

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

SPD



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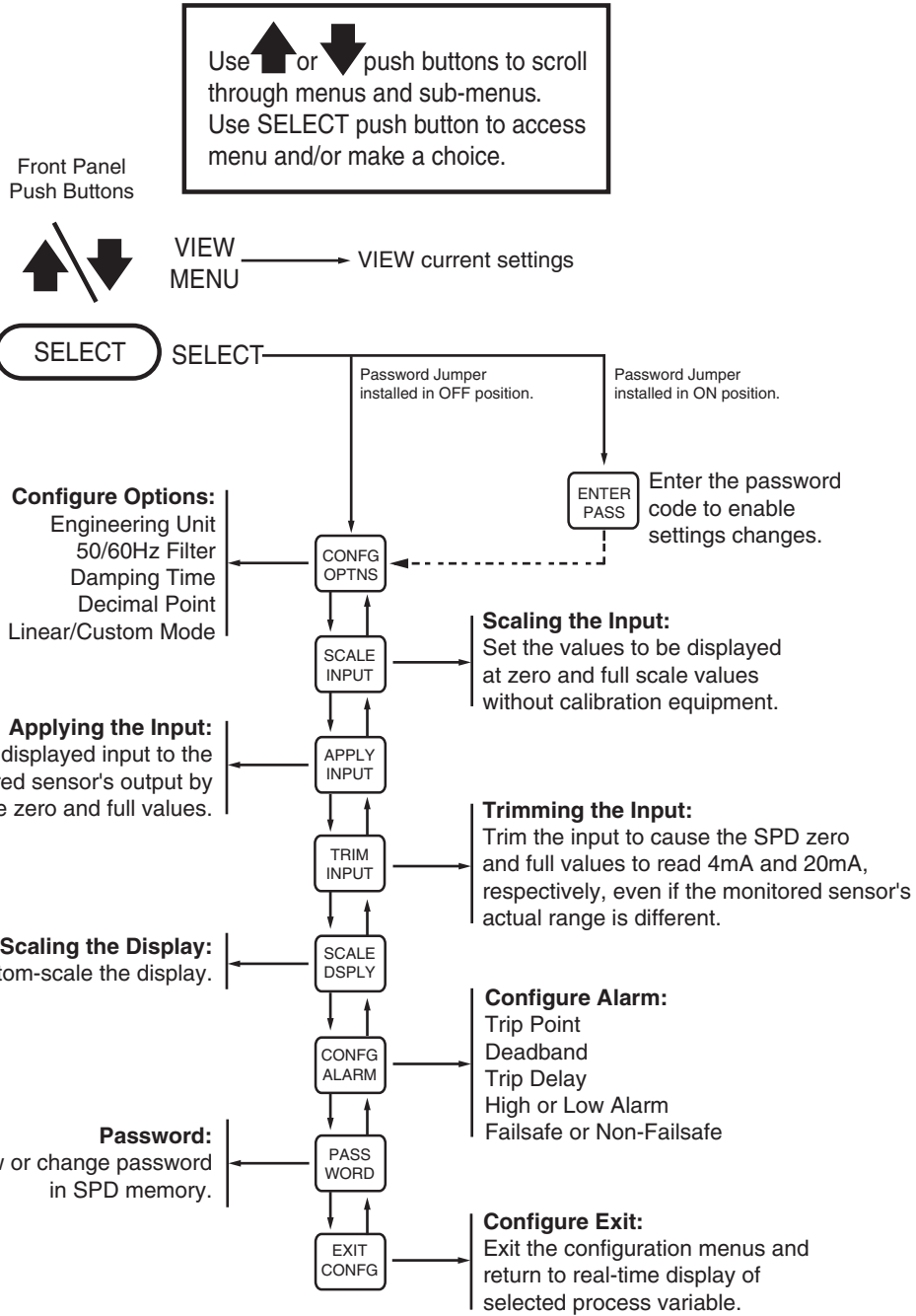
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SPD Quickstart Menu



The SPD

The Moore Industries 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.

Versatile Programmability—The SPD can be programmed on-site using front mounted buttons, or our easy-to-use SPD PC Configuration Software.

Extra-Large Display—Read the process status from across the room using the SPD's independently configured display, which features 29 millimeter-high (1.15 inch) characters and an optional back-lit display (The -BL option requires a 24Vdc power supply).

Superior Accuracy—The SPD displays your process information with phenomenal accuracy of $\pm 0.012\%$ of input scale.

Housing—The SPD comes in our Field Housing (FH) that is NEMA 4X and IP66 certified. Pipe-mount hardware is optional.

Dual Alarm Relays Available—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. This allows the SPD to connect to a warning light, annunciator, bell, or shutdown system, protecting your process with a simple, reliable shutdown system.

Note:

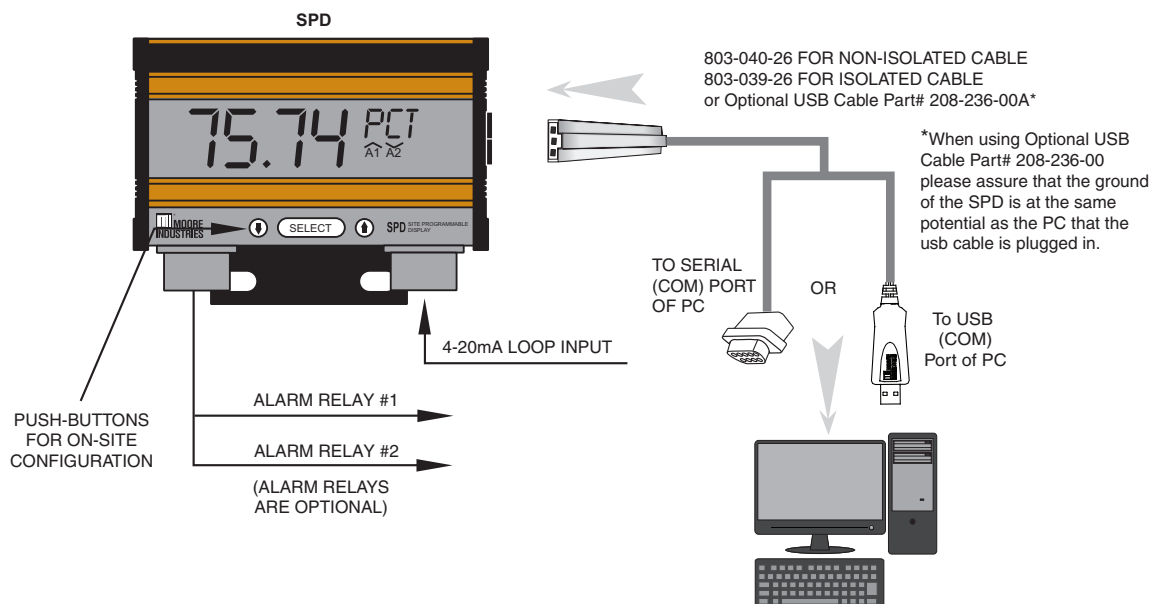
The dual alarm relays are only available with the 24VDC power unit which is no longer available

About this Manual

Wherever you see a "Note", "Caution", or "WARNING" pay particular attention.

- A "Note" provides information to help you in avoiding minor inconveniences during calibration, installation, or operation of the SPD.
- A "Caution" provides information on steps to take in avoiding procedures and practices that could risk damage to the SPD or other equipment.
- A "WARNING" provides information on steps to take in avoiding procedures and practices that could pose safety risks to personnel.

Figure 1. Both PC- and Site-Programmable, the SPD accepts a 4-20mA signal and outputs the signal to two alarm relays



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Specifications

<p>Display Type: LCD; Top Row, 29.21mm (1.15 inch) high black digits on a reflective background; Bottom Row, 15.24mm (0.6 inch) 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) Digital Input Filter: User-programmable; 50 or 60Hz Minimum Input Signal: 3.8mA Input Loop Burden: Volt Drop: 2.3V; 5.1V with -LMD added & SPD removed. Equivalent Resistance: 115 ohms @ 20mA; 255 ohms @ 20mA with -LMD added and SPD removed. 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 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</p>	<p>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 when tested according to SAMA 33.1 ABC with 0.5% of span or less error. 20 V/m@ 80-1000MHz, 1 KHz 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 at 22°C (72°F). This 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, Over-Current Protection:100mA absolute maximum Display Input Overrange: 24mA</p>		

Specifications and information subject to change without notice.

