PULSITE® LINK

INSTRUCTION MANUAL



Titan Enterprises Limited

Contents

1 GENERAL 5

2 INSTALLATION 5

3 ELECTRICAL 7

3.1 WIRING DIAGRAMS 9
3.1.1 Pulsite Link without Display (370-008): 9
3.1.2 Pulsite Link with Display (370-009): 12
3.1.3 USB Connection 15

4 ASCII DATA STREAM VIA USB 16

4.1 HOW TO ENABLE ASCII STREAMING 16
4.2 SERIAL PORT SETTINGS FOR ASCII STREAMING 16

5 INTERFACE SETUP 17

5.1 CONNECTING METER TO PC 17
5.1.1 Connecting Multiple Titan Devices 18
5.1.2 Retrieve Settings from Meter 19
5.1.3 Save Settings to Meter 19
5.1.4 Test Outputs 20
5.1.5 Software Information 20
5.2 WINDOW TAB DESCRIPTIONS 21
5.3 PULSE INPUT TAB (CONFIGURING FLOW METER PULSE INPUT) 23
5.3.1 Flow Meter Pulse Input Configuration 23
5.4 USER SETTINGS TAB 25
5.4.1 Calibration Settings 25
5.4.2 Display Appearance (Pulsite Link with Display Only - Part Number 370-009) 26
5.4.3 External Connections 27
PIN Assignments 27
5.5 FLOW DETAILS TAB 32
5.6 DATA LOGGING TAB 34

6 INDICATOR AND DISPLAY HARDWARE 36

6.1 LED INDICATORS 36
6.2 MAGNETIC SWITCH 36
6.3 LCD DISPLAY 37

7 TECHNICAL SPECIFICATION 38

8 TROUBLESHOOTING 39

9 APPENDICES 41

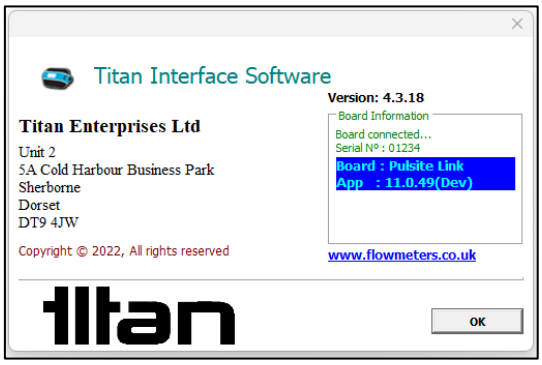
9.1 SETTING SERIAL PORT TO ENABLE VCP ON WINDOWS PC 41

Part numbers: 370-008 (without display) and 370-009 (display model)

Document ID: Pulsite®Link_Instruction_Manual_0424

These instructions are intended for use with the Pulsite® Link and Pulsite® Link Display and the PC Interface Software Version 4.3.20 or higher.

To view the version number, click the button



Intended use:

- The Pulsite® Link pulse convertor models are intended for signal conversion of pulse output devices, such as:
  - NPN
  - PNP
  - Reed Switch

- The Pulsite® Link pulse convertor can provide linearised outputs of
  - 4-20mA (active)
  - 0-5V
  - 0-10V
  - NPN and PNP
  - ASCII flow readings

- The Pulsite® Link pulse convertor can also provide
  - Total volume count (with Local and Remote Reset)
  - Flow alarm switches via NPN and PNP output terminals

- The Titan Interface Software when connected can provide:
  - PC display of Flow Rate and Total
  - User configuration of input and output parameters
  - Datalogging of parameters

Disclaimer:

This information has been reviewed and believed to be correct at the time of publication. Titan Enterprises holds no responsibility for any inaccuracies. The material in this document is for information purposes only.

Storage:

The equipment should be stored in its original packaging in a non-hazardous area. Care must be taken to ensure it is not subjected to extremes of temperature or humidity. Store away from solvents.

General Safety:

Installation should be done by competent personnel who understand the electrical and mechanical requirements of electronic flow metering devices.

Equipment must be protected from electric shock, fire and solvents.

ATTENTION:

Please read this instruction manual carefully before installation and operation of this device by competent personnel.

Failure to follow these guidelines may result in damage to the equipment or personal injury.

Manufacture Information:

The Pulsite® Link pulse convertor is designed and manufactured by:

Titan Enterprises Ltd, Unit 2, 5A Coldharbour Business Park, Sherborne, Dorset, United Kingdom. DT9 4JW.

Declaration:

Titan Enterprises Ltd Declare under our sole responsibility the product(s), 370-008 & 370-009 (Pulsite Link & Pulsite Link Display) comply by application to the standards listed below:

- CE
  - EN 61010-12010
  - 2014/35/EU Low Voltage Directive
  - EN 61326-1:2013
    - Table 2 industrial environments
  - 2014/30/EU EMC Directive
  - 2011/65/EU RoHS 2 Directive incorporating RoHS 3 Amendment Directive EU2015/863
  - EN 60529:2014
  - Degrees of protection provided by enclosures (IP Code)
    - Protection IP64: Instrument front to panel sealed to IP64

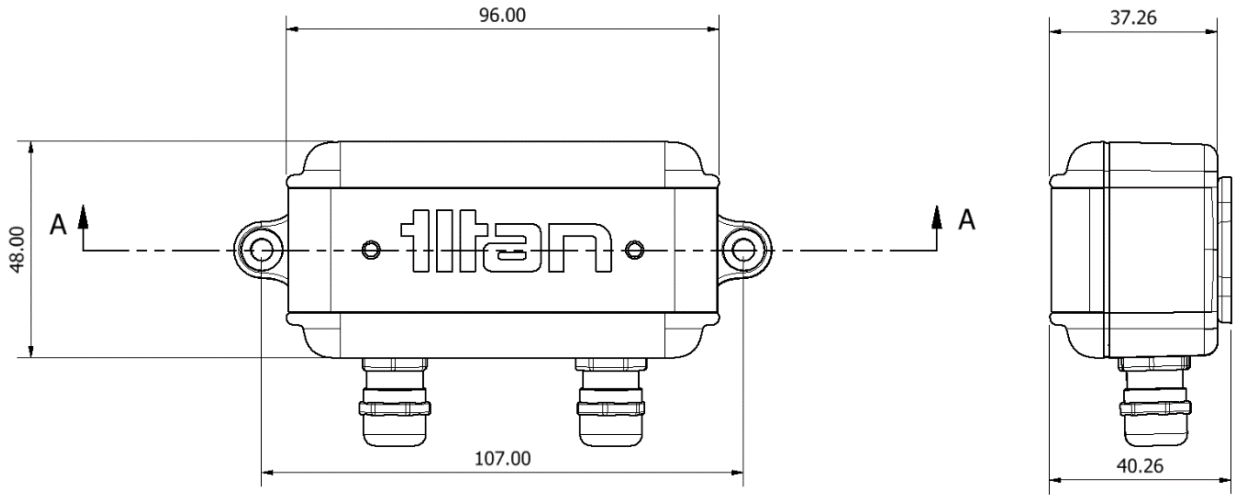
- UKCA
  - Electromagnetic Compatibility Regulations 2016
  - BS EN 61326-1:2013 Table 2 industrial environments
  - Electrical Equipment (Safety) Regulations 2016
  - BS EN 61010-1:2010
  - The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic
  - Equipment Regulations 2012
  - 2011/65/EU RoHS 2 Directive incorporating RoHS 3 Amendment Directive EU2015/863
  - BS EN 60529:2014
  - Degrees of protection provided by enclosures (IP Code)
    - Protection IP64: Instrument front to panel sealed to IP64

1 General

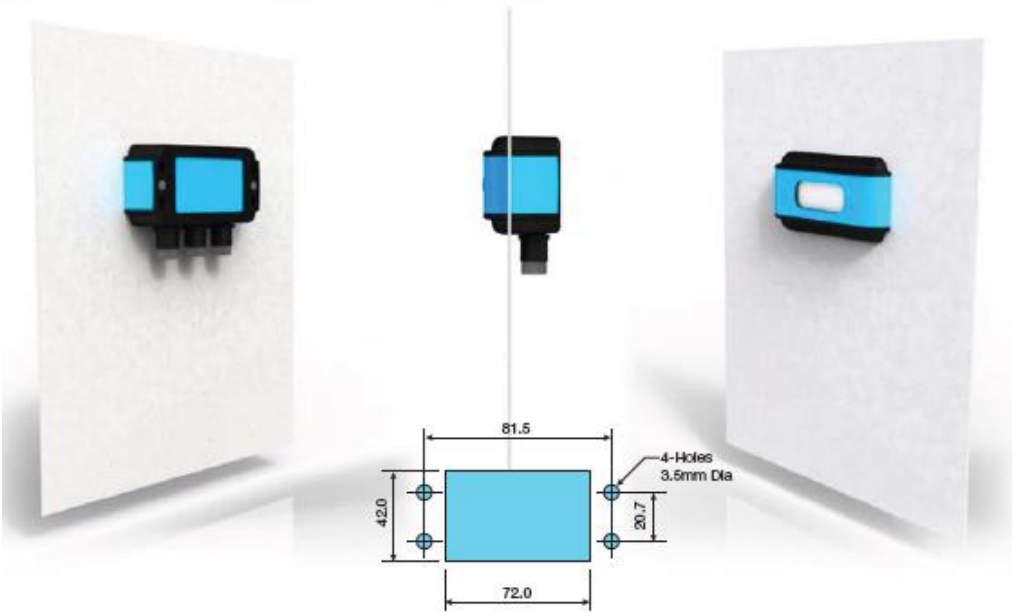
- The Pulsite® Link pulse convertor is intended for use with pulse output devices, such as:
  - NPN
  - PNP
  - Reed Switch
- The Pulsite® Link pulse convertor will provide linearized outputs of:
  - 4-20mA (active)
  - 0-5V
  - 0-10V
  - NPN
  - PNP
  - ASCII flow readings
- The Pulsite® Link pulse convertor can also provide
  - Total volume count (with Local and Remote Reset)
  - Flow alarm switches via NPN and PNP output terminals
- The Titan Interface Software when connected can provide:
  - PC display of Flow Rate and Total
  - User configuration of input and output parameters
  - Datalogging of parameters

2 Installation

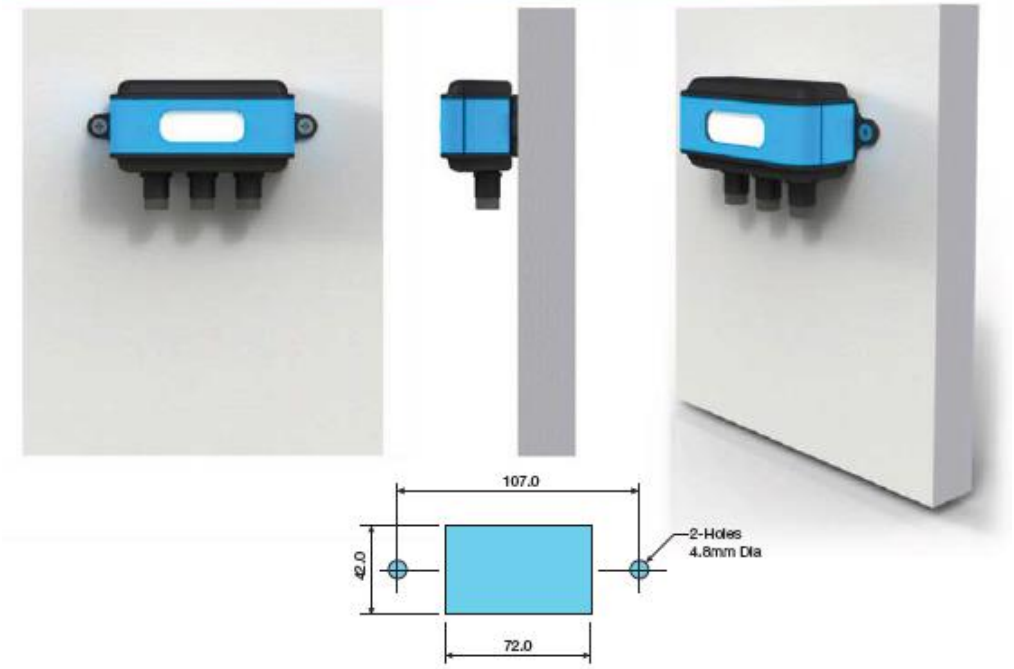
The electronics are held in an IP64 polymer case which can be mounted into a panel or using the brackets provided.



