

## Description

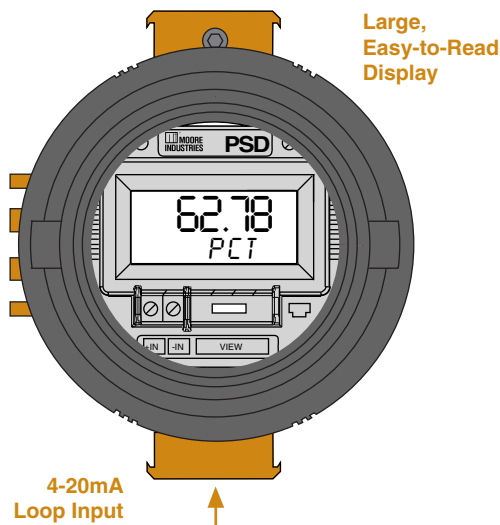
Moore Industries' universal PSD PC-Programmable Loop Display features a large integral display that shows real-time process status in mA, percent, or any designated 5-character Engineering units (EGU).

**Superior Accuracy**—The loop-powered PSD reads any 4-20mA signal and displays the information with phenomenal accuracy of  $\pm 0.012\%$  of input scale. And because it requires less than 2.3 Volts, it won't burden most loops.

**Simple and Versatile PC Setup Program**—Using the PC software, the PSD can either be custom scaled to display in a percent or scaled directly into engineering units for indicating process measurements such as pressure, temperature, level, or flow. Span, zero, input range, display range, and filtering frequency can also be easily programmed. Our software will even capture the input range limits of the loop to provide you with the most accurate display available.

**Easy Calibration**—A single button on the front of the unit allows you to easily calibrate your loop by displaying the loop current in mA with three-decimal-place accuracy.

**Figure 1.** The PSD is available complete in our BH housing; an explosion-proof enclosure that protects your display in even the harshest field environments.



### Certifications



**Installing easily on the loop, the PSD is protected to NEMA 4X and IP66 standards by our rugged D-BOX enclosure. Explosion-proof enclosures are also available.**

## Features

- **Easy-to-read, customizable display.** The PSD's independently configured display features two rows of large characters that can be clearly read in the field and set to display any EGU.
- **360°, flexible mounting.** When placed into one of our rugged enclosures, the PSD can be mounted at any angle in nearly any environment.
- **Low voltage drop.** Loop-powered by less than 2.3 Volts, the PSD can even be installed on burdened loops.
- **Custom and square root curves.** Select a square root or linear curve from the library, or create your own. Use our software to input a table in one EGU and have the PC program convert it into a different EGU for display.
- **RFI/EMI immunity.** The PSD is resistant to the harmful, unpredictable effects of radio frequency and electromagnetic interference.
- **Searchable HelpMap software.** Answer all your questions using HelpMap, our searchable, digital help reference.