* The 24DC power option is no longer available

Ordering Information

Unit	Input	Output	Power	Options	Housings
SPD Site-Programmable Display	4-20MA Loop Input	PRG Program with supplied configuration software to display a percent or any other engineering unit (EGU)	2.3VLP Loop Powered	-BL Back-lit display (wired separately from a 24VDC power supply) -LMD Line Maintenance Diode provided at input terminals allowing the SPD to be removed from the loop without interrupting loop continuity	FH Field-mount Type 4X, IP66 housing (standard unit comes with one wire entry port for input wiring; units with -BL option come with two wire entry ports, one for input wires and one for -BL wires) P suffix indicates housing is equipped with 2-inch pipe-mount hardware kit

To order, specify: Unit / Input / Output / Power / Options [Housing]

Model Number Example: SPD / 4-20MA / PRG / 2.3VLP / -BL [FH]

Installing the SPD

Installing the SPD in your loop involves mounting and making the electrical connections. It is recommended that the SPD be installed in the loop before it is programmed so that you can use the input capture features to capture the exact full and zero values of the loop. (See Loop Connections) If this is not practical, you can also use a variable current source and an ammeter or multimeter to setup your unit before you install it on the loop. (See Configuration Connections)

Mounting

The SPD comes prepared for field-mounting in a FH enclosure.

Loop Connections

The recommended method of programming requires you to install the SPD into the loop before you program it. Figures 2 and 3 describe typical loop installations of the 2.3VLP and 24DC* SPD units.

To connect to the SPD, you will first need to remove the side panel(s). Use a flathead screwdriver to remove the four screws on the right side of the SPD. If your SPD has the -2PRG option, you will also need to remove the left side panel to give access to the alarm relays.

Once the panels are open, make the electrical connections as shown in Figures 2 and 3. When connecting the SPD to the PC, it is essential that you use the communications cable included with your SPD. Note that 2.3VLP models with the -BL option require a 24Vdc power supply to power the backlight.

Note:

On the tag for the communications cable, it should read "rev. D" or later. If it does not list a revision, then it is an older Moore Industries cable, and may or may not work properly with the SPD.

* The 24DC SPD unit is no longer available

Configuration Connections

To configure the SPD before attaching it to the loop, you need a calibrated, adjustable current source capable of discrete output levels in the 4-20mA range. It should have a minimum accuracy of $\pm 0.01\%$. Once you have the required equipment (as shown in Table 1), hook up the SPD according to either Figure 4 or 5.

To connect to the SPD, you will first need to remove the side panel(s). Use a flathead screwdriver to remove the four screws on the right side of the SPD. If your SPD has the -2PRG option, you may decide to remove the left side panel to give access to the alarm relays.

Once the panels are open, make the electrical connections as shown in the appropriate Figure. When connecting the SPD to the PC, it is essential that you use the communications cable included with your SPD. Note that 2.3VLP models with the -BL option require a 24Vdc power supply to power the backlight.

Table 1. Assembling the Necessary Equipment

Device	Specifications
Current Source	Adjustable, Accurate to $\pm 0.01\%$ of reading
Power Supply	24Vdc (24DC or -BL models only)
Multimeter	Accurate to $\pm 0.025\%$ of reading
Communications Cable	Isolated and non-isolated versions available
Screwdriver	Slotted Tip, head width 5mm, maximum
Screwdriver	Large, slotted tip

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Figure 2-A. Loop Connections for the 2.3VLP SPD

CAUTION:
DO NOT CONNECT THE LOOP POWER SUPPLY DIRECTLY TO THE INPUT! A CURRENT LIMITING DEVICE SUCH AS A TRANSMITTER MUST BE IN THE LOOP!

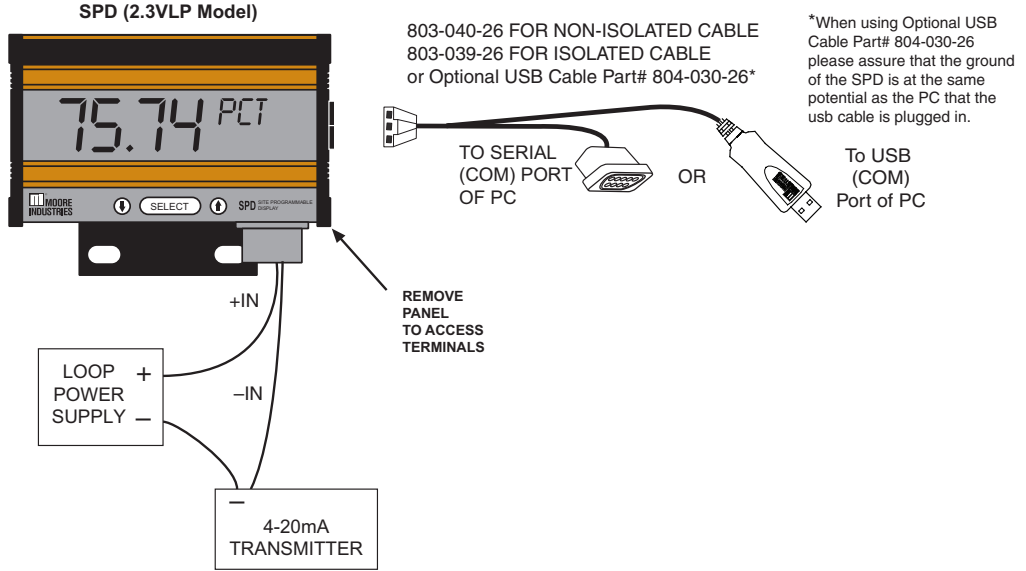


Figure 2-B. Loop Connections for the 2.3VLP SPD with Backlight (-BL option)

CAUTION:
DO NOT CONNECT THE LOOP POWER SUPPLY DIRECTLY TO THE INPUT! A CURRENT LIMITING DEVICE SUCH AS A TRANSMITTER MUST BE IN THE LOOP!

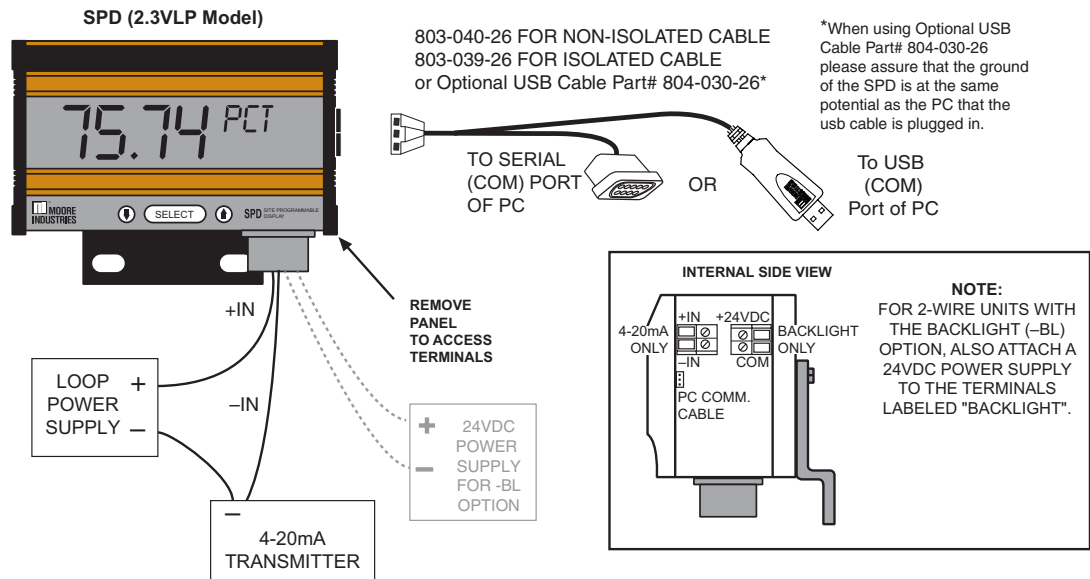


Figure 2-C. Loop Connections for the 2.3VLP SPD with Backlight and Intrinsically Safe option (-BL and -ISC) - Option no longer available

