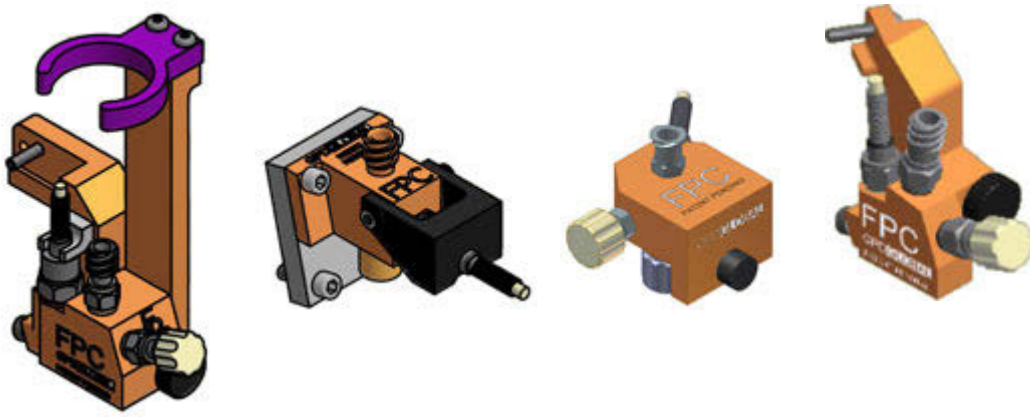
FPC Pump Interface User Guide

Patented Pressure Regulating System for
Fluid Dispensing Systems for FPC Technology

Version 4.5
February 7, 2018
Part No. 22890001



prepared by GPD Global® Documentation Dept.

GPD Global
Precision Dispensing Systems

611 Hollingsworth Street
Grand Junction, CO, USA 81505
tel: +1.970.245-0408 • fax +1.970.245-9674
request@gpd-global.com • www.gpd-global.com

Safety Notices

Appropriate use, warranty
Any of the following that are done without the explicit and written approval of the manufacturer:

- conversions or additions,
- the use of non-original spare parts,
- repairs carried out by companies or persons that have not been authorized by the manufacturer

can lead to the warranty being rendered null and void. The manufacturer shall have no liability whatsoever for damage resulting from failure to follow the operation and maintenance instructions.

Qualifications of the operating and maintenance personnel
The owner bears the responsibility for ensuring that operating and maintenance personnel have the required qualifications. The operation and maintenance instructions must be read and understood. Comply with the relevant applicable technical and safety regulations.

Organizational measures
The owner is to provide any personal protective equipment that is required. All the safety devices are to be checked regularly. Wear protective glasses and a protective suit for operation and cleaning to protect against any chemicals that may be sprayed out.

Table of Contents

Warranty

General Warranty. Subject to the remedy limitation and procedures set forth in the Section "Warranty Procedures and Remedy Limitations," GPD Global warrants that the system will conform to the written description and specifications furnished to Buyer in GPD Global's proposal and specified in the Buyer's purchase order, and that it will be free from defects in materials and workmanship for a period of one (1) year. GPD Global will repair, or, at its option, replace any part which proves defective in the sole judgment of GPD Global within one (1) year of date of shipment/invoice. Separate manufacturers' warranties may apply to components or subassemblies purchased from others and incorporated into the system. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL OTHER WARRANTIES,EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Limitations. GPD Global reserves the right to refuse warranty replacement, where, in the sole opinion of GPD Global the defect is due to the use of incompatible materials or other damages from the result of improper use or neglect.

This warranty does not apply if the GPD Global product has been damaged by accident, abuse, or has been modified without the written permission of GPD Global.

Items considered replaceable or rendered unusable under normal wear and tear are not covered under the terms of this warranty. Such items include fuses, lights, filters, belts, etc.

Warranty Procedures and Remedy Limitations. The sole and exclusive remedy of the buyer in the event that the system or any components of the system do not conform to the express warranties stated in the Section "Warranties" shall be the replacement of the component or part. If on-site labor of GPD Global personnel is required to replace the non-warranted defective component, GPD Global reserves the right to invoice the Buyer for component cost, personnel compensation, travel expenses and all subsistence costs. GPD Global's liability for a software error will be limited to the cost of correcting the software error and the replacement of any system components damaged as a result of the software error. In no event and under no circumstances shall GPD Global be liable for any incidental or consequential damages; its liability is limited to the cost of the defective part or parts, regardless of the legal theory of any such claim. As to any part claimed to be defective within one (1) year of date of shipment/invoice, Buyer will order a replacement part which will be invoiced in ordinary fashion. If the replaced part is returned to GPD Global by Buyer and found by GPD Global in its sole judgment to be defective, GPD Global will issue to Buyer a credit in the amount of the price of the replacement part. GPD Global's acceptance of any parts so shipped to it shall not be deemed an admission that such parts are defective.

Specifications, descriptions, and all information contained in this manual are subject to change and/or correction without notice.

Although reasonable care has been exercised in the preparation of this manual to make it complete and accurate, this manual does not purport to cover all conceivable problems or applications pertaining to this machine.

Overview

The patented Fluid Pressure Control (FPC) is an in-line feed pressure controller and fluid feed system with a sensor and fluid reservoir interface that actively regulates and adjusts fluid pressure between the reservoir and pump of a fluid dispensing system, providing a system for regulating the fluid pressure into the pump.

The FPC Pump Interface is available in all GPD Global® dispense platforms or as an off-line control system with the FPC Controller. For details, refer to *FPC Controller User Guide* (PN 22890002).

FPC Pump Interface shown mounted to a pump

FPC Pump Interface shown with HyFlo Pump, Stand, and FPC Controller

Scope of Supply

The FPC Pump Interface includes an FPC Pump Interface and user guide. A syringe support is also included with most models.

Figure 1: *FPC Pump Interface models*

22893015

22293011
22293012
22293013

22893017

22893019

22893005

22893006

22893008

22893009

22293196

Theory of Operation

After installing an FPC Pump Interface fluid reservoir interface on your dispense pump on an integrated system, enter feed settings and configuration values applicable to the material to be dispensed into the GPD Global® platform control software, or for an off line system, make the entries into an FPC Controller connected to a GPD Global® Island Series or other automated system. The FPC Pump Interface will continually monitor and adjust material pressure entering the pump and automatically compensate for any variations detected by regulating the fluid pressure into the pump.

Integrated systems use the standard start and stop operations of a GPD Global® platform, while off line system operations start/stop via the Enable/Disable button on the FPC Controller.

Features

- FPC Pump Interface ensures a constant feed of fluid independent of reservoir pressure to a dispense pump, resulting in uniform and repeatable fluid displacement.
- FPC Pump Interface enhances pump capability by continually monitoring and adjusting the material pressure entering the pump and automatically compensating for any variations detected.
- The FPC Pump Interface sensor and reservoir interface is adaptable to any pump type and improves the overall dispense repeatability and quality regardless of reservoir fluid level.
- FPC Pump Interface is compatible with all GPD Global® dispense pumps and all fluids and reservoir sizes (as long as fluid viscosity range is within the limits of pump capability).

Install & Set Up

The FPC Pump Interface can be installed and used on a variety of systems.

- MAX Series or DS Series Robotic System (pg 3)
- Island Series Robotic System (pg 5)
- Non-GPD Equipment (pg 5)

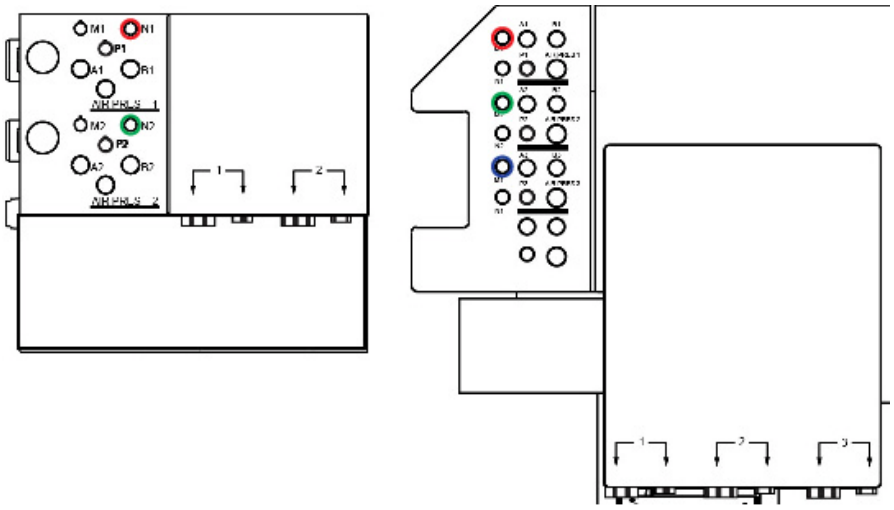
MAX Series or DS Series Robotic System

Installation

To install the FPC Pump Interface on a GPD MAX Series or DS Series dispense system:

1. Mount the FPC Pump Interface on a pump. Refer to Mount to Pump (pg 6).
2. Mount the pump in head mount station 1 (or station 2 or station 3).
3. Plug the FPC Pump Interface sensor cable into the color coded receptacle on the dispense system interconnect panel appropriate for the head mount station: red for head 1, green for head 2, blue for head3. (Color coding on your system may indicate the use of a different location than is shown here; for example, the FPC Pump Interface may need to be plugged into M1 or P1 rather than N1.)

Figure 2: *Interconnect panel for MAX Series (left) & DS Series (right)*



NOTE: *For the few systems with a non-amplified M4 sensor (part numbers 22293199, 22293213, 22193001, 22193002, or 22193003)*, first remove the FPC Sensor Simulator dongle (plug) from the P1 receptacle and set it aside for use during the bypass process. If the pump is mounted in station 2, remove the FPC Sensor Simulator dongle (plug) from P2 and set it aside. The FPC Sensor Simulator dongle (plug) can be ordered using PN 22298310.

Set Up

To set up the FPC Pump Interface on a GPD MAX Series or DS Series dispense system:

1. Set the dispense system to sensor adjust mode:
   a. Enable and open Custom Ctrls.

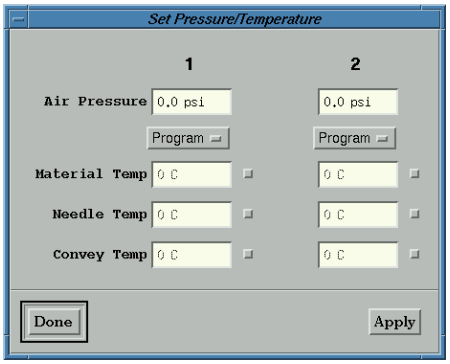
      It is assumed you have read and understood all safety notices and instructions regarding the Custom Ctrls feature. For details go to *Using Custom Controls* in the *Appendices: Machine Controls* section of the *FLOware Software Guide*.

b. From the Custom Ctrls drop down menu, set **Head 1 FPC Bypass** to off. This control is now set to sensor adjust mode. (If the pump is mounted in station 2, set **Head 2 FPC Bypass** to off.)

