



Water Meter Interface Unit (Manzi)

1. Introduction

The Manzi water meter interface unit is designed to connect to any pulse output volumetric water meter that uses an industry standard reed switch interface. It records the hourly water consumption and reports the readings on a daily basis. The device has two pulse count inputs to enable it to be used with bulk water metering units. It also has a solenoid driver output for switching the water supply on or off. Alerts are generated for low battery, tamper and high flow conditions.

2. Commissioning

Before a Manzi will report water usage, it must first be registered on the network. This is usually done at the point of installation. Once connected to the water metering equipment, the commission button is pressed and an indicator led will start flashing. If the registration process is successful, the led will stop flashing and remain constantly on for a period of time. If the flashing led goes straight to the off state, registration has failed and the process must be repeated. Once successful, the solid on led will be turned off after several minutes.

3. Normal Operation

The Manzi will accumulate the pulse counts on an hourly basis. When 24 readings for a full day period have been recorded, the dataset will be transmitted to the network at a random time within the next 24 hour period. When the Manzi has completed its transmission it will also check for any requests to operate the water valve solenoid or any other device configuration command. Tamper or high flow alerts are transmitted immediately and the device will gain check for any valve solenoid commands or configuration commands upon successful transmission of the alert.

4. Data Integrity

In the event that the Manzi does not receive an acknowledgement for a data transmission, 2 additional attempts will be made to re-transmit the data. If it is still unsuccessful it will then continue with its regular transmission schedule and it will also save the total accumulated 24 hour pulse count for the day which it did not make a successful transmission. This count will then be transmitted at the time of the next regular 24 hourly transmission. This end-of-day total count will be saved for up to 14 days before the oldest day count is discarded. All data is stored in non-volatile memory.

5. Power Supply

The Manzi is powered by two internal Thionyl Chloride Lithium batteries. Typical battery life is greater than 5 years under normal operating conditions. The use of the correct battery chemistry is important to ensure correct transmitter operation for the life of the product. An alert is transmitted by the device when it reaches the configurable threshold for remaining battery life.

6. Antenna

The antenna for the Manzi is fixed within the product housing. It provides omni-directional coverage to the base-stations within the network footprint. The housing must be installed in the indicated orientation and position relative to the local ground level,

7. Inputs and Outputs

- Two inputs for meter reed switches (2 wire).
- Input for enclosure tamper switch (2 wire).
- Output for solenoid actuator (3 wire).

8. User inputs and indicators

- Pushbutton to initiate network registration.
- Pushbutton to manually operate the solenoid.
- LED to indicate status of the network registration process.

9. Transmitted Alerts

- Low battery.
- Enclosure tamper.
- Configurable high flow.

10. Data interface

The transmitted count data is retrieved via the QT Scheduler interface on CP Site. It is expected that a water utility "Head End" application would be connected to this interface to manage the Manzi devices and collect and collate the count data. Details of the protocol for this interface are available from VixNet.

10.1 Enclosure

The Manzi is housed within an uPVC "pipe" enclosure that is rated to IP67. The device is not intended for opening in the field and operations such as battery replacement are intended to be conducted at the workshop.

11. Environmental

The Manzi will operate normally in a temperature range of -10C to +70C. It will not suffer any permanent damage when subjected to temperatures in the range -40° C to +125° C. The temperature specification does not apply to the batteries. Excessive exposure to temperatures beyond the normal operating temperature will damage the batteries and reduce their operating life.