



FluidVision[®] 4000

Flow, Temperature & Pressure Measuring Instruments

Installation & Operating Instructions



This document provides basic information describing the plumbing and electrical connections to install and make operational your new FluidVision 4000 instrument.

A comprehensive Technical Reference Manual for these devices is available on the Proteus Industries website at <http://www.proteusind.com/4000/4000TRM.pdf>. The manual contains detailed instructions for selecting output formats and trip points for flow, temperature and pressure, technical descriptions, performance specifications and mounting information, maintenance instructions and other valuable information.

Dimensional drawings and product warranty information can be viewed at <http://www.proteusind.com>.


Important Safety Information


NOTE and **CAUTION** statements are used throughout these instructions to highlight important operational and safety information.


	<p>NOTE statements provide details that are important to the successful understanding and application of the system.</p>
	<p>CAUTION statements identify conditions or practices that could result in damage to the equipment or other property.</p> <p>WARNING statements identify conditions or practices that could result in personal injury or loss of life.</p>

Taking proper precautions to avoid damage to your instrument's sensors during installation helps ensure consistent, error-free installations, which lowers costs and assists on-time completion of your work.

The **CAUTION** statements inserted in these instructions provide an alert to installers and operators to take sensible steps to allow the instrument's sensors to operate correctly the first time and every time.

	<p style="text-align: center;">NOTE</p> <p>Installation of this product should be performed by qualified service personnel.</p>
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	NOTE
	Flow, temperature and pressure limits for all FluidVision 4000 instruments are provided in the FluidVision 4000 Technical Reference Manual.

	WARNING!
	<p>Do NOT exceed the temperature limit of the flow sensor body or faceplate material.</p> <p>OPERATION ABOVE THE RATED TEMPERATURE CAN CAUSE FAILURE AND CREATE A HAZARD TO OPERATORS AND EQUIPMENT!</p>


	WARNING!
	<p>Do NOT exceed the pressure limit of the flow sensor body or faceplate material.</p> <p>OPERATION ABOVE THE RATED PRESSURE CAN CAUSE FAILURE AND CREATE A HAZARD TO OPERATORS AND EQUIPMENT!</p>




1. Make Liquid Connections


- a. Identify the type and size of connections from the Model Number table below.

Flow Ranges		Connection	Part Numbers		
GPM	LPM		Brass	Stainless Steel	Polypropylene
0.06 – 0.6	0.2 – 2.2	¼" FNPT	04004BN06-XXX	04004SN06-XXX	04004PN06-XXX
0.1 – 1.4	0.4 – 5.3	¼" FNPT	04004BN1-XXX	04004SN1-XXX	04004PN1-XXX
0.2 – 2.5	0.8 – 9.5	¼" FNPT	04004BN2-XXX	04004SN2-XXX	04004PN2-XXX
0.2 – 2.5	0.8 – 9.5	9/16"-18 SAE		04006SA2-XXX	
0.3 – 4.5	1.1 – 17	¼" FNPT	04004BN4-XXX	04004SN4-XXX	04004PN4-XXX
0.3 – 4.5	1.1 – 17	9/16"-18 SAE		04006SA4-XXX	
0.6 – 9.0	2.2 – 34	3/8" FNPT	04006BN9-XXX	04006SN9-XXX	
0.6 – 10	2.2 – 38	3/8" FNPT			04006PN10-XXX
0.8 – 10	3.0 – 38	3/4"-16 SAE		04008SA10-XXX	
1.0 – 14	3.8 – 53	½" FNPT	04008BN14-XXX	04008SN14-XXX	04008PN14-XXX
1.2 – 16	4.5 – 60	¾" FNPT	04012BN16-XXX	04012SN16-XXX	
1.2 – 16	4.5 – 60	1 1/16"-12 SAE		04012SA16-XXX	
1.5 – 19	5.7 – 72	¾" FNPT			04012PN19-XXX
3.0 – 40	11 – 151	¾" FNPT	04012BN40-XXX	04012SN40-XXX	
4.0 – 40	15 – 151	1" FNPT	04016BN40-XXX	04016SN40-XXX	
4.0 – 40	15 – 151	1 5/16"-12 SAE		04016SA40-XXX	
4.0 – 50	15 – 189	1" FNPT			04016PN50-XXX
5.0 – 60	19 – 227	1" FNPT	04016BN60-XXX	04016SN60-XXX	

	CAUTION!
	<p>Do NOT exceed the maximum rated flow rate of your instrument.</p> <p>EXTENDED USE ABOVE THE RATED MAXIMUM FLOW RATE OF THE INSTRUMENT WILL REDUCE ITS USEABLE LIFE!</p>

- b. Make connections to pipe or other fittings as required.


