VMR Series
Outlet Metered Switched PDUs

Products Covered:

VMR Standard Series
VMR-HD4D Series
VMR-HD4D-8 Series
VMR-12B Series
VMR-8H20-ATS Series

Hardware Guide

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Warnings and Cautions:
Installation Instructions

Secure Racking

If Secure Racked units are installed in a closed or multi-unit rack assembly, they may require further evaluation by Certification Agencies. The following items must be considered.

1. The ambient within the rack may be greater than room ambient. Installation should be such that the amount of air flow required for safe operation is not compromised. The maximum temperature for the equipment in this environment is 60°C. Consideration should be given to the maximum rated ambient.

2. Installation should be such that a hazardous stability condition is not achieved due to uneven loading.

Input Supply

Check nameplate ratings to assure there is no overloading of supply circuits that could have an effect on overcurrent protection and supply wiring.

Grounding

Reliable earthing of this equipment must be maintained. Particular attention should be given to supply connections when connecting to power strips, rather than direct connections to the branch circuit.

No Serviceable Parts Inside; Authorized Service Personnel Only

Do not attempt to repair or service this device yourself. Internal components must be serviced by authorized personnel only.

- **Shock Hazard - Do Not Enter**

- **Lithium Battery**
  CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Disconnect Power

If any of the following events are noted, immediately disconnect the unit from the outlet and contact qualified service personnel:

1. If the power cord becomes frayed or damaged.

2. If liquid has been spilled into the device or if the device has been exposed to rain or water.

Up to Four Power Supply Cables

Note that some VMR series units feature up to four separate power inlets and a separate power supply cable for each power inlet. Make certain to disconnect all power supply cables from their power source before attempting to service or remove the unit.

15 Amp Starter Cable(s)

Depending on your specific model, some VMR Series units may be shipped with either one or two 125 VAC, 15 Amp "Starter" Cables. These Starter Cables will allow you to connect the VMR to power for bench testing and initial start up and are adequate for applications that only require 15 Amps. For 20-Amp power switching applications, please refer to the WTI Power Cable guide supplied with the unit, or use appropriate 20-Amp cables.

Units with Attached Power Supply Cable(s)

For units with fixed power cords, the socket-outlet shall be installed near the equipment and shall be easily accessible.

Agency Approvals

FCC Part 15 Regulation

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

WARNING: *Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment*

EMC and Safety Directive Compliance

The CE mark is affixed to this product to confirm compliance with the following European Community Directives:

- **Council Directive 2014/30/EU of 26 February 2014 on the approximation of the laws of Member States relating to electromagnetic compatibility;**

    and

- **Council Directive 2014/35/EC of 26 February 2014 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.**

Industry Canada - EMI Information

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Table of Contents

1. Introduction

This Hardware Guide covers set-up and installation for our VMR Series Outlet Metered Switched PDUs. VMR Series units are designed to simplify the process of remotely managing vital network elements located at distant network equipment sites and off-site facilities by providing secure remote access to power metering, switching and reboot functions at the remote network equipment site.

> **Note:** *For instructions regarding configuration and operation of the VMR Series Device, please refer to the WTI Firmware Guide.*

Model Numbers Covered

This Hardware Guide discusses all WTI VMR Series products. Throughout this Hardware Guide, all of these units are referred to as the "VMR."

2. Unit Description
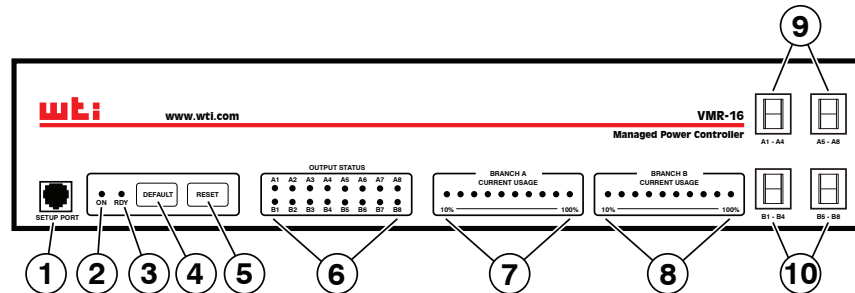
2.1. VMR Standard Series - Front Panel

Figure 2.1: VMR Standard Series - Front Panel (Model VMR-16HD20-1 Shown)

As shown in Figure 2.1, the VMR Series Front Panel includes the following components:

1. **SetUp Port:** An RJ45 RS232 serial port (DCE configuration) used for connection to a local terminal or external modem, as described in Section 4.3. Note that on VMR-HD4H series units, the SetUp port is located on the back panel. For a description of the Setup Port interface, please refer to Appendix B.

2. **"ON" Indicator:** An LED that lights when power is applied to the VMR.

3. **"RDY" Indicator:** (Ready) Flashes if unit is ready to receive commands.