2. If the pump has a power cable, plug it into the applicable receptacle on the interconnect panel.
3. If the pump has a syringe air hose, plug it into the **Air Pres 1** receptacle on the interconnect panel. (Use **Air Pres 2** if the pump is mounted in station 2.)
4. Bypass the sensor - ***this step is only required by a few systems*** *with a non-amplified M4 sensor (part numbers 22293199, 22293213, 22193001, 22193002, or 22193003)*:
   a. Disconnect the FPC Pump Interface sensor from the P1 (or P2) receptacle in the interconnect panel.
   b. Plug the FPC Sensor Simulator dongle (plug) into the now open P1 (or P2) receptacle.
   c. Disconnect all remaining cables and lines from the interconnect panel for the pump being removed from the dispense system and then remove the pump from head mount station 1 (or station 2).

Select Feed Pressure

To select an appropriate setting for the feed pressure entering the pump:



1. From the main menu bar, select Machine Controls > Set Pressure/Temp to open the Set Pressure/Temp window.
2. Enter a value in the Air Pressure field to begin pushing fluid into the installed pump. Use a value of 10 to 15 psi for most fluids.
3. Position the needle so you can watch the dispense tip. Use the process view camera if it is present.
4. Change the Air Pressure value to a potential “drool pressure”. For example, enter 5 psi.
5. Watch for fluid drooling from the dispense tip. If fluid does not drool after 5 to 10 seconds, increase the Air Pressure value until fluid drools freely from the dispense tip.
6. After “drool pressure” is established, reduce the Air Pressure value by approximately 1 psi. Use the resulting pressure value as the fluid pressure setting in the materials library; i.e., enter the resulting pressure value in the Air Pressure field of the Process Defaults panel in the Mounts/Material Editor window.

Installing and setting up the FPC Pump Interface is now complete.

Island Series Robotic System

To install the FPC Pump Interface on a GPD Island Series dispense system:

1. Mount the FPC Pump Interface on a pump per Mount to Pump (pg 6).
2. Mount the pump on the Island Series per *Install Pump* instructions in the *Island Series User Guide*.
3. Program the desired feed pressure value into the dispense system.

   NOTE: It is assumed you have performed applications testing to determine a specific fluid feed pressure for the material to be dispensed.

Non-GPD Equipment

If using the FPC Pump Interface on non-GPD hardware, refer to FPC Controller (pg 18).

Mount to Pump

For most models, the FPC Pump Interface can be mounted to the pump cartridge stem, secured by hand tightening the sealing nut, and then inserting the cartridge into the pump.

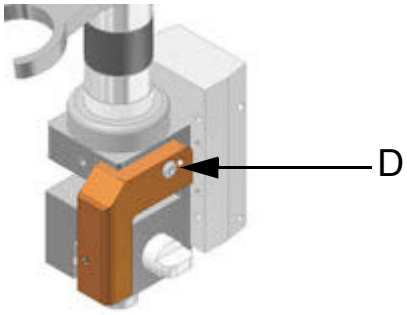
Some models require a slightly different procedure, while completely different mounting instructions are required for bulk feed models. For detailed instructions on how to mount the FPC Pump Interface, refer to the following model-specific instructions.



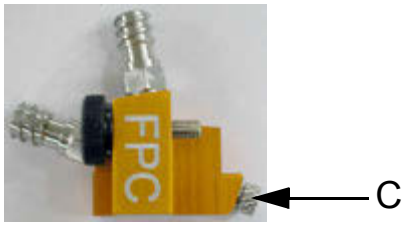
Models 22893005, 22893006, 22893008, 22893009, 22893011, 22893012, 22893013

To mount an FPC Pump Interface to a GPD Global Micro-Dot or HyFlo pump:

1. Screw the FPC Pump Interface mounting bracket (D) to pump body, The shape of the mounting bracket will vary with FPC Pump Interface model; for details refer to References (pg 18).



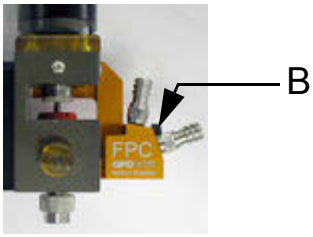
2. Hand tighten the FPC Pump Interface sealing nut (C), and then loosen it 1/2 turn.



3. Insert the pump cartridge stem into the FPC Pump Interface sealing nut.

4. Hold the pump cartridge and FPC Pump Interface so they are aligned with each other while tightening the sealing nut to secure the two assemblies together.

5. Follow pump instructions to insert the cartridge into a pump and lock it in place.
6. Tighten the FPC Pump Interface thumb screw (B) to secure the FPC Pump Interface to its mounting bracket.



7. Install the syringe support on pump body for models where syringe support is not assembled directly to the FPC Pump Interface:
   – Models 22893005, 22893006, 22893008: snap the syringe support onto pump body.
   – Model 22893009: screw syringe support onto pump body.
8. Slide a fluid syringe through the syringe support and screw it onto the FPC Pump Interface Luer adapter.

Model 22893015

To mount this FPC Pump Interface on a GPD Global NCM5000 pump:

1. Unscrew luer fitting (Item 3) from material feed way (Item 1).
2. Gently seat the material feed way (Item 1) in the NCM5000 pump.
3. Hand tighten the thumbscrew (Item 2) to secure the FPC Pump Interface to the pump.
4. Connect feed tube:
   a. Separate the NCM5000 heater block and nozzle assembly from the NCM5000 pump body.
   b. For an initial installation, trim the feed tube (between the NCM5000 pump and FPC Pump Interface) to a length of 23.25 mm (0.92”).
   c. Twist the free end of the feed tube into luer fitting (Item 3).
   d. Screw luer fitting (Item 3) into material feed way (Item 1).
   e. Reassemble the NCM5000 heater block and nozzle assembly with the NCM5000 pump body.

5. Slide a fluid syringe through the pump syringe support and screw it onto the FPC Pump Interface Luer adapter.

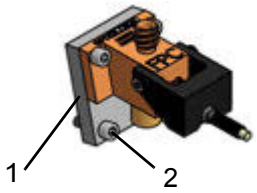
Model 22393017

The mounting instructions for this bulk feed model are integral to its assembly/disassembly instructions:

- Assembling Model 22293196 (pg 16)
- Disassembling Model 22893017 (pg 12)

Model 22393019

1. To mount this FPC Pump Interface to a GPD Global LX Valve, secure the plate spacer (Item 1) to the LX Valve with 2 screws (Item 2) near the bottom edge of the plate spacer.
2. Screw the syringe support onto the pump body.
3. Slide a fluid syringe through the syringe support and screw it onto the FPC Pump Interface Luer adapter.



Change Pump Cartridge

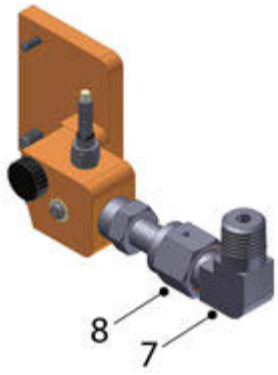
Models
22893005, 22893006, 22893008, 22893009, 22893011, 22893012, 22893013

If the cartridge (see example at right) in a pump using the FPC Pump Interface needs to be changed or replaced:

1. Loosen the FPC Pump Interface thumb screw.
2. Remove the cartridge from the pump.
3. Separate the cartridge from the FPC Pump Interface by loosening the sealing nut.
4. Slide the FPC Pump Interface off of the cartridge stem.
5. Mount the FPC Pump Interface on the new cartridge by following the Mount to Pump (pg 6) instructions.

Model 22893017 for Bulk Feed

To change the tube of material located inside the material cartridge:



1. Using crescent wrench, unscrew elbow fitting (Item 7) from adapter fitting (Item 8).
2. Remove the material cartridge (not shown) from its mount.
3. Unscrew elbow fitting (Item 7) tube of material.
4. Replace tube of material in cartridge and then screw elbow fitting on new material tube.
5. Insert material cartridge in its mount.
6. Using a crescent wrench, screw elbow fitting (Item 7) into adapter fitting (Item 8).

Maintenance

Cleaning FPC Pump Interface

To clean the FPC Pump Interface:

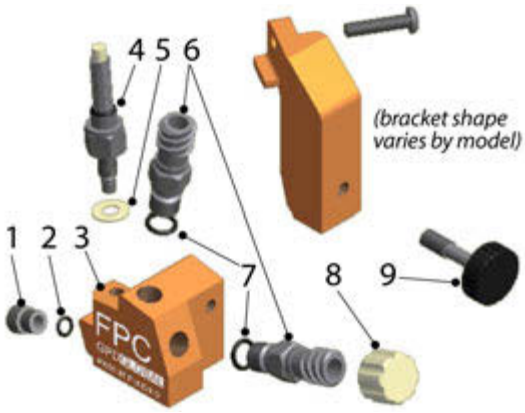
1. Disassemble the FPC Pump Interface per Disassembling FPC Pump Interface (pg 10) instructions.
2. Gently wipe the sensor clean with a clean, dry cloth.
3. Clean all parts by gently wiping all surfaces with a clean, dry cloth. As needed, use a solvent recommended by the fluid manufacturer to remove fluid residue. Inspect any O-rings and fittings, and replace as needed.
4. Reassemble the FPC Pump Interface per Assembling FPC Pump Interface (pg 13) instructions.

Disassembling FPC Pump Interface

Models 22893005, 22893006, 22893008, 22893009

To disassemble any of these models:

1. If a fluid syringe is present, unscrew it from the top luer adapter (Item 6) and then slide it up and out of the syringe support.
2. Separate the FPC Pump Interface from pump by unscrewing and removing the thumbscrew (Item 9).
3. Separate the FPC Pump Interface from pump cartridge stem by unscrewing sealing nut (Item 1) and then removing O-ring (Item 2).



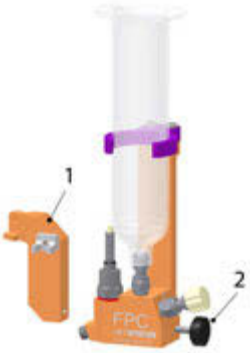
4. Remove luer cap (Item 8), and then unscrew both luer adapters (Item 6) and O-rings (Item 7) from material feed way (Item 3).
5. Gripping only the hex fitting portion with a wrench, gently remove sensor (Item 4) and washer (Item 5) from material feed way (Item 3).

   CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.

   CAUTION: Do not exceed Sensor Tightening Torque - see Specifications (pg 16). The appropriate torque wrench (PN M2005) and torque wrench head (PN M2006) are available for purchase from GPD Global.

