

TXVR 3.8-10kVA Online Voltage Regulator with Isolation Transformer

3.8kVA, 5kVA, 6kVA, 10kVA Models

User & Installation Manual

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1 Safety Information

Please read carefully the following user manual and the safety instructions before installing the Voltage Regulator or using the Voltage Regulator! Please comply with all warnings and operating instructions in this manual. Save this manual and read carefully the following instructions before installing the unit. Do not operate this unit before reading through all safety information and operating instructions carefully.

1.1 Transportation and Storage

- Please transport the Voltage Regulator only in the original packaging to protect against shock and impact.
- The Voltage Regulator must be stored in a room where it is ventilated and dry.

1.2 Preparation

- Condensation may occur if the Voltage Regulator is moved directly from cold to warm environments. The Voltage Regulator must be absolutely dry before being installed. Please allow at least two hours for the Voltage Regulator to acclimate to the environment.
- Do not install the Voltage Regulator near water or in moist environments.
- Do not install the Voltage Regulator where it would be exposed to direct sunlight or nearby heaters.
- Do not block ventilation holes in the Voltage Regulator housing.

1.3 Installation

- Do not connect appliances or devices which would overload the Voltage Regulator (e.g. motor-type equipment) to the Voltage Regulator output receptacles or terminal.
- Place cables in such a way that no one can step on or trip over them.
- Do not block air vents in the housing of the system components. The Voltage Regulator must be installed in a location with good ventilation. Ensure enough space on each side for ventilation.
- Voltage Regulator has provided a ground terminal for equipotential earth bonding to the external Voltage Regulator battery cabinets in the final installed system configuration.
- The Voltage Regulator can be installed only by qualified maintenance personnel.
- An appropriate disconnect device for short-circuit backup protection should be provided in the building wiring installation, upstream of the Voltage Regulator.
- An integral single emergency switching device which prevents further supply to the load by the Voltage Regulator in any mode of operation should be provided in the building wiring installation.
- Connect the ground before connecting to the building wiring terminal.
- Installation and wiring must be performed in accordance with the local electrical laws and regulations.

1.4 Connection

- This Voltage Regulator must be installed and grounded in accordance with local and national electrical code.
- The power supply for this unit must be single-phase rated in accordance with the equipment nameplate. It also must be suitably grounded.
- There can be no derivation in the line that goes from the Backfeed Protection to the Voltage Regulator, as the standard safety would be infringed.
- The power supply for this unit must be single-phase rated in accordance with the equipment nameplate..



WARNING
HIGH LEAKAGE CURRENT
EARTH CONNECTION ESSENTIAL
BEFORE CONNECTING SUPPLY

- Use of this equipment in life support applications where failure of this equipment can reasonably be expected to cause the failure of the life support equipment or to significantly affect its safety or effectiveness is not recommended. Do not use this equipment in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.
- Connect your Voltage Regulator power module's grounding terminal to a grounding electrode conductor.
- Warning labels should be placed on all primary power switches installed in places away from the device to alert the electrical maintenance personnel of the presence of a Voltage Regulator in the circuit. The label will bear the following or an equivalent text:



Before working on this circuit
Isolate Uninterruptible Power Supply (Voltage Regulator) Then check for Hazardous Voltage between
all terminals including the protected ground
Risk of Voltage Backfeed

1.5 Maintenance

- Before carrying out any kind of service or maintenance, verify that no current is present and no hazardous voltage exists on the terminals.
- Please remove all wristwatches, rings and other metal personal objects before maintenance or repair, and only use tools with insulated grips and handles for maintaining or repairing.
- Please replace the fuse only with the same type and amperage in order to avoid fire hazards.
- Do not disassemble the Voltage Regulator.

1.6 Operation

- Do not disconnect the ground conductor cable on the Voltage Regulator or the building wiring terminals in any time since this would cancel the protective ground of the Voltage Regulator and of all connected loads.
- In order to fully disconnect the Voltage Regulator, first press the "OFF" button and then disconnect the mains.
- Ensure that no liquid or other foreign objects can enter into the Voltage Regulator.
- The Voltage Regulator can be operated by any individuals with no previous experience.

1.7 Standards

* Safety	
Safety Conformance: IEC/EN 62040-1,UL1778 (5th Edition)	
Safety Markings : cTUVus, CE	
* EMI	
Conducted Emission.....:IEC/EN 62040-2,FCC PART15 CLASS A	
Radiated Emission.....:IEC/EN 62040-2,FCC PART15 CLASS A	
*EMS	
ESD.....:IEC/EN 61000-4-2	Level 4
RS..... :IEC/EN 61000-4-3	Level 3
EFT..... :IEC/EN 61000-4-4	Level 4
SURGE..... :IEC/EN 61000-4-5	Level 4
CS..... :IEC/EN 61000-4-6	Level 3
Power-frequency Magnetic field..... :IEC/EN 61000-4-8	Level 4
Low Frequency Signals.....:IEC/EN 61000-2-2	
Warning: This is a product for commercial and industrial application in the second environment-installation restrictions or additional measures may be needed to prevent disturbances.	

2 Installation

2.1 Unpacking and Inspection

Unpack the package and check the package contents. The shipping package contains:

- One Voltage Regulator
- One user manual
- One monitoring software CD
- One RS-232 cable (option)
- One USB cable
- One share current cable (only available for parallel model)

NOTE: Before installation, please inspect the unit. Be sure that nothing inside the package is damaged during transportation. Do not turn on the unit and notify the carrier and dealer immediately if there is any damage or lacking of some parts. Please keep the original package in a safe place for future use.

