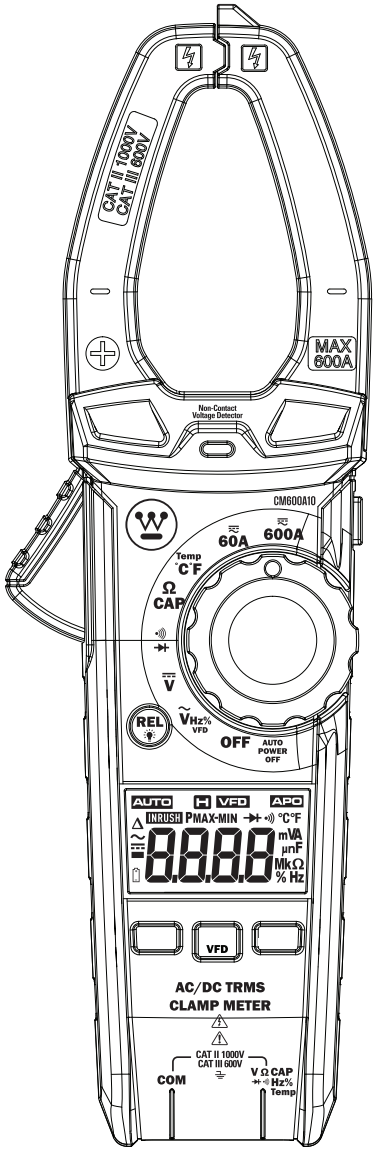
User Manual



Product:

600A True RMS Autoranging Clamp Meter
WPMDCM600A10

DO NOT RETURN THIS PRODUCT TO THE STORE
If you have questions
or need assistance, please call
customer service at 888-230-4260.

Safety

International Safety Symbols


This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.


This symbol, adjacent to a terminal, indicates that, under normal use, hazardous voltages may be present.


Double insulation.


Application around and removal from uninsulated hazardous live conductors is permitted.

This symbol advises the user that the terminal(s) so marked must not be connected to a circuit point at which the voltage with respect to earth ground exceeds (in this case) 1000VAC or VDC.

SAFETY NOTES

- Do not exceed the maximum allowable input range of any function.
- Do not apply voltage to meter when resistance function is selected.
- Set the function switch OFF when the meter is not in use.
- Remove the battery if meter is to be stored for longer than 60 days.

WARNINGS

- Set function switch to the appropriate position before measuring.
- When measuring volts do not switch to current/resistance modes.
- Do not measure current on a circuit whose voltage exceeds 600V.
- When changing ranges always disconnect the test leads from the circuit under test.

CAUTIONS

- Improper use of this meter can cause damage, shock, injury or death. Read and understand this user manual before operating the meter.
- Always remove the test leads before replacing the battery or fuses.
- Inspect the condition of the test leads and the meter itself for any damage before operating the meter. Repair or replace any damage before use.
- Use great care when making measurements if the voltages are greater than 25VAC rms or 35VDC. These voltages are considered a shock hazard.
- Always discharge capacitors and remove power from the device under test before performing Diode, Resistance or Continuity tests.
- Voltage checks on electrical outlets can be difficult and misleading because of the uncertainty of connection to the recessed electrical contacts. Other means should be used to ensure that the terminals are not "live".
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