4. **Default Button:** Toggles outlets On/Off or resets unit to factory default parameters as described in Section 2.11.

5. **Reset Button:** Reboots and/or resets the VMR to factory defaults as described in Section 2.11.

6. **Output Status Indicators:** LEDs light when corresponding outlet is switched On.

7. **Branch A Current Usage:** Ten LEDs which light to indicate total current usage by Power Circuit A. The first LED lights when 0% to 9% of maximum rated current is used, and the last LED lights when over 100% of maximum rated current is used.

8. **Branch B Current Usage:** Same as Item 7 above, except displays values for Power Circuit B. (Not present on VMR-4HS and VMR-8HS series units.)

9. **Branch A Circuit Breakers:** Two circuit breakers, which protect Branch A. One circuit breaker protects outlets A1 through A4, and the other circuit breaker protects outlets A5 through A8.

10. **Branch B Circuit Breakers:** Same as Item 9 above, except circuit breakers protect outlets on Branch B. (Not present on VMR-4HS and VMR-8HS series units.)
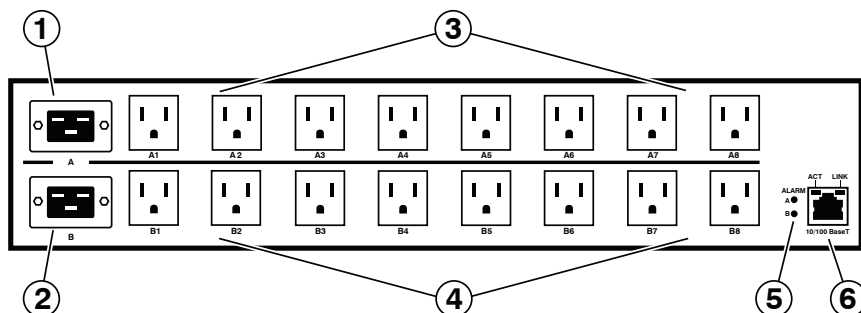
Figure 2.2: VMR Standard Series - Back Panel (Model VMR-16HD20-1 Shown)

2.2.   VMR Standard Series - Back Panel

As shown in Figure 2.2, the VMR Series Back Panel includes the following components:

1. **Power Circuit A - Power Inlet:** An IEC320-C20 AC inlet which supplies power to VMR control functions and Circuit "A" outlets. Also includes cable keeper (not shown.)

Notes:

*   *VMR-8HS20 series units feature a single Power Inlet.*

*   *VMR-HD4D-30 and VMR-HD4D-32 units feature attached power supply cables.*

2. **Power Circuit B - Power Inlet:** An IEC320-C20 AC inlet which supplies power to VMR control functions and Circuit "B" outlets. Also includes cable keeper (not shown.) (Not present on VMR-4HS15 and VMR-8HS20 series units.)

3. **Power Circuit A - Switched Outlets:** AC Outlets that can be switched On, Off, rebooted or set to default state in response to user commands.

4. **Power Circuit B - Switched Outlets:** Same as Item 3 above. (Not present on VMR-4HS15 and VMR-8HS20 series units.)

5. **Alarm Indicator Lights:** Two LEDs which light when an alarm condition is detected at the corresponding power circuit. Note that VMR-4HS15 and VMR-8HS20 series units only include one power circuit and one Alarm Indicator Light. For information on Alarm Configuration, please refer to the WTI Firmware Guide.

6. **Network Port:** An RJ45 Ethernet port for connection to your 10/100/1000Base-T, TCP/IP network. Note that the Network Port also includes two, small LED indicators for Link and Data Activity. For more information on Network Port configuration, please refer to the WTI Firmware Guide.
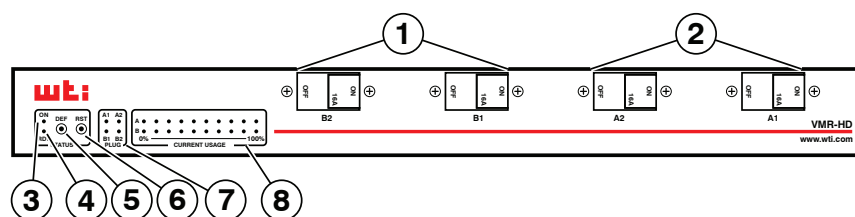
Figure 2.3: VMR-HD4D Series - Front Panel (Model VMR-HD4D32 Shown)

2.3.   VMR-HD4D Series - Front Panel

As shown in Figure 2.3, the VMR-HD4D Series Front Panel includes the following components:

1. **Branch B Circuit Breakers:** Two circuit breakers, which protect Branch B. One circuit breaker protects outlet B1 and the other circuit breaker protects outlet B2.

2. **Branch A Circuit Breakers:** Same as Item 1 above, except circuit breakers protect outlets on Branch A.

