

July 2007

Description

The universal SPD Programmable Loop Display accepts a 4-20mA input from a process transmitter or similar analog device and indicates real-time process status in mA, percent or any designated engineering unit (EGU) on its 5-digit display. Both the process value and engineering unit (up to 5 characters) are shown on the display.

PC- or Site-Programmable

The SPD sets up in a minute or less using our single window Intelligent PC Configuration Software. For configuring the SPD on site, or to make quick changes after installation, front panel controls combined with menu prompts shown on the display guide you through the configuration process.

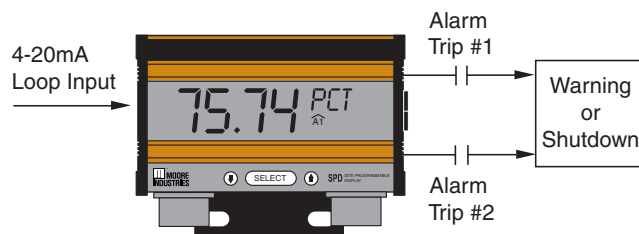
Combination Display and Dual Alarm Trips

The SPD is available with individually configurable dual alarm trip relays (-2PRG option). Each relay can be set to trip if the 4-20mA process variable falls outside of user set high and/or low process limits. Relay outputs are typically sent to a warning light, annunciator, bell, or shutdown system.



Ideal for on-site indication in field environments, the SPD's rugged metal enclosure mounts on a surface or 2-inch pipe.

Figure 1. Combination display and optional dual relay alarm trip



Certifications



CSA-International (Canada & US)*
Intrinsically Safe & Non-Incendive
Class I, II, & III, Div. 1, Groups A, B, C, D, E, F, G
Class I, Zone 0, AEx ia IIC T5/T6
Class I, Div. 2, Groups A, B, C, D
Class II & III, Division 2, Groups F & G

Temperature Code - T5@85°C/T6@60°C
Environmental Protection: NEMA 4X, IP66



CE Conformant - EMC Directive 89/336/EEC
EN 61326-1, 1998

* IS and NI approvals are for 2.3VLP units with or without the backlight (-BL) option. 4-20mA loop & +24Vdc backlight are wired separately.

Features

- **Extra-large 5-digit display with back-lit option.** The SPD has large 29mm (1.15 in) digits for long distance viewing. An optional back-lit display (-BL option) makes it easy to read in dimly lit or dark conditions.
- **Superior accuracy.** Displays process information with phenomenal accuracy of $\pm 0.012\%$ of input scale.
- **Low voltage drop.** The standard SPD is loop-powered by less than 2.3 Volts, so it won't burden most loops (2.3VLP power input module).
- **Operates in low temperature conditions.** The SPD will operate in ambient conditions as low as -40°C (-40°F).
- **Custom and square root curves.** Select a square root or linear curve from our library, or create a custom curve using up to 128 linearization points.
- **RFI/EMI immunity.** The SPD is resistant to the harmful and unpredictable effects of radio frequency and electromagnetic interference.

SPD

Programmable Field-Mount
Loop Display (NEMA 4X, IP66)

Specifications

<p>Display Type: LCD; Top Row, 29.21mm (1.15 in) high black digits on a reflective background; Bottom Row, 15.24mm (0.6 in) high black digits on a reflective background Format: Top Row is five alphanumeric characters plus sign and decimal point; Bottom row is five alphanumeric characters Range: -99999 to 99999 Display Update Rate: 100msec Minimum Display Span: 1.00</p>	<p>Performance (Continued) Over-Current Protection: 100mA absolute maximum Display Input Overrange: 24mA Digital Input Filter: User-programmable; 50 or 60Hz Minimum Input Signal: 3.8mA Burden (on input loop): 2.3VLP power model, 115 ohms; 24DC power model, 20 ohms Isolation: When 24Vdc power supply is used, 500V between supply and input Response Time: NORMAL LINEARIZATION MODE: 180msec or less for input to display on a step input from 10% to 90% of the input scale, 220msec or less for input to alarm from time of step change on input to alarm state when alarm is set to trip mid-point; CUSTOM LINEARIZATION MODE: 200msec or less for input to display on a step input from 10% to 90% of the input scale, 400msec or</p>	<p>Performance (Continued) less for input to alarm from time of step change on input to alarm state when alarm is set to trip mid-point Damping: User-selectable for 0-30 seconds Ambient Conditions Operating Range: -40°C to +85°C (-40°F to +185°F) Some slowing of display response time will occur below -25°C (-13°F) Storage Range: -45°C to +85°C (-49°F to 185°F) Relative Humidity: 0-95%, non-condensing Ambient Temperature Effect: ±0.005% of span/°C maximum RFI/EMI Immunity: 20V/m@80-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995 Common Mode Rejection: 100dB@50/60Hz Normal Mode Rejection: 50dB@50/60Hz, 10mA p-p maximum Weight 1.56 kg (3.44 lbs)</p>
<p>Performance Accuracy: ±0.012% of input scale (Includes the combined effects of linearity, hysteresis, repeatability, and adjustment resolution. It does not include ambient temperature effect) Stability: 0.09% of span for 1 year; 0.16% of span for 3 years; 0.2% of span for 5 years Resolution: 0.0028% of input scale Power Consumption (24DC power): With -2PRG option, 0.65W; With -2PRG and BL options, 1.15W</p>		