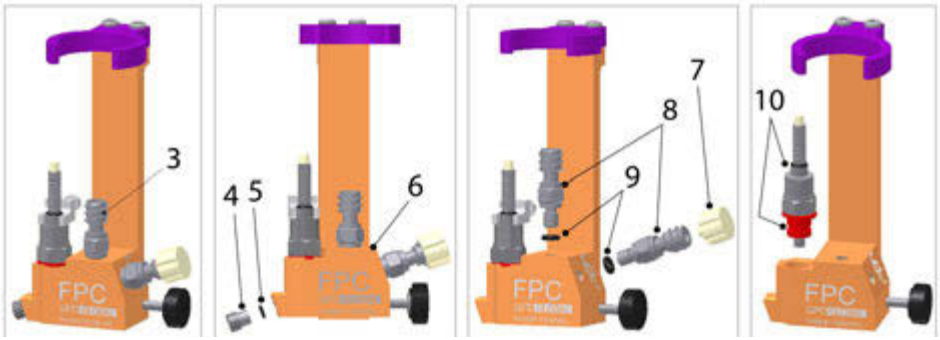
Models 22893011, 22893012, 22893013

To disassemble any of these models:



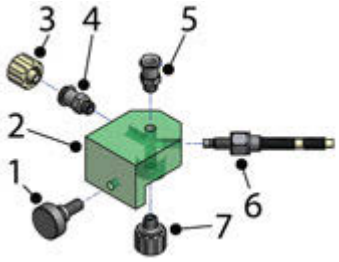
1. If a fluid syringe is present, unscrew it from the top luer adapter (Item 3) and then slide it up and out of the syringe support.
2. Separate the FPC Pump Interface from pump by unscrewing thumb screw (Item 2). The FPC mounting bracket (Item 1) remains mounted to pump.
3. Separate the FPC Pump Interface from pump cartridge stem by unscrewing sealing nut (Item 4) and then removing the O-ring (Item 5) from material feed way (Item 6).
4. Remove luer cap (Item 7), and then remove both luer adapters (Item 8) and O-rings (Item 9).
5. Gently pull (Item 10) sensor and sensor sleeve out of material feed way.

   CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.



Model 22893015

To disassemble this model:



1. If a fluid syringe is present, unscrew it from the top luer adapter (Item 5) and then slide it up and out of the syringe support.
2. Separate the FPC Pump Interface from pump by loosening thumb screw (Item 1) and then lifting FPC Pump Interface off pump.
3. Remove luer cap (Item 3), and then unscrew luer fitting (Item 7) and both luer adapters (Items 4 & 5) from material feed way (Item 2).
4. Gripping only the hex fitting portion with a wrench, gently remove sensor (Item 6) and washer (not shown) from material feed way (Item 2).

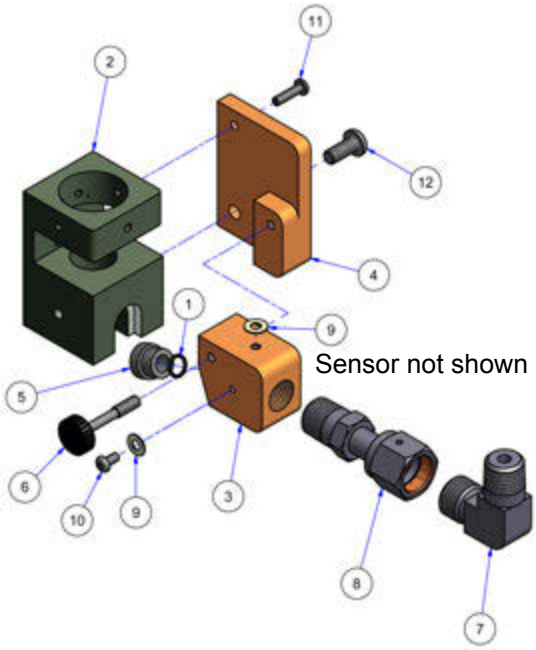
   CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.

   CAUTION: Do not exceed the Sensor Tightening Torque - see Specifications (pg 16). The appropriate torque wrench (PN M2005) and torque wrench head (PN M2006) are available for purchase from GPD Global.

Model 22893017

To disassemble this model:

1. Separate FPC Pump Interface from material cartridge:
   a. Using a crescent wrench, unscrew adapter fitting (Item 8) from elbow fitting (Item 7).
   b. Unscrew elbow fitting (Item 7) from material cartridge (not shown).
2. Separate the material feed way (Item 3) from bracket (Item 4) by loosening thumbscrew (Item 6).
3. Gripping only the hex fitting portion of the sensor (not shown) with a wrench, gently remove sensor and washer (Item 9) from material feed way.



CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.

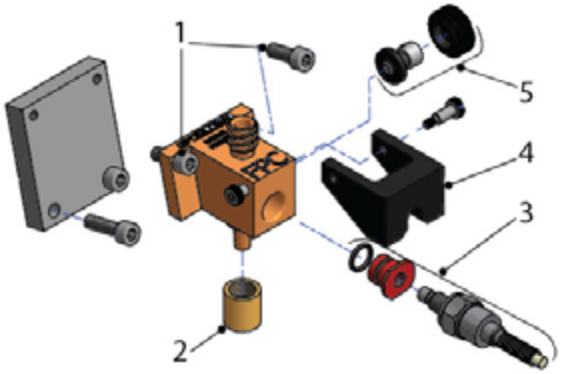
CAUTION: Do not exceed the Sensor Tightening Torque - see Specifications (pg 16). The appropriate torque wrench (PN M2005) and torque wrench head (PN M2006) are available for purchase from GPD Global.

4. Unscrew adapter fitting (Item 8) from material feed way (Item 3).
5. Unscrew sealing nut (Item 5) and remove O-ring (Item 1) from material feed way.
6. Unscrew purge screw (Item 10) and washer (Item 9) from material feed way.
7. As needed, separate bracket (Item 4) from housing (Item 2).

Model 22893019

To disassemble this model:

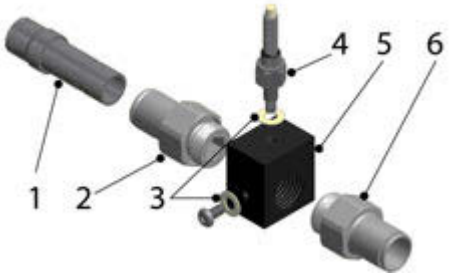
1. If a fluid syringe is present, unscrew it from material feed way and then slide it up and out of the syringe support.
2. Separate the FPC Pump Interface from pump by unscrewing and removing two screws (Item 1).
3. Unscrew and remove threaded sleeve (Item 2).
4. Unsnap and raise the sensor latch (Item 4) and pull out the sensor, sensor sleeve, and O-ring (Item 3).



5. Unscrew and remove the bleed port and washer (Item 5).

Model 22293196

To disassemble this model:



1. Separate the FPC Pump Interface from pump cartridge stem using quick disconnect fitting on stem reduction fitting (Item 1).
2. Separate both straight one-touch fittings (Items 2 & 6) from block manifold (Item 5).
3. Separate Item 2 from Item 1.
4. Gripping only the hex fitting portion with a wrench, gently remove sensor (Item 4) and washer (Item 3) from block manifold

   CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.

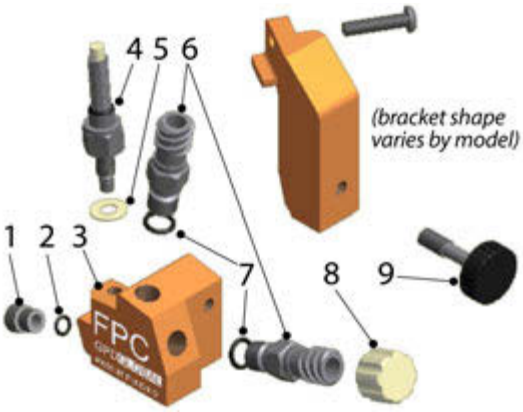
   CAUTION: Do not exceed the Sensor Tightening Torque - see Specifications (pg 16). The appropriate torque wrench (PN M2005) and torque wrench head (PN M2006) are available for purchase from GPD Global.

5. Unscrew remaining washer (Item 3) from block manifold.

Assembling FPC Pump Interface

Models 22893005, 22893006, 22893008, 22893009

To assemble any of these models:



1. Slide washer (Item 5) over sensor (Item 4) and then gently insert both items into material feed way (Item 3).

   CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.

2. Using a hand and wrench — not a wrench and vice — to tighten sensor in the material feed way, being careful not to exceed sensor torque specifications while gripping only the hex fitting portion of the sensor with a wrench.

   CAUTION: Do not exceed Sensor Tightening Torque - see Specifications (pg 16). The appropriate torque wrench (PN M2005) and torque wrench head (PN M2006) are available for purchase from GPD Global.

3. Screw both luer adapters (Item 6), each with an O-ring (Item 7), into material feed way (Item 3). Verify the luer cap (Item 8) is screwed onto the lower luer adapter (Item 6).
4. Insert O-ring (Item 2) and screw sealing nut (Item 1) into material feed way (Item 3).
5. Secure the FPC Pump Interface to the pump with the thumbscrew (Item 9).

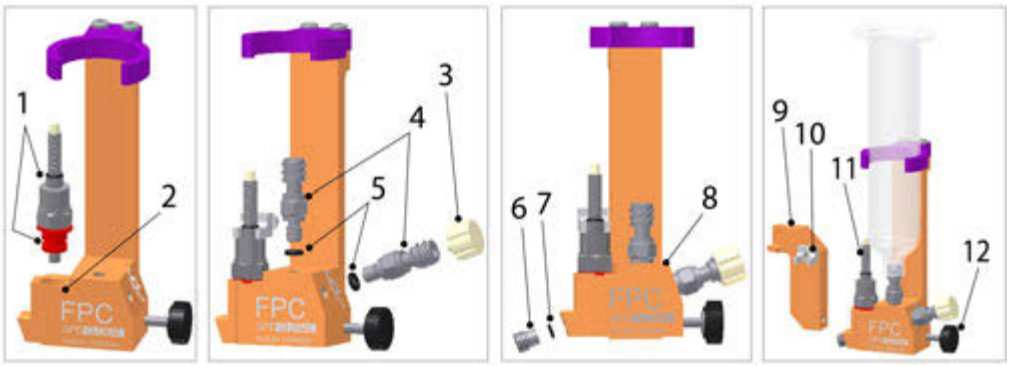
Models 22893011, 22893012, 22893013

To assemble any of these models:

1. Gently insert (Item 1) sensor and sensor sleeve into material feed way (Item 2).

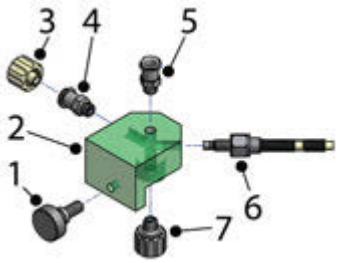
   CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.

2. Screw both luer adapters (Item 4), each with an O-ring (Item 5), into material feed way (Item 2). Verify the luer cap (Item 3) is screwed onto the lower luer adapter.
3. Insert O-ring (Item 7) and screw sealing nut (Item 6) into material feed way.
4. Join the FPC Pump Interface to the FPC mount plate (Item 9) and pump with the thumb screw (Item 12), carefully aligning sensor (Item 11) in fork (Item 10). Screw a fluid syringe onto top luer adapter.



