



FLOWMETERS

PRECISION IN WATER FLOW MEASUREMENT

# Operation and Maintenance Manual

## Flowpod Mini

The FlowPod Mini provides the most reliable and accurate flow and pressure measurements. Ideal for producing verifiable and traceable data for your reports



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## I.1 What's in the box?



- ① FlowPod Mini
- ② Battery Charger
- ③ USB Key (containing further manuals)
- ④ USB Cable



## 2.1 GENERAL

<b>Weight</b>	7kg
<b>Dimensions</b>	210 mm height, 240 mm width, 390 mm depth
<b>Case Material</b>	Aluminium
<b>Connections</b>	1" BSP Male Inlet, 1" BSP Male/ Valve Outlet
<b>Temperature</b>	- 10 to +50 C

## 2.2 FLOWMETER

<b>Colour</b>	Firemen Red and anodised aluminium
<b>Type</b>	Electromagnetic
<b>Range</b>	1-100 litres per minute
<b>Accuracy</b>	±2%
<b>Pressure Range:</b>	0 - 16 bar / 0-225PSI (±1)

## 2.3 DISPLAY

<b>Standard functions</b>	Displays of current flow rate, volume, pressure.
<b>Display Type</b>	320x240 pixel Backlit LCD Panel.

## 2.4 BATTERY PACK

**Battery power supply:** Rechargeable Li-Ion battery,  
8 hours operation time 12 V  
DC, 2.6 Ah, separate Li-Ion  
charger included in delivery.

## 2.5 MANUALS

The following manuals are provided on a CD supplied with the FlowPod Mini

- Operation and Maintenance Manual
- YouTube videos demonstrating how to use the Flowpod Mini
- Quick Start Guide

# 3 FlowPod Mini Operation

## 3.1 DISPLAY PANEL POWER-ON SEQUENCE

Turn on the FlowPod Mini by pressing the ON/OFF switch to "I" position. When the FlowPod Mini is first turned on, the flow meter's self-test mode will commence. This can last up to 5 seconds, after which the FlowPod will be booted and ready for use. **240**



### Parameter Settings Menu

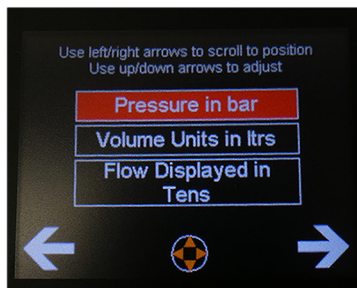
#### Flow Units Selection Menu

Press button 3 on home page to access. Navigate using the joystick. Use button 1 to return to home page, use button 4 to proceed to next menu.



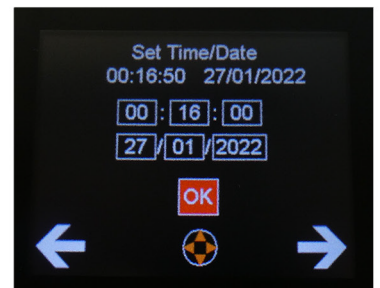
#### Pressure and Volume Selection Menu

Use the up-down arrows on the joystick to change pressure and volume units. You can navigate the options by the left-right joysticks.



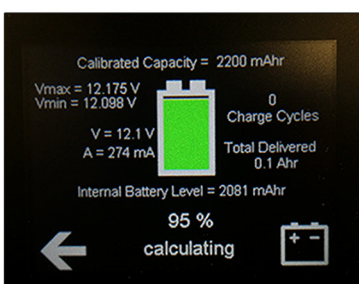
#### Date & Time Menu

Use the up-down joysticks to change time and date and the left-right arrows to navigate. Press the OK button for changes to come into effect.



#### Battery Info Menu

In this menu, you can view information about battery life and details about the charges, voltage and internal battery level.