3. **"ON" Indicator:** An LED which lights when power is applied to the VMR.

4. **"RDY" Indicator:** (Ready) Flashes if unit is ready to receive commands.

5. **Default Button:** Toggles outlets On/Off or resets unit to factory default parameters as described in Section 2.11.

6. **Reset Button:** Reboots and/or resets the VMR to factory defaults as described in Section 2.11.

7. **Output Status Indicators:** LEDs light when corresponding outlet is switched On.

8. **Current Usage Indicators:** Ten LEDs which light to indicate total current usage by each Power Circuit. The first LED lights when 0% to 9% of maximum rated current is used, and the last LED lights when over 100% of maximum rated current is used.
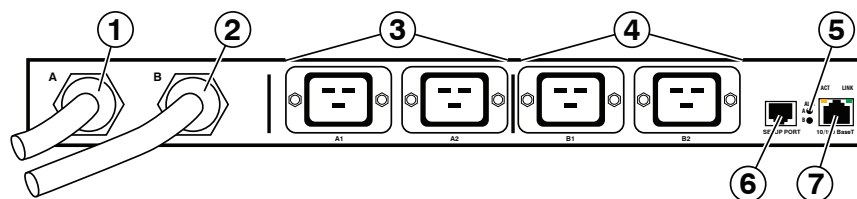
Figure 2.4: VMR-HD4D Series - Back Panel (Model VMR-HD4D32 Shown)

2.4. VMR-HD4D Series - Back Panel

As shown in Figure 2.4, the VMR-HD4D Series Back Panel includes the following components:

1. **Power Circuit A - Power Inlet:** Supplies power to VMR control functions and Circuit "A" outlets.

   ### Notes:
   - *VMR-HD4D16 and VMR-HD4D20 units feature detachable power supply cables.*
   - *VMR-HD4D30 units feature attached power supply cables with NEMA L6-30P Plugs.*
   - *VMR-HD4D32 units feature attached power supply cables with IEC 60309 Plugs.*

2. **Power Circuit B - Power Inlet:** Supplies power to VMR control functions and Circuit "A" outlets. Please refer to the notes under item 1 above.

3. **Power Circuit A - Switched Outlets:** AC Outlets that can be switched On, Off, rebooted or set to default state in response to user commands.

4. **Power Circuit B - Switched Outlets:** Same as Item 3 above.

5. **Alarm Indicator Lights:** Two LEDs which light when an alarm condition is detected at the corresponding power circuit. For information on Alarm Configuration, please refer to the WTI Firmware Guide.

6. **SetUp Port:** An RJ45 RS232 serial port (DCE configuration) used for connection to a local terminal or external modem, as described in Section 4.3. For a description of the Setup Port interface, please refer to Appendix B.

7. **Network Port:** An RJ45 Ethernet port for connection to your 10/100/1000Base-T, TCP/IP network. Note that the Network Port also includes two, small LED indicators for Link and Data Activity. For more information on Network Port configuration, please refer to the WTI Firmware Guide.
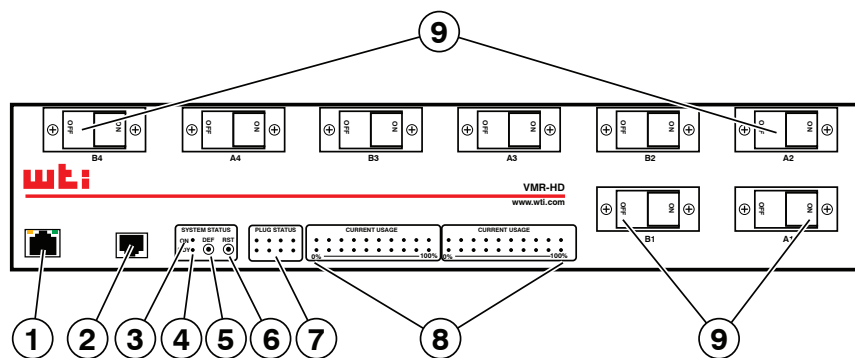
Figure 2.5: VMR-HD4D-8 Series - Front Panel

2.5. VMR-HD4D-8 Series - Front Panel

As shown in Figure 2.5, the VMR-HD4D-8 Series Front Panel includes the following components:

1. **Network Port:** An RJ45 Gigabit Ethernet port for connection to your 10/100/1000Base-T, TCP/IP network. Note that the Network Port also includes two, small LED indicators for Link and Data Activity. For more information on Network Port configuration, please refer to the WTI Firmware Guide.

2. **SetUp Port:** An RJ45 RS232 serial port (DCE configuration) used for connection to a local terminal or external modem, as described in Section 4.3. For a description of the Setup Port interface, please refer to Appendix B.

3. **"ON" Indicator:** An LED which lights when power is applied to the VMR.