Model 22893015

To assemble this model:



1. Screw luer fitting (Item 7) and both luer adapters (Items 4 & 5) into material feed way (Item 2).
2. Screw luer cap (Item 3) onto luer adapter (Item 4).
3. Verify the thumbscrew (Item 1) is loosely screwed into material feed way (Item 2).
4. If the sensor (Item 6) is not already installed in the FPC Pump Interface:
   a. Slide washer (not shown) over sensor.
   b. Use your hand and a wrench — not a wrench and vice — to tighten the sensor in the material feed way (Item 2), being careful not to exceed sensor torque specifications while gripping only the hex fitting portion of the sensor with a wrench.

   CAUTION: Do not exceed Sensor Tightening Torque - see Specifications (pg 16). The appropriate torque wrench (PN M2005) and torque wrench head (PN M2006) are available for purchase from GPD Global.

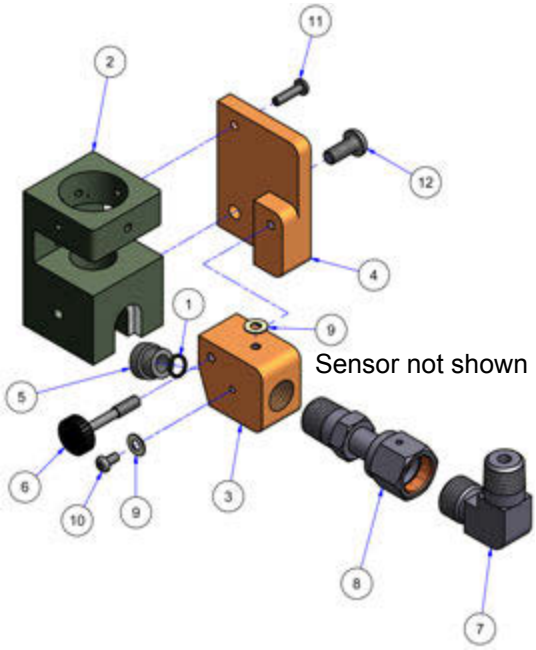
   CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.

Model 22893017

To assemble this model:

1. Screw adapter fitting (Item 8) into material feed way (Item 3).
2. Insert O-ring (Item 1) and screw sealing nut (Item 5) into material feed way.
3. Screw purge screw (Item 10) and washer (Item 9) into material feed way.
4. Slide washer (Item 9) over sensor (not shown) and then gently insert both items into material feed way.

   CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.



5. Using hand and wrench — not wrench and vice — tighten sensor in the material feed way, being careful not to exceed sensor torque specifications while gripping only the hex fitting portion of the sensor with a wrench.

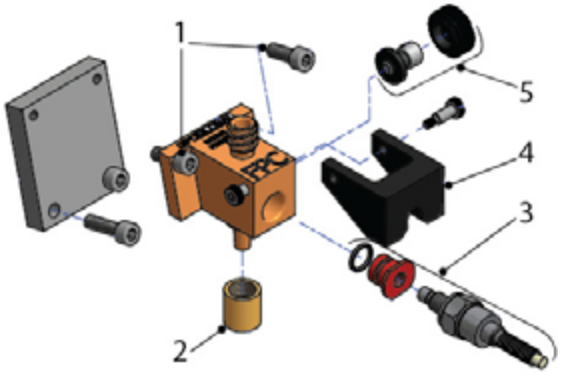
   CAUTION: Do not exceed Sensor Tightening Torque - see Specifications (pg 16). The appropriate torque wrench (PN M2005) and torque wrench head (PN M2006) are available for purchase from GPD Global.

6. Secure bracket (Item 4) to housing (Item 2).
7. Secure material feed way (Item 3) to bracket (Item 4) with thumbscrew (Item 6).
8. Screw elbow fitting (Item 7) onto material cartridge (not shown).
9. Using crescent wrench, screw adapter fitting (Item 8) onto elbow fitting (Item 7).

Model 22893019

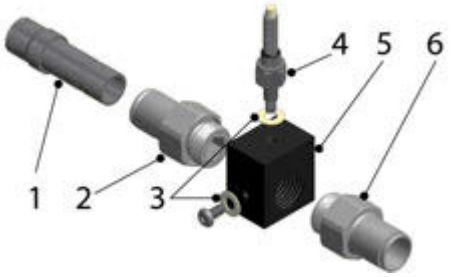
To assemble this model:

1. Screw in the bleed port and washer (Item 5).
2. Insert the O-ring, sensor sleeve, and sensor (Item 3) into the material feed way, and then lower the sensor latch (Item 4) and snap it in place.
3. Screw the threaded sleeve (Item 2) onto the material feed way.
4. Screw the FPC Pump Interface to the pump with two screws (Item 1).



Model 22293196

To assemble this model:



1. Slide washer (Item 3) over sensor (Item 4) and then gently insert both items into block manifold (Item 5).

   CAUTION: Do not grasp, twist, or rotate the sensor spring relief or cable, or else damage will occur.

2. Using hand and wrench — not wrench and vice — tighten sensor in the block manifold, being careful not to exceed sensor torque specifications while gripping only the hex fitting portion of the sensor with a wrench.

   CAUTION: Do not exceed Sensor Tightening Torque - see Specifications (pg 16). The appropriate torque wrench (PN M2005) and torque wrench head (PN M2006) are available for purchase from GPD Global.

3. Join Item 1 and 2.
4. Attach both straight one-touch fittings (Items 2 & 6) to the block manifold (Item 5).
5. Connect the FPC Pump Interface to the pump cartridge stem using the quick disconnect fitting on the stem reduction fitting (Item 1).

Specifications

Specification	Models			
	22893005	**22893006**	**22893008**	**22893009**
Size (W x H x D) mm *inches*	 23 x 48 x 57 *0.91 x 1.89 x 2.24*	 28 x 48 x 71 *1.10 x 1.89 x 2.80*	 23 x 48 x 57 *0.91 x 1.89 x 2.24*	 28 x 48 x 71 *1.10 x 1.89 x 2.80*
Weight	68 g (2.4 oz)	72 g (2.54 oz)	68 g (2.4 oz)	72 g (2.54 oz)
Wetted parts	Anodized Aluminum, 316 SST, Brass, Polypropylene			
Seal material	Viton			
Material connection	Standard Luer Style Syringe			
Operating pressure	0-5.17 bar (0-75 psi)			
Sensor: Temperature range Accuracy Repeatability Tightening Torque: Nominal* Maximal	 0-60° C (32 to 140° F) ±0.5% F.S. ±0.2% F.S. 1.8 N.m (15 Lbf.in) 3 N.m (25 Lbf.in)			

*Zero and sensitivity shift <1%
**approximate

Specification	Models			
	22893011	22893012	22893013	22893015
Size (W x H x D) mm *inches*	 32 x 95 x 72 *1.26 x 3.74 x 2.83*	 32 x 95 x 79 *1.26 x 3.74 x 3.11*	 32 x 95 x 80 *1.26 x 3.74 x 3.15*	 50 x 40.1 x 50 *1.97 x 1.58 x 1.97*
Weight	94 g (3.32 oz)	106 g (3.74 oz)	108 g (3.81 oz)	40 g** (1.41 oz)**
Wetted parts	Anodized Aluminum, 316 SST, Brass, Polypropylene			Anodized Aluminum, Polypropylene
Seal material	Viton			Polypropylene
Material connection	Standard Luer Style Syringe			
Operating pressure	0-5.17 bar (0-75 psi)			
Sensor: Temperature range Accuracy Repeatability Tightening Torque: Nominal* Maximal	 0-60° C (32 to 140° F) ±0.5% F.S. ±0.2% F.S. 1.8 N.m (15 Lbf.in) 3 N.m (25 Lbf.in)			

*Zero and sensitivity shift <1%
**approximate

Specification	Models		
	22893017	22893019	22293196
Size (W x H x D) mm *inches*	 117 x 51 x 36 *4.6 x 2.01 x 1.42*	 30 x 45 x 49 *1.18 x 1.77 x 1.93*	 23 x 53 x 85 *0.91 x 2.09 x 3.35*
Weight	268 g** (9.45 oz)**	60 g (2.15 oz)	88 g (3 oz)
Wetted parts	Anodized Aluminum, 316 SST	Anodized Aluminum, 316 SST, Brass, Polypropylene	Anodized Aluminum, PTFE, Nickel-Plated Brass
Seal material	Nylon	Viton	Nylon
Material connection	1/4 NPT	Standard Luer Style Syringe	10 mm One Touch
Operating pressure	0-5.17 bar (0-75 psi)		
Sensor: Temperature range Accuracy Repeatability Tightening Torque: Nominal* Maximal	 0-60° C (32 to 140° F) ±0.5% F.S. ±0.2% F.S. 1.8 N.m (15 Lbf.in) 3 N.m (25 Lbf.in)		

*Zero and sensitivity shift <1%
**approximate

Spare Parts

Description	Qty	Part Number	Models										
			22893005	22893006	22893008	22893009	22893011	22893012	22893013	22893015	22893017	22893019	22293196
Fitting	1	2650-0224								X			
Fluid pressure sensor	1	Contact GPD*	X	X	X	X	X	X	X	X	X	X	X
Luer adapter	2	10/4234					X	X	X				
	2	2650-0218								X			
Luer fitting	2	10/3171	X	X	X	X							
Luer fitting cap	2	10/4836	X	X	X	X	X	X	X	X			
Sealing Nut, SST	1	22805016	X	X	X	X	X	X					
	1	22805018							X				
	1	22805029									X		
O-ring, Viton	10	10/4912	X	X	X	X							
	10	2575-0040	X	X	X	X							
	10	2575-0046					X	X					
	2	2575-0047					X	X	X				
	10	2575-0048					X	X	X		X	X	
	10	2575-0049							X				
Washer	5	2825-0043	X	X	X	X				X	X		X
	1	2825-0050					X	X	X				
	1	10/4285										X	

* Sensor part number depends on the machine model and station position in which the pump is used.