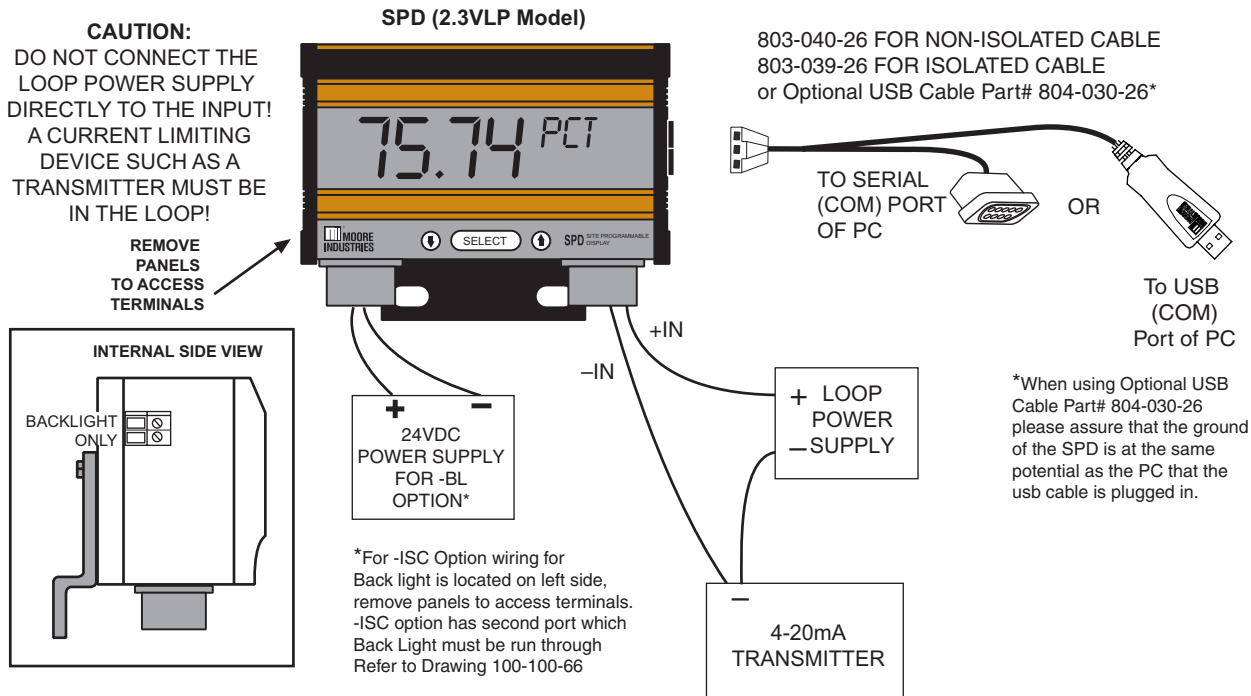
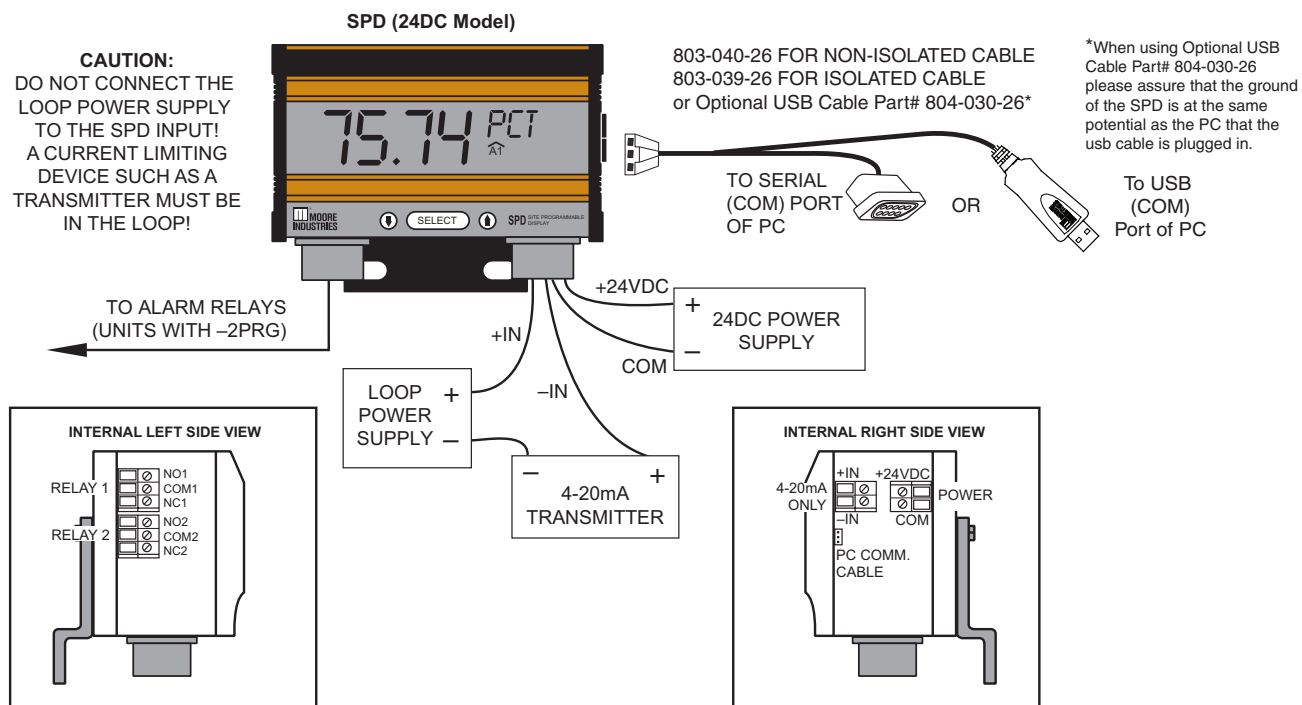


Figure 3. Loop Connections for the 24DC SPD - Option no longer available



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Figure 4. Configuration Connections for the 2.3VLP SPD

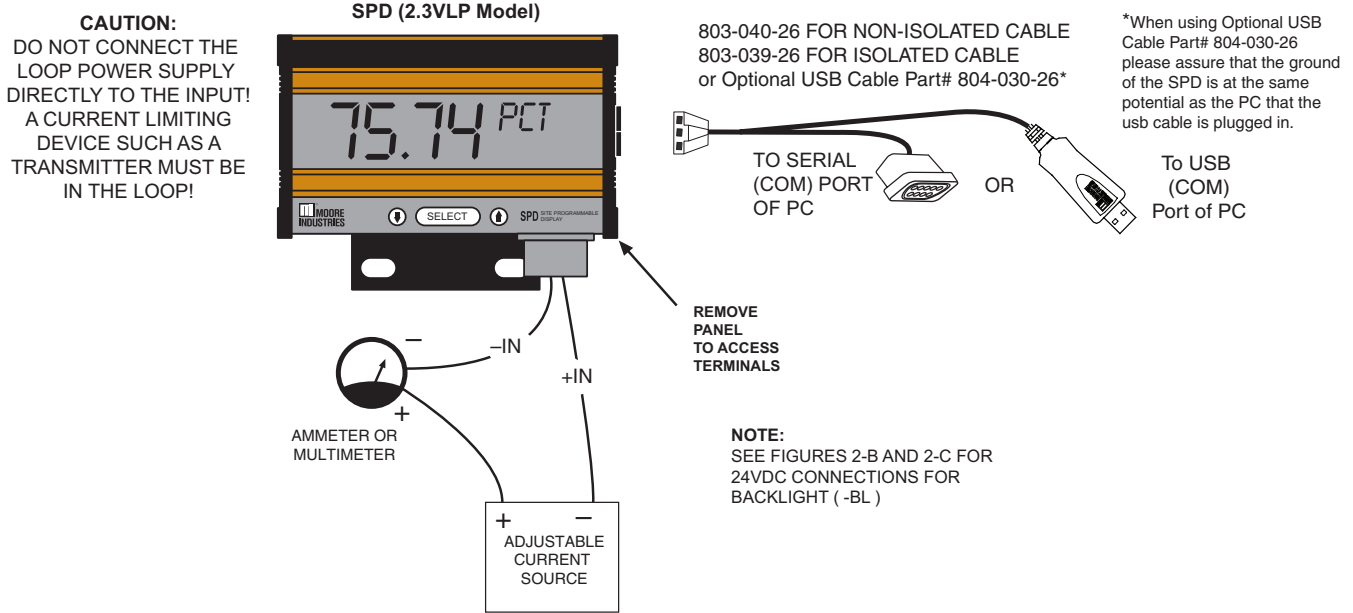


Figure 5. Configuration Connections for the 24DC SPD - Option no longer available

