OPERATING INSTRUCTIONS

PDFLO™ PDTX4
POSITIVE DISPLACEMENT FLOW TRANSMITTER

INTRODUCTION

The PDFlo™ PDTX4 is a four-wire, meter mounted digital flow transmitter that is compatible with most PDFlo flow meters. A large, back-lighted LCD graphic display provides an easy to read indication of flow rate or total in user programmable engineering units. To change any key functions, simply use the magnet that is attached. No opening of the enclosure is required. To prevent the magnet from entering the programming mode inadvertently, an on board jumper controls ability to allow programming via external magnet. An isolated input also allows for remote rest of the totalizer. A 4-20 mA rate ouput with user programmable filtering and scaling is also provided for remote indication.

SAFETY INFORMATION

Do not attempt to install or use your PDFlo Gear Meters product until you have read the safety instructions in this section. Save this manual and keep it in an easily accessible place.

WARNING means that failure to follow this safety statement may result in extensive product damage, serious personal injury, or death.

CAUTION means that failure to follow this safety statement may result in minor or moderate personal injury, property or equipment damage.

NOTICE is a statement that informs about installation, operation, maintenance, performance issues, or general tips that are important but do not create a hazard or safety concern.

UNPACKING
Separate the Flow Transmitter from packaging materials and check for any visual signs of damage. If you determine there are damages caused by shipping, file a claim with the shipping company. If the flow transmitter appears to have been improperly assembled or does not operate properly, return it for replacement or repair.

CAUTION: Before connecting, programming, or operating the PDFlo Flow Transmitter, read this manual.

MODEL NUMBER BUILDER

FLO-CORP MODEL NUMBER BUILDER

For Assistance Call **877.356.5463**

Use the diagram below, working from left to right to construct your FLO-CORP Model Number.
Simply match the category number to the corresponding box number.

Example: PDTX4-A-N-N4

PDFlo PDTX4 4-Wire meter mounted flow transmitter with standard unit, 24VDC, 4-20mA configuration, no communication and NEMA 4X enclosure

PDTX4 – □ – □ – □□

PDTX4

Configuration (1)
- **A)** Standard Unit, 24 VDC, 4-20 mA
- **C)** High Temperature Pick-Up (Stainless PDFlo Meters Only)

Communication
- **N)** None
- **H)** HART

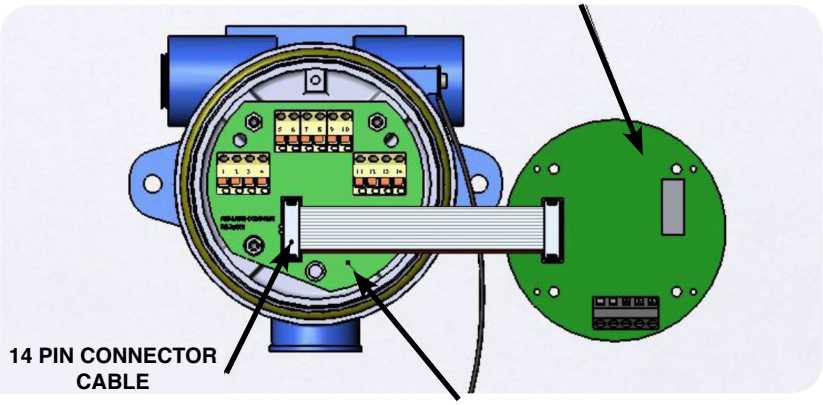
Enclosure
- **N4)** NEMA 4X General Purpose
- **N7)** NEMA 7 Explosion Proof

Ordering Notes:
(1) Select the best configuration based on your requirements.

CONNECTIONS

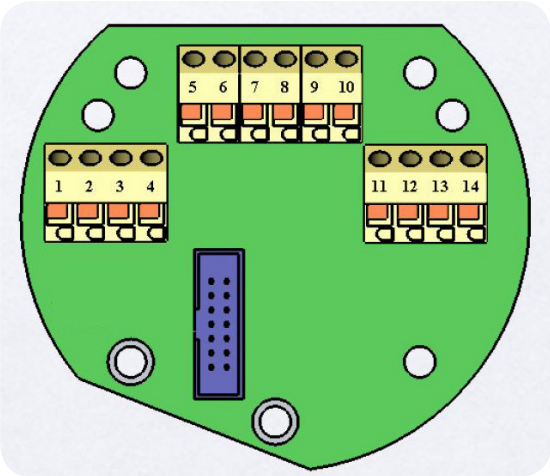
On dual access enclosure versions, the hook-up board can be accessed by removing the blind cover.
To get access to the hook-up board on the single access enclosure models, first remove the cover and loosen the 4 stainless steel screws visible through the face plate. Note that the screws are captured on the back side of the main display board and will not fall out. Carefully remove the main display board. The hook-up board is located at the bottom of the enclosure as shown below.

MAIN DISPLAY BOARD
REAR VIEW



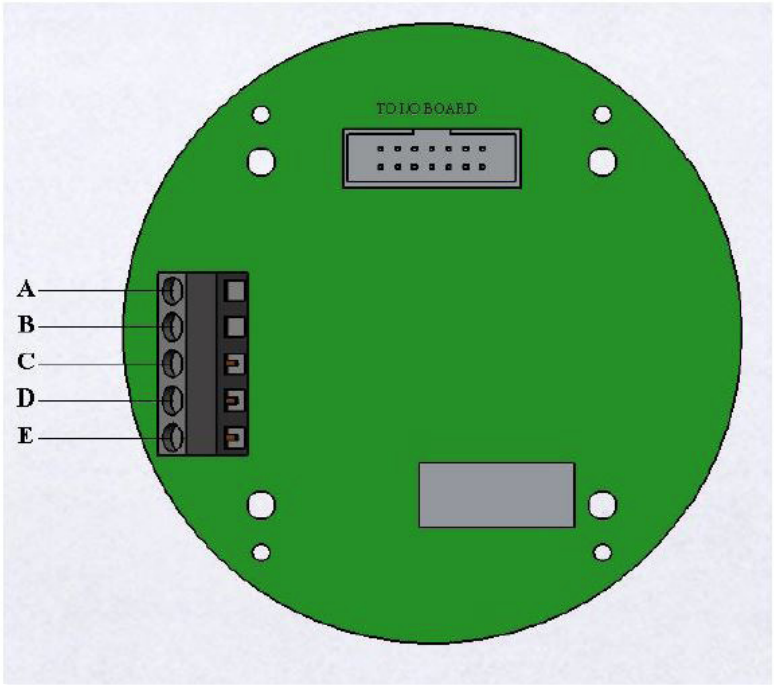
HOOKUP BOARD

HOOKUP BOARD CONNECTION DIAGRAM



Maximum wire gauge: 16 AWG
Pin 1: (+) Reset
Pin 2: (-) Reset
Pin 3: (+) Frequency Out
Pin 4: (-) Frequency Out
Pin 5: (+) Supply Voltage
Pin 6: (-) Supply Voltage / Ground (Supply may be floating or jumpered to housing ground, if needed, for noise reduction.)
Pin 7: Housing Ground
Pin 8: +Vcc
Pin 9: mA Loop Connection See
Pin 10: mA Loop Connection
Pin 11: (+) Limit 1
Pin 12: (-) Limit 1
Pin 13: (+) Limit 2
Pin 14: (-) Limit 2

MAIN BOARD LAYOUT MAXIMUM WIRE GAUGE: 12 AWG



Pin A: Magnetic Coil input
Pin B: Magnetic Coil input
Pin C: Ground
Pin D: High level pulse Input
Pin E: (+) 12Vdc Output for sensor supply

