Waxes
- Can Detect Flow Direction
- Pulse Frequency Output

Viscosity Range: 0.3...1,000,000 cSt  
 Oil: 0.0005...0.5 GPM to 0.4...138 GPM  
 $t_{max}$  410 °F;  $p_{max}$  6,500 PSIG  
 Connection: 3/8" ... 1-1/2" NPT  
 Accuracy:  $\pm$  0.3% of Reading

## KAL-D - COMPACT THERMAL FLOW SWITCH

TOP SELLER



- Material: Stainless Steel
- Extensive Features, Compact Design
- For Non-viscous, Water-based Liquids
- Reliable, Insensitive to Dirt
- Minimal Pressure Loss
- Output: PNP/NPN, N/O, N/C
- Superior Compensation for Changes in Temperature
- LED Status Indicator

Water: 0.15...6.6 ft/sec  
 $t_{max}$  175 °F;  $p_{max}$  580 PSIG  
 Connection: 1/4" or 1/2" NPT, M12 x 1



## KAL-K - THERMAL FLOW SWITCH

TOP SELLER



- Material: Stainless Steel
- Flow Switch with LED Flow Trend and NPN/PNP Transistor, N/O Relay (Only with Optional 110 V<sub>AC</sub> Version)
- Revolutionary Microprocessor-based Drift Stabilization
- Easy to Operate
- Extremely Low Pressure Loss
- Insensitive to Dirt

Water: 0.15...6.6 ft/sec  
 $t_{max}$  250 °F;  $p_{max}$  1,450 PSIG  
 Connection: 1/2" ... 3/4" NPT, Tri-Clamp®



## KAL-A - THERMAL FLOW TRANSMITTER

TOP SELLER



- Material: Stainless Steel
- Flow Sensor with 4-20 mA Output, 3-wire (Non-linear), Optional Switch
- Revolutionary Microprocessor-based Drift Stabilization
- Easy to Operate
- Extremely Low Pressure Loss
- Insensitive to Dirt

Water: 0.15...6.6 ft/sec  
 $t_{max}$  175 °F;  $p_{max}$  1,450 PSIG  
 Connection: 1/2" ... 3/4" NPT, 1-1/2" Tri-Clamp®  
 Linearity:  $\pm$ 10% of Full Scale



## KAL-L - THERMAL FLOW SWITCH FOR AIR

TOP SELLER



- Material: Brass, Polyamide
- Rapid Detection of Flow Rate Changes in Non-hazardous Gases
- Compensates for Thermal Changes
- Design Minimizes Erroneous Switching
- Negligible Pressure Loss
- Adjustable Response Time
- Common Applications: Air Conditioning Systems, Ventilation Systems, Conveying Plants

Air: 3.3...65 ft/sec  
 $t_{max}$  250 °F;  $p_{max}$  120 PSIG  
 Connection: 1/2" NPT, Duct Flange  
 Accuracy:  $\pm$ 10% of Reading

## KAL/KAL-E - THERMAL FLOW SWITCH



- Materials: Brass, Stainless Steel
- Continuous Monitoring of Liquids
- For Low or High Flow Velocities
- Temperature Compensation
- Minimal Pressure Loss
- High Reliability, No Moving Parts
- Remote Probe Allows Installation with Minimal Clearance
- Easy to Operate
- Insensitive to Dirt
- Optional Temperature Switch

Water: 0.15...6.6 ft/sec  
 $t_{max}$  250 °F;  $p_{max}$  1,450 PSIG  
 Connection: 1/4" ... 1-1/2" NPT



## DVK - CALORIMETRIC SWITCH, FLOWMETER, AND TOTALIZER



- Material: Stainless Steel
- Designed for Air Flow in Pipes/Hoses
- Maintenance-Free Calorimetric Technology
- Minimal Pressure Loss
- Common Application Areas: Flow Monitoring of Air and Gases, Air Conditioning Systems, and Extraction Systems

Air: 1...10 LPM to 50...500 LPM  
 $t_{max}$  50 °C;  $p_{max}$  15 bar  
 Connection: G 1/4...G 2  
 Accuracy:  $\pm$  5% of Full Scale

## KAH - AIR VELOCITY TRANSMITTER



- Material: Polycarbonate
- Ideal for Accurate Ventilation Control
- Hot-Film Anemometer Principle
- Accuracy at Low Air Velocity
- Insensitive to Dust and Dirt
- High Reliability, Low Maintenance
- Adjustable Sensing Range, Insertion Length, Damping Time
- Easy to Install

Air: 0 ... 2,000/3,000/4,000 ft/min  
 Output Signal: 0-10 V<sub>DC</sub> or 4-20 mA  
 Supply Voltage: 24 V<sub>AC/DC</sub>  
 Connection: Mounting Adapter  
 Accuracy:  $\pm$  (0.2 m/s + 3% of Reading)



# Flow - Mass/Coriolis

## DMS - MASS FLOWMETER FOR GASES



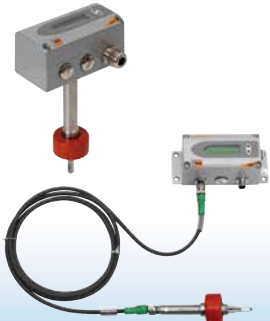
- Material: Stainless Steel
  - For Gas Measurement
  - Accurate, Reliable, Rugged
  - Easy to Use Display
  - No Moving Parts
  - Common Application Areas: Gas Monitoring, Paint Lines, Laminator Systems, Semiconductor Industry, Analytic Devices, Exhaust Measurement, Engineering, and Boiler Controls
  - Optional Regulator
- Air: 0.1...3.7 NL/min to 0...185 NL/min  
 $t_{max}$  50 °C;  $p_{max}$  35 bar  
 Connection: 1/4" or 1/2" NPT, 1/8"...1/2" Compression  
 Accuracy:  $\pm 1\%$  of Full Scale

## KME - COMPACT INLINE FLOWMETER



- Material: Aluminum, SS, Polycarbonate
  - For Compressed Air and Technical Gases
  - Hot Film Sensor Element
  - Easy to Mount/Dismount without Opening any Pipes
  - Long Term Stability, Fast Response Time
  - Application-specific, Multi-point Factory Adjustment for Excellent Accuracy
  - Optional Display
- Air: 0.12...44.4 SCFM to 1.3...500 SCFM  
 $t_{max}$  140 °F;  $p_{max}$  230 PSIG  
 Connection: 1/2"...2" NPT  
 Accuracy:  $\pm 3.0\%$  of Reading,  $\pm 0.3\%$  of FS

## KMT-1/-2/-3 - THERMAL MASS FLOWMETER



- Material: Stainless Steel, Brass
  - For Compressed Air and Gases
  - Application Specific Adjustments Completed During Production
  - Excellent Long-Term Stability
  - Fast Response Time
  - Integrated Counter for Consumption
  - Optional Display
  - Compact or Remote Mount Probes
- Air: 0.32...63 Nm<sup>3</sup>/s to 3.5...1,400 Nm<sup>3</sup>/s  
 $t_{max}$  176 °F;  $p_{max}$  230 PSIG  
 Connection: 1/2"...2" NPT with Ball Valve  
 Accuracy:  $\pm 1.5\%$  of Reading, + (0.5 - 0.8 of Full Scale)

## KMT-4 - THERMAL MASS FLOWMETER



- Material: Stainless Steel, Brass
  - For Compressed Air and Gases
  - Application Specific Adjustments Completed During Production
  - Excellent Long-Term Stability
  - Fast Response Time
  - Integrated Counter for Consumption
  - Optional Display
  - Compact and Remote Mount Probes
- Air: 2.8...1397 Nm<sup>3</sup>/s to 263...263,350 Nm<sup>3</sup>/s  
 $t_{max}$  80 °C;  $p_{max}$  16 bar  
 Connection: R 1/2, Male for Insertion (DN 65...DN 700)  
 Accuracy:  $\pm 1.5\%$  of Reading,  $\pm 0.8\%$  of Full Scale

## KEC - THERMAL MASS FLOWMETER



- Material: Stainless Steel
  - Suitable for Demanding Industrial Use
  - Calorimetric Measuring Principle
  - Quick, Precise Measurements
  - Standard Integrated Modbus® Output
  - No Moving Parts
  - 2x 4-20 mA Analog Outputs
  - Common Applications: Chemicals, Gas, Methane, Breweries, Power Plants, Semiconductors, Automotive Industry
- Air: 0.33...164 ft<sup>3</sup>/sec to 0.33...735 ft<sup>3</sup>/sec  
 $t_{max}$  350 °F;  $p_{max}$  1,450 PSIG  
 Connection: 1/2"...2" NPT, 1/2"...3" ANSI  
 Accuracy:  $\pm 0.3\%$  of FS  $\pm 1.5\%$  of Reading

## HPC - MINI CORIOLIS MASS FLOWMETER



- Material: Stainless Steel
  - Innovative Design
  - Revolutionary Dual Bend Measuring Tube
  - 4 Sensor Coils for High Resolution
  - For Gases or Liquids
  - High Accuracy
  - Insensitive to Vibrations
  - Modular Mounting Concept
  - 316-Ti SS Measuring Pipes
  - 316L SS Flow Body
- Water: 2...20 kg/h to 5...50 kg/h  
 $t_{max}$  350 °F;  $p_{max}$  1,450/4,640/5,800 PSIG  
 Connection: 1/2" NPT, Grylock/Swagelok®  
 Accuracy:  $\pm 0.1\%$  of Reading,  $\pm$  Zero-point Stability

## TM/UMC-3 - CORIOLIS MASS FLOWMETER



- Materials: SS, Hastelloy®, Monel®, Tantalum, Nickel, Titanium
  - Widest Range of Wetted Materials Available in the Industry
  - Liquid or Gas Measurement
  - Extreme Temp/Pressure Ratings
  - Heat Jacketing Available
- Water: 0.003...0.3 lbs/min to 220...2,400 lbs/min  
 $t_{max}$  500 °F;  $p_{max}$  13,000 PSIG  
 Connection: 1/4"...1/2" NPT, 1/2"...4" ANSI  
 Accuracy:  $\pm 0.1\%$  of Reading,  $\pm$  Zero-point Stability

## TMU-W - HIGH PRESSURE CORIOLIS MASS FLOWMETER



- Material: Stainless Steel
  - Designed Specifically for Hydrogen Refueling Stations
  - OIML R139 Accuracy Class 1.5
  - Also for Other High Pressure Coriolis Application Areas
  - 2 Current Output Signals
  - Pulse, Frequency, Status Output
- Mass Flow: 4 kg/min H<sub>2</sub>  
 $t_{max}$  100 °C;  $p_{max}$  1,000 bar  
 Connection: 1/2" NPT, Hofer, UNF  
 Accuracy:  $\pm 0.5\%$  of Flow Rate,  $\pm$  Zero-point Stability (for Gas)





## TMU/UMC-3 - CORIOLIS MASS FLOWMETER



- Materials: Stainless Steel, Hastelloy®
- For Liquids or Gases
- Accommodates Very High Flow Rates
- Available in Large Line Sizes
- Simultaneous Measurement of Mass Flow, Density, and Temperature Produces an Accurate Volumetric Flow Rate
- For Demanding Applications

Water: 0...1,320 lbs/hr to 0...2,200 tons/hr  
 $t_{max}$  500 °F;  $p_{max}$  580 PSIG  
 Connection: 1/2"...16" ANSI  
 Accuracy:  $\pm$  0.1% of Reading,  
 $\pm$  Zero-point Stability



## TMU/UMC-4 - CORIOLIS MASS FLOWMETER



- Materials: Stainless Steel, Hastelloy®
- For Liquids or Gases
- Can Accommodate Very High Flow Rates
- Available in Large Line Sizes
- Simultaneous Measurement of Mass Flow, Density, and Temperature Produces an Accurate Volumetric Flow Rate
- For Demanding Applications

Water: 0...1,320 lbs/hr to 0...2,200 tons/hr  
 $t_{max}$  500 °F;  $p_{max}$  580 PSIG  
 Connection: 1/2"...16" ANSI,  
 1/4" NPT, 1/2" NPT  
 Accuracy:  $\pm$  0.1% of Reading,  
 $\pm$  Zero-point Stability



## TMU-..AC - CORIOLIS FLOWMETER WITH HEATING JACKET



- Materials: Stainless Steel, Hastelloy®
- For Liquids or Gases
- Accommodates Very High Flow Rates
- Available in Large Line Sizes
- Simultaneous Measurement of Mass Flow, Density, and Temperature Produces an Accurate Volumetric Flow Rate
- For Demanding Applications

Water: 0...1,320 lbs/hr to 0...2,200 tons/hr  
 $t_{max}$  500 °F;  $p_{max}$  580 PSIG  
 Connection: 1/2"...12" ANSI  
 Accuracy:  $\pm$  0.1% of Reading,  
 $\pm$  Zero-point Stability



## KPL - DIFFERENTIAL PRESSURE ORIFICE PLATE



- Materials: Steel, SS, Hastelloy-C®, Titanium, Monel®, Tantalum
- Used to Measure Flow of Liquids, Gases, or Steam
- High Reliability, Minimal Maintenance

Shown with Model PAD  
 Ranges: for Liquids, Gases, Steam  
 According to ISO 5167-1  
 Connection: ANSI 2"...24", DN 50...600  
 $t_{max}$  500 °C;  $p_{max}$  PN 420/cl. 2500



## KPL - DIFFERENTIAL PRESSURE ORIFICE PLATE



- Materials: Steel, SS, Hastelloy-C®, Titanium, Monel®, Tantalum
- Used to Measure Flow of Liquids, Gases, or Steam
- High Reliability, Minimal Maintenance

Shown with Model PAD  
 Ranges: for Liquids, Gases, Steam  
 According to ISO 5167-1  
 Connection: ANSI 2"...24", DN 50...600  
 $t_{max}$  500 °C;  $p_{max}$  PN 420/cl. 2500



## ANU - DIFFERENTIAL PRESSURE PITOT TUBE



- Standard Material: Stainless Steel
- Used for Flow Measurement of Liquid, Gas, and Steam
- Measuring Principle Uses the Differences between the Dynamic Pressure on the Upstream Side and the Static Pressure on the Downstream Side
- Available in Many Special Materials
- Optional RTD or TC Temperature Sensor