2.2 Rear Panel View

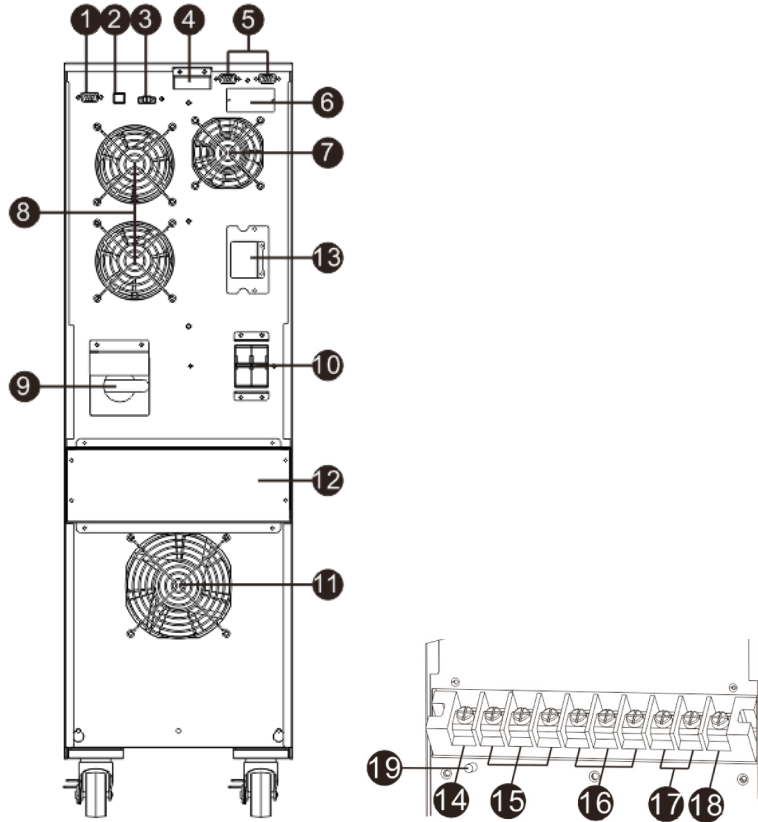


Diagram 1: Rear Panel Overlook

Diagram 2: Input/Output Terminal

1. RS-232 communication port
2. USB communication port
3. Emergency power off function connector (EPO connector)
4. Share current port (only available for parallel model)
5. Parallel port (only available for parallel model)
6. Intelligent slot
7. Charger fan
8. Power stage fan
9. Maintenance bypass switch
10. Input circuit breaker
11. Isolation transformer fan
12. Input/Output terminal (Refer to Diagram 2 for the details)
13. External battery connector
14. Non-isolated neutral
15. ISO TAP selections
16. Output
17. Input
18. Input ground
19. Output ground

2.3 Voltage Regulator Electrical Connections/Installation

Installation and wiring must be performed in accordance with the local electric laws/regulations and the following instructions must be performed by qualified personnel

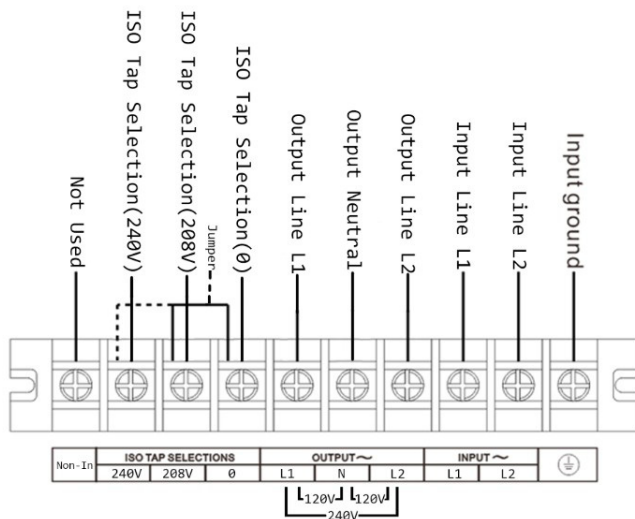
1. Make sure the mains wire and breakers in the building are sized for the rated capacity of Voltage Regulator to avoid the hazards of electric shock or fire.
2. Switch off the mains switch in the building before installation.
3. Turn off all the connected devices before connecting to the Voltage Regulator.
4. Prepare wiring based on the following table:

Model	Wiring spec (AWG)		
	Input	Output	Ground
3.8kVA	10	10	8
5kVA	8	8	8
6kVA	6	6	6
10kVA	4	4	4

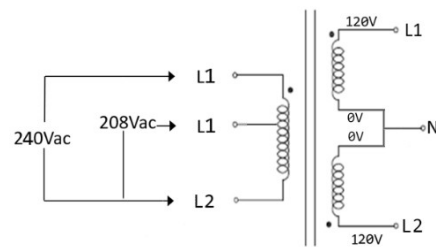
Model	Recommended Input Overcurrent Protection
3.8kVA	30A
5kVA	30A
6kVA	40A
10kVA	70A

NOTE: The selections for size and color of wires should follow the local electrical laws and regulations.

5. Remove the terminal block cover on the rear panel of Voltage Regulator
Follow below steps to connect the wire



Voltage Regulator Terminal Block Wiring Diagram
Figure 2-3



Voltage Regulator Transformer Diagram
Figure 2-4

1. Connect input L1 wire to Voltage Regulator input L1 terminal.
2. Connect input L2 wire to Voltage Regulator input L2 terminal.
3. Connect input GND wire to input GND terminal.
4. Connect output L1 wire to Voltage Regulator output L1 terminal.
5. Connect output L2 wire to Voltage Regulator output L2 terminal.
6. Connect output N wire to Voltage Regulator N terminal.
7. Ensure ISO TAP Jumper is in correct position (208V for 208V input or 240V for any other input voltages).
8. Ensure Output voltage parameter is set to match the site input voltage. Refer to section 3.3

NOTE 1: The ISO Tap Selector Jumper is electrically located between the output of the inverter and the transformer primary. In the 208V position it steps up the voltage by 11%. In the 240v position there is no voltage change. 208V is default Position. Refer to figure 2-4.

Voltage Configuration Chart		
Standard Settings		
Input Voltage	Iso Tap Position	Voltage Out
208	208	240/120V (Default)
240	240	240/120
Additional Settings		
200	208	222/111
	240	220/110
208	240	208/104
220	208	244/122
	240	220/110
230	208	256/128
	240	230/115
240	208	266/133

NOTE 1: If other than default setting is desired, configuration can be done at the factory for an additional voltage configuration fee.

6. After connecting the wires, replace the terminal block cover on the rear panel of the Voltage Regulator.

NOTE 1: Install the output breaker between the output terminal and the Load. I.A.W NEC code.

NOTE 2: Voltage Regulator Cabinet contains an Isolation Transformer with N-G bond. This system qualifies as a separately derived source.

Warning:

**Make sure the Voltage Regulator is turned off before installation.
The Voltage Regulator should not be turned on during wiring connection.**

Software Installation

For optimal computer system protection, install Voltage Regulator monitoring software to fully configure Voltage Regulator.

3 Operations

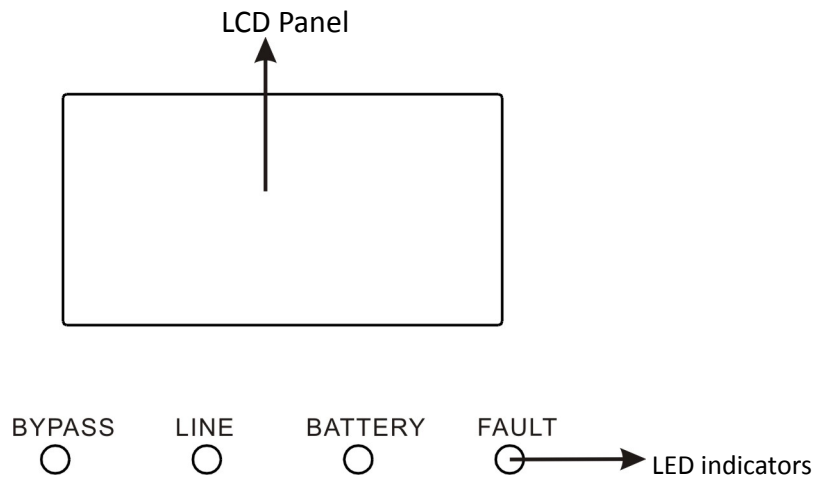
3.1 User Interface

3.1.1 Button Operation

Button	Function
ON/Enter Button	Turn on the Voltage Regulator: Press and hold the button more than 0.5s to turn on the Voltage Regulator. Enter Key: Press this button to confirm the selection in setting menu.
OFF/ESC Button	Turn off the Voltage Regulator: Press and hold the button more than 0.5s to turn off the Voltage Regulator. Esc key: Press this button to return to last menu in setting menu.
Test/Up Button	UP key: Press this button to display next selection in setting menu.
Mute/Down Button	Mute the alarm: Press and hold the button more than 0.5s to mute the buzzer. Please refer to section 3-4-9 for details. Down key: Press this button to display previous selection in setting menu.
Test/Up + Mute/ Down Button	Press and hold the two buttons simultaneous more than 1s to enter/escape the setting menu.

