

# **PINIX Main Module**

## Product Specification

(PXM-100)

**PLUTOSOLUTION**

The material included in this product specification is the property of PLUTOSOLUTION Inc., and if it is reproduced or used without permission, you may be subject to legal punishment. The product image included in the specification sheet and the actual product may be slightly different.

# Contents

<b>Contents .....</b>	<b>2</b>
<b>1. Introduction of the product.....</b>	<b>3</b>
<b>2. Composition of the product .....</b>	<b>4</b>
2.1. basic configuration .....	4
2.2. Expansion interface module (sold separately) .....	5
2.3. Accessories (sold separately).....	6
<b>3. Appearance .....</b>	<b>7</b>
3.1. Appearance.....	7
<b>4. Interface Port.....</b>	<b>8</b>
<b>5. Product Specifications .....</b>	<b>9</b>
<b>6. Product installation diagram .....</b>	<b>10</b>
<b>7. How to use PINIX Main Module .....</b>	<b>11</b>
7.1. Power On.....	12
7.2. How to check network communication status through PINIX Main Module.....	12
7.3. Data transmission cycle .....	13
<b>8. Precautions.....</b>	<b>14</b>

## 1. Introduction of the product

"PINIX Main Module" is a general-purpose sensor gateway for collecting and transmitting data of various sensors and devices through various IF expansion module connections, and supports the connection of up to two additional expansion interface modules.

## 2. Composition of the product

### 2.1. Basic configuration



<PINIX Main Module>



<Power Cable>



<24V 5A Power Adapter>

## 2.2. Expansion interface module (sold separately)

Division	Detail
	<p><b>Digital Interface Module</b></p> <ul style="list-style-type: none"> <li>- Sensors (RS232, 485, 422) connection support</li> <li>- Input Power (24V/2A-8PIN Din, 24V/5A – Adapter)</li> <li>- Supports connection of up to 8 24V or 5V powered sensors (Factory Option)</li> </ul> <p>Output : 24V</p> <ol style="list-style-type: none"> <li>1) When supplying power to the adapter - MAX 96W (24V / 4A) * Up to 10W per port</li> <li>2) When supplying power to the Main Module - MAX 40W (24V / 1.66A) * Up to 10W per port</li> </ol> <p>Output : 5V</p> <ol style="list-style-type: none"> <li>1) When supplying power to the adapter - MAX 40W (5V / 18A) * Up to 5W per port</li> <li>2) When supplying power to the Main Module - MAX 40W (5V / 8A) * Up to 5W per port</li> </ol> <ul style="list-style-type: none"> <li>- Transmission of collected sensor data.</li> </ul>
	<p><b>Analog Interface Module</b></p> <ul style="list-style-type: none"> <li>- Supports connection of up to 4 analog sensors, connection of current-to-voltage converters</li> <li>- Mainboard connection and power supply support - Ethernet 1(10/100) - Type : 8Pin Din</li> <li>- Analog Sensor 8-CH(Input Range: <math>\pm 10</math> V, Sampling Rate: Max 8K Sampling Rate, CH Resolution: 16-bit)</li> <li>- Sampling Rate: All Channel 1K, 2K, 4K, 8K support</li> <li>- Input Power 24V/2A 8PIN Din (M12)</li> <li>- Output Power 24V 800mA (24V/100mA per port)</li> </ul>
	<p><b>Serial Interface Module</b></p> <ul style="list-style-type: none"> <li>- Supports connection of up to 8 sensors (UART, I2C, RS485)</li> <li>- Mainboard connection and power supply support, Ethernet 1(10/100), 8-PIN Din</li> <li>- Input Power : 24V/2A</li> <li>- Output Power: Max 40W(5V/8A), Max 5W per port</li> </ul>

## 2.3. Accessories (sold separately)

Division	Detail
	<b>Dedicated cable for interface expansion module connection</b> - DIN 8 PIN (M12)