Shown with Model PAD  
 Connection: 1" ... 1-1/2" NPT, G 1 ... 1-1/2", ANSI 1" ... 3", DN 25...80  
 Probe Length: 2" ... 315" (50...8000 mm)  
 $t_{max}$  1175 °C;  $p_{max}$  400 bar



## DUS - DIFFERENTIAL PRESSURE NOZZLE



- Materials: Steel, Stainless Steel

Shown with Model PAD  
 Nominal Diameter: 2" ... 24" (DN 50... 600)  
 $t_{max}$  560 °C;  $p_{max}$  420 bar



## DVT - DIFFERENTIAL PRESSURE VENTURI TUBE



- Materials: Steel, Stainless Steel

Shown with Model PAD  
 Nominal Diameter: 2" ... 48" (DN 50... 1200)  
 $t_{max}$  560 °C;  $p_{max}$  420 bar





# Flow - DP/Electromagnetic

## KEL - DIFFERENTIAL PRESSURE FLOWMETERS



- Materials: Brass, Cast Iron, SS
- Designed for Difficult Environments
- Rugged Metal Housings
- Insensitive to Magnetic Fields
- Withstands Pressure Surges
- For Horizontal or Vertical Pipes
- Easy to Use and Maintain
- Ranges can be Modified in the Field
- Optional Alarms and 4-20 mA Output

Water: 0.1...0.5 GPM to 400...2,000 GPM  
 $t_{max}$  250 °F;  $p_{max}$  230 PSIG  
 Connection: 1/2"...1-1/2" NPT,  
 1/2"...8" ANSI Wafer  
 Accuracy:  $\pm$  2 - 5% of Full Scale

## RCD - DIFFERENTIAL PRESSURE FLOWMETER



- Materials: Brass, Stainless Steel
- For Water or Air
- High Reliability and Long Service Life
- Brass or 316-Ti Stainless Steel Bodies
- Custom Calibrations for Density/Viscosity
- Mechanical Pointer Indicator, Analog Output, Digital Display, Switches
- Common Uses: Machinery Manufacturing, Chemical Industry, and Process Equipment

Water: 0.2...0.88 GPM to 100...600 GPM  
 $t_{max}$  210 °F;  $p_{max}$  580 PSIG  
 Connection: 1/2"...3" NPT  
 Accuracy:  $\pm$  3% of Full Scale

## RCM - DIRECT READING FLOWMETER



- Materials: Bronze, Monel®, Stainless Steel
- Liquid or Gas, Low to Medium Viscosity, Low Solids Content
- Easy to Install, Compact Design
- Low Pressure Drop
- Optional Alarms and Signal Outputs
- Common Applications: Lube Oil and Cooling Water Monitoring, Blending Processes, Reverse Osmosis Systems, and Compressed Air Measurement

Water: 0.3...2 GPM to 400...3,000 GPM  
 Air: 1.5...10 SCFM to 3,000...20,000 SCFM  
 $t_{max}$  350 °F;  $p_{max}$  400 PSIG  
 Connection:  
 1/4"...3" NPT, 1/2"...8" ANSI Wafer  
 Accuracy:  $\pm$  3% of Full Scale

## MIK - ECONOMICAL MAGMETER



- For a Wide Variety of Conductive Liquids, Acids, and Caustics
- Wetted Materials: PPS/SS/NBR, PPS/SS/FKM, PVDF/Hastelloy®/FFKM, PVDF/Tantalum/FFKM
- Frequency or Current Outputs, Adjustable Switches, Integral Totalizers or Batch Controllers
- Universal Mounting
- Versatile and Reliable

Water: 0.18...7.8 GPH to 9.5...180 GPM  
 $t_{max}$  176 °F;  $p_{max}$  145 PSIG  
 Connection: 1/4"...2" NPT or Glue Socket  
 Accuracy:  $\pm$  2% of Full Scale

## MIM - ALL-METAL ELECTROMAGNETIC FLOWMETER

TOP SELLER



Water: 0.16...16 GPH to 0.4...90 GPM  
 Temp: -40...280 °F;  $p_{max}$  230 PSIG  
 Connection: 1/4"...2" NPT, 2" Tri-Clamp  
 Accuracy:  $< \pm$  (0.8% of Reading, + 0.5% of Full Scale)

- Material: Stainless Steel
- Flow and Temperature Measurement
- Switching, Transmitting, and Batching
- Grand and Resettable Totalizer
- 2 Configurable Outputs
- Bi-directional Flow Measurement
- Color, Multi-parameter TFT Display
- Display Rotates in 90° Increments
- Intuitive Set-up via Optical Touch Keys
- Display is Operable with Hand Gloves



## MIS - ELECTROMAGNETIC FLOWMETER

TOP SELLER



Water: 3.3...33 ft/sec  
 $t_{max}$  158 °F;  $p_{max}$  230 PSIG  
 Connection: ANSI 2"...8"  
 Accuracy:  $< \pm$  (0.5% of Reading, + 0.5% of Full Scale)

- Switching, Transmitting, and Batching
- Grand and Resettable Totalizer
- 2 Configurable Outputs
- Bi-directional Flow Measurement
- Display Rotates in 90° Increments
- Common Applications: Water and Wastewater, Filtration Systems, Water Distribution, Industrial Applications







## PIT - INSERTION MAGNETIC FLOWMETER

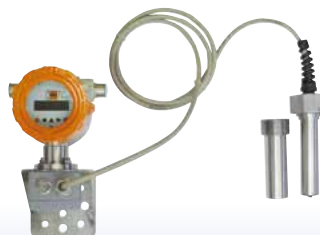


- Materials: SS or PFA-Clad Probe
- SS, Hastelloy®, Platinum or Tantalum Electrodes
- For Flow Velocity in Large Diameter Pipes
- Cost-effective Insertion Design
- Optional Valve Assembly for Insertion/Extraction Under Pressure
- Remote or Integral Transmitter
- 4-20 mA/HART®, Pulse, Status
- For Conductive Media > 20 µs/cm

Water: 3.3...33 ft/sec  
 $t_{max}$  284 °F;  $p_{max}$  580 PSIG  
 Connection: Weld-on, 2" or 3" ANSI  
 Accuracy: ±1.5% of Reading,  
 ± 0.5% of Full Scale



## PITE - ECONOMICAL INSERTION MAGNETIC FLOWMETER



- Materials: SS, PTFE or PFA Clad
- Simple, Compact Design
- Maintenance-free
- Minimal Pressure Drop
- Not Affected by Pressure, Temperature Density, or Viscosity
- For Use with Conductive Media
- Not for Media with Particles or Bubbles

Water: 3.3...33 ft/sec  
 $t_{max}$  100 °C;  $p_{max}$  PN 16  
 Connection: ANSI 3"...16",  
 Weld-on Nozzle ø 40 mm,  
 Sensor with Union Nut M52x2  
 for Pipelines DN 80...400  
 Accuracy: ± 1.5% of Full Scale



## EPS - ELECTROMAGNETIC FLOWMETER



- Lining Materials: Hard or Soft Rubber, EPDM, PTFE, or Ceramic
- Measures Volumetric Flow of Liquids, Slurries, and Pastes
- Electrodes in SS, Hastelloy®, Tantalum, Platinum-Iridium, or Titanium
- For Use in Harsh Environments
- Compact or Remote Versions
- No Pressure Drop
- Maintenance-free

Water: 3.3...33 ft/sec  
 $t_{max}$  300 °F;  $p_{max}$  580 PSIG  
 Connection: 1/2" NPT, ANSI 1/2"...24"  
 Accuracy: ± 0.3% of Measured Value  
 ± 0.01% (Q at 33 ft/sec)



## DVH - MULTIVARIABLE VORTEX FLOWMETER



- Material: Stainless Steel
- Cost-effective Volumetric Flow Measurement
- Fully Welded Sensor
- Field Configurable Ranges, Outputs and Display
- Optional Integrated Temperature and Pressure Measurement

Water: 0.89...22 GPM to 141...4,270 GPM  
 Air: 1.8...18 SCFM to 2,071...203,000 SCFM  
 $t_{range}$  -328...750 °F;  $p_{max}$  1,450 PSIG  
 Connection: 1/2"...8" ANSI  
 Options: Integrated Temperature and Pressure Sensor, Wafer Type  
 Accuracy: ±1% Reading for Gas & Steam,  
 ± 0.7% Reading for Liquids



## DVE - INSERTION VORTEX FLOWMETER



- Material: Stainless Steel
- Fully Welded Sensor
- Optional Integrated Temperature and Pressure Sensor
- Field Configurable Range, Output, Display

Water: 5.2...157 m³/h to 284...8,537 m³/h  
 Air: 889...1,463 Nm³/h to 26,915...2,467,081 Nm³/h  
 $t_{max}$  400 °C;  $p_{max}$  100 bar  
 Connection: 2" NPT, ANSI 2"  
 Suitable for Pipe Sizes 3"...24"  
 Option: Integrated Temp. and Pressure Sensor,  
 Installation/Removal Device  
 Accuracy: ± 1.2% of Reading (Water),  
 ± 1.5% of Reading (Gas/Steam)



## DVZ - VORTEX FLOWMETER, SWITCH, TRANSMITTER, TOTALIZER



- Materials: PPS/Brass, PPS/Stainless Steel
- Economical and Reliable
- For Low Viscosity Liquids and Aggressive, High-purity, or Salty Solutions
- Fixed or Rotatable Connections
- Outputs: Pulse Frequency, 4-20 mA, Adjustable Relay, Compact Electronics, Adjustable Transistor Switch

Water: 0.13...1.2 GPM to 2.6...26.5 GPM  
 $t_{max}$  176 °F;  $p_{max}$  290 PSIG  
 Connection: 1/4"...1" NPT  
 Accuracy: ± 2.5% of Full Scale



## DOG-4 - OSCILLATION FLOWMETER FOR GASES

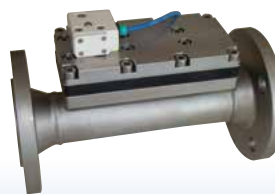


- Material: Stainless Steel
- For Flow Measurement of Gases
- Platinum Sensor
- No Moving Parts
- Low Pressure Loss
- Wide Sensing Range
- Pulse Frequency, Digital Display for Flow Measurement and Totalization

Air: 0.12...12 m³/h to 60...6,000 m³/h  
 Pressure Drop Max: 50 mbar  
 $t_{max}$  120 °C (for EX 60 °C);  $p_{max}$  PN 40  
 Connection:  
 ANSI 1"...8", Flange DN 25...200  
 Accuracy: ± 1.5% of Reading



## DOG-5 - OSCILLATION FLOWMETER FOR LIQUIDS



- Material: Stainless Steel
- Non-contact Measurement of Low Viscosity Liquids
- Excellent Long-term Stability
- Design Resists Dirt
- Horizontal or Vertical Installation
- Not for Pulsating Flow
- Commonly Used in District Heat Supply

Water: 0.075...3.75 m³/h to 70...3,500 m³/h  
 $t_{max}$  120 °C;  $p_{max}$  PN 40  
 Connection:  
 ANSI 1"...8", Flange DN 25...200  
 Accuracy: ± 1% of Measured Value



# Flow - Ultrasonic/Indicators

## DUK - COMPACT ULTRASONIC FLOWMETER

TOP SELLER



- Materials: Brass, Stainless Steel
- For Water and Low Viscosity, Water-based Liquids with Max. 1% Solids
- Measurement Independent of Density and Temperature Changes
- High Turndown Ratio of **250 to 1**
- Very Small Pressure Loss
- Highly Repeatable
- Outputs: Analog, Frequency, Switching, Compact Electronics, Batching, Totalizing

Water: 0.02...5 GPM to 0.6...160 GPM  
 $t_{max}$  194 °F;  $p_{max}$  230 PSIG  
 Connection: 1/2"...3" NPT  
 Accuracy:  $\pm$  0.7% of Reading  
 $\pm$  0.7% of Full Scale



## DUC - CLAMP-ON ULTRASONIC FLOWMETER



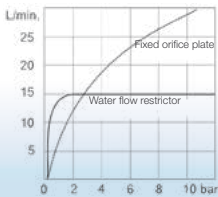
- Quick Mount System with Space Bar
- DSP Technology Reduces Signal Echoes and Dispersion Effects
- Easy to Read User Interface with LED Back-light, QVGA Display
- Common Application Areas: Power Plants, Water/Wastewater, Chemical Processing, Facility Management, Food and Beverage
- AFC and Reynolds Compensation

$t_{range}$  -40...300 °F  
 Flow Velocities: 0...98 ft/sec  
 Pipe Sizes: 3/8"...20 ft  
 For Common Pipe Materials with Ultrasonic Conductive Properties like Steel and Plastic  
 Heat Quantity Measurement  
 Accuracy: up to 1%



## REG - AUTOMATIC FLOW REGULATING VALVE

TOP SELLER



- Materials: Brass, Stainless Steel
- For Water or Compatible Water-like Liquids
- Self-actuating, Requires No Power
- Automatically Regulates Flow in System
- No Manually Operated Parts
- Constant Flow Regardless of Pressure Fluctuations
- No Maintenance
- Universal Mounting
- Passively Activated
- Compact Design

Flow Rates: 0.13...10.56 GPM  
 $t_{max}$  572 °F;  $p_{max}$  2,900 PSIG  
 Connection: 3/4" NPT, G 1/2, G 3/4

## REG-8/-9 - AUTOMATIC FLOW REGULATING VALVE



- Material: Stainless Steel
- For Water or Compatible Water-like Liquids
- Self-actuating, Requires No Power
- Automatically Regulates Flow in System
- No Manually Operated Parts
- Constant Flow Regardless of Pressure Fluctuations
- No Maintenance
- Universal Mounting
- Passively Activated

Flow Rates: 0.13...147 GPM  
 $t_{max}$  570 °F;  $p_{max}$  2,900 PSIG  
 Connection: 3/4"...4" ANSI Wafer, 1-1/2"...2-1/2" G, DN 20...100

## DAA/DAH - FLOW INDICATOR



- Materials: Brass, Stainless Steel
- Visual Flow Indicator with or without Rotor
- Self-cleaning Mechanism Ensures Visibility for DAA Models
- Simple Twist Motion for Integral Wipers
- Build-up is Removed by the Media Flow
- No Fuss, No Downtime

Water: 0.1...1.0 GPM to 2.12...26.4 GPM  
 $t_{max}$  212 °F;  $p_{max}$  232 PSIG  
 Connection: 1/4"...1-1/2" NPT

## DAF - PADDLE WHEEL FLOW INDICATOR FOR LIQUIDS



- Materials: Brass, SS, Polysulfone
- Clearly Visible Flow Indication
- Simple Design
- Low Minimum Indicated Flow
- For a Wide Variety of Media
- Can be Installed in Any Position
- Can be Rotated Along Long Axis During Operation (Except Material Comb. IV)

Water: 0.16...1.6 GPH to 100...2,400 GPH  
 $t_{max}$  230 °F;  $p_{max}$  235 PSIG  
 Connection: 1/8"...1-1/2" NPT

## DIH - ROTATING VANE FLOW INDICATOR



- Materials: Brass, SS, POM
- Compact Design
- High Visibility Orange Paddle Wheel
- Choice of Three Housing Materials

Water: 0.05...0.13 GPM to 0.26...13.2 GPM  
 $t_{max}$  176 °F;  $p_{max}$  230 PSIG  
 Connection: 3/8" or 1" NPT

## DIG - ROTATING VANE FLOW INDICATOR



- Materials: PP, Brass, Stainless Steel
- Clearly Visible Flow Indication
- Choice of Three Housing Materials
- All-plastic Version Available

Water: 0.13...3.2 GPM to 0.79...21 GPM  
 $t_{max}$  176 °F;  $p_{max}$  230 PSIG  
 Connection: 1/8"...1" NPT



## DKB - FLOW INDICATOR WITH BALL



- Material: Brass
- Economical
- Gas or Liquid Flow Applications
- High Reliability
- High Visibility Float
- Domed Sight Glass
- For Horizontal Installations

Water: 0.014...4 GPM to 0.047...27 GPM  
 Air: 0.11...14 SCFM to 0.32...88 SCFM  
 $t_{max}$  250 °F;  $p_{max}$  85 PSIG  
 Connection: 1/8"...1" NPT

## DKF - PADDLE WHEEL FLOW INDICATOR FOR LIQUIDS



- Material: Brass
- Economical
- For Low Viscosity Liquids
- Easily Seen from an Elevated Position
- Domed Sight Glass
- 360° Visibility
- Bright Paddle Wheel
- Horizontal or Vertical Installations

Water: 0.04...0.5 GPM to 0.5...22 GPM  
 $t_{max}$  250 °F;  $p_{max}$  85 PSIG  
 Connection: 1/8"...1" NPT

## DAZ - REFERENCING FLAP FLOW INDICATOR



- Material: Red Brass
- Flap-style Flow Indicator
- Provides Flow Quantity on a Relative Scale
- For Horizontal or Vertical Installation
- Large Glass Windows on Both Sides
- Economical Pricing
- Durable Stainless Steel Flap

$t_{max}$  390 °F;  $p_{max}$  230 PSIG  
 Connection: 1/2"...1" NPT

## DAK - FLOW INDICATOR WITH FLAP



- Materials: Grey Cast Iron, Cast Steel, Stainless Steel
- Rugged Build for Industrial Applications
- Features a Flap for Indication
- Soda-Lime or Borosilicate Glass Windows

$t_{max}$  530 °F;  $p_{max}$  580 PSIG  
 Connection: 1/4"...2" NPT, 1/2"...8" ANSI

## DAT - FLOW INDICATOR WITH DRIP TUBE



- Materials: Grey Cast Iron, Cast Steel, Stainless Steel
- Rugged Build for Industrial Applications
- Features a Drip Tube for Indication
- Soda-Lime or Borosilicate Glass Windows

$t_{max}$  530 °F;  $p_{max}$  580 PSIG  
 Connection: 1/4"...2" NPT, 1/2"...8" ANSI

## DAR - FLOW INDICATOR WITH ROTOR



- Materials: Grey Cast Iron, Cast Steel, Stainless Steel
- Rugged Build for Industrial Applications
- Features a Rotor for Indication
- Soda-Lime or Borosilicate Glass Windows

$t_{max}$  500 °F;  $p_{max}$  580 PSIG  
 Connection: 1/4"...2" NPT, 1/2"...8" ANSI

## DAB - FLOW INDICATOR WITH BALL



- Material: Red Cast Iron
- Borosilicate Glass Tube
- PTFE Seals

$t_{max}$  100 °C;  $p_{max}$  6 bar  
 Connection: G 1/2...G 3

## UFJ - FLOW INDICATOR AND SIGHT GLASS



- Material: Stainless Steel, PVC, POM-C
- Borosilicate Glass Tube
- For Liquids or Gases
- Vertical Installation, Flow from Bottom
- Float Appears when Flow Meets Pre-set Custom Value
- Optional PNP Contact

$t_{max}$  120 °C;  $p_{max}$  6 bar  
 Connection: G 1/4...G 1-1/2  
 Accuracy:  $\pm$  4% of Set Value



# KOBOLD Flow Instrumentation/Media Cross Reference Chart

KOBOLD Technology Category	Specific Technology Type	Model	Product Description	Media*											Flow Range	Page	
				Liquid							Gas						
				Clean	Dirty	Aggressive	Viscous	Abrasive	Oil-Based	Ultra-Pure H <sub>2</sub> O	Slurries	Clean	Dirty	Aggressive			Steam
Variable Area - Low Volume	Variable Area - Low Volume	BGK	All-Metal, Low Volume Variable Area Flowmeter	✓	◆	◆	◆	✗	◆	◆	✗	✓	◆	◆	✗	0.026...0.26 GPH to 5...50 GPH (0.1...1 SCFH to 20...200 SCFH)	13
		KDF/KDG	Micro-Flowmeter and Switch	✓	✗	◆	✗	✗	✗	✓	✗	✓	✗	◆	✗	0.02...2.5 LPH to 16...160 LPH (0.5...5 NI/h to 500...5,000 NI/h)	12
		KDS	All Metal, Low Volume Variable Area Flowmeter	✓	✗	◆	◆	✗	◆	◆	✗	✓	✗	◆	✗	0.026...0.26 GPH to 5...50 GPH (0.1...1 SCFH to 20...200 SCFH)	13
		KFR	Acrylic Flowmeter	✓	✗	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.02...2 GPH to 2...20 GPM (0.1...1 SCFH to 10...100 SCFM)	12
		KSK	All-Plastic Low-Flow Flowmeter and Switch	✓	◆	✓	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.006...0.05 GPM to 11.8...60 GPM (0.06...0.27 SCFM to 3.5...18.3 SCFM)	12
		KSR/SVN	Low Volume Flow Switch	✓	✗	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.03...4 GPH (0.1...13 SCFH)	12
		KSV	Economical Micro-Flowmeter	✓	✗	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.04...0.4 GPH to 2...20 GPH (0.3...3 SCFH to 10...100 SCFH)	12
		SWK	Compact Flowmeter and Switch	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.05...0.1 LPM to 13...24 LPM	13
		UMR/UXR/URA	Glass Tube Variable Area Flowmeter	✓	✗	◆	✗	✗	◆	◆	✗	✓	✗	◆	✗	1...10 l/h to 13...130 l/h (0.01...0.1 Nm³/h to 0.25...2.5 Nm³/h)	14
		UTS	Variable Area Flowmeter for Gas Burners	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	◆	✗	0.35...3.53 SCFH to 10.59...105 SCFH	14
Variable Area	Variable Area	BGF	All-Metal Armored Flowmeter	✓	✗	◆	◆	✗	◆	◆	✗	✓	✗	◆	◆	0.002...0.02 GPM to 60...570 GPM (0.008...0.08 SCFM to 140...1,400 SCFM)	14
		BGN	All-Metal Armored Flowmeter	✓	✗	◆	◆	✗	◆	◆	✗	✓	✗	◆	◆	0.044...0.44 GPM to 26.4...264 GPM (0.17...1.7 SCFM to 100...1000 SCFM)	14
		BVO	OEM Flowmeter and Switch	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.1...1.0 GPM to 1...13 GPM	14
		KSM	All-Plastic Flowmeter and Switch	✓	◆	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.06...0.66 GPM to 35...264 GPM (0.5...3 SCFM to 50...400 SCFM)	12
		S-Series	All-Metal Flow Switch	✓	✗	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.075...0.25 GPM to 1...14 GPM (0.2...1.1 SCFM to 3...70 SCFM)	15
		SM	High Pressure All-Metal Flowmeter and Switch	✓	✗	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.04...0.6 GPM to 4...40 GPM (0.2...1 SCFM to 5...130 SCFM)	15
		SMN	Flow Switch	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.4...13 GPM	15
		SV	Float-Type Flowmeter and Switch	✓	✗	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.075...0.35 GPM to 2.5...40 GPM (0.25...1.25 SCFM to 10...150 SCFM)	14
		URK/URM	Glass Cone Variable Area Flowmeter	✓	✗	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.004...0.4 GPM to 66...220 GPM (0.011...0.11 SCFM to 30...300 SCFM)	13
		USR	Glass Tube Variable Area Flowmeters and Manifold Valves	✓	✗	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	0.01...0.1 GPM to 0.25...2.5 GPM	13
		UVR/UTR	Glass Tube Variable Area Flowmeter and Needle Valve	✓	✗	◆	✗	✗	✗	◆	✗	✓	✗	◆	✗	2.6...26 GPH to 52.8...528 GPH (3.5...35 SCFH to 176...1,760 SCFH)	14
		VKA	OEM Viscosity-Compensated Flowmeter	✓	✗	✗	✓	✗	✓	✗	✗	✗	✗	✗	✗	2...6.3 GPM to 8...26 GPM	15
		VKG	Viscosity-Compensating Flowmeter and Switch	✓	✗	◆	✓	✗	✓	✗	✗	✗	✗	✗	✗	0.03...0.12 GPM to 2...21 GPM	15
		VKM	All-Metal Viscosity-Compensating Flowmeter and Switch	✓	✗	◆	✓	✗	✓	✗	✗	✗	✗	✗	✗	0.03...0.12 GPM to 2...20 GPM	15
		VKP	Plastic Flowmeter and Switch	✓	✗	◆	✓	✗	✓	✗	✗	✗	✗	✗	✗	0.5...5 GPM to 5...26 GPM	15

✓ = Normally    ◆ = Possibly (Consult Factory)    ✗ = Not Suitable/Applicable

\*This chart is a guide for a generalized overview of the flow instrumentation line. Each application is unique and all factors should be carefully considered when selecting the appropriate technology. For more in-depth assistance, contact our engineering staff at 412-788-2830. Purchaser assumes all responsibility and accompanying liability in the final product selection.



KOBOLD Technology Category	Specific Technology Type	Model	Product Description	Media*										Flow Range	Page		
				Liquid							Gas					Steam	
				Clean	Dirty	Aggressive	Viscous	Abrasive	Oil-Based	Ultra-Pure H <sub>2</sub> O	Slurries	Clean	Dirty				Aggressive
Paddle Type	Target-Type	DPT	Target Type Flowmeter	✓	◆	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	1.5...8 GPM to 225...500 GPM	17
	Paddle-Bellows	DW	Paddle-Bellows Flowmeter	✓	◆	◆	◆	✗	◆	◆	✗	✗	✗	✗	✗	0.26...6.6 GPM to 1,850...19,800 GPM	16
		DWD	Paddle-Bellows Flowmeter	✓	◆	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.26...2.6 GPM to 1,580...15,800 GPM	17
	Paddle-Type	FPS	Insertion Paddle Flow Switch	✓	◆	◆	◆	✗	◆	◆	✗	✗	✗	✗	✗	0.9...4.4 GPM to 375...760 GPM	16
		LSP	Flow Switch for HVAC	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	195...1,575 FPM	16
		PPS	Plastic Paddle Flow Switch	✓	✗	✗	✗	✗	✗	◆	✗	✗	✗	✗	✗	5...9.5 GPM to 19...28.5 GPM	16
		PSR/PS	Paddle Flow Switch	✓	◆	◆	✗	✗	◆	◆	✗	✗	✗	✗	✗	0.6...1.2 GPM to 101...140 GPM	16
Flap-Type	TSK	Flap-Style Flowmeter	✓	◆	◆	✗	✗	◆	◆	✗	✗	✗	✗	✗	6.6...26.4 GPM to 880...6,600 GPM	17	
Rotating Vane	Positive Displacement - Helical Gear	OME	Helical Gear Flowmeter	✓	✗	◆	✓	✗	✓	✗	✗	✗	✗	✗	0.03...2.6 GPM to 0.92...92 GPM	20	
	Positive Displacement - Spherical Gear	ZDM	Positive-Displacement Flowmeter	✓	✗	◆	✓	✗	✓	✗	✗	✗	✗	✗	0.0005...0.5 GPM to 0.4...138 GPM	21	
	Positive Displacement - Oval Gear	DOE	Oval Gear Flowmeter	✓	✗	◆	✓	✗	✓	✗	✗	✗	✗	✗	✗	0.14...9.5 GPH to 16...634 GPH	20
		DON	Positive Displacement Flowmeter	✓	✗	◆	✓	✗	✓	✗	✗	✗	✗	✗	✗	0.13...9.5 GPH to 40...660 GPM	20
		DON-H	Oval Gear Flowmeter for High Pressures	✓	✗	◆	✓	✗	✓	✗	✗	✗	✗	✗	✗	0.13...9.5 GPH to 0.26...10.6 GPM	20
		OVZ	Oval-Gear Flowmeter	✓	✗	◆	✓	✗	✓	✗	✗	✗	✗	✗	✗	0.08...2.1 GPM to 0.42...10.6 GPM	19
	Paddle-Wheel	DF-Series	Flowmeters and Flow Sensors	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.02...0.14 GPM to 1.5...36 GPM	19
		DFT	Paddle-Wheel Flow Sensor	✓	✗	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗	0.05...0.5 GPM to 0.8...15 GPM	19
		DPE	Paddle-Wheel Flowmeter	✓	◆	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	1.5...8 GPM to 15...200 GPM	17
		DPL	All-Plastic, Low Flow Sensor	✓	✗	✓	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.4...8 GPH to 16...400 GPH	18
		DRB	Paddle-Wheel Flowmeter	✓	◆	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	1.5...8 GPM to 15...200 GPM	17
		DRG	Paddle-Wheel Flow Sensor	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.15...3 GPM to 3...37 GPM	19
		DRH	Paddle-Wheel Flow Sensor	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.05...0.2 GPM to 0.66...13.2 GPM	19
	Pelton Wheel	DPM	Pelton Wheel Flow Sensor	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.24...4.8 GPH to 0.8...80 GPH	18
		DTK	Pelton Wheel Flow Sensor	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.8...9.5 GPH to 16...190 GPH	19
		KFF/KFG	Low Volume Rotating Vane Flowmeter	✓	✗	◆	✗	✗	✗	✓	✗	◆	✗	◆	✗	13...100mL/min to 1...10 L/min (20...100 mL <sub>v</sub> /min to 100...500 L <sub>v</sub> /min)	18
	Turbine	DOT	Turbine Flowmeter/Monitor	✓	✗	◆	✗	✗	◆	◆	✗	✗	✗	✗	✗	0.5...5 GPM to 240...2,400 GPM	18
		DRS	OEM Turbine Flow Sensor	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.6...10.5 GPM	17
		SFL	Turbine Flow Sensor	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.5...20 l/min	18
TUR		All-Plastic Turbine Flowmeter	✓	◆	✓	✗	✗	◆	◆	✗	✗	✗	✗	✗	5...88 GPM to 11...440 GPM	17	
Rotary Piston	DRZ	Rotary Piston Flowmeter	✓	✗	✗	✓	✗	✓	✗	✗	✗	✗	✗	✗	1.6...110 GPH	19	

✓ = Normally    ◆ = Possibly (Consult Factory)    ✗ = Not Suitable/Applicable

\*This chart is a guide for a generalized overview of the flow instrumentation line. Each application is unique and all factors should be carefully considered when selecting the appropriate technology. For more in-depth assistance, contact our engineering staff at 412-788-2830. Purchaser assumes all responsibility and accompanying liability in the final product selection.



