

WATCHGUARD

Monitoring Electronic Power Conditioner



Thank you for purchasing this **Watchguard**. Smart Power Systems is dedicated to developing and manufacturing the highest performance power protection and filtration devices for your electronic equipment. Proper use of this device will provide the protection needed for your connected equipment.

SmartPowerTM
.....SYSTEMS
A POWER QUALITY COMPANY

PREFACE

This manual contains important instructions and warnings that should be followed during the installation, operation and storage of the device.

Because non-compliance items may cause irreparable damage and void the guarantee, please read the manual thoroughly and save it in an appropriate place for a productive and safer use.

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Use this user's guide for the following products:

MODEL	DESCRIPTION
WGTBF15C-1111TN	15A/120V with (1) 5-15R pigtail outlet
WGTBF15C-1121TN	15A/120V with (2) 5-15R outlets
WGTBF15C-1131TN	15A/120V with (2) 5-15R outlet and (1) pigtail
WGTBF15C-1141TN	15A/120V with (2) 5-15R outlet and (2) pigtails
WGTBF20C-1211TN	20A/120V with (1) 5-20R pigtail outlet
WGTBF20C-1221TN	20A/120V with (1) 5-15R outlet and (1) 5-20R pigtail outlet
WGTBF20C-1231TN	20A/120V with (2) 5-15R outlets and (1) 5-20R pigtail outlet

CAUTION

- Use only in dry locations indoors.
- Avoid dropping the unit.
- Only plug the **Watchguard** into a three pronged grounded outlet. This unit is not to be used with any type of ground "lift" or pin eliminator.
- Do not open the **Watchguard** unit, there are no serviceable parts inside. Opening the unit will void your warranty.

CAUTION

This device features an internal protection that will disconnect the surge protective component at the end of its useful life but will maintain power to the load unprotected. However if this situation is undesirable for the application, follow the manufacturer's instructions for replacing the device.

CAUTION

Do not install this device if there is not at least 10 meters (30 feet) or more of wire between the electrical outlet and the electrical service panel.

CAUTION

Risk of Electric Shock. Do not plug into another relocatable power tap.

ATTENTION

- Utiliser uniquement dans des endroits secs à l'intérieur.
- Évitez de faire tomber l'appareil.
- Ne branchez le **Watchguard** dans une prise de terre à trois volets. Cette unité ne doit pas être utilisé avec tout type de terrain "ascenseur" ou broches éliminateur.
- Ne pas ouvrir l'unité **Watchguard**, il n'y a pas de pièces réparables. Ouverture de l'unité annulera votre garantie.

ATTENTION

Cet appareil dispose d'une protection interne qui va déconnecter le composant de protection contre les surtensions à la fin de sa vie utile mais se maintenir au pouvoir à la charge maintenant sans protection. Si cette situation est souhaitable pour l'application, suivez les instructions du fabricant pour le remplacement de l'appareil.

ATTENTION

Ne pas installer cet appareil si il n'y a pas au moins 10 mètres (30 pieds) ou plus de fil entre la prise électrique et le panneau de service électrique.

ATTENTION

Risque de choc électrique. Ne branchez pas dans une autre puissance robinet délocalisables.

If you have any questions call us at our Tech Support line toll free 1-800-772-7633 or email us at support@smarpowersystems.com

1 - Watchguard Overview

1-1 - Key Features

- Ability to disconnect the output due to high or low voltage
- Ability to disconnect the output due to disconnected Ground
- Ability to disconnect the output due to reversed input Line-Neutral
- Records the high/low voltage or disconnected AC line events
- Records the Line-Neutral spike in 10 μ s sampling
- Records the Neutral-Ground spike in 10 μ s sampling
- Recognizes the line-neutral relays failure and records them

1-2 Detailed Features

1. Smart Power Monitor

- Keeps watch of all power activity
- It displays real time and date of occurrence via LCD display and software

2. Diagnostic System

- It records power outages, brownouts, power swells, over voltage, normal mode and common mode transients, high and low frequency

3. Extreme Power Protection

- Protects from spikes, surges, prolonged over voltage and many other power problems with patented TBF™ Technology
- Reduces downtime, error codes, paper jams, "No problem found" service calls

4. Modem & Data Protection

Protection is extended to your phone and network lines with the addition of RJ11 and RJ45 jacks on the **Watchguard** unit, creating ideal protection for Fax/Internet/Network users. Power surges can pass to the connected equipment through phones lines and network cables.

5. Diagnosis Through Unit Itself

Unlike other products out there, the **Watchguard** displays real time and date of each occurrence via LCD screen without the need of a computer. The easy-to-understand screen displays events which can be accessed by scrolling within the menu. Not only is this convenient for technicians but essential for easy access to important information regarding the power conditions in the building. This information can also be accessed via computer.

6. Communication and Messaging Via Email

In the event that the connected equipment is down, the **Watchguard** will notify the administrator via email with an optional Smart adapter. The **Watchguard** can also be programmed to restart the connected equipment.

7. Internal Battery

If during monitoring, a power outage happens, it will still shows accurately real time and date of power events thanks to its internal battery.

8. Advanced Software

The **Watchguard's** software comes packed with the most advanced features in the industry. It provides complete report of problems. It gives real time status of power. It provides configuration settings of thresholds of power voltage protection levels of unit.

RECORDS AND DISPLAYS EVENT'S TIME AND DATE - View events as graphics or charts

PARAMETER SETTINGS - Users have this capability to change the default parameters which were set on **Watchguard**. For example they can set over and under-voltage shutdown thresholds.

EMAIL NOTIFICATION - Allows for the configuration of email settings. Users can send all the recorded data to their defined Email addresses. The email feature is only available when **Watchguard** is connected to a PC with an internet connection and the **Watchguard** software running. This feature may not work with certain Internet Service Providers that block outgoing SMTP communications. So users should check with their ISP for compatibility.