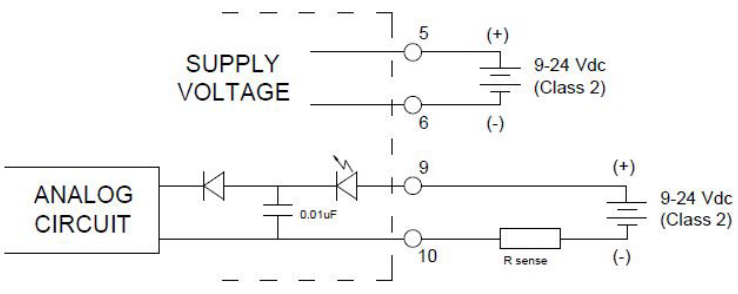
MAIN DISPLAY BOARD
REAR VIEW

ANALOG OUTPUT

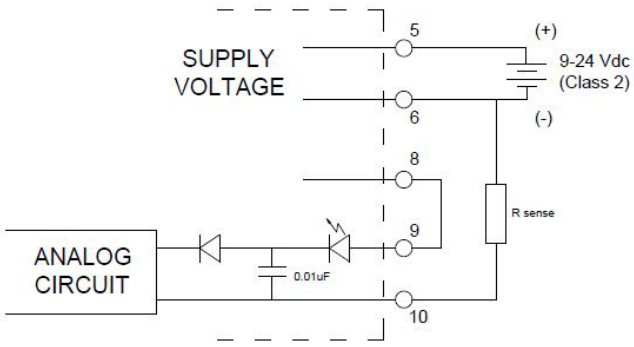
The isolated 16-bit 4-20mA output can be wired for use with Loop powered inputs or for ground referenced inputs. The analog signal has an LED in series which varies in intensity as the mA signal varies. This can be used for troubleshooting purposes.

When using the analog signal with inputs used with loop powered signals, it is important to note that the PDFlo Transmitter still requires a separate power supply to power the unit as shown below.

Loop powered analog output



Ground referenced analog output

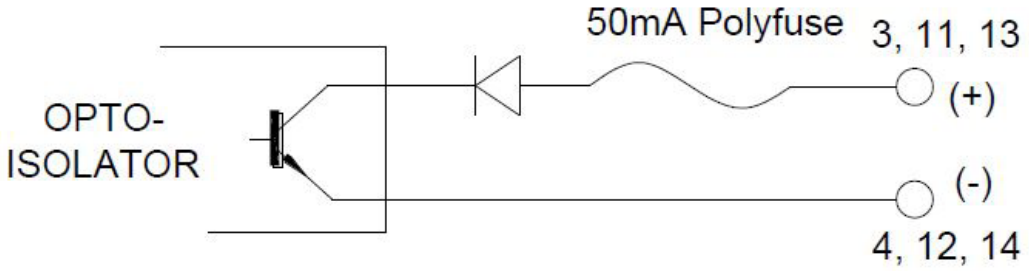


When using the analog signal with ground referenced inputs, jumper pins 8 and 9 together as shown above. Analog signal is taken from pin 10 and returns to pin 6 (supply ground).

LIMIT & FREQUENCY OUTPUT

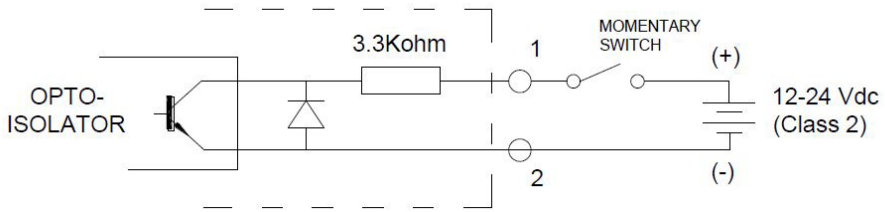
Three opto-isolated NPN open-collector outputs can sink or source depending on connection. Attention must be paid to polarity of connections.

Limit 1, Limit 2 & Frequency Outputs



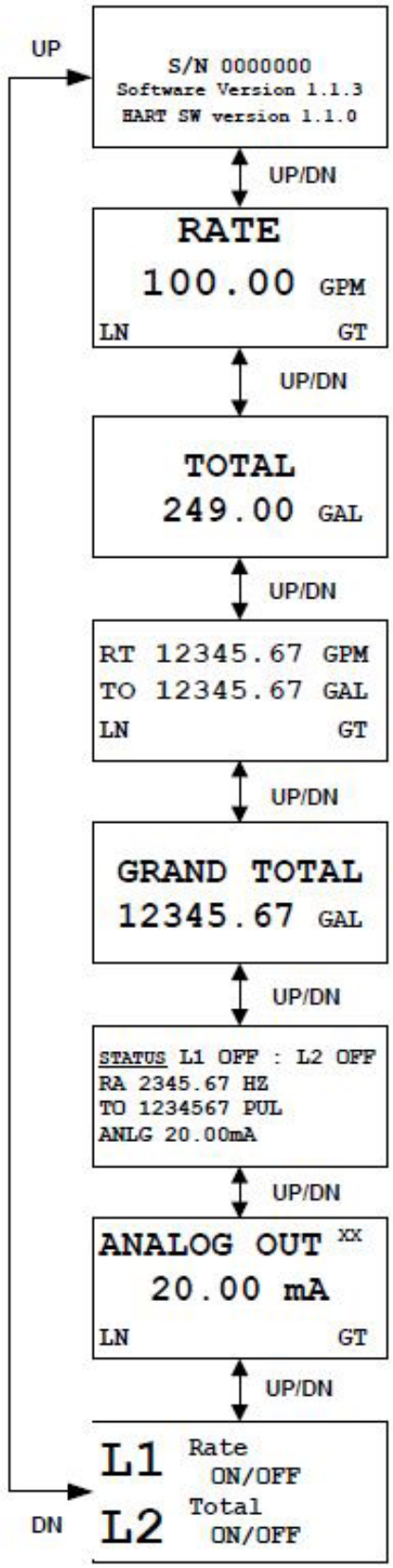
RESET INPUT

Opto-isolated external reset input will trigger the transmitter to reset the totalizer when the input sees a momentary transition from low (ground) to high.



RUN MODE SCREENS

The run mode screens, as shown below, can be accessed by using the UP and DN buttons or using the attached magnet wand to activate internal hall switches.



Logo screen shows critical information on Transmitter firmware version.

RATE screen shows active flow rate information in programmed engineering units.

TOTAL screen shows totalized volume in programmed engineering units.

RT/TO screen shows both the flow rate and total values in programmed engineering units.

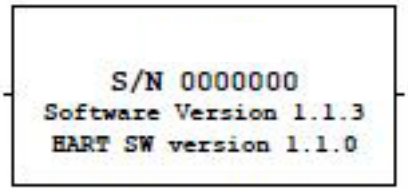
GRAND TOTAL screen shows totalized volume in programmed engineering units and is not affected if TOTAL is reset.

STATUS screen shows data summary. Flow and total are in un-scaled units of Hertz for flow and Pulses for total.

ANALOG OUT screen shows the mA value the RT-30EX is outputting.

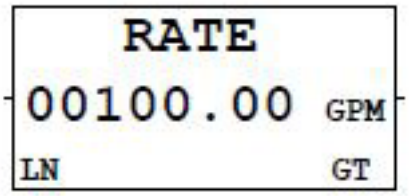
L1/L2 screen shows information for Limit outputs.

LOGO SCREEN



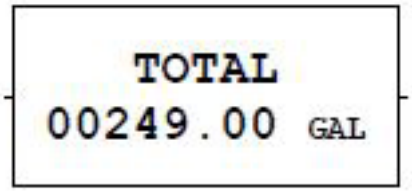
The LOGO screen shows 3 or 4 lines of important data for the display unit which is needed if contacting the factory for support issues.
1. Line 1 shows the basic model name.
2. Line 2 shows the unique serial number of the unit.
3. Line 3 shows the firmware version of the unit.