# PSD

PC-Programmable  
Loop Display

## Specifications

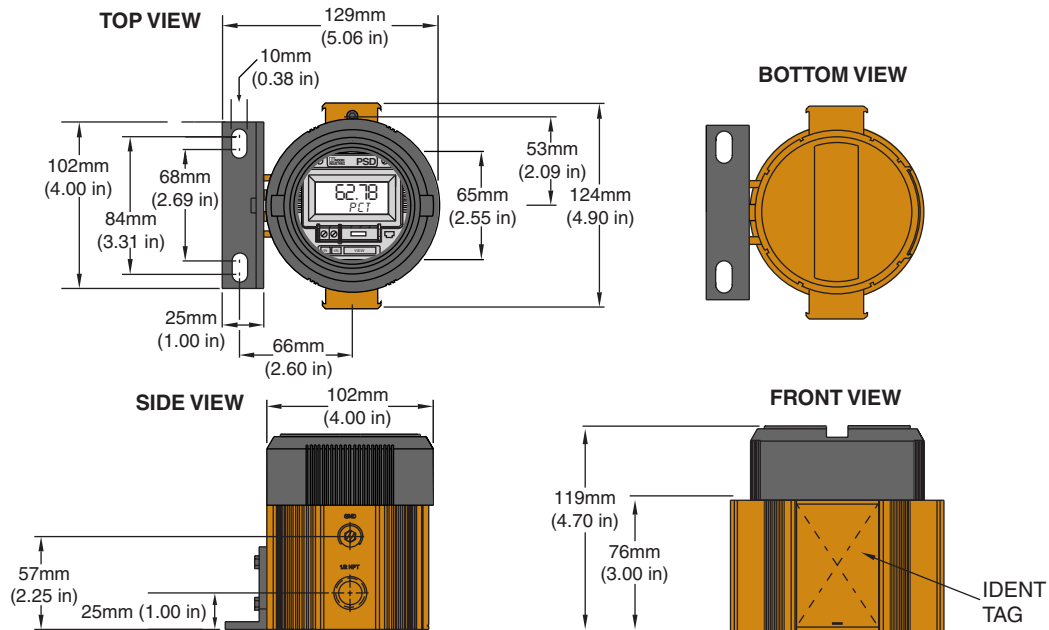
<p><b>Display</b> <b>Type:</b> LCD; Top Row, 10mm (0.4 in) high black digits on a reflective background; Bottom Row, 6mm (0.23 in) high black digits on a reflective background <b>Format:</b> Top row is five alphanumeric characters plus sign and decimal point; Bottom row is five alphanumeric characters <b>Range:</b> -99999 to 99999 <b>Display Update Rate:</b> 100msec <b>Minimum Display Span:</b> 1.00</p>	<p><b>Performance (Continued)</b> <b>Stability:</b> Error is in % of maximum span:</p> <table border="1" data-bbox="730 367 982 472"> <tr> <th>Stability</th> <th colspan="3">Input to Output</th> </tr> <tr> <td>Year(s)</td> <td>1</td> <td>3</td> <td>5</td> </tr> <tr> <td>mA</td> <td>0.08</td> <td>0.14</td> <td>0.18</td> </tr> </table> <p><b>Resolution:</b> 0.0028% of input scale <b>Over-Current Protection:</b> 100mA, maximum <b>Display Input Overrange:</b> 24mA <b>Digital Input Filter:</b> User-programmable; 50 or 60Hz <b>Minimum Operating Current:</b> ≥3.8mA <b>Burden:</b> &lt;2.3VLP (&lt;5.1VLP when -LMD Loop Maintenance Zener Diode option is installed and PSD is removed from the loop)</p>	Stability	Input to Output			Year(s)	1	3	5	mA	0.08	0.14	0.18	<p><b>Ambient Conditions (Continued)</b> <b>Relative Humidity:</b> 0-95%, non-condensing <b>Ambient Temperature Effect:</b> ±0.015% of span per °C change, maximum <b>RFI/EMI Immunity:</b> 20V/m when tested according to SAMA 33.1 abc with 0.5% of span or less error. 20V/m@ 80-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995 <b>Common Mode Rejection:</b> 100dB@60Hz <b>Normal Mode Rejection:</b> 30dB@60Hz</p>
Stability	Input to Output													
Year(s)	1	3	5											
mA	0.08	0.14	0.18											
<p><b>Performance</b> <b>Accuracy:</b> ±0.012% of input scale. This includes the combined effects of linearity, hysteresis, repeatability, and adjustment resolution. It does not include ambient temperature effect.</p>	<p><b>Ambient Conditions</b> <b>Operating Range:</b> -25°C to 85°C (-13°F to 185°F) <b>Storage Range:</b> -45°C to 85°C (-49°F to 185°F)</p>	<p><b>Weight</b> <b>BH housing:</b> 1.37kg (3 lbs, 1.1 oz) <b>D-BOX housing:</b> 640g (1 lb, 6.3 oz) <b>HP-style housing:</b> 150g (5.3 oz) <b>SB Housing:</b> 2.6kg (7 lbs)</p>												

