# **Illan** PUSITE®

# **INSTRUCTION MANUAL**



#### **Titan Enterprises Limited**

Distributor: DDM GmbH & Co. KG

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Part number: 370-008

#### **Document ID:** *PulsiteLink\_Instruction\_Manual\_0823*

These instructions are intended for use with the Pulsite<sup>®</sup> Link installed with App Version 2.0.1 or higher; and the Interface Software Version 4.3.0 or higher.

To view the version number, click the *button* 



#### Intended use:

- The Pulsite<sup>®</sup> Link pulse convertor is intended for use with pulse output devices, such as:
  - o *NPN*
  - o *PNP*
  - o Reed Switch
- The Pulsite<sup>®</sup> Link pulse convertor can provide linearised outputs of
  - o 4-20mA (active)
  - 0 0-5V
  - o **0-10V**
  - NPN and PNP
  - o ASCII flow readings
  - The Pulsite® Link pulse convertor can also provide
  - Flow alarm switches via NPN and PNP output terminals

#### 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.

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#### **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.

And conforms to:

- CE • EMC Directives (2004/108/EC) EU Directive (2014/30/EU)
- UKCA
  - o Electromagnetic Compatibility Regulations 2016



# 1 General

- The Pulsite<sup>®</sup> Link pulse convertor is intended for use with pulse output devices, such as:
  - o NPN
  - o PNP
  - o Reed Switch
- The Pulsite® Link pulse convertor will provide linearized outputs of:
  - o 4-20mA (active)
  - o **0-5V**
  - o 0-10V
  - o NPN
  - o PNP
  - ASCII flow readings
- The Pulsite<sup>®</sup> Link pulse convertor can also provide:
  - o Flow alarm switches via NPN and PNP output terminals

### 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**



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# **3** Electrical

The Pulsite® Link can be programmed using the USB 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.



Description	Specification	Terminal Connection
Power Supply	15-24Vdc Regulated 0.1 amp	+24VDC $\rightarrow$ Power Input +V 0VDC $\rightarrow$ Power Input 0V
Flowmeter Input	Pulse (max. 5kHz) Reed Switch (max. 400Hz)	+VDC Supply to meter $\rightarrow$ <i>Flowmeter</i> +5 <i>V Out</i> 0VDC Supply to Flowmeter $\rightarrow$ <i>Flowmeter</i> 0 <i>V</i> Pulse from flowmeter $\rightarrow$ <i>Flowmeter</i> <b>L</b>
	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.	Pulse Output to PLC/display $\rightarrow$ Digital Output NPN or PNP
	Scalable pulse per litre	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

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#### 3.1.1Wiring Diagrams



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

#### 3.1.2 USB Connection

The housing of the Pulsite<sup>®</sup> Link has an M20 screw thread gland cover situated at the USB connection position. This allows access to the USB connection in order to change settings or datalog the Pulsite<sup>®</sup> 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

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# 4 ASCII Data Stream via USB

ASCII Flow Data Stream via USB for Pulsite<sup>®</sup> 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<sup>®</sup> 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 "<u>Titan Interface Software</u>".

#### 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" 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 <b>Appendices</b> 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<sup>®</sup> Link to communicate via USB. The FTDI VCP driver converts the USB data stream to ASCII.

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

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# 5 Interface Setup

#### **5.1 Connecting Meter to PC**

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

The Pulsite<sup>®</sup> 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:

File Flowmeter View Help				^
Calibration Sertings Units: Note  Units: Not	External Connections Pin Assignments NPN Output Included RNP Output RNP Outpu	+-20mA  9  13	•	
	MP Output C G C Pulse Single Dual Rox-Alam Threation Gimnit: 2 + Invent	3		٦
Settin	gs match meter RAM			
User Settings Pulse Signal Delaits	gging   Flow Details			

**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<sup>®</sup> 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.



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#### 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:

🗢 Titan I	interface Softv	vare V4.3.	0							-	×
File Flo	wmeter Viev	w Help									
			Select [016051] [1370000	meter to in TE715-001 A 0] TE715-900	terface with trato ) Pulsite Link	-	. [	]	×		
User	Settings Adv	anced P	ulse Input	Flow Details	Data Loggi	ng					
Walk	ing for conner	tion					_			 	

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.



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#### 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:

			Settings	metch meter an	n-volatile m	emory			
	User Settings	Advanced	Pion Details	Data Lagging					
T I	All Controls or	balde		Meter: 0	16352		1.		

