Westell® OmniPak™ 8
28MA208A Series of 8-Slot, Universal, Data Mounting Assemblies

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1. GENERAL

1.1 Document Purpose

This document describes the Westell OmniPak™ 8 8-Slot, Universal, Data Mounting Assemblies, models 28MA208A and 28MA208AP. A typical model is shown in Figure 1.

- NOTE -
Hereafter, both models may be commonly referred to as the "OmniPak ™ 8" or "the assembly." Specific model numbers will be used where differences apply.

1.2 Document Status

Whenever this practice is updated, the reason will be stated in this paragraph. This practice replaces document 030-101467 for the 28MA208A and 28MA208AP OminPak™ 8 models.

1.3 Product Purpose and Description

The OmniPak™ 8 is a compact, universal, data mounting assembly that houses either four 400-type plug-in modules or up to eight half-width (200 MECHANICS®-type) plug-in modules, plus an optional AC power supply. The OmniPak™ 8 can be used in a variety of applications, depending on the type of plug-in module(s) installed in it. Installed modules may be any of the following types.

- T1 Network Interface Units (NIUs)
- HDSL Remote units (HTU-R)
- Digital Data System Network Interface Units (DDS-NIUs)
- DSTs in analog data service applications
- Any combination of the above four items

- NOTE -
*To maintain the UL Listing of these mountings, **only** UL recognized modules are to be used.*

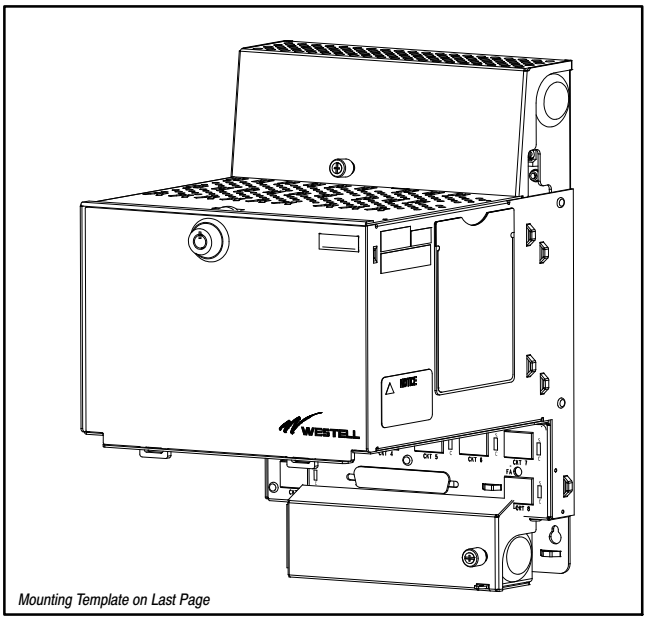


Figure 1. Isometric Front View of OmniPak™ 8, Model 28MA208A

A variety of input and output wiring options are included to facilitate installation. Some models include a power supply for local power applications, and all models provide an input for external local power. The OmniPak™ 8 offers security features to help prevent unauthorized access to the plug-in modules and the Facility/Telco wiring area (see Table 1). Modules installed in the mounting assembly can be either span or locally powered.

1.4 Product Mounting

The OmniPak™ 8 is typically mounted to a wall or an equipment backboard at the customer premises. See Table 1 and Part 3 for more information.

1.5 Product Features

The OmniPak™ 8 offers the following features.