## Ordering Information

Unit	Input	Output	Power	Options	Housings
PSD PC-Programmable Loop Display	4-20MA Loop Input	PRG Program- mable with supplied configura- tion software to display a percent or any other EGU of up to 5 characters in length.	2.3VLP Loop Powered	<p>-LMD Loop Maintenance Zener Diode provided at input terminals allowing the PSD to be removed from the loop without interrupting loop continuity (Burden: increases from &lt;2.3 to &lt;5.1VLP when PSD is removed from the loop)</p> <p>-ISC: CSA Approved Intrinsically Safe &amp; Non-Incendive</p> <p>-ISE: ATEX Approved Intrinsically Safe</p> <p>-ISF: FM Approved Intrinsically Safe &amp; Non-Incendive</p>	<p><b>BH2NG</b> 2-Hub, Explosion-Proof enclosure with two, ½-inch NPT entry ports and a glass cover (FM Class I, Div. 1 Default Approval)</p> <p><b>BH2TG</b> 2-Hub, Explosion-Proof enclosure with two, ¾-inch NPT entry ports and a glass cover (FM Class I, Div. 1 Default Approval)</p> <p><b>BH2MG</b> 2-Hub, Explosion-Proof enclosure with two, M20 x 1.5 entry ports and a glass cover (FM Class I, Div. 1 Default Approval)</p> <p><b>BH3NG</b> 3-Hub, Explosion-Proof enclosure with three, ½-inch NPT entry ports and a glass cover (FM Class I, Div. 1 Default Approval)</p> <p><b>BH3TG</b> 3-Hub, Explosion-Proof enclosure with two, ¾-inch NPT side-entry ports, one ½-inch NPT bottom-entry port, and a glass cover (FM Class I, Div. 1 Default Approval)</p> <p><b>BH3MG</b> 3-Hub, Explosion-Proof enclosure with two, M20 x 1.5 side-entry ports, one ½-inch bottom-entry port, and a glass cover (FM Class I, Div. 1 Default Approval)</p> <p><b>D1LC</b> 1-Hub, Low base, Clear cover, NEMA 4X (IP66) enclosure</p> <p><b>D2LC</b> 2-Hub, Low base, Clear cover, NEMA 4X (IP66) enclosure</p> <p><b>HP</b> Hockey-puck housing and spring clips</p> <p><b>DN</b> Snap-in mounting for HP case on TS-32 DIN rail</p> <p><b>FL</b> Mounting flanges on HP suitable for relay track or screw mounting</p> <p><b>FLD</b> Mounting flanges on HP suitable for 3½" relay track or screw mounting</p> <p><b>SB2NG</b> 2-Hub, Explosion-Proof enclosure with two, ½-inch NPT entry ports and a glass cover (FM Class I, Div. 1 Default Approval)</p> <p><b>SB2MG</b> 2-Hub, Explosion-Proof enclosure with two, M20 x 1.5 entry ports and a glass cover (FM Class I, Div. 1 Default Approval)</p> <p><b>A</b> suffix (for BH) indicates SAA/TestSafe (Ex d) Flame-Proof approvals (i.e. BH2MGA) <b>E</b> suffix (for BH) indicates ATEX (EEx d) Flame-Proof approvals (i.e. BH2NGE) <b>P</b> suffix (for BH and SB) indicates enclosure comes equipped with base plate and U-bolts for mounting on a 2-inch pipe (i.e. BH2NGP or SB2MGP)</p>

**To order, specify:** Unit / Input / Output / Power / Options [Housing]  
**Model Number Example:** PSD / 4-20MA / PRG / 2.3VLP / -LMD [BH2NG]

**Figure 2.** Dimensions of the PSD in the BH explosion-proof enclosure



**Everything You Need is Included...**

Each PSD order comes with one copy of our Configuration Software (Windows® compatible) on CD and one non-isolated configuration cable.

