

## ControlPoint PFS™ Series

The Baseline Control Point PFS series is a turnkey flow management solution for use with BaseStation 3200 irrigation controllers. The unit comes fully assembled from the factory for easy installation — it requires only the input and output PVC pipe connections, a two-wire connection to a master valve, and the final two-wire connection to the system's two-wire path.

The Control Point PFS gives you the ability to open or close a master valve to allow water into the system, read the pressure of the hydraulics, and read the rate of flow through the system. You will be able to manage flow, monitor flow, and stabilize flow all from a single product.

The Control Point PFS series comes in 1", 1.5", and 2" sizes.

The Control Point PFS assembly includes:

- BL-PFS Flow Sensor
- BL-5406-KIT Pressure biCoder and sensor
- BL-5201MV Master Valve biCoder (master valve not included)
- Schedule 40 component PVC parts, sized according to specification and solvent welded using the best industry standards
- Factory sealed wire connections to ensure optimal protection against environmental factors
- 24 inches of 16-gauge PVC jacketed solid core wire to connect to the two-wire



## Upstream and Downstream Pipe Lengths

The pipe lengths are sized according to upstream and downstream specification.

Model	Flow Sensor Size (inches)	Upstream Pipe Length (inches)	Downstream Pipe Length (inches)
BL-CP-PFS100	1	10	5
BL-CP-PFS150	1.5	15	7.5
BL-CP-PFS200	2	20	10

## Baseline Irrigation Controller Compatibility

Compatible with BaseStation 3200 irrigation controllers on firmware versions 16 or higher.

### Controller Programming

In the BaseStation 3200 irrigation controller, search and assign the following devices.

Refer to Searching for and Assigning Devices in the user manual.

- Master valve (MV)
- Flow sensor (FM)
- Pressure sensor (PR)

If you want to assign these devices to a control point, refer to Assigning Devices to a Control Point in the user manual.

Devices-->CP		Water Sources	
		Control Point {Control Point 1}	CP1
Master Valve Enabled	Normally Open		
MV 2 <input checked="" type="checkbox"/>	NO <input type="checkbox"/>		
Pump Enabled			
- <input type="checkbox"/>			
Flow biCoder Enabled	K-Value	Pulses/Gal	
FM 2 <input checked="" type="checkbox"/>	0.322	192	
Pressure Enabled	4 ma value	20 ma value	
PR 1 <input checked="" type="checkbox"/>	0.00	150.00	
		Help	

### BL-CP-PFS100, BL-CP-PFS150 & BL-CP-PFS200 Calibration Table

Model	K Value	Pulses/Gal
BL-CP-PFS100	0.322	192
BL-CP-PFS150	0.650	92.3
BL-CP-PFS200	1.192	59.2

## PFS Series Flow Sensors

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The Baseline PFS Series Flow Sensors have a unique low drag, a lightweight impeller design, and a specially engineered tee cavity and impeller placement to ensure smooth flow and precise performance at the lowest flow rates. Every Baseline PFS Series Flow Sensor is two-wire ready with a Flow biCoder built into the tee insert. Because a Flow biCoder is built into each flow sensor, every device comes pre-configured with the correct K and offset values.

### PFS Series Features

- Molded Mounting Tee: Improved sensor accuracy and low flow performance
- Threaded Retaining Nut: Easier to service in valve box, more moisture resistant than competitive sensors
- Lightweight Impeller: Improved low flow performance, detects and measures flows as low as 0.25 ft/sec
- Built-in two-wire decoder (Refer to the [Flow biCoder Technical Specification](#) on the Baseline website.)
- Pre-configured K and offset values
- Sensor can be connected directly to the two-wire path on the BaseStation 3200 irrigation controller, no additional equipment required
- Diagnostic LEDs: Visual indication of flow, improved troubleshooting
- Detects and properly measures lower flow rates: Compatible with micro and sub-surface drip applications
- Highly accurate over a large range of flows
- In the ControlPoint assembly, the PFS flow sensor is available in 1", 1.5", and 2" versions

### PFS Series Specifications

- **Wetted Materials**
  - Impeller: High Density Polyethylene
  - Shaft: Tungsten Carbide
  - O-ring: BUNA N
  - Tee, housing, and retaining nut: Type 1 PVC

- **Connection Type**
  - 1", 1.5", & 2" Slip
- **Maximum Working Pressure**
  - 1", 1.5", & 2" 240 psi
- **Recommended Flow Range**
  - 1", 1.5", & 2" 0.25 to 15 ft/sec
- **Pressure Rating:** Designed to Schedule 40 specifications
- **Electrical Output:** Baseline two-wire, 30 VAC RMS
- **Temperature Range:** 32°F to 140°F (0°C to 60°C)
- **Accuracy:** Better than ±1% within recommended flow range
- **Repeatability:** Better than ±0.3% within recommended flow range

### PFS Series Recommended Flow Range

Size	Recommended Flow Range
1"	0.86 gpm - 52 gpm
1.5"	1.8 gpm - 108 gpm
2"	2.8 gpm - 170 gpm