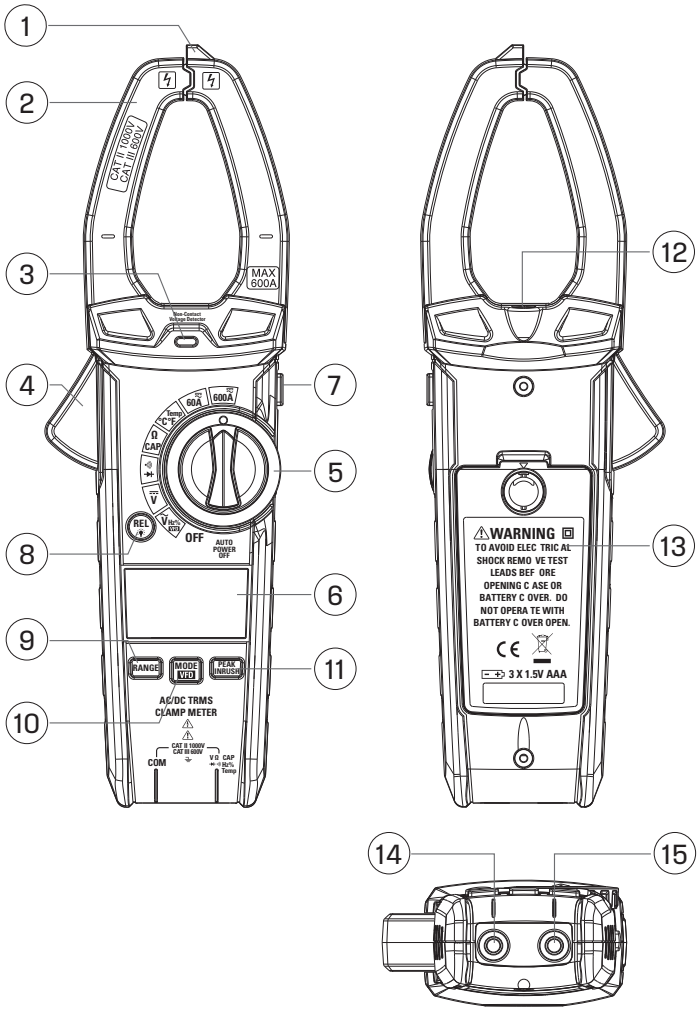
Input Limits

Function	Maximum Input
Voltage AC or DC	1000V AC/DC
Amperage AC or DC	600A AC/DC
Resistance, Capacitance, Continuity, Diode Test, Temperature	300V AC/DC

Description

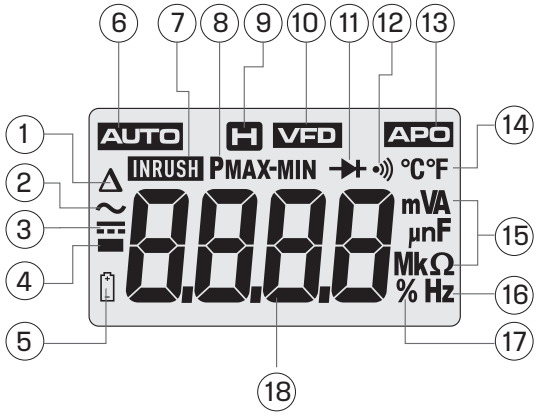
Meter Description

1. Non-Contact Voltage Detector
2. Current Clamp
3. Non-Contact Voltage Indicator
4. Clamp Trigger
5. Function Switch
6. LCD Display
7. HOLD and Flashlight Button
8. REL and Backlight Button
9. RANGE Button
10. MODE and VFD Button
11. PEAK and INRUSH Button
12. Flashlight
13. Battery Cover
14. COM Input Jack
15. V, Ω, ⇥, •)), CAP, TEMP Input Jack



Symbols Used on LCD Display

1. REL/DCA Zero
2. Alternating Current/Voltage
3. Direct Current/Voltage
4. Minus Sign
5. Low Battery
6. Auto Range Mode
7. INRUSH Current Mode
8. Maximum/Minimum
9. Display Hold
10. Variable Frequency Drive Voltage Value
11. Diode Test
12. Continuity Test
13. Auto Power Off
14. Fahrenheit and Celsius Units (Temperature)
15. Unit of Measure Prefixes
16. Hertz (Frequency)
17. Percent (Duty Ratio)
18. Measurement Reading



Function

MODE/VFD Button

- Press **MODE/VFD** key the selection of double measured functions which are present at display is possible. In particular this key is active in VAC / Hz / % / VFD, Ω / CAP,•)) ⇥ position to select among resistance test, diode test, continuity test, HZ%, and in Temp position to select between ℃ or ℉.
- Press and hold the **MODE/VFD** key to turn the system on, the auto power off function will be cancelled.
- Press and hold the **MODE/VFD** key to turn VFD test .

HOLD/Flashlight Button

- To freeze the LCD reading, press the **Hold/Flashlight** button.
- While data hold is active, the **HOLD** icon appears on the LCD.
- Press the **Hold/Flashlight** button again to return to normal operation.
- Press the **Hold/Flashlight** button to turn the Flashlight on, Press again to turn the Flashlight off.

