PD2-6000

Large Display Dual-Line 6-Digit Process Meter

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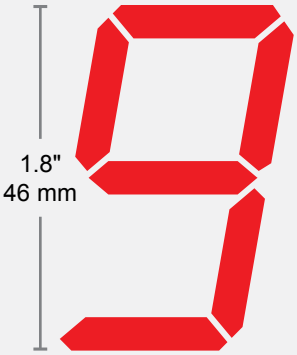
HELIOS



Helios
Large Digits

PROCESS

- Large Display NEMA 4X, IP65 Wall Mounted Meter
- 0-20 mA, 4-20 mA, 0-5 V, 1-5 V, and ±10 V Field Selectable Inputs
- Large Dual-Line 6-Digit Display, 1.8" (46 mm) Digits Readable up to 100 Feet (30 Meters) Away
- Isolated 24 VDC @ 200 mA Transmitter Power Supply
- Four (4) Relays with Interlocking Capability + Isolated 4-20 mA Output Option
- Free PC-Based MeterView Pro USB Programming Software
- Super Bright Display
- Operating Temperature Range: -40 to 65°C (-40 to 150°F)
- UL & C-UL Listed. E160849; 508 Industrial Control Equipment
- Input Power Options: 85-265 VAC or 12-24 VDC
- Display Input in Two Different Scales - Great for Level Applications
- Multi-Pump Alternation Control
- Round Horizontal Tank Formula; Just Enter Diameter & Length
- 32-Point, Square Root, or Exponential Linearization
- Programmable Display, Function Keys & Digital Inputs
- Tare Function
- Onboard RS-485 Serial Communications
- Modbus RTU Communication Protocol Standard
- Light / Horn & Reset Button Accessory
- Control Station Accessory For Remote Operation of Helios

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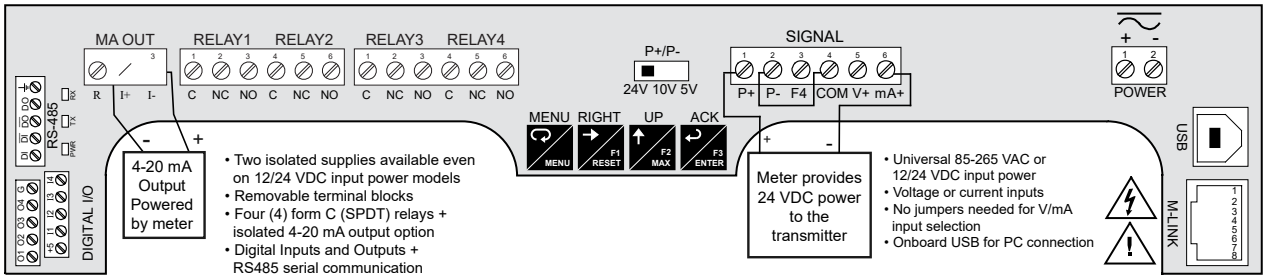


The Only Large Display Process Meter You Will Ever Need

The Helios large display process meter boasts specifications, features and functionality that make it the only large display process meter you will ever need. The big, bright 6-digit dual-line LED display that can be seen from 100 feet even in bright sunlight is the first thing you will notice about the Helios. After that, the number one feature that makes the Helios such a useful device is its built-in 24 VDC power supply to drive the transmitter as illustrated by the above diagram. This feature not only saves the cost of an external power supply, but also greatly simplifies wiring. In addition, there is a second 40 mA power supply provided with the 4-20 mA output option, evident also in the above diagram.

The above picture illustrates several other reasons why the Helios is the only large display process meter you will ever need. First off, is the NEMA 4X rated enclosure which means you can install the Helios indoors and outdoors, exposed to moisture, dust and other adverse conditions. The next thing to notice is the 6-digit dual-line display that can display numbers up to 999,999 on the upper line and show either a tag or the input in a different scale on the lower line.

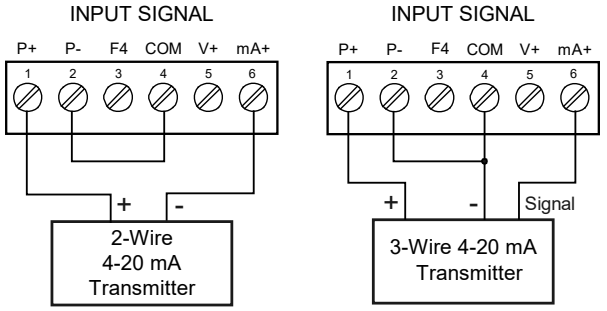
Other key features include four relays and 4-20 mA output option, advanced signal input conditioning like automatic round horizontal tank linearization, function keys, pump alternation capability, and Modbus RTU serial communications. Finally, all these features and capabilities can easily be programmed with free MeterView Pro PC-based software.

ISOLATED TRANSMITTER POWER SUPPLIES

24 V @ 200 mA Transmitter Power Supply

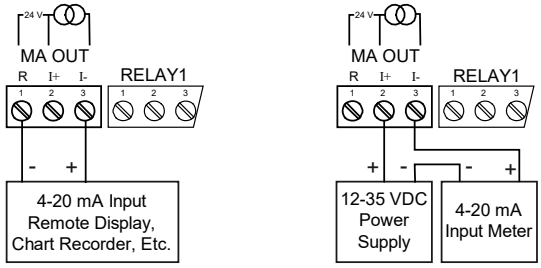
One of the most useful standard features of the AC powered PD2-6000 is its built-in isolated, 24 V @ 200 mA power supply to power the transmitter. This feature saves money by eliminating an external power supply and also simplifies wiring by reducing the number of devices in the loop. It can be configured for 5, 10, or 24 V (default) by means of a simple internal jumper. This power supply is even available on meters that are powered from DC power (24 V @ 100 mA). To use an external power supply instead of the internal power supply, simply make connections to different terminals on the Helios.

The following diagrams illustrate how to wire the Helios so it will power the transmitter:



24 V @ 40 mA 4-20 mA Output Power Supply

Not only can the Helios power the 4-20 mA input signal, but an additional power supply of 24 V @ 40 mA is provided with the 4-20 mA output option to power the 4-20 mA output.

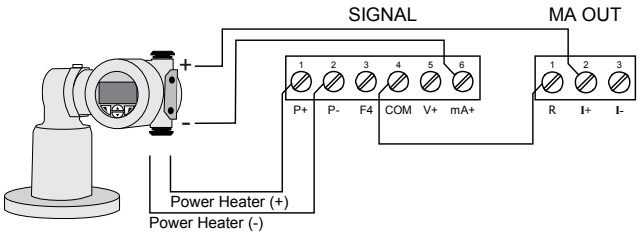


Resettable Fuse Prevents Current Overload

Another very useful aspect of the Helios is that the current input is protected against current overload by a resettable fuse. The fuse limits the current to a safe level when it detects a fault condition, and automatically resets itself when the fault condition is removed.

Other Uses for the Transmitter Power Supplies

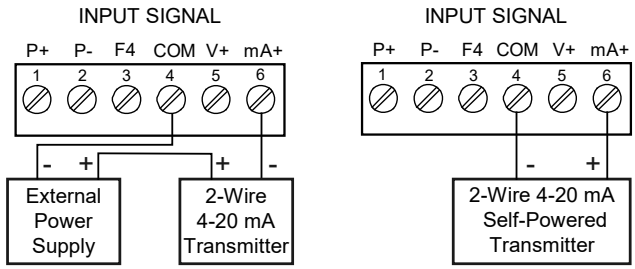
The most common use for these two power supplies is for the 200 mA transmitter power supply to power the field transmitter and 40 mA power supply to power the 4-20 mA output from the meter. However, since these two power supplies are isolated they can be used in other ways. For instance, some level transmitters require the use of a heated lens. The Helios's 200 mA power supply could be used to power the heated lens and Helios's 40 mA power supply could be used to power the 4-20 mA input.



Helios Powers Both Heater and 4-20 Output

External Power Supply for the Loop

For applications that require an external transmitter power supply, the same Helios is used and merely wired in a different fashion as the following diagrams illustrate:



PDA1024-01 24 VDC Transmitter Power Supply

Precision Digital offers the PDA1024-01 for applications that require more than the 200 mA power that the Helios can provide.

Specifications

Output Voltage: 24 VDC ±10% @ 1.5A rated current
Dimensions: 3.07" x 3.66" x 2.20"
(78 mm x 93 mm x 56 mm) (W x H x D)

ADVANCED DISPLAY FEATURES

Dual-Line Makes All the Difference

The upper display can be programmed to indicate PV, maximum (peak), minimum (valley), alternating maximum/minimum, one of eight alarm set points, or Modbus input. The lower display can be configured to display engineering units, set points, user defined messages, or simply turned off.

The Helios's dual-line display makes all the difference both when programming the instrument and when using it in the field. When programming the instrument, the dual line display prompts for the needed information and also helps you keep track of where you are in the setup process. When using the instrument, the dual line display provides more information such as displaying the input in two different scales like height and volume for a level application. We call this the Dual-Scale feature.

Programming Assistance

The Helios's dual-line display makes programming the instrument much easier because the lower line prompts for the needed information and also helps you keep track of where you are in the setup process.

The Helios is prompting for the value for Input 2 and displaying the default value of 20.00 mA. The "2" in 20.00 is brighter than the rest of the digits indicating that it is the number that will be changed by the Up and Right arrows.

The Helios is now prompting for what the user wants Display 2 to be; that is the value that corresponds to 20 mA. In this case Display 2 is currently set to 95.00.

Superluminous Sunlight Readable Display

The Helios's standard SunBright display features extraordinarily bright LEDs. It is perfect for applications where the meter is in direct sunlight or in applications where visibility may be impaired by smoke, fog, dust, or distance.

Rounding Feature for Even Steadier Display

The rounding feature is used to give the user a steadier display with fluctuating signals. It causes the display to round to the nearest value according to the rounding value selected (1, 2, 5, 10, 20, 50, or 100). For example, with a rounding value of 10, and an input of 12346, the display would indicate 12350.

Dual-Scale Display Feature

The Helios PD2-6000 has a rather unique, and very flexible dual-scale capability. This is of particular value in level applications where a second scaled display can represent the measured input in a different form (i.e. gallons & height). Both displays are independently scaled and are based on the 4-20 mA input signal. Beyond level, this function has been used for pressure & force, current & power, feet & meters, GPM & CFM, and more.

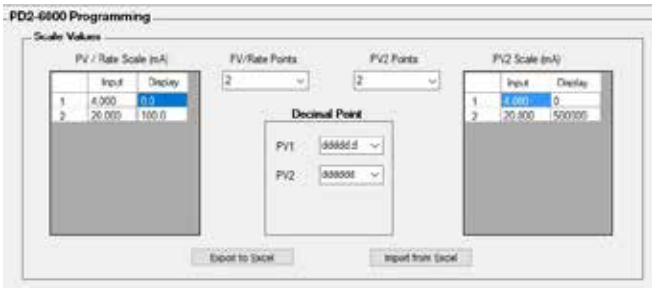
Gallons & mA

Gallons & Height

Gallons & Percent

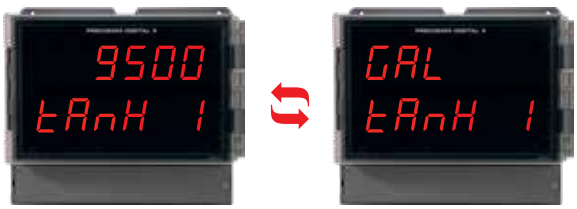
Gallons & Head PSI

MeterView Pro can be used to program the Helios to display the input in two different scales:



Toggling Between Reading & Units with Tag

The Helios can also be programmed so the upper line toggles between the reading and units and the lower line displays a tag. For instance, the upper line toggles between 9500 and Gal and the lower line displays Tank 1.