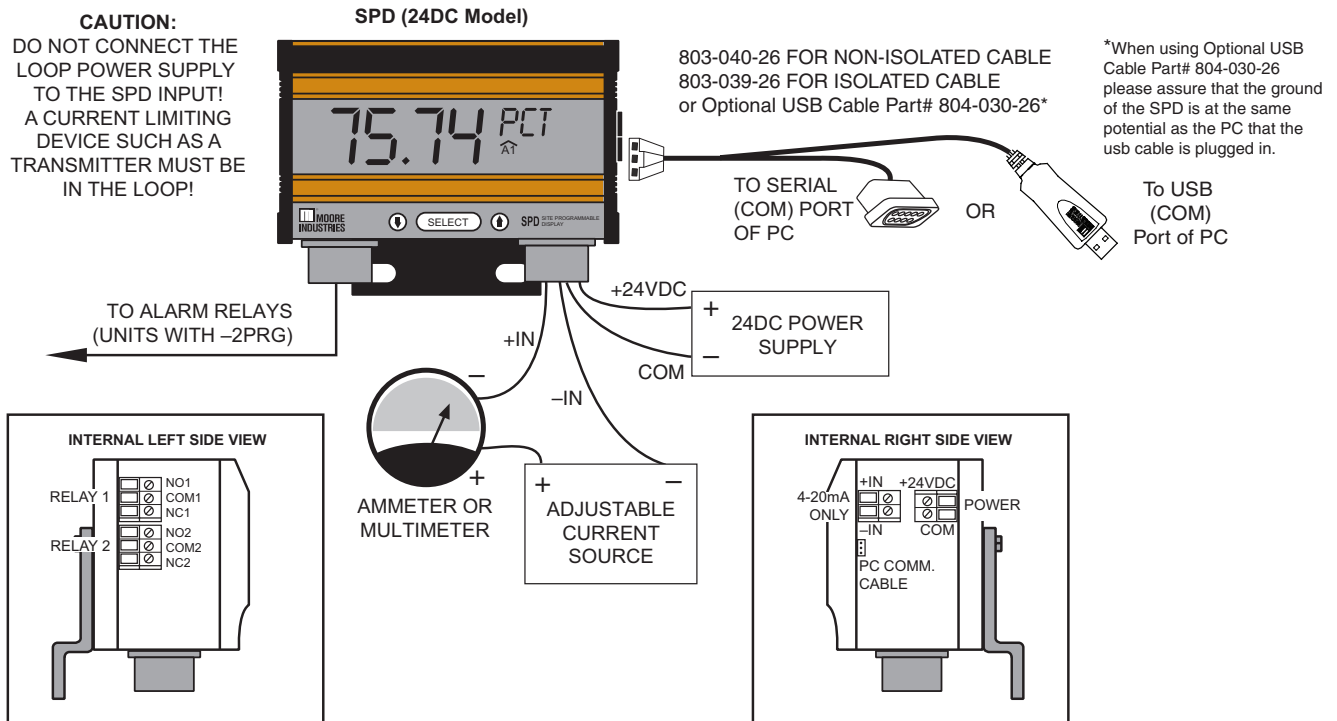
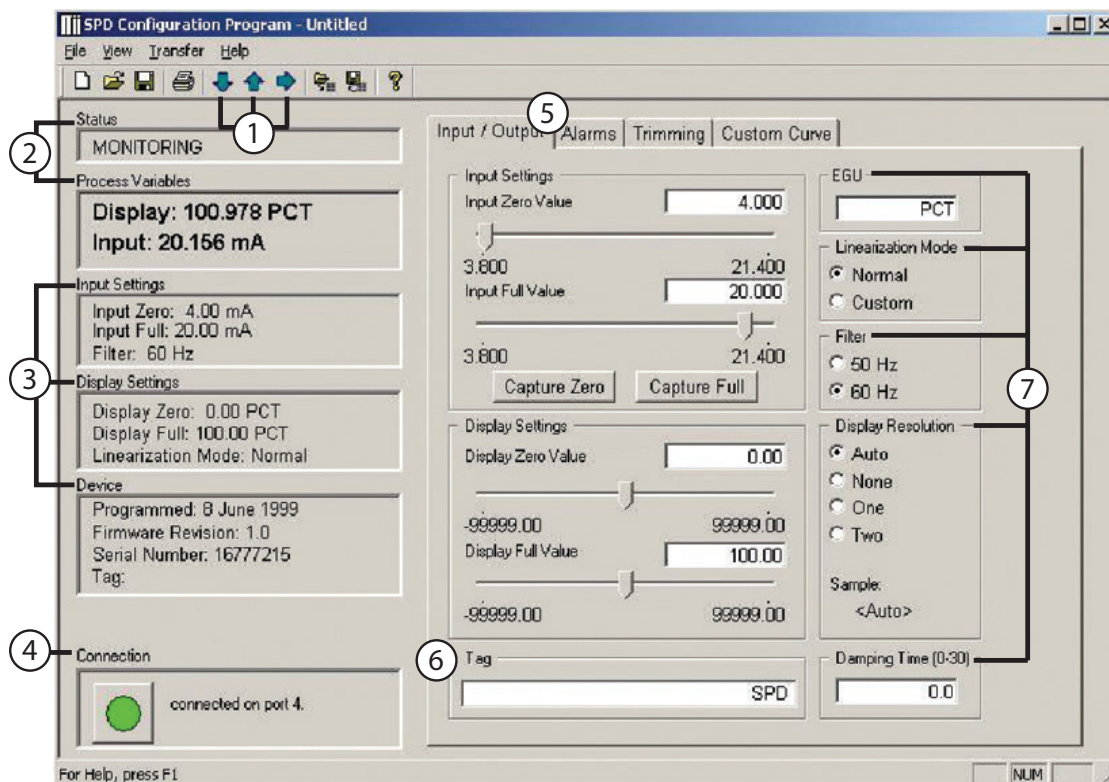


Figure 6. All of the SPD Operating Parameters can be set from the Main Screen of the Configuration Program.



PC Configuration Software

The SPD PC Configuration Software can be used to program all of the SPD's parameters. For detailed information on how to use our configuration software, access our HelpMap Navigation System.

The PC Software is made up of these sections:

1. Arrow Buttons—Three Arrows here are used for Downloading to Unit (down Arrow), Uploading from Unit (Up Arrow), or Get Set-up (Right Arrow).

Note:

After uploading file (by pressing the Up Arrow), you must press the Right Arrow button to populate all information into the configuration dialog area.

2. Status & Process Variables—The Status portion of the screen displays the activity of the connected unit. It will show you if the unit is Idle, Uploading, Downloading, or Monitoring.

Process Variables lists the value of the SPD's Input and Display.

3. Input Settings, Display Settings, & Device—Displays the current configuration of the SPD.
4. Connection—The Connection box displays the status of the SPD's communication with the PC Program.
5. Input/Range/Output/Trimming/Custom Curve—These sections allow you to set the desired configuration for the SPD.
6. Tag—Allows you to assign an identifying phrase to an individual SPD.
7. EGU, Linearization Mode, Filter, Display Resolution, & Damping Time—These sections allow you to configure the selected value for the SPD.

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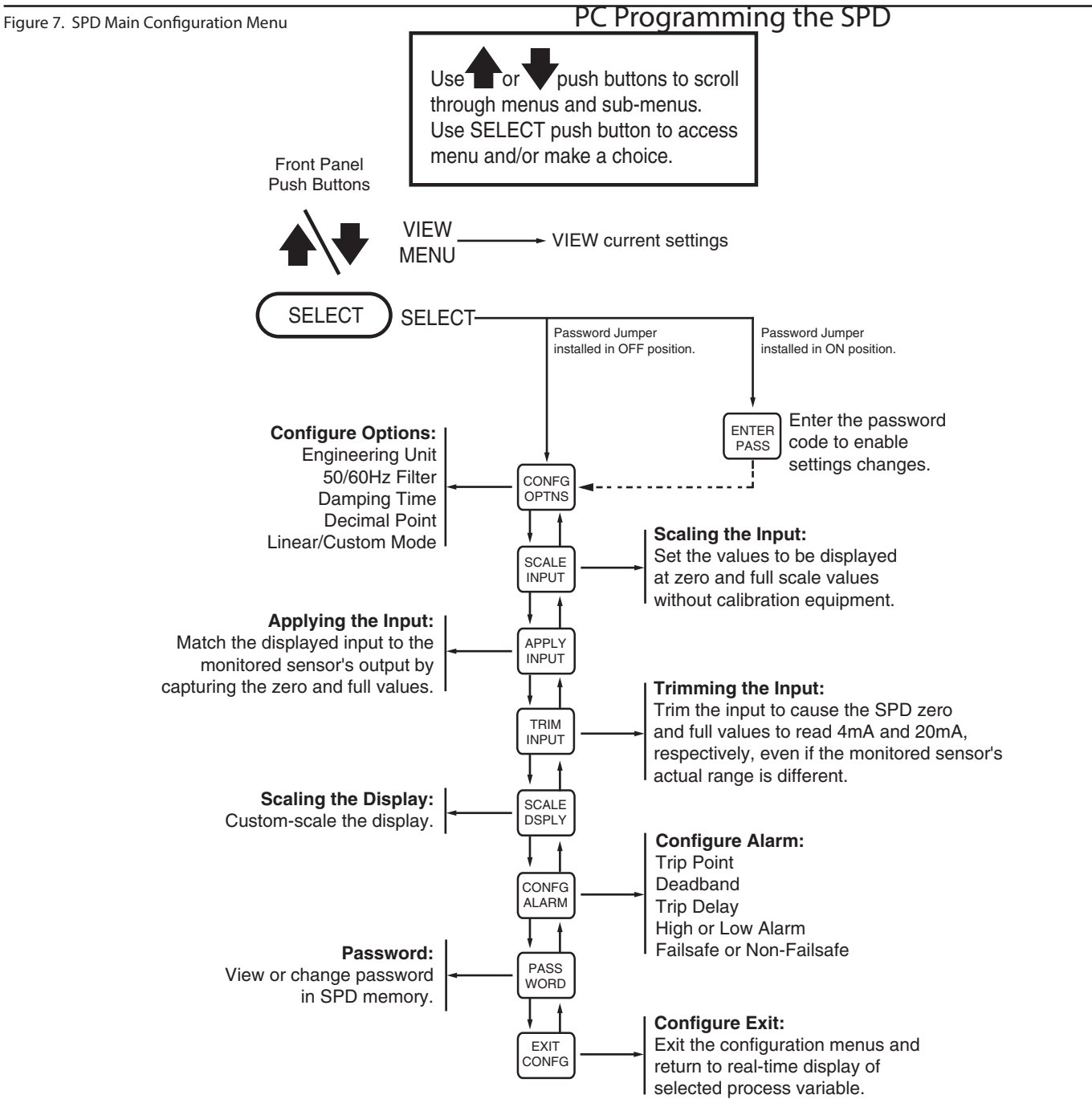
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Programming the SPD