RANGE Button

- Press the **RANGE** key to activate the manual mode and to disable the Autorange function.
- The symbol "AUTO" disappears from the upper left part of the display.
- In manual mode, press the **RANGE** key to change measuring range: the relevant decimal point will change its position.
- The **RANGE** key is not active in positions , •)) ⇥, CAP, Hz%, Temp .
- In Autorange mode, the instrument selects the most appropriate ratio for carrying out measurement.
- If a reading is higher than the maximum measurable value, the indication "**O.L**" appears on the display.
- Press and hold the **RANGE** key for more than 1 second to exit the manual mode and restore the Autorange mode.

PEAK/INRUSH Button

- In AC voltage test mode, press **PEAK/INRUSH** key the peak maximum and peak minimum values are measured.
- In current test mode, press **INRUSH** key the inrush current values are measured.

Relative/ Backlight Button

The relative measurement feature allows you to make measurements relative to a stored reference value, A reference voltage, current, Capacitance etc. can be stored and measurements made in comparison to that value, The displayed value is the difference between the reference value and the measured value.

- Press the "**REL/Backlight**" Button to zero the display " Δ " will appear in the display.
- To exit this mode, press the "**REL/Backlight**" Button again, and " Δ " will disappear in the display.
- DCA measurements mode, press the "**REL/Backlight**" Button to "**zero**" the display.
- Press and hold the "**REL/Backlight**" Button to turn the Backlight on, Press and hold again to turn the Backlight off.

Automatic Power OFF

- In order to conserve battery life, the meter will automatically turn off after approximately 15 minutes. To turn the meter on again, turn the function switch to the **OFF** position and then to the desired function position.
- To press and hold the **MODE/VFD** key to turn the system on, the auto power off function will be cancelled.

Operation

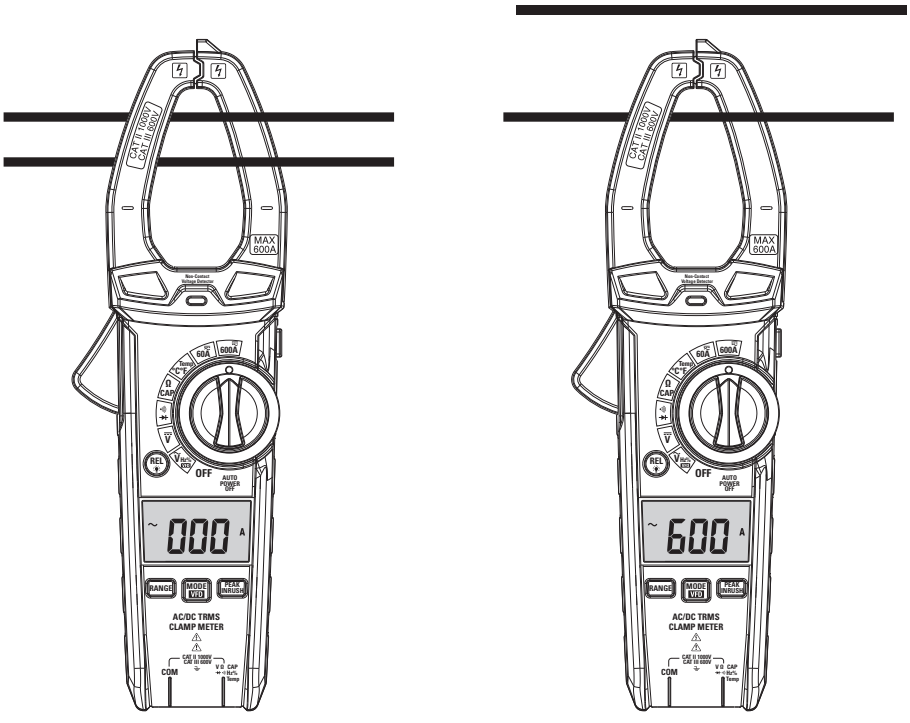
NOTES

Read and understand all Warning and Caution statements in this operation manual prior to using this meter. Set the function select switch to the OFF position when the meter is not in use.

AC/DC Current Measurements

WARNING: Ensure that the test leads are disconnected from the meter before making current clamp measurements.

1. Set the Function switch to the **600A** range. If the approx. range of the measurement is not known, select the highest range then move to the lower ranges if necessary.
2. Press the **REL** button to zero the meter display.
3. Use Rotary Function switch to select AC **60A/600A** rang.
4. Press the trigger to open jaw. Fully enclose only one conductor. For optimum results, center the conductor in the jaw.
5. The clamp meter LCD will display the reading.



NO **YES**

AC Voltage Measurement

1. Insert the black test lead into the negative **COM** terminal and the red test lead into the positive **V** terminal.
2. Set the function switch to the **VAC** position.
3. Connect the test leads in parallel to the circuit under test.
4. Read the voltage measurement on the LCD display.

DC Voltage Measurement

1. Insert the black test lead into the negative **COM** terminal and the red test lead into the positive **V** terminal.
2. Set the function switch to the **VDC** position.
3. Connect the test leads in parallel to the circuit under test.
4. Read the voltage measurement on the LCD display.

Resistance Measurement

1. Insert the black test lead into the negative **COM** terminal and the red test lead into the **V** positive terminal.
2. Set the function switch to the Ω, CAP position.
3. Touch the test probe tips across the circuit or component under test.
4. Read the resistance on the LCD display.

Capacitance Measurements

WARNING: To avoid electric shock, discharge the capacitor under test before measuring.

1. Set the function switch to the Ω, CAP position.
2. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the **V** positive jack.
3. Touch the test probe tips across the part under test. If "**OL**" appears in the display, remove and discharge the component.
4. Read the capacitance value in the display.
5. The display will indicate the proper decimal point and value.

Note: For very large values of capacitance measurement, it can take several minutes before the final reading stabilizes.

Frequency Measurements

1. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the **V** jack.
2. Set the function switch to the **VAC HZ/%** Position.
3. Press **MODE** button to select the Frequency (**Hz**) or Duty cycle (**%**).
4. Touch the test probe tips across the part under test.
5. Read the value on the display.
6. The display will indicate the proper decimal point and value.

Temperature Measurements

1. Set the function switch to the **TEMP** position.
2. Insert the Temperature Probe into the negative **COM** and the **V** positive jacks, observing polarity.

3. Touch the Temperature Probe head to the device under test. Continue to touch the part under test with the probe until the reading stabilizes.
4. Read the temperature on the display. The digital reading will indicate the proper decimal point and value.
5. Use the **MODE** button to select °C or °F.

WARNING: To avoid electric shock, be sure the thermocouple probe has been removed before changing to another measurement function.

Continuity Measurements

1. Insert the black test lead into the negative **COM** terminal and the red test lead into the **V** positive terminal.
2. Set the function switch to the •))) position.
3. Use the **MODE** button to select continuity " •))) ". The display icons will change when the **MODE** button is pressed.
4. Touch the test probe tips across the circuit or component under test.
5. If the resistance is < 50Ω, a tone will sound.

Diode Test

1. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the **V** positive jack.
2. Turn the function switch to •))) position.
3. Use the **MODE** button to select the diode function if necessary (diode symbol will appear on the LCD when in Diode test mode).
4. Touch the test probe tips to the diode or semiconductor junction under test. Note the meter reading.
5. Reverse the test lead polarity by reversing the red and black leads. Note this reading.
6. The diode or junction can be evaluated as follows:
   - If one reading displays a value (typically 0.400V to 0.900V) and the other reading displays "**OL**", the diode is good.
   - If both readings display "**OL**" the device is open.
   - If both readings are very small or '**0**', the device is shorted.

Non-Contact AC Voltage Measurements

WARNING: Risk of Electrocution. Before use, always test the Voltage Detector on a known live circuit to verify proper operation.

1. Touch the probe tip to the hot conductor or insert into the hot side of the electrical outlet.
2. If AC voltage is present, the detector light will illuminate.

NOTE: The conductors in electrical cord sets are often twisted. For best results, rub the probe tip along a length of the cord to assure placing the tip in close proximity to the live conductor.

NOTE: The detector is designed with high sensitivity. Static electricity or other sources of energy may randomly trip the sensor. This is normal operation.

CARE AND MAINTENANCE

WARNING: To avoid electrical shock, disconnect the meter from any circuit, remove the test leads from the input terminals, and turn OFF the meter before opening the case. Do not operate the meter with an open case.

- Do not immerse the instrument in water.
- Ensure the multimeter is powered o, then clean it gently using a dry, lint-free cloth
- Do not use aggressive cleaning agents or solutions.
- Do not mix different types of batteries such as alkaline, carbon-zinc, or rechargeable batteries.
- Handle the instrument with care.
- Please take out the battery when the instrument is not used for a long time.

* Keep it away from high temperatures and humidity. If the clamp meter has been stored in extreme conditions beyond the limits specified in the General Specifications section, allow it to stabilize under normal operating conditions before use.

Battery Replacement

1. Counter rotate Battery Door Lock 180 degrees to open the battery door.
2. Open the battery compartment.
3. Replace the 3 x 1.5V AAA batteries.
4. Observe correct polarity as shown inside battery compartment.
5. Secure the battery compartment.

Specifications

Function	Range	Resolution	Accuracy ±(% of reading+digits)
AC True RMS Current	60.00A	10mA	±2.0% of rdg ±8 digits
	600.0A	100mA	±2.5% of rdg ±8 digit

Over rang protection: Maximum input 600A
Accuracy specified from 5% to 100% of the measuring range
Frequency Response: 50Hz to 60Hz True RMS
Inrush current Maximum Input: 600A

Function	Range	Resolution	Accuracy ±(% of reading+digits)
DC Current	60.00A	10mA	±2.0% of rdg ±8 digits
	600.0A	100mA	±2.5% of rdg ±8 digit

Over rang protection: Maximum input 600A

Function	Range	Resolution	Accuracy ±(% of reading+digits)
DC Voltage	6.000V	1mV	±0.9% of rdg ±3digits
	60.00V	10mV	±1.0% of rdg ±3digits
	600.0V	100mV	±1.0% of rdg ±3digits
	1000V	1V	±1.2% of rdg ±3digits

Maximum input: 1000V dc

Function	Range	Resolution	Accuracy ±(% of reading+digits)
AC True RMS Voltage (with VFD)	6.000V	1mV	±1.2% of rdg ±5digits
	60.00V	10mV	
	600.0V	100mV	
	1000V	1V	±1.5% of rdg ±5digits

Variable frequency Drive TEST AC voltage rang: 100V-600V.
AC voltage bandwidth: 50 to 1000Hz (sine) 50/60 (all wave)
Accuracy specified from 5% to 100% of the measuring range
Maximum Input: 1000V ac rms.
PEAK Maximum Input : 1000V

Function	Range	Resolution	Accuracy ±(% of reading+digits)
Capacitance (Auto-ranging)	99.99nF*	0.01nF	±4.5% of rdg ±20 digits
	999.9nF	0.1nF	±3.0% of rdg ±5 digits
	9.999uF	0.001uF	
	99.99uF	0.01uF	
	999.9uF	0.1uF	
	9.999mF	0.001mF	
	99.99mF	0.01mF	±5% of rdg ±5 digits

Input Protection: 300V dc or 300V ac rms.
*< 99.99nF (no specification)

Function	Range	Resolution	Accuracy ±(% of reading+digits)
Resistance	600.0Ω	0.1Ω	±1% of rdg ±4 digits
	6.000kΩ	1Ω	±1.5% of rdg ±2 digits
	60.00kΩ	10Ω	
	600.0kΩ	100Ω	
	6.000MΩ	1kΩ	±2.0% of rdg ±5 digits
	60.00MΩ	10kΩ	±1.5% of rdg ±8 digits

Input Protection: 300V dc or 300V ac rms.

Frequency with test leads (AC Voltage)	10Hz to 100kHz	±1.0% ±5 digits

Input Protection: 1000V AC rms
Sensitivity: >15V AC rms
Frequency (AC Current)

Frequency (AC Current)	45Hz to 1kHz	±1.0% ±5 digits

Sensitivity: >20A

Duty Cycle	20.0%~80.0%	0.1	±1.2% of rdg ±10 digits

Temperature	-20ºC~+1000ºC	0.1/1ºC	±3% of rdg ±3ºC
	-4ºF~+1832ºF	0.1/1 ºF	±3% of rdg ±5ºF

Sensor: Type K Thermocouple
Input Protection: 300V dc or 300V ac rms.

Function	Testing Condition	Reading
Diode	Forward DCA is approx. 1mA, open circuit Voltage MAX. 3V	Forward voltage drop of Diode

Continuity	Test current MAX. 1.5mA	Buzzer makes a long sound, While resistance is less than (50Ω)

Input Protection: 300V dc or 300V ac rms.

General Specifications

Clamp jaw opening	1.3" (33mm) approx.
Display	(6000 counts) backlit LCD
Low Battery indication	'[]' is displayed
Over-range indication	'OL' display
Measurement rate	3 readings per second, nominal
Temperature sensor	Type K thermocouple
Input Impedance	10MΩ (VDC and VAC)
AC response	True rms (AAC and VAC)
ACV Bandwidth	2KHZ
Operating Temperature	5 to 40°C (41 to 104°F)
Storage Temperature	-20 to 60°C (-4 to 140°F)
Operating Humidity	Max 80% up to 31°C(87°F) decreasing linearly to 50% at 40°C (104°F)
Storage Humidity	<80%
Operating Altitude	7000ft. (2000 meters) maximum.
Battery	3 x 1.5V AAA Battery
Battery life	~30h (Backlight ON), ~100h (Backlight OFF)
Auto power OFF	After approx. 15 minutes
Safety	EN 61010-1:2010+A1:2019, EN IEC 61010-2-032:2021+A11:2021. Overvoltage Category III 600V Category II 1000V, Pollution Degree 2. Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use Part 1: General Requirements [UL 61010-1:2012 Ed.3 +R:21Nov2018]. Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use Part 1: General Requirements [CSA C22.2#61010-1-12:2012 Ed.3 +U1;U2;A1]. Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 2-032: Particular Requirements For Hand-Held and Hand-Manipulated Current Sensors for Electrical Test And Measurement [UL 61010-2-032:2014 Ed.1]. Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 2-032: Particular Requirements For Hand-Held and Hand-Manipulated Current Sensors for Electrical Test And Measurement [CSA C22.2#61010-2-032:2014 Ed.3]. UL 61010-2-033 Issued: 2014/08/08 Ed:1 Safety Req. for Electrical Equipment for Measurement, Control And Laboratory Use - Part 2-033: Particular Requirements for Hand-held Mustimeters & Other Meters, for Domestic & Professional Use, Capable of Measuring Mains Voltage. CSA C22.2#61010-2-033 Issue: 2014/12/01 Electrical equipment for measurement, control, and laboratory use — Part 2-033: Particular requirements for HAND-HELD MULTIMETERS and other METERS, for domestic and professional use, capable of measuring MAINS voltage.

2-Year Warranty

If your product fails due to defects in materials or workmanship, we will replace it.
This warranty is valid only for the original end-user purchaser of the product.

Exclusions:

- The warranty is non-transferable.
- For details, contact Customer Care at (888) 230-4260 or send us a mail at support@pmd.westinghouse.com
- This warranty applies exclusively to products purchased directly from us or our authorized sellers. Products bought from unauthorized sellers, including unapproved online platforms, may not be covered unless prohibited by law.
- We reserve the right to deny warranty claims for items purchased from unauthorized sellers.

Legal Rights:

This warranty provides you with specific legal rights, and you may have additional rights that vary by state or country. Proof of purchase indicating the date and place of purchase may be required.

Limitations:

This limited warranty replaces all other express warranties. Any implied warranties, including merchantability or fitness for a particular purpose, are limited to the duration of this warranty. We are not liable for incidental or consequential damages.

Note: Some states or countries do not allow limitations on the duration of implied warranties or exclusions of certain damages, so these limitations may not apply to you.

This guarantee applies only to products purchased from us or authorized sellers unless prohibited by law. We may reject claims for items bought from unauthorized sellers, including unapproved online platforms.

For more details or to confirm if a seller is authorized, contact Customer Care at (888) 230-4260 or email us at support@pmd.westinghouse.com

Disposal / Recycle

Do not dispose of the equipment and its accessories in the trash. Ensure proper disposal in compliance with local regulations. For more information, visit www.epa.gov/recycle.

www.westinghouse.com
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