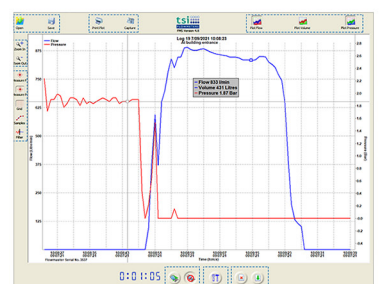
#### Data Logger

Access information about the current log time and how much log data memory your FlowPod Mini has. You can activate logging by pressing button four.



#### FMS Software

The FMS Software is accessible on your PC, and allows you to graph logging info and keep track of previous logs.



# 4 Using Your FlowPod Mini

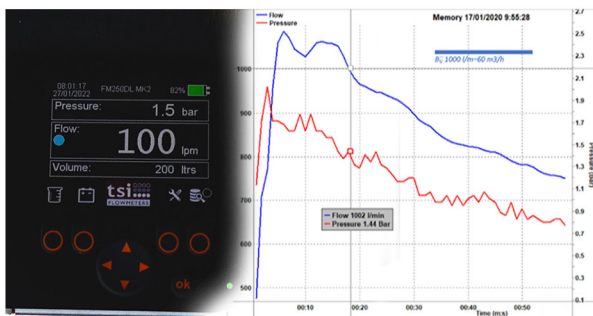
## 4.1 SIMPLE STEPS TO FAST FLOW ANALYSIS

1.



Measure and record pressure and flow rate

2.



Upload results to PC and use FMS software to manage and graph log files

Print labelled report

Save labelled graph as image file (.BMP format)

## 4.2 PRECAUTIONS FOR USE



**IMPORTANT - PLEASE READ THIS SECTION BEFORE USING YOUR FLOWPOD MINI.**

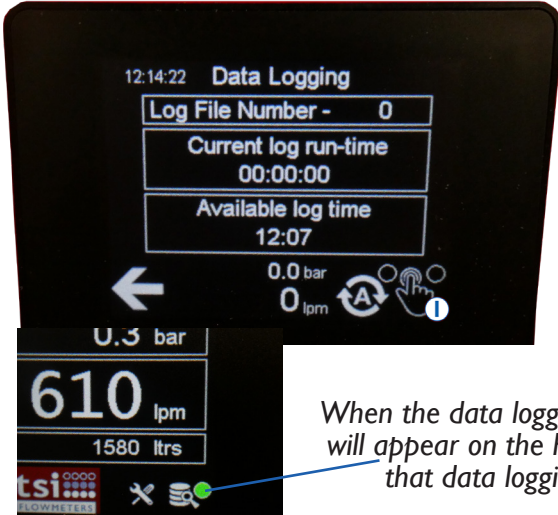
It is important to think safety first, especially when working with pressure.

- Please ensure the FlowPod Mini is securely attached to the service fitting (eg. hydrant outlet, pump, etc.) before pressurising.
- Please consider carefully the expected system pressures if you plan to use a length of hose between the service point and the FlowPod Mini
- **Never** allow the FlowPod Mini to be used in an open-ended or non-fixed position. It is essential to secure the FlowPod Mini so that it cannot move about freely, as this may result in injury and/or FlowPod Mini damage.

### 4.3 HOW THE DATA LOGGER WORKS

With this FlowPod Mini, there are **three** options when logging data.

- The first of these is to live-log, with your FlowPod Mini connected directly to your PC.
- The second is to use the trigger conditions for the logger activating automatically.
- The final option is to manually activate the logger by accessing the data logging screen (shown below) and pressing the button underneath the icon highlighted with **①**



The data logger is activated when trigger conditions are met, you can utilise default trigger conditions or set custom conditions for when the logger will turn on.