	CAUTION!
	<p>Do NOT use anaerobic pipe sealants such as Loctite® or Swak® brand sealants with FluidVision 4000 instruments fitted with polysulfone or polycarbonate faceplates.</p> <p>The aggressive chemical nature of solvent vapors arising from these materials can cause cracking of the polysulfone or polycarbonate faceplates.</p> <p>Use Teflon® (PTFE) tape or PTFE-based liquid sealants to provide leak-tight and lubricated junctions at all connection points.</p>

	CAUTION!
	<p>Do NOT install metal fittings into polypropylene bodies.</p> <p>Over-tightening of metal fittings in polypropylene bodies can permanently damage the NPT threads and prevent the creation of a leak-free connection.</p>

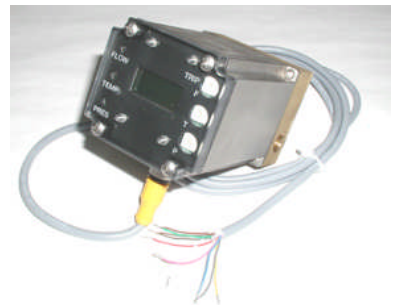
- c. Turn on your liquid flow slowly and check for leaks at the connections. Tighten connections as required to eliminate leaks.


2. Make Electrical Connections

- a. Locate the 24 VDC power source and turn it OFF.
- b. Connect and secure the provided cable to the multi-pin connector on the instrument.
- c. Connect the instrument to your system controller s shown in the table below.

	CAUTION!
	<p>Do NOT connect the BROWN wire to power until all other connections have been made and proven.</p>

Function	Pin #	Color
Common/Ground	1	White
24 VDC Supply Voltage	2	Brown
Relay – NO (Normally Open)	3	Green
Relay – Common	4	Yellow
Relay – NC (Normally Closed)	5	Grey
Flow Output	6	Pink
Temperature Output	7	Blue
Pressure Output	8	Red



	NOTE
	<p>Unless otherwise specified, your FluidVision 4000 instrument has been shipped with outputs of 0–5 VDC for flow, temperature and pressure. Refer to the FluidVision 4000 Technical Reference Manual for information on how to select 0–10 VDC or 4–20 mA output formats.</p>

- d. Verify the correctness of your wiring.
- e. Connect the BROWN wire to the +24 VDC power source and turn 24 VDC power ON.

Result: LED indicating lamps will be illuminated. The color of the LED will be green, amber or red depending on the measured value of the parameter and the selected trip point value.

If installed, the digital display will show the present measured value of each parameter. A measurable voltage should be present for each installed parameter.


3. Functional Testing

If possible, vary the flow rate, temperature and pressure of your system.

If installed, the digital display will indicate an immediate change in the measured value.


The output voltage for each parameter should increase or decrease as the value of the parameter changes.

4. Identify Trip Points

	NOTE
	If a calibration label on the instrument indicates a factory-set trip point, no adjustment is needed.

If not otherwise specified, trip points for flow, temperature and pressure have been pre-set during calibration to the following values:

Parameter	Switch Setting	Range	Trip Point Value
Flow	3	Various	Approximately 0.25 x the maximum flow rating
Temperature	C	0 – 75°C	Approximately 55°C
Temperature	C	0 – 100°C	Approximately 75°C
Pressure	C	0 – 70 psi	Approximately 55 psi
Pressure	C	0 – 100 psi	Approximately 75 psi
Pressure	C	0 – 250 psi	Approximately 190 psi

	NOTE
	Refer to the FluidVision 4000 Technical Reference Manual for detailed instructions on the selection and adjustment of trip points for flow, temperature and pressure.