4. **"RDY" Indicator:** (Ready) Flashes if unit is ready to receive commands.

5. **Default Button:** Toggles outlets On/Off or resets unit to factory default parameters as described in Section 2.11.

6. **Reset Button:** Reboots and/or resets the VMR to factory defaults as described in Section 2.11.

7. **Output Status Indicators:** LEDs light when corresponding outlet is switched On.

8. **Current Usage Indicators:** Ten LEDs which light to indicate total current usage by each Power Circuit. The first LED lights when 0% to 9% of maximum rated current is used, and the last LED lights when over 100% of maximum rated current is used.

9. **Circuit Breakers:** Eight circuit breakers. Each circuit breaker protects one of the switched outlets on the VMR-HD4D-8 Back Panel.
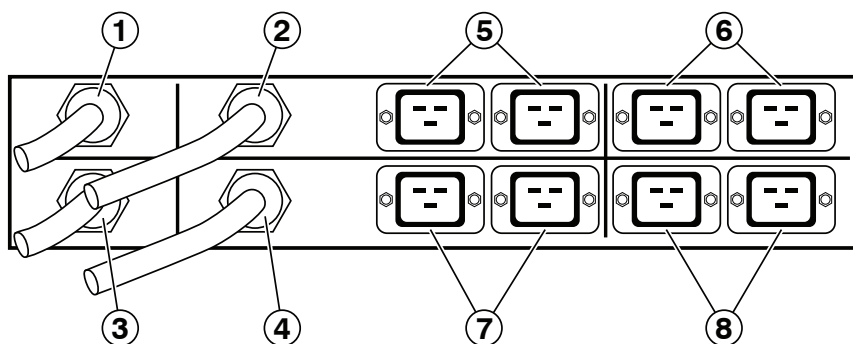
Figure 2.6: VMR-HD4D-8 Series - Back Panel

2.6.   VMR-HD4D-8 Series - Back Panel

As shown in Figure 2.6, the VMR-HD4D-8 Series Back Panel includes the following components:

Power Inlets:
Each inlet provides power to the two switched outlets on the corresponding branch.

Notes:
* *VMR-HD4D30-8 units feature attached power supply cables with NEMA L6-30P Plugs.*
* *VMR-HD4D32-8 units feature attached power supply cables with IEC 60309 Plugs.*

1. **Branch A1-A2 Power Inlet:** Supplies power to outlets A1 and A2.

2. **Branch A3-A4 Power Inlet:** Supplies power to outlets A3 and A4.

3. **Branch B1-B2 Power Inlet:** Supplies power to outlets B1 and B2.

4. **Branch B3-B4 Power Inlet:** Supplies power to outlets B3 and B4.

Switched Power Outlets:
Each pair of switched IEC 60320 C19 outlets draws power from the corresponding branch power inlet.

5. **Branch A1-A2 - Switched Power Outlets:** Outlets A1 and A2 draw power from the Branch A1-A2 Power Inlet.

6. **Branch A3-A4 - Switched Power Outlets:** Outlets A3 and A4 draw power from the Branch A3-A4 Power Inlet.

7. **Branch B1-B2 - Switched Power Outlets:** Outlets B1 and B2 draw power from the Branch B1-B2 Power Inlet.

6. **Branch B3-B4 - Switched Power Outlets:** Outlets B3 and B4 draw power from the Branch B3-B4 Power Inlet.
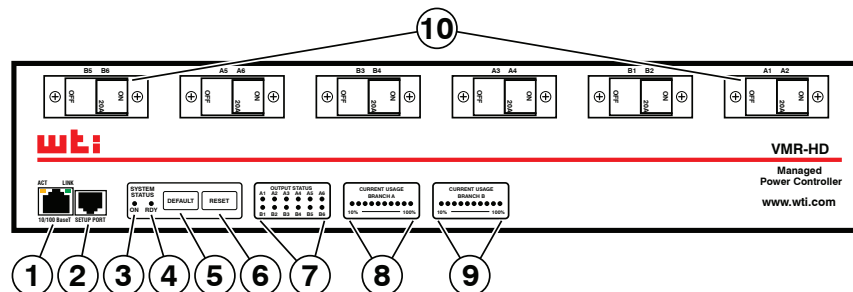
Figure 2.7: VMR-12B Series - Front Panel (Model VMR-HD4D32-12B Shown)

2.7. VMR-12B Series - Front Panel

As shown in Figure 2.7, the VMR-12B Series Front Panel includes the following components:

1. **Network Port:** An RJ45 Ethernet port for connection to your 10/100/1000Base-T, TCP/IP network. Note that the Network Port also includes two, small LED indicators for Link and Data Activity. For more information on Network Port configuration, please refer to the WTI Firmware Guide.

2. **SetUp Port:** An RJ45 RS232 serial port (DCE configuration) used for connection to a local terminal or external modem, as described in Section 4.3. For a description of the Setup Port interface, please refer to Appendix B.

3. **"ON" Indicator:** An LED which lights when power is applied to the VMR.

4. **"RDY" Indicator:** (Ready) Flashes if unit is ready to receive commands.

5. **Default Button:** Toggles outlets On/Off or resets unit to factory default parameters as described in Section 2.11.

6. **Reset Button:** Reboots and/or resets the VMR to factory defaults as described in Section 2.11.

7. **Output Status Indicators:** LEDs light when corresponding outlet is switched On.

8. **Branch A Current Usage:** Ten LEDs which light to indicate total current usage by Power Circuit A. The first LED lights when 0% to 9% of maximum rated current is used, and the last LED lights when over 100% of maximum rated current is used.

9. **Branch B Current Usage:** Same as Item 7 above, except displays values for Power Circuit B.

10. **Circuit Breakers:** Six circuit breakers, which protect Branches A and B.
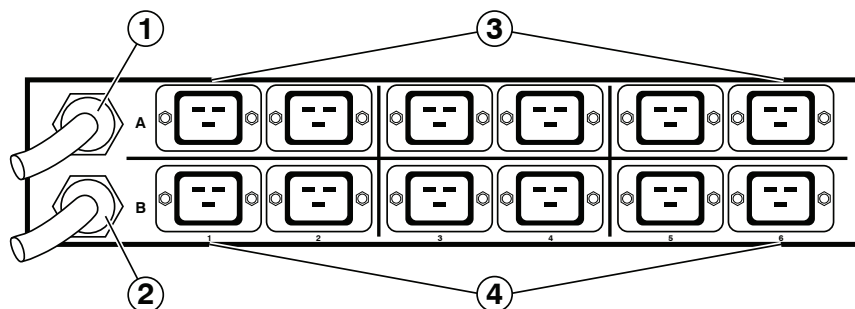
Figure 2.8: VMR Series - Back Panel (Model VMR-HD4D32-12B Shown)

2.8.   VMR-12B Series - Back Panel

As shown in Figure 2.8, the VMR-12B Series Back Panel includes the following components:

1.   **Power Circuit A - Power Inlet:** An IEC320-C20 AC inlet which supplies power to VMR control functions and Circuit "A" outlets.

Notes:
- *VMR-HD4D30-12B series units feature attached power supply cables with NEMA L6-30P plugs.*

- *VMR-HD4D32-12B units feature attached power supply cables with IEC 60309 plugs.*

2.   **Power Circuit B - Power Inlet:** An IEC320-C20 AC inlet which supplies power to VMR control functions and Circuit "B" outlets.

3.   **Power Circuit A - Switched Outlets:** AC Outlets that can be switched On, Off, rebooted or set to default state in response to user commands.

4.   **Power Circuit B - Switched Outlets:** Same as Item 3 above.

Figure 2.9: VMR-8H20-ATS Series - Front Panel (Model VMR-8H20-ATS-1 Shown)

2.9.   VMR-8H20-ATS Series - Front Panel

As shown in Figure 2.9, the VMR-8H20-ATS Series Front Panel includes the following components:

1.   **SetUp Port:** An RJ45 RS232 serial port (DCE configuration) used for connection to a local terminal or external modem, as described in Section 4.3. For a description of the Setup Port interface, please refer to Appendix B.

2.   **Network Port:** An RJ45 Ethernet port for connection to your 10/100/1000Base-T, TCP/IP network. Note that the Network Port also includes two, small LED indicators for Link and Data Activity. For more information on Network Port configuration, please refer to the WTI Firmware Guide.

3.   **"ON" Indicator:** An LED which lights when power is applied to the VMR.

4.   **"RDY" Indicator:** (Ready) Flashes if unit is ready to receive commands.

5.   **Default Button:** Toggles outlets On/Off or resets unit to factory default parameters as described in Section 2.11.

6.   **Reset Button:** Reboots and/or resets the VMR to factory defaults as described in Section 2.11.

7.   **Output Status Indicators:** LEDs light when corresponding outlet is switched On.

8.   **Current Usage Indicators:** Ten LEDs which light to indicate total current usage by each Power Circuit. The first LED lights when 0% to 9% of maximum rated current is used, and the last LED lights when over 100% of maximum rated current is used.
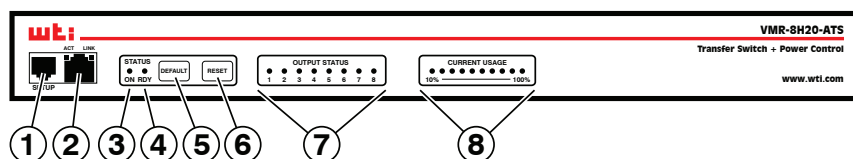
Figure 2.10: VMR-8H20-ATS Series - Back Panel (Model VMR-8H20-ATS-1 Shown)

2.10. VMR-8H20-ATS Series - Back Panel

As shown in Figure 2.10, the VMR-8H20-ATS Series Back Panel includes the following components:

Power Inlets:
Each inlet provides power to the eight switched outlets. If power to either inlet is interrupted, the VMR will automatically draw power from the remaining inlet. Note that each Power Inlet includes mounting hardware for a Cable Retainer Clip.

1. **Primary Power Inlet**

    • VMR-8H20-1-ATS Units: IEC 60320 C20 inlet, for 100/120V power.
    • VMR-8H20-2-ATS Units: IEC 60320 C20 inlet, for 200/240V power.

2. **Secondary Power Inlet**

    • VMR-8H20-1-ATS Units: IEC 60320 C20 inlet, for 100/120V power.
    • VMR-8H20-2-ATS Units: IEC 60320 C20 inlet, for 200/240V power.

3. **Switched Power Outlets:** Eight switched power outlets that draw power from the the Primary Power Inlet and the Secondary Power Inlet.

    • VMR-8HD20-1 Units: Eight NEMA 5-15R Outlets.
    • VMR-8HD20-2 Units: Eight IEC 60320 C13 Outlets

2.11. Additional Button Functions

The Default and Reset buttons on the VMR front panel can be used to perform the functions described below:

Notes:

- *All Front Panel Button functions can also be disabled via the System Parameters menu, as described in the* <u>*WTI Firmware Guide*</u>*.*

- *When the VMR is reset to factory defaults, all user-defined configuration parameters will be cleared, and the default "super" user account will also be restored.*

1. **Reboot Operating System:**

   a) Press and hold the Reset button for five seconds, and then release it.

   b) The VMR will reboot it's operating system; all plugs will be left in their current On/Off state.

2. **Set Parameters to Factory Defaults:**

   a) Simultaneously press both the Default button and the Reset button, hold them for five seconds, and then release them.

   b) All VMR parameters will be reset to their original factory default settings, and the unit will then reboot. All plugs will be left in their current On/Off state.

3. **Toggle/Default All Plugs:**

   a) Press the Default button, hold it for five seconds, and then release the Default Button.

   b) The VMR will switch all plugs to the Off state. If all plugs are already in the Off state, then the unit will reset all plugs to their user defined default states.

3. Getting Started

This section describes a simplified bench test procedure for VMR Series products, which will allow you to communicate with the unit in order to demonstrate basic features and check for proper operation.

- For more information regarding installing the VMR hardware in a working network environment, please refer to Section 4.

- For instructions regarding configurations options and advanced operating features, please refer to the WTI Firmware Guide.

3.1. Apply Power to the VMR

First, check the safety precautions listed at the beginning of this Hardware Guide, and refer to the power rating label on the unit regarding power requirements and maximum load and then connect the VMR to an appropriate power source. Note that some VMR Series products feature two or more power inlets. When power is applied to the VMR, the ON LED on the instrument front panel should light, and the RDY LED should begin to flash within 90 seconds, indicating that the unit is ready to receive commands.

Notes:
- *To determine the exact model number and power requirements for your VMR unit, refer to the nameplate on the back of the unit.*
- *VMR-HD4D-8 Series units include four power inlets.*

3.2. Connect Your Computer to the VMR

In the default state, communication with the VMR via Telnet, HTTP and HTTPS are disabled. Although communication via Telnet, HTTP and/or HTTPS can be enabled as described in the WTI Firmware Guide, during this bench test procedure, the VMR will be controlled via the Command Line Interface (CLI) using a local PC, connected to either the Serial SetUp Port or Network Port:

- **Serial SetUp Port:** Use the Ethernet Cable and Adapter supplied with the VMR. In the default state, the Serial SetUp Port is configured for 9600 bps.

- **Network Port:** Use the Ethernet Cable supplied with the unit. The default IPv4 address for the Network Port is 192.168.168.168.

3.3. Communicating with the VMR

Notes:
- *Default serial port parameters are set as follows: 9600 bps, RTS/CTS Handshaking, 8 Data Bits, One Stop Bit, No Parity. Although these parameters can be easily redefined, for this bench test procedure, it is recommended to configure your communications program to accept the default parameters.*

- *The VMR features a default IP Address (192.168.168.168) and a default Subnet Mask (255.255.255.0.) This allows network IPv4 access to the Command Line Interface, providing that you are contacting the VMR from a node on the same subnet.*

1. **Access the User Interface:** Start your communications program, (e.g., Tera Term, PuTTy, etc.,) then press **[Enter]**.

2. **Username** / **Password Prompt:** A message will be displayed, which prompts you to enter your username (Login) and password. The default username is "`super`" (all lower case, no quotes), and the default password is also "`super`". If a valid username and password are entered, the VMR will display either the Main Menu (Web Browser Interface) or the Port Status Screen (Text Interface.)

