

Trident & Trident X2 PD765

Quick Start Guide



Thank you for purchasing the Trident PD765 process meter!

This quick start guide will briefly describe some of the common setup procedures for this meter.

This guide includes:

Basic Wiring for Trident Meter.....	2
Program and Scale 4-20 mA Input.....	3
Program RTD Input.....	4
Program Thermocouple Input.....	5
Program Relays for Automatic Reset..	6
Program 4-20 mA Analog Output.....	7
Setup Password Protection.....	8
Return Meter to Factory Defaults.....	8

For additional information about the Trident PD765 meter not covered in this quick start guide, please consult the instruction manual included on the CD or available at www.predig.com.

Check out the Trident Virtual Meter interactive demo at tvm.predig.com



 **Menu Button** – Use this button to access *Programming Mode* and to return to *Run Mode*.

Note: If you think you have made a mistake while programming the meter, use this button to return the meter to *Run Mode* without saving.

 **Reset Button** – Use this button to reset the high or low value while it is being displayed (see the Max Button below) or to change the selected digit while inputting a numeric value in *Programming Mode*.

 **Max Button** – Display the highest and lowest process values while the meter is in *Run Mode*. Tap the button once to display the high value and again to display the low value. Also used to increment the selected digit while inputting a numeric value in *Programming Mode*.

 **Acknowledge Button** – Use this button to acknowledge an alarm state while in *Run Mode* or to access or accept a menu item while in *Programming Mode*.

 **TRIDENT**



PRECISION DIGITAL

233 South Street

Hopkinton MA 01748-2208 USA

Tel. (508) 655-7300 www.predig.com

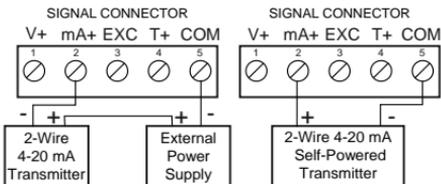


Basic Wiring for Trident Meter

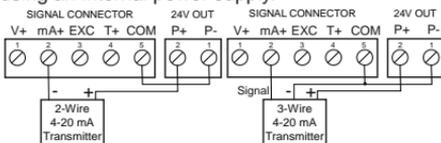
The connectors label, affixed to the top of the meter, shows the location of all connectors available. It also identifies the location of the RTD/TC selector switch. Connect your wires to the provided connectors and plug into the meter as indicated.

4-20 mA Input Wiring

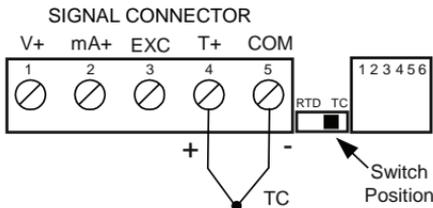
The below image shows wiring for a 4-20 mA input using an external power supply.¹



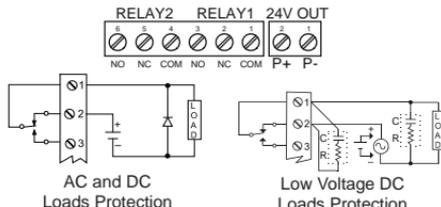
The below image shows wiring for a 4-20 mA input using an internal power supply.²



Thermocouple Wiring

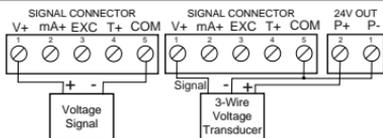


Relay Connections⁵



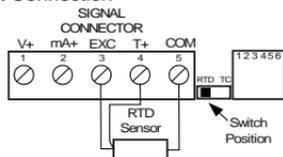
¹ Trident models without internal power supply (PD765-6XX-00)
² Trident models with one internal power supply (PD765-6XX-10)
³ Trident models with two internal power supplies (PD765-6XX-20)
⁴ Trident models with 4-20 mA output option (PD765-6X3/5-XX)
⁵ Trident models with relay option (PD765-6X2/5-XX)

Voltage Input Wiring

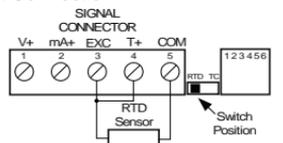


RTD Input Wiring

The below image shows wiring for a Three-Wire RTD Input Connection

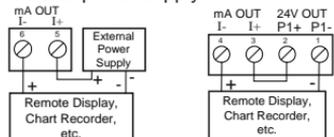


The below image shows wiring for a Two-Wire RTD Input Connection

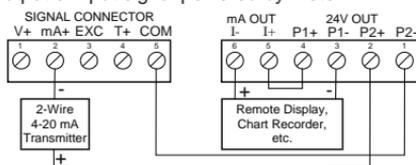


4-20 mA Output Wiring⁴

The image to the **left** shows wiring for a 4-20 mA output using an external power supply.¹ The image to the **right** shows wiring for a 4-20 mA output using an internal power supply.²



The below image shows wiring for a 4-20 mA output & input signal powered by meter.³



Trident & Trident X2 PD765 Quick Start Guide

Program and Scale 4-20 mA Input

These instructions show you how to program the Trident meter to accept a 4-20 mA input and display a value associated with that range. When the meter is receiving a 4 mA input, it will display the low end of the programmed display range; when receiving a 20 mA input, it will display the high end of the programmed display range.

For example: If the meter were used to display the level of a 100 ft tall tank, the transmitter should send a 4 mA signal when the tank is empty and a 20 mA signal when the tank is full. The meter should be programmed to interpret these inputs on a display range of 0-100, so that at 4 mA the meter will display 0.0 and at 20 mA the meter will display 100.0.

1
Press  to enter *Programming Mode*, press  to access the *SEtU* (Setup) menu.



2
Press  to access the *INPt* (Input) menu.



3
Select *4-20* (4-20 mA) and press  to confirm input selection.



4
Press  to access the *dEcP* (Decimal Point) menu.



Note: This should be the default option, but if it is not, press  to scroll through the choices.

5
Press  to select the decimal place, then press .



6
Press  to enter the *PrOg* (Program) menu.



7
Press  to enter the *ScAL* (Scale) menu.



8
Press  to access *INP1* (Input 1). This is the input which represents 0% of the process variable. The default value of *400* (4.00 mA) should be sufficient for most applications. Press  to accept.



Note: These instructions show you how to *scale* the meter using the factory calibrated internal signal source. You do not need to *calibrate* (E_{RL}) a new meter.

Trident & Trident X2 PD765 Quick Start Guide

9 (4-20 mA continued)

Press  to access *d .5 1* (Display 1).

This is the value that will be displayed on the meter when the current input is at 4 mA.



10

Press  to select a digit (the selected digit is brighter than the others).



11

Press  to increment the digit. Press  to accept the new *d .5 1* value once you are done.



12

Press  to enter *Input 2*. The default input value of *20.00* for input 2 should be sufficient. Press  to accept this value.



13

Press  to enter *d .5 2* (Display 2). Change the value as described in steps 10-11. Press  to accept value.



14

Press  to return to *Run Mode*.



Note: The method for inputting numeric values described above is the same method used to input numbers in all other areas of the Trident meter.

Program RTD Input

These instructions show you how to program the Trident meter to accept an RTD input. The display value will directly represent the temperature sensed by the RTD connected to the meter. There is no need to scale the meter's display value.

1

Press  to enter *Programing Mode*, press  to access the *SEtU* (Setup) menu.



2

Press  to access the *inPt* (Input) menu.



3

Press  to scroll through the choices, select *rTd* (RTD) and press  to confirm input.



4

Press  to scroll through the RTD curve choices and select either *R385* or *R392* (RTD curve). Press  to confirm curve selection.



4

Trident & Trident X2 PD765 Quick Start Guide

5 (RTD continued)

Press  to access the $F \text{ } \square$ (Fahrenheit/Celsius) menu.



6

Press  until the appropriate unit designation is displayed, press  to confirm.



7

Press  to access the $dE.C.P$ (Decimal Point) menu.



8

Press  to select the decimal place, then press  to confirm. Press  to exit *Programming Mode* and return to *Run Mode*.



Program Thermocouple Input

These instructions show you how to program the Trident meter to accept a thermocouple input. The display value will directly represent the temperature sensed by the thermocouple connected to the meter. There is no need to scale the meter's display value.

1

Press  to enter *Programming Mode*, press  to access the $SEtU$ (Setup) menu.



2

Press  to access the $inPt$ (Input) menu.



3

Press  to scroll through the choices, select $\square \square$ (thermocouple) and press  to confirm.



4

Press  to scroll through the thermocouple type choices and select the type of thermocouple you are using (i.e. J, K, T, T 0.1^o Res, E). Press  to confirm.



5

Press  to access the $F \text{ } \square$ (Fahrenheit/Celsius) menu.



6

Press  until the right unit designation is displayed, press  to confirm. Press  to exit *Programming Mode* and return to *Run Mode*.



Program Relays for Automatic Reset

These instructions show you how to program the Trident meter to turn on the relays at programmable set points and turn off the relays at reset points.

Note: If the *set point* is **higher** than the *reset point*, the relay will be a **high alarm**. If the *set point* is **lower** than the *reset point*, the relay will be a **low alarm**.

1

Press  to enter *Programming Mode*, press  to access the *SEtU* (Setup) menu.



2

Press  until the *rELY* (Relay) menu is displayed and then press .



3

Press  to access *rLY 1* (Relay 1).



4

Press  to access *Act 1* (Relay 1 Action).



5

Press  (if necessary) until *Auto* (Automatic Reset) is displayed and then press .



6

Press  to access *SEt 1* (Set Point 1) and use the  and  buttons to change the value.



7

Press  to access *rSEt 1* (Reset Point 1) and use the  and  buttons to change the value.



8

Press  to access *rLY 2* (Relay 2), press  to access *Act 2* (Action 2), and press  again to access *Auto* (Automatic Reset).



9

Press  to access *SEt 2* (Set Point 2) and use the  and  buttons to change the value.



10

Press  to access *rSEt 2* (Reset Point 1) and use the  and  buttons to change the value. Press  to accept and  to exit.



Trident & Trident X2 PD765 Quick Start Guide

Program 4-20 mA Analog Output

These instructions show you how to program the Trident meter to output an analog signal based on its display value. This signal is commonly output to a PLC or chart recorder.

Note: The display values programmed for 4-20 analog output do not need to be the same as those programmed as input scale values, though they most commonly will be.

1

Press  to enter *Programming Mode*, press  to access the *SEtU* (Setup) menu.



2

Press  until the *RoUt* (Analog Out) menu is displayed and then press .



3

Press  to enter the *ScAL* (Scale) menu.



Note: The meter will use an internally calibrated signal source to scale the analog output signal. There is no need for a calibrated signal source to scale the analog output.

4

Press  to access *d.151* (Display 1). This is the display value at which the low range of the output (set in the next step, typically 4.00 mA) will be transmitted. Use the  and  buttons to change the value and press  to accept.



5

Press  to access *out 1* (Output 1). This is the output signal which represents *d.151*. The default value of *4.00* (4.00 mA) should be sufficient for most applications. Press  to accept.



6

Press  to access *d.152* (Display 2). This is the display value at which the high range of the output will be transmitted. Use the  and  buttons to change the value and press  to accept.



7

Press  to access *out 2* (Output 2). Press  to accept the default value of *20.00* (20.00 mA).



8

Press  to return to *Run Mode*.



Trident & Trident X2 PD765 Quick Start Guide

Setup Password Protection

The Trident meter can be protected against unauthorized changes with the use of a user programmable password. These steps show how to set up a password.

- 1
Press  to enter *Programming Mode*.



- 2
Press  until the *PASS* (Password) menu is displayed, press  to access and press  again to acknowledge that the meter is unlocked.



- 3
Use the  and  buttons to change the password.



- 4
Press  to accept the new password. The meter will display *LoCd* (locked) for 3 seconds.



Note: In order to unlock the meter once it has been locked, repeat these steps and enter the password. This will remove the password and allow programming of the meter. For more information, please consult the instruction manual.

Return Meter to Factory Defaults

If a mistake has been made while programming the meter and it is unclear where the error occurred, the best option may be to perform a factory reset of the meter and begin again. These steps show how to perform a factory reset of the Trident meter.

- 1
Press and hold  for five (5) seconds to enter the *Advanced Features Menu*.



- 2
Press  until the *d iAG* (Diagnostics) menu is displayed.



- 3
Press and hold  for approximately five (5) seconds.



- 4
Press  within three seconds, while the display is flashing *rSEt* (reset).



Note: If  is not pressed within three seconds, the meter will return to the *d iAG* menu.