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Introduction

Welcome to the Panasonic Network Gateway

The modern manufacturing sector is a fast-paced operation with information constantly changing, technology becoming increasingly complex, and competition rapidly growing. To keep your business at the forefront and your operation running smoothly, you must ensure accurate, up-to-date information is delivered to the proper channels in a timely fashion.

The Panasonic Network Gateway is the perfect tool to connect every aspect of your process and keep everyone on the same page. The Network Gateway is designed with reliability and flexibility at its core.

With scalability in mind, our complete data management system is the perfect solution for any business of any size. Our team of experts can help you devise a customized system, perfect for a growing startup, or work with your team to implement a comprehensive solution to bring your established company into a new era of efficiency.

By combining a Network Gateway with Power Tags, View Tags, and a number of additional accessories, along with the ability to custom tailor software and application solutions to fit the needs of your specific operation, you can be confident that your information data-streams are consistently accurate, steadily efficient, and systematically reliable.
1. Physical Specifications

1.1. Link Network Gateway

<table>
<thead>
<tr>
<th>Specification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Number</td>
<td>GWN2</td>
</tr>
<tr>
<td>Width (mm)</td>
<td>131.4</td>
</tr>
<tr>
<td>Length (mm)</td>
<td>230.9</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>29.2</td>
</tr>
<tr>
<td>Color</td>
<td>Low-Gloss Black</td>
</tr>
<tr>
<td>Case Material</td>
<td>Galvanized Cold-Rolled Steel</td>
</tr>
<tr>
<td>Finish</td>
<td>Fine texture polyester powder coat</td>
</tr>
<tr>
<td>Weight (grams)</td>
<td>880</td>
</tr>
</tbody>
</table>

![Figure 1](image_url1)

Tolerance Table¹ (mm)

<table>
<thead>
<tr>
<th>Tolerance Range</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 or Less</td>
<td>+/- 0.3</td>
</tr>
<tr>
<td>Over 6 to 30 incl.</td>
<td>+/- 0.4</td>
</tr>
<tr>
<td>Over 30 to 120 incl.</td>
<td>+/- 0.8</td>
</tr>
<tr>
<td>Over 120 to 315 incl.</td>
<td>+/- 1.2</td>
</tr>
<tr>
<td>Over 315 to 630 incl.</td>
<td>+/- 1.8</td>
</tr>
<tr>
<td>Over 630 to 1000 incl.</td>
<td>+/- 2.5</td>
</tr>
</tbody>
</table>

1.2. Connection Layout

![Figure 2](image_url2)

¹ All tolerances adhere to table unless otherwise specified

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2. Technical Specifications

2.1. Data Interface

![Figure 3](image)

<table>
<thead>
<tr>
<th>Multi-Purpose Data Connection²</th>
<th>IN-A</th>
<th>IN-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Type</td>
<td>TE 796866-6</td>
<td>Optical Coupler</td>
</tr>
<tr>
<td>Insulation³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optimum Connector Types</th>
<th>Right Angle</th>
<th>TE 796859-6</th>
<th>Vertical - Left</th>
<th>TE 796861-6</th>
<th>Vertical - Right</th>
<th>TE 796863-6</th>
</tr>
</thead>
</table>

| Input Voltage⁴ (Volts)        | Nominal     | 24           | Maximum       | 50          |
| Response Time (µsec)          | Low to High | 40           | High to Low   | 400         |
| Minimum "ON" Power Voltage (V)| 19          |               | Current (mA)  | 4.4         | Input Impedance (KΩ) | 5.2 |

² two general purpose data inputs (see Figure 7 for pin reference diagram); only Panasonic approved devices should be connected to the inputs
³ Refer to Figure 4 for circuit diagram
⁴ relay output Protected from reverse connection

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2.3. Relay Out

<table>
<thead>
<tr>
<th>Connection Type(s)</th>
<th>OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Operation Count Rating</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Contact Rating</td>
<td>Voltage (Volts DC)</td>
</tr>
<tr>
<td></td>
<td>Current (Amperes)</td>
</tr>
<tr>
<td>Relay Coil</td>
<td>Operating Power (mW)</td>
</tr>
<tr>
<td></td>
<td>Impedance (Ω)</td>
</tr>
<tr>
<td>Relay Coil Power Consumption</td>
<td>Voltage (Volts DC)</td>
</tr>
<tr>
<td></td>
<td>Current (milliamps)</td>
</tr>
</tbody>
</table>

