FPM-8416 User Manual

Contents

1 Introduction

FPM-8416 is the model name of middle range (up to 14-16km) point-to-point HDMI （or SDI）video & network transmission device.

Each set of FPM-8416 contains the following items.

- One transmitter unit, with a camera logo on it.
- One receiver unit, with a monitor logo on it.
- Two transmitter-antennas.
- Two receiver-antennas, which are longer than transmitter-antennas.
- Four antenna-cables.
- One TX side HDMI cable(Or one SDI cables, each cable has two headers , one is SDI header, one is SMA header to connect FPM-8416), and one RX side HDMI cable.
- Four Power cables.
- Four Ethernet cables, each cable has two headers, one is RJ45 header, one is 4P header to connect FPM-8416.
- Two TTL-Serial cables, each cable has two headers, one is 5P header to connect FPM-8416, one is 3P header to connect external device. Voltage is 3.3V.
- Two USB-TTL-Serial dongles.

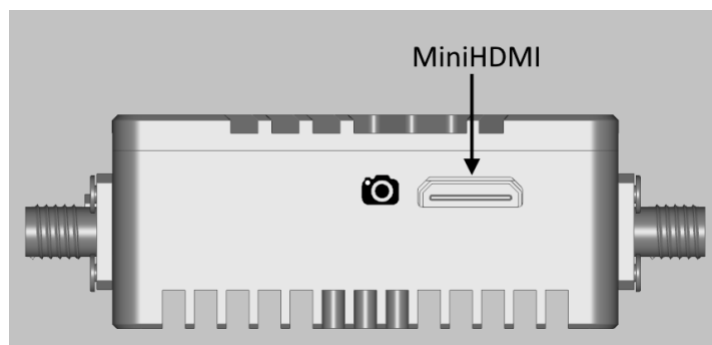*Each kind of cable is packed in its own transparent bag labeled with model name.*

The items may subject to change due to different customer specific configurations.

Please refer "FPM-8416 technical specification" for specifications and parameters.
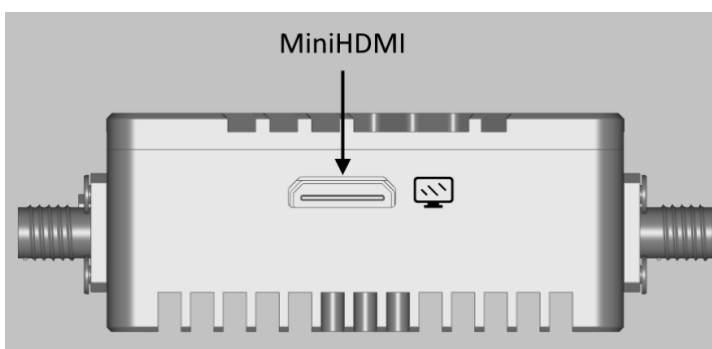
2 Connectors and LEDs
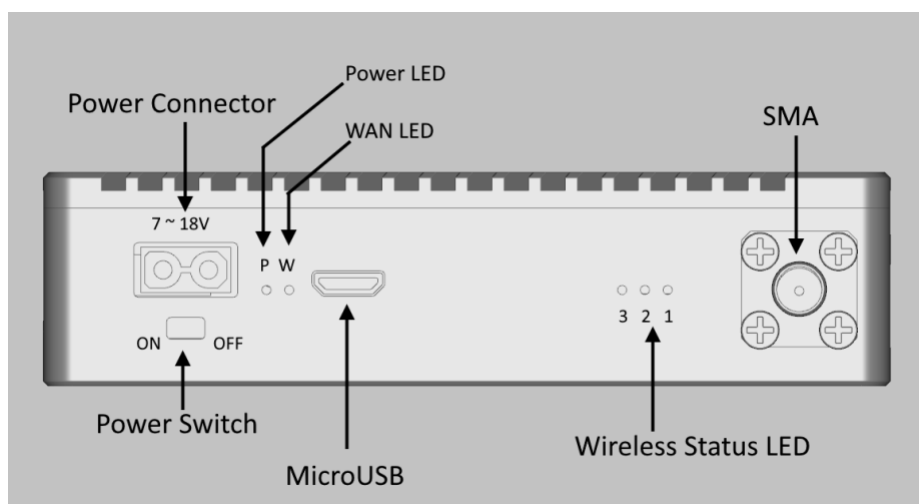
Front Side

TX Unit

RX Unit

- Camera logo for TX unit, one Mini HDMI port or SDI port.
- Monitor logo for RX unit, one Mini HDMI port.

Right Side

- One 2P Power connector (Model XT30PW). The voltage range is 7~18V.

- One power switch.

- One Power LED, it will be on if power is on.

- One WAN LED. It will be flashing if the video stream is transmitting/receiving over wireless channel.

- Three wireless status LEDs. LED3 of TX unit will be on after powering on and booted. LED1 of RX unit will be on after wireless connection has been established successfully.

- One SMA connector, to connect an antenna.

- One Micro USB connector, it's reserved for production testing.