- UL 60950 certification by an NRTL
- NEBS Level 3 certified
- CAN/CSA-C22.2 No. 60950-00
- Compact, wall-mount enclosure

Model Number[1]	CLEI* Code	CPR/ Barcode	Network Connector Types		Customer Connector Types			Power Supply	Key Lock
			Wirewrap	25-pair Telco	Wirewrap	25-pair RJ48H	RJ48C/S		
28MA208A	NCM48S0DRA	N70493/442359	X	X	X	X	X		X
28MA208AP	NCM48T0DRA	N70502/442418	X	X	X	X	X	X	X

*Notes: 1. Model numbers are the base of the part numbers but without the prefix (i.e., "A90-"). 2. All assemblies accommodate up to 8 half-width (200 MECHANICS®) modules or 4 full-width (400-type) modules. 3. All assemblies provide a lead-seal lock. * CLEI is a trademark of Telcordia Technologies.*

Table 1. Ordering and Option Information

- 8-circuit capacity with 200 MECHANICS® modules *(accepts both 400-type and 200-type modules)*
- 9th slot for 48 VDC power supply module
- Used in digital or analog data applications
- Metal construction, with ventilation holes
- Key-locking front door for module-compartment *(with see-through window and lead seal lock)*
- Secure covers for Facility and Customer wiring areas *(also contains lead seal)*
- Barrier strip/terminal block for external power source
- Variety of input/output wiring options
- Facility wirewrap and 25-pair cable connectors
- Customer wirewrap, RJ48C/S, and RJ48H connectors
- Eight, module, card-edge connectors
- 2-Amp fuse and fuse alarm LED
- Built-in wall-mount brackets *(one-piece backplate)*
- Strain relief wiring grommets at cable entrance holes
- Strategically-located cable tie-downs *(ties included)*
- Ground lug *(requires #6 AWG copper wire)*
- Circuit ID card and clear, plastic, card packet

2. OPTIONS & FEATURES

This part describes each OmniPak™ 8 feature or option; Part 3 provides information for each feature which requires installer wiring connections.

2.1 Exterior Features

The OmniPak™ 8 contains features and options accessible or visible from the assembly exterior (see the paragraphs below).

2.1.1 Facility Compartment & Power Wiring Cover

A protective and secure metallic cover for the Facility connectors and the power and ground connectors is provided at the top of the OmniPak™ 8. The cover is removed by loosening the thumb-type screw; however, the module door also must be opened to release (unlock) an internal lock for this cover (a long push-pin at the top of the module compartment slides into an interior locking flange on the cover when the module door is closed).

2.1.2 Module Front Door

The OmniPak™ 8 provides a removable protective door for the modules which doubles as a see-through window to enable the installer to easily view the modules' status LEDs, for testing purposes. A keyed lock secures the cover, to limit access to the installed modules. When the module door is locked or closed, the facility compartment cover cannot be opened.

2.1.3 Customer Wirewrap Compartment

A protective and secure metallic cover for the Customer wirewrap-pin connectors is provided at the bottom of the OmniPak™ 8. The cover is opened by loosening the thumb-type screw. If the RJ48C/S/H connector(s) are used for customer connections, this compartment will not need to be opened.

2.1.4 Circuit ID Card and Card Sleeve

A circuit identification card and a clear plastic card packet is provided for customer convenience, to help the user identify the cards that are installed in the OmniPak™ 8.

2.1.5 Built-in Mounting Brackets

A metal backplate at the rear of the OmniPak™ 8 contains built-in mounting brackets with pre-drilled, key-slotted, mounting holes. Two mounting holes are at the top and two are at the bottom. To access the top mounting holes, the Facility Compartment cover must be removed.

2.1.6 Cable Strain-Relief Grommets & Access Holes

A round cut-out near the top, right side of the assembly provides Facility and power wiring/cable access through a strain-relief grommet. A similar cut-out, with a strain-relief grommet, is located at the bottom right side of the assembly, for customer wiring and cabling access. A third cable access "opening" is provided and created at the top right side when the Facility Compartment cover is secured in place (best seen in Figure 1). This opening is for larger and stiffer cables, like the Telco 25-pair cables and the AC power cord of the power supply module.

2.1.7 Fuse Alarm LED

An FA Fuse Alarm LED is provided as an indication that the internal fuse is open. This red LED is located in the customer wiring area by the RJ48C/S jacks (refer to Figure 2). When this LED is lit, it indicates the internal 2 Amp fuse is open.

- NOTE -

The customer RJ48C/S jacks and the 25-pair RJ48H connector at the bottom of the assembly can be accessed from the exterior, however these are explained under Paragraph 2.2.6, hereafter.