3.4. Controlling Power Outlets

If you wish to verify that the VMR is operating properly before deploying the unit in a working network environment, proceed as follows to connect ports and switch outlets:

1. **Review the Help Menu:** At the Text Interface command prompt, type `/H` and press **[Enter]** to display the Help Menu.

2. **Controlling Power Outlets:** You may wish to perform the following tests in order to make certain that the switched outlets are functioning properly.

   a) **Reboot Outlet:** At the command prompt, type `/BOOT 1` and press **[Enter]**. The status indicator for Plug 1 should go Off, pause for a moment and then go back On, indicating that the boot cycle has been successfully completed.

   b) **Switch Outlet Off:** At the command prompt, type `/OFF 1` and then press **[Enter]**. The status indicator for Plug 1 should go Off, indicating that the command has been successfully completed. Leave Plug 1 in the "Off" state, and then proceed to the next step.

   c) **Switch Outlet On:** At the command prompt, type `/ON 1` and press **[Enter]**. The status indicator for Plug 1 should then go back On, indicating that the command has been successfully completed.

3. **Exit from User Interface:** To exit the user interface, type `/X` and press **[Enter]**.

4. Hardware Installation

This section describes the installation procedure for the VMR hardware.

> **Note:** *For a detailed description of configurations options and advanced operating features, please refer to the WTI Firmware Guide.*

4.1. Connecting the VMR to Your Power Supply

⚠ **CAUTIONS:** ⚡

- *Before attempting to install this unit, please review the warnings and cautions listed at the front of the user's guide.*

- *This device should only be operated with the type of power source indicated on the instrument nameplate. If you are not sure of the type of power service available, please contact your local power company.*

- *Reliable earthing (grounding) of this unit must be maintained. Particular attention should be given to supply connections when connecting to power strips, rather than directly to the branch circuit.*

- *VMR models may include up to four power inlets to allow connection to multiple power supplies.*

4.1.1. Installing the Power Supply Cable Keepers

The VMR includes cable keepers, which are designed to prevent the power supply cables from being accidentally disconnected from the unit.

- **VMR-8HD Series Units:** Cable keepers must be installed by the user.

  1. First make certain that both of the VMR's two power cables are disconnected from the power source.

  2. Install the two standoff screws (included with the cable keeper) in the two vacant screw holes, located between the two power inlets. When the standoff screws are in place, thread the two screws supplied with the cable keeper into the top end of both of the standoff screws.

  3. Connect the power cables to the power inlets. Check to make sure that both cables are firmly seated in the power inlet connectors.

  4. Install the cable keeper plate, by slipping the plate over the two screws which protrude from the top of the standoffs. Slip the cable keeper plate into place, so that the notches in the bottom of the plate slip over the power cables, and the holes in the middle of the plate align with the screws in the tops of the standoffs.

  5. Tighten the two screws into the standoffs to secure the plate and the power supply cables to the unit. Check to make certain that the cables are held firmly in place by the cable keepers.

- **VMR-8HS, VMR-16HD, VMR-HD4D, VMR-HD4D-8 & VMR-8H20-ATS Series Units:** These units include pre-installed cable keepers. When attaching the power supply cables to the unit, first swing the cable keepers out of the way, then plug the power cables securely into the power inputs. When the cables are in place, snap the cable keepers over each plug to secure the cables to the unit.

4.1.2. Connect the VMR to Your Power Supply

Refer to the cautions listed below and at the beginning of this User's Guide, and the information on the instrument name plate, and then connect the VMR unit to an appropriate power supply.

> **Note:** *Some VMR units are shipped with one or two detachable 125 VAC, 15 Amp "Starter" Cables. These cable(s) will allow you to connect a 120 VAC VMR unit to power for bench testing and initial start up and are adequate for applications that only require 15 Amps. For higher amp power switching applications, please refer to the WTI Power Cable Guide (which can be found at https://www.wti.com/guides/powercables_refguide.pdf.)*

4.2. Connection to Switched Outlets

Connect the power cord from your switched device to one of the AC Outlets on the VMR unit. Note that when power is applied to the VMR, the AC Outlets will be switched "ON" by default. Note that some VMR models include up to four separate power branches, while others feature only one power branch.

4.3. Serial SetUp Port Connection

The VMR SetUp Port is a female, RJ45 RS232 connector, wired in a DCE configuration. In the default state, the Setup port is configured for 9600 bps, no parity, 8 data bits, 1 stop bit. The Setup Port can be connected to either an external modem or a local PC, but not both items at the same time. Appendix B describes the Setup Port interface.

4.3.1. Connecting a Local PC

Use the DX9F-WTI Adapter supplied with the unit to connect your PC COM port to the VMR Setup Port. Make certain that the Serial Port Mode is set to "Normal" as described in the WTI Firmware Guide.