Left Side
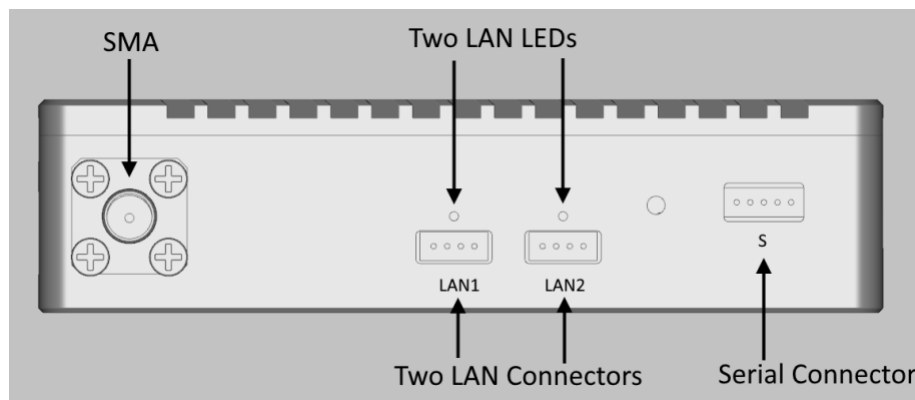
- One 5P serial connector to connect the TTL-serial cable, to transmit serial signal, voltage is 3.3V.

- One SMA connector, to connect an antenna. Both left side and right side SMA connector should connect to antenna before power on.

- TWO LAN connectors.

- TWO LAN LEDs. Each is above one LAN connector.

  --ON: The LAN connector is connected successfully to external device via a LAN cable.

  --Flashing: Data is transmitting on the LAN connector.

Rear Side
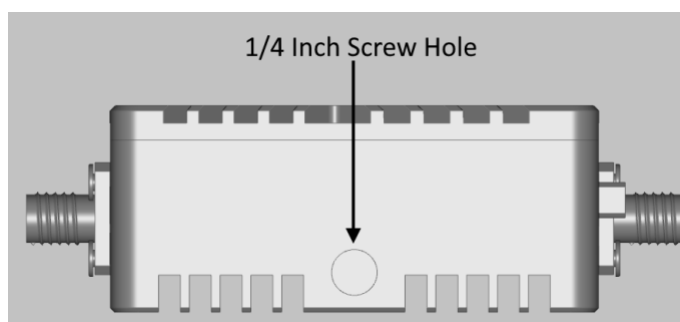
- One standard ¼"-20 screw hole, for installing/mounting the unit on tripod, platform, etc.

3   Setting up FPM-8416 units

3.1   Setting up steps of HDMI or SDI Video transmitting

- Connect two antennas to transmitter unit by antenna-cables.
- Connect two antennas to receiver unit by antenna-cables.
- Connect a video source (video camera, camcorder, etc) to transmitter unit by TX side HDMI or SDI cable and connect a monitor to receiver unit by RX side HDMI cable.
- Connect power source to both units by power cables.
- Power on both units and devices connecting to them.
- After 10~20 seconds, LED1 on both units should be on if wireless connection has been established successfully.
- After a few seconds, the video capturing by the video source on the transmitter side, should be playing on the monitor on the receiver side.
  Note: If you want to see the video on PC, you should first install one software named Tplayer on yout PC, then use Ethernet cable to connect Lan1 or Lan 2 in FPM-8416. At the end, click the software and select adapter.
- If one serial device is connected to transmitter side, another serial device is connected to receiver side, and their voltage/data format is configured according by *section 4.3 Serial Data Format*, they should be able to communication with each other now.

3.2   Network Configurations

FPM-8416 units are working as wireless routers, the transmitter and receiver connects two different network segments: **192.168.1.X and 192.168.2.X**

IP Address of FPM-8416 units

Transmitter	Receiver
192.168.1.1	192.168.2.129

IP configuration of devices connecting to FPM-8416

	Transmitter side	Receiver Side
IP Address	192.168.1.X	192.168.2.X
gateway	192.168.1.1	192.168.2.129
mask	255.255.255.0	255.255.255.0

3.3 Setting up steps of Network Communication

- Connect two antennas to transmitter unit by antenna-cables.
- Connect two antennas to receiver unit by antenna-cables.
- Configure the IP/gateway/mask of devices connecting to both units according by 3.1.
- Connect network devices to **LAN** ports of transmitter/receiver unit.
- Connect power source to both units by power cables.
- Power on both units and devices connecting to them.
- After 10~20 seconds, LED1 on both units should be on if wireless connection has been established successfully.
- Now the devices on transmitter side should be able to communicate with devices on receiver side.
- If one serial device is connected to transmitter side, another serial device is connected to receiver side, and their voltage/data format is configured according by section *4.3 Serial Data Format*, they should be able to communication with each other now.

Note: FPM-8416 supports HDMI or SDI video transmitting and network communication simultaneously. While when HDMI or SDI video is transmitting over wireless channel, there is only 100kbps throughput left in the channel for LAN1+LAN2.

4   Details and Notice

4.1   TTL Serial Cable

TTL Serial cable is for transmitting 3.3V TTL Serial signals.

One header is 5P JST eGH header, the pin number shown in following picture, it shows the header side with metal exposed

 (*Note: Wire color is irrelevant*)

Pin number	Signal
1	TXD
2	RXD
3	3.3V output, max 500mA (to power external device if necessary)
4	GND
5	Reserved

Another header consists of 3 Dupont plugs with different color wire:

Color	Signal
Red	TXD
Yellow	RXD
Black	GND

4.2   Ethernet Cable

One header is standard RJ45.

Another header is 4P JST eZH header.

4.3 Serial Data Format

Default Baud Rate	115200
Data Bits	8
Parity	No
Stop bit	1
Voltage	3.3V

4.4 Notice

- Before powering on units, make sure SMA has connected to antennas. Powering on a unit without antenna as load, the PAs inside it may subject to damage.

- Two antennas of one unit should keep certain distance. We commend 1 meter or larger for transmitter side, 2 meters or larger for receiver side. If two antennas don't keep proper distance, the wireless signal may become weaker, max range may become shorter.

- Don't dismantle or modify FPM-8416 units.