Pulsite Panel Mounting



Pulsite Wall Mounting



3 Electrical

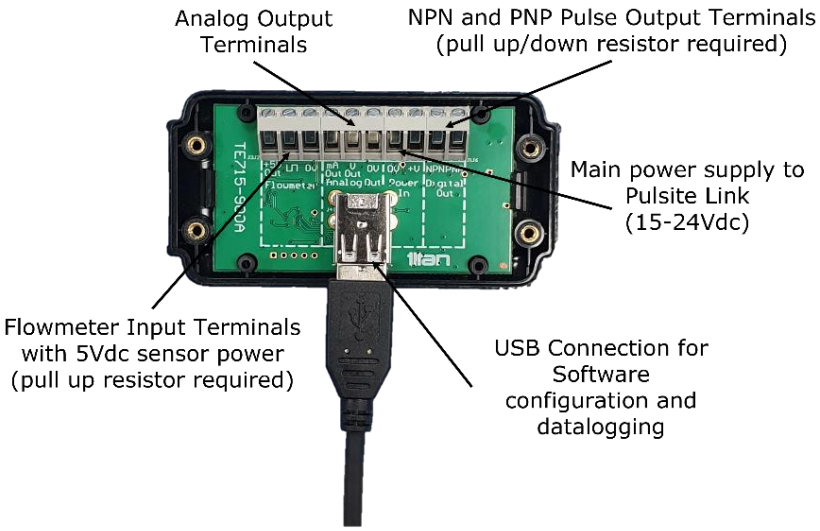
The Pulsite® Link can be programmed using the USB A connection via a computer.

Electrical and instrument connections are wired internally via 2 x PG7 Cable glands and 5mm pitch terminal block connectors.

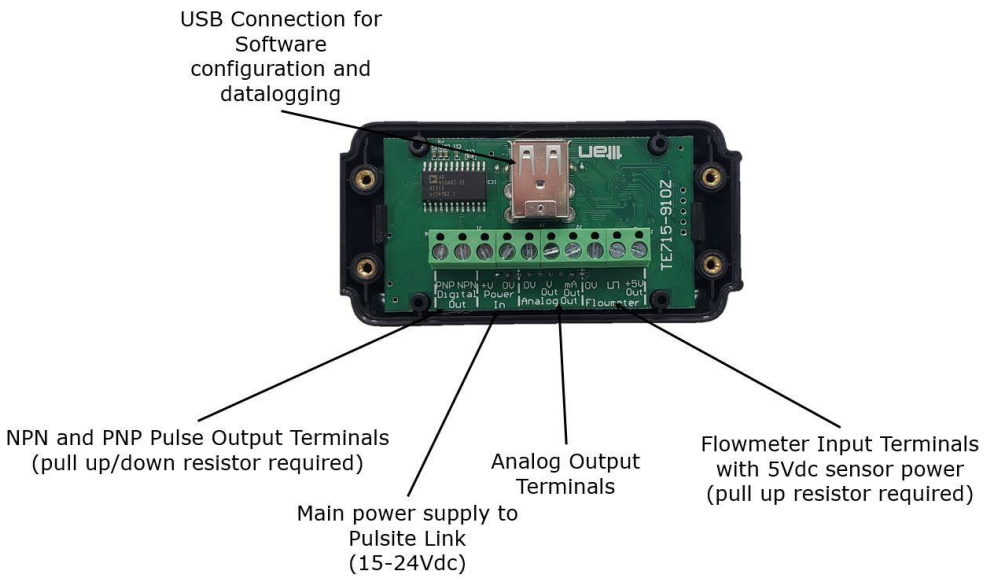
To access these connectors, simply undo the 4 rear screws and carefully remove the front cover.

POWER SUPPLY: 15-24Volt DC ONLY

Pulsite Link without Display (Part No 370-008):



Pulsite Link with Display (Part No 370-009):



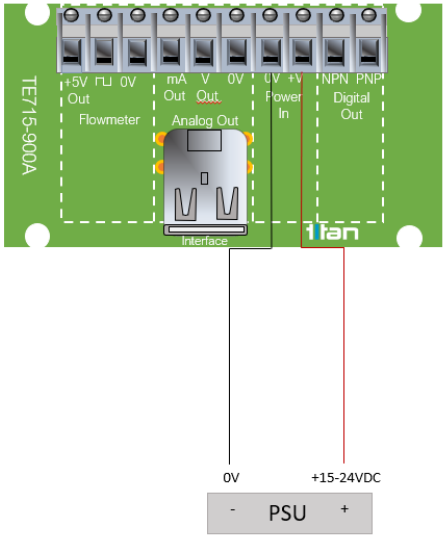
Description	Specification	Terminal Connection
Power Supply	15-24Vdc Regulated 0.1 amp	+24VDC → *Power Input +V* 0VDC → *Power Input 0V*
Flowmeter Input	Pulse (max. 5kHz) Reed Switch (max. 400Hz)	+VDC Supply to meter → *Flowmeter +5V Out* 0VDC Supply to Flowmeter → *Flowmeter 0V* Pulse from flowmeter → *Flowmeter* ⎍
	Sensor Supply 5Vdc 50mA max room temperature. (25mA at high temperature)	*Pull up/down resistor required for NPN/PNP - see wiring diagrams*
Output Pulse	NPN/PNP 2.5kHz 24V@20mA max. Scalable pulse per litre	Pulse Output to PLC/display → *Digital Output NPN or PNP*
		Pull up/down resistor required for NPN/PNP - see wiring diagrams
Output Analog	0-5Vdc / 0-10Vdc 16 Bit Adjustable flow range	+VDC to PLC/Display → *Analog Output V Out* 0VDC of circuit → *Analog Output 0V*
	4-20mA ACTIVE 16 Bit Adjustable flow range	+mA to PLC/Display → *Analog Output mA Out* 0VDC of circuit → *Analog Output 0V*
Input Signal	Via Digital Output NPN/PNP 24V@20mA max Flow Total Reset and Switch Display configurable options	Pulse Signal or Switch Signal → *Digital Output NPN or PNP*
		Pull up/down resistor required for NPN/PNP - see wiring diagrams

3.1 Wiring Diagrams

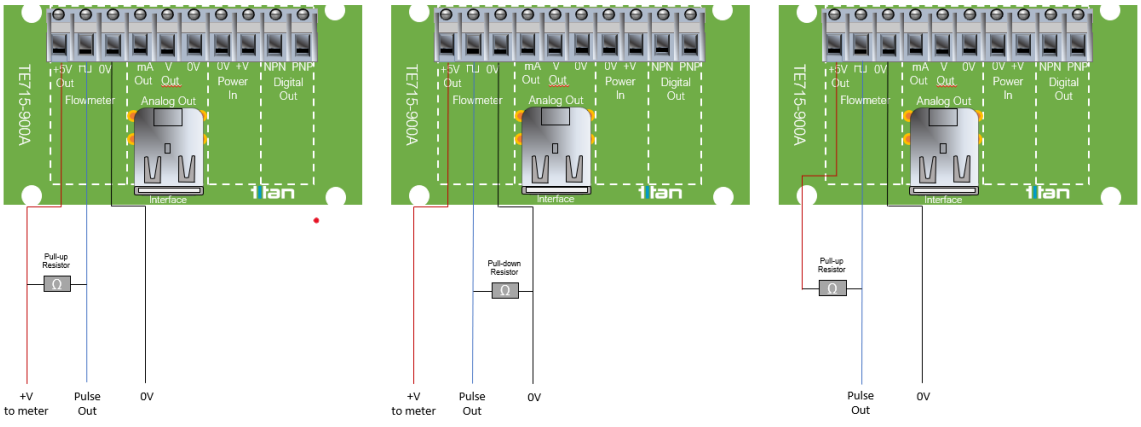
There are two models of the Pulsite® Link: without Display (370-008) & with Display (370-009).

3.1.1 Pulsite Link without Display (370-008):

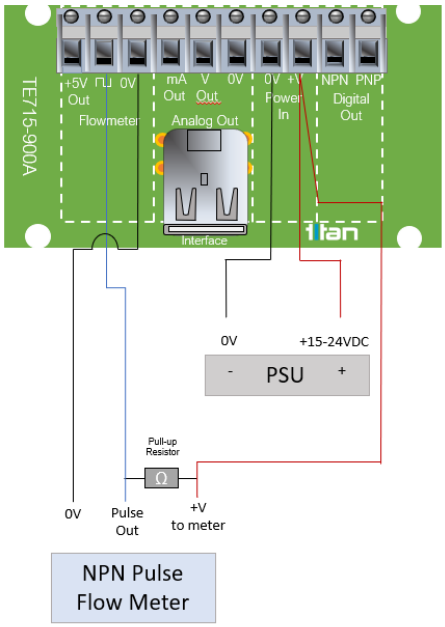
Connecting Pulsite Link Pulse Convertor **Power Input**



Connecting **Input Flow Meter** to Pulsite Link Pulse Convertor

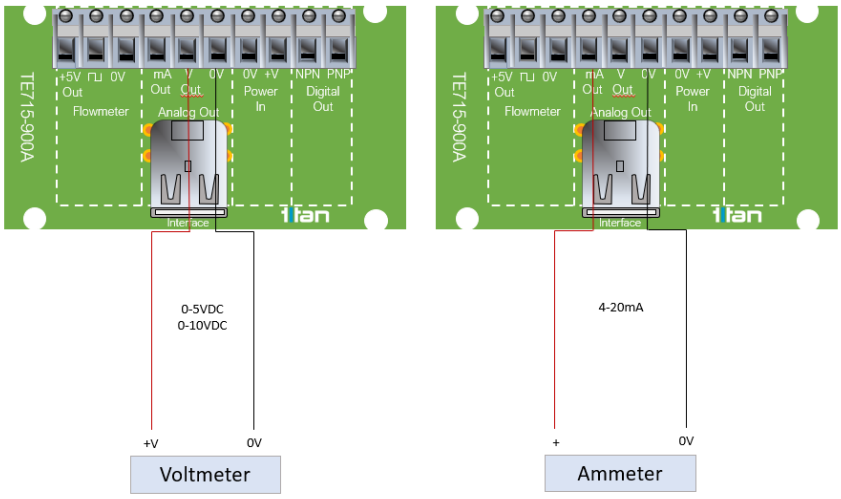


Connecting **Input Flow Meter** with >5VDC to
Pulsite Link Pulse Convertor

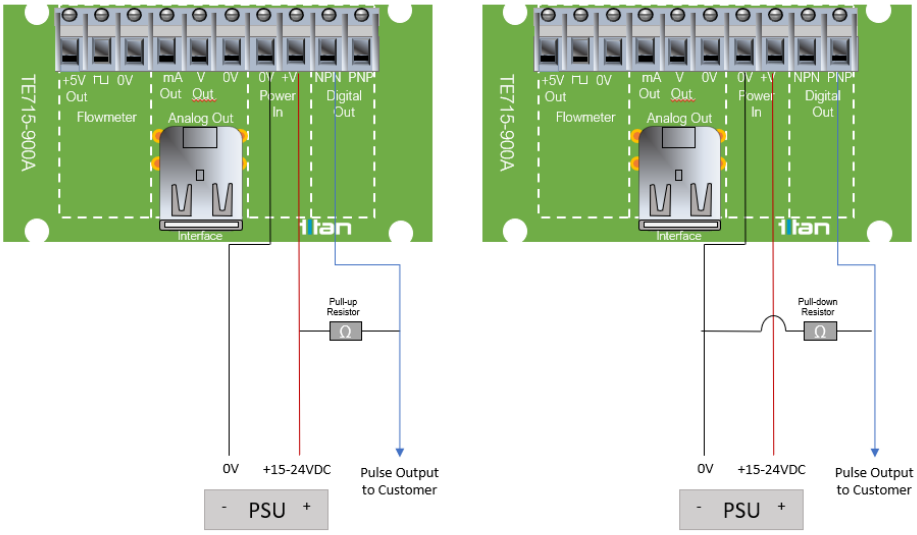


DO NOT CONNECT +V INTO THE +5V Out TERMINAL!