Other Uses for Lower Line

The lower line can also be used indicate units, a tag, or even a setpoint as the following pictures illustrate:

Flow in CFH

Gallons & Setpoint

Level in Feet

Pressure Indication

QUICK & EASY SCALE & PROGRAMMING METHODS

The Helios can be programmed either via the front panel push buttons or free, PC-based MeterView Pro software. MeterView Pro is resident on the Helios and is accessed by a provided USB cable, so it is by far the easiest way to program the Helios. The Helios can be calibrated either by applying a known signal or scaled by entering a desired value with the front panel buttons or MeterView Pro software. Most customers will use the scaling method because it is simpler and does not require a calibrated signal source. Selecting the input to be current or voltage is done with the front panel buttons or MeterView Pro software. Once programming is completed it can be locked with a password.

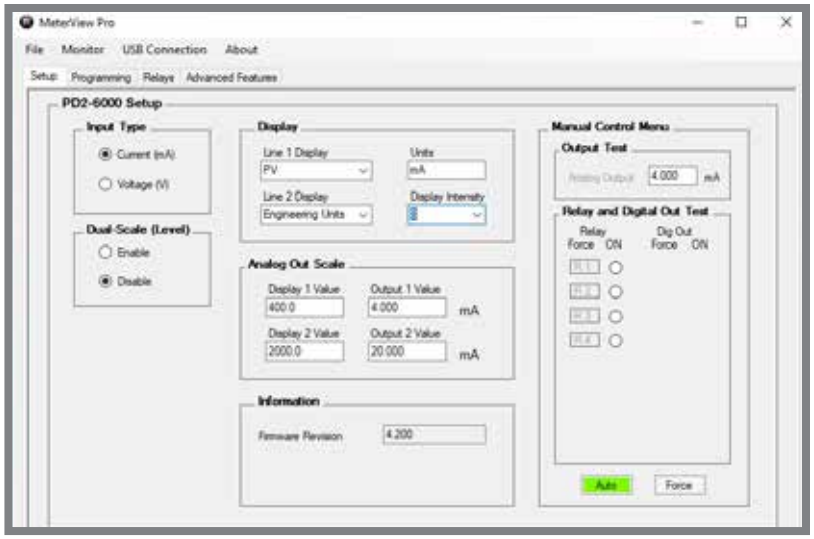
Free PC-Based MeterView Pro USB Programming Software & Cable

The Helios comes preloaded with free MeterView Pro programming software that connects and installs directly to your PC with a standard USB cable, also provided free with each instrument. This eliminates the need to insert CDs, install drivers, or download software from the internet. When you connect your Helios to your PC, MeterView Pro is downloaded to your PC, the software automatically selects the model you are programming, and you're ready to start programming immediately. Further simplifying the programming process, the Helios can be powered from the USB port, so no need to apply external power while programming your meter. In addition to programming, the software will also allow you to monitor, and datalog a Helios using your PC. You can also generate and save programming files for later use.

Click here to watch the Meterview Pro video

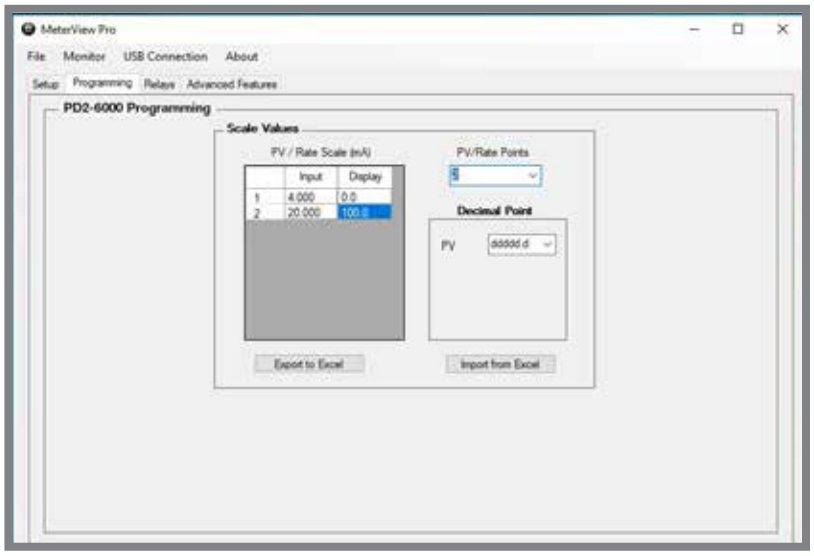
Setup Screen

- Select Voltage or Current Input
- Activate Dual-Scale (Level) Function
- Select Decimal Point
- Set Line 1 Display Parameters
- Set Line 2 Display Parameters
- Set Analog Output Values
- Enable Manual Control
- Test Relays & Digital Outputs



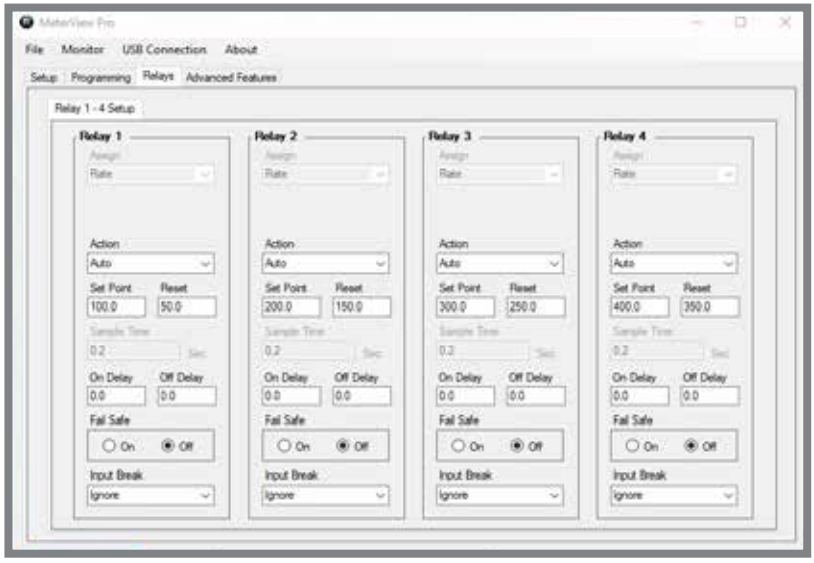
Programming Screen

- Set Scale Values
- Set the Number of Points (up to 32)
- Import from Excel
- Export to Excel



Relays Screen

- Greatly Simplifies Programming a Variety of Relay Features
- Set Relay Action
- Set Sampling Time
- Set Set & Reset Points
- Set On/Off Time Delays
- Set Fail Safe Operation
- Set Input Break Relay Action

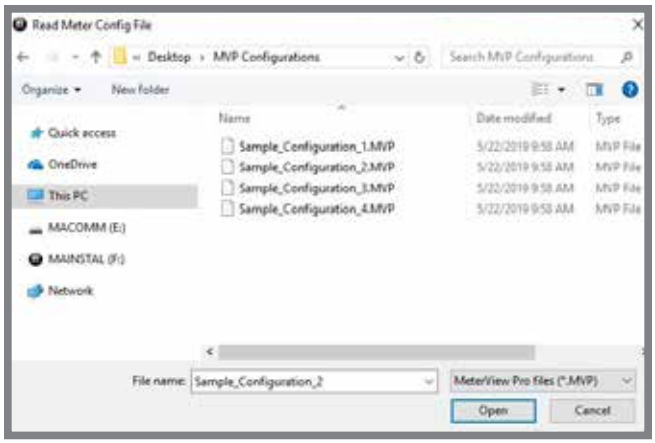


Save/Open Configuration

At the bottom of most MeterView screens are two tabs:

1. **Get Meter Data:** This reads the programming of the meter that is currently connected to the PC.
2. **Send Meter Data:** Clicking this button, sends current MeterView programming to the meter.

The configuration file can be sent or retrieved from the directory of your choice. This makes it very easy to program multiple meters with the same programming. It is also a great backup utility as well.



Specifications

System Requirements:
Microsoft® Windows® XP/Vista/7/8/10
Communications:
Onboard USB (firmware version 4.0 or higher), RS-232 Adapter or RS-485 Adapter
Meter Address: 1 - 247
Reports:
- Data logging: Save as CSV file format
- Configuration: Save as PDC file format or print configuration

Baud Rate: 300 - 19,200 bps
Configuration: One meter at a time
Protocol:
Modbus RTU (requires firmware version 4.0 or higher)

**Note: Windows® 32/64-bit operating systems*

Click here to watch the Meterview Pro video

Password Protection

The Password menu is used for programming three levels of security to prevent unauthorized changes to the programmed parameter settings:

Pass 1: Allows use of function keys and digital inputs

Pass 2: Allows use of function keys, digital inputs and editing set/reset points

Pass 3: Restricts all programming, function keys, and digital inputs

4-20 mA OUTPUT & RELAYS

4-20 mA Analog Output

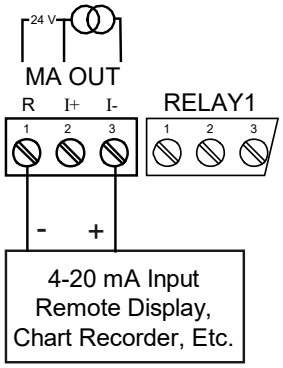
The isolated analog retransmission signal can be configured to represent the process variable (PV), maximum (peak) value, minimum (valley) value, the value for any of the eight relay set points, or Modbus input. While the output is nominally 4-20 mA, the signal will accurately accommodate under- and over-ranges from 1 to 23 mA.

The 4-20 mA output can be reversed scaled such that 4 mA represents the high value and 20 mA represents the low value. For instance, a 4-20 mA output signal could be generated as the meter went from 100.0 to 0.0.

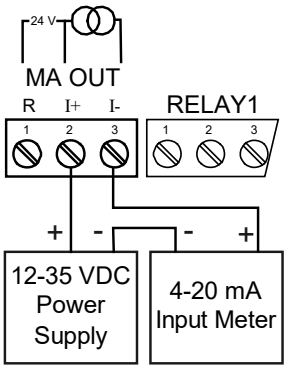
For applications where the input was linearized by the Helios, the 4-20 mA output will represent that linearized value.

Connections

The Helios can provide 40 mA at 24 VDC to power the 4-20 mA output signal or an external power supply can be used:



4-20 mA Output Powered by PD2-6000



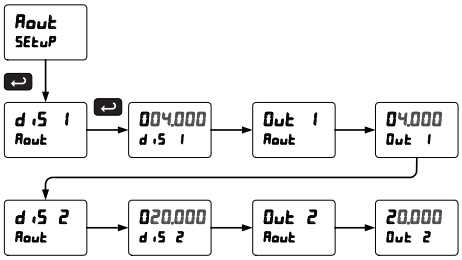
4-20 mA Output Powered by External Power Supply

The internal 24 VDC power supply powering the analog output may be used to power other devices, if the analog output is not used. The I+ terminal is the +24 V and the R terminal is the return.

The 4-20 mA output can either be programmed using the front panel push buttons or free MeterView Pro software.