Ordering Information

Unit	Input	Output	Power	Options	Housings
SPD Site-Programmable Display	4-20MA Loop Input	PRG Programmable with supplied configuration software to display a percent or any other engineering unit (EGU) of up to 5 characters Alarm Trips Outputs: See -2PRG option for dual alarm trip outputs	2.3VLP Loop Powered 24DC ±10% (required and only available with -2PRG option)	-2PRG Two Programmable alarm trips rated 5A@250Vac or 0.5A@125Vdc resistive (24DC power required) -BL Back-lit display (available with 24DC power) -ISC: cCSA _{US} (Canada and US) approved as General Location, Intrinsically Safe & Non-Incendive (2.3VLP with or without -BL) -NE: ATEX Type N (MII Inherent)	FH Field-mount NEMA 4X, IP66 housing (standard unit comes with one wire entry port for input wiring; units with -2PRG option come with two wire entry ports, one for input wires and one for alarm trip output wires P suffix indicates housing is equipped with 2-inch pipe-mount hardware kit (FH1P or FH2P)

To order, specify: Unit / Input / Output / Power / Options [Housing]
Model Number Example: SPD / 4-20MA / PRG / 24DC / -2PRG [FH]

Versatile Programming Options

The SPD can either be custom scaled to display a percent or scaled directly into engineering units for indicating measurements such as pressure, temperature, level, or flow.

Input zero and full scale values can be selected using the software, or the SPD will read and “capture” the actual range limits of the loop to provide you with the most accurate display reading available. To compensate for input inaccuracies, the input can be custom trimmed. The decimal point location within the 5-digit reading is also user-selectable, and a 0-30 second damping period can be set to “smooth out” erratic input signals.

Custom and Square Root Curves

Select a square root or linear curve from our library, or create your own using up to 128 linearization points. Use our set up software to input a table in one engineering unit and have the PC program convert it into a different EGU for display.

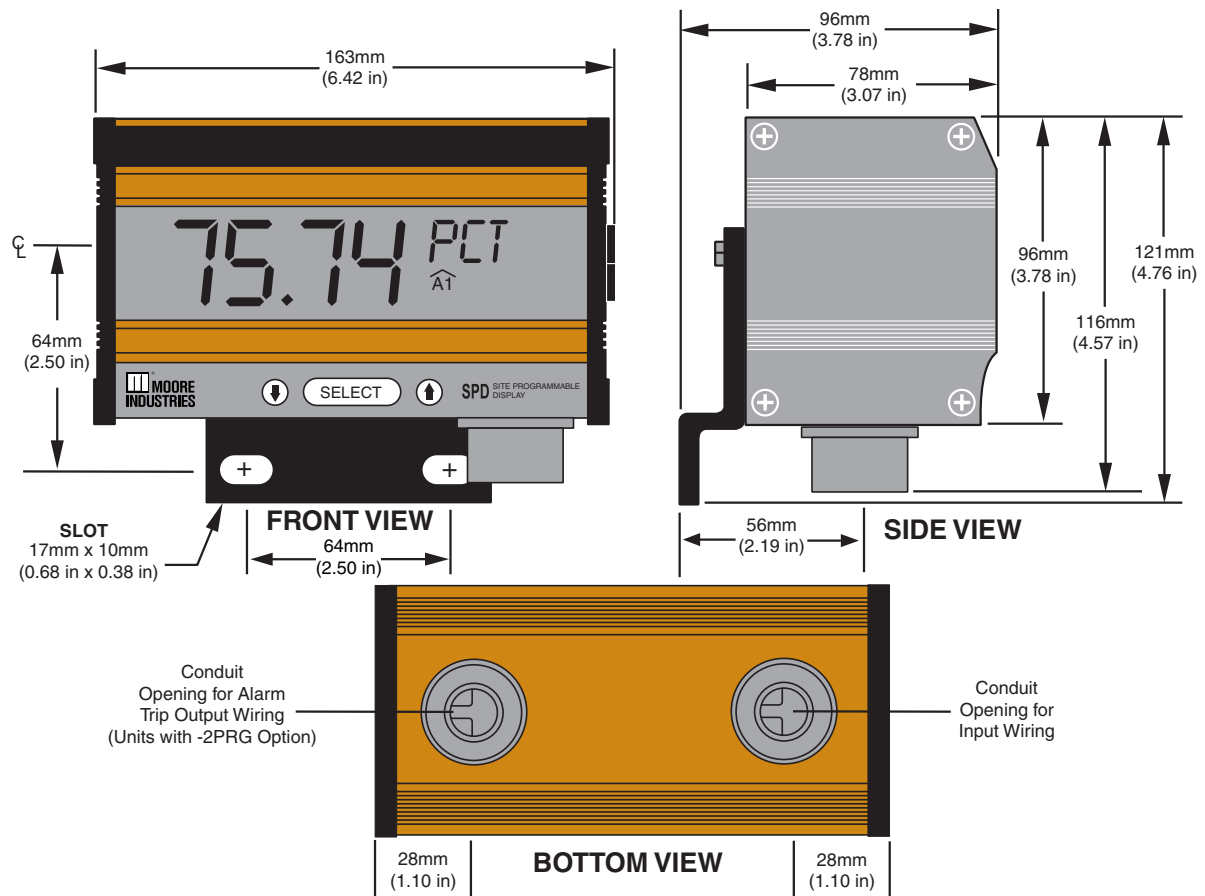
Everything You Need is Included...

Each SPD 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

Figure 2. Installation Dimensions



SPD

Programmable Field-Mount
Loop Display (NEMA 4X, IP66)



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