2.4. USB

<table>
<thead>
<tr>
<th>USB Mini</th>
<th>Purpose</th>
<th>Device Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baud Rate</td>
<td>115,200</td>
</tr>
<tr>
<td></td>
<td>Data Bits</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Stop Bit(s)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Parity</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>USB (Type A)</td>
<td>No functionality</td>
</tr>
</tbody>
</table>

2.5. Ethernet

<table>
<thead>
<tr>
<th>Standard</th>
<th>100BASE-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection Type</td>
<td>RJ45</td>
</tr>
<tr>
<td>LED Indication</td>
<td>Link Connectivity</td>
</tr>
<tr>
<td></td>
<td>Data Send/Receive</td>
</tr>
<tr>
<td></td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
</tr>
<tr>
<td>Supported Internet Protocol</td>
<td>IPv4 &amp; IPv6</td>
</tr>
</tbody>
</table>

---

5 Single, Normally Open (N/O) relay control (see Figure 7 for pin reference diagram); only Panasonic approved devices should be connected to the port
6 USB (Type A) has no functionality in this model
7 Meets or exceeds IEEE 802.3u standard
8 This Network Gateway can be run using an IEEE 802.3af compliant POE (Power Over Ethernet) source (44-57 volts DC)

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2.6. Radio Specifications

The Network Gateway (GWN2) has two identical embedded 433MHz radio modules (Panasonic RM433V2). These modules, and their antennae connections are differentiated by labels “A” and “B” (Figure 10). Module “B” comes outfitted with a 50 Ω terminator for installations which only require a single antenna. Both connectors utilize industry standard SMA connectors.\(^9\)

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>High</th>
<th>434.784</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>433.056</td>
<td></td>
</tr>
<tr>
<td>Receiver Sensitivity Rx(^{10}) (dBm)</td>
<td>-100</td>
<td></td>
</tr>
<tr>
<td>Transmission Signal Power Tx (dBm)</td>
<td>+5</td>
<td></td>
</tr>
<tr>
<td>Input Signal Max (dBm)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>RSSI Range (dBm)</td>
<td>Minimum</td>
<td>-100</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>-10</td>
</tr>
<tr>
<td>RF Port Impedance (Ω)</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Antenna Connector Type</td>
<td>SMA (male)</td>
<td></td>
</tr>
<tr>
<td>Standing Wave Ratio (VSWR max)</td>
<td>2:1</td>
<td></td>
</tr>
</tbody>
</table>

\(^9\) For more specific detail about the embedded radio modules, refer to the Network Gateway Specification

\(^{10}\) Nominal for 0.1% BER

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2.7. LED Indicators

The Panasonic Network Gateway is outfitted with several LED indicators. The purpose of these indicators is so proper functioning of the Gateway can be viewed immediately, even in low-light situations.

2.7.1. Status LED

<table>
<thead>
<tr>
<th>Blink Pattern</th>
<th>Denotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>Solid</td>
<td>Error Condition</td>
</tr>
<tr>
<td>Blink</td>
<td>Error Condition</td>
</tr>
<tr>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>Blink</td>
<td>50% duty cycle during system startup</td>
</tr>
<tr>
<td>“Heartbeat” Blink Pattern</td>
<td>Shutdown or system restart</td>
</tr>
<tr>
<td>Green</td>
<td></td>
</tr>
<tr>
<td>Blink</td>
<td>Normal system activity</td>
</tr>
<tr>
<td>Red/Green</td>
<td>Alternating Blink</td>
</tr>
<tr>
<td>Alternating Blink</td>
<td>Firmware upgrade</td>
</tr>
</tbody>
</table>

2.7.2. Ethernet LED

<table>
<thead>
<tr>
<th>Color</th>
<th>Blink</th>
<th>Denotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amber</td>
<td>Solid</td>
<td>Network connection active</td>
</tr>
<tr>
<td>Green</td>
<td>Blink</td>
<td>Data communication activity</td>
</tr>
</tbody>
</table>

2.7.3. Radio LED

<table>
<thead>
<tr>
<th>Color</th>
<th>Blink</th>
<th>Denotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Blink</td>
<td>Message being transmitted</td>
</tr>
<tr>
<td>Red</td>
<td>Blink</td>
<td>Message being received</td>
</tr>
</tbody>
</table>

---

11 Status light will momentarily remain illuminated solid red for a short period during startup. This is normal and is to be expected.

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2.8. Power Supply Options

The Network Gateway can be powered from any combination of the integrated PoE (Power over Ethernet) or DC inputs and can switch automatically between the two, depending on operation requirements.

2.8.1. DC Input

The DC power input utilizes a 2.5 mm, center pin jack (CUI PJ-066B) which allows for a barrel style connector for quick attachment or an optional locking ring (5/16 - 32 UNEF 2B) for more secure connection\(^\text{12}\).

<table>
<thead>
<tr>
<th>Mating Connector</th>
<th>Voltage (Volts)</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current (Ampere)</td>
<td>0.5</td>
</tr>
<tr>
<td>Type</td>
<td></td>
<td>CUI PJ-066B</td>
</tr>
<tr>
<td>Diameter (mm)</td>
<td></td>
<td>2.5</td>
</tr>
<tr>
<td>Barrel Length (mm)</td>
<td></td>
<td>9.5</td>
</tr>
<tr>
<td>Locking Ring Thread Size</td>
<td>5/16 - 32 UNEF 2B</td>
<td></td>
</tr>
</tbody>
</table>

2.8.2. POE (Power Over Ethernet)

The PoE connection requires an IEEE 802.3af (Class 3) compliant PoE source with a voltage range of 44 to 57 volts DC.

<table>
<thead>
<tr>
<th>Engineering Standard</th>
<th>Voltage (Volts DC)</th>
<th>44 – 57</th>
</tr>
</thead>
</table>

2.9. Environmental Details

2.9.1. Storage Environment

<table>
<thead>
<tr>
<th>Ambient Temperature Range (°C)</th>
<th>High</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Humidity Range (%RH @ 25°C non-condensing)</td>
<td>High</td>
<td>95</td>
</tr>
<tr>
<td>Low</td>
<td>-40</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

2.9.2. Operating Environment

<table>
<thead>
<tr>
<th>Ambient Temperature Range (°C)</th>
<th>High</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Humidity Range (%RH @ 40°C)</td>
<td>High</td>
<td>65</td>
</tr>
<tr>
<td>Low</td>
<td>-20</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

2.9.3. Damage Testing

<table>
<thead>
<tr>
<th>Vibration Resistance</th>
<th>MIL-STD-810G-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingress Protection</td>
<td>IP 30</td>
</tr>
</tbody>
</table>

\(^{12}\)DC power supply should be a limited source, operating at 24V / 0.5A (ie: SL Power Electronics model TE10A2403B01)

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3. Mounting

The Network Gateway is designed to be mounted by utilizing the four 8.8mm diameter holes located on the outer flanges of the case. The following fastener configurations are recommended for proper, stable mounting to the intended surface:

- **Nut/Bolt Configuration**
  - (x4) M4 Hex Bolt\(^{13}\) (18-8 stainless steel)
  - (x8) M4 Flat Washer
  - (x4) M4 Hex Locknut (18-8 stainless steel, nylon insert)
    - **Torque Spec:** 1.5-2.0 N·m

- **Screw Fastening (into tapped hole)**
  - (x4) M4 Socket Head Cap Screw\(^ {14}\) (18-8 stainless steel)
  - (x4) M4 Flat Washer (18-8 stainless steel)
    - **Torque Spec:** 1.5-2.0 N·m

- **Screw Fastening (into non-threaded pilot hole in soft material i.e. plastic, wood, etc.)**
  - (x4) #6 Screw\(^{15}\) (18-8 stainless steel)
  - (x4) M4 Flat Washer (18-8 stainless steel)

When mounting the Network Gateway, please observe the following:

- Avoid installing where there is excessive shock or vibration
- Check the fixation regularly
- Do not drop the unit as it may cause malfunction
- Do not use the system outdoors
- Be sure to use the product within the specified ambient temperature and humidity limits as defined in the previous section
- Use the specified antenna for the NGW and keep away from the antenna while the NGW is operating.

---

\(^{13}\) Length of bolt will depend on the thickness of the mounting surface. Our recommendation is a minimum of 4 mm of bolt length protruding beyond the surface of the hex nut

\(^{14}\) 12mm minimum recommended thread engagement for each tapped hole

\(^{15}\) 12mm minimum thread engagement
4. Configuration & Integration

4.1. Setting Up the Gateway IP Address

The following steps will guide you through the process of configuring your Network Gateway to prepare it for integration into your network:

4.1.1. Terminal Emulation Program

- You will need a Terminal Emulation Program to view and/or configure the IP Address for your Network Gateway
- A Terminal Emulator is a program that mimics the functionalities of a traditional computer terminal
- This will allow you to access the configuration menu for your Network Gateway
- If you do not have one, there are several free options that you can download from the internet (we recommend PuTTY16)

4.1.2. Connect Gateway to Workstation

The steps in the table below will guide you through the process of viewing or configuring your IP address. You will need to know your IP address to integrate your Network Gateway seamlessly into your specific system.17

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1    | - Connect your Network Gateway to your network using an ethernet cable  
      - Connect a cable between the USB Mini port on the Gateway and a USB port on your PC  
      - Connect the DC Power adapter to the Network Gateway (only required if the network connection is not POE) |
| 2    | - Go to the Device Manager on your workstation to verify which COM Port you are connected to |
| 3    | - Start the PuTTY application |

---

16 available for free download at [https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html](https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html)

17 The steps in this table are specifically for the use of the “PuTTY” application, differing emulation programs may require alternate steps.

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4. In the “Category:” tile, select “Serial”
   - Enter the COM port number in the first field
   - Fill in the remainder of the fields with the information shown

5. In the “Category:” tile, select “Session”
   - Select the “Serial” radio button
   - Your “Serial Line” and “Speed” should be populated with the proper corresponding values entered in the previous step, if not, fill them in with your values
   - Click the “Open” Button

6. Upon opening the new PuTTY session, a command window will come up
   - Click the “Enter” button on your keyboard

7. You will be prompted to enter your “Login” information
   - Enter “customer”
   - Click the “Enter” button on your keyboard
   - You will then be prompted to enter a “Password”
   - Type “customer” for the password
   - As you enter your password, the screen will not show any indication of you entering text, this is normal
   - Click the “Enter” button on your keyboard

8. The network information settings for your Network Gateway will now be displayed
   - At this time, you will have two options
     - Use the “address” already assigned via “DHCP”
       - Record your “address” and skip the rest of the steps
     - Manually assign a “Static” address
       - For “Static” address, type “C” (for “Configure”)
       - Click “Enter” on your keyboard and continue to the next step

Note: If DHCP is utilized for the gateway addressing, it is recommended that the DHCP address assigned to the gateway be reserved (in the DHCP server) for the gateway.
4.2. Connecting the Network Gateway to your system

Now that you have your IP address, the final step is connecting your Network Gateway to your system. You will do this by entering your IP address into the appropriate location. Due to varying application options we offer, navigating the pairing process may differ slightly from system to system. For a detailed step-by-step guide to pairing your View Tag to your Gateway Network, refer to the information manual specific to your application.
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                Rochester, NY 14614

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logiscend.pewe@eu.panasonic.com

Economic Operators’ Information in EU

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Contact for CE
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Panasonic Testing Center
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Recommendations & Considerations

Safety Considerations

Panasonic Industry Co., Ltd. is constantly striving to improve the quality and reliability of our products. However, all electrical components and devices have a statistical probability of failure. The durability of the products can vary with different use cases and environments. Therefore, to ensure safety, products should be periodically inspected for wear or degradation. Continued usage in a state of degradation can result in product failure resulting in personal injury or damage to property.

Product Disclaimer

These products are designed and manufactured for industrial indoor environment use. It is the user’s responsibility to make certain that all applicable standards, laws, and regulations are adhered to in their deployment.

Do not use the products for any application which may cause them to breakdown or malfunction. Use of products in this fashion may result in system failure which could lead to damage of property or personnel.