Connecting Pulsite Link Pulse Convertor to **Analog Output**



Connecting Pulsite Link Pulse Convertor to **Pulse Output**



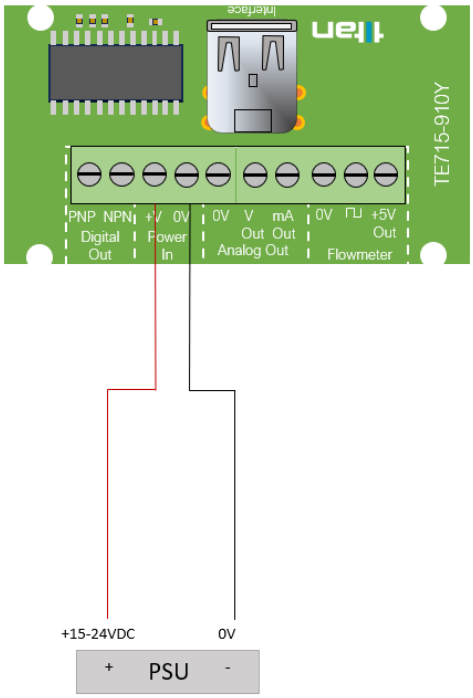
NPN Pulse Output

PNP Pulse Output

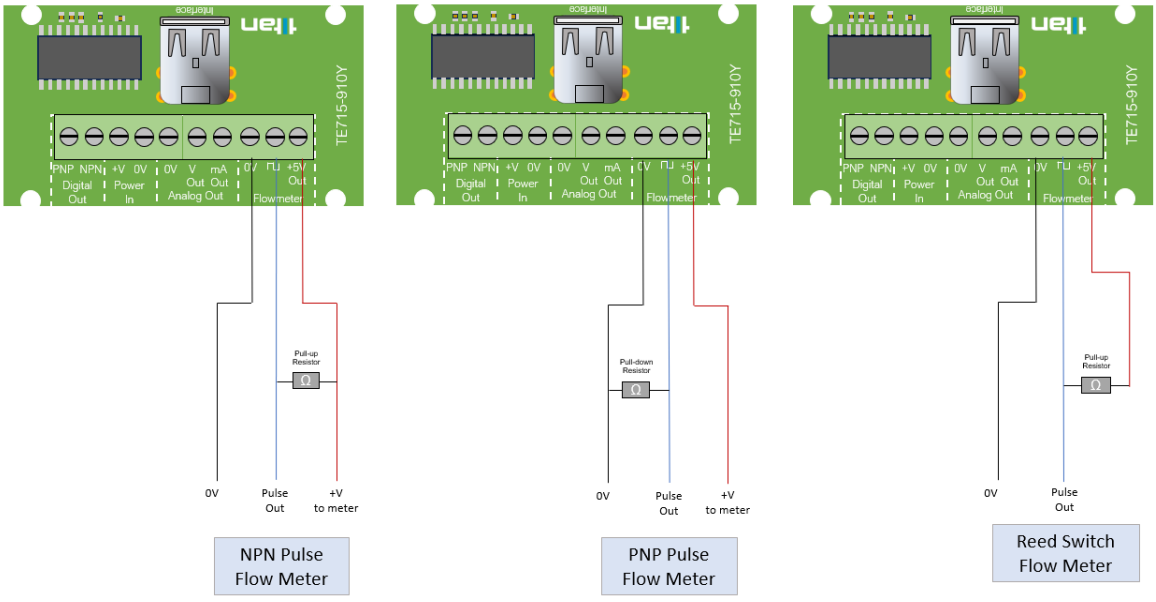
NOTE: Best practice is to place Pull up/ Pull down Resistor near target device

3.1.2 Pulsite Link with Display (370-009):

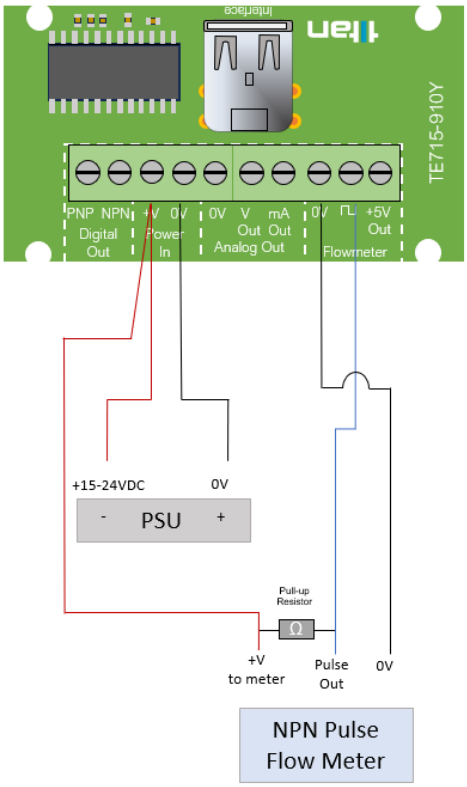
Connecting Pulsite Link Display Pulse Convertor **Power Input**



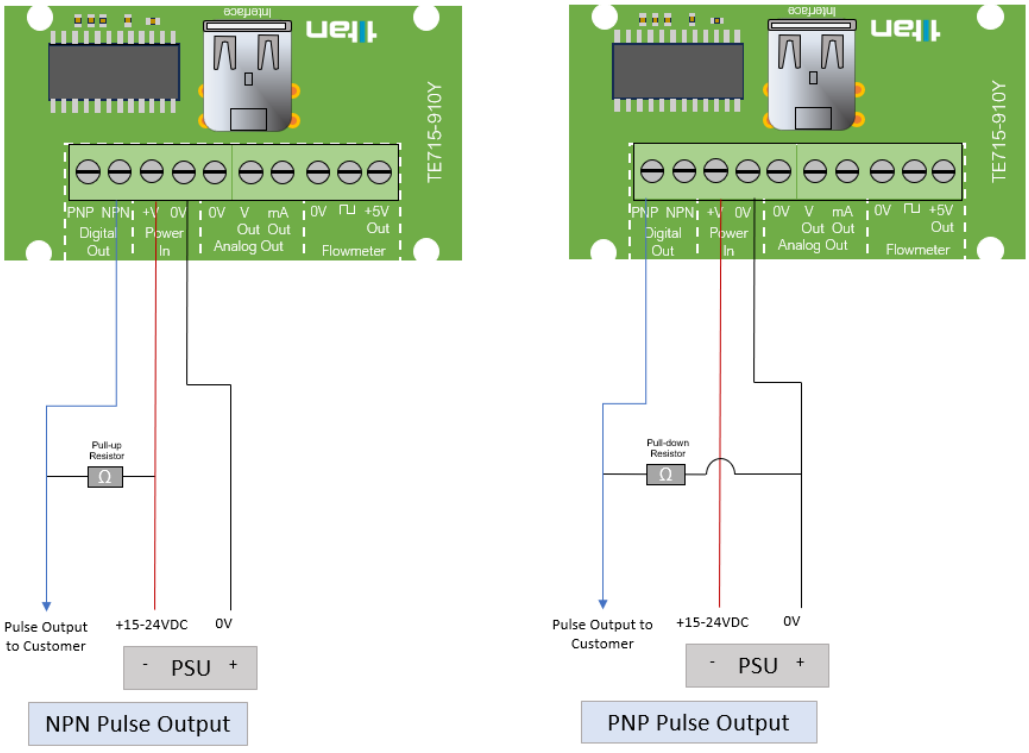
Connecting **Input Flow Meter** to Pulsite Link Display Pulse Convertor



Connecting **Input Flow Meter** with >5VDC to Pulsite Link Display Pulse Convertor



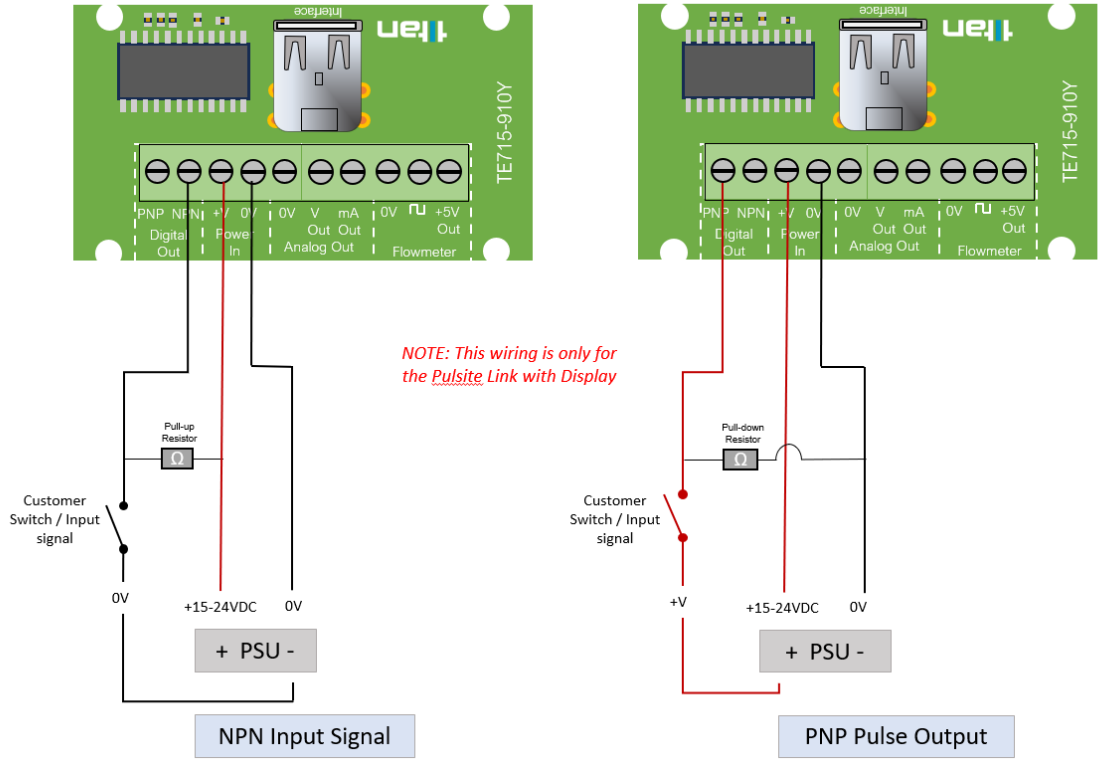
Connecting Pulsite Link Display Pulse Convertor to **Pulse Output**

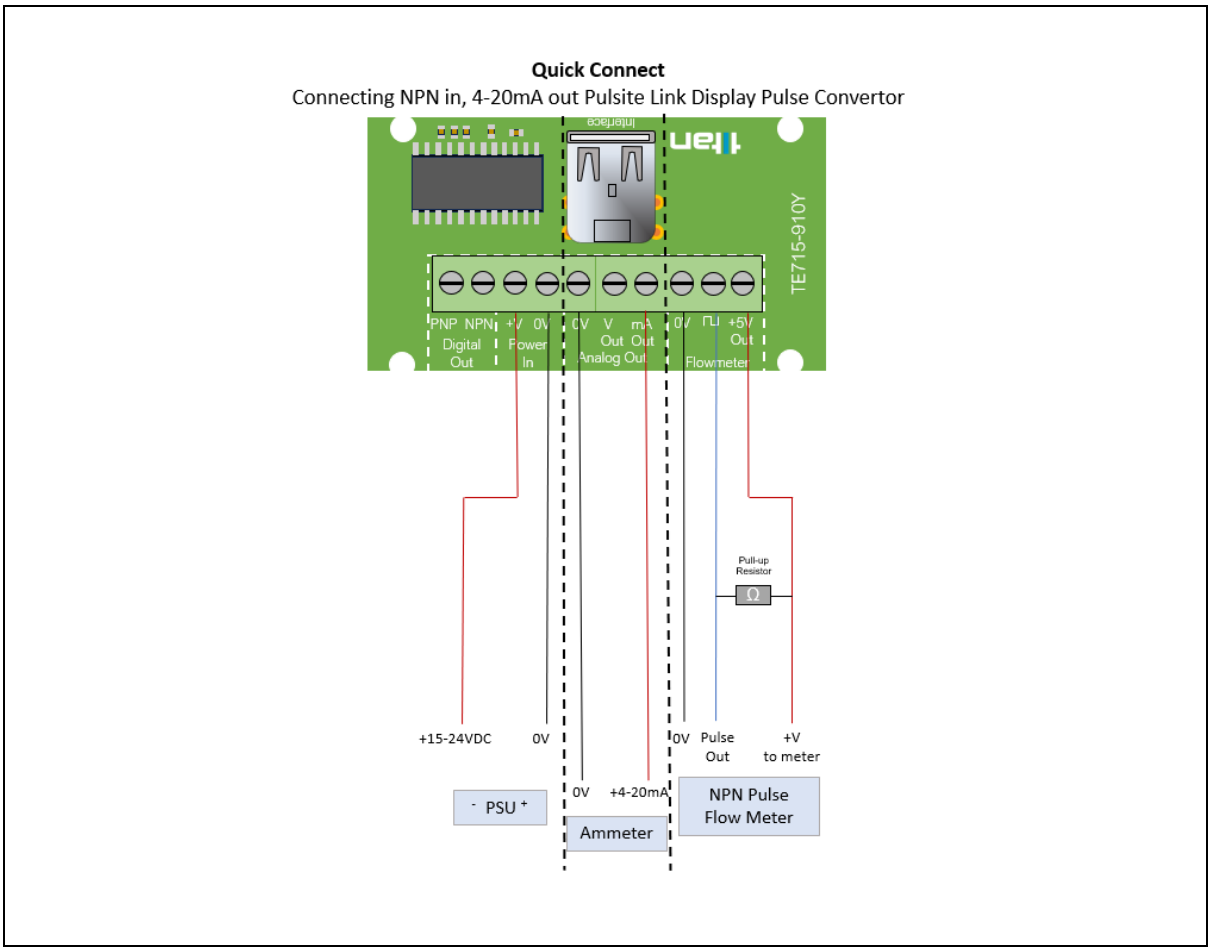


NOTE: Best practice is to place Pull up/ Pull down Resistor near target device

Pulsite Link with Display (370-009) ONLY can receive an Input Signal via the NPN and/or PNP Terminals

Connecting Pulsite Link Display Pulse Convertor to **Pulse Signal Input**





3.1.3 USB Connection

The housing of the Pulsite® Link has an M20 screw thread gland cover situated at the USB connection position. This allows access to the USB connection allowing the user to change settings or datalog the Pulsite® information, without the need to uninstall the unit.