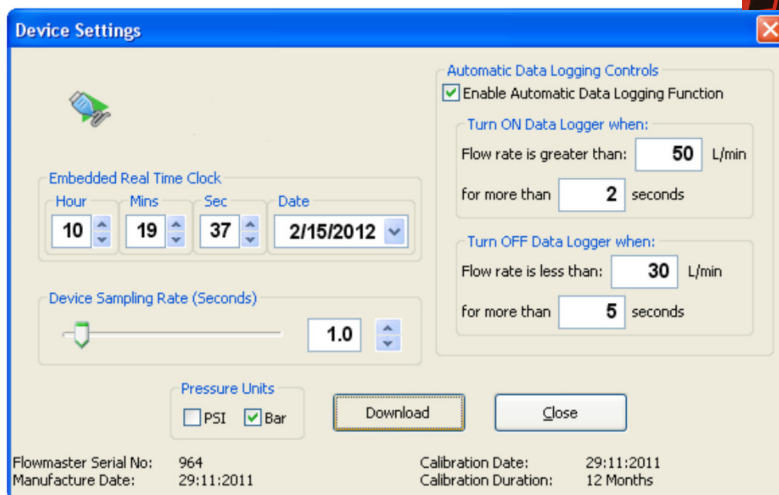
- When using default trigger conditions; the data logger will activate when flow rate exceeds 50 LPM for >3 seconds.
- To set custom trigger parameters, use the TSI Software on your PC when the FlowPod Mini is connected via USB.

When the data logger is active, a green dot will appear on the homescreen to indicate that data logging is taking place.

### Establishing Connection and Setting Up Trigger Parameters

To establish connection between the FlowPod Mini and your PC, connect the mini-USB end of the cable into the USB input on the FlowPod Mini (showcased [here](#))

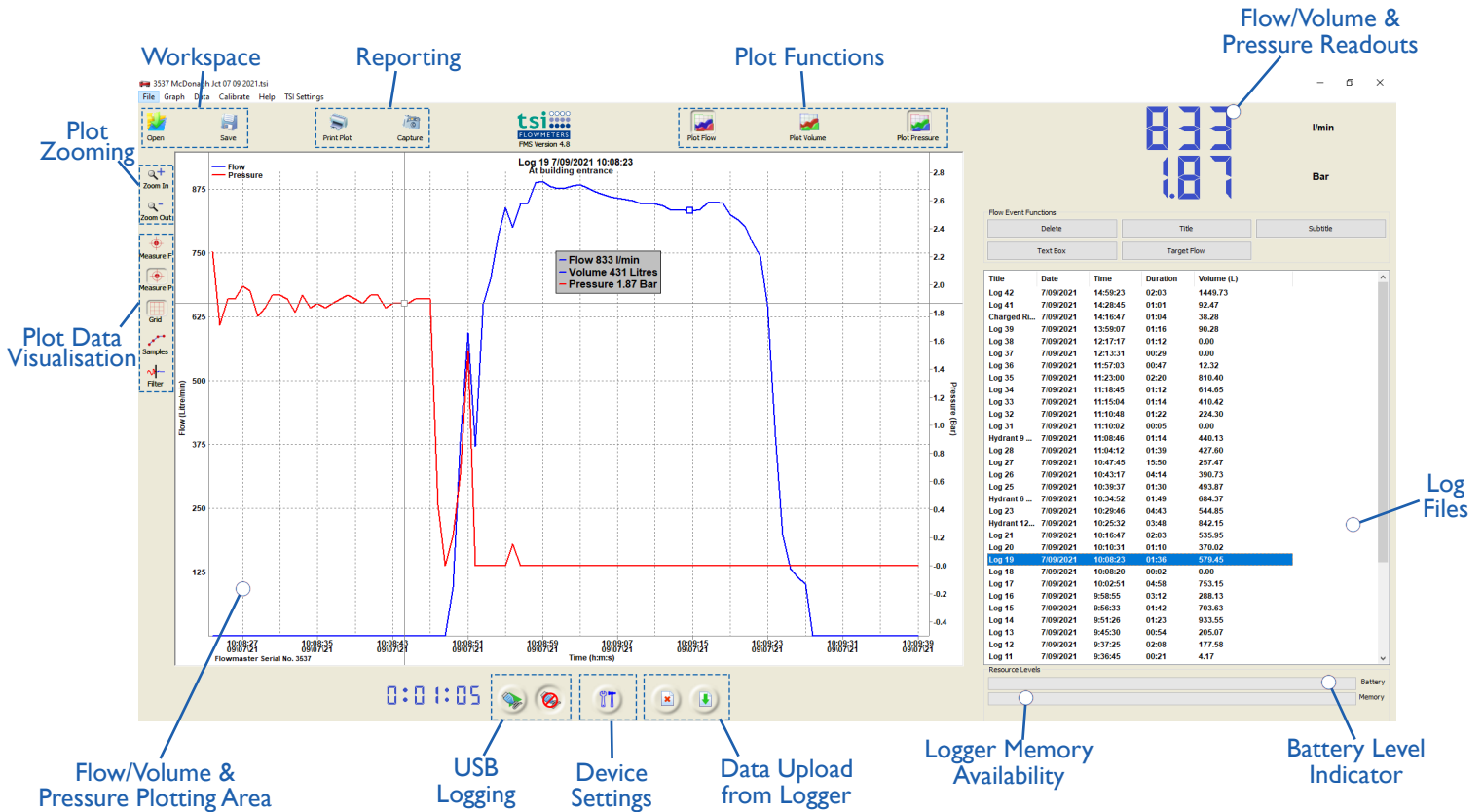
After connection has been established, start up the Flow monitoring software on your PC. In the first window, click on the 'Device Setting' located at the bottom centre of the program. This will bring up a new window, shown below.