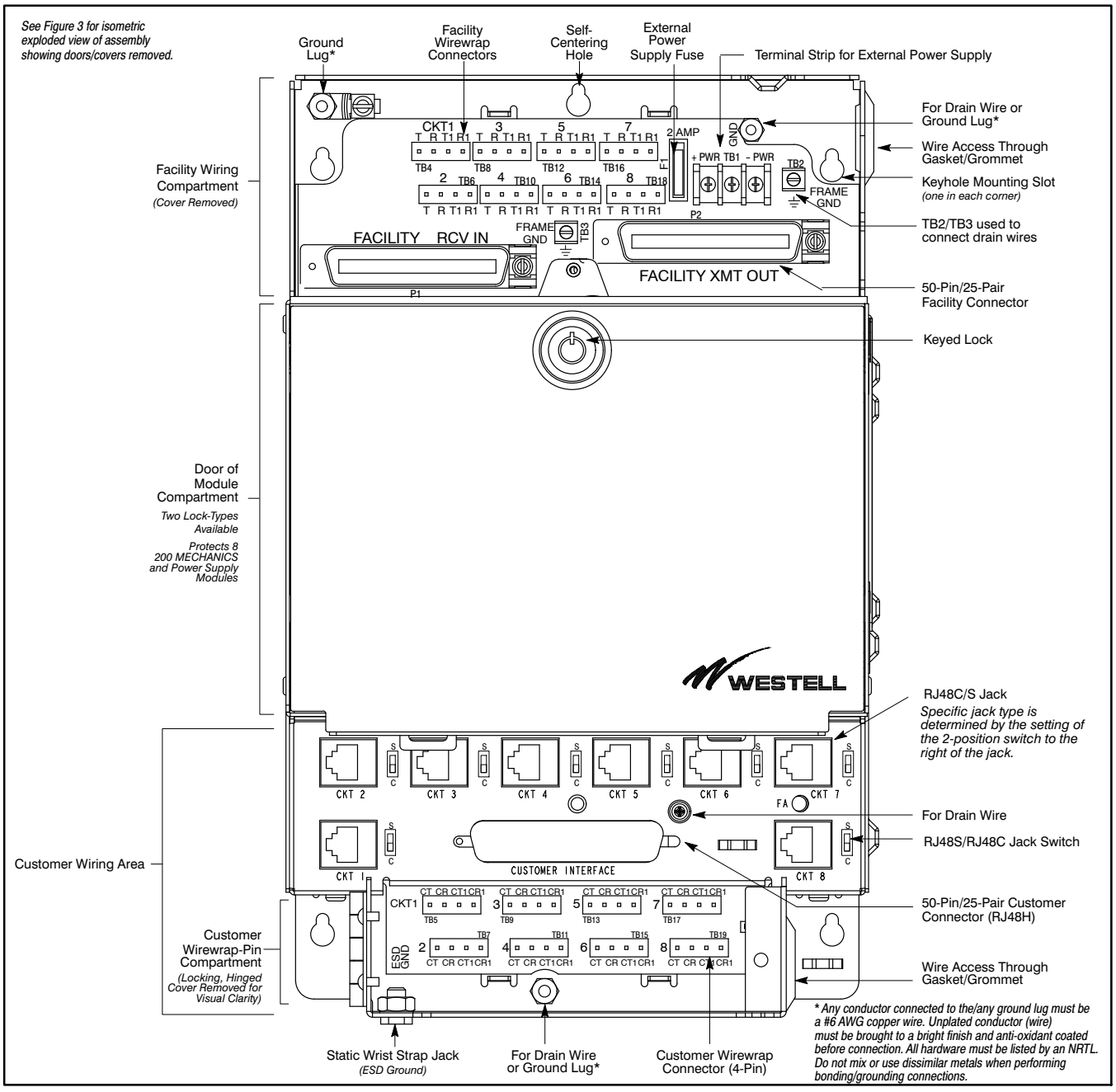


Figure 2. Exploded View of OmniPak™ 8

2.1.7.1 RJ48C/S Jacks (See Paragraph 2.2.6.2)

Under the module compartment are eight, exterior-accessible, RJ48C/S jacks and accompanying switches. See Paragraph 2.2.6.2 for a description of these interior-access options.