1-3 - Protection Systems

- Lightning and spike protection
- Protection against out of range input voltage variations
- Common Mode noise protection
- Tel/Fax/Modem/Network surge suppression

1-4 - Safety and Operation Points

- Read this user's manual before installing.
- This device is designed for indoor use, do not expose to moisture, rain, excessive heat, or direct sunlight.
- Leave adequate space around all sides of the device at least 10cm for proper ventilation.
- Do not allow liquid or any foreign object to enter to device.
- Avoid installing the device near the flammable material.
- The appropriate temperature for operation is 0-40°C. Install the device away from high temperature to avoid increasing the device temperature.

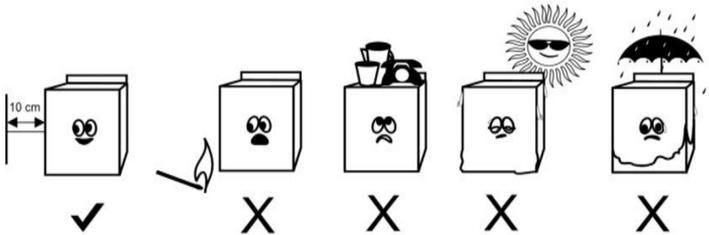


Figure 1 - Placement

2- Schematic

2-1- Package Contents

- Watchguard unit
- USB to Serial cable
- Watchguard monitoring software
- User's manual

2-2- Front Panel View

- 1 - AC line status indicator
2. SWF indicator
3. Memory indicator
4. Normal line indicator
5. LCD
6. Scroll up button ()
7. Scroll down button ()
8. ESC button
9. Select button (ENT)
10. Output outlet
11. Isolated output outlet

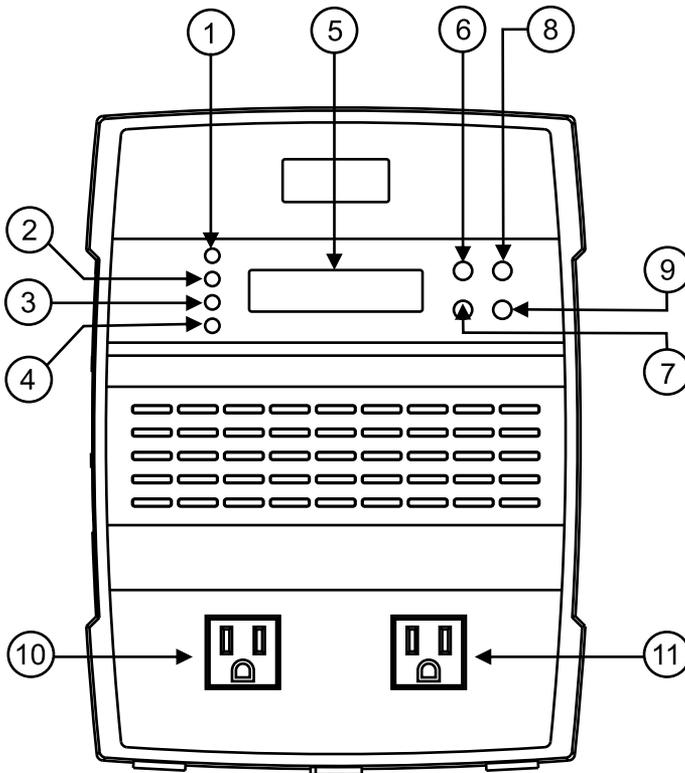


Figure 2 - Front panel

2-3 - Rear Panel View

- 1- Screws place for installing on the wall
- 2- Battery replacement cover

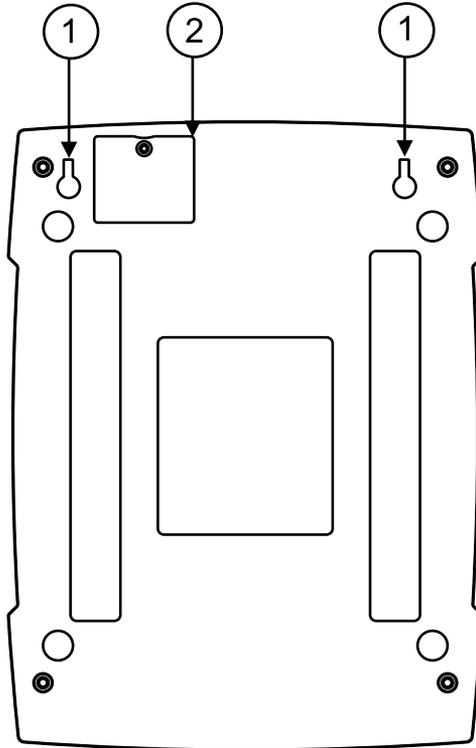


Figure 3 - Rear panel

2-4 - Under Panel View

- 1- Input cable
- 2- Output cable (optional)

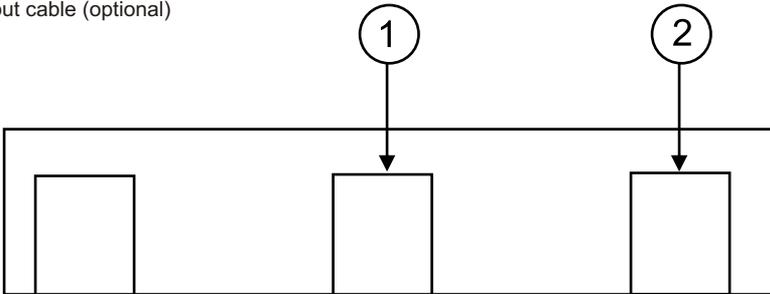


Figure 4 - Bottom panel view

2-5 - Side Panel View

- 1- DB9 communication port
- 2- CAT5e Network- RJ45 jack
- 3- Phone Line - RJ11 jack

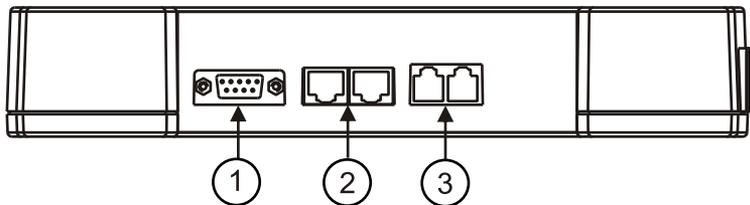


Figure 4 - Side panel view

3- Hardware Installation

1. Turn off and un-plug equipment to be protected from wall outlet.
2. Plug the equipment into the **Watchguard** Unit.
3. Plug the **Watchguard** unit into grounded wall outlet.
4. Your equipment is now fully protected. Place the **Watchguard** where monitoring lights can be observed.

Installation for Protection of Telephone Line and Network Cable

TELEPHONE

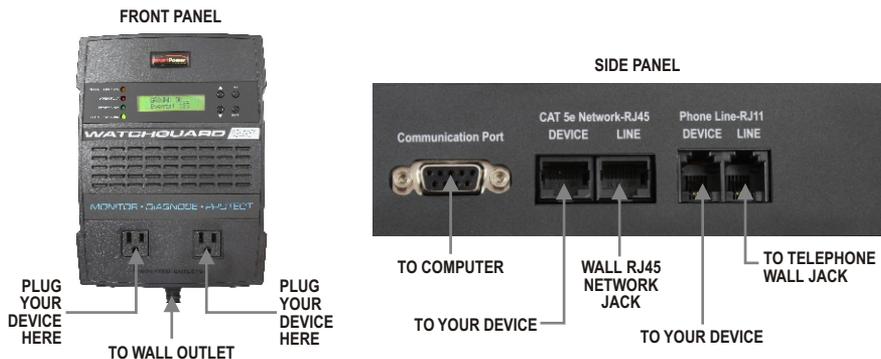
1. Unplug the equipment's telephone cable from the wall jack and plug into the RJ11 "DEVICE" on the **Watchguard**.
2. Plug the provided telephone cable to the RJ11 jack "LINE" on the **Watchguard**.
3. Plug the other end of the telephone cable into the RJ11 wall jack.

- CAUTION:** - Never install telephone wiring during a lightning storm.
- Disconnect telephone line at the network interface before installing the secondary protector.
 - Intended for indoor use only.

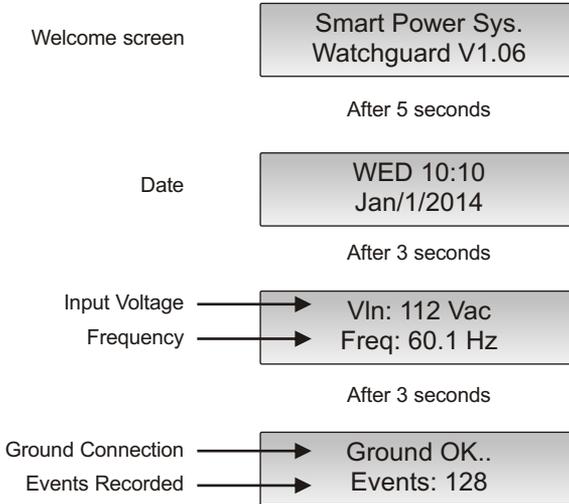
Telephone Line Protection clamping voltage 250-350 vdc.

NETWORK

1. Unplug the equipment's network cable from the wall RJ45 network jack and plug into the RJ45 "DEVICE" on the **Watchguard**.
2. Plug the provided network cable to the RJ45 jack "LINE" on the **Watchguard**.
3. Plug the other end of the network cable into the wall RJ45 network jack. Your equipment is now fully protected. Place the **Watchguard** where monitoring lights can be observed.



4- Control Panel - Features and Programming



4-1- LCD Screen

The following rotary parameters will be shown on LCD after 5 seconds of turning the device on. Each parameter page can be selected by pressing the select button. You can proceed to the next page by pressing it one more time.

By pressing the ESC button, you will go back to the rotary parameters screen.

- Date and time

Indicates the current date and time

- Input voltage and frequency

Indicates the voltage and frequency of AC line

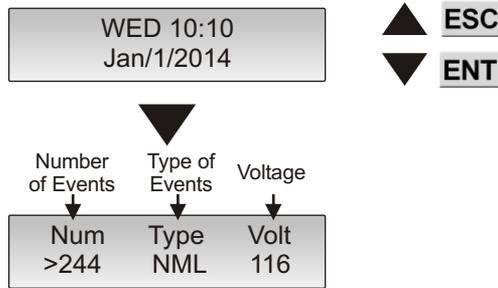
- Ground connection situation and number of events

Indicates whether ground connection is connected or not, it also shows the number of occurred events.

In the main rotary menu press  or  buttons to view and browse the event details such as type, time and date, press ESC button to back to main menu.

Viewing Power Event History

Power event history can be accessed by pressing the "down" arrow button from the Welcome screen



You can always go back to the previous menu by pressing the **ESC** button.

4-2 - Main Settings Menu

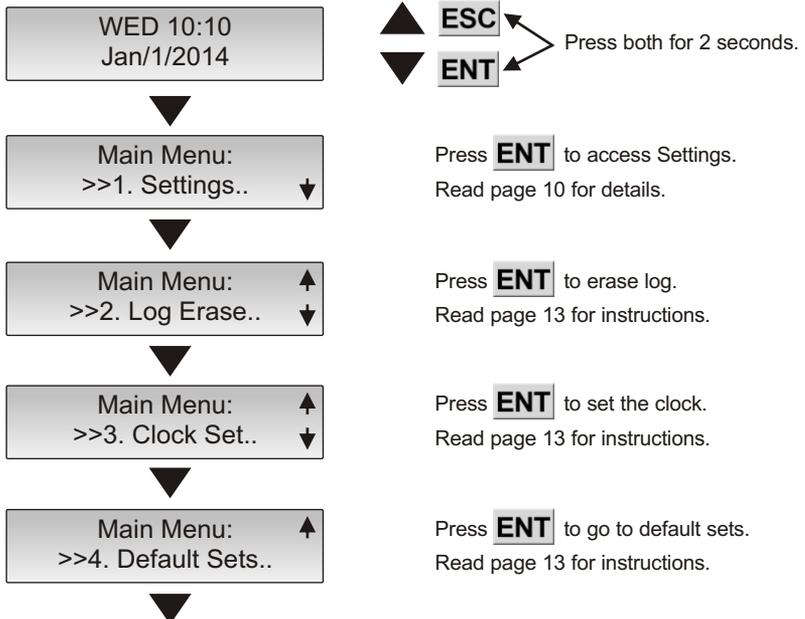
To enter to main settings menu simultaneously press ENT and ESC buttons and hold them for 2 seconds.

Following sub menus will be appeared on the screen:

- 1 Settings
- 2 Log erase
- 3 Clock set
- 4 Factory sets

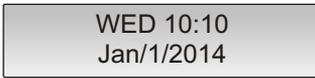
Use **ESC** or **ENT** buttons to browse the menus and ENT button to select it.

Accessing Main Menu



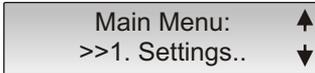
4-3 Setting the Parameters

1. From the Welcome screen press the buttons "ESC" and "ENTER" at the same time for 2 seconds.



Press both for 2 seconds.

2. Scroll down to >>1. Settings. Press "ENTER".



Press **ENT** to view or change level



Press **ENT** to change level



Use arrows to increase or decrease the voltage level. Press "ENT" to set.

3. Repeat step 1 and 2 to set the parameters for each category. The following levels are the default values.

1. LN Spike Level - 400
2. NG Spike Level - 200
3. High Cut Level - 145
4. Low Cut Level - 80
5. High Log Level - 135
6. Low Log Level - 90

4-3-1- Settings

4-3-1-1- L-N spike level

Threshold level of L-N spike can be adjusted here and it varies from 200V to 500V. You can increase/decrease the level by pressing / buttons. Each pressing changes the level for 10 volts. Press select button to save the desired level or ESC button to ignore your changes.

4-3-1-2- G-N Spike Level

Threshold level of N-G spike can be adjusted here and it varies from 35V to 200V. You can increase/decrease the level by pressing / buttons. Each pressing changes the level for 10 volts. Press select button to save the desired level or ESC button to ignore your changes.

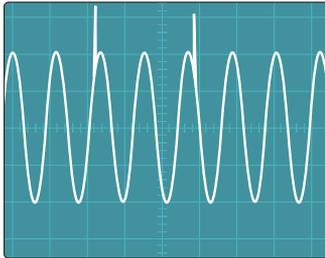
4-3-1-3- High Cut-off voltage setting

This recording level of High cut-off voltage is adjustable from 110V to 250V. Each pressing of / buttons increases/decreases this level by 5 volts. Press ENT button to save the desired level or ESC button to ignore your changes.

Power Problems (Type of Event)

The following are the power problems that are detected, captured and recorded by the Smart Power Watchguard.

Note: The Transformer-Based Filter (TBF™) technology integrated into the Watchguard, filters out the transient spikes down to the safe level to provide computer-grade power for all microprocessor based equipment. Refer to page 22, Protection and Power Conditioning specification.

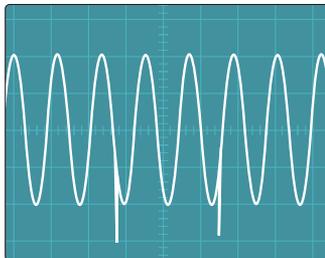


**TRANSIENT SPIKES
Line-Neutral-
Positive**

LNSPKP: Positive spike on Line-Neutral



LCD SCREEN

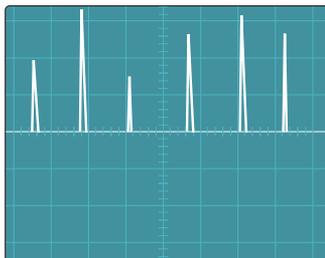


**TRANSIENT SPIKES
Line-Neutral-
Negative**

LNSPKN: Negative spike on Line-Neutral



LCD SCREEN

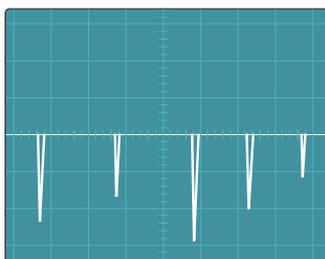


**TRANSIENT SPIKES
Neutral-Ground-
Positive**

NGSPKP: Positive spike on Neutral-Ground



LCD SCREEN



**TRANSIENT SPIKES
Neutral-Ground-
Negative**

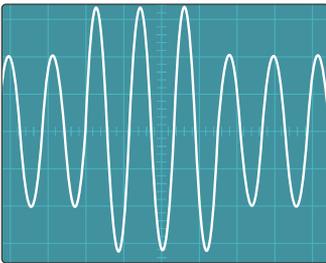
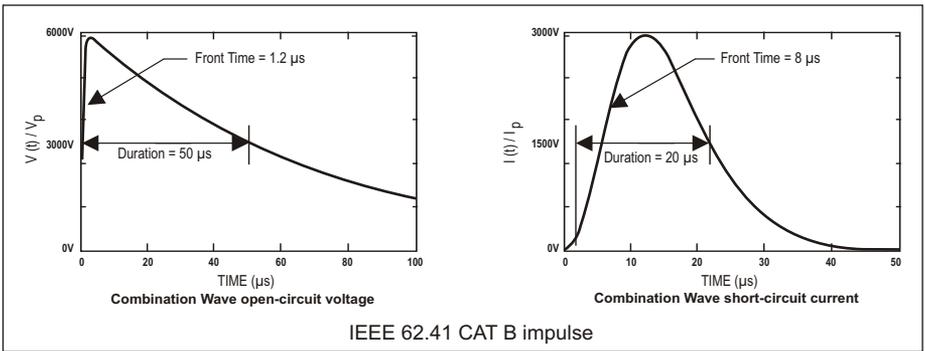
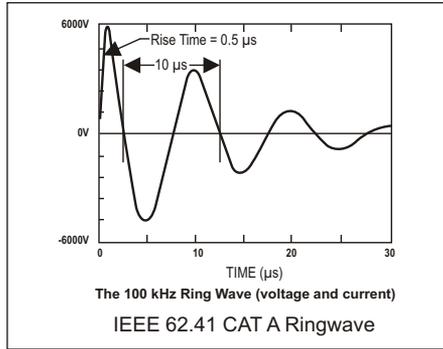
NGSPKN: Negative spike on Neutral-Ground



LCD SCREEN

Notes

Watchguard is capable of capturing the following transient spikes wave forms across Line-Neutral and Neutral-Ground wires as identified by IEEE Standard 62.41.

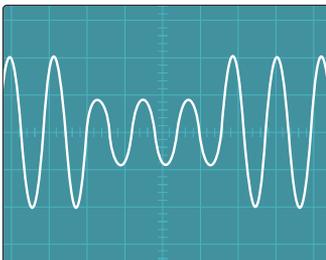


HIGH LINE VOLTAGE (Voltage Swell)

High: High voltage recorded



LCD SCREEN

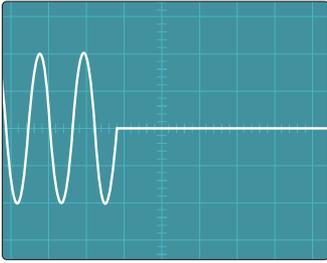


LOW LINE VOLTAGE (Voltage Sag)

Low: Low voltage sags recorded



LCD SCREEN

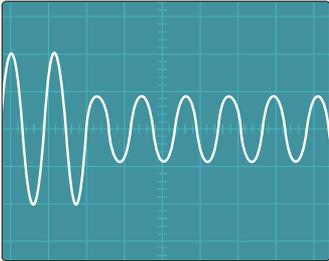


**POWER
OUTAGE**

Black out: Line voltage below
60V recorded

BLACKOUT

LCD SCREEN

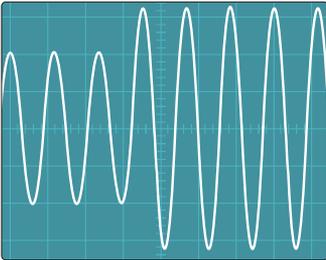


**UNDER
VOLTAGE**

Cutoff Low: Low voltage cut off recorded
(output disconnected).

CUT OFF LOW

LCD SCREEN

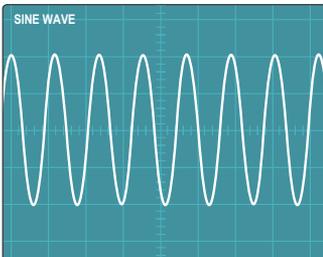


**PROLONGED
OVER VOLTAGE**

Cutoff High: High voltage cut off recorded
(output disconnected).

CUT OFF HIGH

LCD SCREEN



NORMAL

NML: Normal voltage recorded

NML

LCD SCREEN

GND DIS: No or poor safety ground connection recorded



GND DIS.

LCD SCREEN

REV.Pol: Reverse polarity recorded



REV. POL.

LCD SCREEN

Erased: All of recorded data has been erased



ERASED

LCD SCREEN

Ground ok: Safety ground connection is acceptable.



GROUND OK

LCD SCREEN

4-3-1-4- Low Cut off voltage setting

This recording level of Low cut-off voltage is adjustable from 70V to 110V. Each pressing of / buttons increases/decreases this level by 5 volts. Press select ENT button to save the desired level or ESC button to ignore your changes.

4-3-1-5- High log level

In order to record voltage logs, high voltage level for logging can be set here.

You can increase/decrease the voltage level by pressing / buttons.

Each pressing changes the level by 5 volts.

Note: this parameter should be at least 6 volts lower than high cut off voltage.

Press select button to save the desired level or ESC button to ignore your changes.

4-3-1-6- Low log level

In order to record voltage logs, low voltage level for logging can be set here.

You can increase/decrease the voltage level by pressing / buttons.

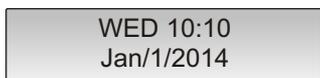
Each pressing changes the level by 5 volts. Press select button to save the desired level or ESC button to ignore your changes.

4-3-2- Summary of Rules for Line-Neutral Voltage Settings

- Output is disconnected and event is recorded
- High cut-off voltage setting (110V-250V)
- Only one event is recorded
- High log level (must be 6 Volt lower than high cut-off voltage)
- Normal
- Low log level (must be 6 Volt higher than low cut-off voltage)
- Only one event is recorded
- Low cut-off voltage setting (70V-110V)
- Output is disconnected and event is recorded

4-4 Erasing Log

From the Welcome screen press the buttons "ESC" and "ENTER" at the same time for 2 seconds.



Scroll down to >>2. Log Erase.
Press **ENT** to erase log.



Press **ENT** to erase log
or press **ESC** to keep it.

4-5 Setting the Clock

1. From the Welcome screen press the buttons "ESC" and "ENTER" at the same time for 2 seconds.



2. Scroll down to >>3. Clock Set. Press "ENTER".



Press **ENT** to set the clock.

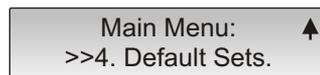
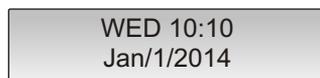
3. Use the ▼ or ▲ arrows to set the month. Press "ENTER" to set. Repeat the same steps for day, year, seconds, minutes and hour.



Press **ESC** when done.

4-6 Settings to Factory Defaults

From the Welcome screen press the buttons "ESC" and "ENTER" at the same time for 2 seconds.



Scroll down to >>4. Default Sets.
Press **ENT** to access it.



Press **ENT** to set to default
or press **ESC** to keep as is.

5 Software Installation



The **Watchguard** Monitor software is used for managing the **Watchguard** device. The **Watchguard** Monitor allows you to download information from a **Watchguard** device into a computer on a regular, recurring basis. Data transfer is performed through interconnection between a RS232 Serial Port on the **Watchguard** device and a computer.

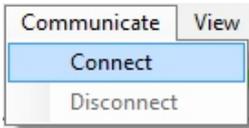
The **Watchguard** Monitor provides complete report of problems. It gives real time status of power. It provides configuration settings of thresholds of power voltage protection levels of unit.

The **Watchguard** Monitor provides a user-friendly environment to communicate with device, gather information, analyze and display the information in two formats: table and chart.

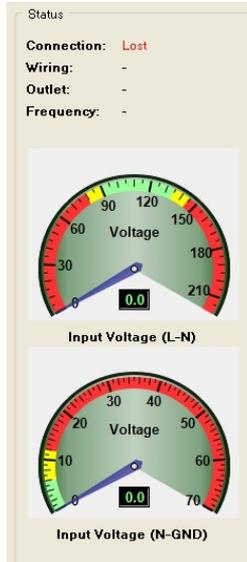
5-1 Connecting to Watchguard

1. Install **Watchguard** Monitor on your PC by inserting the provided CD and following instructions.
2. Plug the device into the PC using the RS232 Serial port.
3. Software can detect the COM port automatically

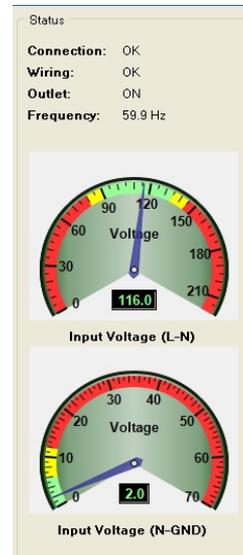
Click on "Connect" button. If it does not connect please see troubleshooting in section 8.



After connecting to device successfully, Status view change from:



To this:



5.2 Viewing Events

Events can be displayed in two formats in the **WatchGuard** Monitor software: table and chart.

Table format:

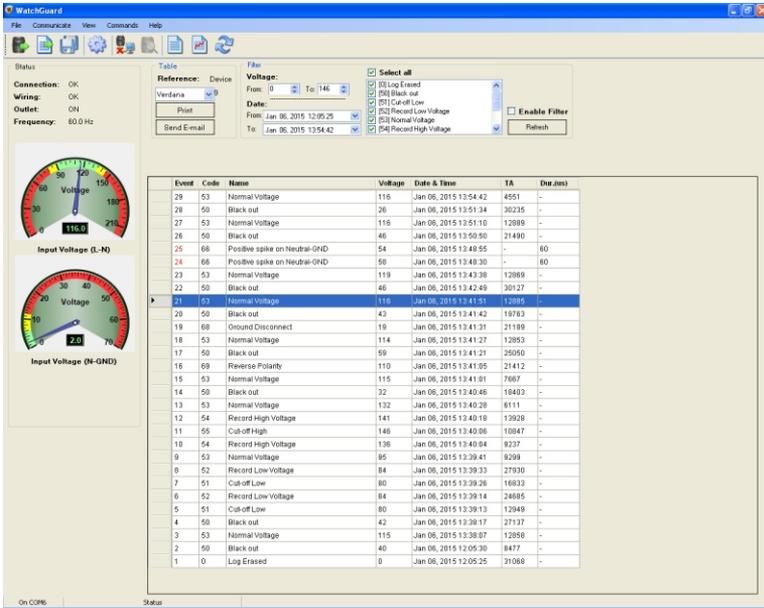
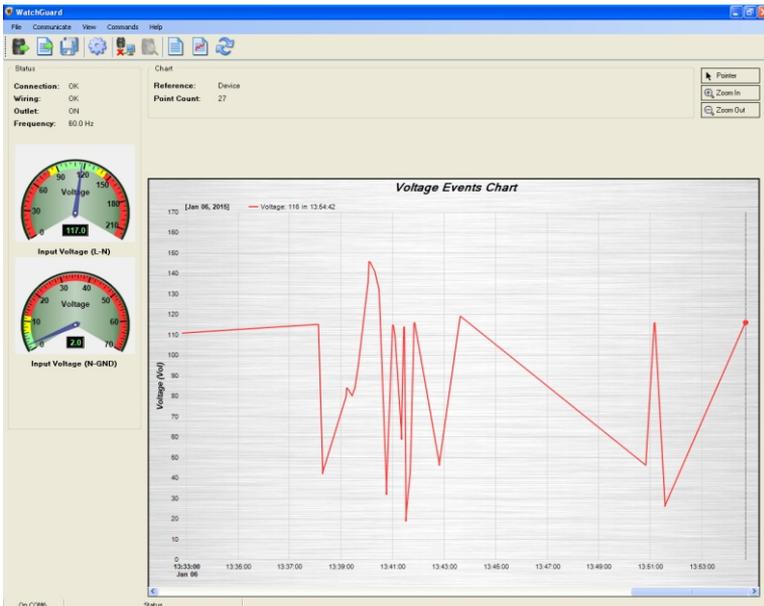
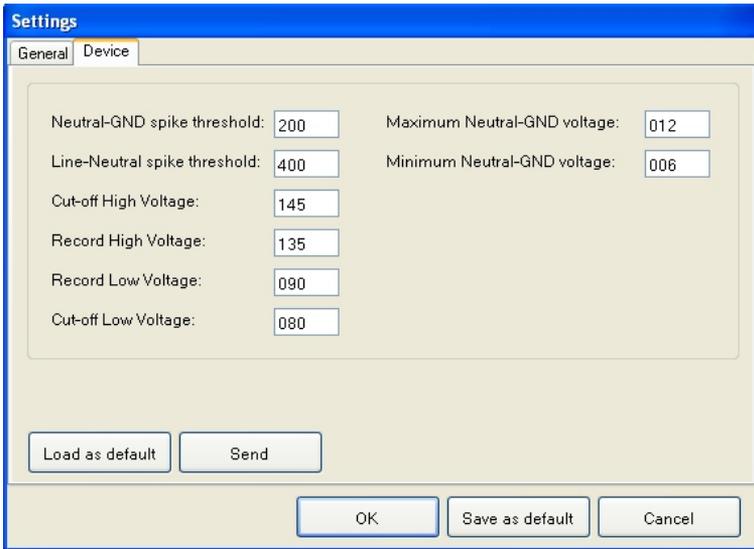


Chart format:



5-3 Setting the Parameters Via Software

Some of parameters used in the device can be changed by the **Watchguard** Monitor software. When the settings form is opened, the program requests parameters from the device, after getting information from the device, the device parameters in the settings form will be enabled. User can change them and send the new information to the device. These parameters can be saved to a file also default value of ones.



The screenshot shows a software window titled "Settings" with a blue header bar. Below the header, there are two tabs: "General" and "Device", with "Device" being the active tab. The main area contains several input fields for voltage and threshold settings:

Neutral-GND spike threshold:	<input type="text" value="200"/>	Maximum Neutral-GND voltage:	<input type="text" value="012"/>
Line-Neutral spike threshold:	<input type="text" value="400"/>	Minimum Neutral-GND voltage:	<input type="text" value="006"/>
Cut-off High Voltage:	<input type="text" value="145"/>		
Record High Voltage:	<input type="text" value="135"/>		
Record Low Voltage:	<input type="text" value="090"/>		
Cut-off Low Voltage:	<input type="text" value="080"/>		

At the bottom of the dialog, there are four buttons: "Load as default", "Send", "OK", and "Save as default". The "Cancel" button is also present at the bottom right.

6 - Battery

This device uses one 3V Lithium Coin Cell Watch battery for saving date and time while it's off. If battery is not placed or empty, you have to set Date & Time after turning on the device.

Replacing the Battery

The Watchguard's internal battery is very important because, if power outage happens during monitoring, it will still show accurate real time and date of power events.

WARNING - It is strongly recommended to save all the recorded logs before replacing the battery.

Battery status - Green (OK), Red (Not OK)

Replacing the Battery



CAUTION - Risk of Electric Shock

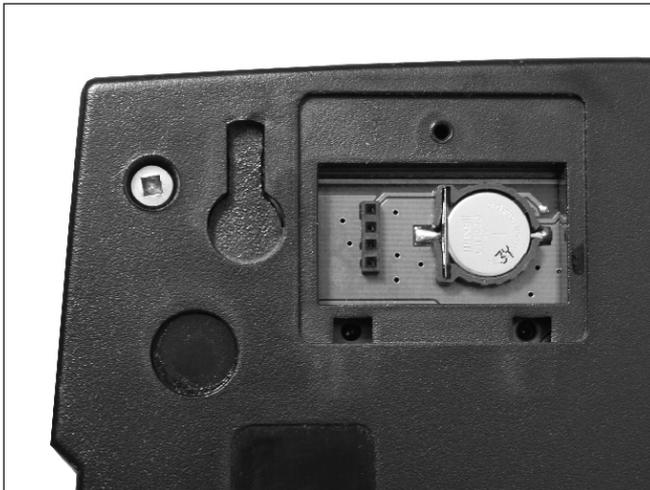
Unplug unit from wall outlet before trying to replace the battery.

1



The battery is located inside the unit and can be accessed from the back of the unit. Step 1 - Open the battery compartment by unscrewing the small screw.

2



Step 2 - Replace the battery with the same size, model and rating as the old one. Failing to do so will result in damage to the unit or losing power event logs.

7 - Technical Specifications

INPUT	Nominal Voltage (VAC)	120
	MAX continuous current (A)	15 / 20
	Frequency (Hz)	50/60
OUTPUT	Nominal Output Voltage (VAC)	120
	MAX continuous current (A)	15 / 20
	Frequency (Hz)	50/60
PROTECTION / POWER CONDITIONING	Response time	Instant
	Efficiency	99%
	Noise attenuation - Common mode noise rejection (Freq: 150 KHz to 6 MHz)	More than 70dB
	Normal mode noise rejection (Freq. 150 HHz to 30 MHZ)	More than 60dB
	EMI/RFI (Freq: 30 KHz to 30 MHZ)	More than 70 dB
	Pass through voltage on common mode (N-G)	<1V
	Pass through voltage on normal mode (L-N)	<10V
ENVIRONMENTAL CONDITIONS	Temperature (°C)	0-40
DIMENSIONS (in/mm)	(W x D x H)	7.37X10X1.75 / 187.19X254X44.45
WEIGHT (LB/KG)	Net	3.20 / 1.45
	Shipping	4.45 / 2.01

Specifications are subject to change without notice.