#### 5.1.3 Save Settings to Meter

2 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:

				Settings r	natch meter R	AM				
		User Settings	Advanced	Flow Details	Data Logging					
Ī	١	All Controls er	abled		Meter :	016352				

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



and the Confirm save menu



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

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

			5	Settings r	match meter non-volatile memory
		User Settings	Advanced	Flow Details	Data Logging
1	1	All Controls er	abled		Meter : 016352

#### 5.1.4Test 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.

Analog Made	Analog Testing	in and	and the	in dela	1
C 0107	Onor	2.5V	Scroware	p.a message	Der with de
Pn Testing NPN Output	e	NP Output	te second		
		Dett	er al		

#### 5.1.5 Software Information



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

	×
Titan Interface Soft	Ware Version: 4.3.0
Titan Enterprises Ltd Unit 2 3A Cold Harbour Business Park Sherborne Darset Dir9 4JW	Soard Information Soard connected Senail VP : (3700000 Board 1 Publishe Links App 1 2 2.0.1
Copyright @ 2022, All rights reserved	www.flowmeters.co.uk
illan	Cet



#### 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<sup>®</sup> Link is configured

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



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	Skytingping	His Name : Moviest LCSV	
Rapport Pormat	erfecters	- Logging Schedule	
1 Filer	Column Los	C Dony Largin Armage Largins [	- Canadara
1 Brown (HL) 1 Prin Culput	1	of they a	Jeants
Anthop Voltage	00 F	Date /TerePerral	
<b>—</b>		Executing 465.55 mm yyyy khoen at	

**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.



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#### 5.3 Pulse Input Tab

	View Help			
Pulse Input (	Configuration Reed Relay			
Detection:	tising edge 🔹			
Output smoo	athing Automatic 🔽			
Raw	Smoothed			
1	) F			
Response	e time=Auto			
	A			
smoothing o	ne.ou. (Nu.): 10:23			
Flow litres/	nin Pulses per litre			
110.02	434			
20.00	416.0			
8.14	435.8			
8.14 6.07	435.8 438.2 440.4			
8.14 6.07 4.32	435.8 438.2 440.4 447.4			
8.14 6.07 4.32 2.408 0.49	435.8 438.2 440.4 442.4 415.4			
8.14 6.07 4.32 2.408 0.49	435.8 438.2 440.4 442.4 435.4 0			
8.14 6.07 4.32 2.408 0.49 0	435.8 438.2 440.4 442.4 435.4 0 0			
8.14 6.07 4.32 2.408 0.49 0 0 0	435.8 438.2 440.4 442.4 435.4 0 0 0			
8.14 6.07 4.32 2.408 0.49 0 0 0 0	435.8 438.2 440.4 442.4 435.4 0 0 0 0 0			
8.14 6.07 4.32 2.408 0.49 0 0 0 0	435.8 438.2 440.4 442.4 435.4 0 0 0 0 0 0			

#### 5.3.1 Pulse Input Configuration

Pulse Input Configuration Reed Relay
Detection: Rising edge
Output smoothing Automatic
Response time is
Smoothing cut-off ()/min):0.28

**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.

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Pulse Input Configuration

Detection: Rising edge

Response time = 1s

Smoothing cut-off (l/min):0.28

Output smoothing

Raw

4

Reed Relay

Automatic [

Smoothed

F

**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 chose 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.

446.72           405         439.05           257         435.5           24         432.95           0021         430.22           0.021         428.59	fow litres/min	Pulses per litre
405 439.05 257 435.5 24 432.95 021 430.22 0.021 428.59	494	446.72
257 435.5 24 432.95 021 430.22 0.021 428.59	2.405	439.05
24 432.95 .021 430.22 0.021 428.99	4.257	435.5
.021 430.22 0.021 428.59	5.24	432.95
0.021 428.59	3.021	430.22
	10.021	428.59

**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

#### 5.4 User Settings Tab

#### 5.4.1 Calibration Settings

Calbratio	n Settings	
Units:	ml	•
Rate (unit	s Litres	
Scale Fact adjustmen Density:	organ Itologi	
Cut Off (n	Inperial Gallons	

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.

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Calibration Settin	igs
Units: Litres	•
Rate (units per):	Minute 💌
Scale Factor adjustment:	Second Minute
Density:	four
Cut Off (//min):	0

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

Calibration Settin	gs	
Units: kg	*	l
Rate (units per):	Hinute 💌	I
Scale Factor adjustment:	1.2	1
Density:	0.988	1
Cut Off (kg/min):	0	

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 External Connections

Within this section the user can configure pulse, analog and alarm outputs.

Pin Assignments	- Analog Output
C	·
NPN Output Not used Ou	tput Analog Mode: 0-5V 💌
NP Output Not used Ou	ov Rate ()/min): 0
NPN Output	SV Rate ()/min): 1
Pulse Single Dual Flow Alarm	
C Synchronous C Asynchron	us
Pulses per l: 1000	
200 A 4	
PAP OUDUC	
Pulse Single Dual	
Flow Alarm	
C Synchronous (* Asynchrono	kus
Pulses per l: 1000	

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Not used

Not used

#### PIN Assignments:

Pin Assignments

NPN Output

PNP Output

The options for each PIN are: ⊙ Not Used ⊙ Input or ⊙ Output

œ.

Output

Output

Each of the PIN Assignments can be configured as an output function or not used.

The operation to modify NPN Output and PNP Output is identical within the software, with the exception of the type of transistor pulse output.

The options for each PIN, are:

Output ● Not Used 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 Output / PNP Output

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 3.1.1

There are two options for the Pulse Output:

NPN Output				
(* Synchronous C Asynchronous				
Pulses per I: 1000				
Fixed width 🔽 Width (ms): 5				

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).