These products should not be incorporated into the following types of systems as their conformity, performance and quality are not guaranteed under such usage:

- disaster-prevention equipment / security equipment
- control equipment for electric power generation
- nuclear control system
- aircraft equipment, aerospace equipment, and submarine repeater
- military devices
- medical devices (except for general controls)

If you change or repair the equipment, it may not be compatible with the law and you may not be able to use it. Therefore, please do not change or repair it.

Acceptance Inspection

Upon receipt of the products which you have purchased from us, please perform a timely inspection of their condition and function. If you have any concerns, please contact your sales representative as soon as possible.

General Disclaimer

The products and specifications listed in this document are subject to change, including requirements, place of manufacture and product discontinuance. Consequently, when ordering products, Panasonic Industry Co., Ltd. asks you to contact one of our customer service representatives to confirm that the details listed in this document are commensurate with the most up-to-date information.
Warranty Details

Period

Unless otherwise stipulated by both parties, the warranty period of our Products is one year after the purchase by you or after their delivery to the location specified by you.

Scope

In the event that Panasonic Industry Co., Ltd. confirms any failures or defects of the Products by reasons solely attributable to Panasonic Industry Co., Ltd. during the warranty period, Panasonic Industry Co., Ltd. shall supply the replacements of the Products, parts or replace and/or repair the defective portion free of charge at the location where the Products were purchased or delivered to your premises as soon as possible.

However, the following failures and defects are not covered by the warranty and we are not responsible for such failures and defects.

- When the failure or defect was caused by a specification, standard, handling method, etc. which was specified by you.
- When the failure or defect was caused after purchase or delivery to your premises by an alteration in construction, performance, specification, etc. which did not involve us.
- When the failure or defect was caused by a phenomenon that could not be predicted by the technology at purchasing or contracted time.
- When the use of our Products deviated from the scope of the conditions and environment set forth in the instruction manual and specifications.
- When, after our Products were incorporated into your products or equipment for use, damage resulted which could have been avoided if your products or equipment had been equipped with the functions, construction, etc. the provision of which is accepted practice in the industry.
- When the failure or defect was caused by a natural disaster or other force majeure.
- When the equipment is damaged due to corrosion caused by corrosive gases etc. in the surroundings.

The above terms and conditions shall not cover any induced damages by the failure or defects of the Products, and not cover your production items which are produced or fabricated by using the Products. In any case, our responsibility for compensation is limited to the amount paid for the Products.

Service or Repair

The cost of delivered Products does not include the cost of dispatching an engineer. In case any such service is needed, contact our sales representative.

Terms & Conditions

- Before using this product, and before every starting operation, please confirm the correct functioning and performance of this product.
- Contents of this document could be changed without notice.
- This document must not be partially or totally copied or revised.
- All efforts have been made to ensure the accuracy of all information in this document. If there are any questions, mistakes, or comments in this document, please notify us.
- Please note that we assume no liability for any results arising out of operations regardless of the above clauses.
Disposal of Network Gateway

The disposal of the network gateway should be handled as industrial waste in accordance with regional regulations. Do not discard used equipment with regular trash.

For European Union and countries with recycling systems

This symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products must not be mixed with general household waste. For proper treatment, recovery and recycling of old products, please take them to applicable collection points in accordance with your national legislation. By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment. For more information about collection and recycling, please contact your local municipality. Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.
Regulatory Certifications

This product meets the requirements mandated by the following regulations and standards. Note that no claim is made that our products conform to regulations and standards of countries and regions not mentioned in this section. When exporting product by itself or integrated into a machine or device, confirm the regulations and standards of the exporting country or region.

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* Contact for CE: Panasonic Marketing Europe GmbH, Panasonic Testing Center, Winsbergring 15, 22525 Hamburg, Germany

FCC Interface Statement

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCCID: N74-RM433V2
Contact Name: Mr. Ben Botros
Contact Address: Two Riverfront Plaza, 9th Floor, Newark, NJ 07102-5490 United States
Contact Email: ben.botros@us.panasonic.com
Industry Canada 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.

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.

Simplified EU Declaration of Conformity

Hereby, Panasonic declares that the radio equipment contained and utilized in the Network Gateway (model number: GWN2) is in compliance with Directive 2014/53/EU of the European Parliament

The full text of the EU Declaration of conformity is available at the following internet address:

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