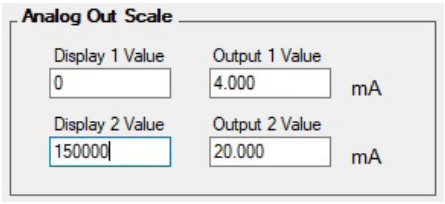
Front Panel Push Button Programming

The 4-20 mA analog output can be scaled to provide a 4-20 mA signal for any display range selected. No equipment is needed to scale the analog output; simply program the display values to the corresponding mA output signal. The Analog Output menu is used to program the 4-20 mA output based on display values.

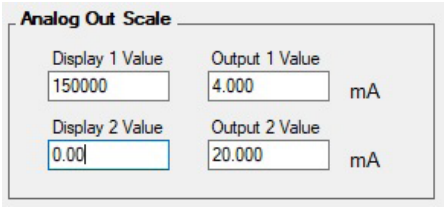


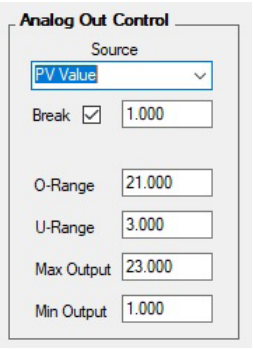
MeterView Pro Software Programming

When a meter is programmed as shown below, the output will be 4.00 mA when the display reads 0 and the output will be 20.00 mA when the display reads 150000.



The meter can be set up for reverse scaling as shown below: the output will be 4.00 mA when the display reads 150000 and the output will be 20.00 mA when the display reads 0.





Source: Source for generating the 4-20 mA output (e.g. PV)

Overrange: Analog output value with display in overrange condition

Underrange: Analog output value with display in underrange condition

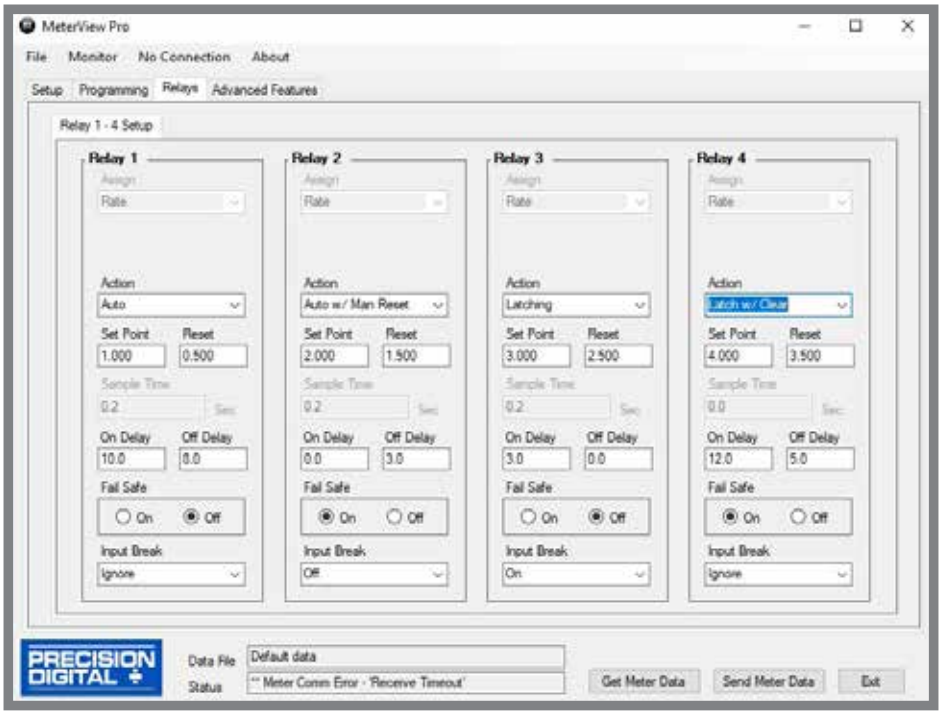
Break: Analog output value when loop break is detected

Max: Maximum analog output value allowed regardless of input

Min: Minimum analog output value allowed regardless of input

Relays for Alarm & Control Applications

Adding relays to the Helios meter turns it into a sophisticated alarm device as well as a powerful, yet simple, alternative to a more complicated PLC system for control applications. One such application would be pump control using the Helio's relays in pump alternation mode. The Helios can be equipped with four 3 A Form C (SPDT) internal relays. Relays are highly user-configurable as the following screen shot from MeterView Pro indicates:



**Values are intended to show programming choices. They are not intended to represent an actual application.*

Setting Set and Reset Points (HI / LO Alarms)

All relays are independent of each other and may be programmed as high or low alarms with user desired set and reset points. Setting a set point above a reset point results in a high alarm and setting a set point below a reset point results in a low alarm. Alarms have 0 – 100% deadband and set and reset points may be set anywhere in the range of the meter.

Resetting the Relays (Action in MV Pro)

All relays are independent of each other and may be programmed to reset (*Action* in MV Pro) in the following ways:

- **Automatic:** Alarm will reset automatically once the alarm condition has cleared.
- **Automatic/Manual:** Alarm will reset automatically once the alarm condition has cleared but can also be reset at any time with a switch wired across terminals F4 and Common*.
- **Latching:** Alarm must be reset manually and can be done so at any time with a switch wired across terminals F4 and Common*.
- **Latching with Reset after Cleared:** Alarm must be reset manually and can only be done so after the alarm condition has cleared with a switch wired across terminals F4 and Common*.

* Or via one of the four digital inputs

Time Delay (On and Off)

In many applications it is desirable to wait before turning off or on a relay – such as waiting for a process to settle before taking action. Each relay on the Helios can be programmed with independent on and off time delays of 0 to 999.9 seconds to achieve this.

Relays Auto Initialization

When power is applied to the meter, the front panel LEDs and alarm relays will reflect the state of the input to the meter.

Signal Loss or Loop Break Relay Operation

When the meter detects a break in the 4-20 mA loop, the relay will go to one of the following selected actions:

1. Turn On (Go to alarm condition)
2. Turn Off (Go to non-alarm condition)
3. Ignore (Processed as a low signal condition)

User Selectable Fail-Safe Operation

All relays are independent of each other and may be programmed for user selectable fail-safe operation. With the fail-safe feature activated, the relays will transfer to the alarm state on power loss to the meter.

Front Panel LEDs

The meter is supplied with four alarm points that include front panel LEDs to indicate alarm conditions. This standard feature is particularly useful for alarm applications that require visual-only indication.

Manual Output Control

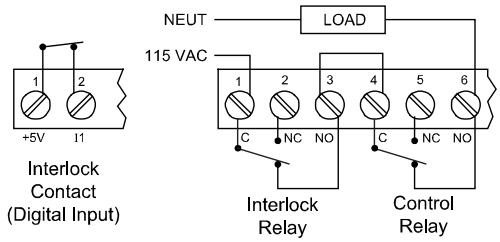
Take control of any output with this feature. All relays can be forced ON or OFF, and the 4-20 mA output signal can be set to any value within its range. When the relays and 4-20 mA output are controlled manually, an LED labeled "M" is turned on and the associated Alarm LEDs (1-8) flash every 10 seconds indicating that the meter is in manual control mode.

Sampling Function (PV Triggered Timed Relay)

The sampling function allows the operator to set a relay as a "sampling" relay. When the PV reaches that set point, it will close that relay's contacts for a preset period of time (0.1 to 5999.9 seconds). An example of its use may be for beer/ale fermentation. When the batch reaches a certain pH, the relay contacts would close and by some means (light, horn, etc.) alert someone to take a sample, or provide the trigger to automatically take a sample of the batch. The utility of this function can, of course, be expanded beyond sampling and be used whenever a timed relay output closure is required when the PV reaches a certain set point.

Interlock Relay(s)

This function allows a process to use one or more very low voltage input signals or simple switch contacts to control the state of one or more internal "interlock" relays. A violation (i.e. loss of input, open switch, or open circuit) forces one or more N/O interlock relay contacts to open. One input can be used in series with a number of interlock switches, or up to four inputs can be required to force-on one (or more) internal interlock relays. Please see *Safety Interlock on the ProVu Series* whitepaper on our website for more information.

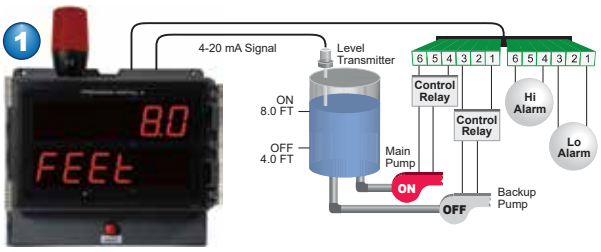


Switching Inductive Loads

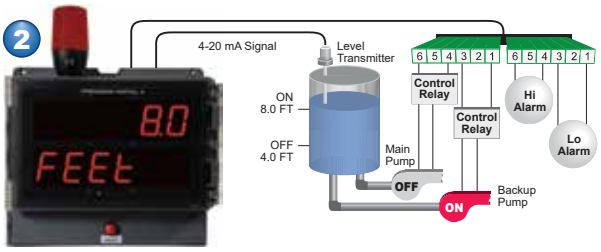
The use of suppressors (snubbers) is strongly recommended when switching inductive loads to prevent disrupting the microprocessor's operation. The suppressors also prolong the life of the relay contacts. Precision Digital offers the PDX6901.

Multi-Pump Alternation

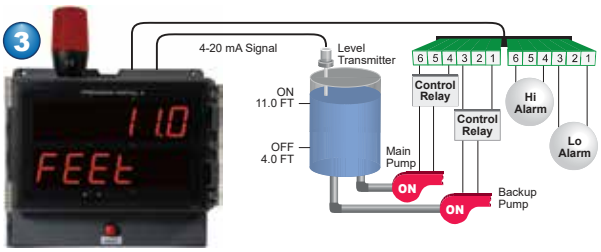
The Helios can be used as a pump controller when combined with a continuous level transmitter. The most common pump control application is shown below: controlling and alternating two pumps and providing high and low-level alarms. The light / horn accessory can be added to provide visual and audible alarm indication.



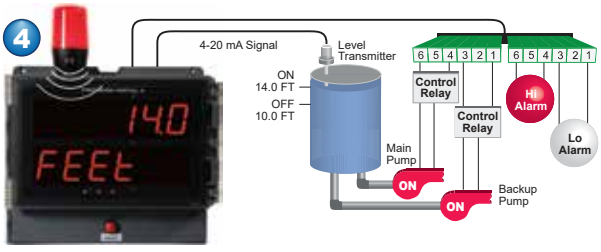
Relay #1 turns the main pump on at 8.0 feet and turns it off at 4.0 feet.



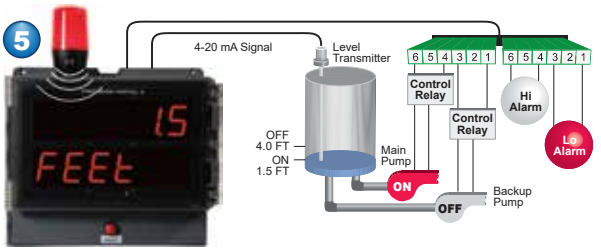
With the Pump Alternation feature activated, the next time the level reaches 8.0 feet, relay #2 transfers and starts the backup pump.



If the backup pump is not able to keep up, and the level reaches 11.0 feet, relay #1 transfers and starts the main pump as well.



Relay #3 trips the High-Level Alarm at 14.0 feet and resets at 10.0 feet. The optional light starts flashing and the horn sounds.