* CVCF mode means converter mode.

3.1.2 LED Indicators



LCD Panels and LED Indicators

Figure 3-1

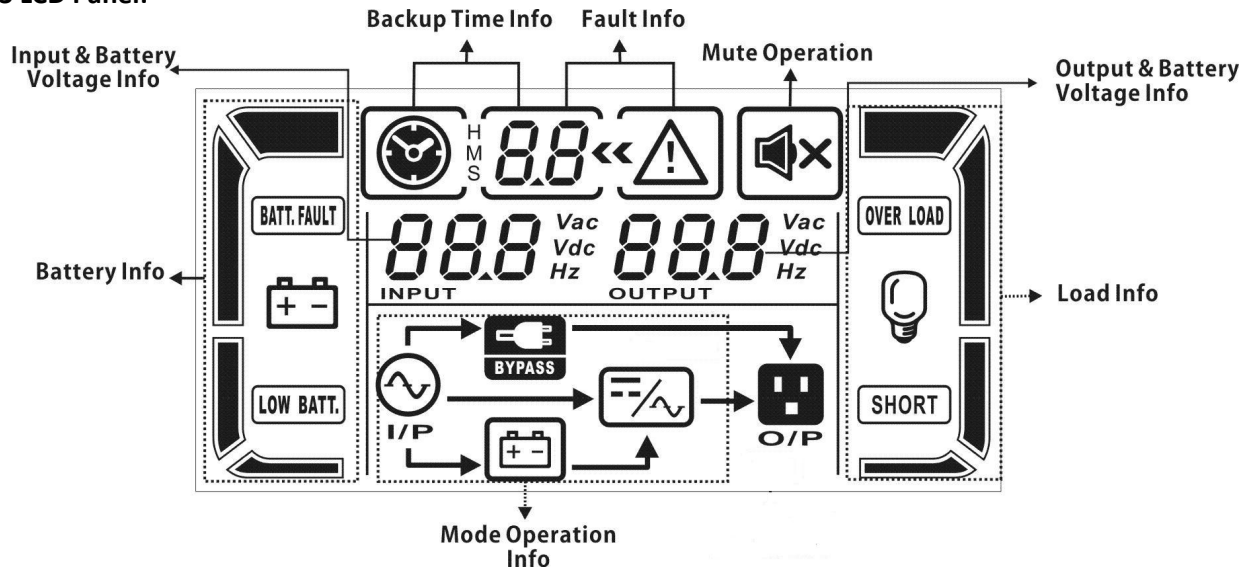
There are 4 LEDs on front panel to show the Voltage Regulator working status:

Mode	LED	Bypass	Line	Battery	Fault
Voltage Regulator Startup		●	●	●	●
No Output mode		○	○	○	○
Bypass mode		●	○	○	○






AC mode	○	●	○	○
CVCF mode	○	●	○	○
ECO mode	●	●	○	○
Fault	○	○	○	●

Note: ● means LED is lighting, and ○ means LED is faded.

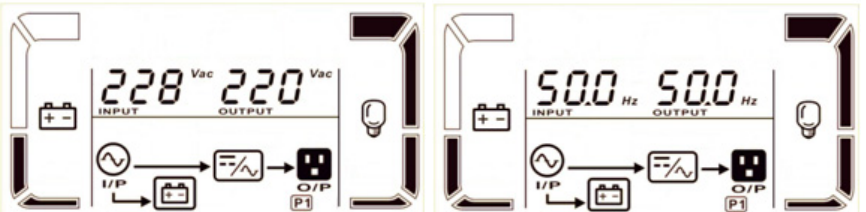
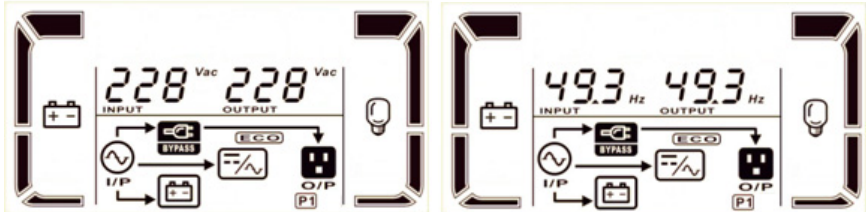
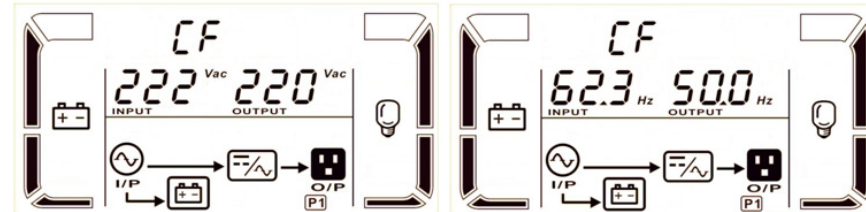
3.1.3 LCD Panel:

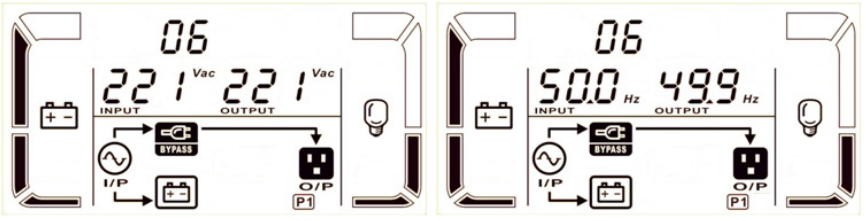
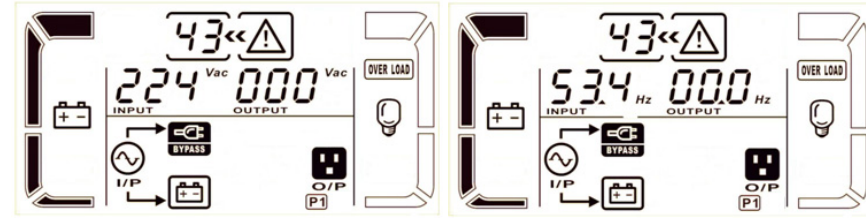


Display	Function
Fault information	
	Indicates that the warning and fault occurs.
	Indicates the fault codes, and the codes are listed in details in section 3-9.
Mute operation	
	Indicates that the Voltage Regulator alarm is disabled.
Output & Battery voltage information	
	Indicates the output voltage, frequency or battery voltage. Vac: output voltage, Vdc: battery voltage, Hz: frequency
Load information	
	Indicates the load level by 0-25%, 26-50%, 51-75%, and 76-100%.
	Indicates overload.
	Indicates the load or the output is shorted.
Mode operation information	
	Indicates the Voltage Regulator connects to the mains.

	Indicates the bypass circuit is working.
	Indicates the ECO mode is enabled.
	Indicates the Inverter circuit is working.
	Indicates the output is working.
Input & Battery voltage information	
	Indicates the input voltage or frequency or battery voltage. Vac: Input voltage, Vdc: battery voltage, Hz: input frequency

3.1.5 Operating Mode/Descriptions

Operating mode/status		
AC mode	Description	When the input voltage is within acceptable range, Voltage Regulator will provide pure and stable AC power to output. The Voltage Regulator will also charge the battery at AC mode.
	LCD display	
ECO mode	Description	When the input voltage is within voltage regulation range and ECO mode is enabled, Voltage Regulator will bypass voltage to output for energy saving.
	LCD display	
CVCF mode	Description	When input frequency is within 46 to 64Hz, the Voltage Regulator can be set at a constant output frequency, 50 Hz or 60 Hz. The Voltage Regulator will still charge battery under this mode.
	LCD display	

Operating mode/status		
Bypass mode	Description	When input voltage is within acceptable range and bypass is enabled, turn off the Voltage Regulator and it will enter Bypass mode. Alarm beeps every two minutes.
	LCD display	
Fault status	Description	When a Voltage Regulator fault has happened, it will display fault messages in LCD panel.
	LCD display	

3.2 Voltage Regulator Operation

1. Turn on the Voltage Regulator with utility power supply (in AC mode)

1. After power supply is connected correctly. Set the input breaker at "ON" position. At this time the fan is running and the Voltage Regulator supplies power to the loads via the bypass. The Voltage Regulator is operating in Bypass mode.

NOTE: When Voltage Regulator is in Bypass mode, the output voltage will directly power from utility after you switch on the input breaker. In Bypass mode, the load is not protected by Voltage Regulator. To protect your precious devices, you should turn on the Voltage Regulator. Refer to next step.

2. Press and hold the "ON" button for 0.5s to turn on the Voltage Regulator and the buzzer will beep once.
3. A few seconds later, the Voltage Regulator will enter to AC mode.

Connect devices to Voltage Regulator

1. Turn on the Voltage Regulator first and then switch on the devices one by one, the LCD panel will display total load level.
2. If it is necessary to connect inductive loads such as a printer, the in-rush current should be calculated carefully to ensure it meets the capacity of the Voltage Regulator, because the power consumption of this kind of loads is too big.
3. If the Voltage Regulator is overloaded, the buzzer will beep twice every second.
4. When the Voltage Regulator is overloaded, please remove some loads immediately. It is recommended to have the total loads connected to the Voltage Regulator less than 80% of its nominal power capacity to prevent overload for system safety.
5. If the overload time is over an acceptable time listed in spec at AC mode, the Voltage Regulator will automatically transfer to Bypass mode. After the overload is removed, it will return to AC mode. At this time, if bypass is enabled, the Voltage Regulator will power the load via bypass. If bypass function is disabled or the input power is not within bypass acceptable range, it will cut off output directly.

Turn off the Voltage Regulator with utility power supply in AC mode

1. Turn off the inverter of the Voltage Regulator by pressing "OFF" button for at least 0.5s, and then the buzzer will beep once. The Voltage Regulator will go into Bypass mode.

NOTE 1: If the Voltage Regulator has been set to enable the bypass output, it will bypass voltage from utility power to output sockets and terminal even though you have turned off the Voltage Regulator (inverter).

NOTE 2: After turning off the Voltage Regulator, please be aware that the Voltage Regulator is working in Bypass mode and there is risk of power loss for connected devices.

2. In Bypass mode, output voltage of the Voltage Regulator is still present. In order to cut off the output, switch off the input breaker. A few seconds later, there is no display shown on the display panel and Voltage Regulator is completely off.

Mute the buzzer

1. To mute the buzzer, please press the "Mute" button for at least 0.5s. If you press it again after the buzzer is muted, the buzzer will beep again.
2. Some warning alarms can't be muted unless the error is fixed.

Operation in warning status

1. When Fault LED flashes and the buzzer beeps once every second, it means that there are some problems for Voltage Regulator operation. Users can get the warning code from LCD panel. Please check the troubleshooting chart in section 4 for details.

Operation in Fault mode

1. When Fault LED illuminates and the buzzer beeps continuously, it means that there is a fatal error in the Voltage Regulator. Users can get the fault code from LCD panel. Please check the troubleshooting chart in section 4 for details.

2. Please check the loads, wiring, ventilation, utility and so on after the fault occurs. Don't try to turn on the Voltage Regulator again before solving the problems. If the problems can't be fixed, please contact the distributor or service people immediately.

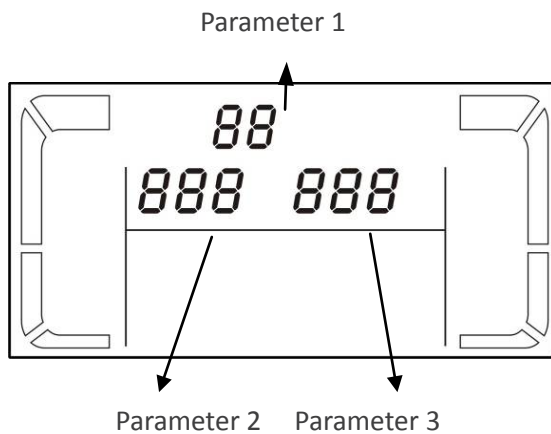
3. In case emergency case, please cut off the connection from utility and output immediately to avoid more risk or danger.

LCD Display Abbreviations

Abbreviation	Display content	Meaning
ENA	ENa	Enable
DIS	diS	Disable
ATO	AtO	Auto
BAT	bAt	Battery
NCF	nCF	Normal mode (not CVCF mode)
CF	CF	CVCF mode
SUB	SuB	Subtract
ADD	AdD	Add
ON	On	On
OFF	Off	Off
FBD	Fbd	Not allowed
OPN	Opn	Allowed
RES	RES	Reserved
OPV	OPV	Output voltage

3.3 LCD Settings

There are three parameters to set up the Voltage Regulator. Refer to following diagram.



Parameter 1: It's for program alternatives.
 Parameter 2 and parameter 3 are the setting options or values for each program.

LCD Panel with Settings
 Figure 3.3

How to set parameters

1. Put the Voltage Regulator in Bypass mode by pressing and holding the OFF/ESC button for over 5 seconds.
2. Press and hold the Test/Up + Mute/Down buttons simultaneously. To enter setting mode.
3. Use the Up or Down button to find the Voltage Regulator parameter you wish to set.
4. Press the Enter button to confirm the selection
5. Use the Up or Down button to select the desired value.
6. Press the Enter button to confirm the selection
7. Press and hold the Text/Up + Mute/Down buttons simultaneously. To exit setting mode.
8. Cycle Voltage Regulator input power to save settings.


Programs list for parameter 1:

Code	Description	Bypass	AC	ECO	CVCF	Battery	Battery Test
01	Output voltage	Y					
02	Output frequency	Y					
03	Voltage range for bypass	Y					
04	Frequency range for bypass	Y					
05	ECO mode enable/disable	Y					
06	Voltage range for ECO mode	Y					
07	ECO mode frequency range setting	Y					
08	Bypass mode setting	Y					
09	Reserved	Reserved for future					
10	Reserved	Reserved for future					
11	Hot standby function enable/disable	Y	Y	Y	Y	Y	Y
12	Inverter voltage adjustment		Y		Y	Y	
13	Output voltage calibration		Y		Y	Y	




*Y means that this program can be set in this mode.

Note: All parameter settings will be saved only when Voltage Regulator shuts down normally with internal or external battery connection. (Normal Voltage Regulator shutdown means turning off input breaker in bypass/no output mode).

01: Output voltage


Interface	Setting
	Parameter 3: Output voltage You may choose the following output voltage in parameter 3: 208: Presents output voltage is 208Vac 220: Presents output voltage is 220Vac 230: Presents output voltage is 230Vac 240: Presents output voltage is 240Vac

02: Output frequency

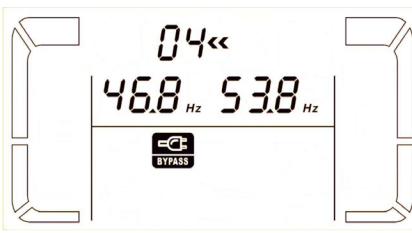
Interface	Setting
<p>60 Hz, CVCF mode</p> 	<p>Parameter 2: Output Frequency Setting the output frequency. You may choose following three options in parameter 2: 50.0Hz: The output frequency is setting for 50.0Hz. 60.0Hz: The output frequency is setting for 60.0Hz. ATO: If selected, output frequency will be decided according to the latest normal utility frequency. If it is from 46Hz to 54Hz, the output frequency will be 50.0Hz. If it is from 56Hz to 64Hz, the output frequency will be 60.0Hz. ATO is default setting.</p>
<p>50 Hz, Normal mode</p> 	<p>Parameter 3: Frequency mode Setting output frequency at CVCF mode or not CVCF mode. You may choose following two options in parameter 3: CF: Setting Voltage Regulator to CVCF mode. If selected, the output frequency will be fixed at 50Hz or 60Hz according to setting in parameter 2. The input frequency could be from 46Hz to 64Hz.</p>
<p>ATO</p> 	<p>NCF: Setting Voltage Regulator to normal mode (not CVCF mode). If selected, the output frequency will synchronize with the input frequency within 46~54 Hz at 50Hz or within 56~64 Hz at 60Hz according to setting in parameter 2. If 50 Hz selected in parameter 2, Voltage Regulator will transfer to battery mode when input frequency is not within 46~54 Hz. If 60Hz selected in parameter 2, Voltage Regulator will transfer to battery mode when input frequency is not within 56~64 Hz. *If Parameter 2 is ATO, the Parameter 3 will show the current frequency.</p>

Note: If the Voltage Regulator is set to CVCF mode, the bypass function will be disabled automatically. But when a single Voltage Regulator is powered on with mains and before the Voltage Regulator finished the startup, there will be a few seconds of voltage pulse (same as the input voltage) on the bypass output.
 If you need to remove the pulse on this mode to protect your load better, you could contact the dealer for help.


03: Voltage range for bypass

Interface	Setting
	<p>Parameter 2: Set the acceptable low voltage for bypass. Setting range is from 110V to 209V and the default value is 110V. Parameter 3: Set the acceptable high voltage for bypass. Setting range is from 231V to 276V and the default value is 264V.</p>


04: Frequency range for bypass

Interface	Setting
	<p>Parameter 2: Set the acceptable low frequency for bypass. 50 Hz system: Setting range is from 46.0Hz to 49.0Hz. 60 Hz system: Setting range is from 56.0Hz to 59.0Hz. The default value is 46.0Hz/56.0Hz.</p> <p>Parameter 3: Set the acceptable high frequency for bypass. 50 Hz: Setting range is from 51.0Hz to 54.0 Hz. 60 Hz: Setting range is from 61.0Hz to 64.0Hz. The default value is 54.0Hz/64.0Hz.</p>


05: ECO mode enable/disable

Interface	Setting
	<p>Parameter 3: Enable or disable ECO function. You may choose following two option: DIS: disable ECO function ENA: enable ECO function If ECO function is disabled, voltage range and frequency range for ECO mode still can be set.</p>


06: Voltage range for ECO mode

Interface	Setting
	<p>Parameter 2: Low voltage point in ECO mode. The setting range is from 5% to 10% of the nominal voltage. Parameter 3: High voltage point in ECO mode. The setting range is from 5% to 10% of the nominal voltage.</p>


07: Frequency range for ECO mode

Interface	Setting
	<p>Parameter 2: Set low frequency point for ECO mode. 50 Hz system: Setting range is from 46.0Hz to 48.0Hz. 60 Hz system: Setting range is from 56.0Hz to 58.0Hz. The default value is 48.0Hz/58.0Hz.</p> <p>Parameter 3: Set high frequency point for ECO mode. 50 Hz: Setting range is from 52.0Hz to 54.0 Hz. 60 Hz: Setting range is from 62.0Hz to 64.0Hz. The default value is 52.0Hz/62.0Hz.</p>

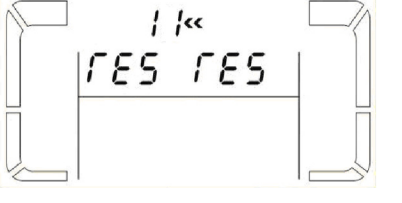
08: Bypass mode setting

Interface	Setting
	<p>Parameter 2: OPN: Bypass allowed. When selected, Voltage Regulator will run at Bypass mode depending on bypass enabled/disabled setting. FBD: Bypass not allowed. When selected, it's not allowed for running in Bypass mode under any situations.</p> <p>Parameter 3: ENA: Bypass enabled. When selected, Bypass mode is activated. DIS: Bypass disabled. When selected, automatic bypass is acceptable, but manual bypass is not allowed. Manual bypass means users manually operate Voltage Regulator for Bypass mode. For example, pressing OFF button in AC mode to turn into Bypass mode.</p>