KOBOLD Technology Category	Specific Technology Type	Model	Product Description	Media*											Flow Range	Page			
				Liquid							Gas			Steam					
				Clean	Dirty	Aggressive	Viscous	Abrasive	Oil-Based	Ultra-Pure H <sub>2</sub> O	Slurries	Clean	Dirty				Aggressive		
Without Moving Parts	Coriolis	HPC	Mini Coriolis Mass Flow Meter	✓	◆	◆	◆	◆	◆	◆	◆	◆	✗	✗	✗	✗	◆	2...20 kg/h to 5...50 kg/h	22
		TM	Universal Special Purpose Coriolis Flowmeter	✓	◆	✓	◆	◆	◆	◆	◆	◆	✗	✗	✗	◆	0.003...0.3 lbs/min to 220...2,400 lbs/min	22	
		TMU	High Performance Coriolis Flowmeter	✓	◆	✓	◆	◆	◆	◆	◆	◆	✗	✗	✗	◆	0...1,320 lbs/hr to 0...2,200 tons/hr	23	
		TMU-W	High Pressure Coriolis Flowmeter	✓	◆	✓	◆	◆	◆	◆	◆	◆	✗	✗	✗	◆	Max. 4 kg/min H <sub>2</sub>		
	Differential Pressure	KEL	Heavy Duty DP Flowmeters	✓	✗	✓	◆	✗	✗	◆	◆	✗	✗	✗	✗	✗	✗	0.1...0.5 GPM to 400...2,000 GPM	24
		RCD	Ultra-Rugged DP Flowmeter	✓	✗	◆	✗	✗	✗	◆	◆	✗	✗	✗	✗	✗	✗	0.2...0.88 GPM to 100...600 GPM	24
		RCM	Direct-Reading Flowmeter	✓	✗	✓	◆	✗	◆	◆	◆	✗	✓	✗	◆	✓	0.3...2 GPM to 400...3,000 GPM (1.5...10 SCFM to 3,000...20,000 SCFM)	24	
	Hot-Film Anemometer	KAH	Air Velocity Sensor	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	0...2,000/3,000/4,000 ft/min	21	
	Magnetic-Inductive (Electromagnetic)	EPS	Magnetic-Inductive Flowmeter	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗	✗	✗	✗	0.5...10 m/sec	25
		MIK	Economical Magmeter	✓	✓	✓	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	0.18...7.8 GPH to 9.5...180 GPM	24
		MIM	All-Metal Electromagnetic Flowmeter	✓	✓	✓	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	0.16...16 GPH to 0.4...90 GPM	24
		MIS	All-Metal Electromagnetic Flowmeter	✓	✓	✓	◆	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	3.3...33 ft/sec	24
		PIT	Insertion Magnetic Flowmeter	✓	✓	✓	✓	✓	✗	✗	◆	✗	✗	✗	✗	✗	✗	3.3...33 ft/sec	25
		PITe	Magnetic Inductive Flowmeter	✓	✓	✓	✓	✓	✗	✗	◆	✗	✗	✗	✗	✗	✗	3.3...33 ft/sec	25
		Thermal	DOG	Oscillation Flowmeter	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	◆	✗	0.12...12 m <sup>3</sup> /h to 60...6,000 m <sup>3</sup> /h	25
			KAL	Temperature-Compensating Thermal Flow Switch	✓	✓	✓	✗	✓	✗	◆	✗	✗	✗	✗	✗	✗	0.15...6.6 ft/sec	21
	KAL-A		Thermal Flow Sensor	✓	✓	✓	✗	✓	✗	◆	✗	✗	✗	✗	✗	✗	0.15...6.6 ft/sec	21	
	KAL-D		Compact Thermal Flow Switch	✓	✓	✓	✗	✓	✗	◆	✗	✗	✗	✗	✗	✗	0.15...6.6 ft/sec	21	
	KAL-K		Thermal Flow Switch with Flow Trend Indication	✓	✓	✓	✗	✓	✗	◆	✗	✗	✗	✗	✗	✗	0.15...6.6 ft/sec	21	
	KAL-L		Thermal Air Flow Switch	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	3.3...65 ft/sec	21
	KME		Compact Inline Flowmeter	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	◆	✗	0.12...44.4 SCFM to 1.3...500 SCFM	22	
	KMT		Thermal Mass Flowmeter	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	◆	✗	0.32...63 Nm <sup>3</sup> /h to 263...263,350 Nm <sup>3</sup> /h	22	
	Ultrasonic - Clamp-on	DUC	Clamp-on Ultrasonic Flowmeter	✓	◆	✓	✓	✓	✓	✓	◆	✗	✗	✗	✗	0...98 ft/sec	26		
	Ultrasonic - Inline	DUK	Compact Ultrasonic Flowmeter	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.02...5 GPM to 0.6...160 GPM	26		
	Vortex - Multivariable	DVE	Multi-Variable Insertion Design Flowmeter	✓	◆	◆	◆	✗	◆	◆	✗	✓	✗	✓	✓	5.2...157 m <sup>3</sup> /h to 284...8,537 m <sup>3</sup> /h (889...1,463 to 26,915...2,467,081 Nm <sup>3</sup> /h)	25		
DVH		Multivariable Flowmeter	✓	◆	◆	◆	✗	◆	◆	✗	✓	✗	✓	✓	0.89...22 GPM to 141...4,270 GPM (1.8...18 SCFM to 2,071...203,000 SCFM)	25			
Vortex	DVZ	Vortex Flowmeter and Switch	✓	✗	◆	✗	✗	✗	◆	✗	✗	✗	✗	✗	0.13...1.2 GPM to 2.6...26.5 GPM	25			

✓ = Normally    ◆ = Possibly (Consult Factory)    ✗ = Not Suitable/Applicable

\*This chart is a guide for a generalized overview of the flow instrumentation line. Each application is unique and all factors should be carefully considered when selecting the appropriate technology. For more in-depth assistance, contact our engineering staff at 412-788-2830. Purchaser assumes all responsibility and accompanying liability in the final product selection.



## NBK Industrial Bypass Level Indicators

KOBOLD NBK Series bypass level gauges are used in applications requiring visual indication, continuous measurement, and/or control of liquid levels. Any free-flowing, compatible media with a viscosity less than 200 cPs is a candidate. The NBK bypass level indicator's design relies on the hydrostatic pressure principle to display tank level in a side-mounted measuring chamber. A float, which contains a ring magnet, rises and falls with the liquid level in the bypass tube. This approach allows the NBK bypass level indicators to be built with an all-metal construction, eliminating the breakage and leakage problems frequently experienced with glass tube designs. Visual indication, signal transmission, or switching may be achieved by mounting these magnetically-sensitive devices on the exterior of the bypass tube. These devices then track or are activated by the ring magnet located inside the float as it moves with changes in fluid level.

The KOBOLD NBK-M mini bypass level indicator provides many of the unique features of our standard NBK Series bypass level indicators but at a fraction of the cost. Similar to the full-sized NBK Series, the NBK-M level indicator uses KOBOLD's ring magnet float design, allowing the user full flexibility in adding roller indicators, switches and other options almost anywhere on the periphery of the bypass tube. The use of lighter gauge materials and a streamlined manufacturing process make the KOBOLD NBK-M mini bypass level indicator a very economical choice for lower pressure and shorter length level measuring applications.

The KOBOLD NBK-04 top-of-the-tank mounted level indicator combines the rugged simplicity of our NBK series bypass level indicators with above-the-tank liquid level indication.

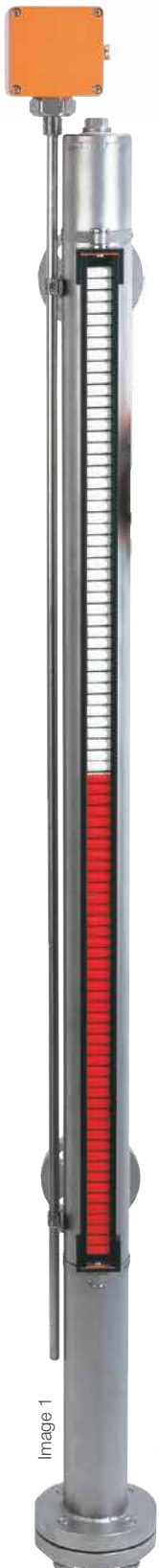


Image 1



Image 2

Image 3

Image 4

*Image 1: Standard NBK (-03 to -33)*

*Image 2: NBK-M (Mini-NBK)*

*Image 3: NBK-04 (Top-Mount NBK)*

*Image 4: NBK Combined with NGM Guided Wave Radar Level Transmitter*

[Learn More on Page 37](#)



# LEVEL



## NIR-9

### Reliable, Heavy-Duty Rotating Vane Level Switch for Bulk Media



The NIR-9 is an industrial workhorse, setting the standard for superior engineering in rotating vane bulk level switches. Unlike other models in the marketplace, the NIR-9 is designed with longevity and dependability in mind. It offers three distinct advantages over similar models. One, the heavy duty motor is built of metal and provides years of service, unlike others in the industry that are built of plastic. Two, once the rising media impedes the rotating paddle, a switch disengages the motor. Other models are not built with this feature and continue to strain the motor, significantly shortening the instrument's lifespan and increasing overall application costs because of the frequent need for replacements. Three, the switch within the NIR-9 offers easily adjustable sensitivity settings, to allow for even more customization for the exact demands of the application. With a modular design concept and a variety of vanes, the NIR-9 truly offers a superior solution for almost any bulk level application.

- For Bulk Media and Solids in Silos and Hoppers
- Superior Performance and Reliability
- Direct Replacement for Models Prone to Motor Burnout
- High Quality Motor
- Superior Switch Design Avoids Damage to Motor
- Switch Sensitivity is Field-Adjustable
- Aluminum Housing
- Unaffected by Humidity or Conductivity
- Easy to Install, Economical Pricing
- Different Mounting Options
- Modular Design Offers Flexibility
- Rod or Cable Versions
- Custom Temperatures up to 900 °F



#### Ideal for a wide variety of media like:

- Cereal
- Grain
- Flour
- Sand
- Sugar
- Animal Feed
- Cement
- Gravel

The NIR-9 operates via a motor that drives a rotating vane. As soon as the media reaches the vane, its rotation is stopped. The restoring force moves the pivoted motor away from its original position. A micro-switch is actuated, which gives out an alarm signal. A second microswitch turns off the motor. If the level is decreased, the vane is released and the force of a spring pulls the motor back to its original position, restarting the motor.