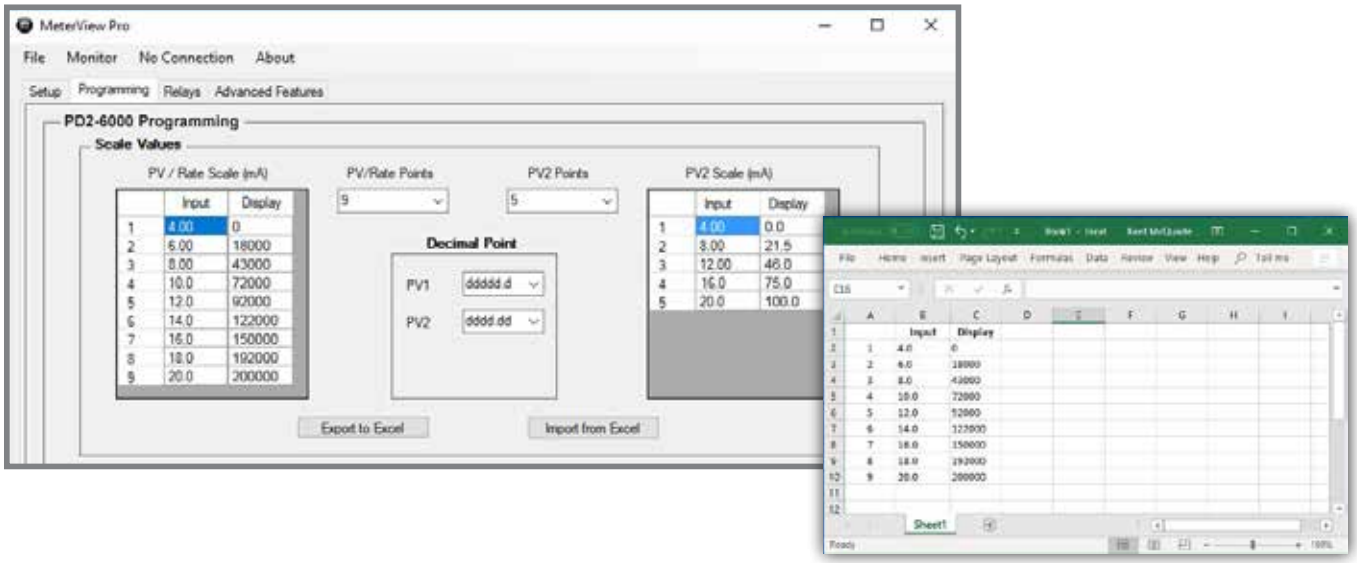
Relay #4 trips the Low-Level Alarm at 1.5 feet and resets at 4.0 feet. The optional light starts flashing and the horn sounds.

SIGNAL INPUT CONDITIONING

There are many applications in the industrial world that can't be satisfied with simple, two-point linear scaling so the Helios has advanced linearization capabilities to handle applications like round horizontal tank volume measurement, open channel flow, DP flow, and others. And all of these capabilities are easily programmed using MeterView Pro programming software.

32-Point Linearization

The most common way to linearize a non-linear signal is to break it up into smaller ranges that are more linear than the overall range. The Helios is available with up to 32 points of linearization and if dual scale feature is used, the second PV can have up to eight points of linearization. The linearization data can be imported from an Excel spreadsheet or can be exported from MeterView Pro to an Excel spreadsheet. The following screen shot from MeterView Pro shows PV1 with 9 points of linearization and PV 2 with 5 points of linearization:

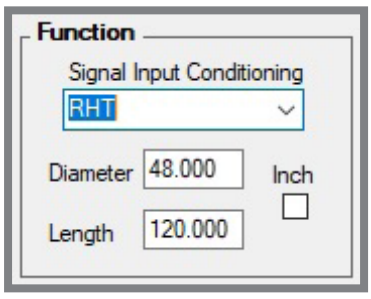


Scale values can also be imported from an Excel spreadsheet.

Specialized Linearization Functions

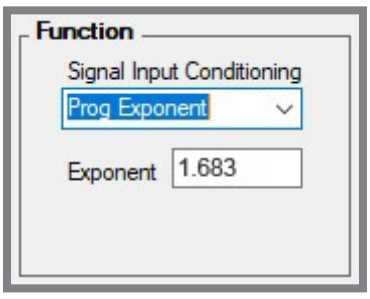
In addition to the generic 32- and 8-point linearization functions, the Helios is also available with specialized functions for round horizontal tanks, open channel flow, and DP flow.

Round Horizontal Tank



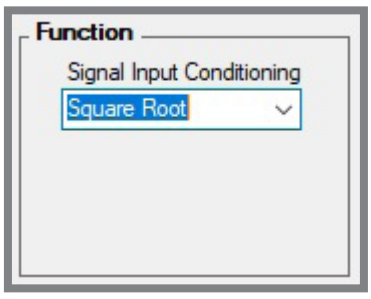
The user enters the diameter and length of a flat-ended round horizontal tank resulting in a display of volume.

Programmable Exponent



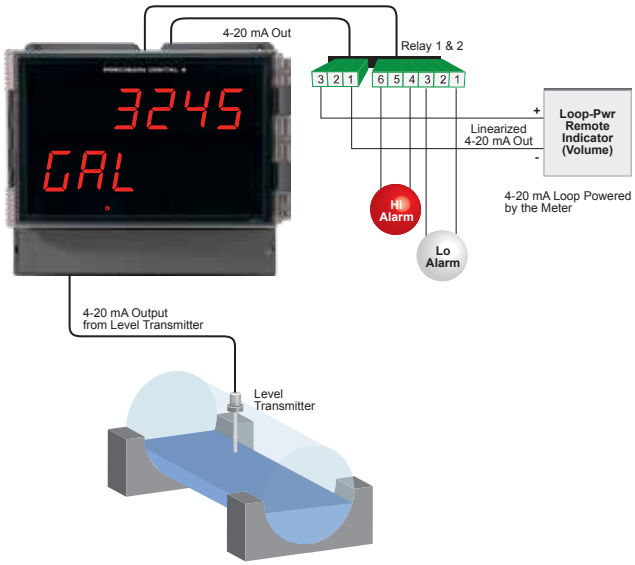
The input is raised to an exponent progrmmable by the user resulting in a display of open channel flow rate.

Square Root Extraction



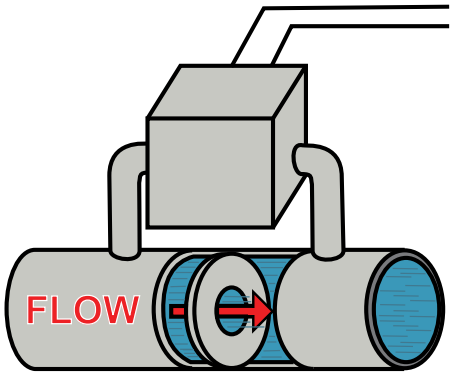
The square root of the input is taken resulting in a display of flow rate.

Round Horizontal Tank Volume Linearizer



In this application, a level sensor is measuring the height in the round horizontal tank and the Helios is converting that signal to volume using the RHT function. All the user has to do is input the diameter and length of the tank and the meter converts the signal to volume.

DP Flow via Square Root Extraction



In this application, the PD2-6000 is displaying flow rate by extracting the square root from the 4-20 mA signal from a differential pressure transmitter. The user selectable low-flow cutoff feature gives a reading of zero when the flow rate drops below a user selectable value.

Linear 4-20 mA Analog Output

For applications where the input was linearized by the Helios, the 4-20 mA output will represent that linearized value.

Open Channel Flow Rate Indication

In this application, a level sensor is measuring the height in a weir and the Helios is converting that signal to flow rate using the programmable exponent function. All the user has to do is input the corresponding exponent for their weir and the meter will convert the signal to flow.

The following information is required for programming the PD2-6000 for open channel flow rate:

1. The exponent value associated with the flow calculation for the specific weir or flume being used.
2. The zero head, or water depth, mA value from the level transmitter.
3. The mA value from the transmitter for the maximum head, and the flow rate at that level. The level transmitter is normally programmed to provide 20 mA at the maximum head value and flow rate.

Example:

A 120˚ V-notch weir flow formula for millions of gallons per day is shown below.

$MGD=2.798\ H^{2.5}$

The exponent component is 2.5.

The level transmitter has been programmed so that at zero head, when the water level is at the base of the V-notch, the output is 4 mA.

The level transmitter has been programmed so that at the top of the V-notch, at 2.00 ft, the output is 20 mA.[1]

The coefficient of the flow equation (2.798 in the above example), is not needed for programming the meter; the scaling function of the meter incorporates the coefficient and the head height automatically.

1. Isco Open Channel Flow Measurement Handbook, Sixth Edition, ed. Diane K. Walkowiak, M.A. (Teledyne Isco, Inc., 2006), 168-169.

DIGITAL COMMUNICATIONS

Modbus® RTU Serial Communications

With onboard RS-485 serial communication, the PD2-6000 can communicate with any Modbus *master* device using the popular Modbus communications protocol that is included in every Helios. In addition to the typical Modbus capabilities of reading PVs and writing set points, below are some examples of other things that can be done with the meter's Modbus communications:

- Send a 6-character message to the lower display upon an event
- Convert a digital value to a 4-20 mA signal
- Remote user control (i.e. change set points, acknowledge alarms)
- Input a Modbus digital PV (in place of analog input)
- Remote override of any or all relays and analog outputs

Modbus PV Input

Remote Message

Click here for more information on the Helios's Modbus capabilities

Additional Communication Modules

In addition to RS-485 communications which is a standard feature, the Helios is available with serial communications modules for RS-232 and USB.

PDA7485-I
RS-232 to
RS-422/485
Isolated Converter

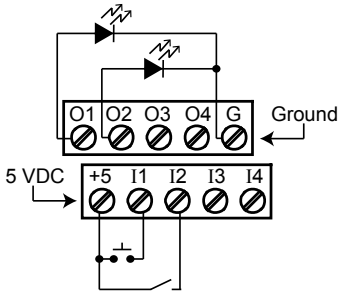
PDA8485-I
USB to
RS-422/485
Isolated Converter

For more info on serial converters click here.

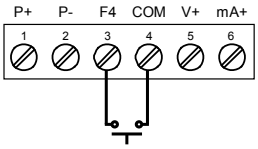
*All adapters and connectors supplied with appropriate cables.

ON-BOARD DIGITAL INPUTS AND OUTPUTS

The PD2-6000 includes five (5) digital inputs and four (4) digital outputs standard. Since the Helios is a large display meter it is often mounted in areas where it is not convenient to access the programming buttons. The digital inputs can be set up to mimic the four programming buttons on the Helios meter, thus making it possible to mount remote buttons for programming in a more convenient location. In addition, the digital inputs can also be used to reset the total, operate the tare feature, reset the tare, and more. The digital outputs can be used to drive alarming devices or as a means to communicate alarm conditions with a PLC.



4 Digital Inputs & 4 Digital Outputs



F4 Terminal for Digital Input

See page 18 for more details on what can be done with the digital inputs and outputs.