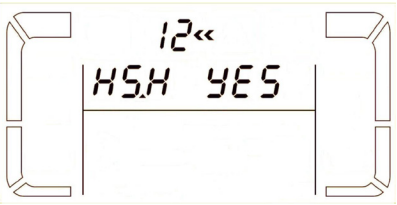
9: Reserved

Interface	Setting
	<p>Reserved</p>


10: Reserved

Interface	Setting
	<p>Reserved</p>

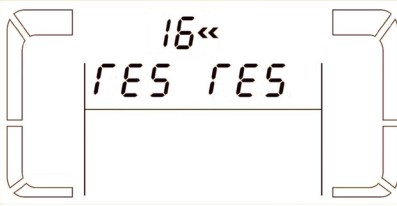

11: Hot standby function enable/disable

Interface	Setting
	<p>Parameter 2: HS.H Enable or disable Hot standby function. You may choose following two options in Parameter 3: YES: Hot standby function is enabled. It means that the current Voltage Regulator is set to host of the hot standby function, and it will restart after AC recovery even without battery connected. NO: Hot standby function is disabled. The Voltage Regulator is running at normal mode and can't restart without battery</p>

12: Inverter voltage adjustment

Interface	Setting
	<p>Parameter 2: you may choose Add or Sub to adjust inverter voltage Parameter 3: the voltage range is from 0V to 6.4V, the default value is 0V.</p>

13: Output voltage calibration

Interface	Setting
	<p>When the output voltage can not be detected(less than 50VAC), " " will be displayed in parameter 2 and parameter 3.</p>
	<p>Parameter 2: it always shows OPV as output voltage. Parameter 3: it shows the internal measurement value of the output voltage, and you can calibrate it by pressing Up or Down according to the measurement from an external voltage meter. The calibration result will be effective by pressing Enter. The calibration range is limited within +/-9V.</p>







4 Troubleshooting

If the Voltage Regulator system does not operate correctly, please solve the problem by using the table below.

4.1 Audible Alarms

Description	Buzzer status
Voltage Regulator status	
Bypass mode	Beeping once every 2 minutes
Battery mode	Beeping once every 4 seconds
Fault mode	Beeping continuously
Warning	
Overload	Beeping twice every second
Others	Beeping once every second
Fault	
All	Beeping continuously




















4.2 Warning Indicators

Warning	Icon (flashing)	Alarm
Overload		Beeping twice every second
Over charge		Beeping every second
EPO enable		Beeping every second
Fan failure/Over temperature		Beeping every second
I/P fuse broken		Beeping every second
Overload 3 times in 30min		Beeping every second








4.3 Warning Code Descriptions

Warning code	Warning event	Warning code	Warning event
0A	Fan failure	3A	Cover of maintain switch is open
0B	EPO enable	3D	Bypass unstable
09	Overload	3E	Boot loader is missing
10	L1 IP fuse broken	33	Locked in bypass after overload 3 times in 30 mins.

4.4 Fault Code Descriptions

Fault event	Fault code	Icon	Fault event	Fault code	Icon
Bus start failure	01		Inverter relay short circuited	24	
Bus over	02		Can communication fault	31	
Bus under	03		Over temperature	41	
Bus unbalance	04		CPU communication failure	42	
Inverter soft start failure	11		Overload	43	
High Inverter voltage	12		PFC current failure in battery mode	6B	
Low Inverter voltage	13		Bus voltage changes too fast	6C	
Inverter output short circuited	14		SPS 12V abnormal	6E	
Negative power fault	1A		Inverter current detection error	6D	
Inverter over current	60		Transformer over temperature	77	
Inverter waveform abnormal	63				

4.5 Trouble Shooting Chart

Symptom	Possible cause	Remedy
No indication and alarm in the front display panel even though the mains is normal.	The AC input power is not connected well.	Check if input cable firmly connected to the mains.
The icon  and the warning code <i>EP</i> flash on LCD display and alarm beeps every second.	EPO function is enabled.	Set the circuit in closed position to disable EPO function.
The icon  and  flash on LCD display and alarm beeps twice every second.	Voltage Regulator is overloaded.	Remove excess loads from Voltage Regulator output.
	Voltage Regulator is overloaded. Devices connected to the Voltage Regulator are fed directly by the electrical network via the Bypass.	Remove excess loads from Voltage Regulator output.
	After repetitive overloads, the Voltage Regulator is locked in the Bypass mode. Connected devices are fed directly by the mains.	Remove excess loads from Voltage Regulator output first. Then shut down the Voltage Regulator and restart it.
Fault code is shown as 43. The icon  lights on LCD display and alarm beeps continuously.	Voltage Regulator is overload too long and becomes fault. Then Voltage Regulator shut down automatically.	Remove excess loads from Voltage Regulator output and restart it.
Fault code is shown as 14, the icon  lights on LCD display, and alarm beeps continuously.	The Voltage Regulator shut down automatically because short circuit occurs on the Voltage Regulator output.	Check output wiring and if connected devices are in short circuit status.
Fault code is shown as 01, 02, 03, 04, 11, 12, 13, 14, 1A, 21, 24, 35, 36, 41, 42 or 43 on LCD display and alarm beeps continuously.	A Voltage Regulator internal fault has occurred. There are two possible results: 1. The load is still supplied, but directly from AC power via bypass. 2. The load is no longer supplied by power.	Contact your dealer.
The icon  and  flash on LCD display and alarm beeps every second.	Fan is locked or not working; or the Voltage Regulator temperature is too high.	Check fans and notify dealer.

5 Specifications

MODEL NUMBER		TXVR-3.8K	TXVR-5K	TXVR-6K	TXVR-10K
CAPACITY	Power rating	3.8kVA/3.8kW	5kVA/5kW	6kVA/6kW	10kVA/10kW
INPUT	Voltage (nominal)	208/220/230/240VAC			
	Voltage range	110-300VAC			
	Frequency	46–54Hz or 56–64Hz			
OUTPUT	Voltage	240/120VAC or 230/115VAC			
	Voltage Regulation	± 1%			
	Frequency	50Hz ± 0.1Hz or 60 Hz ± 0.1Hz			
	Overload capacity	200% for 1 min	150% for 1 min	130% for 1 min	
	Efficiency	up to 97% ECO mode, 91% online mode			
	Harmonic Distortion	<2% @ 100% linear load (regardless of input distortion)			
PHYSICAL	Input/output	Terminal blocks or optional PDU			
	Dimensions (W x D x H)	9.8 x 23.2 x 32.4 in			
	Weight	142 lbs	145 lbs	148 lbs	187 lbs
OPTIONAL PDU	Input connection	Terminal Block with 6ft L6-30P*			Terminal Block
	120V receptacle options	5-15/20R			
	240V receptacle options	L6-30R, L6-20R, 6-15/20R, C19			
ENVIRONMENT	Temperature	32–104°F (0–40°C)			
	Audible noise	< 50dBA			
	Altitude	11,500 ft above sea level			
APPROVALS	UL, cUL, RoHS				
WARRANTY	3 years electronics (USA and Canada)				
COMMUNICATIONS INTERFACE	RS-232, EPO, intelligent slot for optional cards (Web/SNMP, Relay/dry contact, Modbus)				
INCLUDED IN BOX	User manual, RS-232 communication cable, ViewPower Software CD				
AVAILABLE OPTIONS	5 year extended warranty, output PDU, input L6-30P cord (for 3.8kVA, 5kVA, 6kVA)				

*6kVA system capacity will be reduced by 30A input circuit

6 Obtaining Service

If the UPS requires Service:

1. Use the TROUBLESHOOTING section in this manual to eliminate obvious causes.
2. Verify there are no circuit breakers tripped.
3. Call your dealer for assistance. If you cannot reach your dealer, or if they cannot resolve the problem, call Xtreme Power Conversion Corp Technical Support at 800.582.4524. Technical support inquiries can also be made at support@xpcc.com. Please have the following information available BEFORE calling the Technical Support Department:
 - Your name and address.
 - The serial number of the unit.
 - Where and when the unit was purchased.
 - All of the model information about your Voltage Regulator.
 - Any information on the failure, including LED's that may or may not be illuminated.
 - A description of the protected equipment, including model numbers if possible.
 - A technician will ask you for the above information and, if possible, help solve your problem over the phone. In the event that the unit requires factory service, the technician will issue you a Return Material Authorization number (RMA).

If you are returning the UPS to Xtreme Power for service, please follow these procedures:

1. Pack the UPS in its original packaging. If the original packaging is no longer available, ask the Technical Support Technician about obtaining a replacement set of packaging material. It is important to pack the UPS properly in order to avoid damage in transit. Never use Styrofoam beads for a packing material.
2. Include a letter with your name, address, daytime phone number, RMA number, a copy of your original sales receipt, and a brief description of the problem.
3. Mark the RMA number on the outside of all packages. Xtreme Power cannot accept any package without the RMA number marked on the outside of the boxes.
4. Return the UPS by insured, prepaid carrier to the address provided by the Technician.
5. Refer to the Warranty statements in this manual for additional details on what is covered.

7 Xtreme Power Conversion Limited Warranty

Xtreme Power Conversion (XPC) Corporation warrants Xtreme Power Conversion equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship for a period of **three years for TXVR-Series products** from the date of purchase. For equipment sites within the United States and Canada, this warranty covers repair or replacement, at the sole discretion of XPC Corporation. The customer is responsible for the costs of shipping the defective product to XPC Corporation. XPC Corporation will pay for ground shipment of the repaired or replacement product. This warranty applies only to the original purchaser.

If equipment provided by XPC Corporation is found to be **Dead-on-Arrival (DOA)**, XPC Corporation will be responsible for the costs of shipping product to and returning equipment from the customer in a timely manner as agreed to with the customer, once the customer has requested and received a **Return Material Authorization (RMA)** number. DOA equipment is defined as equipment that does not properly function according to user documentation when initially received and connected in conjunction with proper procedures as shown in the user documentation or via support provided by XPC Corporation personnel or authorized agents.

This warranty shall be void if (a) the equipment is repaired or modified by anyone other than XPC Corporation or a XPC Corporation approved third party; (b) the equipment is damaged by the customer, is improperly used or stored, is subjected to an adverse operating environment, or is operated outside the limits of its electrical specifications; or (c) the equipment has been used or stored in a manner contrary to the equipment's operating manual, intended use or other written instructions. Any technical advice furnished by XPC Corporation or a XPC Corporation authorized representative before or after delivery with regard to the use or application of Xtreme Power Conversion equipment is furnished on the basis that it represents XPC Corporations best judgment under the situation and circumstances, but it is used at the recipient's sole risk.

EXCEPT AS STATED ABOVE, XPC Corporation DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

EXCEPT AS STATED ABOVE, IN NO EVENT WILL XPC Corporation BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF Xtreme Power Conversion EQUIPMENT, including but not limited to, any costs, lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, cost of substitutes, or claims by third parties. Purchaser's sole and exclusive remedy for breach of any warranty, expressed or implied, concerning Xtreme Power Conversion equipment, and the only obligation of XPC Corporation under this warranty, shall be the repair or replacement of defective equipment, components, or parts; or, at XPC Corporations sole discretion, refund of the purchase price or substitution of an equivalent replacement product.

8 Xtreme Power Conversion Load Protection Policy

THIS POLICY IS NOT A WARRANTY. REFER TO **THE XPC CORPORATION, INC. LIMITED WARRANTY** FOR INFORMATION CONCERNING THE WARRANTY FOR YOUR XPC PRODUCT. THE LIMITATIONS AND CONDITIONS CONTAINED IN THIS POLICY DO NOT AFFECT **THE TERMS OF THE XPC LIMITED WARRANTY**.

Definitions:

1. "Product" means a Standard 120, 208, or 240 Volt power protection device that is used in the United States and Canada. This policy does not include custom manufactured products.
2. "Power Disturbance" means an AC power line transient (telephone line or Local Area Network, if applicable), spike or surge.
3. "Connected Equipment" properly connected electronic equipment
4. "Fair Market Value" of damaged Connected Equipment as determined by XPC shall be the lower of (a) the average price the same or similar items are being sold for on eBay, (b) the price list of Orion Blue Book (or if such price list is no longer published, a published or announced price list reasonably selected by XPC), (c) the lowest price the same or similar items can be purchased for in the United States or (d) the total amount of all payment(s) you have or are entitled to receive from insurance, other warranties, extended warranties, a legal liability claim or from other sources or persons for the damaged Connected Equipment.
5. "Purchaser" means the person or entity that originally purchased the Product from an authorized reseller or distributor of XPC Products.

The Purchaser of this Product is protected, for the term of the XPC Limited Warranty, against certain losses caused by a Power Disturbance for properly connected electronic equipment (referred to as the "Connected Equipment") subject to certain terms and conditions provided below.

This policy applies only to the original purchaser of the Product. If the Product is transferred or sold to another person or entity, this policy is void.

Load Protection Policy Dollar and Period Limits

For purchasers that meet the qualifications and conditions set forth in this policy, XPC will provide reimbursement (cost of repair or fair market value as determined by XPC) during the period limits and up to the dollar limits stated as follows:

PRODUCT	DOLLAR LIMIT	PERIOD OF COVERAGE
XVT, XST, S70	25,000	Term of XPC Limited Warranty
V80, P80, P80g, P90, P90L, P90g, P90Lg, P91, T91, TX90, TX90i, TX91, XPRT, TXVR	50,000	Term of XPC Limited Warranty

This Load Protection Policy is not deemed "first dollar" coverage. XPC's obligation is reduced by any amounts that the Purchaser is entitled to recover, from other sources regarding the Connected Equipment, including, but not limited to, insurance, other warranty, extended warranty, or legal liability, regardless of whether or not the Purchaser makes a claim for recovery.

Eligibility for Coverage Under the Load Protection Policy

1. The Product must be registered on the XPC website, www.xpcc.com, within 10 days of purchase. All required information must be provided, and Purchaser should retain a copy for Purchaser's records. When registering on the website, Purchaser must list all connected equipment that is directly connected to the product. Only those devices registered in that manner will be covered.
2. All Connected Equipment must be UL or CSA approved.
3. The Product must be plugged into a properly wired and grounded outlet. Use of input surge devices, extension cords, adapters, ground wires, or electrical connections not manufactured by XPC voids the XPC Load Protection Policy. No other surge protection device may be connected to the output sockets of the Product. The installation must comply with all applicable electrical and safety codes set forth pursuant to

the NEC.

4. The Product must have undeniable physical evidence of a Power Disturbance that directly and proximately caused the damage;
5. The Connected Equipment must have been damaged by a Power Disturbance on a properly installed, grounded, and National Electric Code, ("NEC"), code-compliant 120, 208, 240 Volt AC power line in the United States or Canada, by a Power Disturbance on standard telephone land line or PBX telephone equipment line that is properly installed and connected to an RJ11 port on the Product; or by a Power Disturbance on a standard Local Area Network connection that is properly installed and connected to an RJ45 port on the Product and (d) is directly plugged into, and properly connected to, the Product in its original condition which was properly operated when a Power Disturbance passed through the Product and (i) exhausts the protection capacity of the Product or (ii) damages the Product.
6. The Load Protection Policy does not apply if the Product has been operated in a failure mode or not in compliance with XPC operating instructions in the Product user's manual, or if the Connected Equipment has not been operated in compliance with the instructions and manuals of its manufacturer/vendor.
7. This policy is null and void if, XPC determines, in its sole discretion, that the Product has been tampered with or altered in any way.

What is Not Covered Under the Load Protection Policy:

The following damage is not covered by this Policy:

1. Restoration of lost data and reinstallation of software.
2. Damage from a cause other than AC power-line transients, except for damage due to telephone line, Local Area Network, or CATV transients, which is covered only if the Product offers such protection.
3. DAMAGE CAUSED BY FAILURE TO PROVIDE A SUITABLE INSTALLATION ENVIRONMENT FOR THE PRODUCT (INCLUDING, BUT NOT LIMITED TO, LACK OF A PROPER SAFETY GROUND).
4. Damage caused by the use of the Product for purposes other than those for which it was designed.
5. Damage caused by accidents, or natural disasters, including but not limited to, fire, flood, and wind.
6. Damage caused by abuse, misuse, alteration, modification, or negligence.
7. Any labor costs or travel, room and board expenses associated with the repair and/or restoration of lost or damaged hardware, software or data.

EXCEPT AS EXPRESSLY PROVIDED IN THIS POLICY, XPC SHALL NOT BE LIABLE FOR ANY DAMAGES WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, DIRECT, INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR MULTIPLE DAMAGES ARISING OUT OF THE USE OF THE PRODUCT OR DAMAGE TO THE CONNECTED EQUIPMENT, REGARDLESS OF THE LEGAL THEORY ON WHICH SUCH CLAIM IS BASED, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. SUCH DAMAGES INCLUDE, BUT ARE NOT LIMITED TO, LOSS OF PROFITS, LOSS OF SAVINGS OR REVENUE, LOSS OF USE OF THE PRODUCT OR THE CONNECTED EQUIPMENT OR ANY ASSOCIATED EQUIPMENT, LOSS OF SOFTWARE, COST OF CAPITAL, COST OF ANY SUBSTITUTE EQUIPMENT, FACILITIES OR SERVICES, DOWNTIME, THE CLAIMS OF THIRD PARTIES, INCLUDING CUSTOMERS, AND INJURY TO PROPERTY.

Submitting a Load Protection Policy Claim:

1. Any claim under the Load Protection Policy must be made within 10 days of the date of alleged damage to the Connected Equipment.
2. Call the XPC technical support department at 1-800- 582-4524 and obtain a Load Protection Policy Returned Material Authorization (RMA) number. Have information on all applicable insurance or other resources of recovery/payment that is available to the Purchaser and the name of the power utility supplier for the location of the Connected Equipment. XPC will forward to the Purchaser a Load Protection Policy claims form, which must be completed and filed with XPC within 30 days.
 - Mark the Load Protection Policy RMA number on the Product the Purchaser is returning.
 - Pack the Product in its original packaging or similar packing materials if the original packaging has been discarded. Enclose the completed Load Protection Policy claim form and a copy of the Purchaser's original sales receipt for the Product in the box.
 - Mark the RMA number clearly on the outside of the box.

- Ship the Product (one-way shipping charges paid by the Purchaser) to:

XPC Corporation
230 Yuma Street
Denver, CO 80223
Attn: LPP RMA#

3. XPC will evaluate the Product to determine its level of functionality, and will examine the Product for evidence of damage from a Power Disturbance.
 - If XPCs' evaluation provides no evidence of damage from a Power Disturbance, XPC will send to the Purchaser (i) a report summarizing the tests performed and (ii) a rejection of claim notice.
 - If the Product shows evidence of damage from a Power Disturbance, XPC will request that all Connected Equipment for which a Load Protection Policy claim has been submitted, be sent for evaluation to either XPC or an authorized service center. If it is determined that the Connected Equipment has been damaged by a Power Disturbance, XPC will, in its sole discretion, issue payment to the Purchaser for either the cost of repair of the Connected Equipment or the Fair Market Value of the damaged Connected Equipment, up to the dollar limits stated above. XPC reserves the right to require the Purchaser to transfer title and deliver the Connected Equipment to XPC if it chooses to reimburse the Purchaser for the fair market value of the Connected Equipment. XPCs' maximum liability shall be reduced to reflect all such other payments or sources of recovery, whether applied for or not.
4. If XPC issues payment to the Purchaser to have the Connected Equipment repaired, the repair must be performed at a service center that is authorized by the manufacturer of the Connected Equipment. XPC reserves the right to contact the authorized service center directly to discuss repair costs and damage to the Connected Equipment to determine if it was caused by a Power Disturbance and the right to request that the service center forward the Connected Equipment or components of the Connected Equipment to XPC for inspection
5. Unless modified in writing signed by an officer of XPC and the Purchaser, the terms of this policy are the complete and exclusive agreement between the parties, superseding all prior agreements, oral or written, and all other communications between the parties relating to the subject matter of this agreement. No employee of XPC or any other party is authorized to make any representations beyond those made in this agreement concerning the Load Protection Policy.

XPC Corporation
230 Yuma Street
Denver, CO 80223
1.800.582.4524