The SPDs versatility allows it to be completely programmed using either the front mounted buttons and the SPDs menu, or our Intelligent PC Configuration Software.

Site-Programming the SPD

The SPDs front-facing menus are easy to use, and can configure every parameter. Connect the SPD as shown in Installing the SPD, then use the arrow buttons to click through the menu options and the Select button to select your choice. Figure 7 below shows the main menu options of the SPD.



Using the PC software, you can change every one of the SPDs parameters. Once these software settings are made, they are “downloaded” to the transmitter in the form of a Configuration File and stored in the nonvolatile unit memory. You can choose to save a backup copy of the file on your PC hard drive or diskette.

Installing the PC Configuration Software
Refer to Table 2 for the equipment needed.

1. Insert the Moore Industries Interface Solution PC Configuration Software CD into the CD drive of the PC. Access the CD and open the PSD SPD PC Configuration Software folder.
2. Double-click the installation program located in the folder. Follow the prompts to correctly install the program.

Once the Configuration Program is installed on the PC, the SPD can be connected to the loop or to Table 2. Assembling the necessary equipment.

Device	Specifications
Multimeter or Ammeter	Accurate to $\pm 0.025\%$ of span; e.g., Fluke Model 87
Variable Current Source	Capable of 4-20mA; accurate to $\pm 0.01\%$ of span
Personal Computer	Microsoft Windows based PC; 16Mb free RAM; 20MB free disk space on hard drive 1 (one) serial port or one available USB port (with optional USB cable)
PC Operating System	Microsoft Windows XP, Vista or 7
Moore Industries PC Configuration Software	Version 1.0 or higher, successfully installed to the hard drive

equipment to simulate and calibrate input. You can then view and/or change the instrument’s parameters.

Once the program is loaded and running, nearly all of the operating parameters for the connected transmitter are shown on a single screen. This makes it easy to determine which aspects of transmitter operation need to be changed to suit the application requirements.

Once the Configuration Program is installed on the PC, the unit can be connected to equipment to

simulate input, monitor output, and view or change the SPD’s operating parameters. Using the PC Program to configure the SPD is accomplished in just a few simple steps: Installation, Programming the Input and Output, Programming the Alarms (-2PRG models only), and either Programming the Input Trim, or Programming with a Custom Curve.

To review the configuration that is currently loaded in the connected SPD use the Transfer/Get Setup feature from the menu bar, or the right arrow tool from the tool bar. This will cause all the current parameters to be displayed.

Downloading the Configuration

After the configuration has been set to your satisfaction, it can be downloaded to the unit by selecting Download from the Transfer menu or by pressing the Download button on the toolbar. Downloading the configuration displayed in the PC program overwrites the unit’s current configuration.

Downloading the configuration to the SPD may take up to 30 seconds to complete. It is important to let the sequence finish before taking any other action.

Once completed, the Input Settings, Display Settings, and Device portions of the screen will change to match the configuration listed on the rest of the screen. The Status indicator in the top left hand corner of the view will then indicate the program has reverted back to its idle mode.

Note:

After uploading file (by pressing the Up Arrow), you must to press the Right Arrow button to populate all information into the configuration dialog area.

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Programming the Input & Output

The PC program provides a simple setup for the SPD. If you are planning on setting up a custom linearization curve for the SPD, jump ahead to the Programming with a Custom Curve page. Or if you want to configure a SPD without setting up a custom curve, follow the steps below. Refer to the right side of Figure 6 for illustration of the Input & Output page.

Input Settings

The INPUT SETTINGS box defines the zero and full values that the loop will carry. If you need information on hooking up the SPD to your PC so you can program it, see the diagram on Installing the SPD.

There are two ways to select the Input Settings:

1. The best way to define these numbers is to hook the SPD up to the loop (see Installing the SPD) and set the loop to its zero value, then press the CAPTURE ZERO button. When the dialog box pops up, press OK. Next, set the loop to its full value and press the CAPTURE FULL button. Again, press OK on the dialog box. You will see that the loop values were captured and placed into the edit boxes by INPUT ZERO and INPUT FULL.
2. The second way to define these numbers is to enter them into the edit box. Simply click on the edit box and enter the values.

Note:

None of these values will affect the SPD until they are downloaded to the instrument. When you have set every value that you need to change, press the download button to finish the process.

Display Settings

The DISPLAY SETTINGS box controls what numbers the display shows. This setting gives the SPD the ability to convert the 4-20mA loop signal to a reading in engineering units. To set the SPD to display the appropriate numbers, enter the zero and full values for the measurement into the appropriate edit boxes. A typical example of zero and span values for a loop transmitting temperature information would be 0° and 100° C, respectively.

Tag

The tag is a 16-digit alphanumeric character that is used to identify a specific SPD. It is only viewable from the PC program. Enter a suitable name for your transmitter in the edit box.

EGU

The EGU is the engineering unit that will be displayed on the second line of the SPD display. It is limited to 5 characters made up of numbers, selected symbols, and capital letters.

Linearization Mode

If you are planning to use a normal, linear equation by inserting the zero and full input values on the INPUT/OUTPUT tab, keep the LIN. MODE set to NORMAL. Setting this to CUSTOM disables the normal linear curve and moves you to the CUSTOM CURVE portion of the program, where you can setup a custom linearization curve.

Filter

The filter is designed to eliminate mains-induced noise. Set this to the Hz rating of the country that you are in.

When you have finished changing all your settings, press the download button to transmit the information to your SPD. It will place the information in nonvolatile memory so that if a power outage occurs, you won't lose your settings.

Display Resolution

The DISPLAY RESOLUTION table permits you to change the number of decimal points that the SPD displays. The AUTO selection causes the decimal place to automatically adjust to the largest number of decimal points possible. Other options permit you to select from zero (NONE) to three decimal points. Set this to the appropriate decimal point.

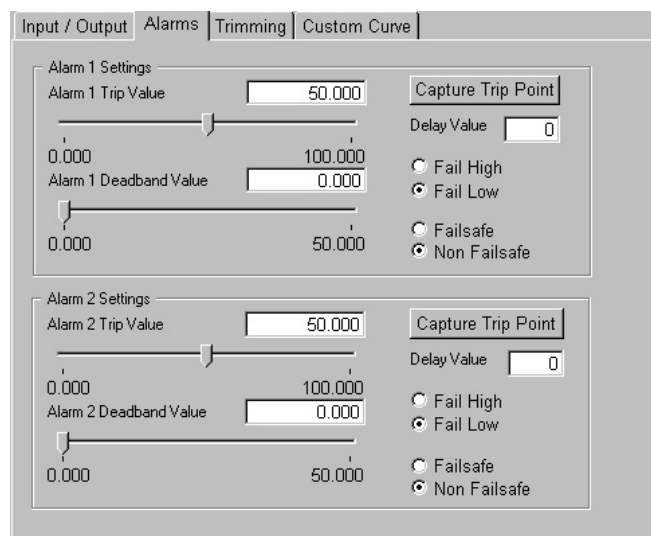
Damping Time

The damping function of the SPD allows the user to introduce a delay into the displays response to the loop power in order to make a fluctuating loop easier to read. The value of the output damping is the number of seconds that it will take for the display to make a 63% change in response to the change in input. A damping time of "0" will disable damping.