RATE SCREEN



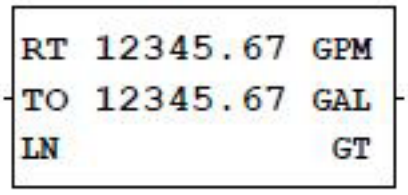
The RATE screen displays the flow rate in the programmed engineering units. If the linearizer is active, 'LN' shows in lower left corner. If the Gate Time filter is active, 'GT' shows in lower right corner.

TOTAL SCREEN



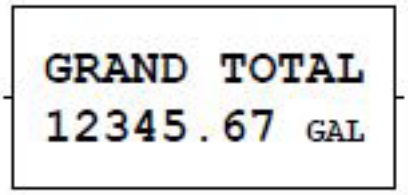
The TOTAL screen displays the flow total in programmed engineering units. Pressing the RESET button resets the value back to zero (0). The Total can also be reset remotely by connecting a momentary voltage to the external RESET pin.

RATE / TOTAL SCREEN



The RT/TO screen shows both the flow rate and total values in programmed engineering units. If the linearizer is active, 'LN' shows in lower left corner. If the Gate Time filter is active, 'GT' shows in lower right corner. Pressing the RESET button resets the total value back to zero (0). The Total can also be reset remotely by connecting a momentary voltage to the external RESET pin.

GRAND TOTAL SCREEN

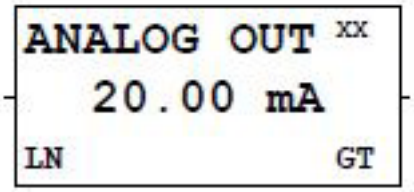


The GRAND TOTAL screen displays the flow total in programmed engineering units. The GRAND TOTAL value does not reset when the TOTAL value is reset and is therefore often used to collect a day total in batch applications. To reset the GRAND TOTAL a password is required. The password is 53126. This password cannot be changed.

STATUS SCREEN

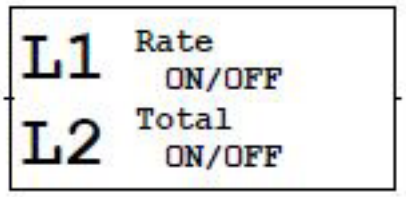
The STATUS screen shows multiple values and is used more as a summary screen, especially if trouble shooting a system. The following values are shown:
1. The output state of Limit 1 and Limit 2
2. The flow rate in un-scaled units of Hertz (frequency).
NOTE: The Gate Time filter and linearizer, if active, do not affect the flow rate value in the STATUS screen. This is the raw incoming frequency.
3. The total value in un-scaled units of Pulses.
4. The analog output in milliamps (mA).
NOTE: Because the mA value is an actual signal output, it is affected by the Gate Time and linearizer, if activated.

ANALOG OUT SCREEN



The ANALOG OUT screen shows the mA value the transmitter is outputting. The 2 letters in the upper right corner indicate what variable the mA output has been assigned to represent.
1. FX – Fixed mA output
2. RA – mA output is scaled to represent the RATE value
3. TO – mA output is scaled to represent the TOTAL value
4. GR – mA output is scaled to represent the GRAND TOTAL value
If the linearizer is active, 'LN' shows in lower left corner. If the Gate Time filter is active, 'GT' shows in lower right corner.

LIMIT SCREEN



The L1/L2 screen shows what the Limits are programmed to represent and the state of the output.
The first line of each limit represents what the Limit is programmed for:
1. OFF – Limit output has been turned off.
2. Frequency – The Limit outputs the incoming frequency
3. Rate – The Limit output will change state when the flow rate reaches the programmed value
4. Total – The Limit output will change when the TOTAL reaches the programmed value
5. Grand Total - The Limit output will change when the GRAND TOTAL reaches the programmed value
The second line of each limit represents the actual state of the output pin(s)

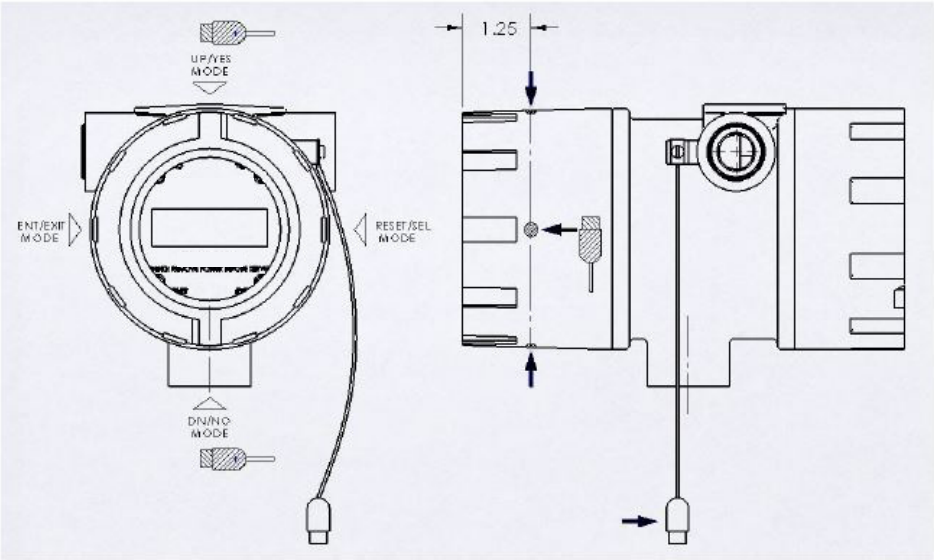
CONTROL FUNCTIONS

There are two methods that can be used to scroll through screens or make changes within programming modes. If in a safe area with the front cover removed, the 4 push buttons showing through the front face plate can be used with the button function as shown on the face plate.

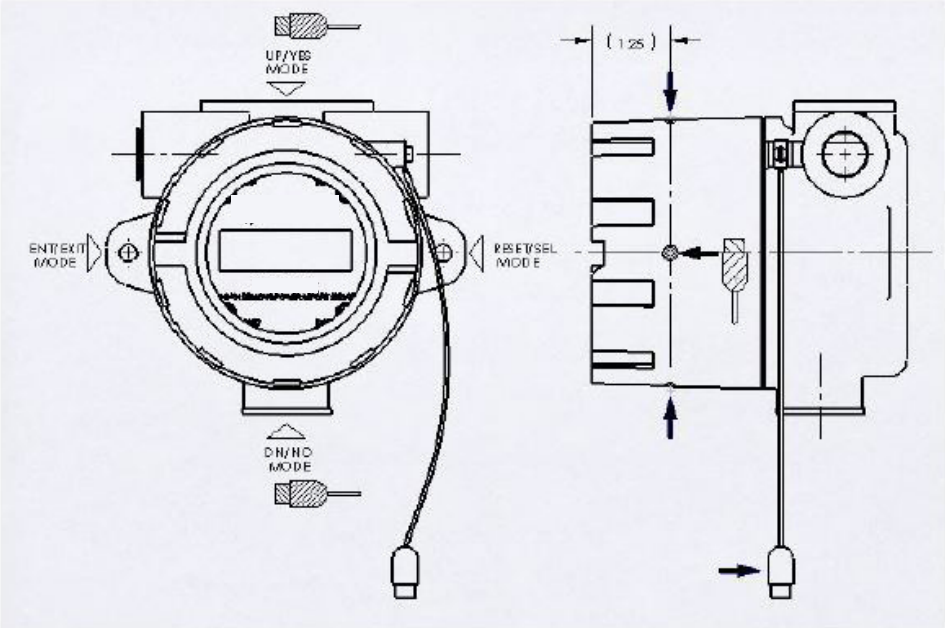
WARNING: If programming or screen changes are to be made while the transmitter is in the hazardous area, do not remove cover to use the push buttons. Keep cover on and use the magnetic wand. Only use push buttons in a non-hazardous area.