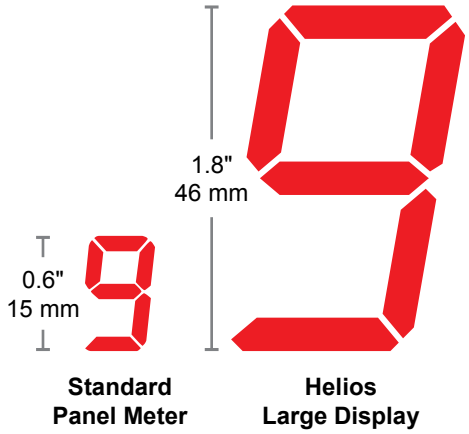
PHYSICAL FEATURES

The most striking physical feature of the Helios meter is its dual-line 6-digit display with 1.8" high super-bright LEDs. These allow the display to be read from up to 100 feet away, even in bright sunlight.

The Helios is designed for ease-of-use in industrial applications where it will be exposed to wet, dusty, hot, cold and other adverse conditions. The Helios is housed in a rugged NEMA 4X enclosure, can operate over a wide temperature range, includes removable screw terminal connectors, and is UL Listed for electrical safety. All of these features are backed by a 3-year warranty.

Super-Bright 1.8" High LED Display

The Helios features super-bright 1.8" high LEDs; three times the height of standard digital panel meters.

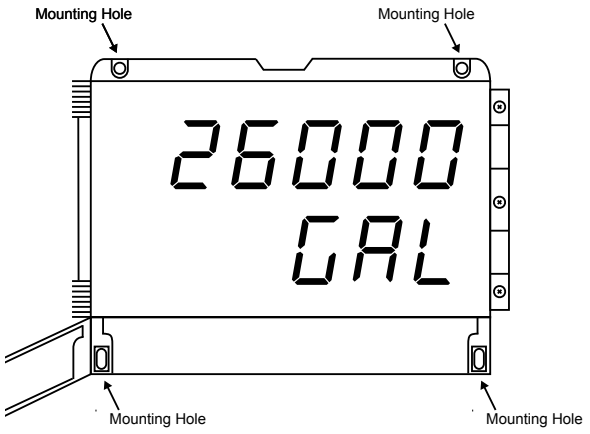


Type 4X / NEMA 4X Front Panel

Not only does the Helios's front panel UL Type 4X approval indicate it is waterproof, but it also indicates it is rugged. Part of the UL Type 4X test is to drop a 2 inch solid stainless steel ball from 8 feet on top of the meter's cover.

Integral Holes for Wall Mounting

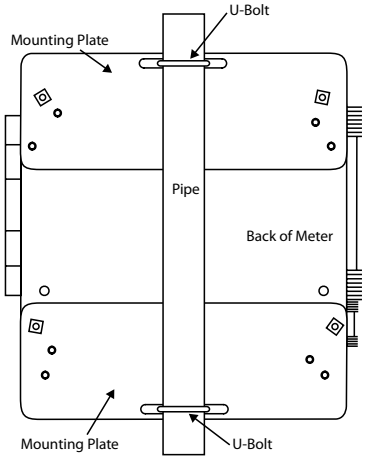
The Helios's back panel includes four holes for convenient wall mounting.



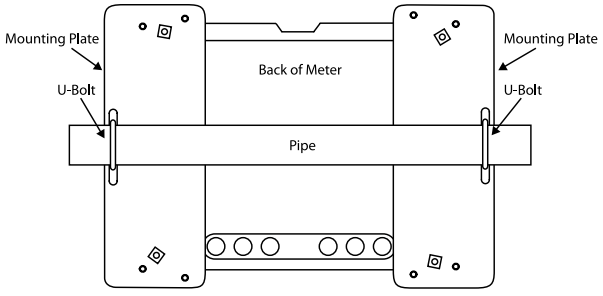
Integral Holes Locations

Pipe Mounting Kit

The meter can also be mounted to a pipe using the optional pipe mounting kit (PDA6260). This kit includes two mounting plates, two U-bolts, and the necessary nuts and bolts. *See PD2-6000 manual for instructions.*



Vertical Pipe Mounting



Horizontal Pipe Mounting

USB Port for Easy Connection to MeterView Pro Free Software

Wide Operating Temperature Range

The Helios can operate from -40 to 65°C (-40 to 150°F) meaning it can be installed in a wide variety of indoor and outdoor industrial applications. And over this range the Helios will drift no more than 0.005% of calibrated span/°C max from 0 to 65°C ambient and 0.01% of calibrated span/°C max from -40 to 0°C ambient.

Removable Screw Terminal Connectors

Industrial applications require screw terminal connections for easy field wiring and the Helios goes one step further in convenience by making them removable also.

UL Listing for Electrical Safety

UL & C-UL Listed: USA & Canada
UL 508 Industrial Control Equipment
UL File Number: E160849
Front Panel: UL Type 4X, NEMA 4X, IP65
Low Voltage Directive:
EN 61010-1:2010. Safety requirements for measurement, control, and laboratory use.

VIDEOS TO WATCH

Introduction to the Helios

Learn About the Large Display Version of the ProVu.

The Helios meter is very similar to the ProVu in features and functionality so the following videos might be of interest:

ProVu Series Overview

Learn About All the Meters in the ProVu Series!

ProVu Multi-Pump Alternation

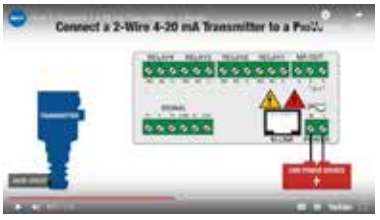
Learn How to Use the ProVu as a Pump Controller.

ProVu Function Keys

Learn How the ProVu's Function Keys Increase the Utility of the ProVu.

Connect a ProVu to a PC Using MeterView Pro

Learn How Easy it is to Use MeterView Pro Software.



Connect a 2-Wire 4-20 mA Transmitter to a ProVu

Learn How to Connect Your Transmitter to a ProVu.

OPERATIONAL FEATURES

Function Keys, F4 Terminal, Digital Inputs

There are two ways the user can interact with the Helios to perform a variety of useful functions:

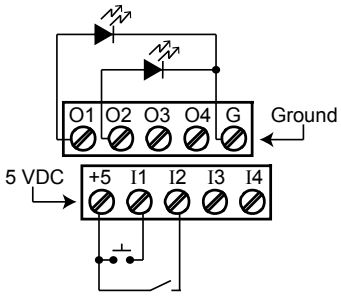
1. Three Function Keys Under the Front Cover

The default settings for the function keys are:

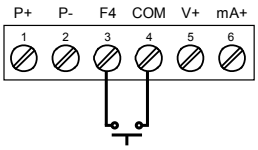
Reset Max/Min Reading | Display Max/Min Reading | Acknowledge Relays

2. Built-in Digital Inputs/Outputs

The Helios comes with five digital inputs and four digital outputs. The digital inputs can operate with the tare, reset tare, or interlock relays feature, force relays on from a signal from a PLC or relay on other equipment, and much more. The digital inputs can also be used to mimic the programming buttons, which are located behind a door and generally not accessible during operation. The digital outputs can be used to send signals to PLCs and other devices.



4 Digital Inputs & 4 Digital Outputs



F4 Terminal for Digital Input

The digital inputs are particularly useful for resetting the relays and a reset button is mounted on the Helios door when MOD-PD2LH is ordered:

Function Key, Digital Inputs, & Digital Outputs Descriptions

The following table describes the actions that Helios function keys and digital inputs can be programmed to perform. The table also describes how the digital outputs can be used to remotely monitor the Helios's alarm relay states, or the states of a variety of actions and functions executed by the meter.

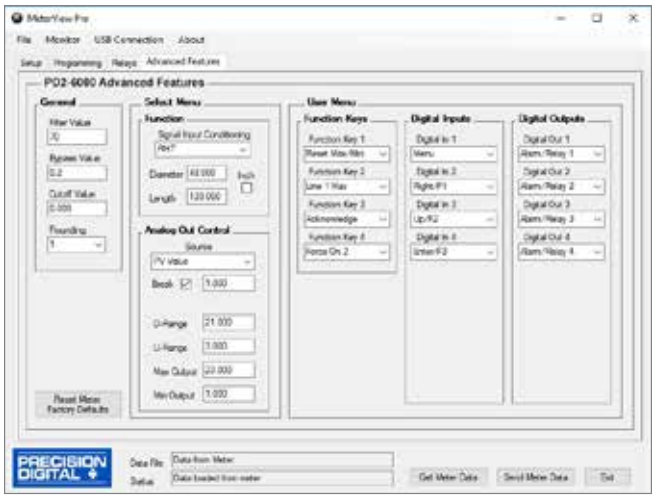
Display	Description	Item
rSt Hi	Reset the stored maximum display value	FK, DI, DO
rSt Lo	Reset the stored minimum display value	FK, DI, DO
rSt HL	Reset the stored maximum & minimum display values	FK, DI, DO
tArE	Capture tare and zero the display	FK, DI, DO
rSt tr	Reset captured tare and resume normal operation	FK, DI, DO
rELAY	Directly access the relay menu	FK, DI
SEt 1*	Directly access the set point menu for relay 1 (*through 8)	FK, DI
rLY d	Disable all relays until a button assigned to enable relays (rLY E) is pressed	FK, DI
rLY E	Enable all relays to function as they have been programmed	FK, DI
0 HoLd	Hold current relay states and analog output as they are until a button assigned to enable relays (rLY E) is pressed	FK, DI
d HoLd	Hold the current display value, relay states, and analog output momentarily while the function key or digital input is active. The process value will continue to be calculated in the background.	FK, DI
Ln1 Hi	Display maximum display value on line 1	FK, DI
Ln1 Lo	Display minimum display value on line 1	FK, DI
Ln1 HL	Display maximum & minimum display values on line 1	FK, DI
Ln2 Hi	Display maximum display value on line 2	FK, DI
Ln2 Lo	Display minimum display value on line 2	FK, DI
Ln2 HL	Display maximum & minimum display values on line 2	FK, DI
F On 1*	Force relay 1 (*through 4) into the on state. This is used in conjunction with a digital input expansion module to achieve interlock functionality.	FK, DI
ContrL	Directly access the control menu	FK, DI
diSAbL	Disable the selected function key or digital I/O	FK, DI
AcK	Acknowledge all active relays that are in a manual operation mode such as auto-manual or latching	FK, DI, DO
rESEt	Directly access the reset menu	FK, DI
mEnu	Mimic the menu button functionality (digital inputs only)	DI
rIGHt	Mimic the right arrow/F1 button functionality (digital inputs only)	DI
uP	Mimic the up arrow/F2 button functionality (digital inputs only)	DI
EntEr	Mimic the enter/F3 button functionality (digital inputs only)	DI
ALn1 1*	Provide indication when alarm 1 (*through 8) has been triggered (digital outputs only)	DO

FK: Function Keys DI: Digital Inputs DO: Digital Outputs

Watch video about the programmable function keys, digital inputs, and all the capabilities these features offer on the ProVu Series, which work similarly on the Helios.

Remote Operation of Front Panel Buttons

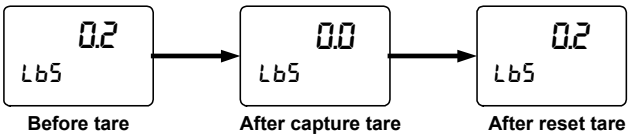
The Helios's programming buttons are located behind a door and generally not accessible during operation. Digital inputs are provided that can be wired to remote buttons to operate the programming buttons in a convenient location. MeterView Pro provides an easy way to do this programming:



Click here to watch the Function Keys video

Tare

The tare function zero's out the display. In the case of scale weight, tare is used to eliminate container weight and provide net weight readings. There are two tare functions; Capture Tare and Reset Tare. When the capture tare function is used, the display reading is offset by the displayed amount to make the displayed value zero. This modified display value is the net value. The originally displayed value without the tare offset is the gross value. Both may be chosen as a display option. Reset tare removes the display offset.



