

# Ultima Sensor Array

Simultaneously Measures Flow, Pressure and Temperature



- Four flow ranges
- Turbine flow measurement
- Standard magnetic pick-up with frequency output for flow rate
- 4-20 mA output for temperature and pressure
- Pressures up to 5800 PSI (400 Bar)
- Temperatures up to 300 °F (150 °C)
- Available with SAE or BSPP ports
- Flow accuracy  $\pm 1\%$  of full scale
- Repeatability  $\pm 0.2\%$

The Ultima Sensor Array provides flow, temperature and pressure signals in a compact unit that requires only one hydraulic line break. The magnetic pick-up generates a frequency output for flow rate measurement while the pressure and temperature sensors provide 4-20 mA output signals. The flow signals can be transmitted to Flo-tech's F6600/F6650 Series, and the temperature and pressure signals can be transmitted to the F6700/F6750 Series digital displays or any other instruments that accept a frequency or 4-20 mA signal.

Typical applications include fluid characteristic measurement on test stands, stationary hydraulic system monitoring, feedback for hydraulic system control, advance warning of impending component failure and mobile hydraulics system diagnosis.

## SPECIFICATIONS

### Performance

#### Forward Flow

**Accuracy:**  $\pm 1\%$  of full scale  
( $\pm 1\%$  of rate when used with F6600/F6650 display)

**Repeatability:**  $\pm 0.2\%$

**Turbine Response:**  $\leq 200\text{ms}$

#### Temperature:

Fluid -4 to +300 °F (-20 to +150 °C)

Ambient -4 to +131 °F (-20 to +55 °C)

**Operating Pressure:** up to 5800 PSI (400 Bar) max

**Pressure Drop:** See  $\Delta P$  charts on page 24

**Readout Accuracy:**  $\pm 1$  digit

#### Magnetic Pick-up:

Electrical Output

Signal

Self-generating alternating pulse  
100 mV RMS (100 Hz) minimum

F6202 & F6222

10 mV RMS (200 Hz) minimum

#### Pressure Sensor:

(optional)

See page 26 for

complete specifications

#### Temperature Sensor:

(optional)

See page 27 for

complete specifications

#### Material

##### Housing:

6013-T651 Aluminum; anodized

##### Turbine Rotor:

T416 Stainless steel

##### Ball Bearings:

440C Stainless steel

##### Rotor Shaft:

T303 Stainless steel

##### Rotor Supports:

F6202 & F6222

6061-T6 Aluminum alloy

##### Hub Cones:

F6204, F6206, F6208,

F6224, F6226 & F6228 only

CA360 Brass

6061-T6 Aluminum alloy

##### Adapters:

6061-T6 Aluminum; anodized

##### Retaining Rings:

6061-T6 Aluminum alloy

##### Seals:

Buna N standard;

Viton® and EPR optional

#### Magnetic Pick-up:

Body

12L14 Steel; electroless nickel  
plate

Nut

12L14 Steel; electroless nickel  
plate

#### Ports:

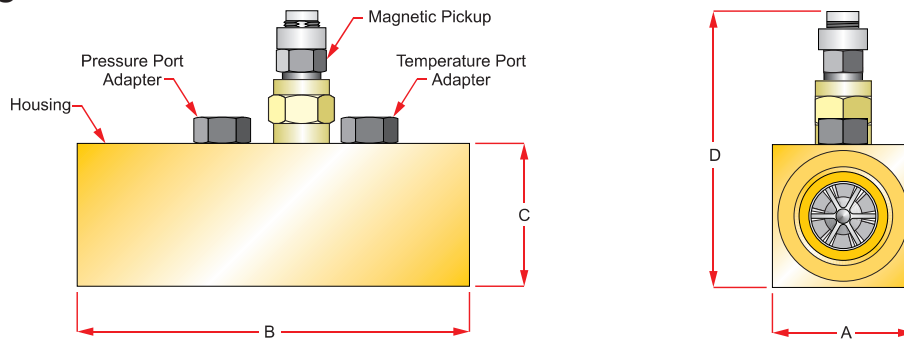
SAE J1926/1; ISO1179 (BSPP)

Viton is a registered trademark of DuPont Dow Elastomers.

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Simultaneously Measures Flow, Pressure and Temperature

## DIMENSIONS



MODEL	A WIDTH IN (mm)	B LENGTH IN (mm)	C HEIGHT IN (mm)	D w/MAG IN (mm)	WEIGHT LBS (KG)
F6202-F / F6222-F	1.23 (31.2)	4.72 (120.0)	1.47 (37.3)	3.72 (94.5)	1.55 (0.70)
F6204-F / F6224-F	1.48 (37.6)	5.08 (129.0)	1.80 (45.7)	4.05 (102.9)	1.75 (0.79)
F6206-F / F6226-F	1.98 (50.3)	5.87 (149.0)	2.20 (56.0)	4.46 (113.3)	2.75 (1.25)
F6208-F / F6228-F	2.46 (62.5)	6.81 (173.0)	2.48 (63.0)	4.75 (120.7)	4.10 (1.86)

## ORDERING INFORMATION

NOMINAL PORT SIZE	FLOW RANGE	MODEL NUMBER	SEALS	TEMPERATURE	PRESSURE
SAE 8	0.4 - 7 GPM	F6202-F <sup>1</sup>	<b>B</b> Buna N <b>V</b> Viton® <b>E</b> EPR	<b>T</b> with Sensor <b>N</b> 1/4 NPTF (F) Plugged <b>S</b> SAE 2 (J514) Plugged <b>G</b> G 1/4 (F) Plugged <b>D</b> SAE 4 Plugged	<b>1</b> 1000 PSI (69 Bar) Sensor <b>3</b> 3000 PSI (207 Bar) Sensor <b>5</b> 5000 PSI (345 Bar) Sensor <b>6</b> 6000 PSI (414 Bar) Sensor <sup>2</sup> <b>N</b> 1/4 NPTF (F) Plugged <b>S</b> SAE 2 (J514) Plugged <b>F</b> G 1/4 (F) Plugged
SAE 12	2 - 40 GPM	F6204-F			
SAE 16	4 - 80 GPM	F6206-F			
SAE 20	8 - 160 GPM	F6208-F			
G 1/4	1.5 - 26 LPM	F6222-F <sup>1</sup>			
G 3/4	7.5 - 151 LPM	F6224-F			
G 1	15 - 302 LPM	F6226-F			
G 1-1/4	30 - 605 LPM	F6228-F			

<sup>1</sup> F6202-F and F6222-F require K-Factor Scaler, F5140 (see page 25), to amplify frequency signal to be compatible with Flo-tech's F6600/F6650 Digital Displays.

Examples:

**F6204-FB-T6** = SAE 12 ports  
 2 - 40 GPM flow range  
 4-20 mA output  
 Buna N seals  
 Temperature sensor  
 6000 PSI (414 Bar) pressure sensor

**F6228-FV-G5** = G 1-1/4 ports  
 30 - 605 LPM flow range  
 0-5 VDC output  
 Viton® seals  
 G 1/4 (F) plugged temp port  
 5000 PSI (345 Bar) pressure sensor

## ACCESSORIES

MODEL NUMBER	DESCRIPTION
F001109	5-Point Calibration Certificate <sup>3</sup>
F001110	10-Point Calibration Certificate <sup>3</sup>

<sup>3</sup> Certificates are traceable to NIST, ISO 9001.

For information about	Refer to
Digital Displays	Form No. 549
Pressure Sensors	Page 26
Temperature Sensor	Page 27
Cables	Pages 28 & 29

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TRACEABLE TO NIST STANDARDS

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