Alternately, with the cover closed it is possible to make changes using the magnetic wand attached to the outside of the unit. The push button functions are duplicated with internal Hall switches which activate when the magnetic wand is held in the 3, 6, 9 or 12 o'clock positions. The face plate is marked at each position with the corresponding function.

Dual access magnetic switch locations



Single access magnetic switch locations

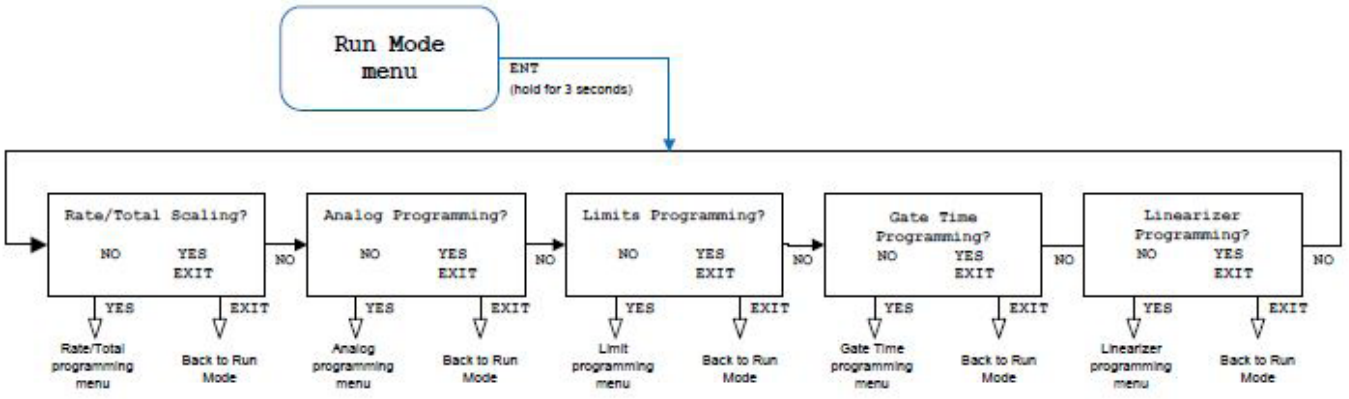


PROGRAMMING

ENTER PROGRAMMING MODE

The PDFlo Transmitter programming menu can be accessed from 4 of the run mode screens; [RATE], [TOTAL], [ANALOG OUT] and limit [L1/L2] screens. To enter the programming menu from these screens, press and hold the ENT button for 3 seconds until one of the programming screens appears (see Figure 21). The programming menu will show the screen relevant to the run mode screen from which the programming menu was entered. Use the buttons as shown below to navigate through the screens. When exiting the programming menu, the transmitter will always return to the run mode screen from which the programming menu was entered.

MAIN PROGRAMMING MENU



CHANGING VALUES AND MAKING SELECTIONS

When in a programming screen which requires a value to be changed, the active character is indicated by an underscore. To increment the value use the UP button and to decrease the value use the DN button. The character value will wrap around when reaching either 9 or 0.

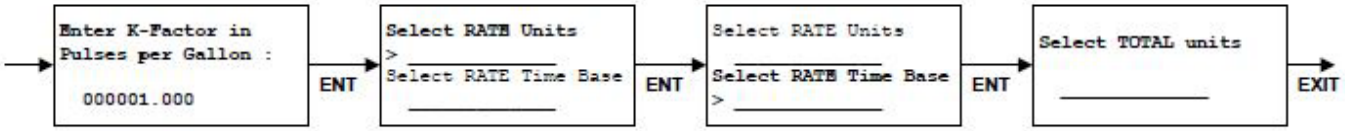
Once a character has been changed press the SEL button to move to the next character to the right. If at the right most character, pressing SEL will bring the cursor back to the left most character.

If a value has a decimal point whose position can be changed, press the SEL button until the underscore is under the decimal point. Press the DN button to move the decimal point to the left and press the UP button to move the decimal point to the right.

NOTE: Not all programming screens allow the decimal point location to be changed such as any milliamp value.

Once a variable has been changed to the desired value, press the ENT button to accept the value and move to the next screen or programming value. If an incorrect value is programmed, a warning screen will appear. Press any button to exit a warning screen.

RATE, TOTAL AND GRANDTOTAL SCALING



K-factor (scaling factor)
The transmitter uses only one K-factor for scaling all displays. This value is always entered in units of Pulses per Gallon. Once the rate and total units are selected, the transmitter uses internal calculations to automatically correct the displayed values to match the user selected units. When the correct K-factor value has been programmed, press ENT to continue.

RATE unit
Use the UP and DN buttons to scroll through the available units to scale the RATE screen.

The available units are:
GAL (US gallons)
LIT (Liters)
CC (Cubic centimeters)
BBL (Barrels)
ML (Milliliters)
M3 (Cubic meters)
OZ (Liquid ounces)
PUL (Pulses)
Once the desired unit is showing, press ENT to continue.

RATE time base
Use the UP or DN buttons to select the time base to use in conjunction with the previously selected RATE units to define the flow rate unit.

The available time units are:
Seconds
Minutes
Hours
Days

When the correct time base is showing, press ENT to continue.

NOTE: If the rate unit & time base are selected as PUL & Seconds, the RATE screen will show the unit as Hz, NOT PUL/SEC.

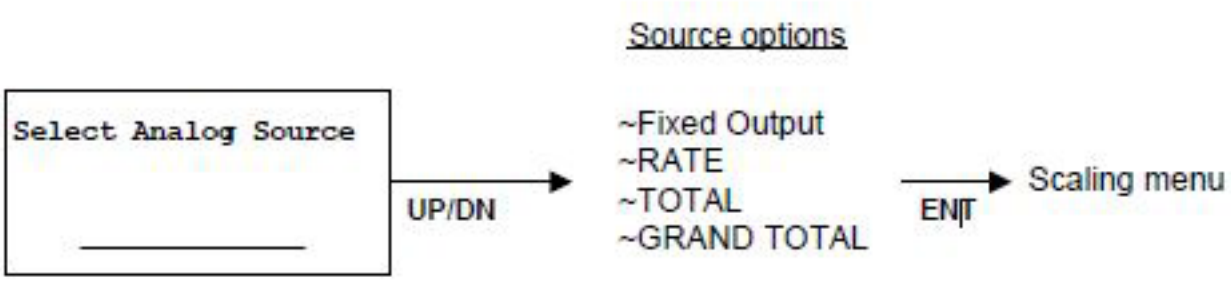
TOTAL unit
Use the UP and DN buttons to scroll through the available units to scale the TOTAL and GRAND TOTAL screens.

The available units are:
GAL (US gallons)
LIT (Liters)
CC (Cubic centimeters)
BBL (Barrels)
ML (Milliliters)
M3 (Cubic meters)
OZ (Liquid ounces)
PUL (Pulses)

The Rate and Total units do not have to be the same. Once the desired unit is showing, pressing ENT completes the scaling programming and returns display to the main programming menu.

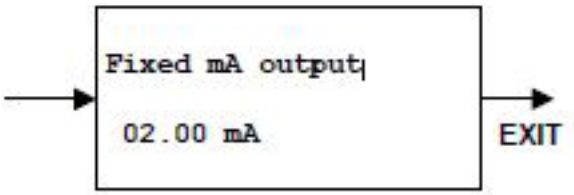
Analog output scaling
When entering the Analog programming menu, the first screen asks to select the Analog Source, or what the analog output value is to represent. There are 4 choices as shown below.