4.3.2. Connecting an External Modem

When connecting directly to an external modem, use the optional DX9M-RJ-KIT (not included) to connect your external modem to the VMR Setup Port. Make certain that the modem is initialized at the same default parameters as the VMR Setup Port and that the VMR Serial Port Mode is set to "Modem" as described in the WTI Firmware Guide.

4.4.   Connecting the Network Cable

The Network Port is an RJ45 Ethernet jack, for connection to a TCP/IP network. Connect your network cable to the Ethernet Port on the VMR unit. VMR units include a default IPv4 format IP address (192.168.168.168) and a default IPv4 protocol subnet mask (255.255.255.0.) When installing the VMR in a working network environment, it is recommended to define network parameters as described in the WTI Firmware Guide.

> **Note:** *The VMR features a 10/100/1000Base-T auto-negotiating Interface; speed and duplex mode will be automatically negotiated. When connecting to an Ethernet interface, most router switches will autosense to determine if the device is 1000Base-T, 100Base-T or 10Base-T, and then configure the network interface accordingly. If your router switch does not autosense, the VMR will auto negotiate speed and duplex mode.*

4.5.   Emergency Shut Off Function

VMR Series units also include an Emergency Shut Off function, that can be used to immediately shut off all VMR power outlets in case of emergency. For more information regarding the Emergency Shut Off feature, please contact WTI Tech Support at service@wti.com.

This completes the VMR Hardware Guide. Prior to placing the unit into operation, it is recommended to refer to the WTI Firmware Guide for important information regarding advanced configuration options, security functions and more detailed operation instructions. If you have further questions regarding the VMR unit, please contact WTI Customer Support as described in Appendix C.

Appendix A.   Specifications

Physical/Environmental:
VMR-4HS Series:
Width: 19" (48.3 cm) (Including Rack Brackets)
Depth: 6.5" (16.5 cm)
Height: 1.75" (4.5 cm) One Rack U
VMR-8HS Series, VMR-8HD Series, VMR-HD4D Series, VMR-8H20-ATS Series:
Width: 19" (48.3 cm) (Including Rack Brackets)
Depth: 8.7" (22.1 cm)
Height: 1.75" (4.5 cm) One Rack U
VMR-HD4D-8 Series:
Width: 19" (48.3 cm) (Including Rack Brackets)
Depth: 12.25" (31.1 cm)
Height: 3.5" (8.9 cm) Two Rack U
VMR-16HD Series, VMR-HD4D-12B Series:
Width: 19" (48.3 cm) (Including Rack Brackets)
Depth: 8.7" (22.1 cm)
Height: 3.5" (8.9 cm) Two Rack U

Operating Temperature: 32°F to 122°F (0°C to 50°C)
Humidity: 10 - 90% RH
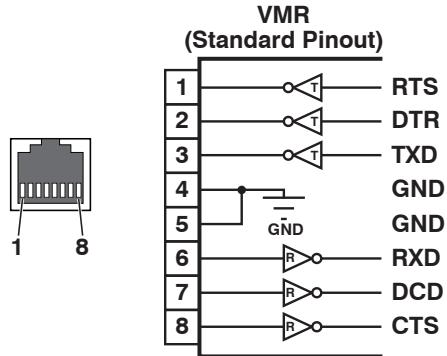
Appendix B.   Serial Interface Description

VMR
(Standard Pinout)

1	RTS
2	DTR
3	TXD
4	GND
5	GND
6	RXD
7	DCD
8	CTS

Figure B.1: VMR Series RS232 Port Interface (RJ45 - Standard Pinout)

B.1. Serial Port (RS232)

DCD and DTR hardware lines function as follows:

1. **When connected:**

   a)   If either port is set for Modem Mode, the DTR output at either port reflects the DCD input at the other end.

   b)   If *neither* port is set for Modem Mode, DTR output is held high (active).

2. **When not connected:**

   a)   If the port is set for Modem Mode, upon disconnect DTR output is pulsed for 0.5 seconds and then held high.

   b)   If the port is *not* set for Modem Mode, DTR output is controlled by the DTR Output option (Serial Port Parameters Menu, Option 23). Upon disconnect, Option 23 allows DTR output to be held low, held high, or pulsed for 0.5 seconds and then held high.

Appendix C.   Customer Service

Customer Service hours are from 8:00 AM to 5:00 PM, PST, Monday through Friday. When calling, please be prepared to give the name and make of the unit, its serial number and a description of its symptoms. If the unit should need to be returned for factory repair it must be accompanied by a Return Authorization number from Customer Service.

WTI Customer Service
5 Sterling
Irvine, California   92618

Local Phone: (949) 586-9950
Toll Free Service Line: 1-888-280-7227
Service Fax: (949) 583-9514

Email: service@wti.com

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January, 2019
Part Number: 14530,   Revision: A

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