

Installation and Operation Manual

PVG-1/2/3 PVG-M/E/O

Rapid Shutdown Device







Contents

ntents	2
COMPANY PROFILE	3
1. INTRODUCTION	4
2. SAFETY INSTRUCTION	<u>5</u>
3. FCC COMPLIANCE	<u>6</u>
4. INSTALLATION	7
4.1 Mount PVG	7
4.2 Connect PVG to Modules	8
4.3 Test String Output Voltage of PVG	9
4.4 Connect Homeruns	9
4.5 Build Site Map	10
4.6*** Wire PVG Controller Power Supply	11
4.7*** Connect PVG Controller Signal Ring	12
4.8 Check Sting Voltage (Inverter with built-in PVG Transformer)	13
4.9 Commissioning	13
4.3 PVG System Diagram	14
4.3.1 PVG-1 System Diagram	14
4.3.2 PVG-2 System Diagram	<u>14</u>
5. OPERATING INSTRUCTIONS	<u>15</u>
6. PV PANEL MONITORING USING BDG-256 (OPTIONAL)	<u>16</u>
6.1 Connection of BDG-256 and PVG-C:	<u>16</u>
7. IV Curve Trace Testing	17
Equipment Required:	17
Step-by-Step Guide:	18
8. Data Sheets	19
9.MODELS AND MARKING	20
9.1 PV Connector Options	20
9.2 PVG-1 9.3 PVG-2	20
10. SYSTEM MARK	21
11. WARRANTY AND PRODUCTION INFORMATION	22
Quick Installation Guide BDG-256 Gateway	24





COMPANY PROFILE

Northern Electric Power Technology Inc. (NEP) is a U.S.-based company with manufacturing and R&D facilities in Asia. Our mission is to develop cutting-edge clean energy technologies and provide state-of-the-art solar inverter, rapid shutdown, and monitoring products to our customers.

Our headquarters are located in Tsingtao, a major industrial center and trading port in northeastern China. Our campus occupies over 18 acres in the Tsingtao Export Processing Zone, with more than 650,000 square feet of building space. We plan to connect our campus through a micro smart grid demo community, powered by solar, wind, and micro turbines. In addition to our headquarters, we have operation offices Pleasonton, USA.

Our founders are well-known experts in the fields of power electronics, automatic control, signal processing, and communications. Each of our founders has multiple U.S. and world patents in their specialty areas, and received Ph.D. degrees from top universities in North America. They each have over 10 years of engineering and management experience in leading U.S. companies.

NEP offers a complete product line of grid-tied solar inverters, including micro inverters ranging from 180W to 2000W, and industry leading Rapid Shutdown Devices (RSD). Our field deployment results have demonstrated the high efficiency and reliability of NEP solar inverters.

At NEP, we are committed to developing Clean, Reliable, Affordable, and Efficient products for our customers worldwide.





1. INTRODUCTION

1.1 Prefix

Thank you for choosing PVG rapid shutdown devices. We hope that our products will meet your needs for renewable energy. We highly value your feedback regarding our products and would greatly appreciate any comments you may have.

Thank you for your business, and please do not hesitate to contact us if you have any questions or concerns.

1.2 Standards Compliance

PVG rapid shutdown devices comply with the NEC 2014 and NEC 2017 article 690.12, and CEC 2015 section 64-218.

1.3 How to Use This Manual

This manual provides detailed product information and installation instructions for the PVG rapid shutdown devices (RSD). Please read through this manual before installation and operation.



WARNING: This indicates a situation where failure to follow instructions may be a safety hazard or cause equipment malfunction. Use extreme caution and follow instructions carefully.

1.4 Label

\bigwedge	Danger! The term "danger" describes an issue which, if ignored can <u>cause</u> personal injury.
\mathbf{V}	Attention! With the term "attention" a circumstance is listed which may cause property damage if disregarded.
·I	Instructions for use! Under "Instructions for <u>Use"</u> , it is pointed out that installation and operating instructions are to be read and understood before installation or repair.
	Caution, hot surface! Under "Caution, hot surface", it should be noted that surfaces of equipment may be hot and create a burn hazard.
X	Special disposal instructions! With "Note Separate Disposal", it is pointed out that this product may not be disposed of with normal garbage. An improperly conducted disposal can lead to damage to the environment.
CE	CE mark The product complies with essential requirements of <u>relevant</u> directives of EU.



2. SAFETY INSTRUCTION

\Lambda WARNING:

PLEASE READ THIS MANUAL BEFORE INSTALLATION. ANY DAMAGE TO THE PRODUCT

DUE TO NOT FOLLOWING THIS MANUAL IS NOT COVERED BY THE WARRANTEE. ALL THE INSTALLATION SHOULD BE DONE BY CERTIFIED ELECTRICIAN.

IT IS IMPORTANT TO NOTE THAT NOTHING INSIDE THE PRODUCT SHOULD BE MODIFIED, ASIDE FROM THE CABLE CONNECTORS. ANY MODIFICATION TO THE INTERNAL COMPONENTS OF THE PRODUCT MAY RESULT IN MALFUNCTION OR DAMAGE, AND MAY ALSO VOID THE PRODUCT'S WARRANTY.

ALL INSTALLATION SHOULD FOLLOW THE LOCAL ELECTRIC CODES.

\Lambda warning:

WHEN THE PHOTOVOLTAIC ARRAY IS EXPOSED TO LIGHT, IT SUPPLIES A DC VOLTAGE TO THE PVG RSD

THIS PHOVOLTAIC RAPIC SHUTDOWN EQUIPMENT (PVRSE) DOES NOT PERFORM ALL OF THE FUNCTIONS OF A COMPLETE PHOTOVOLTAIC RAPIC SHUTDOWN SYSTEM (PVRSS). THIS PVRSE MUST BE INSTALLED WITH OTHER EQUIPMENT TO FORM A COMPLETE PVRSS THAT MEETS THE REQUIREMENTS OF NEC (NFPA 70) SECTION 690.12 FOR CONTROLLED CONDUCTORS OUTSIDE THE ARRAY. OTHER EQUIPMENT INSTALLED IN OR ON THIS PV SYSTEM MAY ADVERSLY AFFECT THE OPERATION OF THE PVRSS. IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT THE COMPLETED PV SYSTEM MEETS THE RAPIC SHUTDOWN FUNCTIONAL REQUIREMENTS. THIS EQUIPMENT MUST BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.





3. FCC COMPLIANCE

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 the 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 not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.





4. INSTALLATION

WARNING: ALTHOUGH OUR PVG UNITS ARE SHIPPED IN THE "OFF" STATE, IT IS BEST PRACTICE TO APPROACH ALL UNITS AS IF THEY WERE IN THE "ON" STATE AND PROCEED WITH CAUTION. BEFORE WIRING, IT IS CRUCIAL TO TEST AND CONFIRM THAT THE UNITS ARE IN THE "OFF" STATE. IF A PVG IS LEFT IN THE "ON" STATE, IT MAY RESULT IN HIGH VOLTAGE ON THE PV STRINGS. THIS POSES A SERIOUS RISK OF ELECTRICAL SHOCK AND DAMAGE TO THE SYSTEM. THEREFORE, ALWAYS EXERCISE CAUTION AND FOLLOW RECOMMENDED SAFETY PROCEDURES TO ENSURE THE SAFE AND EFFICIENT INSTALLATION OF OUR PVG RAPID SHUTDOWN DEVICES.

4.1 Mount PVG

- PVG can be mounted on PV panel frame or on a rail
- 1. Follow module manufacturer's instructions if mounted on frame [Ref: MOUNTING GUIDE PVG]
- A minimum 0.5 inch MUST be kept between any portion of PVG to the backside of a PV panel
- 1. Violation may result in overheat on both PVG and PV panels
- PV cable between PV panels and PVG including extension cable should not be more than 2.0 meters







4.2 Connect PVG to Modules

- PVGs must be connected to PV modules before connecting homeruns
- While plugging or unplugging PVGs in a system, DC switch on the inverter must be turned off







4.3 Test String Output Voltage of PVG

• PVG default state from factory is OFF

• Safety voltages (OFF) when PV-1 port is powered by a PV module

PVG_1: 0.65 Vdc PVG_2: 1.4 Vdc PVG_3: 1.8 Vdc

4.4 Connect Homeruns

- <u>PVGs must be connected to PV modules before connecting homeruns</u>
- Following steps are recommended* to reduce cross interference between PLC signals from different PVG controllers
- Separate raceway of homeruns for different PVG controllers as far as possible
- Keep positive and negative conductors of homeruns of the same PV string as close as possible to a twisted pair in a cable tray
- Avoid conductors of homeruns for different PVG controllers in the same raceway
- Separate conductors for different PVG controllers as far as possible

* PVG and PVG controllers use advanced signaling to eliminate cross talk interference between adjacent systems



4.5 Build Site Map

- This step is required for panel level monitoring
- This step is recommended for post installation services







NEP Microinverter/PVG Array Installation I







***4.6 and 4.7 are only required for external PVG controllers

4.6*** Wire PVG Controller Power Supply

- Power conductor to PVG controller shall be 18AWG or 20AWG
- PVG controller shall never loose power supply while inverter is running and taking PV power





4.7*** Connect PVG Controller Signal Ring

- Only positive <u>OR</u> negative PV cables should pass through the signal ring
- 1. PLC signal may cancel each other if both "positive" and "negative" cables pass through the signal rings







4.8 Check String Voltage (Inverter with built-in PVG Transformer)



4.9 Commissioning

- After all strings of the site have been tested, inverters can be turned on.
- String current should be checked to confirm on correct operation.



4.3 PVG System Diagram

4.3.1 PVG-1 System Diagram





PV-1 must be connected to a PV panel to power the PVG. Cables (PV+ and PV-) of an unused PV port shall be connected.



5. OPERATING INSTRUCTIONS

WARNING: AFTER INSTALLATION, IT IS ESSENTIAL TO TEST THE PVG RAPID SHUTDOWN SYSTEM DURING DAYTIME HOURS WITH ALL INVERTERS STOPPED GENERATING POWER. TO PERFORM THE TEST, MANUALLY PUSH DOWN THE EMERGENCY BUTTON OR DISCONNECT THE AC POWER SUPPLY OF THE PVG CONTROLLER. DURING THE TEST, THE DC VOLTAGE ACROSS ANY PV CONDUCTORS AND BETWEEN ANY PV CONDUCTORS AND GROUND SHOULD DROP TO LESS THAN 30 VDC WITHIN 30 SECONDS. INSIDE THE CONTROLLED ZONE, THE DC VOLTAGE ACROSS ANY PV CONDUCTORS AND GROUND SHOULD DROP TO LESS THAN 30 VDC WITHIN 30 SECONDS. INSIDE THE CONTROLLED ZONE, THE DC VOLTAGE ACROSS ANY PV CONDUCTORS AND BETWEEN ANY PV CONDUCTORS AND SHOULD DROP TO LESS THAN 80 VDC WITHIN 30 SECONDS. PLEASE FOLLOW ALL MANUFACTURER'S INSTRUCTIONS AND SAFETY GUIDELINES DURING THE TEST TO ENSURE PROPER FUNCTION AND SAFETY. THIS TEST IS CRITICAL TO ENSURING THE SAFE AND EFFECTIVE OPERATION OF THE PVG RAPID SHUTDOWN SYSTEM.

WARNING: TO ENSURE PROPER FUNCTION AND SAFETY, THE RAPID SHUTDOWN SHALL ONLY BE INITIATED AFTER THE INVERTERS HAVE STOPPED GENERATING POWER. THIS CAN BE DONE BY DISCONNECTING THE MAIN AC SWITCH OR THE INVERTER AC SWITCH. IT IS IMPORTANT TO FOLLOW ALL MANUFACTURER'S INSTRUCTIONS AND SAFETY GUIDELINES DURING THE RAPID SHUTDOWN PROCESS TO PREVENT DAMAGE TO THE SYSTEM AND ENSURE THE SAFETY OF PERSONNEL.

PVGS are powered by the output of PV panels. Thus rapid shutdown is operable during daytime when the PV panel is energized. Rapid shutdown can be activated by one of the following two operations only after inverters have stopped generating power:

Option-1 Disconnect AC power supply

Option-2 (OPTIONAL) Press the E-STOP button attached to the PVG controller

To re-connect the PV panels, a re-connection command can be sent to each PVG by the following steps:

A 11 A	D 140
Option-1:	Reconnect AC power supply

Option-2: (OPTIONAL) Release the E-Stop button attached to the PVG controller

This operation can only be done during day time as the PVG is powered by PV panels.





6. PV PANEL MONITORING USING BDG-256 (OPTIONAL)

Using BDG-256 gateway, DC current, voltage, power, daily energy, and temperature of each PV panel can be monitored using MICROVIEWER locally, or NEPVIEWER remotely. BDG-256 usage should refer to the BDG-256 gateway manual.

6.1 Connection of BDG-256 and PVG-C:



For setup and commissioning of BDG-256 please refer to "Quick Installation Guide BDG-256 Gateway" on pages 24-27





7. IV Curve Trace Testing

An IV curve trace is a crucial test that helps identify the performance of a solar PV module under various conditions. By measuring the current and voltage at different points on the IV curve, solar professionals can obtain accurate and reliable data to optimize the system's efficiency and identify any issues. The test is typically performed using specialized equipment, such as Seaward testing equipment, and involves turning off the inverter and disconnecting the PV strings.

Northern Electric & Power Inc. (NEP) rapid shutdown devices are unique in that they allow for quick and easy performance of the IV curve trace test on a string level without the need to disconnect each rapid shutdown. NEP achieves this by saving the power state of the device, which allows a small safe current to continue traveling through the string when it is disconnected, powering the devices and running the test. It is important to follow all manufacturer's instructions and safety guidelines during the test to prevent damage to the system and ensure the safety of personnel. For detailed instructions on how to perform an IV curve trace with NEP's Rapid Shutdown Devices and Seaward testing equipment, please refer to the white paper "IV Curve Trace with Northern Electric Power (NEP) Rapid Shutdown Devices." Following the outlined steps will help ensure that the IV curve trace test is performed accurately and reliably, allowing solar professionals to obtain the data needed to optimize the system's efficiency and identify any issues that may affect performance.

Equipment Required:

To perform an IV curve trace, the following equipment is required:

- 1. NEP RSD (PVG-2/PVG-3)
- 2. Seaward testing equipment
- 3. A Functioning Solar String Inverter







Step-by-Step Guide:

The following steps should be followed to perform an IV curve trace with NEP RSDs and Seaward IV Curve Testers:

Step 1: Turn On the RSD (if system already commissioned, skip to step 2)

- · Connect all PV-strings to the inverter.
- Turn on testing mode on the inverter (turn on inverter without powering string)
- · Wait for the inverter to fully turn on

Step 2: Turn off the Inverter

• Turn off the inverter at its control panel after it is fully on

Step 3: Turn off all Disconnects

- Turn off all DC disconnects at the inverter first
- Turn off the AC disconnect at the inverter after all DC disconnects are off

Step 4: Disconnect the PV String for Testing

- · Disconnect the PV string that you want to run the IV curve test on
- · Connect your Seaward testing equipment to run the test

Step 5: Test the PV String

- · Test the PV string with the Seaward equipment to obtain IV curve data
- · Record the data for future reference and analysis

Step 6: Reconnect the Tested String

- · Reconnect the tested string to the inverter
- Move on to the next PV string to repeat steps 4 to 6

Step 7: Repeat step 1

- After all PV strings are tested, repeat step 1 to turn on the inverter
- The system is now ready for normal operation



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8. Data Sheets

PANEL LEVEL RECEIVER DEIVCES

Input (DC)	Max DC Open Circuit Voltage per Input (Vdc)	90	
,	Max DC Current per input (Adc)	15/20	
Output (DC)	Maximum Output Voltage (Vdc)	Voc * n (n=1/2/3/4)	
System	Maximum System Voltage (Vdc)	1500	
	PV Cable	12AWG	
	PV Connectors	Mc4 (Contact NEP for other connectors options)	
Mechanics	Size (not including PV cable)	5.12' x4.73' x 1.14' (PVG-1) 5.90' x5.71' x 1.00' (PVG-2)	
	Protection Degree	NEMA 6	
	Operating Ambient Temperature	-40°C-+85°C	
	Mounting Method	Rail, Frame (option)	
Signal	Communications	DC Power Line Compatible with SunSpec	
Certifications Product Safety Compliance		UL 1741 CSA C22.2 No. 107.1 NEC 2014/2017 690.12 Canada CEC 2015 64-218	



PVG-2-L



* Contact NEP for other cable lengths and connector configurations



Model		PVG-E	PVG-O	
Power supply	AC Input	100-480 Vac.	200mA, 50/60 HZ	
System	Maximum System Voltage (Vdc)	1500		
	Size	7.9' x11.8' x 6.7'	15.79' ×11.8' × 6.7'	
Mechanics	Protection Degree	IP65		
	Operating Ambient Temperature	-20°C-+85°C		
Signal	Communications	DC P Compatibl	ower Line e with SunSpec	
CertificationsProduct Safety ComplianceUL 1741 CSA C22.2 No. 107.1 NEC 2014/2017 690.12 Canada CEC 2015 64-218		L 1741 2.2 No. 107.1 4/2017 690.12 EC 2015 64-218		
Controls	Optional Controls	On-Grid / Off-Grid Primary / Secondary 5Vdc output for relay Optional built-in E-Stop		
Monitoring	Optional Monitoring	No	Panel-by-Panel with BDG-256	



9.MODELS AND MARKING

9.1 PV Connector Options

	Manufacturer	Male Connector	Female Connector
A1	Suaubli Electrical Connectors (MC)	PV-KST 4/6X-U R	PV-KBT4/6X-UR
B1	QC Connectors	QC4.10	QC4.10
C1	Xietong Connectors	PV-XT101.1 (M)	PV-XT101.1 (F)`
D1	Amphenol	UTXCMA4AM	UTXCFA4AM

9.2 PVG-1



9.3 PVG-2







10. SYSTEM MARK

The following label shall be permanently placed close to the PVG-C remote controller.

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

PUSH RAPID SHUTDOWN BUTTON TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY







11. WARRANTY AND PRODUCTION INFORMATION

NEP microinverters, macro-inverters[™], rapid shutdown devices, accessories and data products

What does this warranty cover and how long does it last? This Limited Warranty is provided by Northern Electric Power Technology Inc. (NEP) and covers (a) defects in workmanship and materials, (b) and meeting the UL certification standards defined by the NEP product datasheet at time of delivery. This Warranty is for the original end user and installation location and must be facilitated by the original or NEP authorized installer. Warranty claims require proof of purchase and claims must follow the NEP RMA process in place at time of claim. The unexpired portion of this Limited Warranty is transferable to subsequent owners without notice to NEP.

The Warranty period starts upon the NEP confirmed activation date of the products on the NEP data monitoring platform (or the original NEP shipment date if monitoring is not activated).

Microinverters, macro-inverters and PV panel level rapid shutdown devices limited warranty coverage is 25 years unless the original purchase is for the lower cost 10-year warranty option. Specific terms of implementation of such limited warranty are per this document and per the NEP RMA process at time of claim. Microinverters and macro-inverters[™] not connected to NEP data monitoring platform for their full operating life shall have a ten-year limited warranty period. Accessory items, transmitters, monitoring related devices and other equipment have a 5-year limited warranty period.

What will NEP do? During the warranty period, NEP will, at its option and per the terms of this warranty, repair the product, refund or replace the defective product with same or similar product, free of charge, provided that you notify NEP of the product defect within the warranty period, and provided that following the NEP RMA process establishes the existence of such a defect and that it is covered by this Limited Warranty.

NEP will, at its option, when repairing or replacing products, use new and/or reconditioned parts in performing warranty repair and building replacement products. NEP reserves the right to use parts or products of original or newer design in the repair or replacement. For the first ten operating years when NEP elects to repair or replace confirmed failures, such products will meet the primary original functions of the originally purchased products. For operating years ten through twenty-five, accounting for the practical expectation that new features, regulatory requirements, utility requirements and industry standards will mandate new features not included in the originally purchased product. NEP reserves the right to charge fractionally for enhanced features or alternatively to compensate proportionally for the product life not completed as a portion of the twenty five year warranty period (e.g. 20 year operating period equates to five year gap or 20% of the original purchase value). If NEP elects refund or partial refund compensation, such may be applied to the purchase of NEP upgrade replacement products. If NEP repairs or replaces a product, its warranty continues for the remaining portion of the original warranty period or 90 days from the date of the return shipment to the customer, whichever is greater. All NEP approved RMA units, returned products and all parts removed from repaired products become the property of NEP.

How do you get service? If your product requires troubleshooting or warranty service, contact your original supplier or installer. Alternatively, use NEP authorized service providers for professional field service. In any case, NEP may be contacted directly for technical support and guidance;

Email: support@northernep.com Hotline: 888-598-9901 Website: www.northernep.com

What does this warranty not cover?

Claims are limited to repair, replacement or reimbursement at NEP option, up to the purchase price paid for the product. NEP's maximum liability will be up to the original purchase price of the NEP confirmed failed units.

This Limited Warranty does not warrant uninterrupted or error-free operation of the product nor cover normal wear and tear or cosmetic variances of the product or costs related to the removal, installation, or troubleshooting of the customer's electrical systems. This warranty does not apply to and NEP will not be responsible for any defect in or damage to: a) the product if it has been misused, neglected, improperly installed, physically damaged or altered, either internally or externally, or damaged from improper use or use in an unsuitable environment; b) the product if it has been subjected to force majeure, fire, water, generalized corrosion, biological infestations, or input voltage that creates operating conditions beyond the maximum or minimum limits listed in the NEP product specifications including high input voltage from generators and lightning strikes; c) the product if repairs have been done to it other than by NEP or its authorized service centers (hereafter "ASCs"); d) the product if it is used as a component part of a product expressly warranted by another manufacturer; e) the product if its original identification (trade-mark, serial number) markings have been defaced, altered, or removed; f) the product if it is located outside of the country where it was purchased; and g) any consequential losses that are attributable to the product losing power whether by product malfunction, installation nerror or misuse; h) product used in a way that does not comply with the product manual, and i) products not paid for in full per the original NEP invoice.

THIS LIMITED WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY PROVIDED BY NEP IN CONNECTION WITH YOUR NEP PRODUCT AND IS, WHERE PERMITTED BY LAW, IN LIEU OF ALL OTHER WARRANTIES, CONDITIONS, GUARANTEES, REPRESENTATIONS, OBLIGATIONS AND LIABILITIES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE IN CONNECTION WITH THE PRODUCT, HOWEVER ARISING (WHETHER BY CONTRACT, TORT, NEGLIGENCE, PRINCIPLES OF MANUFACTURER'S LIABILITY, OPERATION OF LAW, CONDUCT, STATEMENT OR OTHERWISE), INCLUDING WITHOUT RESTRICTION ANY IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE TO THE EXTENT REQUIRED UNDER APPLICABLE LAW TO APPLY TO THE PRODUCT SHALL BE LIMITED IN DURATION TO THE PERIOD STIPULATED UNDER THIS LIMITED WARRANTY.

IN NO EVENT WILL NEP BE LIABLE FOR: (a) ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, LOST REVENUES, FAILURE TO REALIZE EXPECTED SAVINGS, OR OTHER COMMERCIAL OR ECONOMIC LOSSES OF ANY KIND, EVEN IF NEP HAS BEEN ADVISED, OR HAD REASON TO KNOW, OF THE POSSIBILITY OF SUCH DAMAGE, (b) ANY LIABILITY ARISING IN TORT, WHETHER OR NOT ARISING OUT OF NEP'S NEGLIGENCE, AND ALL DASSES OR DAMAGES TO ANY PROPERTY OR FOR ANY PERSONAL INJURY OR ECONOMIC LOSS OR DAMAGE CAUSED BY THE CONNECTION OF A PRODUCT TO ANY OTHER DEVICE OR SYSTEM, AND (c) ANY DAMAGE OR INJURY ARISING FROM OR AS A RESULT OF MISUSE OR ABUSE, OR THE INCORRECT INSTALLATION, INTEGRATION OF THE PRODUCT.

THIS WARRANTY APPLIES TO NEP PRODUCTS PURCHASED, SHIPPED AND INSTALLED IN THE UNITED STATES.

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Quick Installation Guide BDG-256 Gateway



CONNECT TO INTERNET

BDG-256 can be connected to internet *using a cable*. "DHCP" is the default option and most commonly used.

Save/	Summary	Today's	7davs'	Monthly 2 ×	Instant Output	Settle
Installer	System Co	onfig Ethe	met Dat	4 F		KWh
A	ccess Mode	© Wire	Wirel	255		
C) Manual		DHC	P T		
	IP 10.208 Mask 255.255	.100.201				
	Gate 10.208	.100.1			/	
					2015-0	8-08 12-10-1

Refer to "Wi-Fi Configuration Guide" for setting up Wi-Fi



TEST NETWORK CONNECTION

Navigate through "*Setting*" to "*Network Test*", and then click on "*Execute*". If the "Net State" shows Good, then the gateway has connected to internet.