Analog source selection screen



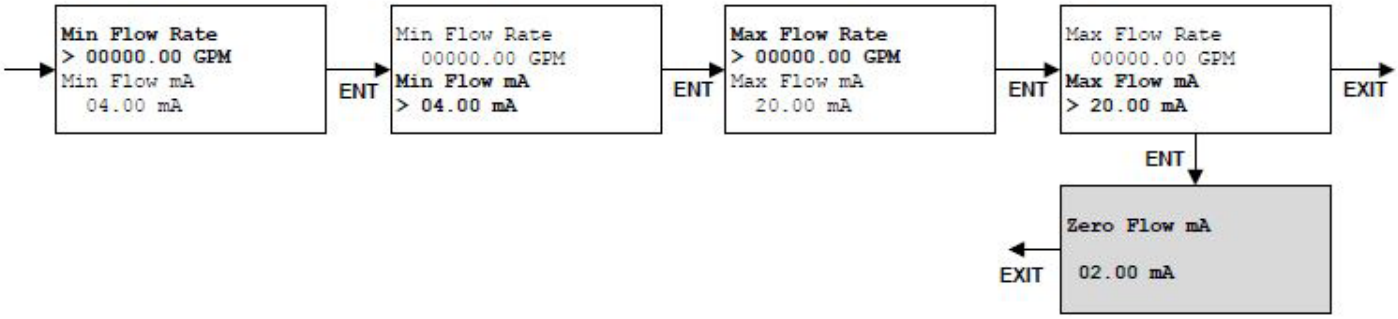
Using the UP and DN buttons scrolls through the 4 choices that the mA output can represent: a fixed mA output value, the input flow rate, the totalizer value or the grand totalizer value. Press ENT when correct choice is showing.

Fixed mA output programming



This option allows the user to select a constant mA value the transmitter will output regardless of any changing values. A constant mA signal could be used as an external indicator showing if the transmitter is on. Allowable values are from 2mA to 20mA.

Analog Output, RATE Source programming Screens



RATE source allows the user to configure the mA output to represent the flowrate value. The analog output span can be scaled for either zero to max flow or a non-zero flow to max flow. If the flow rate goes above the programmed maximum flow rate, the analog output will continue to increase, up to a maximum of 22mA. This is useful for system fault detection.

Min Flow Rate
Enter the minimum user flow rate. This can be a non-zero value, such as the lowest application flow rate if the equipment monitoring the mA signal can be programmed as such. It can also be entered as zero, but in this case it will affect the accuracy of the mA reading vs flow accuracy. If a non-zero value is entered, the user will also be asked to enter a mA value to represent zero flow.

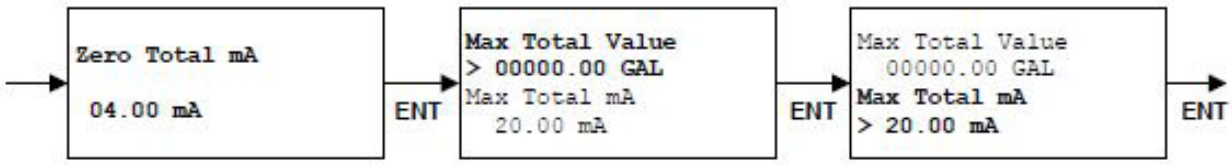
Min Flow mA
Enter the mA to represent the above entered minimum flow rate. Value must be equal to or greater than 2mA.

Max Flow Rate
Enter the maximum flow rate to monitor.

Max Flow mA
Enter the mA value to represent the above entered maximum flow rate value. 20mA is the maximum allowable value.

Zero Flow mA
This screen only shows if the Min Flow Rate was programmed as a non-zero value. Enter the mA value to represent zero flow. Lowest value allowable is 2mA and it cannot be greater than the Min Flow mA value.

Analog Output, TOTAL source programming screens



TOTAL source allows the user to configure the mA output to represent the Totalizer value. If the totalizer value goes above the programmed maximum total value, the analog output will continue to increase, up to a maximum of 22mA. This is useful for system fault detection.

Zero Total mA
Enter the mA value to represent a zero totalizer value. Minimum allowable value is 2mA.

Max Total Value
Enter the maximum totalizer value to monitor.

Max Total mA
Enter the mA to represent the above entered maximum totalizer value. 20mA is the maximum allowable value.

Analog Output, GRAND TOTAL source programming screens

GRAND TOTAL source allows the user to configure the mA output to represent the Grand Total value. If the Grand Total value goes above the programmed maximum Grand Total value, the analog output will continue to increase, up to a maximum of 22mA. This is useful for system fault detection.

Zero Grand Total mA
Enter the mA value to represent a zero Grand Total value. Minimum allowable value is 2mA.

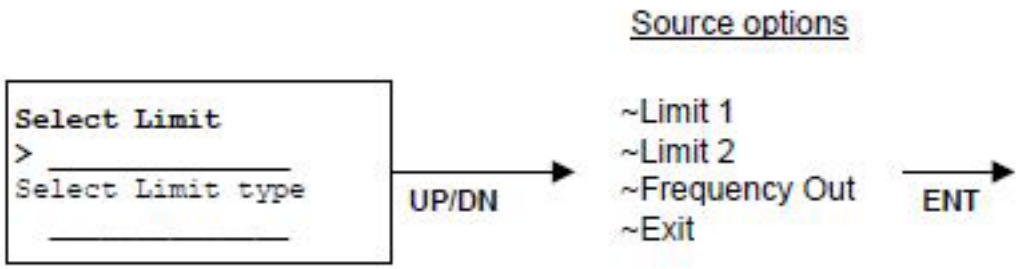
Max Grand Total Value
Enter the maximum Grand Total value to monitor.

Max Total mA
Enter the mA to represent the above entered maximum totalizer value. 20mA is the maximum allowable value.

LIMIT / Pulse output programming
Three opto-isolated NPN open-collector outputs can sink or source depending on connection (i.e., power can flow in or out).

NOTICE: Connection polarity: collector (+), emitter (-).

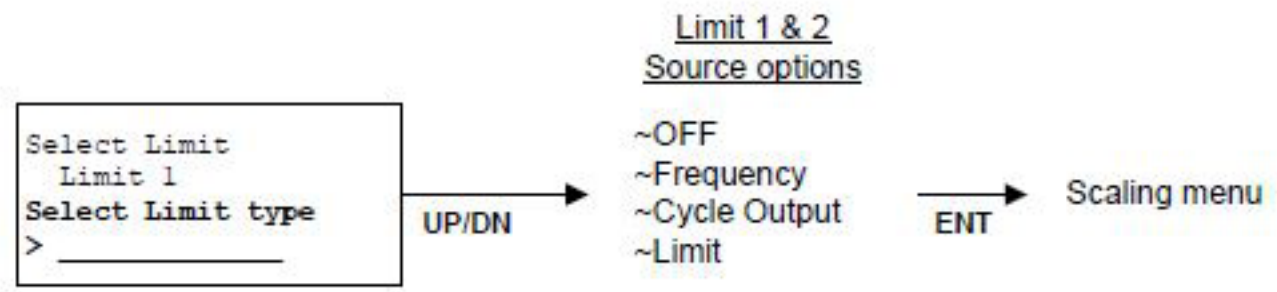
Limit programming choices



From the first screen, the output to be programmed is selected. All three outputs can be independently setup and if any of the outputs are not to be used, they can be turned off. Limit 1 and Limit 2 can be configured as a frequency output matching the incoming frequency from the flow meter, as a totalizer cycle output, a flow rate set point trigger or to trigger on a set value of the Total or Grand Total. The third Frequency Out can only be used to output the incoming frequency from the flow meter. To exit the LIMIT programming screen, press the UP or DN button until Select Limit option shows Exit. Then press the EXIT button From the first screen, the output to be programmed is selected. All three outputs can be independently setup and if any of the outputs are not to be used, they can be turned off. Limit 1 and Limit 2 can be configured as a frequency output matching the incoming frequency from the flow meter, as a totalizer cycle output, a flow rate set point trigger or to trigger on a set value of the Total or Grand Total. The third Frequency Out can only be used to output the incoming frequency from the flow meter.

