FPX3 LORA GATEWAY

Installation Manual

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1 General

This document describes the hoopo FPX3, 501A001-1A, installation and connectivity requirements.

2 System Overview

The hoopo systems items tracking system consists of several FPX3 gateways optimally installed around the area of interest communicating with a remote location server via cellular or fixed network lines. The FPX3 gateways receive and characterize the signals of interest. The gateways then relay the measured parameters to the remote location server to resolve transmitter/sensor location.

3 FPX3 Gateway Installation

3.1 Safety Notes

- Installation of the FPX3 units shall be performed by trained, qualified and skilled personnel.
- The FPX3 units are enclosed in a metal enclosure (IP65) designed to be mounted on a mast or a structure wall, not accessible (except for trained, qualified and skilled personnel) and connected to protective earth ground conductor.
- It is recommended to equip the units with external lightning protection devices as detailed below in 3.3.3.
- Installation operations shall adhere to national and local codes.
- The FPX3 units shall be mounted in accordance with the instructions below in 3.2.2.
- The FPX3 units have no internal serviceable parts.

3.2 Mechanical

3.2.1 FPX3 Main Modules

- Electronics enclosure
- Mounting base
- Mounting base antenna bridge
- Lora antenna: OMB.915.B03F21 for the ISM 915 band or OMB.868.B05F21 for the ISM 868 band
- GPS and cellular combo antenna: MA140.A.LB.001

3.2.2 FPX3 Installation Modes

The gateway can be installed on a mast or attached to a structure bricks/concrete wall, the following figures illustrate the outline dimensions of the gateway:

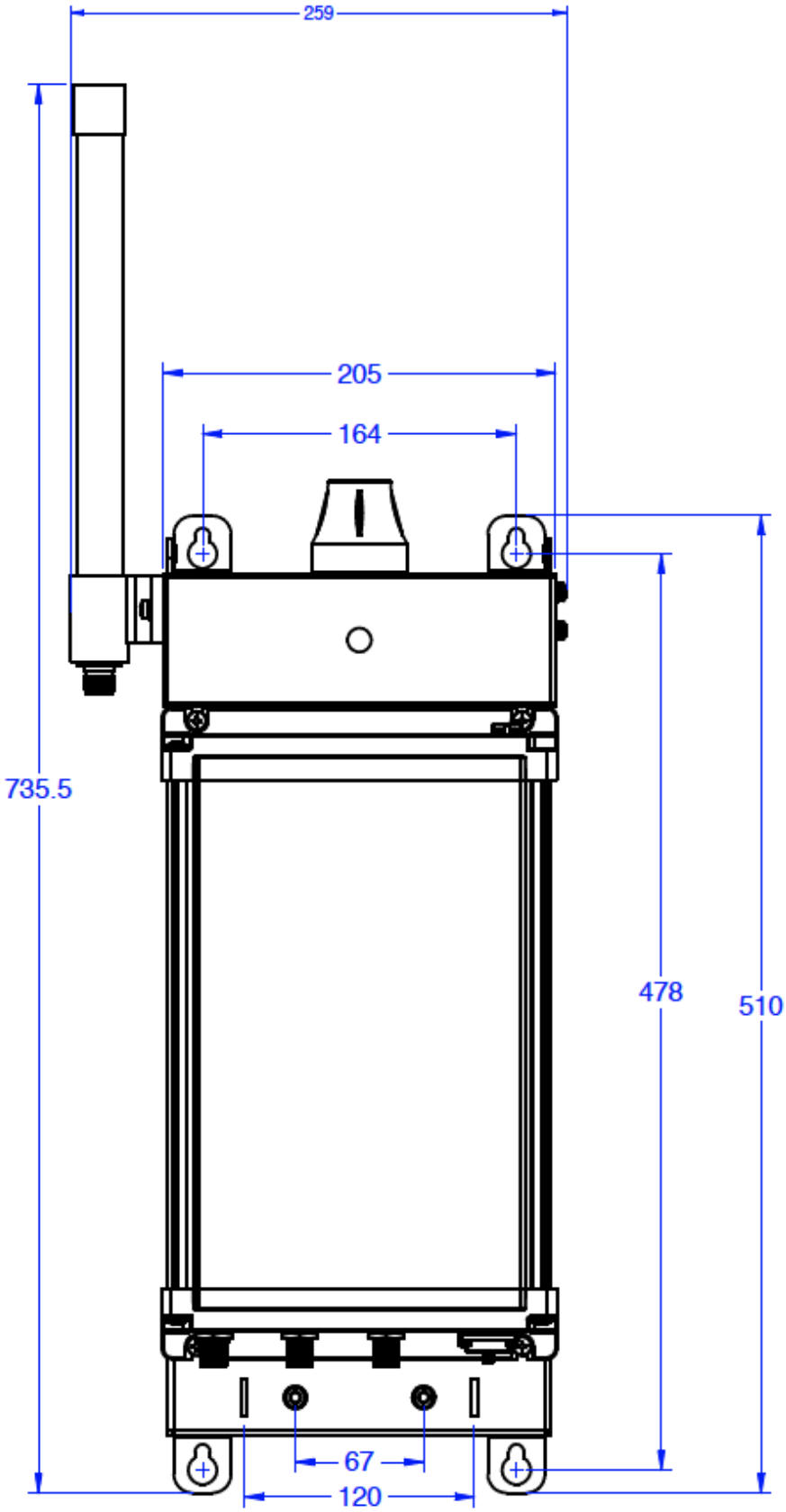

Figure 1: FPX3 front view (ISM 915 antenna)

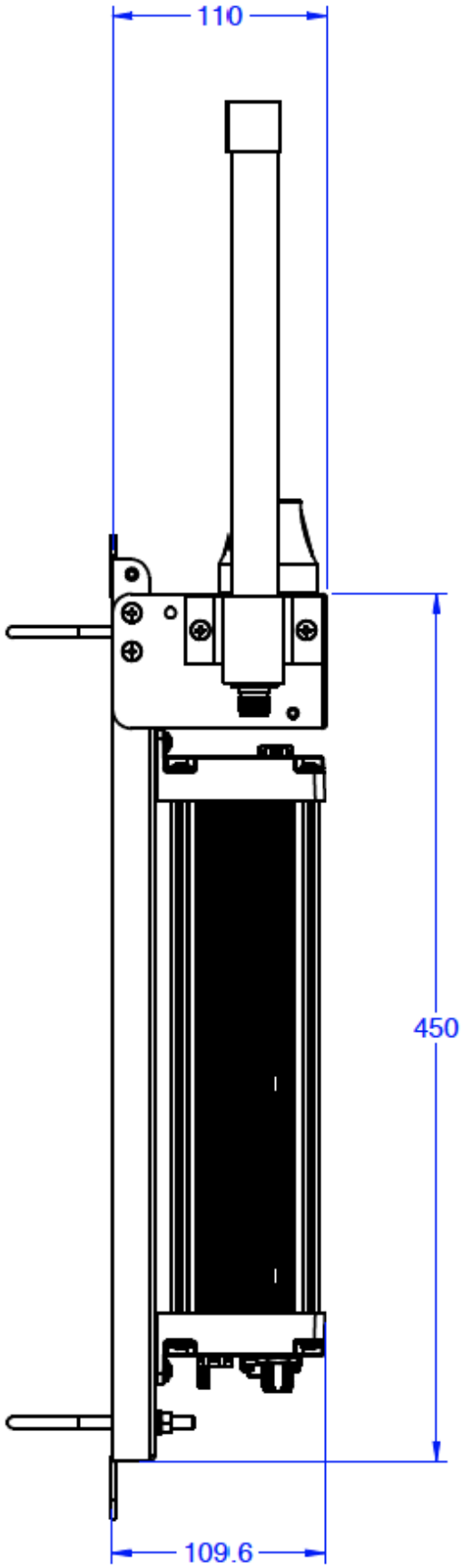

Figure 2: FPX3 side view (ISM 915 antenna)

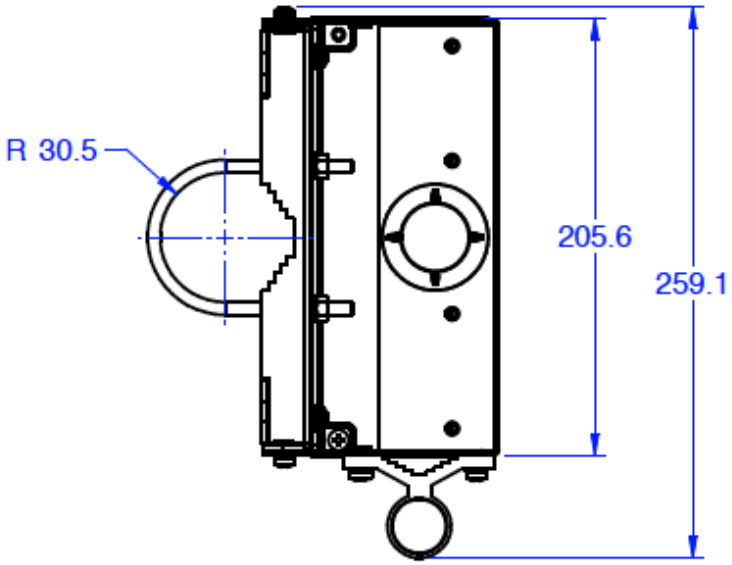

Figure 3: FPX3 top view

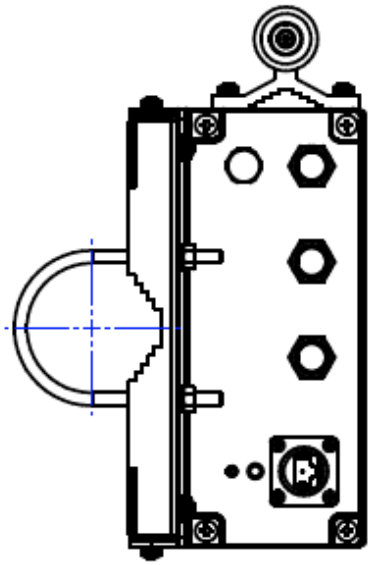

Figure 4: FPX3-bottom view

3.2.2.1 Mast

Attach the mounting base with 2 clamping U-bolts; p/n 3042T91 by McMaster-Carr or equivalent.

3.2.2.2 Structure wall

Attach the mounting base with four expansion bolts; K550AC by EXPANDET SCREW ANCHORS A/S or equivalent.

3.3 Electrical

3.3.1 Grounding

The FPX3 units shall be permanently connected to protective earth ground. The protective earth ground connection is made through the M5 stud on the bottom panel. Grounding wires shall be AWG 6/16 mm^2 min. and 80cm length maximum connected to a structural bonding point. Flat and star washers shall be used on all connections. Connection points shall be appropriately cleaned and prepared.

The gateway installation shall be properly grounded in accordance to national and local codes.

3.3.2 Power Supply

The FPX3 gateway is powered via a certified 10/100 Power over Ethernet (PoE) interface; Microsemi PD-9501GO-ET/AC, Microsemi PD-ACDC60G/AC or equivalent.
Power consumption is up to 40 Watts.
The interface is configured to use 4 wires for power connection.
A CAT5e cable up to 100 meters in length can connect the PSE to the gateway.

3.3.3 Lightning Protection

It is recommended to install lightning protection devices on all RF lines:

- LORA line – Nextek, QSSNFNMAD00 or equivalent.
- Cellular line – Nextek, QSSNFNMAD00 or equivalent.
- GPS line – Nextek, FPLNFNFBP05, RF plus DC feedthrough or equivalent.

4 Connectivity

The Gateway includes a cellular LTE modem that requires a data plan SIM to be installed inside the unit. Alternately local LAN Ethernet 100Base-T can be connected to the PoE PSE unit to support WAN connectivity to the Gateway.
Standard VPN ports should be supported on any type of connectivity.

5 Radio Compliance Statement

This device complies with FCC Rules Part 15 and with Industry Canada licence-exempt RSS standard(s). Operation is subject to two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may be received or that may cause undesired operation.

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.

Changes or modifications to this equipment not expressly approved by the party responsible for compliance (hoopo Systems Ltd.) could void the user's authority to operate the equipment.

6 Radiation Hazard Warning

FCC and Industry Canada Radiation Hazard Warning.

Warning! To comply with FCC and IC RF exposure compliance requirements, the device should be located at a distance of at least 20 cm from all persons during normal operation. The antennas used for this product must not be co-located or operated in conjunction with any other antenna or transmitter.