When using this port, care should be taken to ensure there is no chance of water ingress to the housing.



USB access via the M20 cover situated between the cable glands

4 ASCII Data Stream via USB

ASCII Flow Data Stream via USB for Pulsite® Link, is a feature to ease customer system integration.

Each meter operates whilst real-time flow readings are streamed as ASCII encoded Carriage-Return + Line-feed terminated strings, via the USB connector. Thus, enabling easy integration of the Pulsite® Link flow information into customer operating and monitoring systems. Each ASCII line is a single number with decimal point, showing the flow rate in the configured units and time period, (e.g. litres per minute). Scientific format is not used and the output is restricted to six decimal places.

The flow readings are reported at approximately 10Hz and configured as the same as those set in the meter using the "Titan Interface Software".

4.1 How to Enable ASCII Streaming

ASCII streaming is conveyed via the FTDI USB chip (FT232RL) and requires the FTDI driver to be loaded on the PC being used. Windows drivers are loaded automatically with the installation of the Titan Interface Software.

More details on the FTDI USB communications can be found at https://ftdichip.com/

On power up, the unit defaults to ASCII Streaming mode of flow data. This is an "output only" mode and any message received by the meter will automatically switch the communication mode to "non-streaming". For example, when the Titan Interface Software attempts connection it will first switch the unit into "non-streaming" mode. On exiting, the software will automatically return the connected meter into ASCII streaming mode.

NOTE: *If the Titan Interface Software is not closed correctly or the meter is disconnected via the cable prior to closing the software, the ASCII will not be enabled.*

4.2 Serial Port settings for ASCII Streaming

Windows™	The Virtual COM port (VCP) driver must first be enabled for the USB Connection. See **Appendices** for details on how to do this.
Linux™	The VCP driver is enabled by default.

After the serial port driver has been enabled, customer software should configure the COM port with the following settings:

- FTDI Baud Rate*: 1000000
- Parity: None
- Stop Bits: 1
- Data Bits: 8

NOTE: The ASCII streaming is **not RS232 like data transmission. The Baud rate must be set to the indicated value to enable the Pulsite® Link to communicate via USB. The FTDI VCP driver converts the USB data stream to ASCII.*

A test program for Windows™, (ASCII_Test_Pulsite®_Link.exe), is included which can be used to verify that the Pulsite® Link stream is being properly received by the PC. Also included is a Python Script for testing on Linux™ systems.

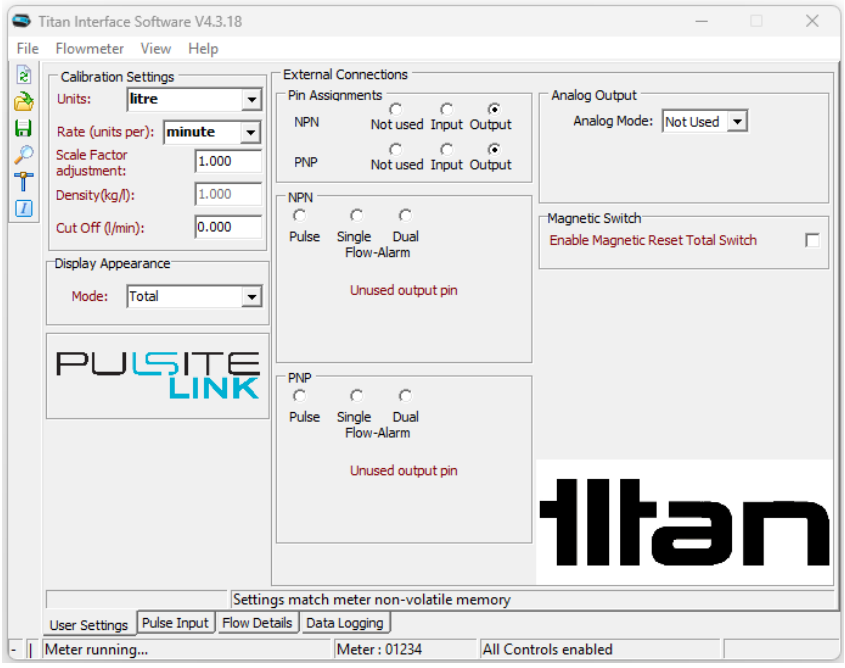
5 Interface Setup

5.1 Connecting Meter to PC

Before use, download and install the **Titan Interface Software** from the memory stick or the product page on our Website.

The Pulsite® Link should be set up using the USB interface and a suitable windows-based computer.

Below is a screen shot of the opening Software screen:

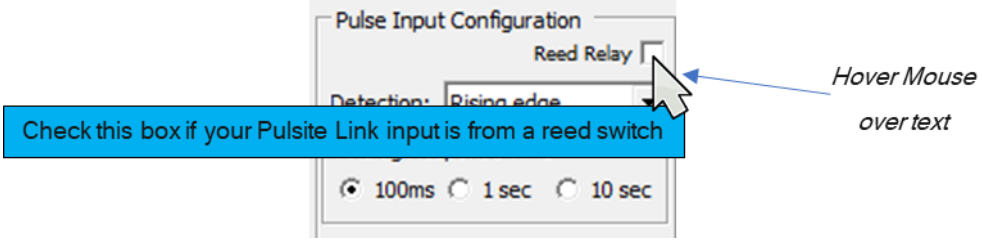


NOTE: *When correctly connected the bars will rotate in the bottom left hand corner and you should see "All Controls enabled"*

On connecting the Pulsite® Link, after 5-10 seconds, the Software will normally automatically load the settings saved in the non-volatile memory of the connected meter. The user can use the spy-glass icon to automatically pull the meter's saved settings at any time.

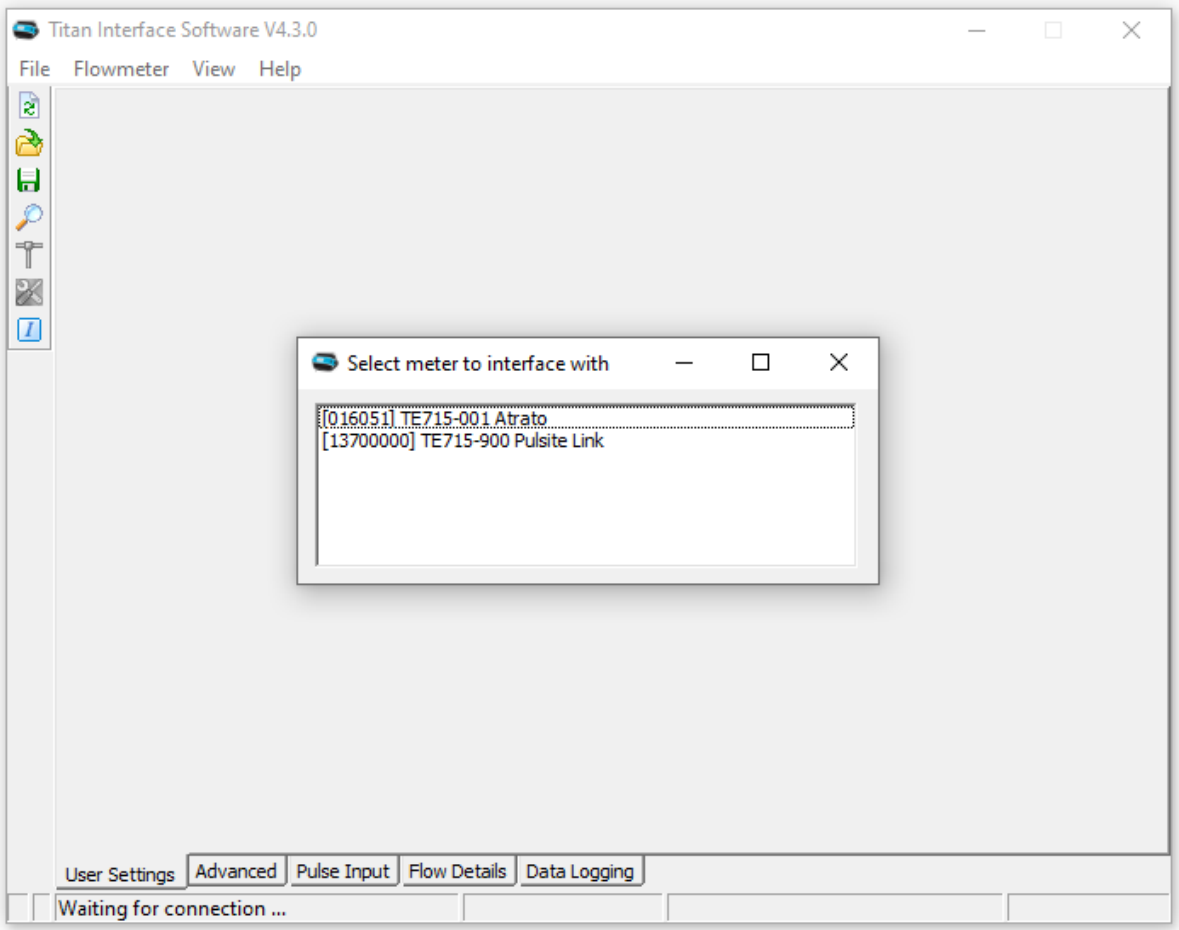


This software allows the user to configure all options of the meter. Detailed descriptions follow, but if the user hovers the mouse over a menu item, a brief description will be displayed to help.



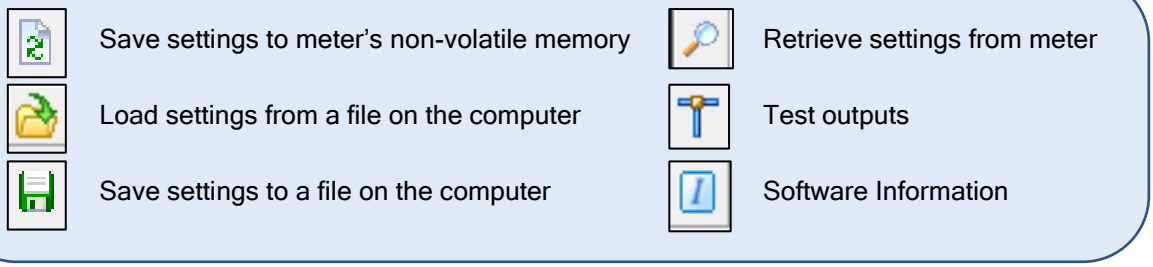
5.1.1 Connecting Multiple Titan Devices

If more than one meter is connected to the same PC, when starting, the Interface Software will open the window to choose which you wish to connect:



By opening another copy of the Titan Interface Software, you can connect and modify multiple meters from the same computer.

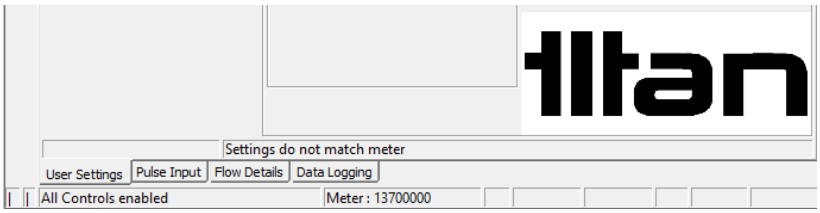
The panel below shows the main menu function icons of the Interface Software as seen on the top left-hand bar of the screen.



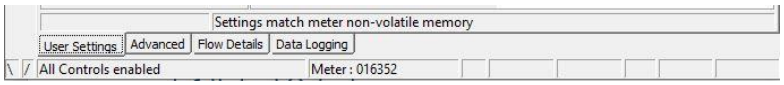
5.1.2 Retrieve Settings from Meter

 When connected the settings will normally be automatically retrieved from the meter. If this is not the case, or the user wishes to check the meter's saved settings against those shown in the software, they can be retrieved from the non-volatile memory of the flow meter by pressing the spy-glass icon.

On the User Settings Tab, when the software information and the instrument information do not match, there is a message line which will present "Settings do not match meter" or "Settings Match Meter RAM", whereby the unit has not permanently saved any differences to the meter.