The data logging trigger conditions can be edited on the right side of this window. Simply input the LPM and seconds you wish the data logger to activate on and which you want the logger to deactivate on.

Also, in this window you can edit the date and time setting of your FlowPod Mini, and the sampling rate in seconds. Both of these options are located on the left side of the window.

## 4.4 NAVIGATING THE DATA LOGGER SOFTWARE



### Direct-to-PC Data Logging Procedure

To live log directly from FlowPod Mini to PC, use the Live Log Button in the software. This button is highlighted above with a  mark.

Installing SMS software for the first time “Today’s date” SMS version 4.8.1. Please ensure your meter is connected to your PC and switched on before you download the SMS software

### Uploading your Data

To upload logged data, simply plug your FlowPod Mini into your PC, start up ‘TSI Flow Monitoring’ and click on the data upload button. All your data files will now be uploaded to your computer. The log files are listed in chronological order on the right side of the UI, shown in the diagram above. Once you click on a file, the flow and pressure data will be automatically graphed.

**Downloaded files are not automatically saved. Please use the save button on the top left to store data permanently.**

**You can modify the file names using the ‘Rename’ button tool.**

**Your log files are not automatically deleted from your FlowPod Mini’s logger memory when uploaded to the computer.**

**Select your files for deletion in the ‘Log Files’ listing and click the ‘Delete’ button above to activate the deletion of the files permanently**

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## 4.5 VIDEO TUTORIALS

### Flowpod Mini & Helpful TSI Video Content



TSI YouTube Channel



Understanding readouts  
when there are readings



Flowpod Mini playlist

## 5.1 BATTERY MAINTENANCE

- The battery pack operating time is 12 hours continuous usage. It is better to top up charge the batteries at regular intervals than to allow full discharge.
- The battery type is designed for regular but intermittent use. It is not ready for deep discharge that would come from leaving the Flowmaster powered on for eight to ten hours a day. If your procedures require this activity, please contact TSI Flowmeters and request alternative battery technology.
- The flow measurement will become erratic if the battery voltage is too low (readout indicating zero when water is flowing). It's recommended to use a voltmeter to check the voltage of the battery pack. If less than 10V DC, immediate recharging is necessary. If less than 12V DC, immediate top-up charging is recommended.
- Batteries have an operating life of 10 years and will need to be replaced thereafter.