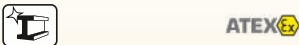
Learn More on Page 35





## M-SERIES

**Custom Magnetic Float Switch**  
Brass, Stainless Steel, PVC, PP, NBR, PVDF



Density: 0.55 kg/dm<sup>3</sup>  
t<sub>max</sub> 300 °F; p<sub>max</sub> 1,450 PSIG  
Connection: NPT, DIN/ANSI Flange

## NCS

**Magnetic Float Switch**  
Stainless Steel



Specific Gravity<sub>min</sub>: 0.65  
t<sub>max</sub> 300 °F; p<sub>max</sub> 400 PSIG  
Connection: 1/8" NPT, 1/4" NPT

## NCP

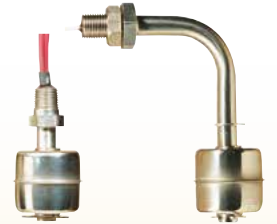
**Magnetic Float Switch**  
Polypropylene



Specific Gravity<sub>min</sub>: 0.81  
t<sub>max</sub> 225 °F; p<sub>max</sub> 100 PSIG  
Connection: 1/8" NPT, 1/4" PF

## OEM

**OEM Level Switches**  
Stainless Steel, Polypropylene, NBR, PVDF



Specific Gravity<sub>min</sub>: 0.55  
t<sub>max</sub> 250 °F; p<sub>max</sub> 425 PSIG  
Connection: 1/2" NPT, 1/8" PF

## NKP

**Side-Mount Plastic Level Switch**  
Polypropylene, PVDF



Specific Gravity<sub>min</sub>: 0.6  
t<sub>max</sub> 212 °F; p<sub>max</sub> 145 PSIG  
Connection: 1/2" NPT, Bulkhead

## RFS

**Side-Mount Level Switch**  
Stainless Steel



Specific Gravity<sub>min</sub>: 0.8  
t<sub>max</sub> 248 °F; p<sub>max</sub> 72 PSI/145 PSI (ATEX)  
Connection: 1/2" NPT

## NV

**Side-Mount Level Switch**  
Brass, Stainless Steel



Specific Gravity<sub>min</sub>: 0.63  
t<sub>max</sub> 230 °F; p<sub>max</sub> 230 PSIG  
Connection: 3/4" NPT

## NCM

**Custom Mini Multipoint Switch**  
Brass, NBR, PP, Stainless Steel



Specific Gravity<sub>min</sub>: 0.47...0.70  
t<sub>max</sub> 300 °F; p<sub>max</sub> 400 PSIG  
Connection: 1/8"...1" NPT, 5/16 Tube End

## NCG

**Custom Multipoint Level Switch**  
PVC, Stainless Steel, NBR, PP



Specific Gravity<sub>min</sub>: 0.55...0.85  
t<sub>max</sub> 300 °F; p<sub>max</sub> 400 PSIG  
Connection: 1/2"...2" NPT, 3" ANSI Flange, 1/2" Tube End

## NBA/NBE

**Bypass Level Switch**  
Aluminum, Stainless Steel



Density: 0.65 kg/dm<sup>3</sup>  
t<sub>max</sub> 150 °C; p<sub>max</sub> 10 bar  
Connection: G 3/8 Female, R 1/2 Male

## NSP/NSM

**Float Level Switch**  
Polypropylene



Specific Gravity<sub>min</sub>: 0.6  
t<sub>max</sub> 185 °F; p<sub>max</sub> 30 PSIG  
Connection: Cable

## NEC/NAB

**Float Level Switch**  
Polypropylene, Hypalon®



Specific Gravity<sub>min</sub>: 0.7  
t<sub>max</sub> 194 °F; p<sub>max</sub> 58 PSIG  
Connection: Cable



# Level

## NST

### Float Level Switch PTFE



Specific Gravity<sub>min</sub>: 0.79  
t<sub>max</sub> 302 °F; p<sub>max</sub> 15 PSIG  
Connection: Cable

## NSE

### Float Level Switch Stainless Steel



Specific Gravity<sub>min</sub>: 0.8  
t<sub>max</sub> 302 °F; p<sub>max</sub> 220 PSIG  
Connection: 1/2" NPT

## NGS

### Heavy Duty Level Switch Stainless Steel



Specific Gravity<sub>min</sub>: 0.7  
t<sub>max</sub> 480 °F; p<sub>max</sub> 360 PSIG  
Connection: 2" NPT, Square Flange, DIN-Flange

## NEK/NEL/NES

### Conductive Level Switch Fitting: SS, Polypropylene, PTFE Electrode: SS, Hastelloy®, Titanium Electrode Coating: Polyolefin, PTFE



t<sub>max</sub> 300 °F; p<sub>max</sub> 440 PSIG  
Connection: 1/2" NPT, 1-1/2" NPT  
Up to Six Switch Points

## NEH

### Cable-Suspended Conductive Level Switch

Fitting: Polypropylene, PTFE  
Electrode: SS, Hastelloy®, Titanium  
Electrode Coating: Neoprene, PTFE



t<sub>max</sub> 300 °F; p<sub>max</sub> 90 PSIG  
Connection: 1/2" NPT, 1-1/2" NPT  
Up to Six Switch Points

## NE-104/-304

### Power Supply Relays for Conductive Switches



1 or 2 Limit Contacts or  
1 or 2 Min/Max Control Switches  
Switch Capacity: Max. 250 V<sub>AC</sub>,  
5 A, 600 VA

## NEK

### Compact Conductive Level Switch

Polypropylene, PPS



Conductivity<sub>min</sub>: 100 µS/cm  
t<sub>max</sub> 185 °F; p<sub>max</sub> 290 PSIG  
Connection: 3/4" NPT, R 3/4  
Open-Collector or Relay

## LNK

### Conductive Level Switch Stainless Steel, E-CTFE



Conductivity<sub>min</sub>: 10 µS/cm  
t<sub>max</sub> 212 °F; p<sub>max</sub> 145 PSIG  
Connection: G 1/2, G 1, Tri-Clamp®  
Up to Four Electrodes

## LNR

### Level Module for Conductive Level Probes Makrolon®



Direct PLC Connection  
PNP Switch Output  
Short Circuit Proof  
Adjustable Sensitivity  
Electrode Supply: AC Voltage

## LNK-K

### Compact Conductive Level Switch Stainless Steel, PEEK



Conductivity<sub>min</sub>: 10 µS/cm  
t<sub>max</sub> 300 °F; p<sub>max</sub> 145 PSIG  
Connection: G 1/2, Tri-Clamp®

## LNM

### Microwave Level Switch Stainless Steel, PEEK



Dielectric Constant<sub>min</sub>: 20  
t<sub>max</sub> 212 °F; p<sub>max</sub> 145 PSIG  
Connection: G 1/2, Tri-Clamp®  
Open-Collector

## LNZ

### Capacitive Level Limit Switch Stainless Steel, PEEK



Dielectric Constant<sub>min</sub>: 20  
t<sub>max</sub> 212 °F; p<sub>max</sub> 145 PSIG  
Connection: G 1/2, Tri-Clamp®  
Open-Collector



## NCW/NCW-H

**Capacitive Level Switch**  
Stainless Steel, PVDF, PTFE



Dielectric Constant<sub>min</sub>: 1.5  
 $t_{max}$  194/257 °F;  $p_{max}$  145/435 PSIG  
Connection: 1" NPT, G 1, G 2  
Adapter: 2" NPT, G 1-1/4,  
G 1-1/2, Weld-in Sleeve  
Relay

## OPT

**Optical Switch for Liquids**  
Stainless Steel, Polypropylene  
Sensor: Polysulfone



$t_{max}$  176 °F;  $p_{max}$  145 PSIG  
Connection: 1/2" NPT,  
G 1/2, M14 Bulkhead  
Open-Collector

## NSD

**Economical Optical Level Switch**  
Stainless Steel, Polysulfone



$t_{range}$  15...250 °F  
 $p_{max}$  140/550 PSIG  
Connection: 3/8" NPT

## NK-8000

**Ultrasonic Level Switch**  
Stainless Steel



$t_{max}$  176/212 °F;  $p_{max}$  1,000 PSIG  
Connection: 3/4" NPT

## NWP

**Plastic Vibrating Fork Level Switch for Liquids**  
Glass Filled PPS



$t_{range}$  -40...176 °F;  $p_{max}$  150 PSIG  
Connection: 3/4" NPT  
SPST Relay Output

## NWS

**Vibrating Level Switch**  
Stainless Steel



$t_{max}$  265 °F;  $p_{max}$  650 PSIG  
Viscosity<sub>max</sub>: 5,000 cSt  
Connection: 3/4" NPT, 1" NPT,  
1-1/2" or 2" Tri-Clamp®,  
1" or 2" ANSI Flanges

## NDT

**Static Pressure Level Switch**  
Polyamide, NBR



$t_{range}$  15...185 °F;  $p_{max}$  Atmospheric  
Switchpoint: 4" Above End of Pipe  
Connection: Hose Clamp for  
1" Sch 40 Pipe

## NSV

**Vibrating Fork Level Switch for Bulk Media**  
Stainless Steel



Switching Range: 9" ...118"  
Minimum Media Density: 3.75 lb/ft<sup>3</sup>  
 $t_{max}$  176 °F;  $p_{max}$  Atmospheric  
Connection: 1-1/2" NPT, G 1-1/2  
1 Relay SPDT

## NVI

**Vibrating Rod Level Switch for Bulk Media**  
Stainless Steel



Switching Range: 8.15"  
and Special Lengths  
Minimum Media Density: 3.1 lb/ft<sup>3</sup>  
 $t_{max}$  320 °F;  $p_{max}$  360 PSIG  
Connection: 1-1/2" NPT, G 1-1/2

## NMF

**Static Pressure Level Switch for Dry Bulk Media**  
NBR, FKM, Stainless Steel



$t_{max}$  390 °F  
Minimum Media Density: 3.2 lb/ft<sup>3</sup>  
 $p_{max}$  14.5 PSI (Over-pressure Protected)  
Connection: Flange

## PLS

**Pendulum Level Switch for Bulk Media**  
Aluminum, NBR



Length<sub>max</sub>: 78.7"  
 $t_{max}$  176 °F;  $p_{max}$  7 PSIG  
Connection: Aluminum Flange  
SPDT Microswitch 250 V<sub>AC</sub>/15A

## NIR-9

**Rotating Vane Level Switch for Bulk Media**  
Stainless Steel



Switching Range: 2.5"...390"  
 $t_{max}$  392 °F;  $p_{max}$  7.25 PSI  
Connection: 1" NPT, 1-1/2" NPT, Others  
SPDT Microswitch 250 V<sub>AC</sub>/2A



# Level

## NSC

**Capacitive Level Switch for Bulk Media**  
Stainless Steel, PTFE, Polycarbonate, PP



Dielectric Constant<sub>min</sub>: 1.5  
Switching Range: 10" ... 49 ft  
t<sub>range</sub> -4 ... 176 °F; p<sub>max</sub> 7 PSIG  
Connection: 1" NPT, 2" NPT, G 1  
Adapter: G 1-1/4, G 1-1/2, Round Flange

## NGM

**Guided Wave Radar Level Transmitter**  
Stainless Steel, PTFE



t<sub>max</sub> 480 °F; p<sub>max</sub> 580 PSIG  
Connection: Thread, Flange  
Rigid Probe, Concentric Probe, Cable  
Analog Output and Switching Output  
Accuracy: ± 3 mm of Measured Value

## NGR

**Guided Wave Radar Level Transmitter**  
Stainless Steel, PTFE



Measuring Range: 4" ... 78"  
t<sub>max</sub> 212 °F; p<sub>max</sub> 145 PSIG  
Connection: 3/4" NPT, G 3/4 Male  
Analog Output, Switching Outputs  
Sensor Accuracy: ± 0.2

## MM

**Reed Chain Resistive Level Sensor**  
Stainless Steel, PVC, PP, PVDF



Max. Measuring Length: 19.6 ft  
Density: 0.4 kg/dm<sup>3</sup>  
t<sub>max</sub> 265 °F; p<sub>max</sub> 435 PSI  
Connection: 3/8" ... 2" NPT, 1-1/2" ... 4" ANSI  
Accuracy: ± 0.5% for L < 6.2 Feet

## NML-308

**Liquid Level Transmitter**  
Polyethylene, PVC, PP, PTFE



Specific Gravity<sub>min</sub>: 0.9  
Length<sub>max</sub>: 6" ... 48"  
t<sub>max</sub> 250 °F; p<sub>max</sub> 25 PSIG  
Connection: 1-1/4" NPT or 1-1/2" NPT

## NML-310

**Liquid Level Transmitter**  
Polyethylene, PVC, PP, PTFE



Specific Gravity<sub>min</sub>: 0.8  
Length<sub>max</sub>: 12" ... 108"  
t<sub>max</sub> 250 °F; p<sub>max</sub> 40 PSIG  
Connection: 2" NPT, 2" ... 4" ANSI

## NMT

**Magnetostrictive Level Transmitter**  
Stainless Steel



Specific Gravity<sub>min</sub>: 0.7 ... 1.0  
Measuring Range: 12" ... 157"  
t<sub>range</sub> -4 ... 158 °F; p<sub>max</sub> 145 PSIG  
Connection: 2" NPT, G 2  
Output: Analog 4-20 mA, 4-wire

## NMC

**Capacitive Level Transmitter**  
Stainless Steel, PVDF, PTFE



Measuring Range: 11" ... 157"  
Dielectric Constant<sub>min</sub>: 1.5  
t<sub>max</sub> 257 °F; p<sub>max</sub> 435 PSIG  
Connection: 1" NPT, 2" NPT, G 1, G 2  
Adapter: G 1-1/4, G 1-1/2, Weld-in Sleeve  
Output: Analog 4-20 mA, 2 Wire

## NRF

**Capacitive Level Transmitter**  
Stainless Steel, PTFE



Rigid Probe and Suspended Cable Designs  
Length<sub>max</sub>: 200 ft.  
t<sub>range</sub> -100 ... 350 °F; p<sub>max</sub> 500 PSIG  
Connection: 3/4" NPT, 1-1/2" NPT, 1-1/2" ... 2" Tri-Clamp®

## NRF-1F

**Capacitive Level Transmitter with Integrated Concentric Grounding Probe**  
Stainless Steel, PTFE



Max. Length: 10 ft  
t<sub>max</sub> 350 °F; p<sub>max</sub> 14.5 ... 100 PSIG  
Connection: 3/4" or 1-1/2" NPT  
Output: 4-20 mA  
Accuracy: ± 1% of Span

## NRF-2/-3

**Capacitive Level and Temperature Transmitter**  
Stainless Steel, PTFE



Measuring Length<sub>max</sub> 12 ft  
t<sub>range</sub> -100 ... 350 °F; p<sub>max</sub> 100 PSIG  
Connection: 3/4" NPT, 1-1/2" ... 3" Tri-Clamp®  
Output: 4-20 mA, RTD

## PAD-N

**Differential Pressure Transmitter with Diaphragm Seal**  
Stainless Steel



Level: 0 ... 2,500 mmWC to 0 ... 150 mWC  
t<sub>max</sub> 200 °C  
Connection: Flange via Neck Tube DN 50 or Bigger  
Accuracy: ± 0.075% of Calibrated Span + Influence of Diaphragm Seal



## NBK-M

### Economical Mini Bypass Level Indicator Stainless Steel

TOP SELLER



Measuring Length<sub>range</sub>: 8" ... 9.8 ft  
Specific Gravity: 1.0 or 0.8  
Viscosity<sub>max</sub>: 200 cP  
t<sub>max</sub> 390 °F; p<sub>max</sub> 580 PSIG  
Connection: 1/2" ... 1" NPT,  
1/2" ... 1" ANSI Flange

## NBK-03 TO -33

### Bypass Level Indicator Stainless Steel

TOP SELLER



Measuring Length<sub>range</sub>:  
1 ft ... 18 ft (or longer)  
Specific Gravity<sub>min</sub>: 0.54  
Viscosity<sub>max</sub>: 200 cP  
t<sub>max</sub> 750 °F; p<sub>max</sub> Class 1500  
Connection: 1/2" ... 1-1/4" NPT,  
1/2" ... 2" ANSI Flange

## NBK-04

### Tank-Top Mounted Level Indicator Stainless Steel



Measuring Length<sub>range</sub>: 1 ft ... 13 ft  
Specific Gravity<sub>min</sub>: 0.55  
Viscosity<sub>max</sub>: 200 cP  
t<sub>max</sub> 250 °F; p<sub>max</sub> 230 PSIG  
Connection: 2" or 2-1/2" ANSI Flange

## NBK-16/-17

### Plastic Bypass Level Indicator Polypropylene, PVDF



Measuring Length<sub>range</sub>: 8" ... 13 ft  
Specific Gravity<sub>min</sub>: 0.59  
Viscosity<sub>max</sub>: 200 cP  
t<sub>max</sub> 176 °F; p<sub>max</sub> 58 PSIG  
Connection: 3/4" ... 2" ANSI Flange

## SZM

### Bypass Level Indicator Stainless Steel



Measuring Length<sub>range</sub>: 15" ... 121"  
t<sub>max</sub> 212 °F; p<sub>max</sub> 145 PSIG  
Connection: 1/2" NPT,  
ANSI 1/2" ... 2"

## NZJ

### Micro Bypass Level Indicator with Switch Options Aluminum, Stainless Steel



Installation Length: 4" ... 22"  
t<sub>max</sub> 210 °F; p<sub>max</sub> 230 PSIG  
Connection: 1/4" NPT  
Up to Two Limit Contacts Available

## BA

### Displacer-Type Level Gauge Stainless Steel



Measuring Length<sub>range</sub>: 1 ... 19.7 ft  
Specific Gravity<sub>min</sub>: 0.4 ... 2.0  
t<sub>range</sub> -40 ... 480 °F; p<sub>max</sub> 580 PSIG  
Connection: 2 ... 4" ANSI Flange

## NEO

### Ultrasonic Level Transmitter PVDF



Measuring Length: 19.6' or 39.3'  
t<sub>range</sub> -40 ... 176 °F; p<sub>max</sub> 30 PSIG  
Connection: 2" or 3" NPT  
Narrow 3" Beam Width

## NUS-4

### Ultrasonic Level Transmitter PP, PVDF



Measuring Range: up to 80 feet (Liquids)  
t<sub>max</sub> 190 °F; p<sub>max</sub> 40 PSIG  
Connection: 1-1/2", 2" NPT;  
3", 5", or 6" ANSI Flange

## NUS-7

### Ultrasonic Level Transmitter PP, PVDF



Measuring Range: Liquids up to 20 ft  
t<sub>max</sub> 194 °F; p<sub>max</sub> 40 PSIG  
Connection: 2" NPT, G 2  
Analog Output  
Accuracy: ± 0.2% of Reading  
± 0.05% of Full Scale

## KPW

### Submersible Pressure Transducer Stainless Steel



Measuring Depth<sub>max</sub>: 50" WC  
to 1,000 PSI  
t<sub>range</sub> 14 ... 122 °F  
Proof Pressure: 2x Depth Range

## NTB

### Deep Well Level Probe Stainless Steel



Measuring Range: 0 ... 200 m (WC)  
t<sub>range</sub> 14 ... 140 °F  
Cable Length: Max. 300 m  
Analog Output

# Pressure

## MAN-R/Q

### Bourdon Tube Pressure Gauges Brass



Measuring Range:  
-30"...0" Hg to 0...14,500 PSIG  
Housing Ø: 63, 80, 100, 160 mm  
Overload Protection: 1.15 - 1.3 Times  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: ±1.0% or ±1.6% of Full Scale

## MAN-R

### Bourdon Tube Pressure Gauges Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...14,500 PSIG  
Housing Ø: 63, 80, 100, 160 mm  
Overload Protection: 1.15 - 1.3 Times  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: ±1.0% or ±1.6% of Full Scale

## MAN-N...S

### Bourdon Tube Pressure Gauges Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...30,000 PSIG  
Housing Ø: 63, 100, 150 mm  
Overload Protection: 1.15 - 1.25 Times  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: ±1.0% or ±1.6% of Full Scale

## MAN-T

### Bourdon Tube Pressure Gauges for Refrigeration Brass, Stainless Steel



Measuring Range: -1...9 to -1...40 bar  
Housing Ø: 63, 100, 160 mm  
Overload Protection: 1.3 Times  
Connection: 7/16-20 UNF, G 1/4  
Accuracy: ±1.0% or ±1.6% of Full Scale

## MAN-K

### Capsule Element Pressure Gauge Brass, Stainless Steel



Measuring Range: -10...0 to 0...600 mbar  
Housing Ø: 63, 80, 100, 160 mm  
Overload Protection: 1.3 - 10 Times  
Connection: G 1/4, G 1/2  
Accuracy: ±1.6% of Full Scale

## MAN-P

### Diaphragm Pressure Gauge Stainless Steel



Measuring Range: -16...0 to 0...40 bar  
Housing Ø: 100, 160 mm  
Overload Protection: 1.3 Times  
Connection: 1/2" NPT  
Optional: Contact  
Accuracy: ±1.6% of Full Scale

## MAN-C

### Diaphragm Pressure Gauge for Chemicals Stainless Steel, ECTFE, PTFE



Measuring Range: -25...0 mbar to 0...25 bar  
Housing Ø: 100, 160 mm  
Overload Protection: 1.3 Times  
Connection: ANSI Flange  
Accuracy: ±1.6% of Full Scale

## MAN-ZF

### Pressure Gauge with Transducer Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...8,700 PSIG  
Housing Ø: 100 mm  
Overload Protection: 0.9 - 1.0 Times  
Connection: 1/2" NPT  
2-wire, 4-20 mA Output  
Accuracy: ±1.0% of Full Scale

## MAN-F

### Test Pressure Gauge with Bourdon Tube Aluminum, SS, Brass



Measuring Range:  
-8.5"...0" Hg to 0...8,700 PSIG  
Housing Ø: 160, 250 mm  
Overload Protection: 0.9 - 1.3 Times  
Connection: 1/2" NPT  
Accuracy: ±0.25% or ±0.6% of Full Scale

## MAN-U

### Differential Pressure Gauge with Double Diaphragm Stainless Steel



Measuring Range:  
0...100 mbar to 0...25 bar  
Static Pressure on Both Sides: 200 bar  
Housing Ø: 100 or 150 mm  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: Cl. 1.6

## MAN-LD/DSD

### LCD Pressure Gauge with Ceramic Sensing Element Externally Powered Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...23,000 PSIG  
Housing Ø: 74 mm  
Overload Protection: 1.5 - 3 Times  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: ±0.5% of Full Scale

## MAN-SD/DSD

### LCD Pressure Gauge with Ceramic Sensing Element Battery Powered Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...23,000 PSIG  
Housing Ø: 74 mm  
Overload Protection: 1.5 - 3 Times  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: ±0.5% of Full Scale



## MAN-SC/LC

**Digital Pressure Gauge with Ceramic Sensor**  
Stainless Steel



Measuring Range:  
-1...0 bar to 0...1600 bar  
Housing Ø: 80 mm  
Overload Protection: 1.3 - 3 Times  
Connection: 1/2" NPT  
Analog Output, Alarm Output  
Accuracy:  $\pm 0.2 - 0.5\%$  of Full Scale

## MAN-DG12R

**Differential Pressure Gauge with Bourdon Tube**  
Aluminum, Steel



Measuring Range:  
0...15 PSID to 0...870 PSID  
Housing Ø: 160 mm  
Optional: Contacts  
Accuracy:  $\pm 1.6\%$  of Full Scale

## DRM

**Diaphragm, Capsule, and In-Line Diaphragm Seals for Pressure Gauges and Transmitters**

Stainless Steel, Special Materials upon Request



Measuring Range:  
-30"...0" Hg to 0...23,000 PSIG  
Fill Liquids: Glycerine, Paraffin, or Silicone  
Connection: NPT, BSP, ANSI, Tri-Clamp®, or Other Sanitary Connections

## DRM

**Flange Diaphragm Seals**  
Stainless Steel, Monel®, Tantalum, PTFE



Standard Version up to 350 °C/40 bar:  
ANSI 1" ... 4", DN 25 ... DN 100  
Special Version up to 400 bar:  
ANSI 8", up to DN 200  
Flanges According to BS, JIS, and GOST Standards  
Optional: Extended Diaphragm

## DRM 626/627

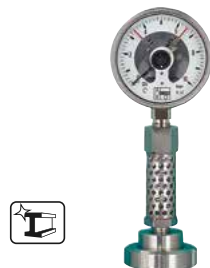
**Membrane Diaphragm Seals**  
Stainless Steel, Tantalum, ECTFE



Measuring Range: 0...0.6 to 0...250 bar  
Housing Ø: 90 mm  
Filling: Glycerine, Paraffin, Silicone Oil  
Membrane Option: Tantalum, ECTFE

## MAN/MZB/DRM

**Pressure Gauge with Sanitary Diaphragm Seal and Cooling Element**  
Stainless Steel



MAN-RF..MZB-711..DRM-602  
Meas. Range: 0...15 to 0...580 PSIG  
Housing Ø: 100 mm  
Connection: Tri-Clamp®, DIN 11851, Hygienic Connection, IDF, SMS  
Accuracy:  $\pm 1.6\%$  of Full Scale

## MAN/DRM

**Pressure Gauge with Tri-Clamp® Diaphragm Seal**  
Stainless Steel



MAN-RF..DRM-613  
Meas. Range: 0...15 to 0...145 PSIG  
Housing Ø: 100 mm  
Connection: 1"...3" Tri-Clamp®  
Accuracy:  $\pm 1.6\%$  of Full Scale

## MAN/DRM

**Pressure Gauge with Membrane Diaphragm**  
Stainless Steel



MAN-RF..M1...DRM-620  
Meas. Range: 0...1 to 0...40 bar  
Housing Ø: 100 mm, 160 mm  
Connections: Threaded, Flange, Tri-Clamp®, DIN 11851, SMS and IDF Norm  
Accuracy:  $\pm 1.6\%$  of Full Scale

## MAN/DRM

**Pressure Gauge with Inline Diaphragm**  
Stainless Steel



MAN-RF...DRM-502  
Meas. Range: 1.6...40 to 2.5...40 bar  
Housing Ø: 100 mm, 160 mm  
Connection: 1/2"...2" Tri-Clamp®, Hygienic ISO DN 15...50  
Accuracy:  $\pm 1.6\%$  of Full Scale

## MAN/DRM

**Pressure Gauge with Membrane Diaphragm Seal**  
Stainless Steel



MAN-RF...DRM-603  
Meas. Range: 0...1 to 0...40 bar  
Housing Ø: 100 mm  
Connection: DIN 11851, DN 25...100  
Accuracy:  $\pm 1.6\%$  of Full Scale

## MAN/DRM

**All Stainless Steel Bourdon Tube Pressure Gauge with Membrane Diaphragm**  
Stainless Steel



MAN-RD...DRM-600  
Meas. Range: 0...85 to 0...14,500 PSIG  
Housing Ø: 63 mm  
Connection: 1/2"...1-1/4" NPT  
Accuracy:  $\pm 1.6\%$  of Full Scale

## MAN/DRM

**Pressure Gauge with Membrane Diaphragm Seal - Plastic**  
PVDF



MAN-RD...DRM-632  
Meas. Range: 0...20 to 0...230 PSIG  
Housing Ø: 63 mm  
Connection: 1/2" NPT  
Accuracy:  $\pm 1.6\%$  of Full Scale

# Pressure

## DSD/SEN/DRM

**Pressure Gauge or Sensor with Membrane Diaphragm Seal**  
PVC or Polypropylene



DSD...DRM-630 and SEN...DRM-631  
Meas. Range: 0...20 to 0...145 PSIG  
Housing Ø: 74 mm  
Connection: 1/2" NPT  
Accuracy: ±1.0% of Full Scale

## SEN/DRM-600

**Pressure Sensor with Diaphragm Seal**  
Stainless Steel



Measuring Range: 0...6 to 0...600 bar  
 $t_{max}$  70 °C  
Connection: G 1/2...G 1-1/2 (SS)  
Optional AUF Plug-on Display  
Accuracy: ±1.0% of Full Scale

## PUM

**U-Pipe Pressure Indicator**  
Glass, Aluminum



Indicating Ranges:  
-125 up to 750 mm WC or  
-5" up to 30" WC  
Scale Division: 2 mm  
Hose Connection Ø: 7 mm

## MZB

**Pressure Sensing Accessories**  
Brass, Steel, Stainless Steel



Block and Bleed Valves, Gauge Swivels,  
Snubbers, Cooling Elements,  
and Steam Siphons

## MZB-712

**Pressure Sensing Accessories**  
Stainless Steel, Brass



Fittings: 1/4" ... 1/2" NPT,  
G 1/4...G1/2, 7/16-20 UNF DIN 3866,  
G 1/2 DIN 3852-E, M 20x1.5

## PMP

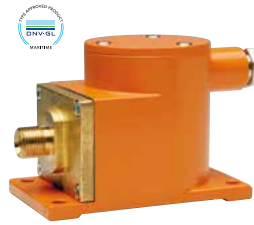
**Differential Pressure Sensor and Controller for Filters**



Measuring Range: 0...20" H<sub>2</sub>O  
Power Supply: 24 V<sub>AC/DC</sub>,  
110 V<sub>AC</sub>, 230 V<sub>AC</sub>  
Display: 4-Digit LED  
Connection: 1/4" NPT or 6x8 mm Tube  
Accuracy: ±1.0% of Full Scale

## PNK

**Pressure Transmitter for High Vibration**  
Brass, Aluminum



Measuring Range:  
-30...0" Hg to 0...1,450 PSIG  
Overload Protection: 1.6 Times  
Connection: M16 x 1.5  
(NPT with Adapter)  
Accuracy: ±1.0% of Full Scale

## PAD-N

**Differential Pressure Transmitter with Diaphragm Seal**  
Stainless Steel



Measuring Range:  
0 ... 250 mbar to 0 ... 206.80 bar  
 $t_{max}$  200 °C  
Connection: Flange, Threaded,  
Clamp-on, and In-line Diaphragm Seal  
(Nominal Size 15...100)  
Accuracy: ± 0.075% of Calibrated  
Span + Influence of Diaphragm Seal

## PAD - DIFFERENTIAL PRESSURE TRANSMITTER

TOP SELLER



Measuring Range:  
0.3"...6" WC to 60...6,000 PSIG  
Power Supply: 12-45 V<sub>DC</sub>  
Connection: 1/4" or 1/2" NPT  
Accuracy: ± 0.075% of Full Scale  
Material: Stainless Steel  
Media Temp: -40...248 °F  
Rangeability: 100 to 1  
Output: 4-20 mA, 2-wire with HART®  
CE EMC Conformity

- Continuous Self-Diagnostic Function
- Standard 5-digit Local Display
- Various Diaphragm Seals Available
- Zero Point Adjustment
- Automatic Ambient Temperature Compensation
- EEPROM Write Protection
- Fail Mode Process Function
- Sensor Inputs: Differential, Gauge, or Absolute Pressure







## PDA

**Pressure Transmitter with Ceramic Sensing Element**  
Stainless Steel



Measuring Range:  
-30...0" Hg to 0...5,800 PSIG  
Display: 3-Digit LED  
Power Supply: 24 V<sub>DC</sub>  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: ± 0.5% - 1.0% of Full Scale

## HND-P105/-210

**Hand-Held Pressure Indicator for External Sensors**



Measuring Range:  
-14.5...40 PSIG to 0...5,800 PSIG  
(Dependent on Associated Sensor)  
Optional: Data Log, Alarm, Control Functions  
Accuracy: ± 0.1% of Full Scale

## HND-P121/-123

**Hand-Held Differential Pressure Indicator with 2 Integrated Sensors**



Measuring Range: -0.0145...0.36 PSID to -1.45...29 PSID  
Optional: Data Log, Alarm, Control Functions  
Accuracy: ± 0.2% - 0.4% of Full Scale

## HND-P129/-239

**Hand-Held Differential Pressure Indicator with 1 Integrated Sensor**



Measuring Range: 0...15 PSIG  
Optional: Data Log, Alarm, Control Functions  
Accuracy: ± 0.2% of Full Scale

## KPG

**Pressure Transmitter with Thin Film Sensing Element**  
Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...145,000 PSIG  
Overload Protection: 1.2 - 3 Times  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: ± 0.125% - 0.25% of Full Scale

## KPK

**Pressure Transmitter with Thin Film Sensing Element**  
Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...15,000 PSIG  
Overload Protection: 1.5 - 2 Times  
Connection: 1/4" NPT  
Accuracy: ± 0.25% - 0.5% of Full Scale

## KPA

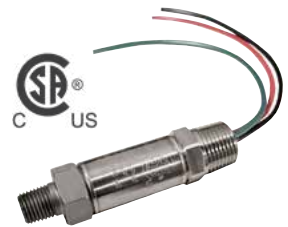
**OEM Pressure Transmitter with Heat-Fused Sensing Element**  
Stainless Steel



Measuring Range:  
0...50 PSIG to 0...10,000 PSIG  
Overload Protection: 2 Times  
Connection: 1/4" NPT  
Accuracy: ± 0.25% of Full Scale

## KP46

**Explosion Proof Pressure Transmitter**  
CSA/US Approved  
Stainless Steel



Measuring Range:  
0...50 PSIG to 0...20,000 PSIG  
Overload Protection: 2 Times  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: ± 0.25% BFSL

## SEN-86/-87

**Pressure Transmitter with Ceramic Element**  
Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...10,000 PSIG  
Optional AUF Display: 4-Digit LED  
Overload Protection: 1.5 - 2 Times  
Connection: 1/2" NPT, 1/4" NPT  
Accuracy: ± 0.5% - 1.0% of Full Scale

## SEN-96

**Pressure Sensor with Ceramic Element**  
Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...6,000 PSIG  
Output: 4-20 mA, 0-5 V<sub>DC</sub>, 0-10 V<sub>DC</sub>  
Connection: 1/4" NPT, 1/2" NPT, G 1/4, G 1/2  
Accuracy: ± 0.5 - 0.75% of Full Scale

## SEN-98/-99

**Pressure Sensor with Ceramic Element**  
Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...8,700 PSIG, 0...14.5 to 0...360 PSIA  
Overload Protection: 1.3 - 5 Times  
Connection:  
1/4" NPT, 1/2" NPT, G 1/4, G 1/2  
Accuracy: ± 0.5% of Measuring Range

## AUF

**Compact In-line Display for Transmitters**



For Transmitters with DIN 43650A Plugs  
Input: 4-20 mA, 2-wire or 3-wire  
User Programmable  
Optional Transistor Switch  
Custom Housing Colors for OEM Quantities

# Pressure

## PAS

### Pressure Transmitter High Accuracy Stainless Steel



Measuring Range:  
-14.5...21.7 to 0...8,700 PSIG  
Power Supply: 12-45 V<sub>DC</sub>  
Connection: 1/2" NPT  
Accuracy: ± 0.075% of Full Scale

## PAS-N

### Pressure Transmitter with Diaphragm Seal Stainless Steel



Measuring Range:  
0...250 mbar to 0...600 bar  
 $t_{max}$  350 °C  
Connection: Thread or Flange  
(Nominal Size 15...100)  
Accuracy: ± 0.075% of Calibrated Span  
+ Influence of Diaphragm Seal

## PAS-N

### Pressure Transmitter with Diaphragm Seal Stainless Steel



Measuring Range:  
0...250 mbar to 0...600 bar  
 $t_{max}$  350 °C  
Connection: Thread or Flange  
(Nominal Size 15...100)  
Accuracy: ± 0.075% of Calibrated Span  
+ Influence of Diaphragm Seal

## PSD

### Electronic Pressure Transmitter/Switch Stainless Steel



Range: 0...30 to 0...7,500 PSI  
Output: 4-20 mA or 0-10 V<sub>DC</sub>  
Output: 2x PNP Switches  
Display: 4-Digit LED  
Connection: 1/4" NPT  
Accuracy: ± 0.5% of Full Scale

## PDD

### Pressure Switch with Ceramic Sensing Element Stainless Steel



Measuring Range:  
-30"...0" Hg to 0...5,800 PSIG  
Display: 3-Digit LED  
Power Supply: 24 V<sub>DC</sub>  
Connection: 1/4" NPT, 1/2" NPT  
Accuracy: ± 0.5% - 1.0% of Full Scale

## KPH

### Pressure Switch - Industrial Diaphragm/Piston Type Aluminum



Switching Range:  
-14.5...0 PSIG to 580...6,100 PSIG  
Overpressure: 1.4 - 5 Times  
Connection: 1/4" NPT  
Repeatability: ± 3 - 4% of Full Scale

## KPH300

### Pressure Switch - OEM Diaphragm Type Zinc-Plated Steel, NBR



Switching Range:  
3...30 PSIG to 450...4,600 PSIG  
Overpressure: 1.2 - 9 Times  
Connection: 1/4" NPT  
Repeatability: ± 2% of Setpoint

## KPF

### Pressure Switch - OEM Diaphragm Type Brass, Stainless Steel



Switching Range:  
4.3...13 PSIG to 725...1,450 PSIG  
Overpressure: 1,450 PSIG  
Connection: 1/4" NPT  
Repeatability: ± 5% of Full Scale

## SCH-PSB

### Mechanical Pressure Switch PA, PS, Silicone



For Overpressure, Vacuum Pressure  
and Differential Pressure  
Ranges: 20...300 Pa to 200...1000 Pa  
Connection: Hose Barb

## SCH

### Mechanical Pressure Switch Brass, SS, NBR



Ranges: -15...6 mbar to -1...0.1 bar  
 $t_{max}$  85 °C  
Connection: R Threaded  
Micro-Switch, Optional Proximity Switch

## SCH-27

### Mechanical Pressure Switch Stainless Steel



Switching Range:  
0.7...6 mbar to 8...160 bar  
Switching Function: Micro Switch  
Connection: 1/2" NPT Female,  
1/4" NPT Female,  
1/2" NPT Male, G 1/2 Male  
Repeatability: < 1% of Full Setting Value

## SCH-28

### Mechanical Differential Pressure Switch Stainless Steel



Switching Range:  
0.1...1 bar to 0.2...10 bar  
Switching Function: Micro Switch  
Connection: 1/2" NPT Female,  
1/4" NPT Female,  
1/2" NPT Male, G 1/2 Male  
Repeatability: < 1% of Full Setting Value



## TWR

**Temperature Switch for Liquids**  
Brass, Stainless Steel



Switching Range: 86...248 °F  
 $t_{max}$  250 °F;  $p_{max}$  920 PSIG  
Connection: 3/4" NPT

## TBS

**Thermal Reed Temperature Switch**  
Brass, Stainless Steel



Switching Range: 14...212 °F  
 $t_{range}$  -40...250 °F;  $p_{max}$  360 PSIG  
Connection: 1/4"...1-1/2" NPT

## TDD

**Digital Temperature Switch**  
Stainless Steel



Switching Range: -58...250 °F  
 $t_{max}$  250 °F;  $p_{max}$  1,150 PSIG  
Connection: 1/2" NPT, 3/4" NPT,  
G 1/2, G 3/4  
2 Transistor Switches

## TDD-..D6

**Digital Temperature Switch**  
Stainless Steel



Switching Range: -58...250 °F  
 $t_{max}$  250 °F;  $p_{max}$  1,150 PSIG  
Connection: 6 mm dia. Smooth Probe  
2 Transistor Switches

## TNS

**Gas Filled Rigid Stem Thermometer**  
Stainless Steel



Measuring Range: -40...1,100 °F  
Housings: 2.5"...10"  
Overload Protection: FS Value,  
1.3x FS Optional  
Accuracy: 1.0% or 1.6%

## TNF

**Gas Filled Capillary Thermometer**  
Stainless Steel



Measuring Range: -40...1,100 °F  
Housings: 2.5"...10"  
Overload Protection: FS Value,  
1.3x FS Optional  
Accuracy: 1.0% or 1.6%

## TSH

**Thermowells for Stem and Capillary Thermometers**  
Stainless Steel



$p_{max}$  360 PSIG  
Connection: 1/2"...1" NPT, Weld Stub

## TDA

**Digital Temperature Transmitter**  
Stainless Steel



Measuring Range: -58...250 °F  
 $p_{max}$  1,150 PSIG  
Connection: 1/2" NPT, 3/4" NPT,  
G 1/2, G 3/4  
Output: 4-20 mA, 3-wire,  
Transistor Switch

## TDA-..D6

**Digital Temperature Transmitter**  
Stainless Steel



Measuring Range: -58...250 °F  
 $p_{max}$  1,150 PSIG  
Connection: 6 mm dia. Smooth Probe  
Output: 4-20 mA, 3-wire,  
Transistor Switch

## TNK

**RTD Temperature Sensors**  
Brass, Bronze, Stainless Steel



Measuring Range: -112...302 °F  
 $t_{max}$  302 °F;  $p_{max}$  725 PSIG  
Connection: 1/2" NPT, G 1/2, M18x1.5

## TSP

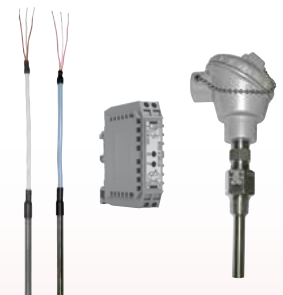
**Temperature Transmitter for Pipes**  
Brass, Stainless Steel



Measuring Range: -40...300 °F  
 $p_{max}$  750 PSIG  
Connection: 1/4"...1-1/2" NPT  
Output: 4-20 mA, Pt100 RTD

## TSR

**RTD Temperature Probes**  
Stainless Steel



Measuring Range: -320...400 °F  
 $p_{max}$  1,450 PSIG  
Connection: 1/2" or 3/4" NPT,  
1-1/2" Tri-Clamp®  
Output: 4-20 mA, Pt100 RTD



# Temperature

## TST

### Integrated Programmable Temperature Transmitter Stainless Steel



Measuring Range: -58...1,100 °F  
 $p_{max}$  1,500 PSIG  
Connection: 1/4" or 1/2" NPT,  
1-1/2"...3" Tri-Clamp®  
Output: 4-20 mA, 2-wire

## TSA

### Resistive Temperature Sensor Brass, Stainless Steel



Measuring Range: -40...150 °C  
 $p_{max}$  25 bar  
Connections: 1/4...1-1/2 NPT,  
G 1/4...1-1/2

## TGK

### Glass Thermometer Aluminum or Plastic Casing, Brass



Measuring Range: -76...390 °F  
Connection: 1/2" NPT, G 1/2  
Accuracy:  $\pm 1\%$  of Full Scale

## TGL

### Glass Thermometer Aluminum or Plastic Casing, Brass



Measuring Range: -76...390 °F  
Connection: 1/2" NPT, G 1/2  
Accuracy:  $\pm 1\%$  of Full Scale

## DTB

### Digital Thermometer - High Accuracy, Battery Powered Stainless Steel



Measuring Range: -50...400 °F  
(-50...200 °C)  
Display in Either °F or °C  
Connection: 1/4" ...3/4" NPT  
Battery Life: up to 5 years

## TIR-FA

### Stationary Infrared Thermometer Stainless Steel



Measuring Range:  
0...120 °C to 100...500 °C  
10 mV/K or Voltage Model J, K  
Accuracy:  
 $\pm 1.5\%$  of Measuring Range or 2.5 °C

## TIR-SN

### Stationary Infrared Thermometer Stainless Steel



Measuring Range:  
-20...500 °C  
Analog Output  
Uncertainty: 1.5% of Meas. Range °C  
Repeatability: % of Measuring Range

## HND-T120/-125

### Precision Hand-Held Thermometer



Measuring Range: -50...1,150 °C  
Sensor: Type K Thermocouple  
Power Supply: Battery  
Accuracy: 1.0% of Reading

## HND-T105/-T205

### Precision Hand-Held Thermometers



Measuring Range: -220...1372 °C to  
-50...1768 °C  
Sensor: Thermocouple or Pt 100  
Supply: 9V Battery  
Accuracy:  $\pm 0.03\%$  of Reading

## TWL-ST

### Room Thermometer Polycarbonate, Aluminum



Measuring Range: -40...85 °C  
Wall Socket  
Pt 100, 4-20 mA  
Accuracy: Cl. A or B

## TBE

### Bi-Metal Thermometer Stainless Steel



Measuring Ranges: -50...50 °C  
to 0...600 °C  
 $p_{max}$  15 bar  
Fittings: 1/2"...3/4" NPT, G 1/2...G 3/4,  
(Fixed, Rotatable, Slidable)  
Accuracy: Cl. 1.0

