Allegro IOT

Model: Interpreter LR9

User Guide

FCC ID: VIDLR9INTR
IC: 10232A-LR9INTER

Federal Communication Commission (FCC) Compliance Notice

CAUTION

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.

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

ATTENTION

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 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.

Industry Canada (IC) Compliance Notice

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent Isotropically radiated power (EIRP) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensitè nècessaire à l'établissement d'une communication satisfaisante.

Introduction

The Allegro IOT - Interpreter LR9 is a battery – operated radio module for automated water meter reading. This module is capable of reading water consumption data from residential and commercial water meters.
It has a 2-way radio that is compatible with Allegro IOT modules family, GW's for relaying water consumption data to the utility. It also has a single channel mode for short distance communication to the VTR tech tool in field.

Figure 1 – Allegro IOT - Interpreter LR9

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: 12 uA

Radio Characteristics:

- Typical Antenna Gain: 0dBi
- Frequency Range: 902 – 928MHz
- Modulation Format: CSS
- Transmit Power up to 20dBm (100mW)
- Receive Sensitivity up to -140dBm

Functional Description

The Allegro IOT - Interpreter LR9 is a wireless battery endpoint for the application of automatic water meter reading. The primary function of the module is to record magnetic field reversals that are converted to measurement of water consumption volume, and then deliver the data to the utility for processing. The diagram below demonstrates this operation.

The radio has two operating modes, chirp spread spectrum (CSS) and single channel. The CSS is the normal operating mode for network communication. The single channel mode is primarily used for field diagnostic purposes.

When installed, the module automatically utilizes the CSS mode to operate as part of a LoRaWAN network. The module will remain in this mode unless a service event is initiated from field tool. In this case the radio changes to the single channel mode for the duration of service session. The module returns to the CSS mode when the service session is closed.
The user does not have the ability to change modes other than using the field tool.

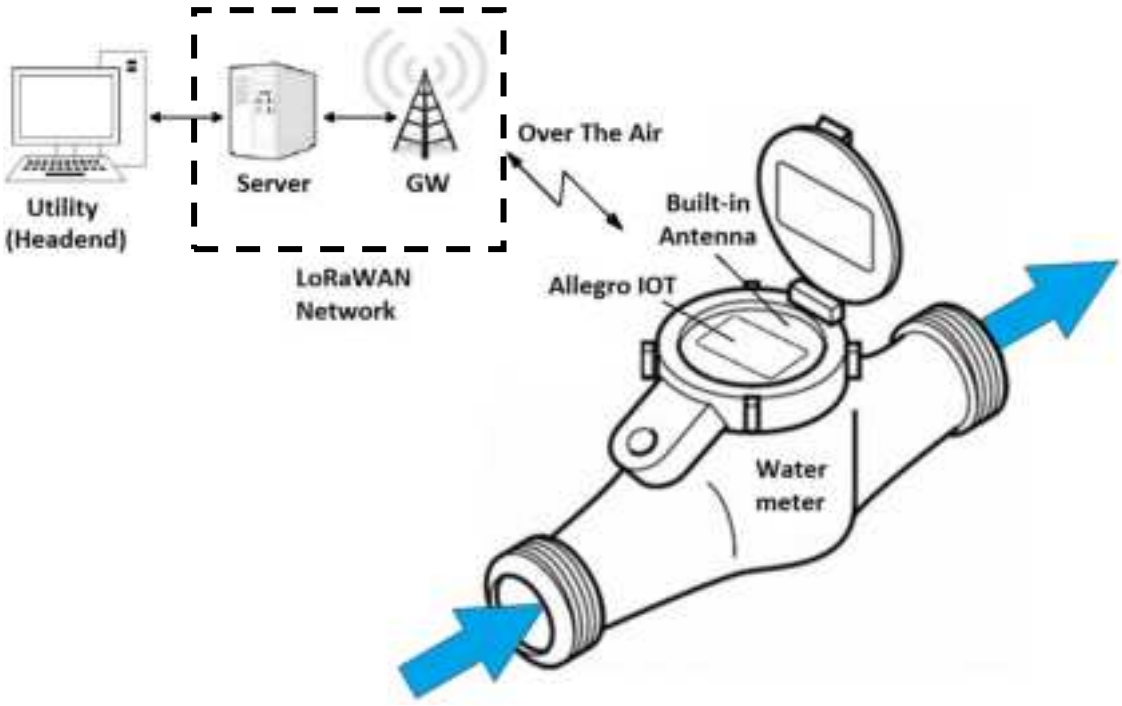

Figure 2 – Operation setup illustration