

## IP 4000 Series Inline Pump

- Positive displacement design with a transparent manifold housing for micro fluid dispensing
- High accuracy
- High precision
- High chemical compatibility
- Seal wash option
- For precise dispensing application in analytical chemistry & diagnostics



### Technical features

#### Physical

Height:  
25,4 mm

Width:  
41,9 mm

Length:  
135,9 mm

Weight:  
Up to 0,6 kg

#### Mechanical

Operation:  
Any orientation  
(Vertical preferred)

Mounting configuration:  
See Figure 1

Pump Resolution:  
1,8 Degree Full Step  
Two resolutions available  
(2000 and 4000 full steps)

Pressure:  
6,8 bar (100 psig)

Full volume dispense:  
50 µL to 5 mL  
(Customised volumes available on request)

Linear dispense:  
Accuracy: <0,5% CV at full dispense

Linear dispense:  
Precision: <1% CV at 2% dispense

Life cycle:  
High reliability  
(≥5 million cycles)

#### Environmental

Operating temperature:  
0 ... 45°C (32°F to 131°F)

Operating humidity:  
5 to 95% RH, non-condensing at 55°C (131°F)

Storage temperature:  
–25 ... 55°C (13°F to 131°F)  
RoHS 3.0 Compliant

Electrical Interface  
Motor wiring diagram:  
See Figure 2

Optical sensor:  
Series: OPB880 (Standard)

Sensor wiring diagram:  
See Figure 3  
(Sensor model can be customised on request)  
NEMA 17 Bipolar Stepper Motor (4 lead) (Standard)  
(Unipolar motor available on request)

#### Chemical:

Wetted materials:  
Acrylic, 316 Stainless steel,  
Z80 (Polyethylene), EPDM

(Above are wetted materials for our standard variant. Materials may change for customised variants)

Ancillary Items:  
Operation manual

Note:  
One Mounting bracket will be supplied with standard IP 4000 series.  
Suggested hardware for thru hole mounting: Screw M3

### Option selector

Volume selector	Substitute
100 µl	1
500 µl	2
1000 µl	3
50 µl	4
250 µl	5
2500 µl	6
5000 µl	7
Special/Customised	S*
Seal wash (optional)	Substitute
No	0
Yes	1
Plunger & seal material	Substitute
SS 316 L with EPDM Seals	1
PEEK with EPDM Seals	2
Ceramic with EPDM Seals	3
SS 316 L with FKM Seals	4
PEEK with FKM Seals	5
Ceramic with FKM Seals	6

IP 4000 ★★★★★

Head material & port size	Substitute
Acrylic with 1/4-28 UNF-2B	1
Acrylic with M6	2
PTFE with 1/4-28 UNF-2B	3
PTFE with M6	4
PEEK with 1/4-28 UNF-2B	5
PEEK with M6	6
Encoder with stepper motor	Substitute
No	0
Yes	1
Pump Resolution	Substitute
2000 full steps – Bipolar	1
4000 full steps – Bipolar	2
2000 full steps – Unipolar	3
4000 full steps – Unipolar	4

\*For customised volume, mention volume in µl at the end of part number.  
Ex – For 60 µl, IP4000S11101/60