### 3. Appearance

#### 3.1. Appearance



## 4. Interface Port

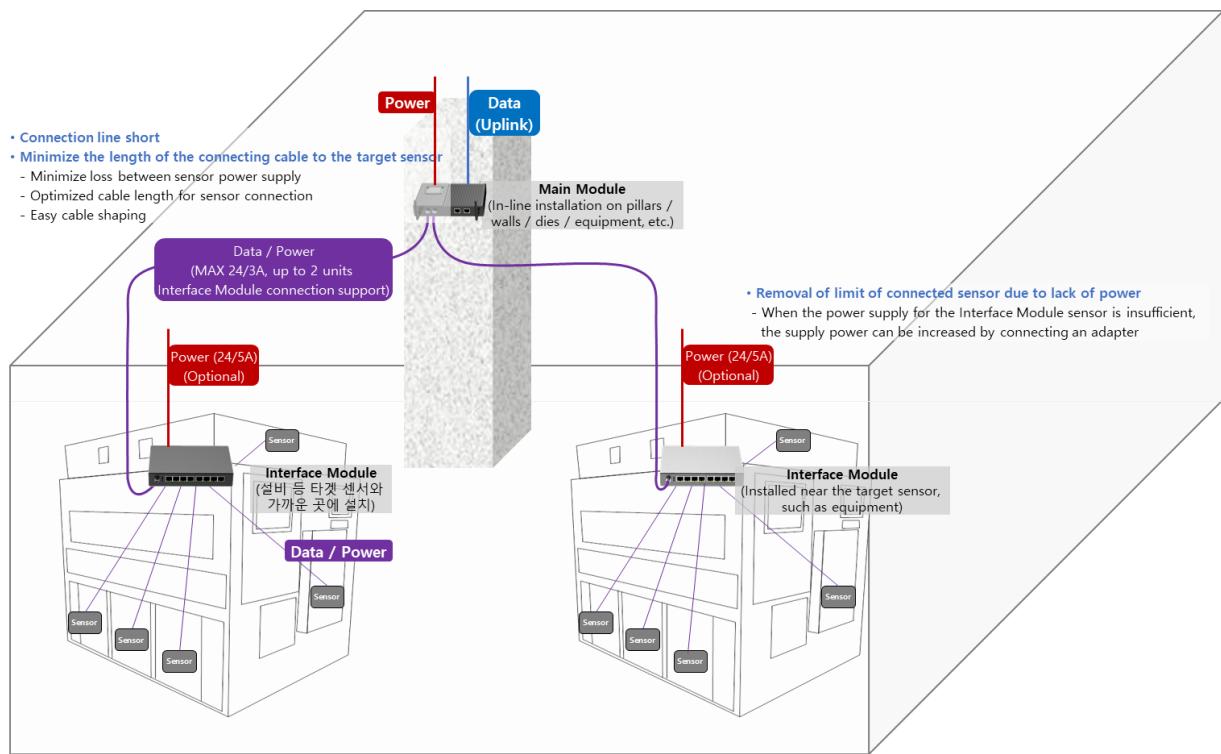


Num	Functions
①	Display LCD
②	Wi-Fi Antenna (2.4GHz / 5Ghz)
③	Expansion Port (For expansion I/F connection) – Ethernet (DIN 8 PIN)
④	Expansion Port (For expansion I/F connection) - Ethernet (DIN 8 PIN)
⑤	ADB Debug Port – Micro USB 2.0
⑥	UART Debug Port – Micro USB 2.0
⑦	Eth1 External Ethernet (10/100, RJ-45) - For external connection (external connection to IO-Link Master)
⑧	Eth0 External Ethernet (10/100/1000M, RJ-45) - For P-LTE Router/Uplink connection
⑨	Power Switch (On/Off)
⑩	3 Color LED (Blue: Power, Green : Network, Red: Status)
⑪	Power Jack (24V / 5A)