2.1.7.2 RJ48H 50-Pin Connector (See Paragraph 2.2.6.3)

Under the module compartment is a single, exterior-accessible, 25-pair, RJ48H connector for customer connections. See Paragraph 2.2.6.3 for a description of this particular customer connection option.

2.2 Interior Features

The OmniPak™ 8 contains various features accessed from the interior of the assembly. Some of these features are shown in Figure 2 and explained in the paragraphs that follow.

2.2.1 Plug-in Module Mounting Slots

2.2.1.1 The OmniPak™ 8 can accommodate up to eight 200 MECHANICS®-type modules (or four 400-type modules) and thus provides eight mounting slots, complete with card guides and eight, 56-pin, card-edge connectors. The first, left-most slot of the OmniPak™ 8 corresponds with RJ48C/S jack CKT 1 or wirewrap pin connector CKT 1. The last, right-most slot corre-

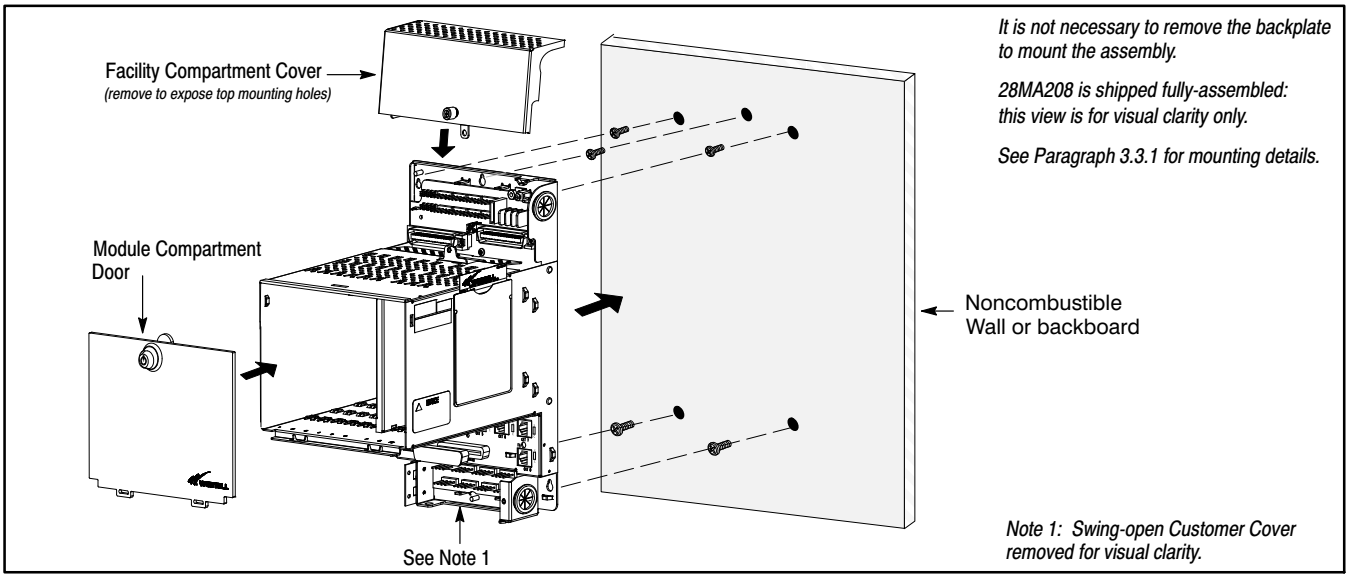


Figure 3. Exploded View, Showing Compartments Doors/Covers Removed and Showing Mounting Hole Locations

sponds with RJ48C/S jack or wirewrap pin connector CKT 8. When 400-type modules are installed in the mounting, use odd-numbered slots or circuits. Ventilation/air convection holes at the top and bottom of the OmniPak™ 8 allow module-produced heat to escape or dissipate.

2.2.1.2 A ninth module slot is provided in the OmniPak™ 8 for an optional power supply module. The slot is the right-most slot, labelled "PS" for Power Supply. Route the power supply cable through the cable access hole at the rear of the slot before inserting the module.

2.2.2 External Power Supply Fuse

When using an external power supply to power the mounting, a 2 Amp fuse, F1, located in the top Facility Compartment area next to TB1, is provided to protect the mounting against overvoltage or power surge.

2.2.3 Ground Lug

Two threaded studs and locking nuts (for optional ground lug placement) are located at the top of the assembly, under the Facility Compartment Cover, as shown in Figure 2, as well a third stud and nut located at the bottom of the assembly under the Pin Cover Door. The ground lug accepts a #6 AWG copper ground wire. See Figure 4 and Figure 5 for more wiring details.

- GROUNDING NOTES -

Always follow local safety precautions and standard operating procedures for grounding the equipment when installing, upgrading, or maintaining equipment. Any instructions or information contained herein is subordinate to local codes and operating procedures or practices.

To maintain the UL Listing of these mountings, observe the following when performing all grounding/bonding connections:

- ☐ *Only use conductors containing a like or similar metal type: do not intermix metals.*
- ☐ *Any unplated conductor (attached to ground lug) shall be brought to a bright finish and then coated with an anti-oxidant prior to connection.*
- ☐ *All grounding/bonding hardware must be listed by an NRTL.*
- ☐ *#6 AWG copper wire should be used.*

2.2.4 Power/Ground Screw Terminal Block

For external power applications, a 3-position screw terminal block is provided and located under the Facility Compartment cover for power and ground connections. The left position is labelled "+PWR-" and is for connection to the +V terminal of a power supply. The middle position is labelled "GND" and is for connection to earth ground. The right position is labelled "-PWR" and is for connection to the -V terminal of the power supply. See Figure 4 and Figure 5 for more wiring details for this terminal block.

2.2.5 Facility Connections

Two types of connectors are available for Facility connections: either 4-pin wirewrap connectors or 50-pin/25-pair Telco connectors, as described hereunder. Both are located under the protective Facility Compartment cover (Paragraph 2.1.1) at the top of the mounting, as shown in Figure 3. Note that the assembly is designed so that this cover cannot be removed unless the module compartment door is open (a long push-pin slides

into an interior locking flange on the cover when the module door is closed).

2.2.5.1 Facility 4-Pin Wirewrap Connectors

Eight, 4-pin wirewrap connectors are available for Facility connections on the OmniPak™ 8. These connectors are located under the Facility Compartment cover near the top of the PCB. The connectors are labelled CKT1 through 8, one for each circuit. Each connector has pins for "T", "R", "T1", and "R1".

2.2.5.2 Facility 50-Pin/25-Pair Connectors

Two 50-pin/25-pair Telco connectors for Facility connections are also located under the Facility Compartment cover (Paragraph 2.1.1) at the top of the mounting. The left connector, P1, is labelled FACILITY RCV IN. The right connector, P2, is for FACILITY XMT OUT.

2.2.6 Customer Connections

For ease of use, three types of connectors are available for Customer connections: either wirewrap pins, RJ48C/S jacks, or one 25-pair RJ48H-type connector, as described hereunder.

2.2.6.1 Customer 4-Pin Wirewrap Connectors

On each OmniPak™ 8, in a separate internal compartment under the assembly's module area, are eight, 4-pin, wirewrap connectors for customer connections. These connectors are located under a Customer Wirewrap Pin cover (Paragraph 2.1.3) at the bottom of the mounting. The connectors are labelled CKT1 through 8, one for each circuit. Each connector has pins for "CT", "CR", "CT1", and "CR1". A cut-out near the bottom, right side of the assembly provides Customer wirewrap pin wiring access through a strain-relief gasket or grommet.

2.2.6.2 RJ48C/S Jacks (Exterior Access)

Under the module compartment of the OmniPak™ 8 are eight RJ48C/S jacks for customer connections. The jacks are labelled CKT 1 (corresponds with slot/circuit 1) through CKT 8 (corresponds with slot/circuit 8). A 2-position switch, labelled "S" at the top and "C" at the bottom, is provided immediately to the right of each RJ jack, which options the jack for either RJ48S or RJ48C functionality.

2.2.6.3 RJ48H 50-pin/25-pair Connector (Exterior Access)

A third method for making customer connections is through an RJ48H-type, 25-pair connector, located under the module compartment near the bottom of the assembly, labelled "CUSTOMER INTERFACE".

3. INSTALLATION

Installation consists of inspecting the equipment for damages, following proper safety precautions, gathering the required tools and equipment, determining the mounting location, mounting the OmniPak™ 8, and making all appropriate grounding, power, and wiring connections. The following paragraphs provide detailed instructions for performing these procedures.

- INSPECTION NOTE -

Visually inspect the unit for damages prior to installation. If the equipment was damaged in transit, immediately report the damage to the transportation company and to Westell.

3.1 Following Safety Precautions

CAUTION

Risk of electric shock. Voltages up to 140 VDC (with reference to ground) may be present on telecommunications circuits.

- PRECAUTIONARY STATEMENT -

- **Never install telephone wiring during a lightning storm.**
- **Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.**
- **Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.**
- **Use caution when installing or modifying telephone lines.**
- **This equipment is intended to be used behind devices that provide primary lightning protection.**
- **This installation should conform to NEBS (New Equipment Building Specification) requirements and in accordance with NEC and Local Codes, as required.**
- **This equipment is to be installed in a restricted access location.**

Important Safety Instructions (Please Save)

When using your telephone/telecommunications equipment, always follow basic safety instructions to reduce risk of fire, electric shock, injury to person and damage to equipment, including the following:

CAUTION

For maximum air flow and compliance with NEBS fire safety requirements, do not dress the cables along perforated sections of the mountings top surface.

A. Read and understand all instructions.

B. Follow all warnings and instructions marked on product.

C. Do not place this product on an unstable cart, stand or table: the product may fall, causing serious damage to product.

D. *Slots and openings in the assembly are provided for ventilation. To protect it from overheating, these openings must not be blocked or covered.* This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.

E. This product should be operated only from the type of power source indicated on the marking label.

F. Never push objects of any kind into this product through holes or slots as they may touch dangerous voltage points or short out parts that could result in the risk of fire or electrical shock. Never spill liquid of any kind on the product.

3.2 Gathering Tools and Supplies

The following tools and supplies are recommended to mount or install the OmniPak™ 8.

☐ Screwdrivers *(flat-head and Phillips-head)*

☐ Screws or other appropriate wall fasteners *(see note below)*

- ☐ Utility knife
- ☐ Awl or drill with assorted bits
- ☐ Hammer
- ☐ Pliers or line cutters
- ☐ Wirewrap tool

- UL LISTED HARDWARE NOTE -

*To maintain the UL Listing of these mountings, **only** UL (or NRTL) listed hardware should be used in this installation.*

3.3 Determining the Mounting Location & Type

The OmniPak™ 8 should be installed by authorized trained personnel only. In accordance with UL 60950, this equipment is suitable for mounting on concrete or other noncombustible surfaces only and in restricted access locations only. It is also recommended that adequate horizontal and vertical space be left between multiple installations to allow for proper cable access and ventilation. The distance from the cable entry point should be consistent with local installation practices.

3.3.1 Wall-Mounting Single Assemblies (Typical)

Mount the OmniPak™ 8 per local company practice, or if none exist, per the instructions below. The OmniPak™ 8 is typically wall-mounted at the customer premises. Westell recommends mounting this OmniPak™ 8 to a backboard, concrete surface, or other noncombustible surface. The OmniPak™ 8 has a backplate with built-in mounting brackets that contain predrilled mounting holes (key-slotted holes).