Before tare | After capture tare | After reset tare

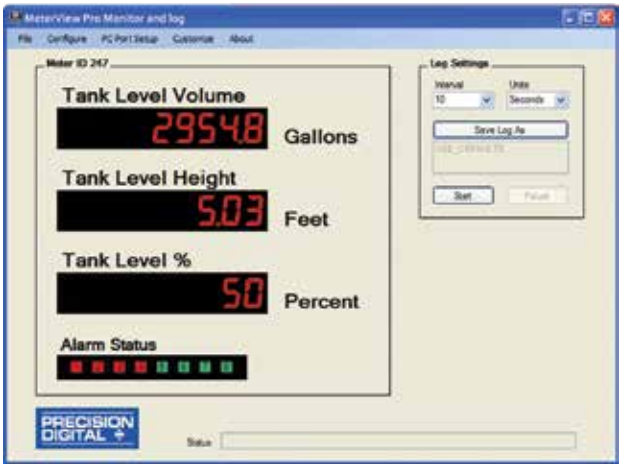
Reset tare removes the display offset of the net value, and the gross and net values become the same until a new capture tare is entered.

Max / Min Display

Max/Min (or Peak/Valley) is standard on the Helios PD2-6000. Either display can be configured to show either maximum or minimum excursion since last reset. The displays can also be configured to toggle between Max and Min values. Both values can be simply reset from the front panel.

MeterView Pro Monitoring & Datalogging Software

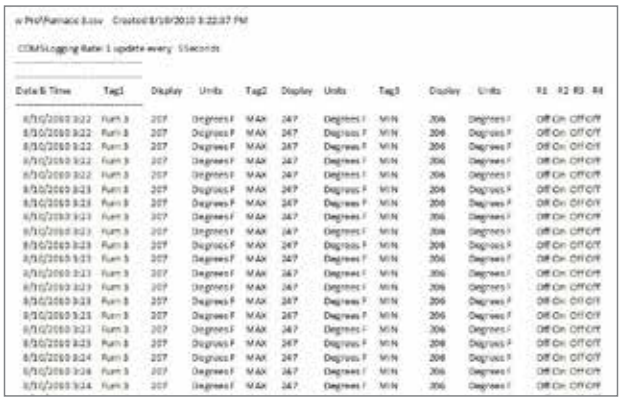
Not only does free MeterView Pro software greatly simplify setup and programming of the Helios, it can also be used to monitor and datalog your process.



- Custom Tags: i.e. Tank Level Volume
- Custom Units: i.e. Gallons, Feet, Percent
- Alarm Status Indicators

Datalog Report

Collected data logger information can be sent to a CSV file for importing into a spreadsheet program. Below is an example of one such file. Of course, once within the spreadsheet, much can be done to customize the data.



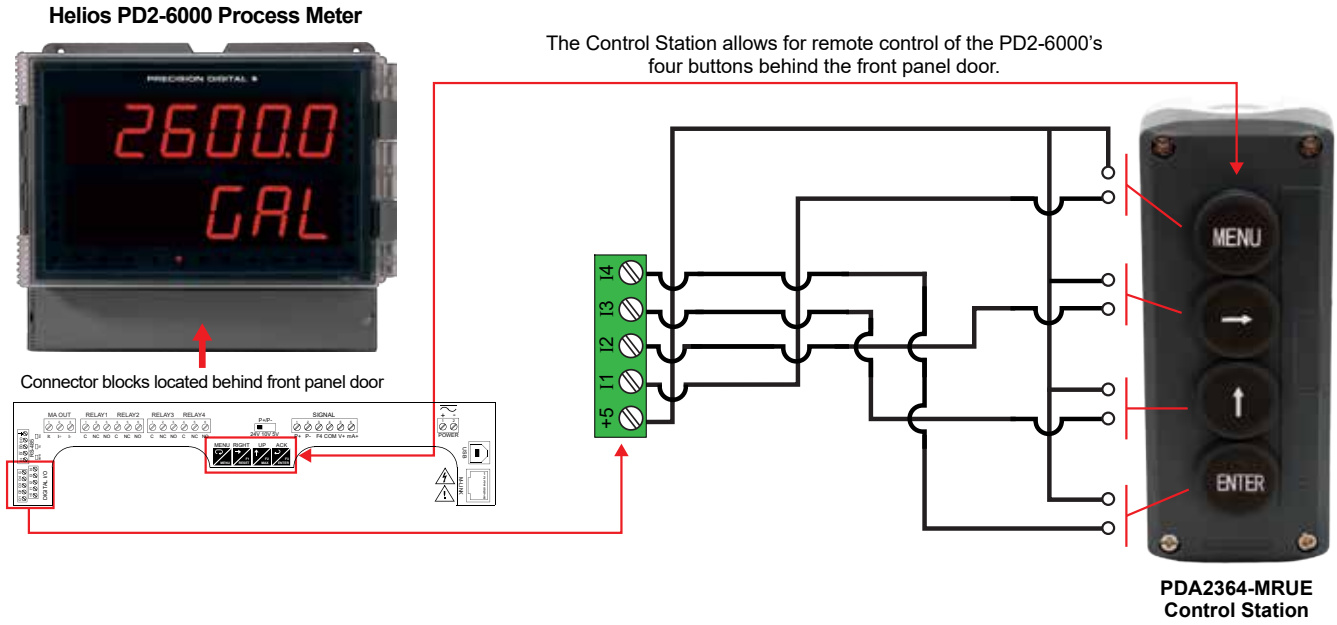
Relay Control

Relays can be controlled from MeterView Pro for testing purposes. This is commonly done to determine whether the relays are functioning properly. In the *Setup* window, under *Relay and Digital Out Test* you have the option of selecting the relays you want in an ON state or OFF state and also whether you want to leave the relays in manual control or to return them to automatic operation.

Click here to watch the Meterview Pro video

Four-Position Control Station for Remote Operation of Helios Buttons

The PD2-6000's four internal programming and operations buttons can be remotely controlled by using the PDA2364-MRUE 4-button control station accessory as shown in the diagram below.



Plastic Control Stations For The Helios PD2-6000

The PDA2360 series of plastic control stations provide a convenient way to remotely control devices such as Precision Digital's Helios PD2-6000. The PDA2364-MRUE four-position control station mimics the Helios' four buttons behind the front panel door: Menu, Right Arrow, Up Arrow, and Enter. The PDA2360-E is an emergency stop button, the PDA2361-A is used to acknowledge an alarm, and the PDA2361-Q is to silence an alarm.

PDA2364-MRUE

PDA2360-E

PDA2361-Q

PDA2361-A

- **Complete Pre-Assembled Stations**
- **Normally Open (NO) Spring Return Plastic Bezel Pushbuttons**
- **Trigger Action Turn to Release Pushbutton (PDA2360-E only)**
- **IP65 / NEMA 4, 4X and 13 Rated**
- **Four-Position Control Station for Remote Operation of Helios Buttons**
- **Wall Mountable**

PDA2360 Series Control Stations	
Model	**Description**
PDA2360-E	Emergency Stop Button
PDA2361-A	1 Black Ack Button
PDA2361-Q	1 Black Silence Button
PDA2364-MRUE	4 Black Buttons: Menu, Right, Up, Enter

LIGHT / HORN & RESET BUTTON MOUNTED TO HELIOS

Helios Meter Shown with MOD-PD2LH Light / Horn and Reset Button.

Meter and MOD-PD2LH are sold separately.

Overview

The Helios can be provided with an optional light(s) with built-in 85 dB horn that comes mounted and wired to the instrument or as separate items to be mounted as the user desires. Meter and MOD-PD2LH are sold separately. The light(s) and horn can be controlled independently of each other via separate relays on the Helios. These relays can be programmed for automatic or manual reset action to satisfy a wide variety of audible and visual alarm applications. The light can be programmed to flash (not available on MOD-PD2LH5CB1) or stay steady-on. The Light / Horn and Reset Button do not affect the Helios's NEMA 4X rating, but do void its UL approval. While there are many ways the Light / Horn can be wired and programmed, the following is the default wiring and programming from the factory:

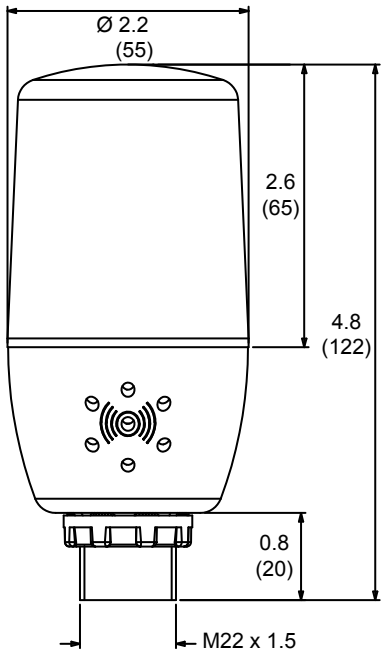
Relay #	Connected to	Default Reset Mode
1	Flashing Light(1)	Auto reset
2	Horn	Silence with Reset Button at any time
3	User Device	As user desires
4	User Device	As user desires

1. Light can be wired to flash or stay steady on.
2. See page 10 for additional ways the relays can be programmed

Note: The Light / Horn accessory is powered from the 200 mA transmitter power supply; so when it is installed, there is less power available for the transmitter. See MOD-PD2LH Light / Horn, Transmitter Power Supply specification on page 26 for details.

Dimensions

Units: Inches (mm)



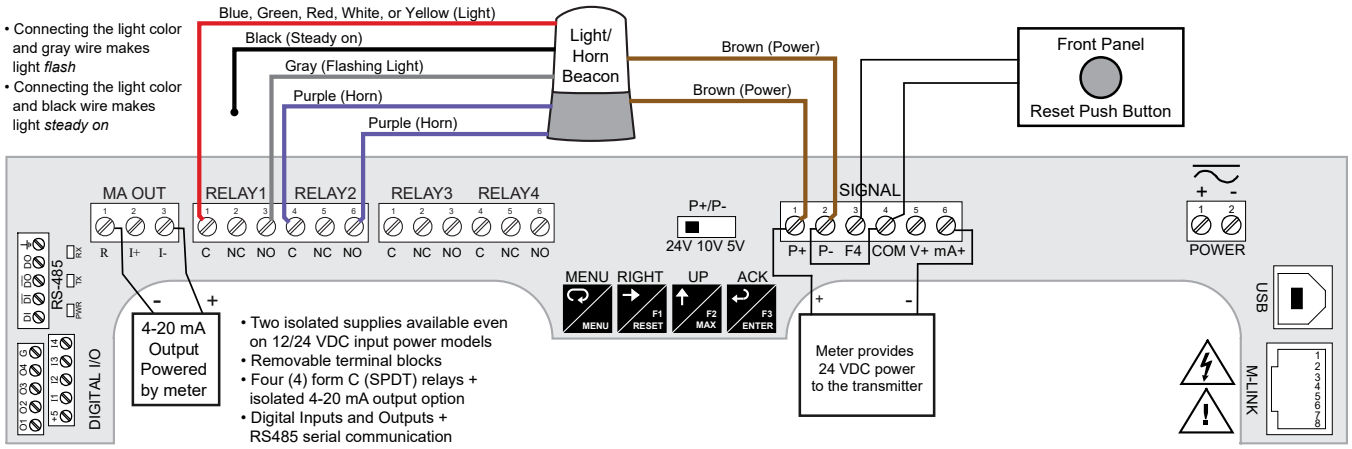
Click here to watch the Light / Horn Video

WIRING CONNECTIONS FOR MOD-PD2LH MODELS

The following diagrams are for MOD-PD2LH models with a single color light. See MOD-PD2LH manual for wiring connections for MOD-PD2LH5CB1 and MOD-PD2LH3CB1-RYG models.

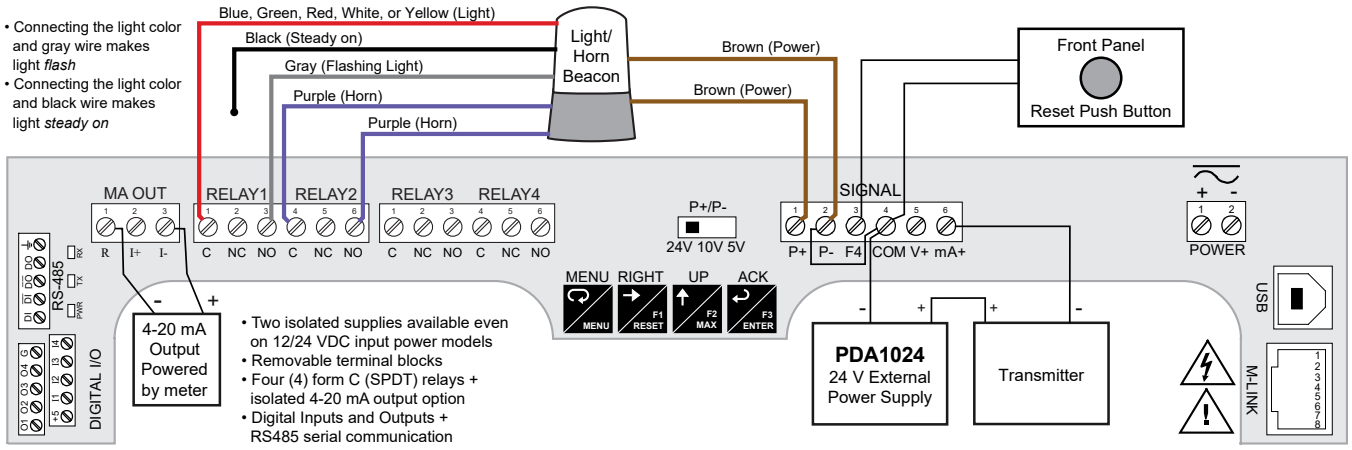
Using the Helios's Internal Power Supply

The Helios can be wired to power both the Light / Horn accessory as well as the transmitter input and isolated 4-20 mA output as the following diagram illustrates.



Using External Power Supply (PDA1024-01)

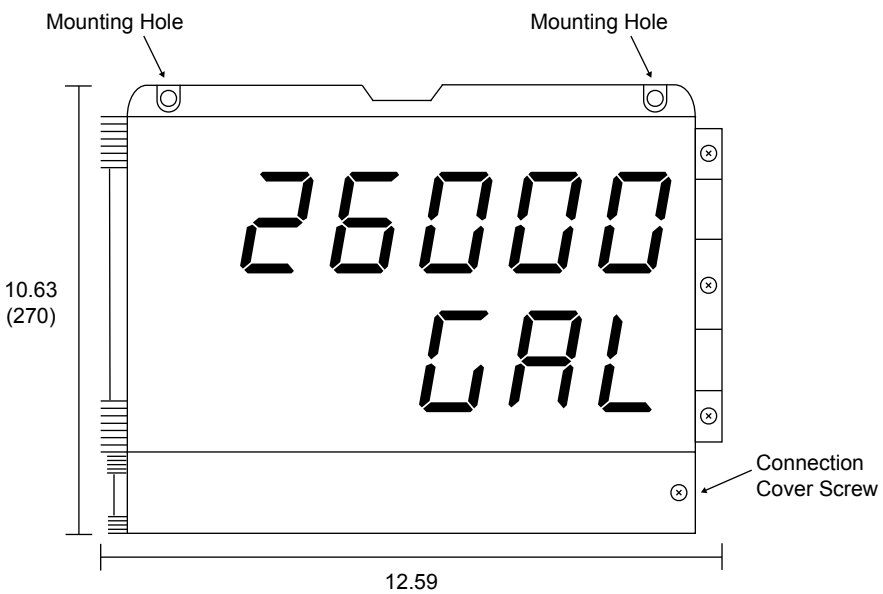
Transmitters and sensors that require additional power must be powered by an external power source, such as the PDA1024 as the following diagram illustrates.



DIMENSIONS

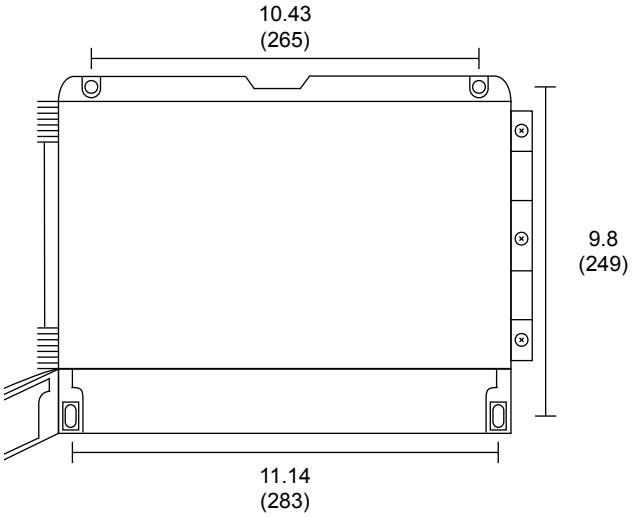
Units: Inches (mm)

Front and Side View

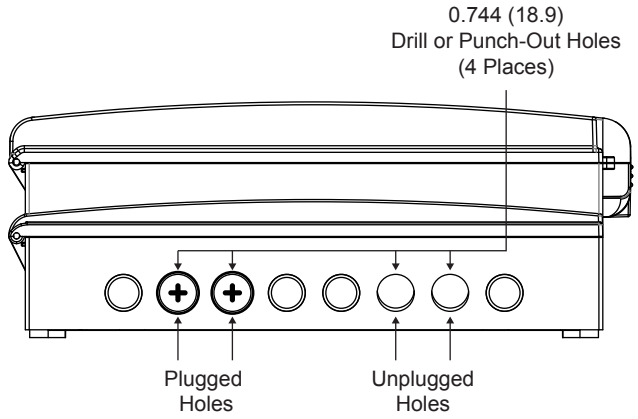


Front View **Side View**

Wall Mounting Holes Location

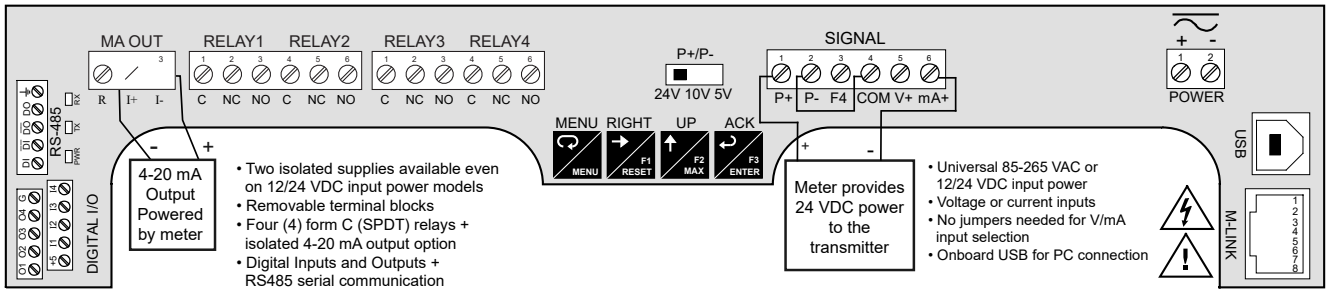


Conduit Holes Location



Bottom View

CONNECTIONS



Connector Labeling for Fully Loaded PD2-6000

Complete Product Line of Displays and Controllers

IN ALL SHAPES, SIZES & LOCATIONS

- Big, Bright Displays For Indoor or Outdoor in Bright Sunlight
- Large Dual-Line 6-Digit Display
- 24 VDC Transmitter Power Supply
- MeterView® Pro USB Programming Software
- Universal 85-265 VAC or 12-24 VDC Input Power Options
- 4-20 mA, 0-10 V, Thermocouple, RTD, Strain Gauge, High Voltage, & Modbus Inputs
- Up To Four 3 A Form C Relays (SPDT)

FM APPROVED CSA Ex CE IECEx

EXPLOSION-PROOF
ProtEX-MAX Series

- NEMA 4X, IP68 Rated Enclosure
- SafeTouch® Through-Glass Buttons
- Operating Temperature of -40 to 65°C
- Worldwide Approvals

LARGE DISPLAYS
Helios Series

- 1.8" Digits Readable From 100 Feet
- NEMA 4X, IP65 Rated Enclosure
- Operating Temperature of -40 to 65°C
- Now UL and C-UL Approved!

CE UL

PANEL METERS
ProVu Series

- NEMA 4X, IP65 Rated Front
- Programmable Function Keys
- UL, C-UL, and CE Approvals
- 1/8 DIN Size

Go to PREDIG.COM for details on ProVu, ProtEX-MAX and Helios Series Meters

SPECIFICATIONS

Except where noted all specifications apply to operation at +25°C.

General

Display: Two lines with 1.8" (46 mm) high digits, red LEDs; 6 digits per line (-99999 to 999999), with lead zero blanking
Display Intensity: Eight user selectable intensity levels
Display Update Rate: 5/second (200 ms)
Overrange: Display flashes 999999
Underrange: Display flashes -99999
Display Assignment: Line 1 and line 2 may be assigned to PV1, PV2, PCT, d r-u, d gross, d nt-g, max/min, max & min, set points, units (line 2 only), or Modbus input.
Programming Methods: Four programming buttons, digital inputs, PC and MeterView Pro software, Modbus registers, or cloning using Copy function.
F4 Digital Input Contacts: 3.3 VDC on contact. Connect normally open contacts across F4 to COM.
F4 Digital Input Logic Levels: Logic High: 3 to 5 VDC; Logic Low: 0 to 1.25 VDC
Noise Filter: Programmable from 2 to 199 (0 will disable filter)
Filter Bypass: Programmable from 0.1 to 99.9% of calibrated span
Recalibration: All ranges are calibrated at the factory. Recalibration is recommended at least every 12 months.
Max/Min Display: Max/min readings reached by the process are stored until reset by the user or until power to the meter is turned off.
Tare: Tare function zeros out the meter to accommodate for weight of a container. Tare function can be assigned to a function key, F4 terminal, or a digital input.
Password: Three programmable passwords restrict modification of programmed settings.
Non-Volatile Memory: All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.
Power Options: 85-265 VAC 50/60 Hz, 90-265 VDC, 20 W max or 12-24 VDC ± 10%, 15 W max. Powered over USB for configuration only.
Fuse: Required external fuse: UL Recognized, 5 A max, slow blow; up to 6 meters may share one 5 A fuse
Normal Mode Rejection: Greater than 60 dB at 50/60 Hz
Isolation: 4 kV input/output-to-power line; 500 V input-to-output or output-to-P+ supply
Overvoltage Category: Installation Overvoltage Category II: Local level with smaller transient overvoltages than Installation Overvoltage Category III.
Environmental: Operating temperature range: -40 to 65°C; Storage temperature range: -40 to 85°C; Relative humidity: 0 to 90% non-condensing
Connections: Removable and integrated screw terminal blocks accept 12 to 22 AWG wire.
Enclosure: UL Type 4X, IP65 rated. Polycarbonate & glass blended plastic case, color: gray. Includes four PG11 through-hole conduit openings, with two factory installed PG11, IP68, black nylon threaded hole plugs with backing nuts.
Wall Mounting: Four (4) mounting holes provided for screwing meter into wall.
Pipe Mounting: Optional pipe mounting kit (PDA6260) allows for pipe mounting.
Tightening Torque: *Removable Screw Terminals:* 5 lb-in (0.56 Nm); *Digital I/O and RS-485 Terminals:* 2.2 lb-in (0.25 Nm)
Overall Dimensions: 10.63" x 12.59" x 4.77"
(270 mm x 319.7 mm x 121.2 mm) (W x H x D)
Weight: 6.10 lbs (2.76 kg)
UL File Number: UL & C-UL Listed. E160849; 508 Industrial Control Equipment.
Note: Instruments with the Light / Horn accessory installed are not marked as UL & C-UL.
Warranty: 3 years parts & labor