### Dimensions

Dimensions in mm  
Projection/first angle



### Mounting Details

Shown without valve and encoder option

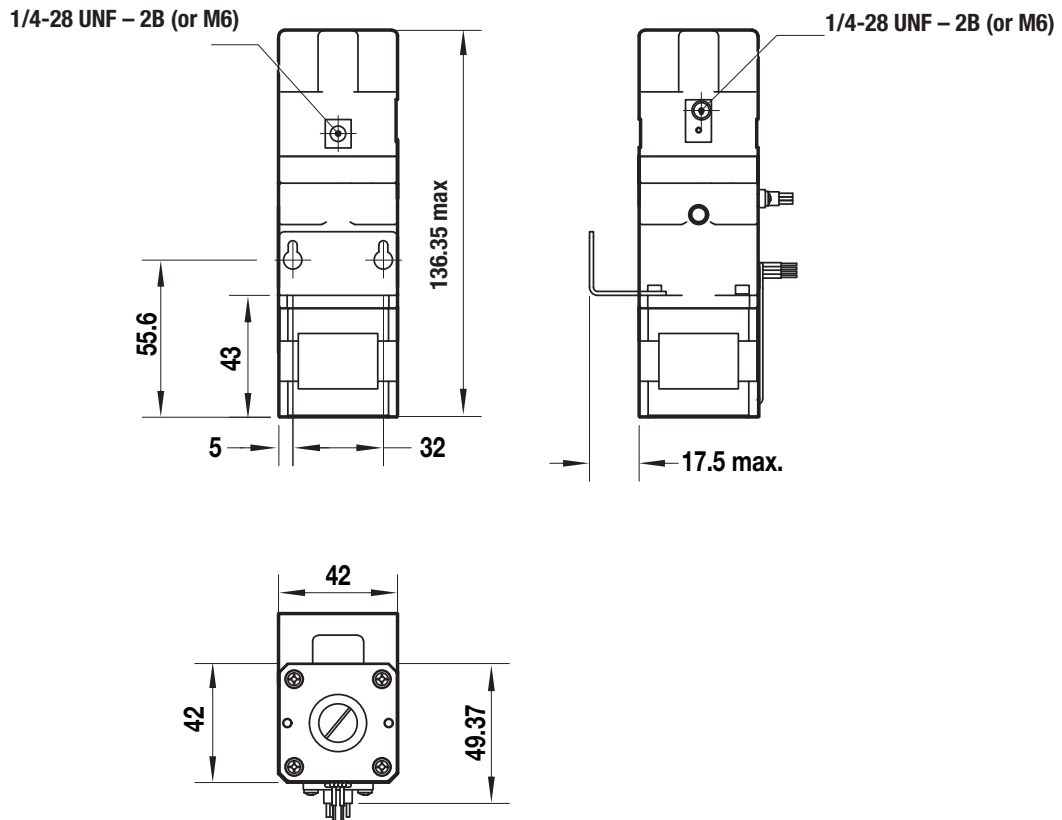


Figure 1

## Dimensions

### Motor wiring diagram Exciting Sequence vs. Direction of Rotation

Dimensions in mm  
Projection/first angle

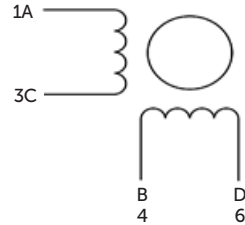


Figure 2

PIN No.	Colour
1	BLK
3	GRN
4	RED
6	BLU

Clockwise view from mounting side				
Step	A	B	C	D
1	+	+	-	-
2	-	+	+	-
3	-	-	+	+
4	+	-	-	+

↑ Clockwise      ↓ Counter Clockwise

## Sensor wiring diagram

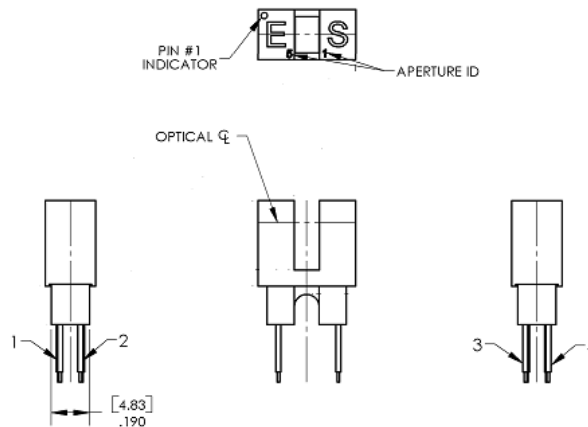


Figure 3

Pin #	Emitter	Pin #	Transistor/Diode
1	Anode	3	Collector/Anode
2	Cathode	4	Emitter/Cathode

## Warning

These products are intended for use in industrial DI water and fluid systems only. Do not use these products where pressures and temperatures can exceed those listed under »Technical features/data«.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult Norgren, IMI Norgren Herion Pvt. Ltd.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.