### PFS Series Dimensions

Size	Height	Length	Diameter
1"	3.487"	5.625"	1.710"
1.5"	5.097"	6.188"	2.310"
2"	4.573"	7.0"	2.875"

## **BL-5201MV Master Valve biCoder Specifications**

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- The BL-5201MV biCoders are fully sealed, submersion-proof, and approved for direct bury.
- Shock resistant
- Freeze/heat resistant -4°F to 140°F (-20°C to 60°C)
- All biCoders carry Baseline's standard warranty of 5 years from date of install.
- Built-in surge protection.
- The BL-5201MV biCoder has built-in LEDs that blink during communications on the two-wire side and remain lit when power is supplied to the biCoder.
- The BL-5201MV biCoder is wired to the ControlPoint PFS assembly at the factory.
- The BL-5201MV biCoder has orange and white wires to connect to the master valve.
- The BL-5201MV biCoder can be configured as normally open or normally closed.

## **BL-5406 biCoder Specifications**

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- The BL-5406 biCoders are fully sealed, submersion-proof, and approved for direct bury.
- Shock resistant
- Freeze/heat resistant -4°F to 140°F (-20°C to 60°C)
- The BL-5406 biCoder is wired to the ControlPoint PFS assembly at the factory.
- While the BL-5406 biCoder can interface with and read any 4 to 20mA sensing device, the BL-5406 biCoder is wired to the compatible sensor device at the factory.
- Includes a built-in amperage meter that accurately measures and diagnoses valve solenoid electrical problems such as "no current," "station short," or "over current."
- The BL-5406 biCoder has built-in LEDs that blink during communications on the two-wire side and remain lit when power is supplied to the biCoder.
- All biCoders carry Baseline's standard warranty of 5 years from date of install.
- Built-in surge protection.
- Compatible with Baseline's BaseStation 3200 irrigation controller running firmware version 16 or greater.

## biLine Features

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- The biLine II protocol for two-wire operates below 30 VAC RMS.
- True two-way communication that uses a 9-byte packet for commands and replies.
- Search for and identify all devices connected to the two-wire and list them in the irrigation controller.
- Address devices by serial number by assigning each zone address a device serial number.
- Re-address any device from the irrigation controller by re-assigning the devices serial number to a new zone address.
- Detect and repair from the irrigation controller all address conflicts for devices that are connected to the two-wire.
- Automatically detects communication collision on the two-wire and resends any message experiencing an error.

## Compatible Pressure Sensor

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Baseline's Pressure Sensor biCoder Kit supplies the biCoder and a Dwyer® Series 628 pressure transmitter with the following specifications.

**Service:** Compatible gases and liquids

**Wetted Materials:** Type 316 stainless steel

**Full Scale Accuracy:** 1.0%

**Temperature Limit:** 0 to 200°F (-18 to 93°C)

**Note:** Baseline's tests have shown that freezing conditions can damage a pressure sensor. If a small amount of water remains inside the pressure sensor after an irrigation system is winterized, that water can freeze and permanently deform the diaphragm. In regions where freezing temperatures are expected, Baseline recommends that you remove the pressure sensor and store it indoors until the threat of freezing has passed.

**Compensation Temperature Range:** 0 to 175°F (-18 to 79°C)

**Thermal Effect:** ±0.04% FS/°F (includes zero and span)

**Pressure Limits:** Refer to the pressure sensor manufacturer's documentation at the following URL:  
[http://www.dwyer-inst.com/PDF\\_files/PDS/DS\\_626\\_628Rev.6.pdf](http://www.dwyer-inst.com/PDF_files/PDS/DS_626_628Rev.6.pdf)

**Power Requirements:** 10 to 30 VDC for 4 to 20 mA outputs

**Output Signal:** 4 to 20 mA

**Response Time:** 300 ms

**Loop Resistance:** 0 to 1000 Ohms max. R max = 50 (Vps-10) Ohms (4 to 20 mA output)

**Stability:** 1.0% FS/year (Typ.)

**Current Consumption:** 38 mA maximum (for 4 to 20 mA output)

**Electrical Connection:** The power for the two-wire ready pressure sensor is supplied from the two-wire path by way of the electrical connection to the pressure sensor biCoder.

**Process Connection:** ¼" male NPT

**Enclosure Rating:** NEMA 4X (IP66)

**Note:** The enclosure provides protection in harsh environments. While it can be exposed to some moisture, it is not suitable for complete or ongoing submersion.

**Mounting Orientation:** Can be mounted in any position

**Weight:** 10 oz (283 g)

**Agency Approvals:** CE, NSF, UL

## How to Specify

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**BL-CP-PFS100** – 1" Two-Wire Ready ControlPoint Flow Sensor Assembly

**BL-CP-PFS150** – 1.5" Two-Wire Ready ControlPoint Flow Sensor Assembly

**BL-CP-PFS200** – 2" Two-Wire Ready ControlPoint Flow Sensor Assembly