## TND

### Shaft Thermometer for Diesel Engines Steel, Stainless Steel



Measuring Range: 0...800 °C  
 $p_{max}$  25 bar  
Fittings: G 1/2, G 3/4  
Accuracy: Cl. 1.0 or 1.6



## TMA/MMA (AUF)

### Temperature Transmitters Stainless Steel



Measuring Range: -358...1,112 °F  
 $p_{max}$  1,450 PSIG  
 Connection: 1/4" NPT, 1/2" NPT  
 Output: 4-20 mA, 2-wire

## MMA/AUF/KUG

### Screw-in Resistance Thermometer Stainless Steel



Measuring Range: -200...400 °C  
 $p_{max}$  36 bar  
 Accuracy: < 0.5% of Span

## LTS

### Resistance Temperature Probe



Measuring Range: -50...250 °C  
 $p_{max}$  145 PSIG  
 Sensor: Pt100, 4-20 mA  
 Connection: G 1/2, M12x1.5

## KM

### Temperature Transducer



Measuring Range: -200...250 °C to  
 -50...1768 °C  
 Input: RTD, TC  $\Omega$ , mV  
 Analog Output  
 For Head, Rail, or Wall Mounting

## MWD

### Industrial Resistance Thermometer Stainless Steel



Measuring Ranges:  
 from -324 up to 1112 °F  
 $p_{max}$  435 PSI  
 Accuracy: Cl. A or B

## DTE

### Digital Thermometer Stainless Steel



Measuring Ranges: -200...850 °C  
 $p_{max}$  34 bar  
 Display: 6-Digit LCD  
 Fittings: 1/4"...1/2" NPT,  
 G 1/4...G 1/2, Compression Fitting  
 Accuracy:  $\pm$  0.1% of Reading + 0.2°C

## MWE

### Screw-in Resistance Thermometer Stainless Steel



Measuring Range: -70...250 °C  
 $p_{max}$  30 bar  
 Accuracy: Class A or B

## TWL/TTL

### Resistance Thermometers Stainless Steel



Measuring Range: -200...1,100 °C  
 $p_{max}$  3,625 PSIG  
 Sensor: Pt100, 4-20 mA  
 Connection: 1/2" ... 1" NPT,  
 G 1/2...1, DIN 15...50 Flanges  
 Output: Analog 4-20 mA

## TTE

### Screw-in Thermocouples with Compensating Lead Stainless Steel



Measuring Range: -200...600 °C  
 Connection: G 1/2, M10x1  
 Accuracy Class 1.0

## TWM

### Sheath Resistance Thermometer Stainless Steel



Measuring Range: -20...600 °C  
 Sensor: Pt100, 2-, 3-, or 4-wire  
 Connection: Cable, Connector,  
 Connection Head

## TWA

### Contact Resistance Thermometer Brass, Stainless Steel



Measuring Range: -20...260 °C  
 Accuracy: Pt 100, Class B

## TWL

### Thermowells for Thermometers Stainless Steel, Special Materials



$t_{max}$  800 °C  
 $p_{max}$  250 bar  
 Types: Thread, Flange, Welding Sleeve

# Accessories



## REG

TOP SELLER

### Automatic Flow Regulating Valve Brass, Stainless Steel



$t_{max}$  572 °F;  $p_{max}$  2,900 PSIG  
Connection: 3/4" NPT, G 1/2, G 3/4

## REG-8

### Automatic Flow Regulating Valve Stainless Steel



$t_{max}$  570 °F;  $p_{max}$  2,900 PSIG  
Connection: 3/4"...4" ANSI Wafer,  
DN 20...100, G 1/2...2-1/2

## NVM/NAD

### Needle Valve Stainless Steel



$t_{max}$  250 °F;  $p_{max}$  3,600 PSIG  
Connection: 1/8"...1-1/4" NPT, G 1/8...G 1-1/4

## NVN

### Needle Valve Stainless Steel, Brass, Carbon Steel



Hard Seat, Soft Seat, and Mini Models  
Easy to Adjust T-Handle  
Designed for Strength and Smooth Operation  
Bonnet Pin Lock Prevents Loosening  
Connections: 1/8"...1-1/2" NPT

## MFR

### Magnetic Filter Brass, SS, Bronze, Cast Iron



$t_{max}$  392 °F;  $p_{max}$  580 PSIG  
Connection: G 1/4...G 4

## RL

### Power Supply, Latching, and Isolation Relay



Power: 110 V<sub>AC</sub>, 230 V<sub>AC</sub>, 24 V<sub>DC</sub>  
Excitation: 24 V<sub>DC</sub>, 120 mA Regulated  
Input: Dry Contact or NPN/PNP, 15mA Max  
Output: SPDT Relay, 10A@240V<sub>AC</sub>, 8A@24V<sub>DC</sub>

## KFD-2/KFA-5

### Intrinsically Safe Relay/Power Supply



For Dry Contacts or NAMUR-Type Switches  
Single or Dual Channel  
Standard Rail Mounting  
24 V<sub>DC</sub> or 110 V<sub>AC</sub> Power  
SPDT Relay Output

## MSR

### Contact Protection and Latching Relay



For Protection of Reed Contacts  
8A Max. Switching Capability  
1 or 2 SPDT Contacts

## AUF

### Compact In-line Display for Transmitters



For Transmitters with DIN 43650A Plugs  
Input: 4-20 mA, 2-wire or 3-wire  
User Programmable  
Optional Transistor Switch  
Custom Housing Colors for OEM Quantities



## MPT

### Universal/Process Panel Display Ratemeter



Accepts Current, Voltage, TC, and RTD Inputs  
Max/Min Display  
Relays and 4-20 mA Options  
Modbus®

## MPV

### Dual-Line Process Panel Display



Pulse or Analog Outputs  
Displays both Rate and Total  
32 Point Linearization  
Modbus®  
Gate Function  
Open Channel Flow

## DAG-T4

### Universal Digital Indicator/Controller



Input: Current, Voltage, Pt 100, Thermocouples  
Limit Contacts  
Sensor Supply

## DAG-Z2

### Counter/Preset Counter



Input: Frequency  
Limit Contacts  
Sensor Supply

## ZED

### LCD Indicating Display and Controller



Input: Frequency  
Output: Analog, 2 Limit Contacts, Sensor Supply

## ZOK

### Totalizer, Batching, and Monitoring Electronics



Input: Frequency  
Analog Output, Impulse Output, Limit Contacts,  
Sensor Supply, Battery Powered

## ADI-1

### Universal Input LED Display Controller



Display: 5-digit with 270° Bargraph  
Input: Current, Voltage, Frequency  
Analog Output, 2 Limit Contacts, Sensor Supply

## ZLS-2

### Multi-Channel Datalogger Display



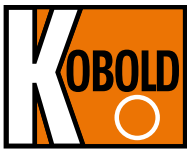
8x Input: 4-20 mA, or Pt 100, Pt 500, Pt 1000  
Interface: 1x USB, 1x RS485  
Sensor Supply

## ZOE

### Rate and Totalizing Display



Frequency Input, Pulse Output  
Sensor Supply or Battery Powered



# KOBOLD INSTRUMENTS INC

Manufacturer of Innovative Instrumentation

## Australia

KOBOLD Messring GmbH  
Sydney  
☎ +61 428138232  
✉ info.au@kobold.com

## Austria

KOBOLD Holding Ges.m.b.H.  
Vienna  
☎ +43 1 7865353  
✉ info.at@kobold.com

## Belgium

KOBOLD Instrumentatie NV/SA  
Strombeek-Bever - Brussels  
☎ +32 22 672155  
✉ info.be@kobold.com

## Bulgaria

KOBOLD Messring GmbH  
Sofia  
☎ +359 2 9544412  
✉ info.bg@kobold.com

## Canada

KOBOLD Instruments Canada Inc.  
Pointe Claire, Quebec - Montreal  
☎ +1 514-428-8090  
✉ info.ca@kobold.com

KOBOLD Instruments Canada Inc.  
Mississauga, Ontario - Toronto  
☎ +1 416-482-8180  
✉ info.ca@kobold.com

## China

KOBOLD Instruments  
Trading Co., Ltd.  
Pudong - Shanghai  
☎ +86 21 58364579  
✉ info.cn@kobold.com

KOBOLD Manufacturing Co., Ltd.  
Xian  
☎ +86 29 86210794 / 86211407  
✉ wang@kobold.com

KOBOLD Instruments Trading  
(Shanghai) Co. Ltd.  
Tianjin  
☎ +86 22 83719393  
✉ hou@kobold.com

KOBOLD Instruments Trading  
(Shanghai) Co. Ltd.  
Guangzhou  
☎ +86 20 38803380  
✉ zhentx@kobold.com

## Czech Republic

KOBOLD Messring GmbH  
Brno  
☎ +420 54 1632216  
✉ info.cz@kobold.com

## Egypt

KOBOLD Messring GmbH  
Nasr City - Cairo  
☎ +20 2 22731374  
✉ info.eg@kobold.com

## France

KOBOLD Instrumentation S.A.R.L.  
Cergy-Pontoise Cedex - Paris  
☎ +33 1 34219115  
✉ info.fr@kobold.com

KOBOLD Instrumentation S.A.R.L.  
Dardilly - Lyon  
☎ +33 4 72162194  
✉ rollin@kobold.com

## Germany

KOBOLD Messring GmbH  
Hofheim/Taunus  
☎ +49 6192 299-0  
✉ info.de@kobold.com

KOBOLD Messring GmbH Plant II  
Sindelfingen - Stuttgart  
☎ +49 7031 8677-0  
✉ maier@kobold.com

Heinrichs Messtechnik GmbH  
Cologne  
☎ +49 221 49708-0  
✉ info@heinrichs.eu

## Hungary

KOBOLD Unirotta Kft.  
Nyíregyháza  
☎ +36 42 342215  
✉ info.hu@kobold.com

## India

KOBOLD Instruments Pvt Ltd.  
Pune  
☎ +91 9370221190  
✉ info.in@kobold.com

Delhi  
☎ +91 9560028453  
✉ delhi.in@kobold.com

Mumbai  
☎ +91 9168911003  
✉ mumbai.in@kobold.com

Chennai  
☎ +91 9168910505  
✉ chennai.in@kobold.com

Kolkata  
☎ +91 8956041622  
✉ kolkata.in@kobold.com

Bengaluru  
☎ +91 8956584970  
✉ bengaluru.in@kobold.com

Vadodara  
☎ +91 9712233533  
✉ gujarat.in@kobold.com

Hyderabad  
☎ +91 8956584972  
✉ hyderabad.in@kobold.com

Singrauli  
☎ +91 8956041623  
✉ singrauli.in@kobold.com

## Indonesia

KOBOLD Messring GmbH  
Jakarta  
☎ +62 21 84932859  
✉ info.id@kobold.com

## Italy

KOBOLD Instruments S.r.l.  
Settimo M.se - Milan  
☎ +39 02 33572101  
✉ info.it@kobold.com

## Malaysia

KOBOLD Instruments SDN BHD  
Puchong, Selangor  
☎ +60 3 80655355  
✉ info.my@kobold.com

## Mexico

KOBOLD Instruments Inc.  
Querétaro  
☎ +52 442 2951567  
✉ info.mx-mex@kobold.com

## Netherlands

KOBOLD Instrumentatie BV  
Arnhem  
☎ +31 26 3844848  
✉ info.nl@kobold.com

## Peru

(Latinamerica Support Office)  
KOBOLD LATAM S.A.C.  
Lima  
☎ +51 1 3307261  
✉ info@koboldperu.com

## Poland

KOBOLD Instruments Sp. z o.o.  
Warsaw  
☎ +48 (0)22 666 18-94  
✉ info.pl@kobold.com

KOBOLD Instruments Sp. z o.o.  
Gliwice  
☎ +48 730202100  
✉ info.pl@kobold.com

## Republic of Korea

KOBOLD Instruments Co., Ltd.  
Koyang-City, Kyounggi-do  
Seoul  
☎ +82 31 9035217  
✉ info.kr@kobold.com

## Romania

KOBOLD Messring GmbH  
Bucharest  
☎ +40 21 4560560  
✉ info.ro@kobold.com

## Russia

OOO KOBOLD Instruments  
Moscow  
☎ +7 499 3467110  
✉ info.ru@kobold.com

## Singapore

KOBOLD Messring GmbH  
Singapore  
☎ +65 62271558-6366  
✉ info.sg@kobold.com

## Slovakia

KOBOLD Messring GmbH  
Brno  
☎ +420 54 1632216  
✉ info.cz@kobold.com

## Spain

KOBOLD Mesura S.L.U  
Badalona - Barcelona  
☎ +34 93 4603883  
✉ info.es@kobold.com

## Switzerland

KOBOLD Instruments AG  
Dübendorf - Zürich  
☎ +41 44 8019999  
✉ info.ch@kobold.com

## Thailand

KOBOLD Instruments Ltd.  
Bangkok  
☎ +66 2 5655705-6  
✉ info.th@kobold.com

## Tunisia

KOBOLD Messring GmbH  
Tunis  
☎ +216 71 341518  
✉ info.tn@kobold.com

## Turkey

KOBOLD Instruments Ltd.  
Istanbul  
☎ +90 212 2222307  
✉ info.tr@kobold.com

## United Kingdom

KOBOLD Instruments Ltd.  
Mansfield - Nottinghamshire  
☎ +44 1623 427701  
✉ info.uk@kobold.com

## USA

KOBOLD Instruments Inc.  
Pittsburgh, PA  
☎ +1 412-788-2830  
✉ info@koboldusa.com

KOBOLD Eastern Region  
Boston, MA  
☎ +1 401-829-1407  
✉ info.e@koboldusa.com

KOBOLD South-Eastern Region  
Dallas, TX  
☎ +1 843-812-1402  
✉ info.se@koboldusa.com

KOBOLD Mid-West Region  
Pittsburgh, PA  
☎ +1 401-829-1407  
✉ info.mw@koboldusa.com

KOBOLD Western Region  
Pittsburgh, PA  
☎ +1 843-812-1402  
✉ info.w@koboldusa.com

## Vietnam

KOBOLD Messring GmbH  
Ho Chi Minh City  
☎ +84 8 35510677  
✉ info.vn-hcm@kobold.com