SET DATE/TIME





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NEPVIEWER Remote Monitoring

<u>http://user.nepviewe</u> Follow the instruction	<u>r.com/</u> s and fill in information	REGISTER USER ACCOUNT
	Lenor Lyn 3	Email reme david@gmail.com × Verification code set to you by email
NOTE: NEPVIEWER suppo Chrome, Apple <u>iOS</u> and A	rts IE 9.0 or later, Firefox, Android web browsers	REGISTER A GATEWAY Add BDG-256 gateway SN in the PV site <u>information</u>
ADD PV SITE INFORMA Each PV site requires t end user and installer	TION two registered email addresses:	Preview Gateway S/N Add Remove
* User Email	User Email	Create Close
Country_Name	select	
* Name of Your Plant	Name of Your Plant	BDG-256 gateway SN can be found on touch <u>screen</u>
* Latitude	Latitude	Setting/ version & SN & Mac
* Longitude	Longitude	Save/ Summary Today's 7days' Monthly Lifetime Setting
* Timezone	(GMT-11:00) Midway Isk	Setting ? × KWh
* Temperature Unit	Fahrenheit	
* Power of Plant (KW)	Power of Plant (MM)	Software Version 20140702-01 Serial Number 20011000008378
Currency Unit	JPY Local_e // KWh Local_e	MAC Address 24:16:00:00:83:78
mooure wanufacture & Type * Installer Email	Installer Email	ОК 2015/12-05 1443.53

BDG-256 can be monitored by a smart device connected to the same router Monthly Energy Save/ Clear Summary Display Today's Energy 7days' Energy Instant Output NEP Inverter Monitor \times + Setting KWh :/ Connected: e http://10.208.32.52 0.000 NORTHERN ELECTRIC NOTE: MICROVIEWER local monitoring uses BDG-256 IP Gateway IP address address as the link to an internal webpage

MICROVIEWER Local Monitoring





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Wi-Fi Configuration Guide

Method A: By Routers Support WPS

Step-1: Plug the wireless adapter to BDG-256 gateway, and wait for several seconds
Wireless



Step-2: Press the WPS button on the router for 2 seconds, and for most routers, the WPS button would flash at this



Step-3: Within 2 minutes, return to the BDG-256 gateway, click on Setting/Ethernet, and press "WPS" (the red button). If the gateway reports the WPS setup is successful, the IP address on the gateway screen will be updated instead of 0.0.0.0 within 5 minutes



Method C: By Smart Mobile Devices

Step-1: On an iPhone, click on Settings/General/About. Input name "MI Installer"

Step-2: Turn on "Personal Hotspot", and input Wi-Fi Password "mygateway". This password is for other devices such as the BDG-256 gateway to connect to this mobile device.

Step-3: On the BDG-256 gateway, click on Setting/Ethernet, and choose "Connect to Mobile" or "Link to Mobile" (the green button).



Step-4: If the connection has been set, a flashing banner "Personal Hotspot: 1 Connection" will appear at the top of the iPhone screen. Step-5: Continue from Step-3 of Method B

Step-6: After using the hot-spot communication, Wi-Fi setup can be restored, if the Wi-Fi configuration in BDG-256 gateway is not changed by hot-spot link. First hit on the button "Disconnect from Mobile" (see Step-3), and then reboot the gateway, then the Wi-Fi connection will be restored.

NOTE:

- 1. set the name of the hotspot link as "MI Installer"
- 2. set the password of the hotspot link as "my-gateway"

Method B: By Routers Do Not Support WPS

Step-1: Connect the BDG gateway to a router with a cable, and a few seconds later, an IP address will appear at the bottom of the BDG-256 screen;
Step-2: Log on to the webpage: http://BDG_IP/wifi (BDG-IP refers to the IP shown at the bottom of BDG-256 screen, e.g. 10.208.32.52)
Step-3: Set Wi-Fi parameters

Enter the password "gateway" Wireless Network Setup

Home Change Password Exit

Setup Password

PASSWORD

Set WLAN parameters and save your settings Wireless Network Setup

Home Change Password Exit

SSID	Network_SWG_1307_1
Security Type	WPA WPA2 V
Password	•••••
DHCP	YES V
IP Address	

SSID: The name of the home wireless network.

Security type: The wireless adapter supports several security protocols. Please refer to the wireless router user's manual for suitable type (default one works for most routers).

Password: The password for home wireless network.

DHCP: If yes, the wireless router will assign an IP to the gateway. This is most commonly used (no need to change unless for advanced users).

IP: If DHCP is set to "NO", users could fix an IP to the gateway. This function is only for advanced users, who should be responsible for confliction with other network devices if this IP address is not set

properly.

Step-4: plug in the wireless adapter, and then reboot gateway

If Wi-Fi is connected, a signal strength bar at the left upper corner and an IP address at the bottom should be notified.







Method D: Using AP (Access Point) mode