Process Input

Inputs: Field selectable: 0-20, 4-20 mA, ±10 V (0-5, 1-5, 0-10 V), Modbus PV (slave)
Isolated Transmitter Power Supply: Terminals P+ & P-: 24 VDC ± 10%. All models selectable for 24, 10, or 5 VDC supply (internal jumper J4). 85-265 VAC models rated @ 200 mA max, 12-24 VDC powered models rated @ 100 mA max. 5 & 10 VDC supply rated @ 50 mA max. When the Light / Horn is powered by the transmitter power supply, see MOD-PD2LH Light / Horn's transmitter power supply specification on page 26 for additional details. Light / Horn power not available for 5 or 10 VDC supplies.
Accuracy: ±0.03% of calibrated span ±1 count, square root & programmable exponent accuracy; range: 10-100% of calibrated span
Temperature Drift: 0.005% of calibrated span/°C max from 0 to 65°C ambient, 0.01% of calibrated span/°C max from -40 to 0°C ambient
Signal Input Conditioning: Linear, square root, programmable exponent, or round horizontal tank volume calculation
Multi-Point Linearization: 2 to 32 points for PV or PV1; 2 to 8 points for PV2 (Dual-scale Level feature)
Programmable Exponent: 1.0001 to 2.9999
Round Horizontal Tank: Diameter & Length: 999.999 inch or cm calculates volume in gallons or liters respectively.
Low-Flow Cutoff: 0-999999 (0 disables cutoff function)
Decimal Point: Up to five decimal places or none: *d.ddddd*, *d.dddd*, *d.ddd*, *d.dd*, *d.d*, or *ddddd*
Calibration Range: 4-20 mA: minimum span input 1 & input 2: 0.15 mA. ±10 V: minimum span input 1 & 2: 0.01 V. An Error message will appear if input 1 and input 2 signals are too close together.
Input Impedance: Voltage ranges: greater than 500 kΩ; Current ranges: 50 - 100 Ω (depending on resettable fuse impedance)
Input Overload: Current input protected by resettable fuse, 30 VDC max. Fuse resets automatically after fault is removed.

Relays

Rating: Four (4) SPDT (Form C) internal; rated 3 A @ 30 VDC and 125/250 VAC resistive load; 1/14 HP (≈ 50 W) @ 125/250 VAC for inductive loads
Noise Suppression: Noise suppression is recommended for each relay contact switching inductive loads; see page 18 for details.
Deadband: 0-100% of span, user programmable
High Or Low Alarm: User may program any alarm for high or low trip point. Unused alarm LEDs and relays may be disabled (turn off).
Relay Operation: automatic (non-latching), latching (requires manual acknowledge) with/without clear, sampling (based on time), pump alternation control (2 to 8 relays), Off (disable unused relays and enable interlock feature, manual on/off control mode).
Relay Reset:
User selectable via buttons behind front panel or digital inputs
1. Automatic reset only (non-latching), when input passes the reset point.
2. Automatic + manual reset at any time (non-latching).
3. Manual reset only, at any time (latching).
4. Manual reset only after alarm condition has cleared (latching).

Note: button behind fornt panel or digital input may be assigned to acknowledge relays programmed for manual reset.
Time Delay: 0 to 999.9 seconds, on & off relay time delays; Programmable and independent for each relay
Fail-Safe Operation: Programmable and independent for each relay.
Note: Relay coil is energized in non-alarm condition. In case of power failure, relay will go to alarm state.
Auto Initialization: When power is applied to the meter, relays will reflect the state of the input to the meter.

Isolated 4-20 mA Transmitter Output

Output Source: Process variable (PV), max, min, set points 1-4, Modbus input, or manual control mode
Scaling Range: 1.000 to 23.000 mA for any display range
Calibration: Factory calibrated: 4.000 to 20.000 = 4-20 mA output
Analog Output Programming: 23.000 mA maximum for all parameters: Overrange, underrange, max, min, and break
Accuracy: ± 0.1% of span ± 0.004 mA
Temperature Drift: 0.4 µA/°C max from 0 to 65°C ambient, 0.8 µA/°C max from -40 to 0°C ambient.
Note: Analog output drift is separate from input drift.
Isolated Transmitter Power Supply: Terminals I+ & R: 24 VDC ± 10%. Isolated from the input at >500 V. May be used to power the 4-20 mA output or other devices. All models rated @ 40 mA max.
External Loop Power Supply: 35 VDC maximum
Output Loop Resistance: For a 24 VDC power supply: 10 Ω minimum and 700 Ω maximum; for a 35 VDC power supply (external): 100 Ω minimum and 1200 Ω maximum.

USB Connection:

Compatibility: USB 2.0 Standard, Compliant
Connector Type: Micro-B receptacle
Cable: USB A Male to Micro-B Cable
Driver: Microsoft® Windows® XP/Vista/7/8/10
Power: USB Port

Serial Communications

Protocol: Modbus® RTU
Meter Address/Slave ID: 1 - 247
Baud Rate: 300 - 19,200 bps
Transmit Time Delay: Programmable between 0 and 199 ms
Data: 8 bit (1 start bit, 1 or 2 stop bits)
Parity: Even, odd, or none with 1 or 2 stop bits
Byte-to-Byte Timeout: 0.01 - 2.54 seconds
Turn Around Delay: Less than 2 ms (fixed)
Note: Refer to the Modbus Register Tables located at www.predig.com for details.

Digital Input & Output Terminal

Channels: 4 digital inputs & 4 digital outputs
Digital Input Logic High: 3 to 5 VDC
Digital Input Logic Low: 0 to 1.25 VDC
Digital Output Logic High: 3.1 to 3.3 VDC
Digital Output Logic Low: 0 to 0.4 VDC
Source Current: 10 mA maximum output current
Sink Current: 1.5 mA minimum input current
+5 V Terminal: To be used as pull-up for digital inputs only. Connect normally open pushbuttons across +5 V & DI 1-4.
WARNING: DO NOT use +5 V terminal to power external devices.

MOD-PD2LH Light / Horn

Light Colors:
MOD-PD2LHRB1: Red
MOD-PD2LHGB1: Green
MOD-PD2LHYB1: Yellow
MOD-PD2LHBB1: Blue
MOD-PD2LHWB1: White
MOD-PD2LH5CB1: User selectable: red, green, yellow, blue, white
MOD-PD2LH3CB1-RYG: 1 layer each of red, yellow, green (consult factory for other colors available)
Light Action: Can be wired to flash (not available on MOD-PD2LH5CB1) or stay steady on
Horn: 85 dB
Rating: IP 65
Light / Horn Independence: Light and horn can be controlled via separate relays
Power Requirement: No additional power required when wired to a Helios meter. When mounted remote: 24 VDC
Transmitter Power Supply: The Helios' internal transmitter power supply is capable of supplying 200 mA to power the transmitter and other devices such as the Light / Horn. The following table illustrates how much of this power is required to drive various Light / Horns. If more power is needed, then consider the PDA1024-01.

MOD-PD2LH and MOD-PD2LH5CB1 Models:

Color	Power Required	Color	Power Required
Red	17 mA	Blue	15 mA
Green	15 mA	White	42 mA
Yellow	23 mA	Horn	20 mA

Example: 17 mA (Red Light) + 20 mA (Horn) = 37 mA total current needed from the 200 mA supply. Available current = 163 mA

MOD-PD2LH3LCB1-RYG:
Power Requirement for the horn and each color that is turned on:

Color	Power Required	Color	Power Required
Red	34 mA	Yellow	33 mA
Green	29 mA	Horn	38 mA

Example: 33 mA (Yellow Light) + 38 mA (Horn) = 71 mA total current needed from the 200 mA supply. Available current = 139 mA

Reset / Silence Button: NEMA 4X; mounted on door and wired to F4 terminal.

Reset Button Labels: The Light / Horn accessory comes with 9 pre-printed message labels the user can affix under the red button: RESET, BATCH, ACK, TARE, SILENCE, STOP, START, PAUSE, START/STOP
Light / Horn Mounting Connection: M22
Hole Sizes: Light / Horn: 0.875" (22 mm);
Reset Button: 0.630" (16 mm)
Cable Length: 3.28 feet (1 meter)
Operating Temperature Range: -5 to 40°C (23 to 104°F)

PD2-6000 Large Display Dual-Line 6-Digit Process Meter

ORDERING INFORMATION

PD2-6000 • Standard Models		
85-265 VAC Model	**12-24 VDC Model**	**Options Installed**
PD2-6000-6H0	PD2-6000-7H0	No Options
PD2-6000-6H7	PD2-6000-7H7	4 Relays & 4-20 mA Output
Note: 24 V Transmitter power supply standard on all models.		

Accessories	
Model	**Description**
MOD-PD2LHRB1	Red(2) Light / Horn / 1 Reset Button Mounted & Wired to Helios(1)
PDA-BUTTON1R	Reset Button
PDA-LHR	Red(2) Light / Horn
PDA1024-01	24 VDC Transmitter Power Supply
PDA1002	6" DIN Rail Mounting Kit
PDA6260	Pipe Mounting Kit
PDA7485-I	RS-232 to RS-422/485 Isolated Converter
PDA8485-I	USB to RS-422/485 Isolated Converter
PDAPLUG2	Plastic Conduit Plug
PDX6901	Suppressor (snubber): 0.01 µF/470 Ω, 250 VAC

1. Instruments supplied with MOD-PD2LH will not include UL or C-UL marking and the transmitter power supply has less than 200 mA to power the transmitter when it is also powering the Light / Horn. See Transmitter Power Supply specification on MOD-PD2LH manual for details.
2. For other light color options see the MOD-PD2LH manual (LIMMODPD2LH).

PDA2360 Series Control Stations	
Model	**Description**
PDA2360-E	Emergency Stop Button
PDA2361-A	1 Black Ack Button
PDA2361-Q	1 Black Silence Button
PDA2364-MRUE	4 Black Buttons: Menu, Right, Up, Enter

Your Local Distributor is:

NATIONWIDE OIL & GAS

46, Jalan SS 22/21, Damansara Jaya,
47400 Petaling Jaya,
Selangor Darul Ehsan, Malaysia.

Email: nog@nog.com.my
Web access: http://www.nog.com.my

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