

Crystal Multimeter Pressure/Vacuum Modules

High-accuracy pressure modules

- Excellent Pressure Accuracy from Your DMM
- Gauge, Vacuum, and Absolute Ranges
- Enhanced Medium Transducers

Converts DMMs into pressure gauges

These modules have standard banana jack outputs and plug into many types of high-accuracy multimeters, including Fluke 27, 45, 83, 85, or 87. The pressure measurement is converted to a millivolt output and displayed on the multimeter.

Plug these units into your DMM, set the input to mVDC, and go to work! The handy holster and coil cord keep this unit ready, yet out of the way.

The modules can be used to measure virtually any type of pneumatic or hydraulic pressure within the range of the module and compatible with the materials of construction.

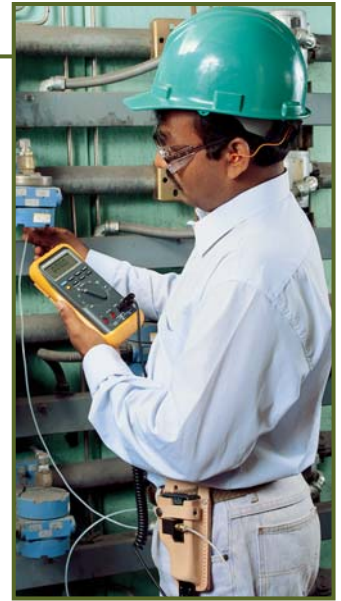
5264P-5267P Include: Protective leather case, coiled cable set, 9V alkaline battery, and instructions.

Housings for pressure calibration modules are sold under license from John Fluke Manufacturing Co., Inc.



See compatible DMMs on pages B6-B15

Hg/PSI has a very high accuracy



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Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

Ordering Information

Mfg#	H ₂ O/PSI	Hg/PSI	HgA/mmHgA	mmHgA/PSIA
Range:	30 PSI:	500 PSI:	760 mmHgA:	30 PSIA:
Accuracy:	±0.05% rdg + 0.01 PSI	±0.1% rdg + 0.02 PSI	±0.08% rdg + 0.2 mmHgA	±0.08% rdg + 0.01 PSIA
	830 "H ₂ O:	30 "Hg:	30 "HgA:	760 mmHgA:
	±0.05% rdg + 0.1 "H ₂ O	±0.1% rdg + 0.01 "Hg	±0.08% rdg + 0.01 "HgA	±0.08% rdg + 0.2 mmHgA
	0 to -14.7 PSI VAC:	0 to -14.7 PSI VAC:	N/A	N/A
	±0.5% rdg + 0.02 PSI	±0.25% rdg typical		
Order #	MP5264P	MP5265P	MP5266P	MP5267P
Price:				

Fluke Multimeter Pressure/Vacuum Modules

Plug-in modules add digital pressure/vacuum measurement capability to your DMM

- Measure Pressure to 350 PSI
- Measure Vacuum to 29.99 "Hg
- 1% Accuracy
- Media Isolated

This unit features a 350 PSI pressure transducer connected to a DMM "module" via a 3' cable. It is an excellent choice for HVAC and other applications requiring modest accuracy. Ranges are .5 to 350 PSI pressure and 0 to 29.99 "Hg vacuum with an accuracy of ±1% of reading for pressure and ±1% of reading for vacuum.

Each Unit Includes: Eight feet of 1/4" PVC tubing, 1/4" male NPT connector, 1/4" female NPT to 1/4" flare male adapter, 9V battery, and carrying case.

Ordering Information

Order #	Mfg #	Description	Price
MPPV350	PV350	Pressure/Vacuum Module 0.5 to 350 PSI	
Transcat Accredited Calibration with Data			CALL
Transcat Accredited Calibration without Data			CALL



PV350—General purpose module

Pressure/Flow Test Instruments

Polysonics Portable Dual Frequency Doppler Flowmeter/Logger

Minimize noise, maximize performance

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Pressure/Flow Test Instruments

- Accuracy to $\pm 1\%$
- Typical Applications: Slurries; Black Liquor; Primary, Digested, Thickened, Waste-Activated, Return-Activated Sludges. Typical Industries: Industrial Waste Operations, Paper Manufacturing, Pharmaceutical Facilities, Municipal Sewage Plants, Dredging Operations, and More
- Minimizes Pressure Drops—Saving Energy and Raising Effective Pumping Capacity
- Stainless Steel-Shrouded Transducers are Suitable for Most Common Pipe Materials and Especially Useful for Fluids that Can Corrode or Erode Primary Sensors
- NEMA-6 Environmental Sealing—Casing is Waterproof Against Accidental Immersion and Splashproof, Even with Lid Open
- Backlit LCD for Easier Viewing in Low Light and Menu Keys for Rapid Access to Configuration, Datalogging, Diagnostic Functions
- Powerful 90,000-Point Datalogger Plus HydraLink Retrieval Software Compatible with Microsoft™ Excel, Lotus 1, 2, 3, and Other Similar Packages
- Meets CE and CSA General-Purpose Compliance Standards