Programming the Alarms Function (Only for units with the -2PRG option)

The Alarms tab allows you to set the trip points, deadband value, fail high/low, and failsafe/non-failsafe values of the SPD. Note that only SPDs with the -2PRG option have alarm capability.

Figure 8. The PC Program's Alarm Parameters Tab



Alarm Settings & Terms

Use the Alarm 1 and 2 Settings portions of the screen to set the Trip and Deadband values for alarms 1 and 2, respectively. The Trip Value is the point at which the alarm goes into an on position. The Deadband Value controls how far back past the trip point the process variable has to go before the alarm switches back to the off position. For example, if you have an alarm trip high of 50 and a deadband of 10, then after the process variable reaches 50, it must go down past 40 before the alarm shuts off (trip of 50 – deadband of 10 = 40).

Fail High/Low & Failsafe/Non-Failsafe

Fail High causes the SPD to alarm when the process variable goes over the set trip point, while Fail Low causes the SPD to alarm when the process variable goes under the trip point. Failsafe alarms are de-energized when tripped, and energized when the process input is at a non-alarm level. Non-Failsafe alarms are energized whenever tripped, and de-energized when the process is at a non-alarm level.

Delay

The Delay Value represents the amount of time delay between the input exceeding the trip point and setting the actual state change of the alarm. Delay values are available between 0 and 120 seconds.

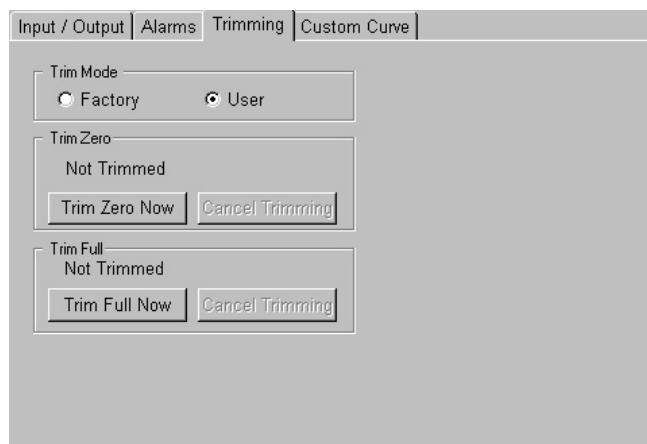
Capture Trip Point

The Capture Trip Point button permits you to attach the SPD into the loop and read the trip point from the transmitter. Simply press the Capture Trip Point button and a wizard will pop up to guide you through the process.

Programming the Trimming Parameters

The Trimming tab helps you to match the zero and full range values of the SPD to those of the loop it is connected to. Essentially, it is correcting any inaccuracies with the process variable transmitter. To begin this simple process, connect the SPD into the loop as shown in Installing the SPD, and press the Trim Zero Now or the Trim Full Now buttons. A software window will appear to guide you through the process. If you change your mind, select Factory Trim Mode and the SPD will return to the factory calibration values.

Figure 9. The PC Program's Trimming Tab



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Programming with a Custom Curve

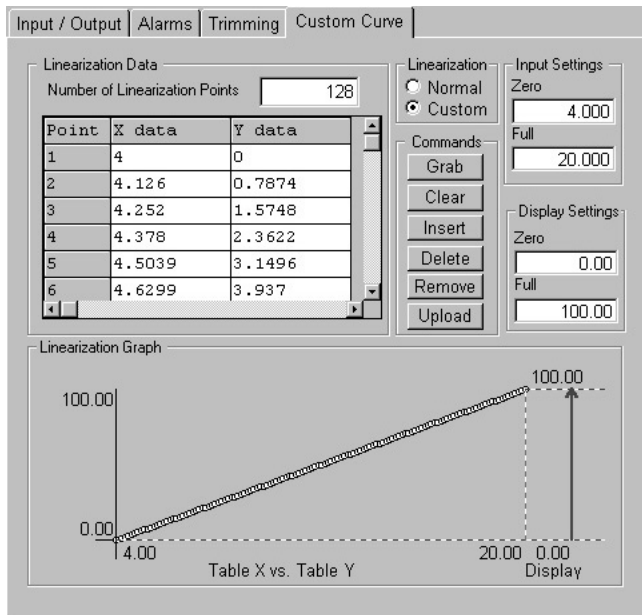
The custom curve tab allows you to setup a custom curve of up to 128 points. If you are looking for a description of a specific part of the custom curve, click on the graphic below. To setup a custom curve, simply follow the steps below. To import a custom curve instead of designing one, follow the instructions in Importing a Custom Curve.

Linearization Data

Use the Linearization Data portion of the screen to set the number of linearization points you will have in your table and to enter the actual linearization points. In the linearization table, insert the loop value in mA into the X Column; in the Y column, enter the corresponding data (i.e., the °C, °F, Gallons, PSIG, Millimeters, etc.).

If you are planning to display the data in the Y column in the same EGU's as those in the table, click the Grab button to grab both the zero and full display settings from the table.

Figure 10. The PC Program's Custom Curve Parameters Tab



If you are planning on displaying a different value and EGU than what is listed in the table, follow the instructions in Display Settings (a few sections down). You would use this function for example, if you wanted to input the table in °C but display the percent of span by placing 0 and 100 in the Display Setting boxes.

Note:

When entering data in the linearization table, make sure that you enter a number into every open cell. You may want to use some of the buttons listed in the Commands box below when entering linearization points.

Linearization Mode

If you are planning to use a custom curve, leave this button set at CUSTOM. Changing it to NORMAL will switch modes and cause the SPD to assume a normal, linear equation.

Input Settings

This section controls the mA that you expect to read off of the loop. Enter in the zero span and full span data for the loop by clicking on the text boxes and typing in the information.

Display Settings

This section allows you to replace the displayed value with a different value than what is in the custom table. For example, if your Y column of the table had a range of 0-100, and you input a zero value of 0 and a full value of 50 into the Display Settings section, then when you received full input into the SPD, it would read 50; when you received 25% of span in the SPD, it would read 12.5. This is helpful if you set up a complex custom curve and then need to change the output values at a later time. You can also use it to reverse the display output; showing a decreasing value on the display as the input rises.

Note:

If you are not planning on using this feature, make certain that the Display Settings button matches the custom curve information by clicking on the Grab button.

When you have finished changing all your settings, press the download button to transmit the information to your SPD. It will place the information in nonvolatile memory so that if a power outage occurs, you won't lose your settings.

Programming the SPD with a Square Root Table

Moore Industries provide the option for customers that require a square root linearization table to generate your own custom curve table.

Generating a Custom Square Root Curve

The first option is to run the Square Root Table Generator and create a custom square root table that can be easily saved and imported into the Universal PC Configuration Software. To generate your own table, follow the instructions below.

1. From the START Menu, click on PROGRAMS, MOORE INDUSTRIES, then CURVE GENERATOR.
2. Enter the values for the input and display into the appropriate boxes. Enter the number of linearization points that you would like generated into the NUMBER OF LIN. POINTS box.
3. Click on GENERATE to create the table, then enter the name you would like the table saved as.
4. Close the Square Root Curve Generator and open the Universal PC Configuration Software. Click on the FILE menu, then on IMPORT CUSTOM CURVE. Select the "view all files" on the OPEN dialog box, then find the file name that you just saved. (it's default directory is "C:\My Moore Industries Data\ Custom Curves") and click OPEN. The Universal PC Configuration Software will import the file.
5. Verify all settings.
6. Use the download button to transmit the new custom table to the instrument and finish the process.

Importing a Custom Curve Table

Instead of having to re-enter your custom curve information that you have already entered into a program like Microsoft® Word, Excel, or Notepad, you can import the file to our Universal PC Configuration Software. This can be a file you have created, or a file that came pre-made with our software.

If you are interested in using the square root function, use our Square Root Table Generator Program to generate a custom table.

To import a different custom curve file, follow the steps below.

1. To compose a file in Word or Notepad, make sure that you have two float values per line with a comma separating the two. Then save them as a .csv file. To compose a file in Excel that is compatible with our configuration software, enter the X values in column one and Y values in column two. Save this file as a comma-separated (.csv) file.

Note:

If you are using an equation to calculate your custom curve, saving the file properly in Excel can be tricky. To setup the file correctly, highlight the two columns that correspond to X and Y in the Configuration Program, then click EDIT and COPY. Next, create a new file, and go to EDIT and PASTE SPECIAL. When it prompts you regarding how to paste the information, tell Excel to paste it as "Values". Then save the file as a comma-separated (*.csv) file. Go to step 2.

2. In the Universal PC Configuration Program, click on the FILE menu, then on IMPORT CUSTOM CURVE. Find the appropriate file and click OPEN. The Universal PC Configuration Software will import the file.
3. Use the download button to transmit the new custom table to the instrument and finish the process.

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Exporting a Custom Curve Table

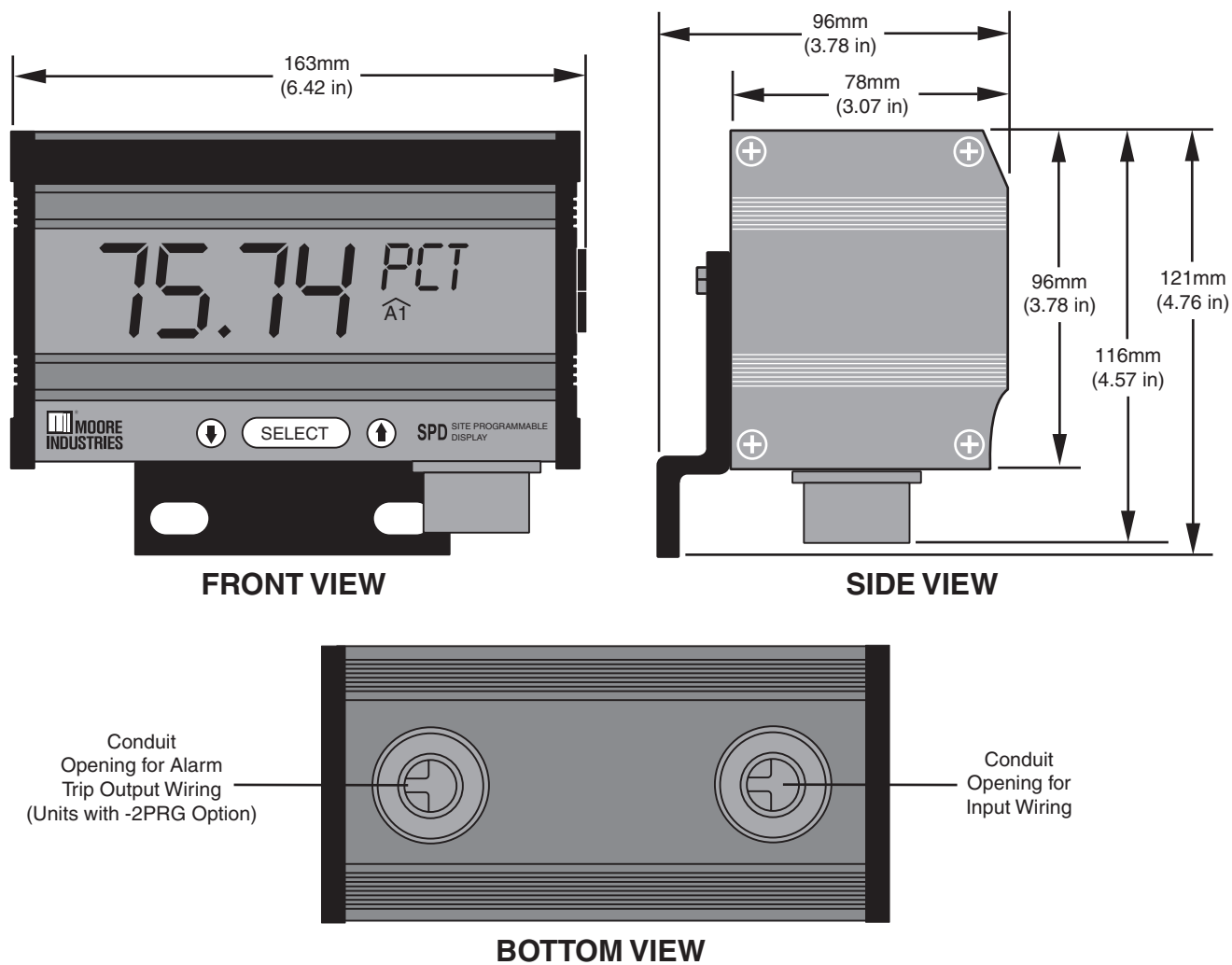
Exporting a custom curve can be useful if you want to use Excel or another spreadsheet program to edit the custom curve for your instrument or if you want to use an already-created curve in another Moore Industries PC Program.

All you need to do to export a custom curve from the PC Configuration Program is to follow the steps below.

1. In the Universal PC Configuration Program, click on the FILE menu, then on EXPORT CUSTOM CURVE. Enter the name of the file into the appropriate field and click the SAVE button. Your file has now been saved.
2. Use any program that will open a comma-separated file (.csv) to edit the table.

Dimensions

Figure 11. SPD Dimensions



SPD

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

SPD Security

To protect the operational settings, the SPD is equipped with a security password. Insure that the Password Jumper is in the ON position. With the password protection ON, making changes to the SPD configuration via the front-panel buttons can only take place after entering a two-digit, user-defined code. With password protection OFF, the user can make changes freely to the SPD settings, including to the password code itself.

Note:

Setting the password jumper to On only inhibits access to the SPD's configuration via the front-panel buttons; it does not affect the PC Software's ability to access and change the SPD's configuration.

Changing the Password Security Setting

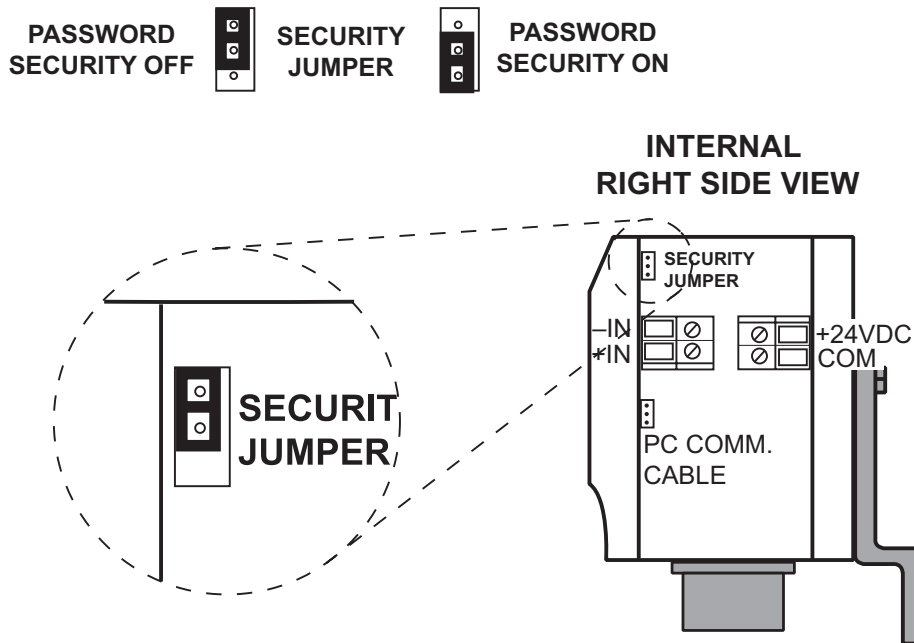
To change the security setting, turn off the power, remove the right side of the SPD, and change the jumper position as shown. When you are finished, reapply power to the SPD. The SPD password security setting will only change after the SPD power has been turned off and on.

Customer Service

If service assistance is ever required for one of the SPDs in your application, refer to the back cover of this manual for the telephone numbers to Moore Industries STAR Center customer service department.

If possible, make a note of the model number of the offending unit before calling. For fastest assistance, try to gather information on the unit(s) serial number and the job and purchase order number under which it was shipped.

Figure 10. Setting the Security Password Jumper



Certification Information

Installation in Hazardous Locations

This section contains important information regarding installation of the SPD in Hazardous Area Locations.



Note:

The 24DC intrinsically safe SPD unit is no longer available.

The 2.3VLP SPD unit can be installed in Class I Division 2 Groups A-D and Class II Division 2 Groups F–G and Class III Division 2 locations.



WARNING:

Explosion Hazard – Do not connect or disconnect while circuit is live unless the area is known to be nonhazardous.



AVERTISSEMENT:

Risque d'explosion. Avant de déconnecter l'équipement, couper le courant ou s'assurer que débrancher tant que l'emplacement est désigné non dangereux.