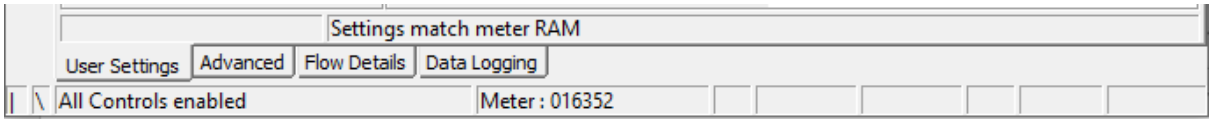
The software message bar will display "Settings match meter non-volatile memory" once any changes are saved:



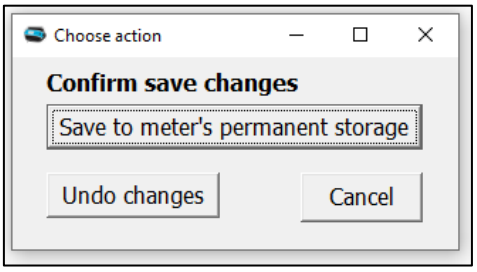
5.1.3 Save Settings to Meter

 As configuration adjustments are made in the software the operation of the connected meter will change accordingly but will not store those setting changes until the Save Settings icon is pressed.

This is indicated in the message bar in the User Settings by "Settings match meter RAM" text:

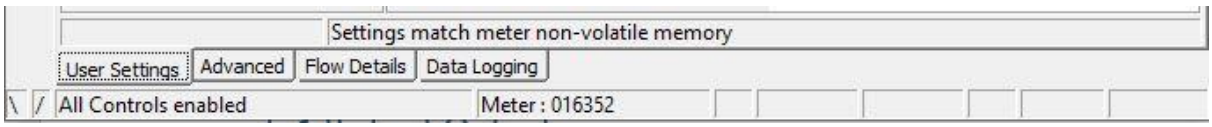


To save new settings to the non-volatile memory click the  and the Confirm save menu will appear before those settings are stored.



Clicking Undo changes reverts all the settings to those in the Non-volatile memory.

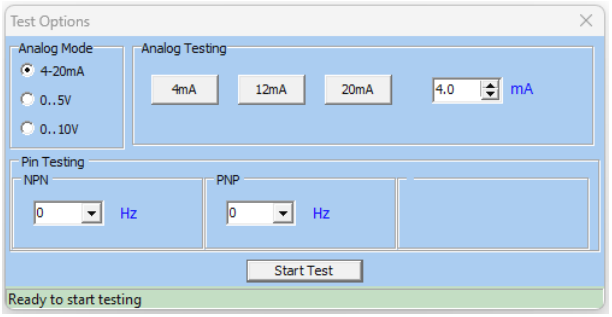
Once stored, the software message bar will display “Settings match meter non-volatile memory”:



5.1.4 Test Outputs



This tab enables the user to manually set outputs on the outputs for testing to the target device.

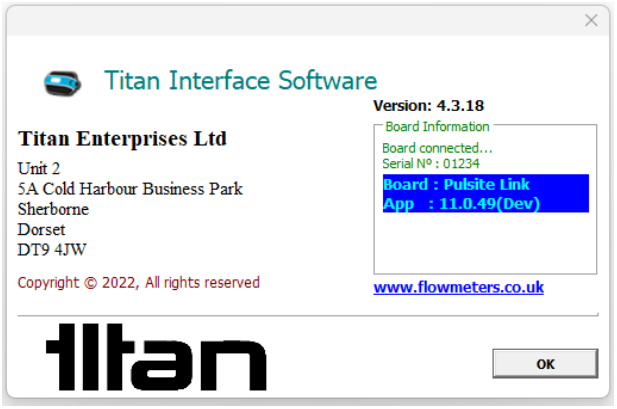


Once the required output is selected, click the “Start Test” button and all PINs will give the selected output rate for 32 seconds.

5.1.5 Software Information



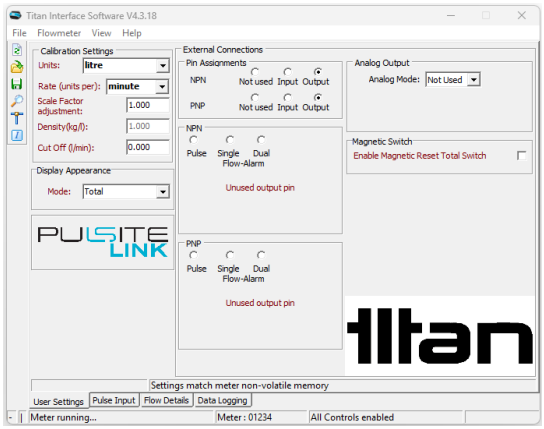
This displays the current software version of the Interface Software and the flow meter or instrument connected.



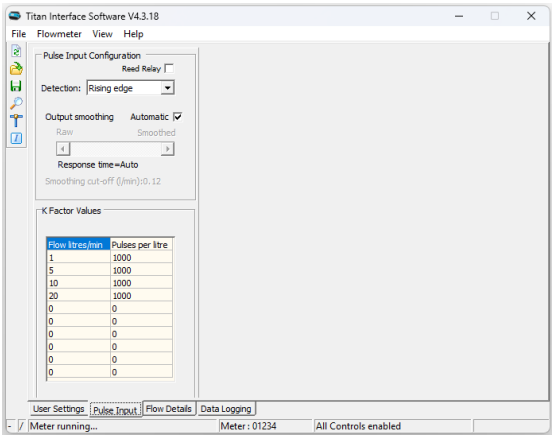
5.2 Window Tab Descriptions

On connection with the Titan Interface Software a window will open with four tabs of settings and information.

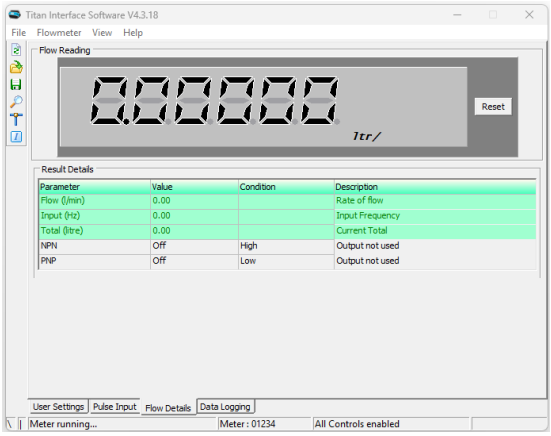
User Settings: Here you can configure how you wish the meter to present the flow and outputs.



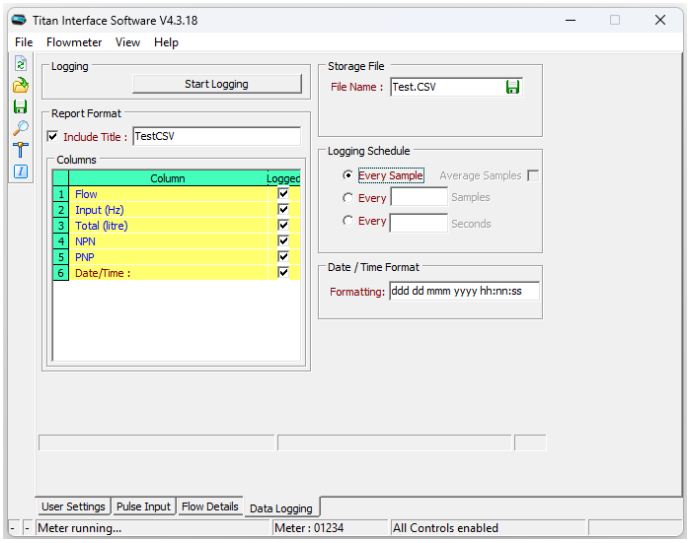
Pulse Input: Here the input to the Pulsite® Link is configured.



Flow Details: Shows the user real time data from the meter, including flow and outputs.



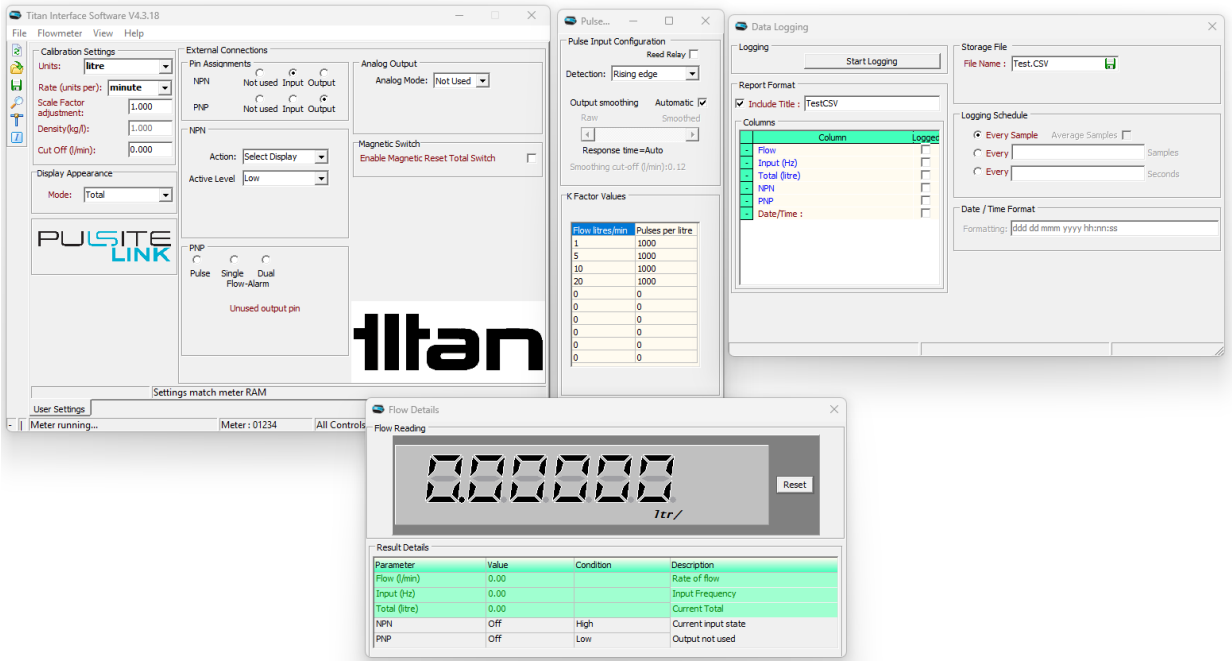
Datalogging: Enables the user to log the meter's output data on the connected computer.



Multiple Window Display

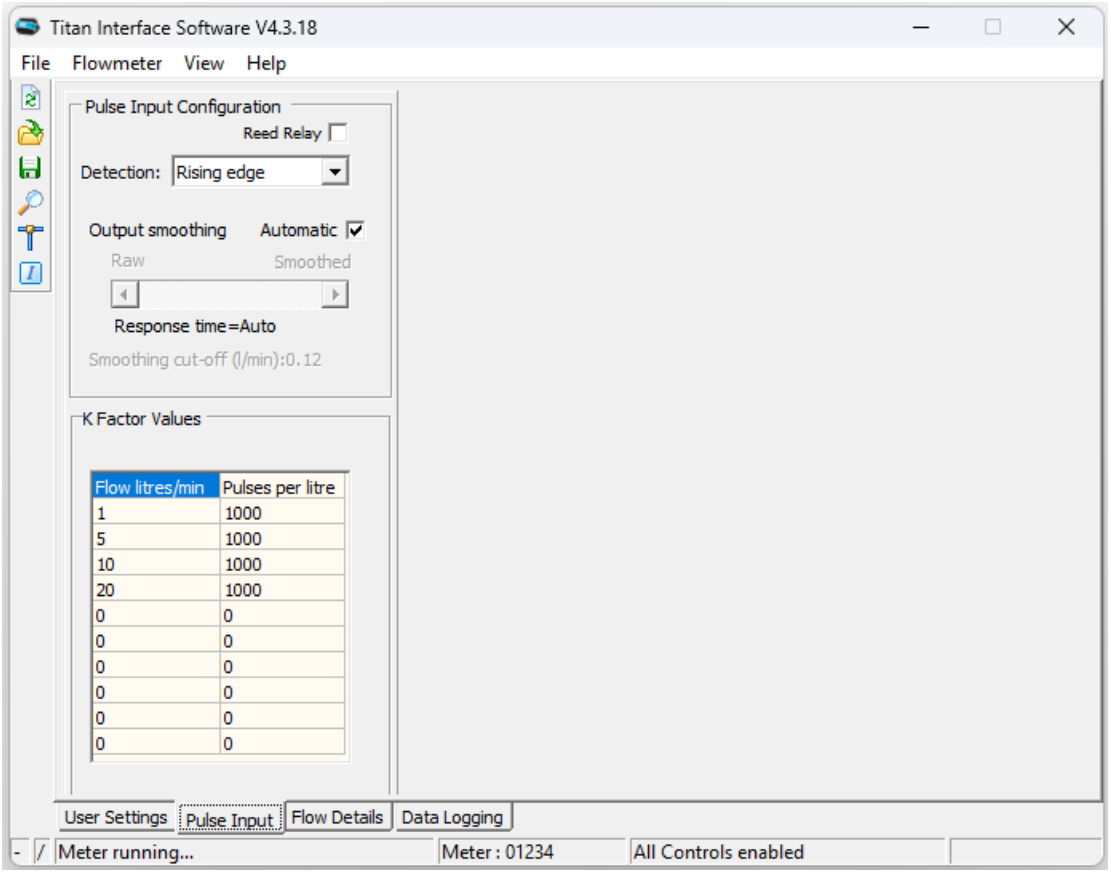
To aid set up whilst operating the meter it is possible to detach the Flow Details, Datalogging and Pulse Input windows by dragging and dropping the bottom tabs away from the main window. This allows the user to view those tabs whilst adjusting the User Settings.