Unlike conventional Dopplers that operate on one frequency, this unit generates two independent ultrasonic signals at different frequencies. This method identifies and eliminates noise errors from sources like variable frequency drives, also cancels out pipe-vibration noise. Unit is offered in 12- or 24-hour battery versions. Doppler flowmeters are non-intrusive instruments suitable for applications involving liquids with "sonic discontinuities" such as suspended particles or bubbles. As such they are popular for many otherwise difficult applications. This unit combines a doppler sensor with a high accuracy readout/logger in a portable weatherproof case.

Key to the SX30 is its simplicity: it "learns" application parameters, resulting in simple four-step setup that takes just a fraction of the time needed to configure competitive units. Position the transducer in a vertical pipe section with upward flow, or in a horizontal section (with transducer in the 3, 4, 8, or 9 o'clock position). Then just check the display for battery status, select millimeters or inches, enter pipe's internal diameter, choose your preferred flow units. That's it—instrument displays the flow rate almost immediately.

Order optional ultrasonic thickness gauge for determining pipe-wall thickness, as needed, prior to taking flow measurements.

Each Unit Includes: Sensor heads (dual frequency), transducer clamps with BNC connectors, standard 16 foot (5m) cable, AC charger/adaptor, HydraLink retrieval software (Windows™ 95/98), and instructions.



SX30—Non-intrusive flow measurement for slurries and suspensions ▲

Specifications

Flow Range:	1 to 1000,000 GPM, dependent on pipe size
Velocity Range:	0.2 to 32 ft/s (0.06 to 10 m/s)
Accuracy:	$\pm 1\%$ total error band
Fluids:	Liquids containing entrained gas or particles
Pipe Size:	0.5 to 200 inches (12 to 5,000 mm)
Transducers:	Encapsulated dual-frequency sensor heads, encased in stainless steel shrouds with integral transducer clamps and BNC connectors
Weight:	Approx. 11 lb (4.9 kg), with 12-hour battery
Outputs:	4-20 mA (into 1,000 Ω), 12 bit opto-isolated; RS-232 serial interface
Power Supply:	Built-in lead-acid gel battery; 90-264V AC, 50/60 Hz; or 12-15 VDC auxiliary power port
Display:	Backlit, 240 x 60 dot, high-resolution graphics display
Datalogger:	90,000 points, programmable in log intervals of 30 sec.: 1, 5, 15, 30, 60 minutes
Operating Temp.:	-40 to +250°F (-40 to +122°C), transducers; -5 to +140°F (-20 to +60°C), electronics

Ordering Information

Order #	Mfg #	Description	Price
MPSX30-1-16A	SX30-1-16A	Hydra SX Portable Doppler Flowmeter, 12-Hour Battery	
MPSX30-2-16A	SX30-2-16A	Hydra SX Portable Doppler Flowmeter 24-Hour Battery	
MP0704/0187	0704/0187	UTG Ultrasonic Thickness Gauge	

Polysonics Portable Transit Time Flowmeter/Logger

Non-intrusive flow measurement for clean liquids

Transit time flowmeters use clamp-on transducers to measure the flow of clean liquids with light to moderate aeration. They have numerous applications in oil, semiconductor, HVAC, and general purpose industries. This instrument combines transit time sensors with a high accuracy readout/datalogger in a weatherproof enclosure.

- Accuracy to $\pm 0.5\%$, Flow Sensitivity of 0.001 Ft/s, Bi-Directional Flow Measurement
- Non-Intrusive Transducers Clamp On for Leak-Free Measurements with No Flow Interruption and Zero Pressure Drop
- NEMA-6 Enclosure is Waterproof and Splashproof, Even with the Lid Open in the Pouring Rain
- Ideal for Remote Unattended Flow Monitoring, with 65,000-Point Datalogger, Battery Power, Lockable Case. Programmable Start and Finish Flow Measurements at Predetermined Times
- Separate Memory Function Stores Up to 16 Sets of Site Parameters—No Need to Re-Enter Setup Data When Returning to a Site
- Simple Menu-Driven Operation for Easy Keypad Configuration and Backlit LCD for Excellent Visibility in Low Light
- Choose it for What it Doesn't Do: No Process Downtime During Installation, No Moving Parts in the Flow Stream, No Maintenance Issues After Installation, No Process Contamination

Unit's standard transducer set is suitable for plastic, metal, and concrete-lined pipes with diameters from 1" (25 mm) to 200" (5m)—so multiple transducers are unnecessary. Outputs include 4–20 mA analog signal and RS-232 interface. Optional thermal printer records individual flow measurements, logged data, or site parameters.

TimeGate Diagnostics and Waveform Software:

Included software provides a simple way to configure one or multiple flowmeters via PC. Its waveform analysis lets you easily determine the optimum location for transducer installation. And simple pull-down menus and pop-up windows make it easy to use. TimeGate is a paperless way to retain and archive calibration data, simplifying the reporting requirements for ISO 9000, OSHA, and FDA compliance.

Selected Applications

- **Water:** Potable water, semiconductor, pharmaceutical, metal finishing, cooling water.
- **HVAC:** boiler feed monitoring, flow and energy balancing, district heating and cooling systems, custody transfer, steam-condensate feed water, hot or chilled water.
- **Oil Industry:** water injection, leak detection, oil/water interface detection, offshore platforms, crude-oil flow, refined products
- **Process Industry:** acids, caustics, liquefied gases, wastewater plant influents and effluents, de-ionized water, processed fluid

Each Unit Includes: AC battery charger/adaptor, TimeGate software, transducers and connectors, clamps, 16 foot cable (5m), and NEMA-6 case.



DCT7088—The standard transducer set is suitable for most plastic, metal, and even concrete-lined pipes, and for diameters from 1" (25 mm) to 200" (5m)

Specifications

Flow Range:	± 0 to 50 ft/s (± 0 to 15 m/s)
Accuracy:	Velocity > 1 ft/s: $\pm 0.5\%$ of velocity reading; velocity = 1 ft/s: ± 0.03 ft/s
Sensitivity:	0.001 ft/s at any flow rate, including zero
Linearity:	0.003 ft/s
Pipe Size:	1 to 200" (25 mm to 5m)
Outputs:	4–20 mA (into 1,000 Ω) analog, 12 bit, isolated; RS-232 serial interface
Power Supply:	Built-in lead acid gel battery or 90–264 VAC adapter/charger
Display:	40-character, 2-line alphanumeric backlit LCD
Datalogger:	Logs more than 65,000 data points, time stamped; programmable in one- second intervals
Operating Temp:	-40 to +300°F (-40 to +150°C), transducers (see ordering information for optional high-temperature block); 5 to +140°F (-20 to +60°C), transmitter
Weight:	Approx. 11 lb (4.9 kg), with 8-hr battery

Ordering Information

Order #	Mfg #	Description	Price
MPDCT7088-1-16A	DCT7088-1-16A	Transit Time Flow Meter, 8 Hour	
MPDCT7088-2-16A	DCT7088-2-16A	Transit Time Flow Meter, 16 Hour	
MP22334-0001		Thermal Printer Kit	
MP22214-5100*		High-Temperature Transducer Block, -40 to +470°F	

*NOTE: Two blocks are required.

See Pages H21-H27 for
Air Velocity Instruments



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Pressure/Flow Test Instruments

GPI Oval Gear Flowmeters

- Accuracy is Unaffected by Viscosity Changes
- Flow Conditioning is Not Required
- Available With or Without Displays

Use these oval gear flowmeters in a wide variety of industries and applications including petrochemical, pharmaceutical and wastewater treatment. They can handle a wide range of fluid viscosities with exceptional accuracy and durability, without the need to recalibrate.

How do they work? With each gear rotation, a pocket of precisely measured fluid is formed, held tightly against the chamber wall, and then released. A pulse output via a magnet-driven Hall effect sensor or mechanical counter, reflect the precise volume of each pocket of fluid.



GM002



GM005



GM007

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Pressure/Flow Test Instruments

Specifications

	1/4" Meters	1/2" Meters	1" Meters
Accuracy:			
With Pulse or LCD Display	±1% of Reading	±0.5% of Reading	±0.5% of Reading
With Mechanical Display			±1% of Reading
Repeatability:		± 0.03%	
Maximum Operating Temp:		176° F (80° C)	
Pressure Rating:			
PPS Housing	75 PSI		150 PSI
Aluminum or 316 Stainless Housing	150 PSI	800 PSI	800 PSI
Sensor with Mechanical Display			500 PSI
Power Supply:			
For Meters with Pulse Output		Up to 150V AC/DC	
For Meters with LCD Display		9V Lithium Battery	
Wetted Materials:			
Rotor:		PPS	
Shaft:		316 Stainless Steel	
O-Ring:		Viton	

Ordering Information

Order #	Flow Range	Fittings	Housing Material	Code 2	Code 4	Code 6
1/4" Meters						
MPGM002RSR21-□	0.53 to 26.4 GPH	1/4" FNPT	PPS			
MPGM002S2R21-□	0.53 to 26.4 GPH	1/4" FNPT	316 SS			
MPGM003R2R41-□	4 to 132 GPH	1/4" FNPT	PPS			
MPGM003S2R41-□	4 to 132 GPH	1/4" FNPT	316 SS			
1/2" Meters						
MPGM005A2R21-□	0.26 to 7.9 GPM	1/2" FNPT	Aluminum			
MPGM005S2R21-□	0.26 to 7.9 GPM	1/2" FNPT	316 SS			
1" Meters						
MPGM007R2R21-□	0.8 to 21 GPM	1" FNPT	PPS			
MPGM10S2R21-□	1.6 to 32 GPM	1" FNPT	316 SS			

Insert the configuration in the catalog number box to select the appropriate features

- 2 for the Oval Gear meter with pulse PPS output.
- 4 for the Oval Gear meter pulse out SS
- 6 for the Oval Gear meter with 4-20 mA and standard display

GPI Flowmeters

- Battery Powered
- 6-Digit LCD Display Standard
- FM Approved
- Indication of Cumulative and Batch Totals and/or Flow Rate
- Field Calibratable

These in-line flowmeters with microprocessor based electronics offer a durable, compact, high precision fluid measurement device, with total and rate indication. All information is clearly displayed on a large, battery-powered LCD that provides six-digit resolution. The display turns on automatically when it senses flow, and turns off four minutes after flow stops to conserve battery life. Face plate can be rotated 180° to accommodate different installations, and the meter can be mounted in any position.



21090F Series

Specifications

	Industrial Grade 316 Stainless Steel	Industrial Grade PVDF	Commercial Grade Aluminum	Commercial Grade Nylon
Repeatability:	± 0.1%	±0.3%		±0.1%
Operating Temp:				
With GPI Electronics:			14 to 140°F (-10 to 60°C)	
With FM Remote Kit:			-40 to 250°F (-40 to 121°C)	
Pressure Rating:	1500 PSI	150 PSI	300 PSI	150 PSI
Wetted Materials:				
Housing:	316SS	PVDF	Aluminum	Nylon
Rotor and Supports:	PVDF	PVDF		Nylon
Retaining Rings:	316SS	N/A		316SS
Shaft:	Tungsten Carbide	Ceramic		Tungsten Carbide
Bearings:			Ceramic	
Signal Generator:		N/A		Ferrite
Union Fitting O-Ring:	N/A	Viton		N/A
Power Supply:		Two 3V lithium batteries for LCD display		
Approvals:	Factory Mutual Approved as Intrinsically Safe for Class 1, 2, and 3, Div 1, Groups A, B, C, D, E, F, and G; Non - incendive for Class 1, 2, & 3, Div. 2, Groups A, B, C, D, F, and G.			
Dimensions:				
1/2"	1.8 x 2.0 x 4.2" HWL	—		—
3/4"	2.0 x 2.0 x 4.3" HWL	—		—
1"	2.2 x 2.0 x 4.5" HWL	2.8 x 3.0 x 8.0" HWL		2.0 x 2.5 x 4.0" HWL
1.5"	2.8 x 2.7 x 5.3" HWL	—		—
2"	3.2 x 3.3 x 6.3" HWL	—	3.0 x 4.3 x 6.0" HWD	—

Ordering Information

Order Number	Flow Range	Fittings	Material Housing	Accuracy	Code 1	Code 2	Code 3
Industrial Grade							
MP21090F-□	0.5 to 10 GPM	1/2" FNPT	316SS	2.0% of Reading			
MP21091F-□	1.0 to 20 GPM	3/4" FNPT	316SS	1.5% of Reading			
MP21092F-□	2.5 to 50 GPM	1" FNPT	316SS	1.5% of Reading			
MP21093F-□	5.0 to 100 GPM	1.5" FNPT	316SS	1.0% of Reading			
MP21094F-□	10.0 to 200 GPM	2" FNPT	316SS	1.0% of Reading			
Commercial Grade							
MP21095F-□	0.3 to 3 GPM	1" FNPT	Nylon	1.5% of Reading			
MP21096F-□	3.0 to 50 GPM	1" FNPT	Nylon	1.5% of Reading			
Options							
MP21097F	4-20 mA Module (For Use with Industrial Grade Only)						
MP21099F	FM-Approved Remote Kit						

Insert the configuration code in the catalog number box to select the appropriate features.

- 1 for the turbine meter with cumulative and batch total indication
- 2 for the turbine meter with cumulative, batch totals, and rate of flow indication
- 3 for the turbine meter with rate of flow indication only