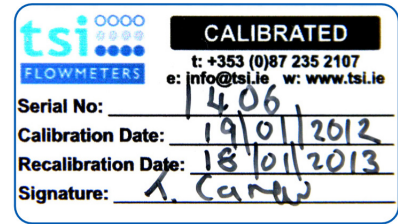
## 5.2 FLOWPOD MINI MAINTENANCE

- Avoid dropping the FlowPodMini. Use your hands to operate the switches and avoid use of screwdrivers. Keep abrasive chemicals away from the exterior. Wash the inner tube with clean water after.
- The flow meter control electronics are in a waterproof compartment located beneath the display gauge. Do not open this compartment. This will destroy the waterproof feature and void warranty.
- The FlowPod Mini flow gauge response is reduced if the electrodes are covered with a film of oil, dirt or rust. This can result in measurement error. It is recommended to clean the sensor electrodes periodically - Clean the electrodes by brushing the inside of the pipe with a soft cloth or soft brush dipped in water. If river water is used, it's recommended to clean the electrodes every 6 months. If oily water has been used, washed immediately.
- The FlowPod Mini is calibrated and scale adjusted at the factory, therefore accurate measurements can be made immediately upon receipt of the product. It is recommended, however, that all measuring instruments are calibrated annually.

## 5.3 CALIBRATION & RESETTING CALIBRATION DUE DATE REMINDER MESSAGE

Every TSI flow meter is tested and calibrated prior to shipping. A calibration label is attached to the top of the meter, and on this label will be the date on which the meter is due its next calibration.

The master meter at TSI is calibrated annually at the Irish National Test Centre, this ensures the reading obtained by the Test Equipment referred to on certificates issued by TSI Flowmeters Ltd are traceable to National and International standards.



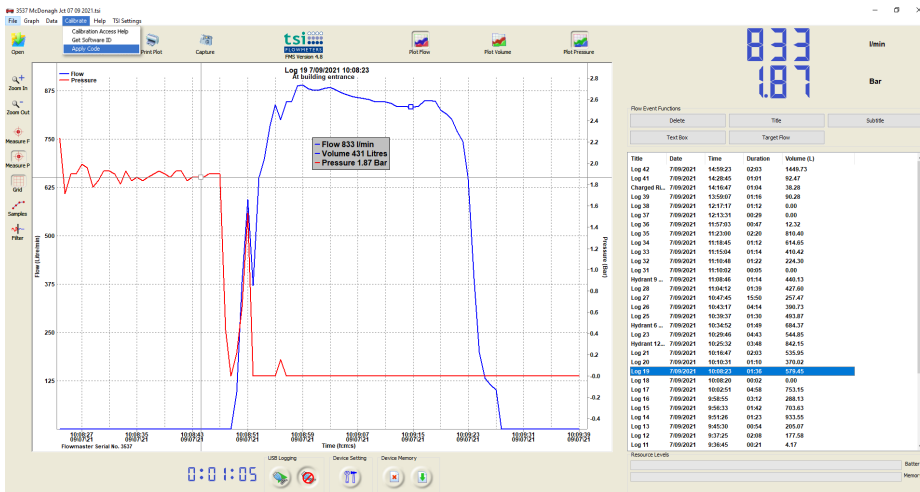
### Resetting the Calibration Due Date Reminder Message

The procedure for resetting the calibration due date is as follows:

- Ensure your FlowPod Mini is connected to your computer via the USB cable.
- Determine the code for your meter from 'Get Software ID' on the **calibrate** tab.
- Send this code and the serial number of your FlowPod Mini to TSI Flowmeters Ltd. Inform them of the numbers of months for which the new calibration certificate is to remain valid.
- TSI will then send a new code to you. It will be a readable document in Notepad or MS Word, and the format will be as shown:

**fd0f77da907e885ac74f29f45efcb76a**

- To input the new code, consult the diagram below.