To return all windows to docked Mode use the View drop down menu, Restore Defaults.

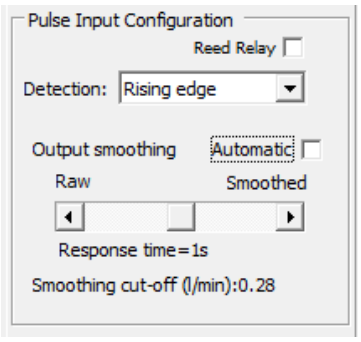


5.3 Pulse Input Tab (configuring flow meter pulse input)

This tab allows the user to enter the calibration information and configure the operation of the flowmeter which is generating the pulse flow information.



5.3.1 Flow Meter Pulse Input Configuration

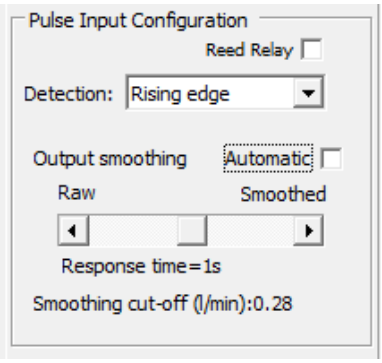


Reed Relay: Use when connecting a Reed relay flow meter.

When ticked, this provides an additional extended filter in which a logic high signal must be high for at least 560µs before it is propagated, whereas a logic zero is propagated immediately. This is intended for a circuit in which the reed relay switches to ground with a pull-up resistor.

Detection: Pulse detection can be chosen for Rising edge, Falling edge or Both edges of the input pulse.

"Both edge" detection measures both the rising and falling edges increasing resolution to enable a 1:1 ratio of pulse input to pulse output, when in synchronous mode.



Output Smoothing: This selects the rate that the analog output and asynchronous pulse outputs are updated.

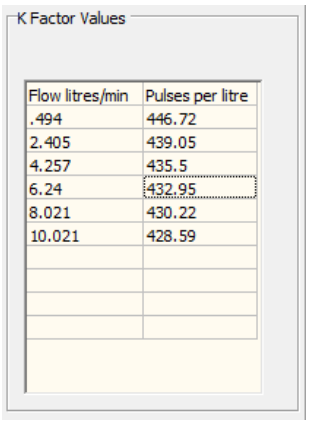
Chose Automatic and the Pulsite Link will adjust the sampling response time to the fastest available from the Hz pulse input.

Alternatively, the user can choose a single response time for the flow range of operation. For continual reliable sampling the slowest response time must be slower than the lowest expected input rate.

Once the calibration data is entered the smoothing cutoff will display the lowest flow that can be reliably measured.

Hovering your mouse over the Cut Off value in the User Settings tab will also show the Smoothing cut-off and recommend you set above this value.

Setting the cut-off value below the recommended level means that when the flow is between the set value and the recommended value, the display will occasionally read zero.



K Factor Values: Enter 1 to 10 sets of values of flow and pulses per litre (K factor) as found in the calibration certificate supplied with your flow meter or instrument.

Use the mouse to activate each cell and enter the appropriate values from your calibration.

On completion Send settings:



and then check all values have been received and entered correctly by the software by retrieving settings from the meter.

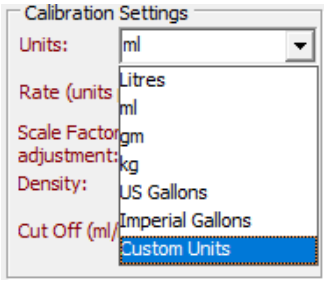


For correct linearization, the values should display with the lowest flow at the top of the table when recalled from the meter.

5.4 User Settings Tab

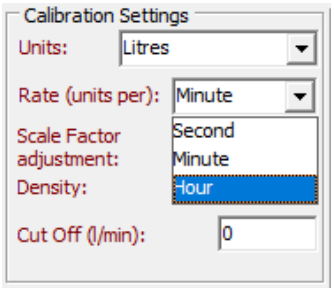
5.4.1 Calibration Settings

Here the user can configure the units of flow measurement for the display and outputs along with the lowest flow value to be reported. (Cut off)

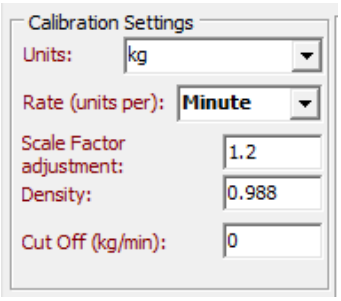


Units: A drop down menu offers the choice of Litres, ml, gms, kg, US gallon, Imperial gallon or Custom units i.e. blank.

Note that the Custom Units setting will be equivalent to Litres if no modifications are made to scale factor.



Rate (units per): This is the time base for the flow rate and has the option of Second, Minute or Hour.

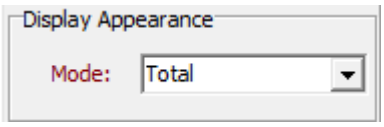


Scale Factor Adjustment: This allows the user to adjust or tune the calibration flow value if required.

Density: The flowmeter is fundamentally a volumetric device, but a density figure can be entered here if one of the mass units is selected. Caution must be used however, as there is no temperature/density correction.

Cut Off: Flow values below this level will be set to zero.

5.4.2 Display Appearance (Pulsite Link with Display Only - Part Number 370-009)

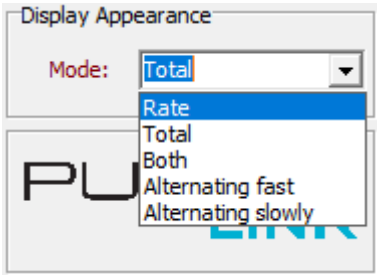


Mode: Allows the user to choose what is shown on the Display

Mode: Offers five options for the Display:

Rate = Flow Rate only is Displayed

Total = Totalised volume only is Displayed



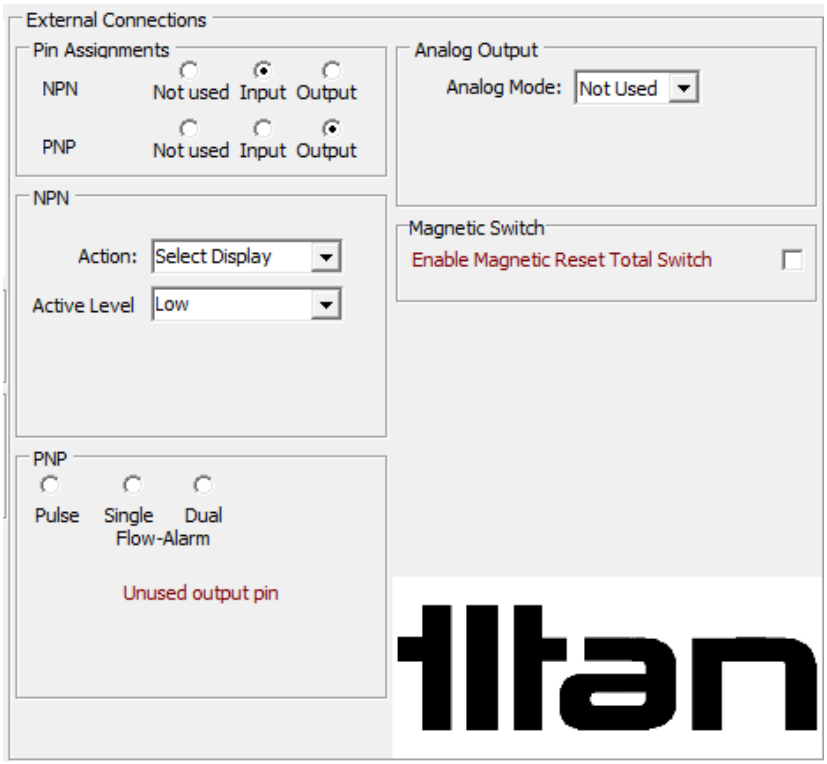
Both = Both Flow rate and Total are enabled, and the user can toggle to the preferred reading using the external Magnetic Switch OR an Input configured on the NPN or PNP output Pins

Alternating fast = The display will alternate the Display to show Flow Rate and then Total Flow readings every 3 seconds

Alternating slowly = The display will alternate the Display to show Flow Rate and then Total Flow readings every 6 seconds

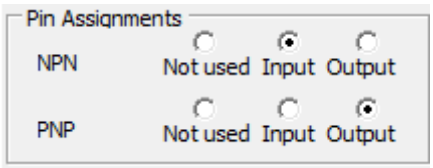
5.4.3 External Connections

Within this section the user can configure pulse, analog and alarm outputs, as well as input control signals.



PIN Assignments

The options for each PIN are: ⊙ Not Used ⊙ Input (Pulsite Link with Display Only - Part No.370-009) or ⊙ Output



Each of the PIN Assignments can be configured as an output pulse or alarm function, input signal function or not used.

The operation to modify NPN and PNP pins are identical within the software.

As they are different types of transistor, the correct wiring must be observed for each type. Please refer to section 3.1 Wiring Diagrams

The options for each PIN, are:

⊙ Not Used ⊙ Input or ⊙ Output

NOTE: These instructions are the same for NPN and PNP with the exception of the transistor wiring and operation.

For example: For NPN the idle state is switch 'open' which will be a high Volt output if there is a pull-up in the circuit. PNP would be the opposite, at zero Volt.

NPN and PNP Pulse and Alarm Outputs

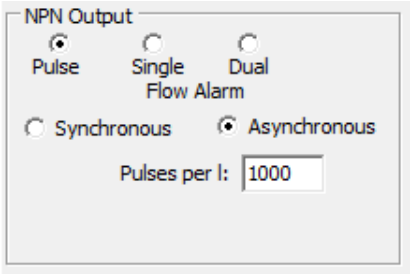
If Output is selected in PIN assignments, the output options are:

- Pulse
- Single or Dual flow alarm

Pulse:

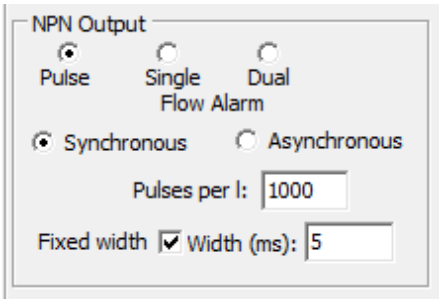
Enter the number of pulses per unit volume required. This figure can be adjusted to suit the application, and the flow range required from the meter.

The maximum output frequency is 5000 Hz so care must be taken to ensure that this pulse rate is not exceeded.



NOTE: *Details of how to connect the outputs can be found in Section 0*

There are two options for the Pulse Output:



- Asynchronous

In this mode the meter measures according to the analog response time and sends pulse (NPN/PNP) output after that period at 50:50 ratio.

- Synchronous

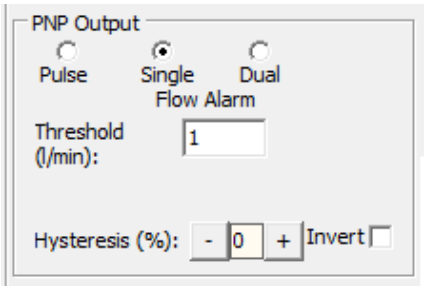
In this mode the pulse output (NPN/PNP) is sent directly on receipt of the second pulse edge received.

The pulse output is direct 50:50 ratio or can be set to a specific pulse width(ms).

Single Flow Alarm:

Checking this option opens up input boxes for Threshold, Hysteresis and Invert.

