

# Allegro Cellular CAT-M PIT Module User Guide

FCC ID: VIDCMPIT4G

Contains FCC ID: N7NHL78



### CAUTION



This device complies with part 15 of the FCC Rules. The User and the Installer should be aware that changes and modifications to the equipment not expressly approved by Master Meter could void warranty and the user's authority to operate the equipment.

Professionally trained personnel should install the equipment.

The antenna used for this transmitter must be installed to normally provide minimum separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

### ATTENTION- FCC Statement



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



## Introduction

The Allegro cellular PIT Module is a battery-operated radio module designed for automated water meter reading. The Allegro cellular is capable of reading water consumption data from residential and commercial water meters equipped with an Encoder or Solid-State Register. It uses CAT-M cellular radio for relaying water consumption data to the utility.



Figure 1 – Allegro Cellular PIT Module

# Electrical Characteristics

## Battery:

- Battery type: Lithium-Thionyl Chloride
- Nominal voltage: 3.6 V
- Capacity: 8500 mAh

## DC Characteristics:

- Operating voltage range: 3.0 V – 3.6 V
- Typical Sleep Current: 10 uA

## Radio Characteristics:

- RF/Antenna:
  - Typical Antenna Gain: 0dBi
  - LTE Cat-M1, Power Class 3 (Pout = 23dBm)
  - Typical Sensitivity TIS = -100dBm
  - Typical TRP = +20dBm
  - Software based radio allowing support of extra bands for worldwide operation (B2, 4, 12, 13, 26)
- SIM Interface: eSIM
- Protocol Stack Cat-M1:
  - 3GPP Rel. 13
  - Half-duplex
  - Channel bandwidth 1.4MHz
  - LTE carrier bandwidth 1.4 / 3 / 5 / 10 / 15 / 20 MHz
  - Up to 375kbit/s uplink, 300 kbit/s downlink
  - Extended Coverage Mode A
  - PSM (Power Save Mode)
  - I-DRX (Idle Mode Discontinuous Reception)
  - C-DRX (Connected Mode Discontinuous Reception)
  - Idle mode mobility
  - Connected mode mobility
  - eDRX (Extended Discontinuous Reception)

## Functional Description

The Allegro cellular PIT Module is battery endpoint for the application of automatic water meter reading. The primary function of the module is to record consumption of a water meter from an Encoder register.

The count from the action of the meter advances the register and passed serially to the radio.

Several operational modes are available based on production configuration, standard mode transmit daily 24-hourly meter reads.

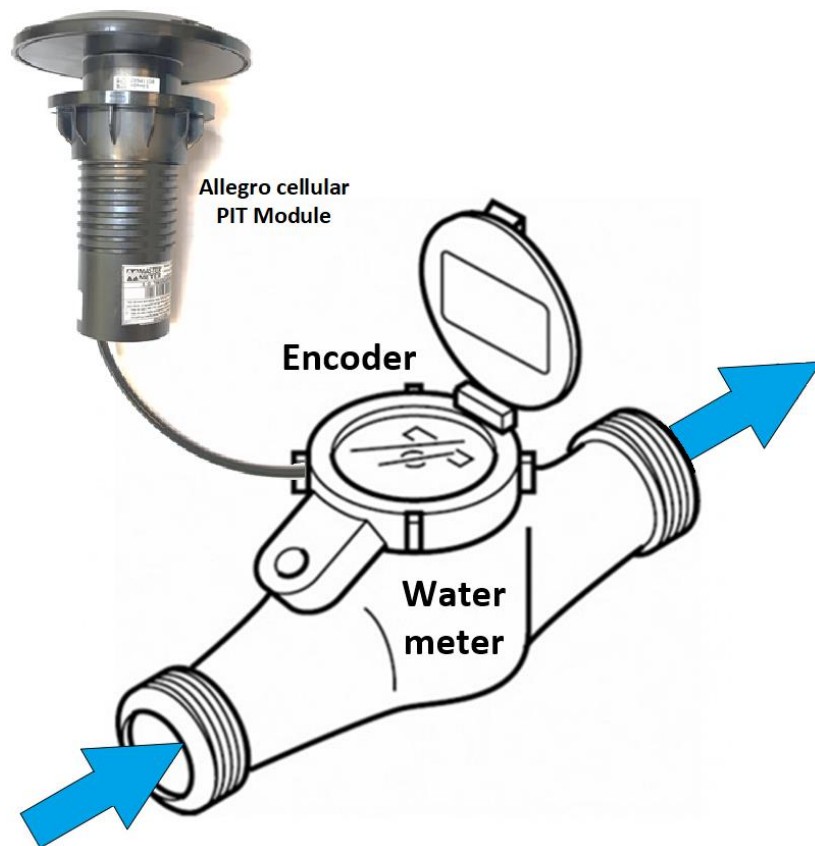


Figure 2 – Operation setup illustration

# Installation

1. Remove PIT lid, Figure 3.



Figure 3

2. Pass the cable through the Lid hole and Install the PIT Module into the Pit-Set Lid, Figure 4.



Figure 4

3. Fasten the PIT Module to the Pit-Set Lid using the fixing nut provided, Figure 5.



Figure 5

4. Connect PIT Module cable to water meter inside the Pit-Set, make sure both arrows located in front of each other and tight together, Figure 6.



Figure 6



**Pay attention!**

PIT Module may come with variety of cables, plugs, in case of bare wire connect the wires according to Meter manufacturer guidance

5. Place magnet on PIT Module top as illustrated in Figure 7 for 20 seconds than remove the magnet.



Figure 7

6. On PIT Module bottom LED will indicate (Figure 8) process as described below.
7. When magnet is sensed LED blinks 3 times.



Figure 8

8. Then when magnet was removed (after 20 seconds) LED will blink several times until it finds network and connected.
9. After PIT Module was magnet activated, it will automatically be ready to transmit based on production schedule configuration.