To order additional software or cables:

Part Number	Part
750-75E05-01	Intelligent PC Configuration Software
803-039-26	Isolated Configuration Cable
803-040-26	Non-Isolated Configuration Cable

**Certifications**



**Factory Mutual Approvals - FM Global Explosion-Proof<sup>†</sup>** – [HP in BH and SB Housings]  
 Class I, Division 1, Groups A<sup>†</sup>, B, C & D  
**Dust Ignition-Proof**  
 Class II & III, Division 1, Groups E, F & G  
**Environmental Protection:** NEMA 4X; IP66.  
**Intrinsically Safe**  
 Class I, II & III, Division 1, Groups A, B, C, D, E, F & G.

**Non-Incendive**

Class I, Division 2, Groups A, B, C, D.  
 Class II & III, Division 2, Groups F & G.

**Temperature Code**

T5@60°C/T6@40°C Max. Op. Amb.



**Canadian Standards Association (CSA)**

**Intrinsically Safe & Non-Incendive**  
 Class I, Divisions 1 & 2, Groups A, B, C, D.

**Temperature Code**

T5@60°C/T6@40°C Max. Op. Amb.



**SAA TestSafe (Australian) Approvals:**

Flame-Proof [HP in BH Housing]  
 Ex d IIC T6@60°C



**European/ATEX Directive 94/9/EC Approvals:**

**ISSeP Flame-Proof Apparatus** - [HP in BH]  
 Ⓢ II 2GD EEx d IIC T6@60°C, IP66

**LCIE Intrinsically Safe**

Ⓢ II 2G EEx ia IIC T5/T6

**Temperature Code**

T5@60°C/T6@40°C Max. Op. Amb.



**CE Conformant** – EMC Directive 89/336/EEC  
 EN 61326

<sup>†</sup>BH Housing–Group A only: Seal all conduits within 18".