*Return to the calibrate tab and this time select 'Apply Code' - a new window will prompt you to input the code. After input, a new window should then confirm your new code.*

- If there is a problem with the procedure or the code, an error message will appear after input. If this happens, click OK and repeat the procedure with the same code. If the same error message appears, contact TSI requesting a new code. If requesting a new code, send the existing code from your FlowPod Mini and serial number of your FlowPod Mini to TSI.

## 6.1 How to use the charger

**\* It is recommended to power off the FlowPod Mini while charging the Li Ion battery. \***

- The charger is started by connecting the battery packer to the charger and then connecting the charger to the mains.

- When the mains is connected the LED will be orange for approximately 8 seconds before turning to yellow when initialisation and analysis starts.

- The LED turning to orange indicates the beginning of Fast Charge. Once the batteries are fully charged and the voltage drops, the charger will go into a Top-off Charge mode.

- When the LED turns a constant green, the battery has entered Trickle Charge. It is recommended that trickle charge does not exceed 24 hours.

LED	MODE
YELLOW	Battery not connected
YELLOW	Battery initialisation and analysis
ORANGE	Fast charge
GREEN with intermittent YELLOW flash	Top-Off Charge
GREEN	Trickle Charge
Alternating ORANGE-GREEN	ERROR

If the mains input voltage is turned off, the charger will reset. When the voltage is turned on again, a new charge cycle will start.

If new batteries are to be connected, the charger must idle for approx. 15 seconds to make sure all parameters in the microprocessor have been reset. When the charger has been reset the LED changes to yellow, and a new charge cycle can begin.

The Li Ion Battery



## 6.2 FAQ and Trouble-shooting

### Battery does not seem to charge

Making a good electrical connection between charger plug and battery socket: Observe the LED indication to confirm the electrical connection between charger and battery. Redo the insertion of charger plug into meter socket, power off and on the charger and observe until a 'normal' charge cycle is achieved.

### Battery charges very quickly or meter stops working after a short period of time

A full charge cycle from empty takes ~2.5 hours. If the charging cycle (from empty) is significantly briefer, it may indicate that the battery is nearing the end of its life. In this case, battery replacement is the recommendation.

### Memory effect

As far as TSI is aware, there is NO memory effect with Li Ion batteries. It is acceptable to charge the batteries from any state of capacity.

### How many charge cycles over life time of an Li Ion battery

Battery manufacturer literature suggests that after between 300 and 500 discharge and recharge cycles, the remaining battery capacity will be ~75% of initial rated capacity.

## 7.1 BALL VALVE FITTINGS

The ball valve facilitates speedy and safe static pressure readings and creates back pressure for taking flow and residual pressure measurements



1" BSP male ball valve



## 7.2 TRANSPORT & STORAGE CASE

Transport case with castor wheels and extension handle. Foam interior cut to hold Flowmaster and accessories. Weight - 12.5kg.



## 7.3 EXTERNAL BATTERY/CHARGERS



External Li Ion Battery Pack available



Mains Battery Charger available



In-car Charger available

## 8 Limited Warranty

TSI Flowmeters Ltd., of Unit 1, Portlaoise Enterprise Centre, Clonminam Business Park, Portlaoise, Co. Laois, R32VK07, Ireland (Warrantor), warrants to the original purchaser of the new fire protection equipment manufactured by Warrantor and to any person to whom such equipment is transferred, that such equipment shall be free from defects in materials and workmanship during the one (1) year period commencing upon the receipt of such equipment by the original purchaser thereof ("warranty period").

Warrantor's obligation under this warranty is specifically limited to replacing or repairing its fire protection equipment or parts thereof, which are shown by Warrantor's examination to be in a defective condition attributable hereunder to Warrantor. To qualify for this Warranty, alleged defective equipment MUST be returned to Warrantor at its above address, transportation charges prepaid, within a reasonable time after discovery of an alleged defect, and in no event later than thirty (30) days after the expiration of the warranty period. If, as a result of Warrantor's examination of returned equipment, Warrantor concludes that a product defect attributable hereunder to Warrantor exists, Warrantor shall cure such defect within a reasonable time, not to exceed forty-five (45) days after such examination. All expenses in curing such defect, except for transportation charges and shipping expenses incurred in delivering such equipment to Warrantor, shall be paid by Warrantor.

In the event that such equipment is found to be attributable hereunder to Warrantor and Warrantor is unable to provide replacement, or repair is not commercially practicable or cannot be timely made, Warrantor may elect to refund to claimant the purchase price of such equipment actually received by Warrantor, less reasonable depreciation, in complete discharge of its obligations hereunder. If Warrantor elects to comply with this warranty by means of such refund, as a condition precedent to such compliance, the claimant shall return such equipment to Warrantor free and clear of liens and other encumbrances.

THE ORIGINAL PURCHASER OF SUCH EQUIPMENT, AND PERSON TO WHOM SUCH EQUIPMENT IS TRANSFERRED, AND ANY PERSON WHO IS AN INTENDED OR UNINTENDED BENEFICIARY OF SUCH EQUIPMENT, SHALL NOT BE ENTITLED TO RECOVER FROM WARRANTOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR INJURY TO PERSON AND/OR PROPERTY RESULTING FROM ANY DEFECTIVE EQUIPMENT MANUFACTURED BY WARRANTOR.

Misuse or neglect (including failure to provide reasonable maintenance) of, or accident or unauthorised repairs or alterations to, such equipment, shall release and discharge Warrantor from any obligations under this warranty or otherwise.

WARRANTOR EXPRESSLY LIMITS WITH RESPECT TO SUCH EQUIPMENT ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE TO THE WARRANTY PERIOD. AFTER EXPIRATION OF THE WARRANTY PERIOD, WARRANTOR EXPRESSLY DISCLAIMS WITH RESPECT TO SUCH EQUIPMENT ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. THERE IS NO WARRANTY OF ANY NATURE MADE BY WARRANTOR BEYOND THAT WHICH IS CONTAINED HEREIN.

Should Warrantor fail to meet with its obligations under this warranty, a claimant may sue Warrantor to secure its compliance with this warranty. No action to enforce this warranty or to otherwise secure recovery from Warrantor for any damages arising out of the fire protection equipment manufactured by Warrantor shall be commenced later than two (2) months from and after the date of the receipt of such equipment by the original purchaser thereof.

NO PERSON HAS AUTHORITY TO ENLARGE, AMEND, OR MODIFY THIS WARRANTY.

Warrantor reserves the right to change the parts or design of its products from time to time without notice, and with no obligation to maintain spare parts or to make corresponding changes in the products previously manufactured.



### Declaration of Conformity

We: **TSI Flowmeters**

**Unit 1, Portlaoise Enterprise Centre,  
Clonminam Business Park,  
Portlaoise, Co. Laois, R32 VK07,  
Ireland.**

**Tel +353 (0)57 866 3852**

declare under our sole responsibility that the product,

#### **FlowPod Mini**

to which this documentation relates, is in conformity with the provisions of the following directives:

**2001/95/EC General Product Safety  
2006/95/EC Low Voltage Directive (LVD)  
2004/108/EC Electromagnetic Compatibility Directive (EMC)**

The technical file is maintained at:

**TSI Flowmeters Ltd,  
Unit 1, Portlaoise Enterprise Centre,  
Clonminam Business Park,  
Portlaoise, Co. Laois, R32 VK07,  
Ireland.**

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Place of Issue: Portlaoise, Ireland



Name: **Tim Carew**

Title: **Managing Director**

# Operation & Manual Maintenance Manual

## Flowpod Mini

Portable Flow, Volume and Pressure  
measuring instrument with  
Internal Data Logger