## 5. Product Specifications

Division	Specifications
<b>Product name</b>	PINIX Main Module
<b>Model name</b>	PXM-100
<b>Main Platform</b>	<ul style="list-style-type: none"> <li>• Quad 1.8GHz A53</li> <li>• DDR4 4GB Memory</li> <li>• EMMC 32GB Storage</li> </ul>
<b>WiFi</b>	<ul style="list-style-type: none"> <li>• 802.11 a/b/g/n/ac (2.4, 5GHz)</li> </ul>
<b>Power</b>	<ul style="list-style-type: none"> <li>• 24V / 5A <ul style="list-style-type: none"> <li>- Power supply through dedicated adapter</li> </ul> </li> <li>• 24V / 3A (Output Power) <ul style="list-style-type: none"> <li>- Sum of port output: 72W</li> </ul> </li> </ul>
<b>Port</b>	<ul style="list-style-type: none"> <li>• 1GB Ethernet (1) – RJ45</li> <li>• 10/100MB Ethernet (1) – RJ45</li> <li>• ADB Debug Port (1) – Micro USB 2.0</li> <li>• UART Debug Port (1) – Micro USB 2.0</li> <li>• Expansion Port (For expansion I/F connection) – Ethernet(2) – DIN 8 PIN(M12)</li> </ul>
<b>Display</b>	1.8inch LCD <ul style="list-style-type: none"> <li>- Communication status display for each connected sensor port</li> </ul>
<b>Indicator</b>	3 Color LED (Blue: Power, Red: Error, Green : Network)
<b>Operating Temperature</b>	0 °C ~ 50 °C
<b>Storage temperature</b>	-20°C to 70 °C
<b>Material</b>	Anodized Aluminum Case
<b>Weight</b>	816±0.5g
<b>Size(W*L*H)</b>	215 * 124 * 35 / ±0.5 mm

## 6. Product installation diagram



## 7. How to use PINIX Main Module



Num.	Functions
①	Display LCD
②	Wi-Fi Antenna
③	Expansion Port (For expansion I/F connection) – Ethernet (DIN 8 PIN)
④	Expansion Port (For expansion I/F connection) - Ethernet (DIN 8 PIN)
⑤	ADB Debug Port – Micro USB 2.0
⑥	UART Debug Port – Micro USB 2.0
⑦	Eth1 External Ethernet (10/100, RJ-45)
⑧	Eth0 External Ethernet (10/100/1000M, RJ-45)
⑨	Power Switch (On/Off)
⑩	3 Color LED (Blue: Power, Green : Network, Red: Error)
⑪	Power Jack (24V / 5A)

## 7.1. Power On

※ Please connect the interface module in the power 'Off' state and use it.

Turn on the power switch to 'On' to start the operation of the PINIX Main Module.

### ① Power On

Blue LED of 'On' and 'Power' of LCD screen always 'On'

### ② Network communication

Green LED of 'Network' part is always 'On'

After installing the product, when connecting to the network, it may take several seconds depending on the environment and conditions of the installation site.

### ③ Expansion interface module connection

Connection with expansion interface module is possible through Expansion port. 24V Power Out is supported when an expansion module is connected.

## 7.2. How to check network communication status through PINIX Main Module Display LCD

### ① Check network communication status

You can check the operation status of the main body through the LCD display screen. When network communication is ready, you can check the communication status of each expansion module on the LCD screen..

### ② Check the network communication status of the extension interface module

You can check the operation status of the expansion interface module through the LCD display screen.

- 1) 'Ready Connect to the IF Module' : No connection with expansion module.
- 2) Red LED 'On' when the expansion module is connected : Not connected to PINIX Main Module
- 3) Green LED 'On' when the expansion module is connected : port is not active

### **7.3. Data transmission cycle**

The data transmission cycle of PINIX Main Module is transmitted according to the cycle set in the DS-IoT server.

## 8. Precautions

- ① Be sure to use connectors and cables of the standard for the connection terminals. Using a connector other than the dedicated connector may cause product malfunction or malfunction.
- ② Fix the product firmly without shaking in the place to be installed.
- ③ Do not install in a place exposed to water or rainwater or in a humid place.
- ④ Be careful not to let moisture or other foreign substances enter the product.
- ⑤ Be careful not to drop the product or subject it to external impact.
- ⑥ Do not disassemble, modify or change the product arbitrarily.
- ⑦ This product is designed for use in the temperature range of 0°C to 60°C. It is not recommended for use in extremely low or high temperatures outside this range.
- ⑧ Do not install in a place that does not meet the purpose of the product or use it outside of its intended use.
- ⑨ If there is a burning smell when operating the product, immediately remove the power and contact the Pluto Solution Customer Support Center (+82-031-337-6780).

### ※ FCC

This device complies with part 15 of the 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.

Any changes or modifications (including the antennas) to this device

that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

Note :

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- ✓ This device is installed inside the facility.  
This device is used at a distance of more than 20cm from the human body.

#### ※ RF Exposure Statement

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF Radiation exposure limits set forth for an uncontrolled environment.

This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter..