Packet Power™ Ethernet Gateway Version 3 Users Manual

Version 1.1

NOTES

❑ Read all instructions carefully prior to installation.

❑ No field-serviceable parts. Do not attempt to disassemble the product as potentially severe electrical shock may result. Installation and maintenance must be performed by qualified personnel.

❑ Follow basic safety precautions to reduce the risk of electrical shock and damage to equipment.

❑ Store in a clean, dry location. Clean with a dry cloth.

❑ Intended for indoor use only, do not install in a wet location.

❑ Adhere to all local electrical codes and guidelines.

REGULATORY INFORMATION

This product has been certified to meet the following requirements:

- UL / ANSI standards 61010-1,Second Edition, Dated July 12, 2004 with revisions through and including October 28, 2008
- CAN/CSA-C22.2 No. 61010-1, second edition, including Amendment 1, or a later version of the same standard incorporating the same level of testing requirements.
- Council Directive 2006/95/EC (December 12, 2006) on Low Voltage Equipment Safety; IEC 61010-1:2001 (Second Edition) and EN 61010-1:2001 (Second Edition)
- Council Directive 1999/05/EC - European Union (EU) Radio & Telecommunications Terminal Equipment Directive (R&TTE) ETSI EN 300 220-2, Issued:2006/04/01 and ETSI EN 301 489-3, Issued:2002/08/01 V1.4.1
- Council Directive 2004/108/EC (December 15, 2004) on Electromagnetic Compatibility CENELEC EN 61326-1 Issued:2006/05/01; IEC 61326-1:2005;:1997 –
- AS/NZS 4268: 2008

Class B Device Statement / FCC Regulations:

Section 15.105(a) of the FCC Rules: 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 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.

Section 15.19 of the FCC Rules: 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.

Pursuant to Part 15.21 of the FCC Rules, any changes or modifications to this product not expressly approved by Packet Power LLC might cause harmful interference and void the FCC authorization to operate this product.

Pursuant to part 2.1091c of the FCC rules device is categorically excluded from routine RF Exposure regulations.

Industry Canada (IC) Compliance Statement

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.
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 (e.i.r.p.) is not more than that necessary for successful communication.

Per section RSS-102, 2.5 of Industry Canada regulations, this device is categorically excluded from Routine Evaluation Limits.

Industrie Canada (IC) Déclaration de conformité

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. 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 ipoosotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Overview

The Ethernet Gateway version 3 is the central Gateway by which all Packet Power monitoring nodes (environmental and power) communicate. This guide is intended to provide a high level overview of how to commission a Gateway module. Refer to the support section of www.packetpower.com for additional support.

Introduction to the Gateway

Gateway Placement: Gateway placement is critical. Gateway module(s) should be located 10-30 meters / 30-100 feet from one or more monitoring nodes (ideally line of site). The network is designed as a mesh network which means that the signal for distant nodes can be relayed through adjacent nodes until reaching nodes in good radio proximity to the Gateway. Refer to the Gateway Placement manual on the support section of the website for additional details.

- Locate the gateway at a height above monitoring nodes when possible in a location with the best line of sight view of monitoring nodes.
- Do not locate inside metallic cabinets or directly on metal surfaces
- Use the Gateway mounting bracket for optimal placement and signal strength.
- Redundant Gateways are advised for any critical environment; additional Gateways should be placed in midway or in the opposite end of the device constellation when possible.

Gateway Types: There are various Gateway models. These include the standard Gateway designed to communicate exclusively with the Packet Power EMX portal, Modbus TCP/IP output versions (enterprise and solo), and SMNP output versions (solo and enterprise). All Gateway versions can communicate with the EMX portal simultaneously (i.e. a Modbus version can provide ModBus TCP/IP output as well as communicate with the EMX portal simultaneously).

Gateway Facts: One Gateway can support up to 300 nodes (node count will affect polling time). The network is self-configuring and will auto recognize new nodes added. Multiple Gateways can be used within a network for capacity or redundancy and will automatically load balance the nodes.

Updates: The Gateway firmware is capable of being remotely updated over the network. Consult the support section of the website for additional details.

Security: The Packet Power network is designed to be the most secure monitoring system available with many inherent security features exclusive to the architecture that limit any possibility of penetration through the wireless nodes onto the host network. Additionally the Gateway can be equipped with 128 bit encryption. Contact Packet Power for additional details.

Device Setup

→ Connect the Gateway to a router (using a standard network cable) with network access using the Ethernet port on the back of the Gateway.

→ Connect the power supply provided or any 5 VDC source to the DC input of the Gateway. The Gateway can be powered using PoE (Power over Ethernet) using a splitter and 5VDC PoE source.
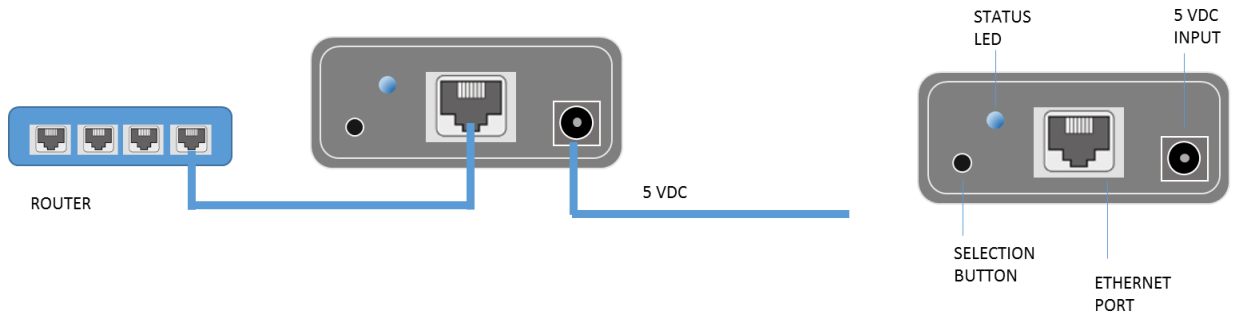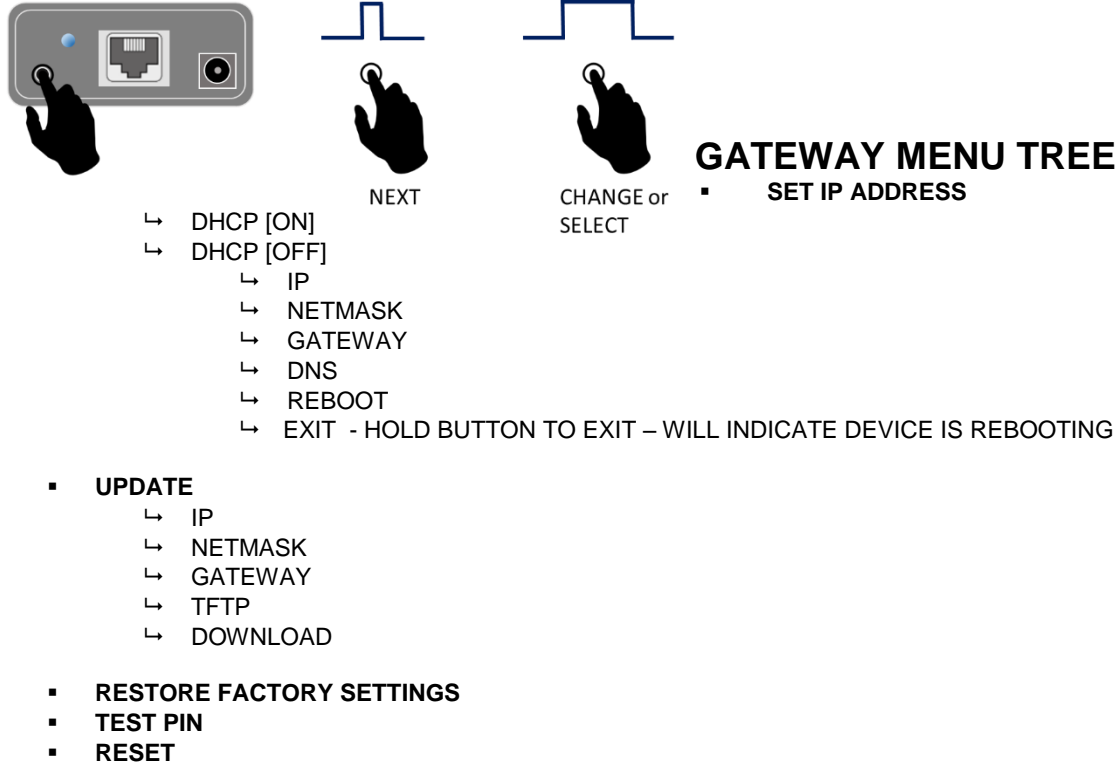

→ Once energized the Gateway will indicate it's firmware version, then device ID number (also found on the top label of the Gateway) followed the IP address (may be blank if operating DHCP mode); note that the IP address may take up to two minutes to display.

POWER UP DISPLAY SEQUENCE

FIRMWARE   DEVICE ID   IP ADDRESS
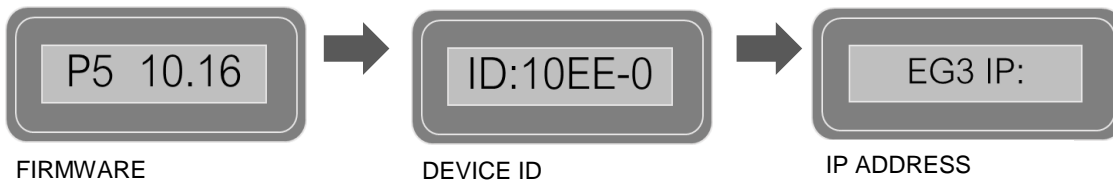
Menu Access and Navigation

To access the menu for the Gateway, press and hold the selector button on the back of the device for three seconds. To navigate the menu, use short clicks of the selection button; to change a setting or advance into a menu item press and hold the button. The menu tree is shown in the table below.

NEXT   CHANGE or
              SELECT

GATEWAY MENU TREE

- **SET IP ADDRESS**
  - ↳ DHCP [ON]
  - ↳ DHCP [OFF]
    - ↳ IP
    - ↳ NETMASK
    - ↳ GATEWAY
    - ↳ DNS
    - ↳ REBOOT
    - ↳ EXIT - HOLD BUTTON TO EXIT – WILL INDICATE DEVICE IS REBOOTING

- **UPDATE**
  - ↳ IP
  - ↳ NETMASK
  - ↳ GATEWAY
  - ↳ TFTP
  - ↳ DOWNLOAD

- **RESTORE FACTORY SETTINGS**
- **TEST PIN**
- **RESET**

Setting an IP Address

To configure the IP address of the Gateway, enter the setup menu by pressing and holding the "selection button" for three seconds.
Use short clicks of the button to advance through the menu until the [**-> Set IP**] option appears. Click and hold [**-> Set IP**].
The LCD will show **DHCP:On** -or- **DHCP:Off**. Click and hold the button to toggle between DHCP on and off.
To set a static IP address click and hold **DHCP:Off**. The display will then show **CP: Off <-** . Click and hold the button and the IP address will appear. Use short clicks to scroll through specific digits of the IP address. Click and hold the button to change the underlined number of the IP address.
Once the correct IP address is entered you can exit the IP address console by advancing to the end of the screen and holding the selector button when the back arrow character **<-** is highlighted.

->IP:168.00

HOLD TO ACESS IP ADDRESS

255.001.153

CLICK TO ADVANCE POSITIONS
HOLD TO CHANGE NUMBERS

5.001.153<-

HOLD TO EXIT

To properly configure the IP address, the Gateway, Netmask and DNS server address must also be entered. To change these parameters use the same menu navigation style as described above.

After the DNS Server address is set you will need to reboot to have implement your changes. Do this by pressing HOLD when "Reboot" is displayed. "Booting" will show on the display while the unit reboots and implements your changes.
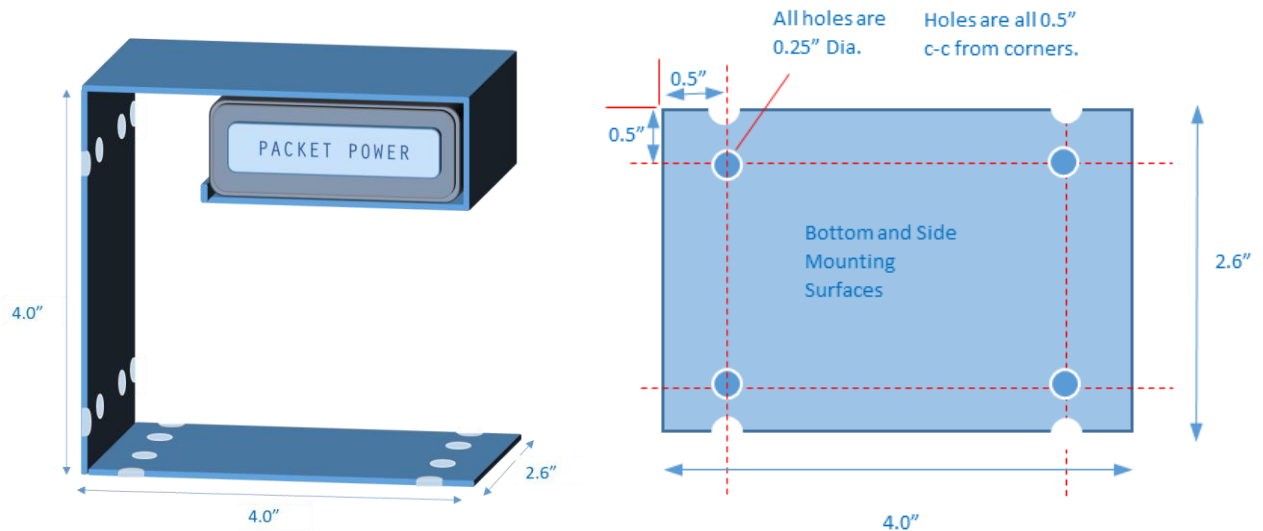
REBOOT<-

REBOOT

To leave the configuration menu without having changes take effect, click and HOLD the "Exit".

You can find additional information, including details on the SNMP MIB and Modbus register map, at www.packetpower.com/support.

Gateway Placement and Mounting Bracket

The Gateway mounting bracket is designed to allow optimal placement of Gateway and Environmental Monitor modules away from metallic surfaces and optimize signal strength. It can be secured to mounting structures using bolts, screws or adhesive tabs provided.

Bracket with Gateway

All holes are 0.25" Dia.

Holes are all 0.5" c-c from corners.

0.5"

0.5"

Bottom and Side Mounting Surfaces

2.6"

4.0"

4.0"

2.6"

4.0"

Mounting Surface Dimensions; holes and cut-outs are intended for use with cable ties for cable management.

Top of Cabinet Mount

Wall Mount

Typical Mounting Configurations: The bracket is intended for wall mounting or surface mounting. Orientation of the Gateway is not critical.

PACKET POWER

Device Placement

- Never inside of a metal structure (exterior of the rack)
- Ideally with-in 30-100 feet of another Packet Power device (gateway or monitoring module)
- 2-4" (5-10 cm) away from a large metallic surface or mounted on a non-metallic platform (use the mounting bracket for optimal placement
- Higher is better; always try and locate the monitoring node at the highest point that allows an unobstructed path to another monitoring node or gateway
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Gateway Placement

- Gateway module(s) should be located 10-30 meters from one or more monitoring nodes (ideally line of site).
- Locate the gateway at a height above monitoring nodes when possible
- Use the same guidelines noted in device placement (do not locate inside metallic cabinets or directly on metal surfaces)
- Use the Gateway mounting bracket for optimal placement and signal strength
- Redundant Gateways are advised for any critical environment
- One Gateway can support up to 300 Packet Power monitoring devices; additional Gateways will improve polling speeds

Specifications

COMMUNICATIONS

Operating frequency (region)	From 860, 930MHz and 2.4 GHz (specific frequency used varies by region)
Wireless protocol	Proprietary frequency hopping, self-configuring, load-balancing mesh network
Wired network protocol (Gateway only)	TCP/IP (one IP address needed per Gateway) with SNMP and Modbus protocol support available on certain models
Firmware updates	Wireless
Typical transmission range	10 to 50 meters indoors from any one device to any other
Antenna	Fully enclosed, fixed configuration
Monitoring Unit to Gateway Ratio	From 100 to 300 monitoring units per gateway depending on desired data collection rate and Gateway model
Gateways per site	Unlimited
Multi-site support	Yes
Encryption	Optional 128-bit
Compatible devices	All Packet Power modules may be combined in the network

OPERATING ENVIRONMENT

Operating temperature	0° to +40° C (+32° to +104°F)
Operating humidity	10% to 90% non-condensing
Water and dust resistance	Indoor use
Maximum operating altitude	2,000 meters (6,561 feet)
Mounting	Typical: on top of server cabinet, under a cable raceway, under a raised floor

DISPLAY

LCD	LCD display for status and configuration details
LED	Indicates general device status

SIZE AND WEIGHT

Ethernet Gateway	65 mm (2.6") x 65 mm (2.6") x 28 cm (1.1"), 65 g (3 oz)

POWER SUPPLY

External Power Supply	100-240VA/C input voltage, 50-60Hz (5 VDC output) (72mm x 43mm x 29mm)
Safety Standards	EN60950 UL60950 IEC60950
Plug Types	NEMA 5-15, CEE-7 Schuko, AS/NZS 3112 2000, BS 1363A, C14, BS 546A
Power Consumption	0.7W
Power over Ethernet	Available. Requires an external PoE splitter on a PoE enabled switch. If the switch does not provide native PoE support, a PoE injector is also required.

CERTIFICATIONS

FCC, UL, CE