To exit the LIMIT programming screen, press the UP or DN button until Select Limit option shows Exit. Then press the EXIT button.

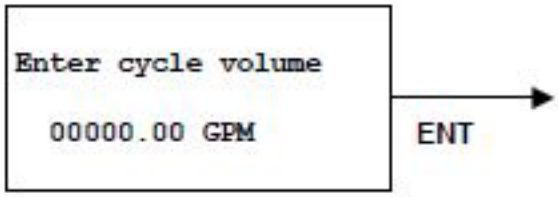
Limit 1 & Limit 2 Output options



Turn Limits OFF
To turn either of the Limits off, choose the OFF Limit Type and press ENT. The corresponding Limit pin will now stay low regardless of any variable changes.

Frequency Output on Limit pins
To have the incoming frequency be routed to a Limit pin, choose the Frequency option. There is no other programming required.

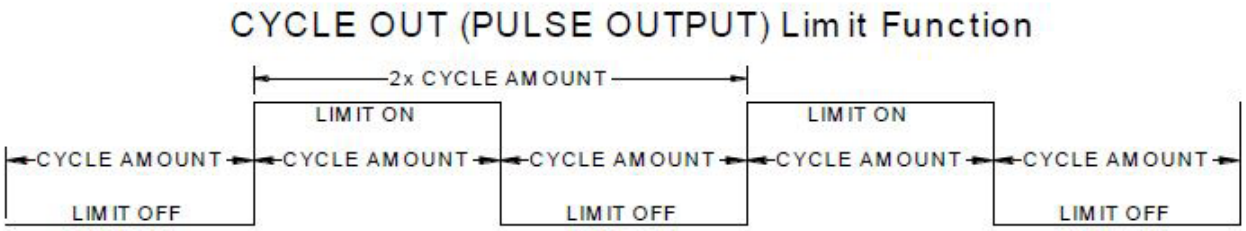
Cycle Output volume scaling



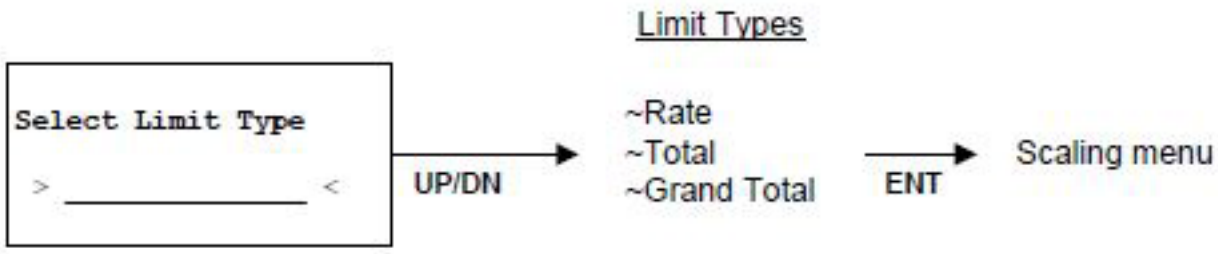
The Cycle Output (pulsed output) The CYCLE OUT limit function provides an incremental output signal for a remote totalizer, typically at a lower resolution and frequency. Assigning a limit to the CYCLE OUT function toggles the state of the limit output whenever the TOTAL increments by the programmed cycle amount. The output remains ON until the cycle amount accumulates and does not turn OFF until the cycle amount accumulates again. The total accumulated between a rising and falling edge is the cycle value. The total accumulated between any two rising edges is twice the cycle value. You enter the cycle value in programmed engineering total units.

CAUTION: Do not program a cycle amount that produces more than 20 pulses per second (20 Hz). Consider the maximum flow rate to determine the resulting output frequency. The frequency produced (in Hz) is the actual flow rate in Engineering Units per Minute divided by 120, divided by the CYCLE AMOUNT.

Cycle Output definition

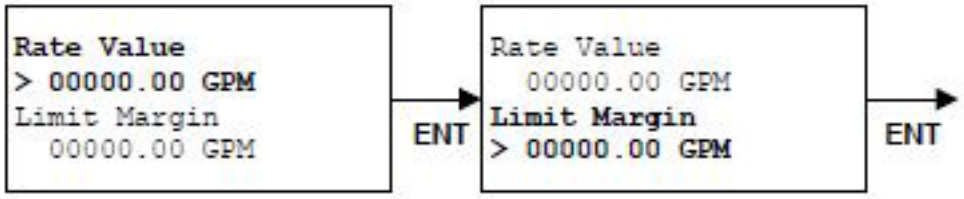


Limit Output Sources



Each Limit can be set to trigger its output based on a certain flow rate or total set point. This is often used to indicate if a flow rate is outside its intended limits or if a certain total value has been reached in a batch application.

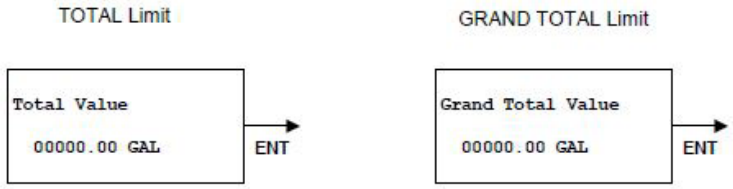
Rate Limit Variables



Rate Value
The limit output will be off if the incoming flow rate is below the programed Rate Value and the output will be on if the incoming flow rate is equal to or above the programmed Rate Rate Value.

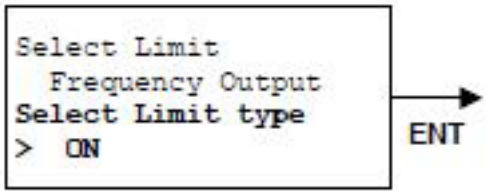
Limit Margin
The Limit Margin variable is programmed in engineering units and determines whether the Rate Limit functions as an absolute limit or activates within a margin or "window" around the programmed Rate Value. When the Limit Margin is programmed as zero, the limit activates whenever the flow rate equals or exceeds the programmed value. When you enter a Limit Margin value other than zero, the limit is active whenever the selected flow rate is within the "window" of the programmed Rate Value, plus or minus the MARGIN value. The programmed Limit Margin must be less than the programmed Rate Value.

TOTAL & GRAND TOTAL Limits



TOTAL / GRAND TOTAL Value
Enter the Total or Grand Total value at which the respective Limit output should change state. When the Total or Grand Total is reset to zero, the limit pin changes back to initial state.

Frequency output programming



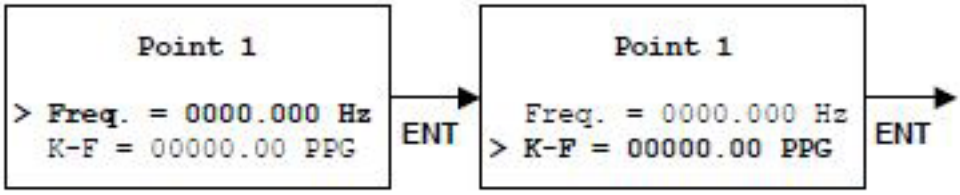
The third output can only be set to output the incoming frequency. From the top Limit programming menu, choose the Frequency Output option, press ENT and use the UP or DN button to turn the output frequency on. There are no other variables to program. The output frequency is not affected by the Gate Time filter and cannot be linearized. It is always the raw incoming frequency from the sensor.

Gate Time filter

This variable sets the sample time on the incoming frequency for the RATE displays. Programmed in tenths of a second with an allowable range from 0.1 to 999.9 seconds, this variable affects the update of the display and analog output, and is useful in stabilizing the display and output when dealing with fluctuating flow rates. Setting the Gate Time to zero (0) disables the Gate Time filter and all data is updated at an internal default rate of approximately 0.02 seconds. If the Gate Time filter is active (any non-zero value) any run mode screen affected by the filter will show 'GT' in the lower right hand corner of the screen.

The PDFlo transmitter has a 30-point linearizer which can be used to increase the linearity of the flow rate reading. When entering the Linearizer programming mode, the first question asked is if the Linearizer should be activated. If the linearizer has already been programmed, de-activating the linearizer does not erase any previously programmed table values. It only turns off the use of the linearizer and causes the transmitter to use the single programmed K-Factor value under the Rate/Total programming menu for its calculations. If the Linearizer is used, the minimum number of points required for programming is 2.

Linearizer variables



When programming the linearizer, each table point requires a frequency value and K-Factor to be entered. To obtain these values it may be necessary to have a separate calibration done on the flow meter ahead of time. Often this information can be found on the original calibration sheet from the manufacturer.

Freq. variable
When populating the linearizer table, it is required that Point 1 has the lowest frequency and each subsequent table point frequency must be in continuously increasing frequency value. The frequency value represents the signal from the flow meter at each flow rate to be programmed into the linearizer table.

K-F variable
The K-Factor is the scaling factor in Pulses per Gallon for each frequency programmed.

When the desired number of linearizer table points have been programmed on the next table point leave the frequency value as zero and press ENT. This is understood by the transmitter as meaning end of table programming and saves the table values and exits the linearizer programming menu.

Clearing the linearizer table
To clear a previously programmed linearizer table, enter the linearizer table and change Point 1 Freq. to zero (0). After pressing the ENT button, the PDFlo Transmitter will display a warning that all table values will be cleared. If this is correct, press the YES button. This will cause all table values to be set to zero and the Linearizer will be turned OFF. The user has the ability to press NO button to cancel this option and return to Point 1 programming screen.

Changing the linearizer table
To change a table Point value, enter the programming screen and press the ENT button to get to the table value to change. After changing the relevant values, continue pressing the ENT button through the remaining table values until reaching the end of the programmed table (first table point whose Freq. is zero) to exit the table.

Adding linearizer table point
To add more table points, it must be noted that data can only be added to the end of a table. Therefore, if the additional point(s) to add do not have a frequency greater than the last entered point, it will require the user to manually “shift” the table points by entering the new points after the next smallest existing value and then re-entering the remaining points. If an existing table is changed and has more points than required, once the required points have been entered and the next table value has the Freq. changed to zero, all remaining points will automatically be reset to zero when exiting the table.

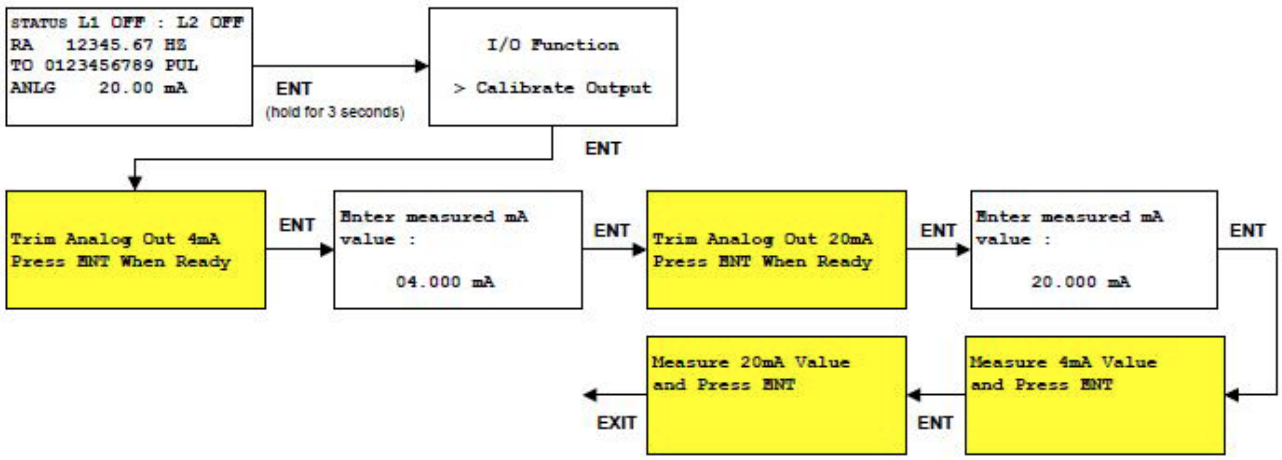
CALIBRATING ANALOG OUTPUT

The analog output can be calibrated to correct for any variances caused by the users input equipment. The calibration routine allows the user to adjust the 4mA and 20mA output values.

The calibration routine is entered from the STATUS screen.

NOTE: When entering the calibration routine, any incoming frequency to the transmitter is ignored.
Before starting the calibration routine, make sure the analog output is connected to the intended readout equipment. To calibrate the transmitter it is necessary to enter the analog value read from the user’s readout equipment.

Analog output calibration routine



From the run mode STATUS screen, press and hold the ENT button for 3 seconds to enter the I/O Function programming screen. Press the UP or DN button to display the 'Calibrate Output' choice and then press ENT.

At the first mA adjustment screen, the transmitter outputs the value that should equal 4mA output. Adjust the mA value to match the value shown on the user's readout equipment and press ENT when done.

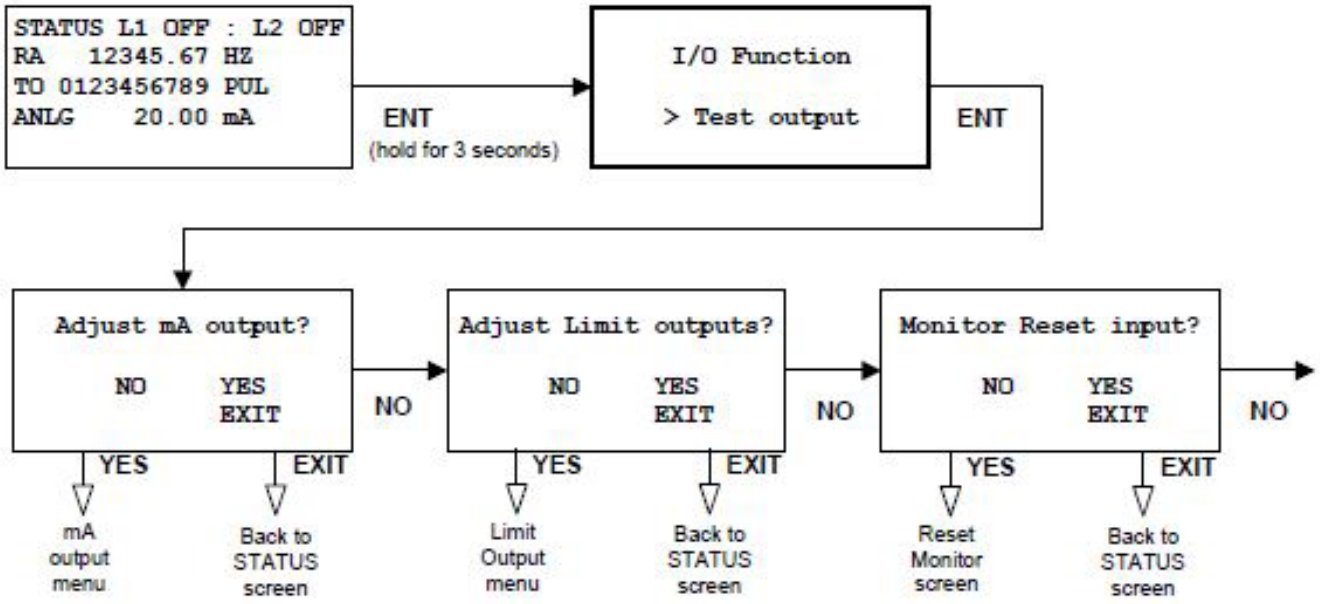
At the second mA adjustment screen, the transmitter outputs the value that should equal 20mA output. Adjust the mA value to match the value shown on the user's readout equipment and press ENT when done.

At the next screen, the transmitter outputs the corrected 4mA value. At the last screen the transmitter outputs the corrected 20mA value. If either measured output is still not close enough to the required value, enter the calibration routine again. When done, press EXIT until back at STATUS screen.

I/O MANUAL ADJUSTMENT

Whether for troubleshooting purposes or to manually control external equipment, the transmitter allows the user to enter an I/O routine in which the analog output, Limit outputs and Frequency outputs can be controlled and the external Reset input can be monitored. A good use of this feature is to verify communication between the transmitter outputs and the users' readout equipment in a controlled fashion before final system installation.

I/O adjustment top menu

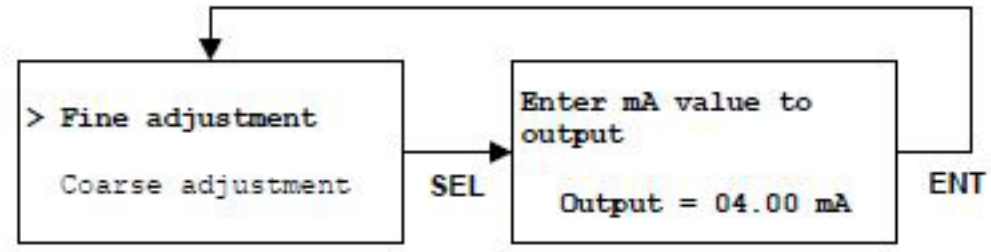


When entering the I/O programming mode from the STATUS screen, use the UP or DN button to change the I/O Function to 'Test output' as shown above and press ENT. Next choose which I/O to change.

Analog output adjustment

The user can manually control the mA output to any value between 2mA to 20mA in one of two ways. Fine adjustment allows user to program a specific mA value to output. Coarse adjustment allows user to increment or decrement the mA value in 1mA steps using the UP and DN buttons.

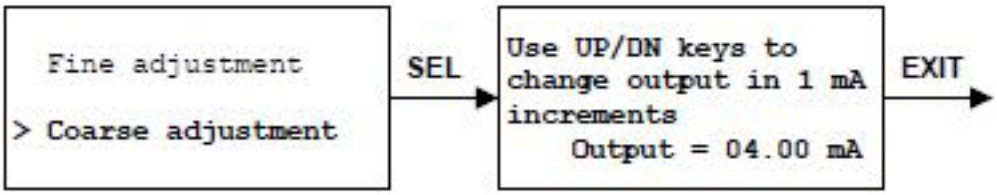
Fine mA adjustments



When choosing the Fine adjustment option, the screen will appear which shows the active mA output value. Change this number to any desired value between 2mA and 20mA and when ENT button is pressed, the transmitter will output this value. This also returns the screen to the adjustment type screen. Press SEL to see output value again and make new change.

Course mA Adjustments

Fine mA output adjustment screens



When choosing the Coarse adjustment option, the screen will appear where the mA output value can be changed. When pressing the UP button, the screen value (and mA output value) increments by 1mA, to a max of 20mA. When pressing the DN button, the screen value (and mA output value) decrements by 1mA to a min of 2mA. This is the fastest way to test the mA output range if no specific mA output value is required. Press the EXIT button to leave this mode.

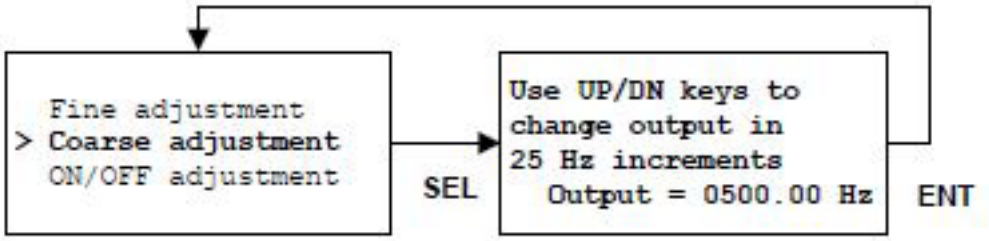
Limit & frequency adjustment

The Limit and Frequency outputs can be manually controlled to change states simultaneously using one of 3 methods. The fine adjustment allows the user to enter a specific frequency to output between 2Hz to 4,500Hz. The coarse adjustment allows the user to output a frequency and change the rate in 25Hz increments using the UP and DN buttons. The ON/OFF adjustment allows the user individually toggle the output state between on and off using the UP, DN and SEL buttons.

Fine limit output adjustments

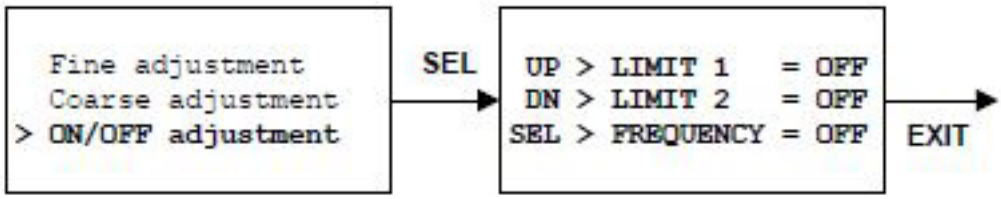
When choosing the Fine adjustment option, the screen will appear which shows the active frequency output value on the Limit 1, Limit 2 and Frequency outputs. Change this number to any desired value between 2Hz and 4,500Hz and when ENT button is pressed, the transmitter will output this value on the 3 outputs at the same time. This also returns the screen to the adjustment type screen. Press SEL to see output value again and make new change.

Coarse limit output adjustment



When choosing the Coarse adjustment option, the screen will appear where the frequency output value can be changed. When pressing the UP button, the screen value (and Hz output value) increments by 25Hz to a max of 4,500Hz. When pressing the DN button, the screen value (and Hz output value) decrements by 25Hz to a min of 2Hz. Press the EXIT button to leave this mode.

ON/OFF Limit output adjustment

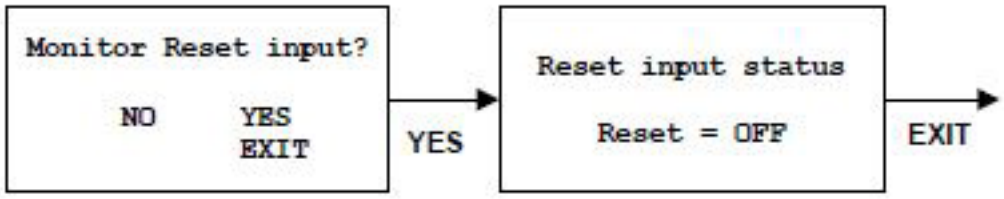


When choosing the ON/OFF adjustment option, the screen will appear showing the current state of each output pin. By pressing the UP, DN and SEL buttons, each associated output as shown above will change the state.

Monitor external reset input

When choosing the Monitor Reset input option, if the external reset input will be used to reset the TOTAL value, this screen will show the current state of the pin as interpreted by the PDFlo transmitter firmware.

External Reset input monitor screens



To monitor the current state of the external Reset pin, press the YES button from the Monitor Reset input screen. The screen that follows will show what the current state of the pin is. Using an external control signal, toggle the voltage level between high and low and monitor that the transmitter also sees the change.