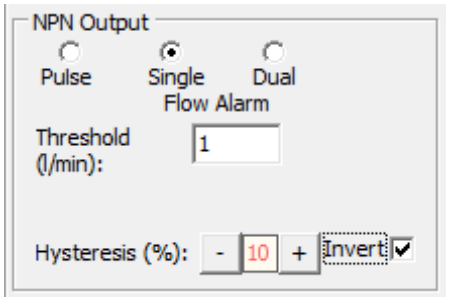
Set the Threshold to the flow value you require the transistor to operate.
The logic of operation can be adjusted with the Invert check box.



Hysteresis (%): This is used to prevent “fluttering” of the alarm signal when flow is around the threshold level.

The % value is set around the Threshold value.

For example: Threshold set at 1.0 and Hysteresis at 20%. The PIN will turn ON at 1.1 and off at 0.9.

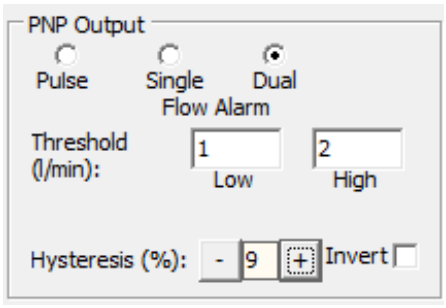


NOTE: The Invert checkbox will reverse the action of the alarm output.

For details for each PIN see the Alarm logic table or hover the mouse over the set point to see the action of the output with the chosen settings.

Dual Flow Alarm:

Checking this will enable a range of flow to be entered. When the flow is outside/inside of this range the alarm will be triggered.



The remaining settings in the input box are the same as for Single Flow alarms.

- The alarm will automatically activate and reset in proportion to the user set Hysteresis of the Threshold levels.
- The Invert checkbox will reverse the action of the alarm output. (See the Alarm Logic Table).

For details for each PIN see the Alarm logic table or hover mouse over the set point to see the action of the output with the chosen settings.

Flow Alarm Logic Table

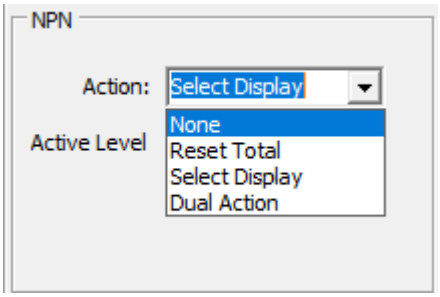
Flow Alarm	Invert	Alarm Action	
		Below Threshold	Above Threshold
Single	Unticked	OFF	ON
Single	Ticked	ON	OFF
		In Range	Outside Range
Dual	Unticked	ON	OFF
Dual	Ticked	OFF	ON

NOTE: The NPN and PNP have different outputs when used due to their wiring.

- Using the NPN: OFF =Powered +VDC and ON = Unpowered 0VDC
- Using the PNP: OFF=Unpowered 0VDC and ON = Powered +VDC

NPN and PNP Transistors as Signal Input Switches (Pulsite Link with Display Only – Part No.370-009)

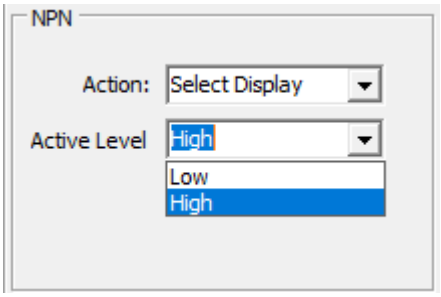
The output transistors can be configured to receive a signal telling the Pulsite Link to Reset the total and/or cycle the display from Rate to Total.



When configured to receive an Input the NPN and PNP output pins can be used remotely for one of three actions:

Reset Total:

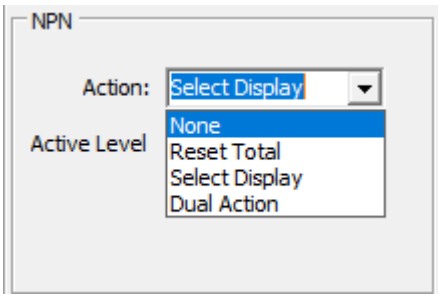
Resets the Flow Total on receiving a signal pulse.



Select Display:

The user can configure the display to show flow Rate or flow Total depending on the logic of the input signal.

The chosen Active Level will enable the flow Rate display. Switching the signal to the other logic will display the flow Total



Dual Action:

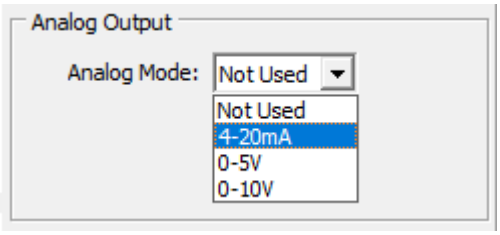
Selecting this option enables two signal input modes:

1. A 100ms pulse will change the display between Rate and Total
2. A 4 second hold signal will reset the flow Total

Choosing this option will disable the external magnetic switch.

Analog Outputs

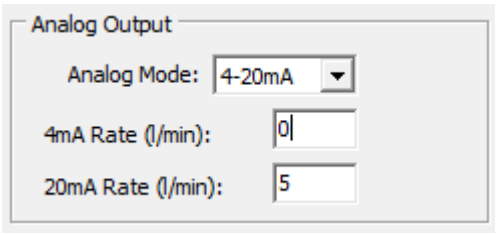
NOTE: FOR FULL ANALOG OUTPUT FUNCTION EXTERNAL POWER OF >15VDC IS REQUIRED



There are four options on the Analog Mode drop-down menu:

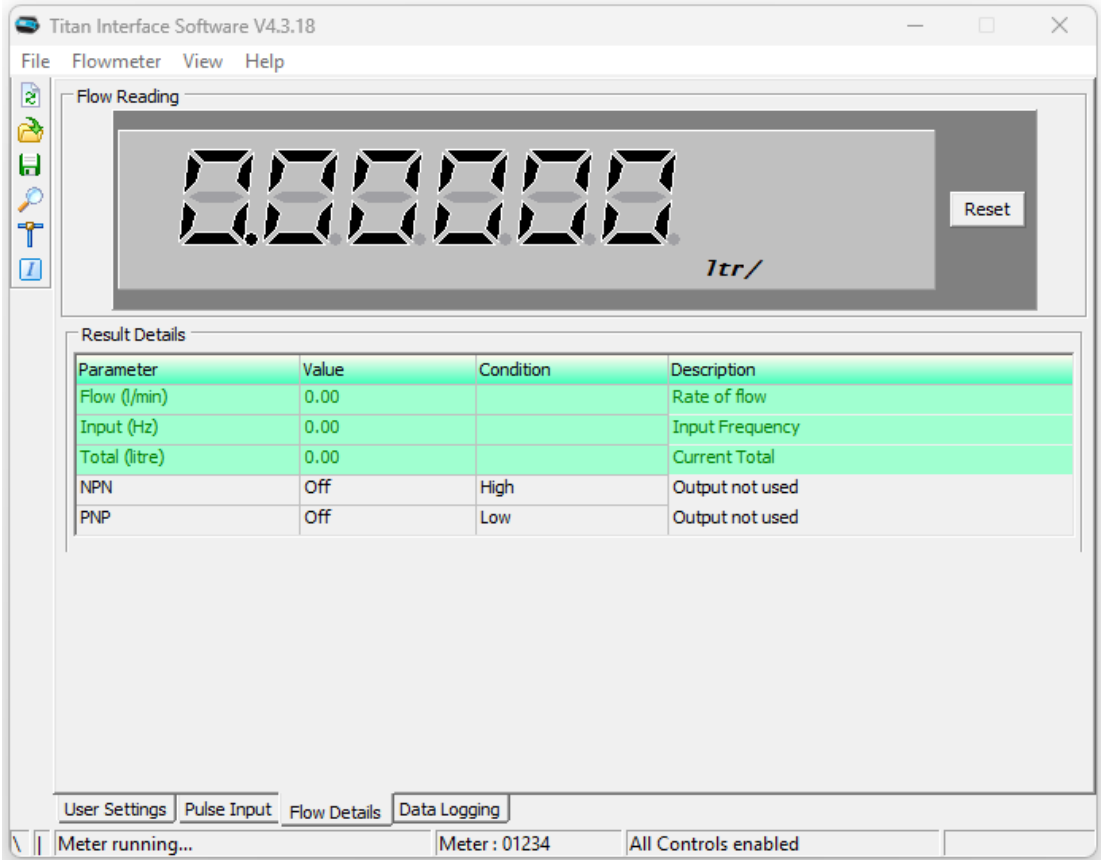
- Not Used
- 4-20mA (active)
- 0-5 Volt
- 0-10 Volt.

NOTE: The 4-20mA is **ACTIVE** (Not loop powered).
Incorrect wiring may damage this device



Once the Analog Mode selection has been made you can enter the low and high flows for the analog outputs as required. These are numeric entries in the units and time base selected in calibration settings.

5.5 Flow Details Tab



The Flow Details tab displays the performance of the meter in real time.

The **Results Details** window below the rate and total display shows various relevant operational parameters whilst the unit is operating, e.g. relay status and frequency output if these options are selected.

Parameters:

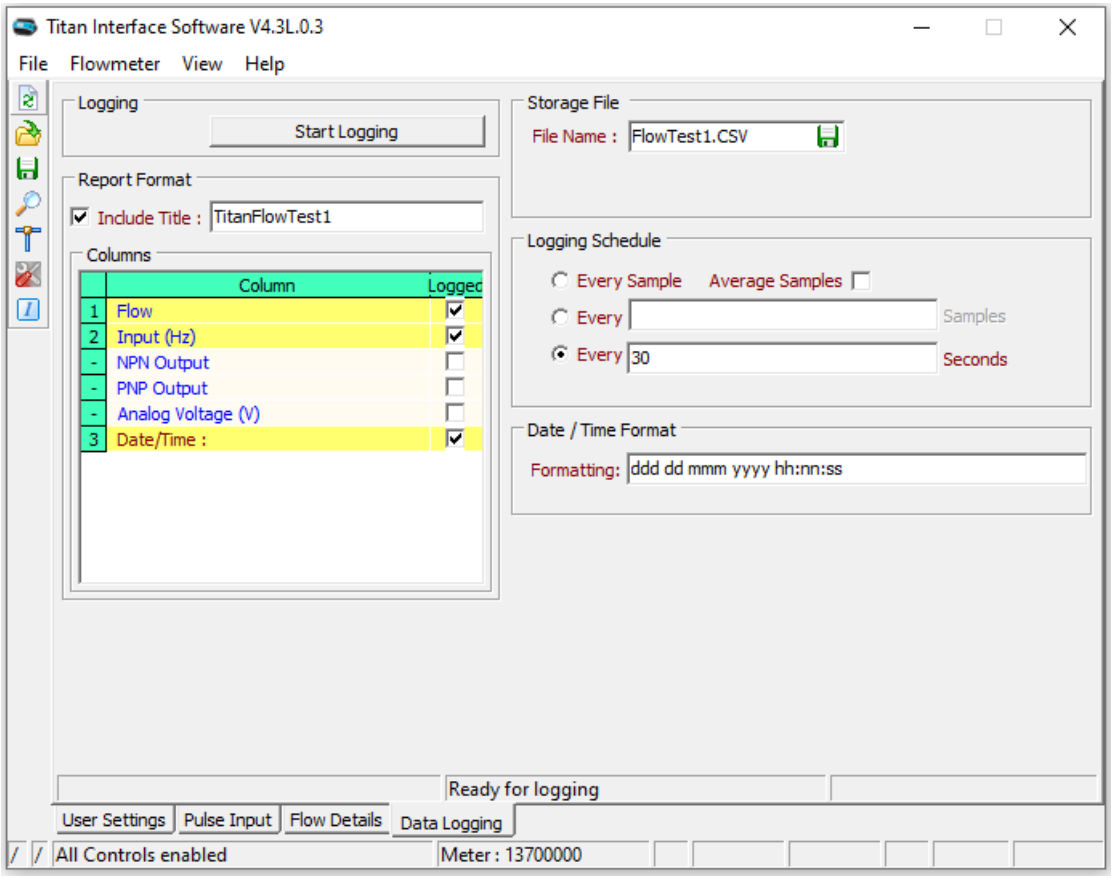
- **Flow**: This is the instantaneous flow rate and is updated approximately every 100 milliseconds.
- **Input**: The measured frequency of pulses from the connected flowmeter/device.
- **NPN & PNP**: The output frequency and/or the I/O operational status of the Pins
- **Analog**: Displays the chosen analog output and value.

The chart below shows the various display messages for the operating functions. During operation only one message will be shown for each parameter.