CSA Installations

Nonincendive Applications

Class I, Division 2, Groups A-D

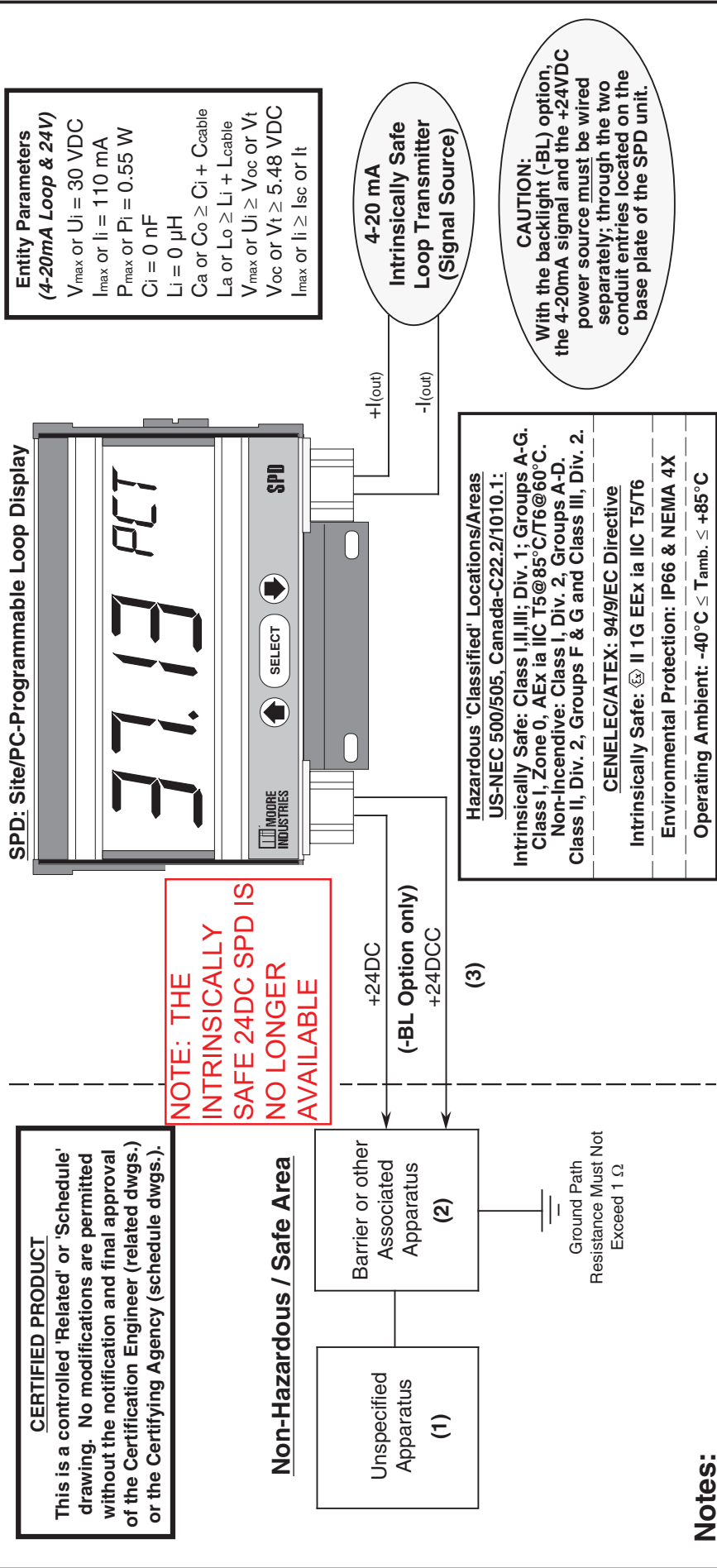
Class II, Division 2, Groups F-G

The COM port shall not be used in Hazardous Locations.

The USB connector is not allowed to be used in hazardous locations.

Power to the –BL option must be supplied by a source that is categorized as “CLASS 2” and “SELV” as specified in the Canadian Electrical Code, C22.1 and the National Electrical Code NFPA 70.

	DO NOT SCALE DRAWING		CONTROL DRAWING		DRAWING NUMBER 100-100-66		REVISION A	
	DRAWN Gus H. Elias 03/03 CHECKED W. Ho 03/03 ENGINEER Gus H. Elias 03/03 SCALE NONE	TITILE Field Installation Diagram SPD: Prog. Loop Display Intrinsically Safe System For Hazardous 'Classified' Locations			REVISED BY INITIAL RELEASE 03/03 G.E.		APPROVAL CB	
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- Notes:**
- Apparatus which is unspecified except that it **must not** be supplied from, or contain under normal or abnormal conditions a source of potential with respect to earth in excess of 250 VRMS or 250 VDC which is considered to be the Safe Area's maximum voltage.
 - The Barrier or other Associated Apparatus **must** be approved by the "specific" (CSA/IECS/FM/LC/IE/SAA/SIRA/TUV, etc.) certifying agency for I.S. connections in: "Class I-III, Division 1, Groups A-G" locations. The output voltage is **24 VDC \leq (Voc, Vt or Vo) \leq 30 VDC** & the output current (**Isc, It or Io**) **must not** exceed **110 mA**. Also, it **must** be installed per the manufacturer's guidelines. *A Shunt Zener Barrier is NOT required for Non-Incendive (or Class I, Division 2 or Type N) installations.*
 - The combined Capacitance and Inductance of the inter-connecting cables and the PC-Prog. Loop Display **must not** exceed the values indicated on the Associated Apparatus.
 - For applications in the US, installation **must** be in accordance to 'ANSI-P12.6' (Installation of I.S. Systems for Hazardous 'Classified' Locations) and the National Electric Code 'ANSI/NFPA 70'. Also, a dust-tight conduit seal **must** be used when installed in Class II/III environments. For applications in Canada, adhere to the 'Canadian Electric Code C22.1' most current publication on I.S. installation guidelines. For CENELEC/ATEX applications, adhere to 'BS5345 or EN 60079-14:1997' or any equivalent, most current and pertaining publication on I.S. installation guidelines.
 - Warning:** Substitution of components may impair the Intrinsic Safety of the unit. **DO NOT** open the unit when energized or if an explosive gas/dust atmosphere is present. Disconnect power before servicing. Also read, understand and adhere to the manufacturer's installation and operating procedures. Keep surfaces clean and dry. Use +85°C suitable cabling.

RETURN PROCEDURES

To return equipment to Moore Industries for repair, follow these four steps:

1. Call Moore Industries and request a Returned Material Authorization (RMA) number.

Warranty Repair –

If you are unsure if your unit is still under warranty, we can use the unit's serial number to verify the warranty status for you over the phone. Be sure to include the RMA number on all documentation.

Non-Warranty Repair –

If your unit is out of warranty, be prepared to give us a Purchase Order number when you call. In most cases, we will be able to quote you the repair costs at that time. The repair price you are quoted will be a "Not To Exceed" price, which means that the actual repair costs may be less than the quote. Be sure to include the RMA number on all documentation.

2. Provide us with the following documentation:
 - a) A note listing the symptoms that indicate the unit needs repair
 - b) Complete shipping information for return of the equipment after repair
 - c) The name and phone number of the person to contact if questions arise at the factory
3. Use sufficient packing material and carefully pack the equipment in a sturdy shipping container.
4. Ship the equipment to the Moore Industries location nearest you.

The returned equipment will be inspected and tested at the factory. A Moore Industries representative will contact the person designated on your documentation if more information is needed. The repaired equipment, or its replacement, will be returned to you in accordance with the shipping instructions furnished in your documentation.

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ANY CAUSE OF ACTION FOR BREACH OF ANY WARRANTY BY THE COMPANY SHALL BE BARRED UNLESS THE COMPANY RECEIVES FROM THE BUYER A WRITTEN NOTICE OF THE ALLEGED DEFECT OR BREACH WITHIN TEN DAYS FROM THE EARLIEST DATE ON WHICH THE BUYER COULD REASONABLY HAVE DISCOVERED THE ALLEGED DEFECT OR BREACH, AND NO ACTION FOR THE BREACH OF ANY WARRANTY SHALL BE COMMENCED BY THE BUYER ANY LATER THAN TWELVE MONTHS FROM THE EARLIEST DATE ON WHICH THE BUYER COULD REASONABLY HAVE DISCOVERED THE ALLEGED DEFECT OR BREACH.

RETURN POLICY

For a period of thirty-six (36) months from the date of shipment, and under normal conditions of use and service, Moore Industries ("The Company") will at its option replace, repair or refund the purchase price for any of its manufactured products found, upon return to the Company (transportation charges prepaid and otherwise in accordance with the return procedures established by The Company), to be defective in material or workmanship. This policy extends to the original Buyer only and not to Buyer's customers or the users of Buyer's products, unless Buyer is an engineering contractor in which case the policy shall extend to Buyer's immediate customer only. This policy shall not apply if the product has been subject to alteration, misuse, accident, neglect or improper application, installation, or operation. THE COMPANY SHALL IN NO EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.



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