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Loop Display

Figure 3. Dimensions of the PSD in the D-BOX enclosure

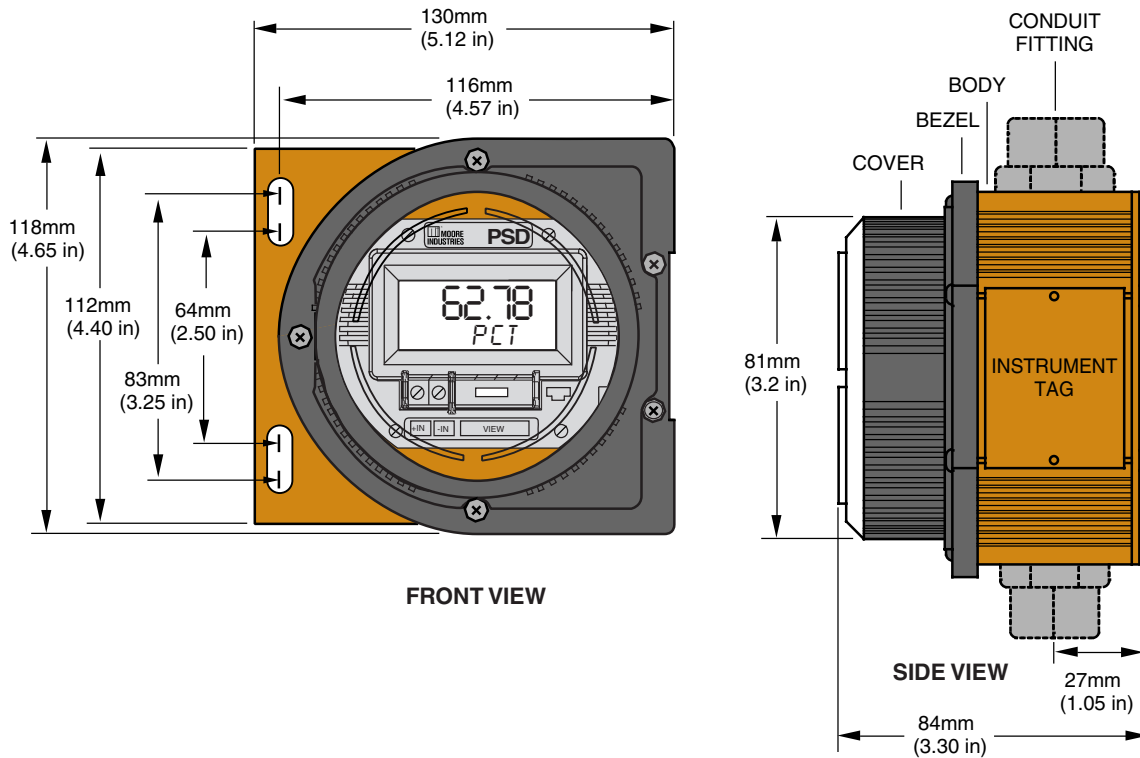
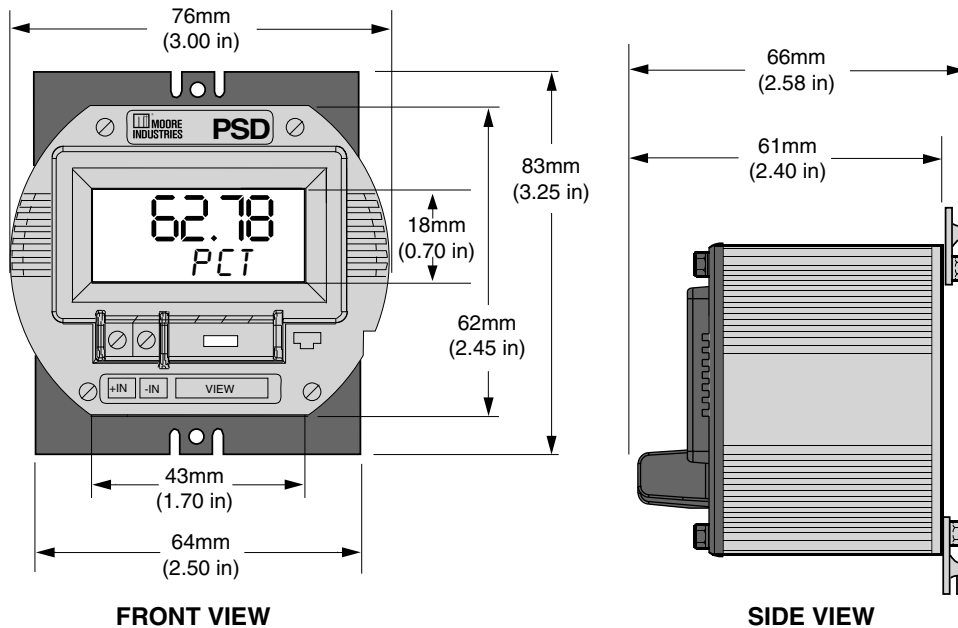


Figure 4. Dimensions of the PSD HP housing with mounting flanges



United States • info@miinet.com  
Tel: (818) 894-7111 • FAX: (818) 891-2816  
Australia • sales@mooreind.com.au  
Tel: (02) 8536-7200 • FAX: (02) 9525-7296

Belgium • info@mooreind.be  
Tel: 03/448.10.18 • FAX: 03/440.17.97  
The Netherlands • sales@mooreind.nl  
Tel: (0)344-617971 • FAX: (0)344-615920

China • sales@mooreind.sh.cn  
Tel: 86-21-62481120 • FAX: 86-21-62490635  
United Kingdom • sales@mooreind.com  
Tel: 01293 514488 • FAX: 01293 536852

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