Parameter	Value	Condition	Description	Additional Comments
Flow	12.54		Rate of Flow	*Raw Flow Reading (without viewing filter)*
Input (Hz)	647.97		Input Frequency	*Frequency measure from connected flowmeter*
NPN	Off	High	Not Used	*NOTE: Will Read +VDC (High) if pull up connected*

	0	Inactive	Output Pulse Frequency (Hz)	*i.e. No Pulses*
	237	Active	Output Pulse Frequency (Hz)	
	Off	High	Output Alarm State	*No Alarm* *+VDC*
	On	Low	Output Alarm State	*Alarm Triggered* *0VDC*
	On	Low	Output Alarm State	*Invert Selected* *No Alarm* *0VDC*
	Off	High	Output Alarm State	*Invert Selected* *Alarm Triggered* *+VDC*
	Off	High	Current Input State	*Input Signal*
	On	Low	Current Input State	*Input Signal*
PNP	Off	Low	Not Used	*NOTE: Will Read +VDC if pull up connected*
	0	Inactive	Output Pulse Frequency (Hz)	*i.e. No Pulses* *NOTE: No +VDC. The PNP will not work on USB power alone*
	237	Active	Output Pulse Frequency (Hz)	
	Off	Low	Output Alarm State	*No Alarm* *0VDC*
	On	High	Output Alarm State	*Alarm Triggered* *+VDC*
	On	High	Output Alarm State	*Invert Selected* *No Alarm* *+VDC*
	Off	Low	Output Alarm State	*Invert Selected* *Alarm Triggered* *0VDC*
	Off	Low	Current Input State	*Input Signal*
	On	High	Current Input State	*Input Signal*
Analog Current	12.54	OK	Analog Current output (4mA-20mA)	
	12.54	No Power	Analog Current output (4mA-20mA)	*No external power to meter*
	12.54	Fault	Analog Current output (4mA-20mA)	*Wiring disconnected*
Analog Voltage	3.22	OK	Analog Voltage output (0V-5V/10V)	
	3.22	No Power	Analog Voltage output (0V-5V/10V)	*No external power to meter*

5.6 Data Logging Tab

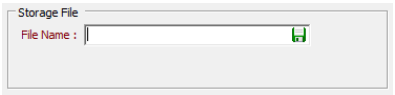


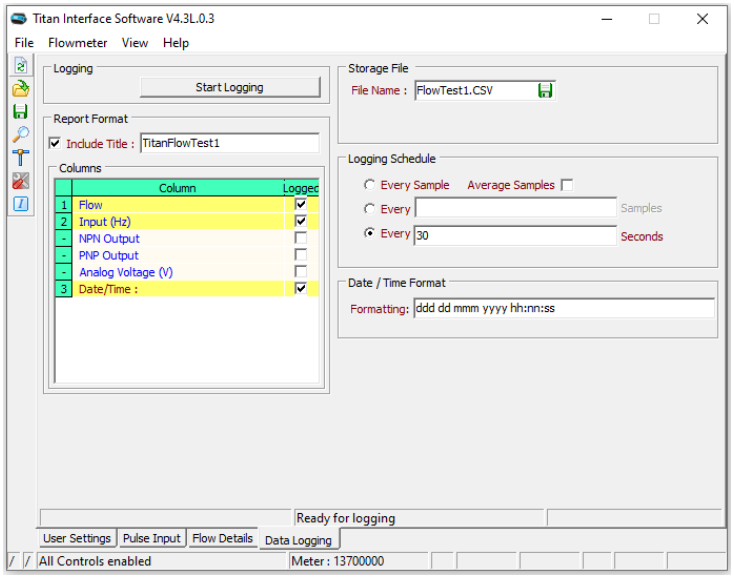
For general monitoring purposes it is possible to log the meter/instrument performance using the Data Logging Tab function.

The logging is not internal to the flowmeter/instrument but stored to the connected PC and therefore only occurs whilst the PC is connected to the meter/instrument via the USB.

Simply check the relevant parameter you wish to log, choose a sensible sampling period (i.e. for longer data logging periods choose 10+ second intervals to limit the size of the file created).

Then click the  Icon under Storage File and enter a simple filename (no spaces) at a location you desire.





Once all is selected correctly the Start Logging button will become enabled. Click it to start the data logging file creation. In the bottom left corner, the samples collected will be listed as the log file builds.

To finish the log file, simply click Stop Logging.



6 Indicator and Display Hardware

6.1 LED Indicators

The Pulsite® Link units have two LED indicators.

Left-Hand Side		Right-Hand side	
GREEN	Power >12VDC	GREEN flashing	Pulse Output (only)
YELLOW/GREEN	Power <12VDC Analog output: VDC or Not Selected	BLUE flashing	Analog output (only)
RED	4-20mA Output selected but not connected	TURQUOISE flashing	Pulse and Analog output
BLUE	Communication/ settings sent		
	Magnetic Switch Activated (Display unit only)		
TURQUOISE	Magnetic Reset Total signal completed (Display unit only)		
PURPLE	Software Configuration error		
WHITE	Control Input received via NPN/PNP (Display unit only)		

6.2 Magnetic Switch

The Pulsite Link with display (Part No. 370-009) has a hidden magnetic switch which enables switching of the display between Flow Rate and Flow Total; and resetting of the flow Total display.

Magnet Supplied with the Pulsite Link. Any reasonable strength magnet will trigger the switch	

Hold a magnet at the top middle region of the display as shown When the switch is triggered the left-hand LED light will turn blue and trigger to: • Change Display between Flow Rate and Flow Total, when the Display is set to BOTH in the software • Resets Flow Total when held for 4 seconds when the Enable Magnetic Reset Total Switch is selected in the software	
When the 4 second has completed the left LED will change to light Turquoise. Note - the display and totaliser will restart when the magnet is removed.	

6.3 LCD Display

The Pulsite Link with Display (Part No.370-009) has a Reflective LCD display which will show values for Flow Rate or Flow Total and the units of rate and volume.



7 Technical Specification

Power Requirement	15-24Vdc 0.1 amps	Regulated
Input Types	Pulse Reed Switch	max 5kHz max 400Hz
Pulse Output (Scalable)	NPN and PNP Options: Asynchronous 50:50 Synchronous 50:50 Fixed width	max 2.5kHz pull up/down resistor required 24V@20mA max. Scalable pulse per litre
Analog Output (Scalable)	4-20mA (Active)	250 Ω maximum
	0-5Vdc / 0-10Vdc	14VDC minimum supply
Flow Set Points	NPN/PNP FET transistors	20mA@24Vdc max
Sensor Supply	5Vdc	50mA max 20°C 25mA max 65°C
Response Time (User Configurable)	100ms, 1s or 10s	Option in software
Accuracy		
4 - 20mA output	±0.012% linearity ±0.15% maximum total output error	16-Bit resolution and monotonicity
0 - 10 Volt output	±0.1% linearity ±0.5% maximum total output error	16-Bit resolution and monotonicity
0 - 5 Volt output	±0.1% linearity ±0.5% maximum total output error	16-Bit resolution and monotonicity
Pulse output (synchronous)	±1µs instantaneous pulse edge accuracy All pulses	32-Bit conversion ratio better than ±300 parts per trillion
Pulse output (asynchronous)	±100µs instantaneous pulse edge accuracy ±0.01% synthesized frequency error	32-Bit conversion ratio better than ±300 parts per trillion
USB ASCII flow data stream	Flow information only in format chosen in User Settings of Titan Interface Software	10Hz output
Housing	IP64	ABS/PC polymer
LCD Display	Reflective 6x8mm high main characters 2.5mm enunciators Gal/ ml/ kg/ gm/ L /sec /min /Hr	Not backlit
Connections	1 x USB Type A 9 x 5mm Pitch Terminal connections 2 x PG7 Cable Glands	Internal

8 Troubleshooting

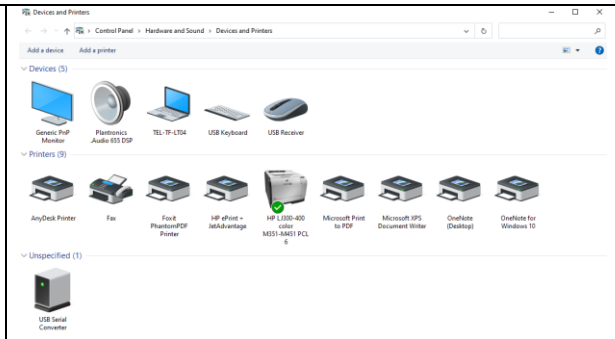
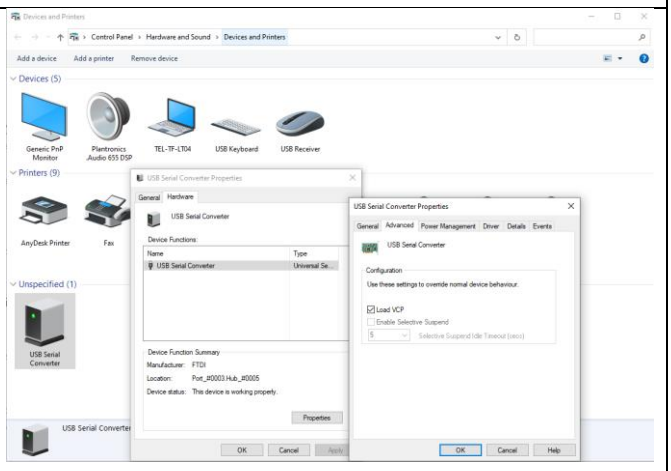
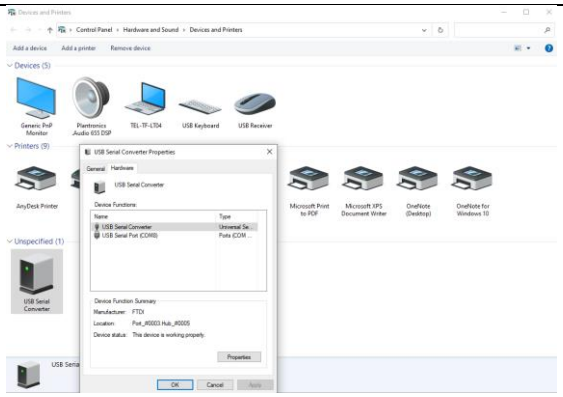
Symptom	Cause	Solution
LED light not seen	Power supply issue	Check wiring and supply is 15-24VDC
LED does not pulse with Flow	No output configured	Configure analog or pulse output using Titan Interface Software
No Flow Reading from input	Incorrect wiring	Check Pull Up or Pull Down resistor are wired correctly according to the diagrams in the manual
	No pulse from meter	Check wiring and pulse output from the flow meter
Flow Readings show zero values	Sample speed too high for Hz pulses received	Change Analog response time using Titan Interface Software
No Pulse Output on wire but output showing on Interface Software	Incorrect wiring	Check Pull Up or Pull Down resistor are wired correctly according to the diagrams in the manual
No Pulse Output on wire or showing on Titan Interface Software	Incorrect settings	Check Settings installation
No Analog Output	Incorrect Configuration	Check that the correct configuration and wiring is used. Ensure Values in the range boxes are adequate for the flow being measured
	Indicated in “No Power” in Value column of Flow Details Tab of Interface Software.	Power to Pulsite® Link too Low Check power wiring to device >15VDC
	Indicated in “Fault” in Value column of Flow Details Tab of Interface Software.	4-20mA circuit broken. Check wiring
	Component Failure on PCB	Return to Titan Enterprises for repair
Analog Output incorrect	Voltage too low	Increase power to meter to >15VDC
	Settings incorrect for range	Use Titan Interface Software to range the analog output flow min and max points

Titan Interface Software opens but shows not connected to device (no spinning bars in bottom left of screen)	Two windows of the Interface Software are open and second window is masking connected window	Either drag window out of the way or close second window using task bar
	Damage to USB Connection	Return to Titan Enterprises for repair
Titan Interface Software is not showing all Tabs (User Settings; Flow Details; Advanced; Datalogging)	Software is placing the tab window outside the monitor area	Go to View on the top bar menu and click Restore Defaults. This restores the Viewing defaults and re docks all tabs to the main window
ASCII not being seen/sent	ASCII Streaming not enabled	Power Cycle the device and/or connect Titan Interface Software and exit program before disconnecting unit.
	VPN not set up correctly on receiving device	Set up VPN - See section 4 ASCII Data Stream via USB



9 Appendices

9.1 Setting Serial Port to Enable VCP on Windows PC

Open Control Panel Devices and Printers on your PC: (Windows 11: Bluetooth & devices > Devices. Scroll down and select ”More devices and printer settings”	
Plug in the ASCII Streaming device and identify the New Device	
Highlight and Right Mouse Click to Access Properties	
In Advanced Tab enable VCP	
Disconnect and Re-Connect the USB to the ASCII Streaming Device	
Find and Open Device Properties and look to Hardware to Identify the COM Port Value. e.g. COM8	
If required, Test the Streaming using the included program ASCII_Test_Pulsite_Link.exe	



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