8- Troubleshooting

PROBLEM	SOLUTION
No information on LCD display	Make sure the Watchguard is plugged in
Red LED (Fault) is blinking	Site wiring fault is either reverse polarity or safety ground disconnection is detected. (In this case, the Yellow Monitoring LED keeps blinking, every 1 second). Call an electrician to fix the wiring.
Connection status remains in Lost mode	<ul style="list-style-type: none"> - Make sure the serial cable is plugged in - Try the serial cord with another USB port on the computer - Make sure the COM port is not used by another program - Click on Auto detect button in the software - Select COM port manually in Settings
Events cannot be sent via Email	<ul style="list-style-type: none"> - Check your Internet connection - Make sure about entered destination Email address - If you want to use your own desired Email server, you have to setup your outgoing mail server in Settings - Contact your ISP regarding policies on outgoing SMTP communications.
Watchguard doesn't show correct date and time	<ol style="list-style-type: none"> 1. Click on Set current time to Device in the Command menu 2. Check the battery status
Watchguard can't record new events anymore	It means that Memory is full. You have to clear device memory through Command menu
I cannot install the Watchguard software on my system	<p>System Requirements to install Watchguard Monitor Software:</p> <p>Windows Operating System:</p> <ul style="list-style-type: none"> • Windows 2000, XP, Vista, Windows server 2003, Windows server 2008, 7, 8, 8.1 <p>Software:</p> <ul style="list-style-type: none"> • NET Framework 3.5 Package. <p>PC Hardware:</p> <ul style="list-style-type: none"> • Pentium class or better microprocessor • 32 MB RAM • 5 MB free disk space (10 MB to install) • One RS232 Serial Port

Appendix 1: LED Indicators

Yellow LED (MONITORING): - Slow blinking (every second): Power line voltage and wiring is being monitored and the output connection is in progress if proper wiring and normal voltage is detected.
- Fast blinking (every 0.5 second): Line voltage is out of range whether cutoff high or cutoff low.

Red LED: (FAULT): Site wiring fault either reverse polarity or safety ground disconnection is detected. (In this case, the Yellow Monitoring LED keeps blinking, every 1 second).

Green LED (COMMUNICATING): - Continuous blinking: The data is being downloaded by the software. - Blink once: Unit is recording a power issue.

Green LED (PROTECTED): - ON: Power line voltage and wiring is ok and the output is connected.
- OFF: The output is cut-off due to one of the following conditions:

- 1- Power Line voltage out of range, Cut off Low or Cut off High
- 2- Wiring Fault
- 3- Power Outage

Appendix 2: Description of abbreviations on Watchguard

A: Recorded events

- 1- NML: Normal voltage recorded
- 2- LN: Line-Neutral Voltage
- 3- NG: Neutral-Ground Voltage
- 4- LNSPKP: Positive spike on Line-Neutral
- 5- LNSPKN: Negative spike on Line-Neutral
- 6- NGSPKP: Positive spike on Neutral-Ground
- 7- NGSPKN: Negative spike on Neutral-Ground
- 8- High: High voltage
- 9- Low: Low voltage sag
- 10- GND DIS: No or poor safety ground connection recorded
- 11- REV.Pol: Reverse polarity recorded
- 12- RLY.FAL: Relay Fault recorded
- 13- Black out: Line voltage below 60V recorded
- 14- Cutoff Low: Low voltage cut off (output disconnected).
- 15- Cutoff High: High voltage cut off (output disconnected).

A: Real-Time Display

- 1- LN: Line-Neutral Voltage
- 2- NG: Neutral-Ground Voltage
- 3- Erased: All of recorded data has been erased
- 4- Ground ok: Safety ground connection is acceptable.
5. Ground Disconnect: No or poor safety ground detected at the wall outlet
6. Reverse Polarity: Reverse polarity wiring detected at the wall outlet

TRANSFORMER BASED FILTER (TBF™) SERIES

Considered to be one of the most significant developments in the power protection industry. TBF™ Filters contain innovative technology that combines Surge Suppression and Noise Isolation which filters the noise on the ground to less than 0.5 Volts (US Patent # 6229682). Exclusive "POVP" Prolonged Over Voltage Protector (US Patent # 6560086) disconnects the output power if voltage exceeds 155 volts. Exclusive Smart Technology (US Patent #5721661) protects microprocessor based equipment against reverse polarity or no ground. The patented TBF™ filters prevent 90% of the power problems experienced by your POS system, computer, copier and facsimile machine.

OTHER SMART POWER SYSTEMS POWER PROTECTION PRODUCTS

MEGA CONDITIONERS

The most advanced electronic power conditioner on the market for half the price and a quarter of the weight of an isolation transformer. The Mega Conditioner offers voltage regulation, ultra power filtration and conditioning of normal and common mode noise which accounts for 90% of power-related problems experienced by copiers, mailing systems, large format printers and other office equipment.

AUTOMATIC VOLTAGE REGULATOR - AVR SERIES

Regulates the voltage to protect equipment against voltage sags and brownouts as well as voltage swells. Electronic systems are designed to operate based on a clean and constant supply of AC voltage. Smart Power Systems' AVR line provides boost & buck capability to eliminate under or over voltage fluctuations.

UNINTERRUPTIBLE POWER SUPPLIES - UPS SERIES

Smart Power Systems' Uninterruptible Power Supplies (UPS) with integrated TBF™ Technology provide on-line power conditioning.

WARRANTY

Limited Lifetime Warranty

All **Watchguard** Series are guaranteed free of defects in material or workmanship for the life to the original purchaser --or, they will be repaired or replaced free of charge. See our website for more details - www.smartpowersystems.com

\$25,000 Connected Equipment Warranty

If the Smart Power Systems equipment fails and this failure allows a surge to pass through and damage the connected equipment, Smart Power Systems will pay for the repair or replacement of the connected equipment of the original purchaser . See our website for more details - www.smartpowersystems.com/content/main/cepp.html

IMPORTANT

If for any reason you need to return the **Watchguard** unit to the manufacturer, you should obtain an RMA (Return Material Authorization) number before returning the unit. To request an RMA number please call 1-800-772-7633 or visit the website at www.smartpowersystems.com/support-2/rma



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