References

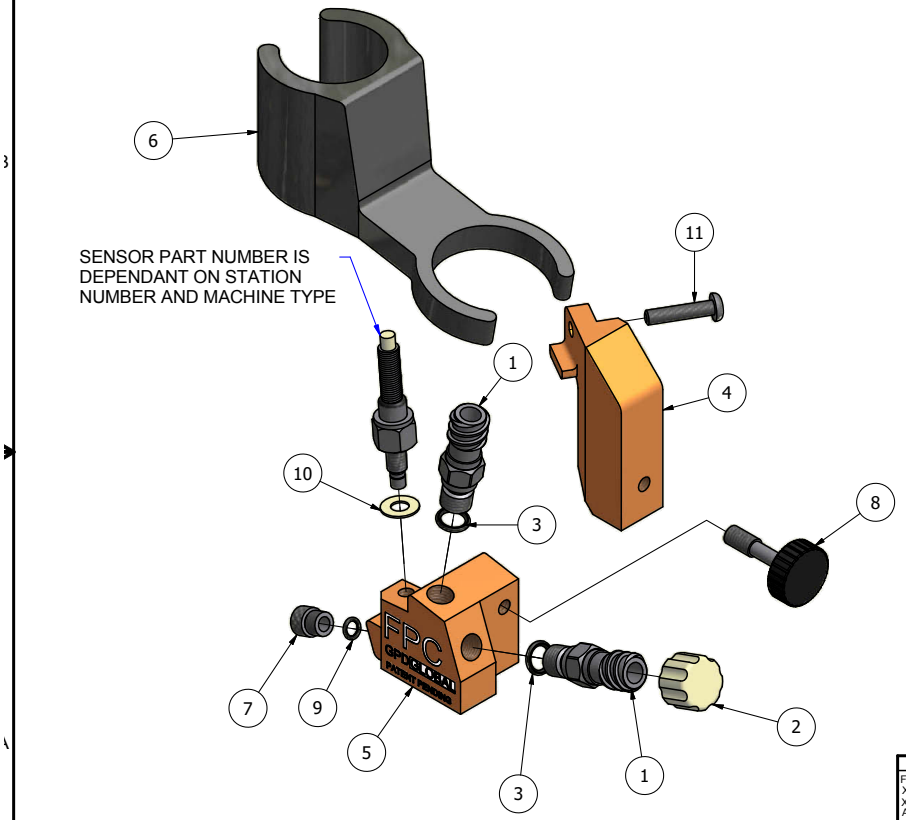
FPC Controller

The FPC Pump Interface can be used as an off-line control system with the FPC Controller. The controller and its HMI control software is available to interface the FPC Pump Interface with your existing dispense pump. Refer to *FPC Controller User Guide*, PN 22890002.

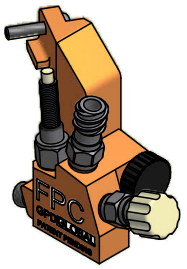
Drawings

22893005 - for Micro-Dot Legacy (1)

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10/3171	ADAPTER, THD, LUER, FEMALE, SST,1/4-32
2	1	10/4836	LUER CAP FITTING MALE LOCKING
3	2	10/4912	ORING,VITON_5mmID X 1mmW
4	1	22805006	BRACKET_FPC MOUNTING_MD LEGACY
5	1	22805007	MATERIAL FEEDWAY_FPC_MD
6	1	22805009	SYRINGE SUPPORT_FPC_SNAPSTYLE
7	1	22805016	NUT_SEALING_FPC_STAINLESS STEEL
8	1	22893002	THUMB SCREW_M4
9	1	2575-0040	O-RING_.120 ID X .030 SECTION
10	1	2825-0043	WASHER_NYLON_.150ID X .312OD X .015T
11	1	SABSM030050014	SCREW,BUTTON HEAD,3MMX.5 X 14MM,SST



NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

TOLERANCES UNLESS OTHERWISE SPECIFIED			
		METRIC	
FRACTIONS	± 1/32		
X.XX	± 0.015	0 MM	± 1.0 MM
X.XXX	± 0.005	0.0 MM	± 0.4 MM
ANGULAR	± 0.5°	0.00 MM	± 0.1 MM
RUNOUT	± 0.003 T.I.R.		

FINISH: NONE

HEAT TREATMENT: -

DWG SIZE: B

GPD Global

DESCRIPTION: FPC_PUMP INTERFACE_MD LEGACY

ASSEMBLY: FPC

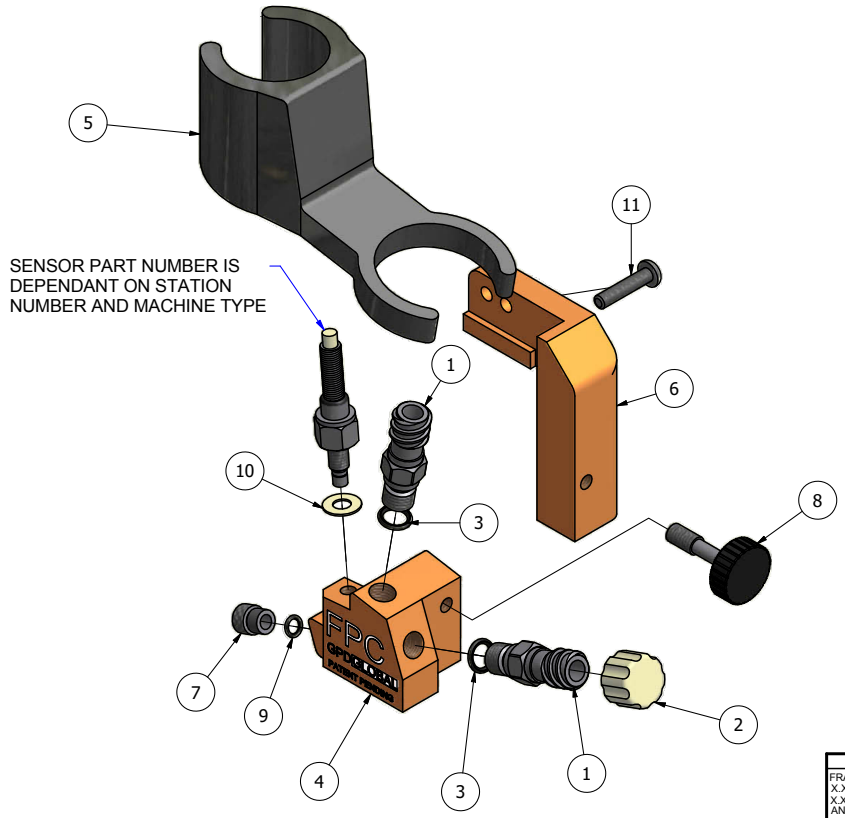
MATERIAL: -

DWG NO: 22893005

DRAWN BY IAH | 11/8/2013 | SHEET 1 OF 1

22893006 - for Micro-Dot & HyFlo

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE
A	12/16/13	IAH	2575-0037 WAS 2575-0006
B	1/15/14	IAH	2575-0040 WAS 2575-0037, REMOVED 22805008, ADDED 22805016



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10/3171	ADAPTER, THD, LUER, FEMALE, SST,1/4-32
2	1	10/4836	LUER CAP FITTING MALE LOCKING
3	2	10/4912	ORING,VITON_5mmID X 1mmW
4	1	22805007	MATERIAL FEEDWAY_FPC_MD
5	1	22805009	SYRINGE SUPPORT_FPC_SNAPSTYLE
6	1	22805010	BRACKET_FPC MOUNTING_MD_HY-FLO BODY
7	1	22805016	NUT_SEALING_FPC_STAINLESS STEEL
8	1	22893002	THUMB SCREW_M4
9	1	2575-0040	O-RING_.120 ID X .030 SECTION
10	1	2825-0043	WASHER_NYLON_.150ID X .312OD X .015T
11	1	SABSM030050014	SCREW,BUTTON HEAD,3MMX.5 X 14MM,SST

NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

TOLERANCES UNLESS OTHERWISE SPECIFIED

		METRIC	
FRACTIONS	± 1/32		
X.XX	± 0.015	0 MM	± 1.0 MM
X.XXX	± 0.005	0.0 MM	± 0.4 MM
ANGULAR	± 0.5°	0.00 MM	± 0.1 MM
RUNOUT	± 0.003 T.I.R.		

FINISH: NONE

HEAT TREATMENT: -

DWG SIZE: B

GPD Global

DESCRIPTION: FPC_PUMP INTERFACE_MD_HY-FLO BODY

ASSEMBLY: FPC

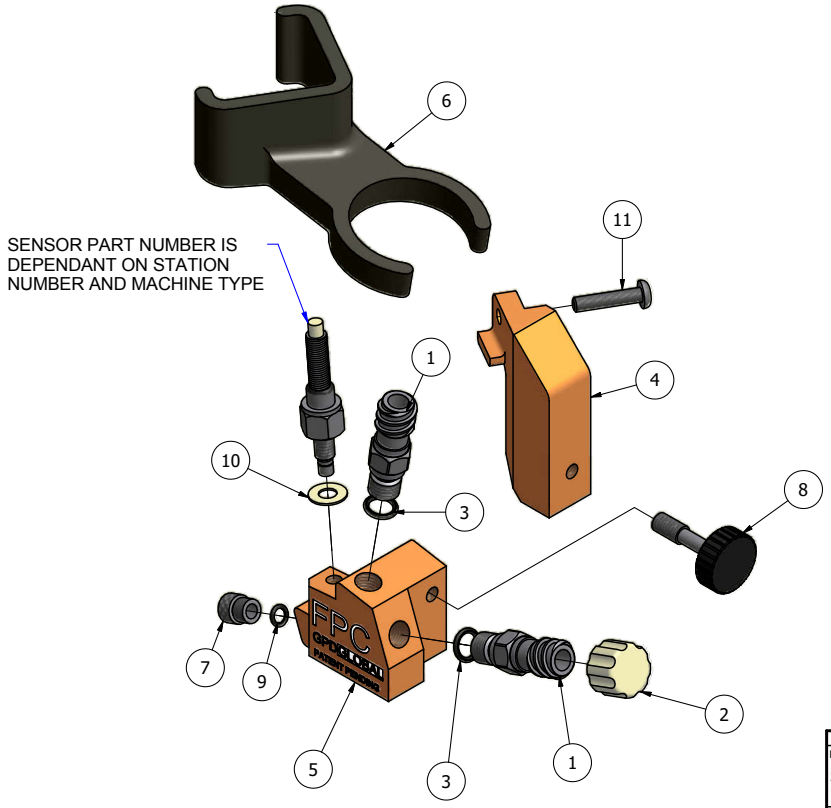
MATERIAL: -

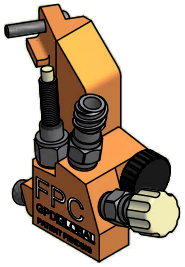
DWG NO: 22893006

DRAWN BY IAH | 11/22/2013 | SHEET 1 OF 1

22893008 - for Micro-Dot Legacy (2)

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE





Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10/3171	ADAPTER, THD, LUER, FEMALE, SST,1/4-32
2	1	10/4836	LUER CAP FITTING MALE LOCKING
3	2	10/4912	ORING,VITON_5mmID X 1mmW
4	1	22805006	BRACKET_FPC MOUNTING_MD LEGACY
5	1	22805007	MATERIAL FEEDWAY_FPC_MD
6	1	22805014	SYRINGE SUPPORT_FPC_SNAP_MD OLD
7	1	22805016	NUT_SEALING_FPC_STAINLESS STEEL
8	1	22893002	THUMB SCREW_M4
9	1	2575-0040	O-RING_.120 ID X .030 SECTION
10	1	2825-0043	WASHER_NYLON_.150ID X .312OD X .015T
11	1	SABSM030050014	SCREW,BUTTON HEAD,3MMX.5 X 14MM,SST

NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

TOLERANCES UNLESS OTHERWISE SPECIFIED			
		METRIC	
FRACTIONS	± 1/32		
X.XX	± 0.015	0 MM	± 1.0 MM
X.XXX	± 0.005	0.0 MM	± 0.4 MM
ANGULAR	± 0.5°	0.00 MM	± 0.1 MM
RUNOUT	± 0.003 T.I.R.		

FINISH: NONE

HEAT TREATMENT: -

DWG SIZE: B

GPD Global

DESCRIPTION: FPC_PUMP INTERFACE_OLD MD

ASSEMBLY: FPC

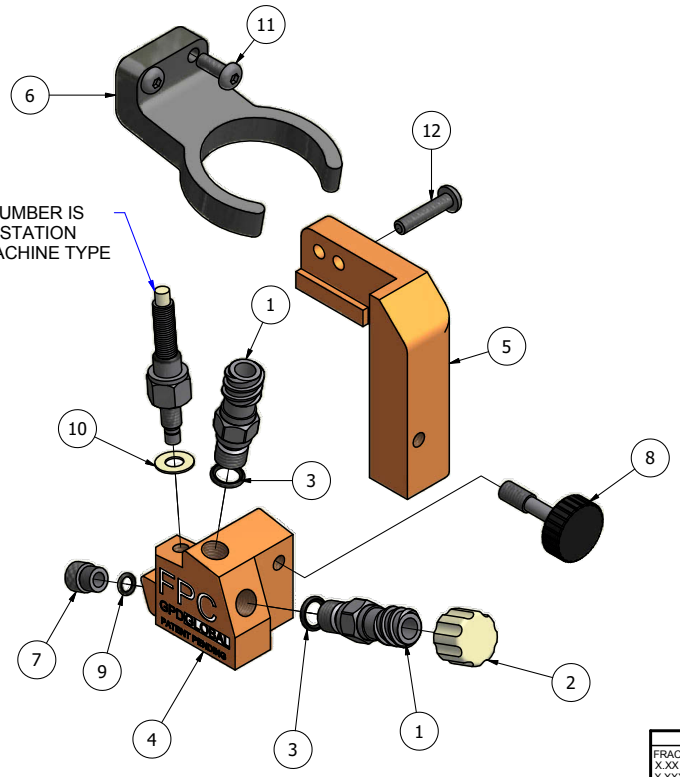
MATERIAL: -

DWG NO: 22893008

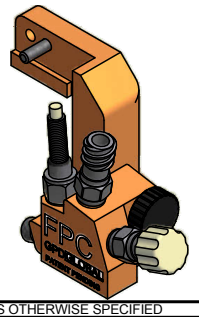
DRAWN BY IAH | 12/23/2013 | SHEET 1 OF 1

22893009 - for Micro-Dot on Hyperion

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10/3171	ADAPTER, THD, LUER, FEMALE, SST,1/4-32
2	1	10/4836	LUER CAP FITTING MALE LOCKING
3	2	10/4912	ORING,VITON_5mmID X 1mmW
4	1	22805007	MATERIAL FEEDWAY_FPC_MD
5	1	22805010	BRACKET_FPC MOUNTING_MD_HY-FLO BODY
6	1	22805015	SYRINGE SUPPORT_FPC_SNAP_MD_HYP
7	1	22805016	NUT_SEALING_FPC_STAINLESS STEEL
8	1	22893002	THUMB SCREW_M4
9	1	2575-0040	O-RING_.120 ID X .030 SECTION
10	1	2825-0043	WASHER_NYLON_.150ID X .312OD X .015T
11	2	SABSM030050008	SCREW,BUTTON HEAD,3MMX.5 X 8MM,SST
12	1	SABSM030050014	SCREW,BUTTON HEAD,3MMX.5 X 14MM,SST



NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

TOLERANCES UNLESS OTHERWISE SPECIFIED			
		METRIC	
FRACTIONS	▷ 1/32		
X.XX	▷ 0.015	0 MM	▷ 1.0 MM
X.XXX	▷ 0.005	0.0 MM	▷ 0.4 MM
ANGULAR	▷ 0.5▷	0.00 MM	▷ 0.1 MM
RUNOUT	▷ 0.003 T.I.R.		

FINISH

HEAT TREATMENT: -

DWG SIZE: B

GPD Global

DESCRIPTION: FPC_PUMP INTERFACE_MD_HYPERION

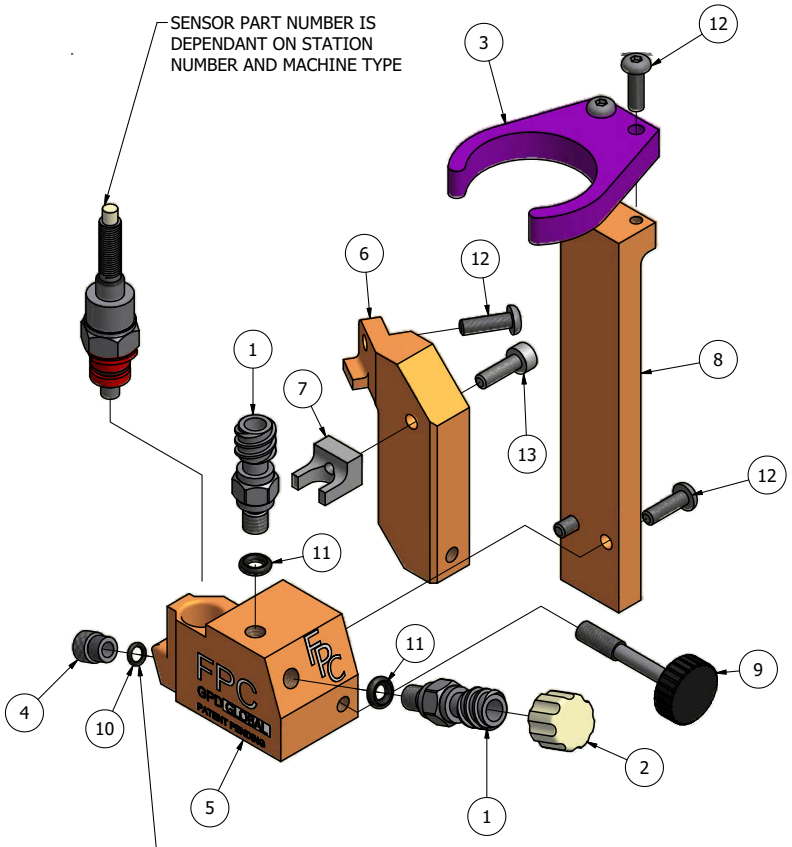
ASSEMBLY: FPC

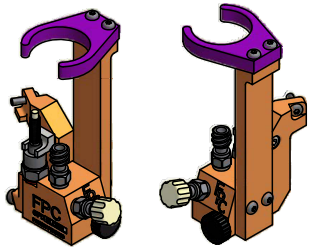
MATERIAL: -

DWG NO: 22893009

DRAWN BY IAH | 1/3/2014 | SHEET 1 OF 1

22893011 - for Micro-Dot Legacy - M5





REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10/4234	ADAPTER, THD, LUER, FEMALE, SST,10-32
2	1	10/4836	LUER CAP FITTING MALE LOCKING
3	1	22203391	SYRINGE SUPPORT_PCD4_SNAP STYLE_OEM
4	1	22805016	NUT_SEALING_FPC_STAINLESS STEEL
5	1	22805019	MATERIAL FEEDWAY_FPC_MD_M5 SENSOR
6	1	22805022	BRACKET_FPC MOUNTING_MD LEGACY
7	1	22805025	FORK_MICRODOT_SENSOR_FPC_M5
8	1	22805026	PLATE_MOUNT_FPC_SYRINGE SUPPORT
9	1	22893014	THUMB SCREW_FPT MOUNT_M4 X 25
10	1	2575-0046	O-RING_EPDM_.120 ID X .030 SECTION
11	2	2575-0047	O-RING_EPDM_.122 ID X .063 SECTION
12	5	SABSM030050010	SCREW,BUTTON HEAD,3MMX.5 X 10MM,SST
13	1	SACSM030050010	CAP SCREW 3MM X 0.5 X 10MM LG

NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

TOLERANCES UNLESS OTHERWISE SPECIFIED

		METRIC	
FRACTIONS	± 1/32		
X.XX	± 0.015	0 MM	± 1.0 MM
X.XXX	± 0.005	0.0 MM	± 0.4 MM
ANGULAR	± 0.5°	0.00 MM	± 0.1 MM
RUNOUT	± 0.003 T.I.R.		

FINISH

HEAT TREATMENT
-

DWG SIZE
B

LAST REVISION 7/21/15

GPD Global

DESCRIPTION
FPC_PUMP INTERFACE_MD LEGACY_M5

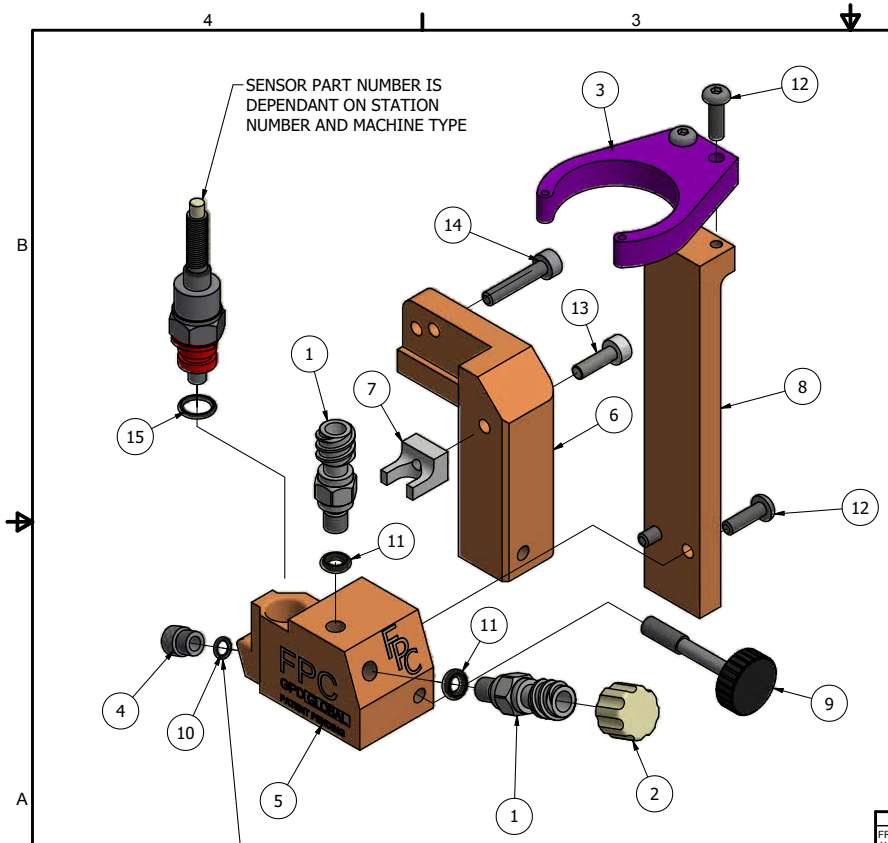
ASSEMBLY
FPC

MATERIAL
-

DWG NO
22893011

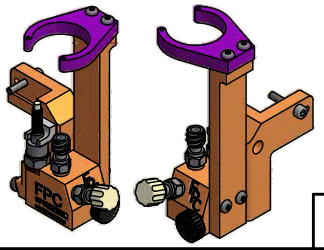
DRAWN BY IAH | 1/28/2014 | SHEET 1 OF 1

22893012 - for Micro-Dot & HyFlo - M5



REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10/4234	ADAPTER, THD, LUER, FEMALE, SST,10-32
2	1	10/4836	LUER CAP FITTING MALE LOCKING
3	1	22203391	SYRINGE SUPPORT_PCD4_SNAP STYLE_OEM
4	1	22805016	NUT_SEALING_FPC_STAINLESS STEEL
5	1	22805019	MATERIAL FEEDWAY_FPC_MD_M5 SENSOR
6	1	22805021	BRACKET_FPC MOUNTING_MD_HY-FLO BODY
7	1	22805025	FORK_MICRODOT_SENSOR_FPC_M5
8	1	22805026	PLATE_MOUNT_FPC_SYRINGE SUPPORT
9	1	22893014	THUMB SCREW_FPT MOUNT_M4 X 25
10	1	2575-0046	O-RING_EPDM_.120 ID X .030 SECTION
11	2	2575-0047	O-RING_EPDM_.122 ID X .063 SECTION
12	4	SABSM030050010	SCREW,BUTTON HEAD,3MMX.5 X 10MM,SST
13	1	SACSM030050010	CAP SCREW 3MM X 0.5 X 10MM LG
14	1	SACSM030050016	CAP SCREW 3MM X .05 16MM LG
15	1	2575-0048	O-RING_EDPM_.228 ID X .039 SECTION



NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

LAST REVISION 9/5/17

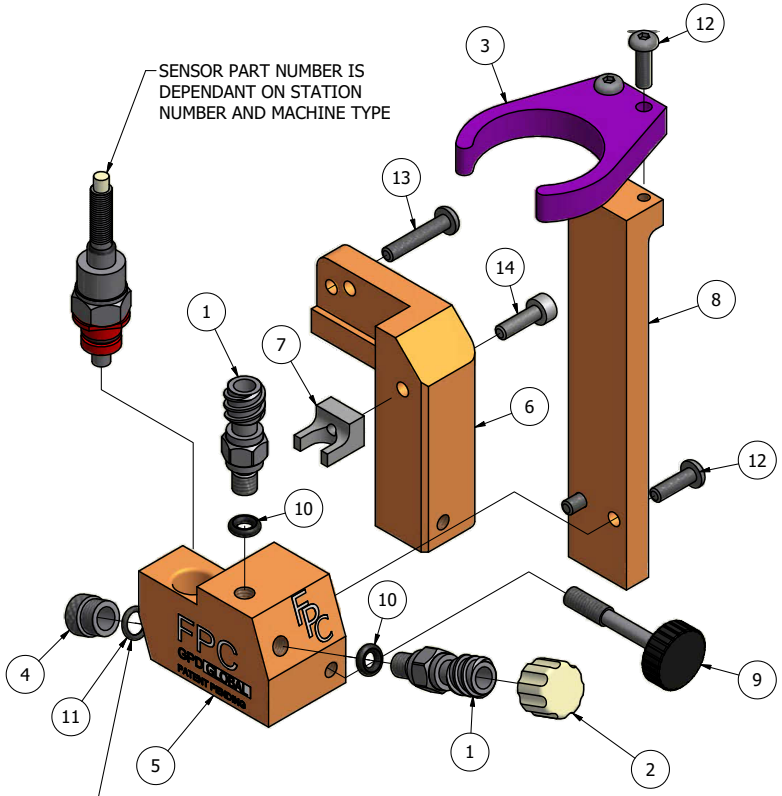
TOLERANCES UNLESS OTHERWISE SPECIFIED			
		METRIC	
FRACTIONS	▷ 1/32		
X.XX	▷ 0.015	0 MM	▷ 1.0 MM
X.XXX	▷ 0.005	0.0 MM	▷ 0.4 MM
ANGULAR	▷ 0.5▫	0.00 MM	▷ 0.1 MM
RUNOUT	▷ 0.003 T.I.R.		

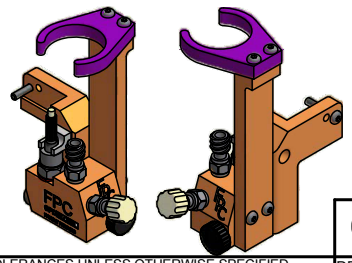
FINISH	
HEAT TREATMENT	-
DWG SIZE	B

GPD Global

DESCRIPTION	FPC_PUMP INTRFC_MD_HY-FLO BODY_M5
ASSEMBLY	FPC
MATERIAL	-
DWG NO	22893012
DRAWN BY	IAH
	1/28/2014
SHEET	1 OF 1

22893013 - for HyFlo - M5





REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	10/4234	ADAPTER, THD, LUER, FEMALE, SST,10-32
2	1	10/4836	LUER CAP FITTING MALE LOCKING
3	1	22203391	SYRINGE SUPPORT_PCD4_SNAP STYLE_OEM
4	1	22805018	NUT_SEALING_FPC_STAINLESS STEEL
5	1	22805020	MATERIAL FEEDWAY_FPC_HY-FLO_M5 SENS
6	1	22805021	BRACKET_FPC MOUNTING_MD_HY-FLO BODY
7	1	22805025	FORK_MICRODOT_SENSOR_FPC_M5
8	1	22805026	PLATE_MOUNT_FPC_SYRINGE SUPPORT
9	1	22893014	THUMB SCREW_FPT MOUNT_M4 X 25
10	2	2575-0047	O-RING_EPDM_.122 ID X .063 SECTION
11	1	2575-0049	ORING,VITON,SPECIAL_.25 X .18 X .035
12	4	SABSM030050010	SCREW,BUTTON HEAD,3MMX.5 X 10MM,SST
13	1	SABSM030050016	SCREW,BUTTON HEAD,3MMX.5 X 16MM,SST
14	1	SACSM030050010	CAP SCREW 3MM X 0.5 X 10MM LG

NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

TOLERANCES UNLESS OTHERWISE SPECIFIED

		METRIC	
FRACTIONS	± 1/32		
X.XX	± 0.015	0 MM	± 1.0 MM
X.XXX	± 0.005	0.0 MM	± 0.4 MM
ANGULAR	± 0.5°	0.00 MM	± 0.1 MM
RUNOUT	± 0.003 T.I.R.		

FINISH

HEAT TREATMENT
-

DWG SIZE
B

LAST REVISION 7/21/15

GPD Global

DESCRIPTION
FPC_PUMP INTERFACE_HY-FLO_M5

ASSEMBLY
FPC

MATERIAL
-

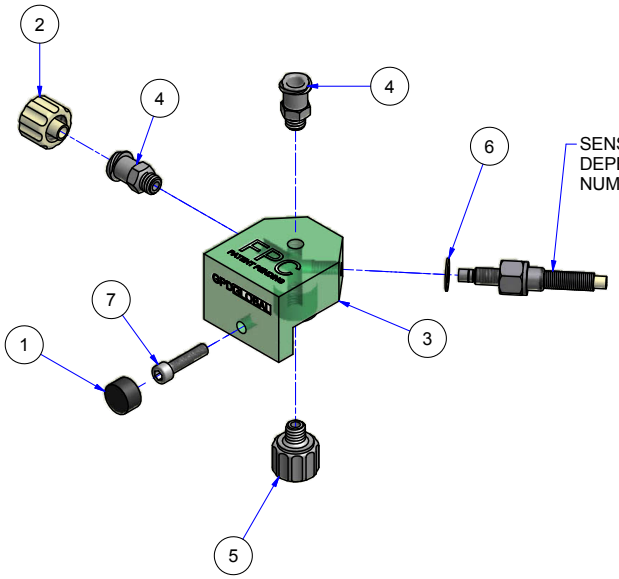
DWG NO
22893013

DRAWN BY IAH | 1/31/2014 | SHEET 1 OF 1

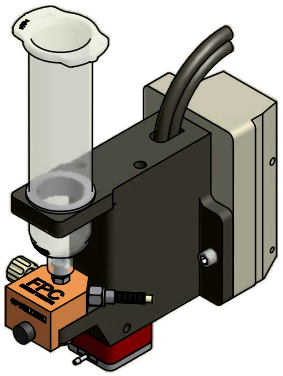
22893015 - for NCM5000 Pump

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	10/1692	KNOB,#4 CAP SCREW
2	1	10/4836	LUER CAP FITTING MALE LOCKING
3	1	22805023	MATERIAL FEEDWAY_FPC_NCM 5000
4	2	2650-0218	ADAPTER_THD_LUER_FEM_PLASTIC_10-32
5	1	2650-0224	FITTING_10-32 MALE TAPER X MALE LUER
6	1	2825-0043	WASHER_NYLON_.150ID X .312OD X .015T
7	1	SACSN0440050	4-40 X 1/2 SHCS



SENSOR PART NUMBER IS DEPENDANT ON STATION NUMBER AND MACHINE TYPE



TOLERANCES UNLESS OTHERWISE SPECIFIED			
		METRIC	
FRACTIONS	± 1/32		
X.XX	± 0.015	0 MM	± 1.0 MM
X.XXX	± 0.005	0.0 MM	± 0.4 MM
ANGULAR	± 0.5°	0.00 MM	± 0.1 MM
RUNOUT	± 0.003 T.I.R.		

FINISH

HEAT TREATMENT: -

DWG SIZE: B

GPD Global

DESCRIPTION: FPC_PUMP INTERFACE_NCM 5000

ASSEMBLY: NCM 5000

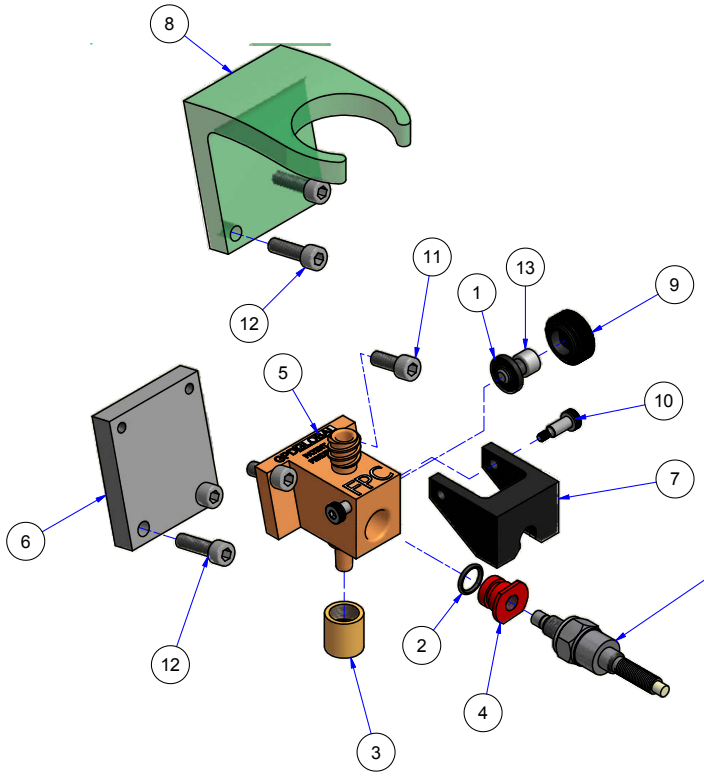
MATERIAL: -

DWG NO: 22893015

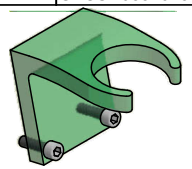
DRAWN BY IAH | 3/6/2014 | SHEET 1 OF 1

22293019 - for LX Valve

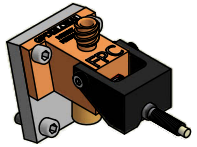
REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	10/4285	WASHER,BLACK NYLON_.170ID,.375OD,.062THK
2	1	10/4894	O-RING_VITON_6MM X 8MM X 1MM W
3	1	22203609	THREADED SLEEVE LUER-LOCK
4	1	22805024	SLEEVE_SENSOR_FPC_M5
5	1	22805036	MATERIAL FEEDWAY_FPC_LX
6	1	22805037	PLATE_SPACER_FPC LX
7	1	22805038	LATCH_FPC SENSOR_LX VALVE
8	1	22805039	SYRINGE SUPPORT_FPC_SNAPSTYLE_LX
9	1	2400-0028	KNOB,#8 CAP SCREW
10	2	2525-0018	BOLT_SHOULDER_3MM X 6MM X M2X0.4
11	2	SACSN0632037	SCREW,ALLEN,CAP,SS_6-32 X 3/8
12	4	SACSN0632050	6-32 X 1/2 CAP SCREW
13	1	SACSN0832025	8-32 X 1/4 CAP SCREW



SENSOR PART NUMBER IS DEPENDANT
ON STATION NUMBER AND MACHINE TYPE



LAST REVISED 12/10/14

NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

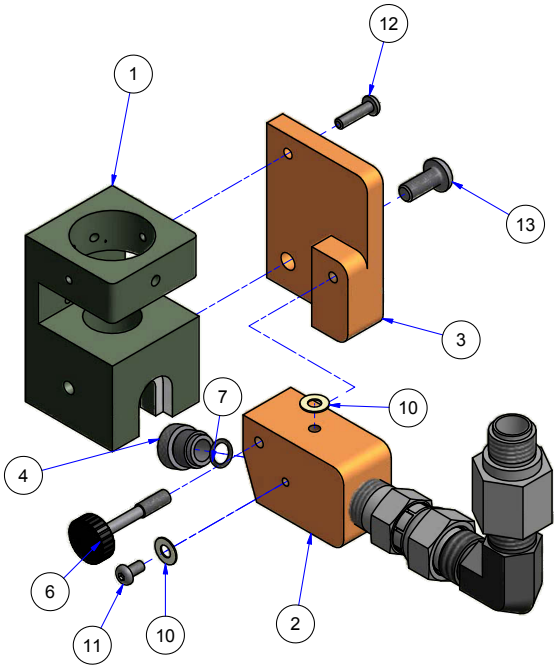
TOLERANCES UNLESS OTHERWISE SPECIFIED			
		METRIC	
FRACTIONS	± 1/32		
X.XX	± 0.015	0 MM	± 1.0 MM
X.XXX	± 0.005	0.0 MM	± 0.4 MM
ANGULAR	± 0.5°	0.00 MM	± 0.1 MM
RUNOUT	± 0.003 T.I.R.		

FINISH		DESCRIPTION	FPC_PUMP INTERFACE_LX VALVE
		ASSEMBLY	LX
		MATERIAL	-
		DWG NO	22893019
HEAT TREATMENT	DWG SIZE	DRAWN BY	IAH
-	B	7/10/2014	SHEET 1 OF 1

GPD Global

22893017 - for Bulk Feed HyFlo

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	22142046	MOD_BODY HOUSING_PUMP_HYFLO
2	1	22805027	MATERIAL FEEDWAY_FPC_HY-FLO_BULK
3	1	22805028	BRACKET_FPC MOUNT_HY-FLO_BULK FEED
4	1	22805029	NUT_SEALING_HY-FLO_FPC_6MM
5	1	22805040	FITTING_ADAPTER_1/2-18 MAL X 1/4NPT FEM
6	1	22893014	THUMB SCREW_FPT MOUNT_M4 X 25
7	1	2575-0048	O-RING_EPDM_.228 ID X .039 SECTION
8	1	2675-0133	FITT_ADP_1/4 MNPT_1/4 FEM FACE SEAL
9	1	2675-0134	FITT_ELB_1/4 MNPT_1/4 MALE FACE SEAL
10	2	2825-0043	WASHER_NYLON_.150ID X .312OD X .015T
11	1	SABSM030050006	SCREW,BUTTON HEAD,3MMX.5 X 6MM,SST
12	1	SABSM030050012	SCREW,BUTTON HEAD,3MMX.5 X 12MM,SST
13	1	SABSM050080012	SCR.A.BH.SST.MET.M5X.8 X 12 MMLG

NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

LAST REVISION 7/21/15

TOLERANCES UNLESS OTHERWISE SPECIFIED			
		METRIC	
FRACTIONS	± 1/32		
X.XX	± 0.015	0 MM	± 1.0 MM
X.XXX	± 0.005	0.0 MM	± 0.4 MM
ANGULAR	± 0.5°	0.00 MM	± 0.1 MM
RUNOUT	± 0.003 T.I.R.		

FINISH

HEAT TREATMENT: -

DWG SIZE: B

GPD Global

DESCRIPTION: FPC_PUMP INTERFACE_HY-FLO_BULK FEED

ASSEMBLY: FPC

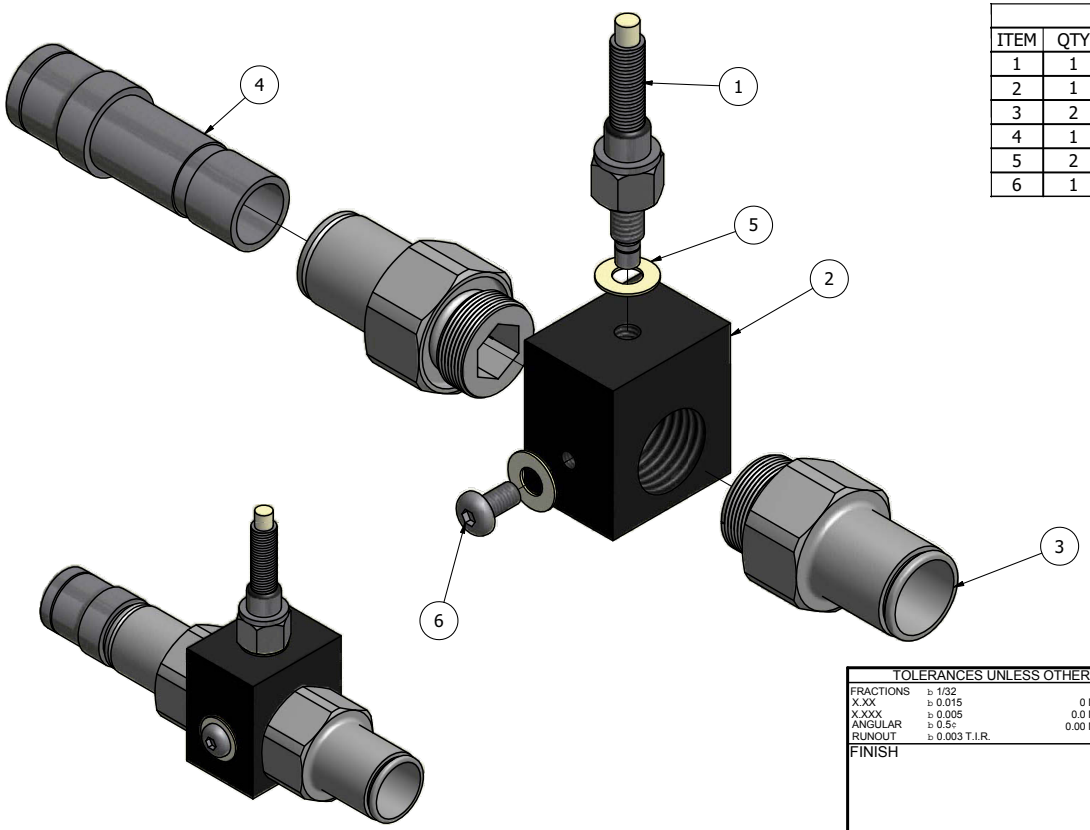
MATERIAL: -

DWG NO: 22893017

DRAWN BY TJJ | 9/19/2013 | SHEET 1 OF 1

22293196 - for Bulk Feed

REVISION HISTORY			
REV	DATE	BY	DESCRIPTION
-	-	-	ORIGINAL ISSUE



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	22293199	KIT_PRESSURE TRANSDUCER_5 BAR (75PSI)
2	1	22803002	MANIFOLD_BLOCK_FPC SENSOR
3	2	2675-0108	FITTING_STRAIGHT_ONE TOUCH_10MMTXG1/4
4	1	2675-0109	FITT_STEM REDUC_1-TCH_6MMX10MMSTEM
5	2	2825-0043	WASHER_NYLON_.150ID X .312OD X .015T
6	1	SABSM030050006	SCREW,BUTTON HEAD,3MMX.5 X 6MM,SST

NOTES:
1) USE STAINLESS STEEL FASTENERS WHERE POSSIBLE

TOLERANCES UNLESS OTHERWISE SPECIFIED

		METRIC	
FRACTIONS	▷ 1/32		
X.XX	▷ 0.015	0 MM	▷ 1.0 MM
X.XXX	▷ 0.005	0.0 MM	▷ 0.4 MM
ANGULAR	▷ 0.5▷	0.00 MM	▷ 0.1 MM
RUNOUT	▷ 0.003 T.I.R.		

FINISH

HEAT TREATMENT: -

DWG SIZE: B

GPD Global

DESCRIPTION: FPC_SENSOR/PUMP INTERFACE

ASSEMBLY: FPC

MATERIAL: -

DWG NO: 22293196

DRAWN BY TJJ | 9/19/2013 | SHEET 1 OF 1