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#### Single Flow Alarm:

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

Set the <u>Threshold</u> to the flow value you require the transistor to operate.

The logic of operation can be adjusted with the <u>Invert</u> 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.

- PNP Outp	ut	
0	(÷	C
Pulse	Single	Dual
	Flow A	larm
Threshold (I/min):	1	
Hysteresi	s (%): -	0 + Invert

NPN Output
Pulse Single Dual Flow Alarm
Threshold 1 (I/min):
Hysteresis (%): 10 + Invert

For details for each PIN see the or hover 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.

PNP Output		
0 0	( <del>•</del>	
Pulse Sing	gle Dual	
FI	low Alarm	
Threshold	1 2	_
(l/min):	Low Hed	
	Low Hig	
Hysterasis (%)	Q IIInve	rt 🗌
inyater cata ( 76)	· · · · ·	

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.

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#### **Alarm Logic Table**

	Invort	Alarm Action		
FIOW AIdTH	mven	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

#### **Analog Outputs**

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

Analog Output	
Analog Mode:	Not Used 💌
	Not Used
	4-20mA
	0-5V
	0-10V

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** (<u>Not</u> loop powered). Incorrect wiring may damage this device

Analog Output	
Analog Mode: 4-2	0mA 💌
4mA Rate (I/min):	0
20mA Rate (I/min):	5

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

			Itr/ min
Result Details			
Parameter	Value	Condition	Description
Flow ()/min)	0.00		Rate of flow
Input (Hz)	0.0		Input Frequency
NPN Output	0.00	High	Output pulse frequency(Hz)
PNP Output	off	No Power	Not used
Analog Voltage (V)	0.00	No Power	Analog voltage output (0V-5V)

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 Output & PNP Output: If no selection is made, "Not used" will be in the Description column. See following text and chart for the display legends.
  - OR: When NPN or PNP is set to "Output" and set to "Pulse" this will display the frequency of the running output and the number of pulses per litre selected.
  - OR: If set to "Output" and set to "Flow switch" the Value column will show the transistor status either "low" or "high" and the notes will show the selected switch points.
- 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.

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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 Output	Off	High	Not Used	NOTE: Will Read +VDC if pull up connected
	237	No Power		
	237	Active	Output Pulse Frequency (Hz)	
	Off	High	Output Alarm State	<i>No Alarm +VDC</i>
	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
PNP Output	Off	Low	Not Used	NOTE: Will Read +VDC if pull up connected
	237	No Power	Output Pulse Frequency (Hz)	No +VDC. The PNP will not work on USB power alone
	237	Active	Output Pulse Frequency (Hz)	
	Off	Low	Output Alarm State	<i>No Alarm 0VDC</i>
	On	High	Output Alarm State	Alarm Triggered +VDC
	On	High	Output Alarm State	Invert Selected No Alarm 0V
	Off	Low	Output Alarm State	Invert Selected Alarm Triggered 0VDC
Analog Current	12.54	ОК	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	ОК	Analog Voltage output (0V-5V/10V)	
	3.22	No Power	Analog Voltage output (0V-5V/10V)	No external power to meter

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#### 5.6 Data Logging Tab

Logging Start Logging	Storage File	
Report Format	Logging Schedule C Every Sample Average Samples C Every C Every C Every Date / Time Format Formatting: ddd dd mmm yyyy hh:nn:ss	Samples Seconds
1		

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

Storage File		
Ple Nane :	1	6

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Legong	Startige File	
StartLegong	Ple fune : Plantests Chr 64	
Report Parriet		
V Include Title : [TitanFlowFort]	Leging Schedule	
Cilum In	C Every Sangle Average Sangles	
1 Per	C Deev	Samples
<ul> <li>Met Mit</li> <li>Met Output</li> </ul>	@ Dvery 30	Seconds
P P O Aput		
3 DeleyTese : 3	Date /Time Format	
	Formettings (cold did mmm yoys https://com	

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.

Logging	
	Stop Legging
-	

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# 6 LED Indicators

The Pulsite® Link has two LED indicators.

Left-Hand Side		Right-Hand side	
GREEN	Power >6VDC	GREEN flashing	Pulse Output (only)
YELLOW/GREEN	Power <6VDC 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		



# 7 Technical Specification

Power Requirement	15-24Vdc	Regulated
	0.1 amps	
Input Types	Pulse	max 5kHz
	Reed Switch	max 400Hz
Pulse Output	NPN and PNP	max 2.5kHz
(Scalable)	Options:	pull up/down resistor
	Asynchronous 50:50	24/0.000  max
	Synchronous 50:50	Scalable pulse per litre
	Fixed width	
Analog Output	4-20mA (Active)	250 Ω maximum
(Scalable)	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	100ms, 1s or 10s	Option in software
(User Configurable)		
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
Connections	1 x USB Type A	Internal
	9 x 5mm Pitch Terminal connections	
	2 x PG7 Cable Glands	

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# 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	Power to Pulsite <sup>®</sup> Link too Low
	Tab of Interface Software.	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

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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

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Pulsite®Link\_Instruction\_Manual\_0823

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# 9 Appendices

#### 9.1 Setting serial port to enable VCP on Windows PC



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