1. **Expose the mounting holes on the OmniPak™ 8.** Unlock and open the assembly module door, then remove the Facility Compartment cover by loosening the thumb-type screw.
2. **Select mounting location.** Select a location on a wall which insures maximum and adequate air flow, heat dissipation, and compliance with NEBS fire safety requirements, unless otherwise dictated by local codes.
3. **Use template to mark mounted location on wall.** Find then place the mounting template (last page of this document) against the wall in the desired mounting location. With a marking utensil, mark the location of the top-center "self-centering" hole on the wall, then set aside template. *(If the self-centering feature is not desired, simply mark the locations of the four corner mounting holes through the template, then go to Step 7.)*
4. **Drill hole for self-centering hole.** Drill a hole in the wall for the single, self-centering keyhole at the marked location.
5. **Install self-centering screw & hang assembly on screw.** Partially install a screw into the hole drilled in the previous step, leaving *approximately* ¼-inch of the screw protruding from the wall, then temporarily hang the OmniPak™ 8 from the screw. Be sure the screw is firmly planted in the wall.
6. **Level the OmniPak™ 8 & mark the other mounting hole locations on wall.** While being ready to catch the OmniPak™ 8 should the single screw not stay in the wall, carefully let the OmniPak™ 8 hang freely from the single screw on the wall, to "self-level" the assembly, then mark the locations of the remaining four mounting holes. Set aside the assembly.
7. **Drill holes.** Drill appropriately-sized pilot holes, to accommodate the mounting screws or fasteners being used (hardware not included), at the marked locations. Do not make holes too big; the screws should be snug.
8. **Install screws or wall fasteners.** Partially install all screws (or wall fasteners), leaving *approximately* ¼-inch of the screw protruding from the wall.
9. **Hang assembly on screws.** Lift the OmniPak™ 8 again, align the mounting holes on the OmniPak™ 8 backplate (or side wall) with the partially-installed screws, and hang the OmniPak™ 8 on the protruding screws.
10. **Set screws.** Finish driving (tighten) all screws in place.
11. **Continue with wiring connections.** To access the plug-in module slots or wiring connectors, remove the covers.

3.4 Installer Connections

After mounting the OmniPak™ 8, installer connections may be performed. See Figure 4 and Figure 5 for wiring details. Figure 2 is a front view showing the connector locations and types. For equipment and personal safety, always perform grounding connections first.

- CAUTION -

Improper grounding could be service affecting and cause service interruptions.

- GROUNDING CAUTION -

Always follow local safety precautions and standard operating procedures for grounding the equipment when installing, upgrading, repairing or maintaining equipment. Any instructions or information contained herein is subordinate to local codes, operating procedures or practices.

3.4.1 Chassis/Frame Ground Connections

To ensure safety to personnel, Westell recommends grounding the OmniPak™ 8 as shown in Figure 4a, unless otherwise dictated by local codes. For applications requiring chassis ground to be connected to circuit ground, as shown in Figure 4b, an optional green wire strap is provided for installation between the GND lug and the TB1 GND terminal.

- GROUNDING NOTES -

Always follow local safety precautions and standard operating procedures for grounding the equipment when installing, upgrading, or maintaining equipment. Any instructions or information contained herein is subordinate to local codes and operating procedures or practices.

To maintain the UL Listing of these mountings, observe the following when performing all grounding/bonding connections:

- ☐ *Only use conductors containing a like or similar metal type: do not intermix metals.*
- ☐ *Any unplated conductor (attached to ground lug) shall be brought to a bright finish and then coated with an anti-oxidant prior to connection.*
- ☐ *All grounding/bonding hardware must be listed by an NRTL.*
- ☐ *#6 AWG copper wire should be used.*

3.4.2 Power Connections

Modules installed in the OmniPak™ 8 can be either span (line) or locally powered. Local power may be internal with a plug-in

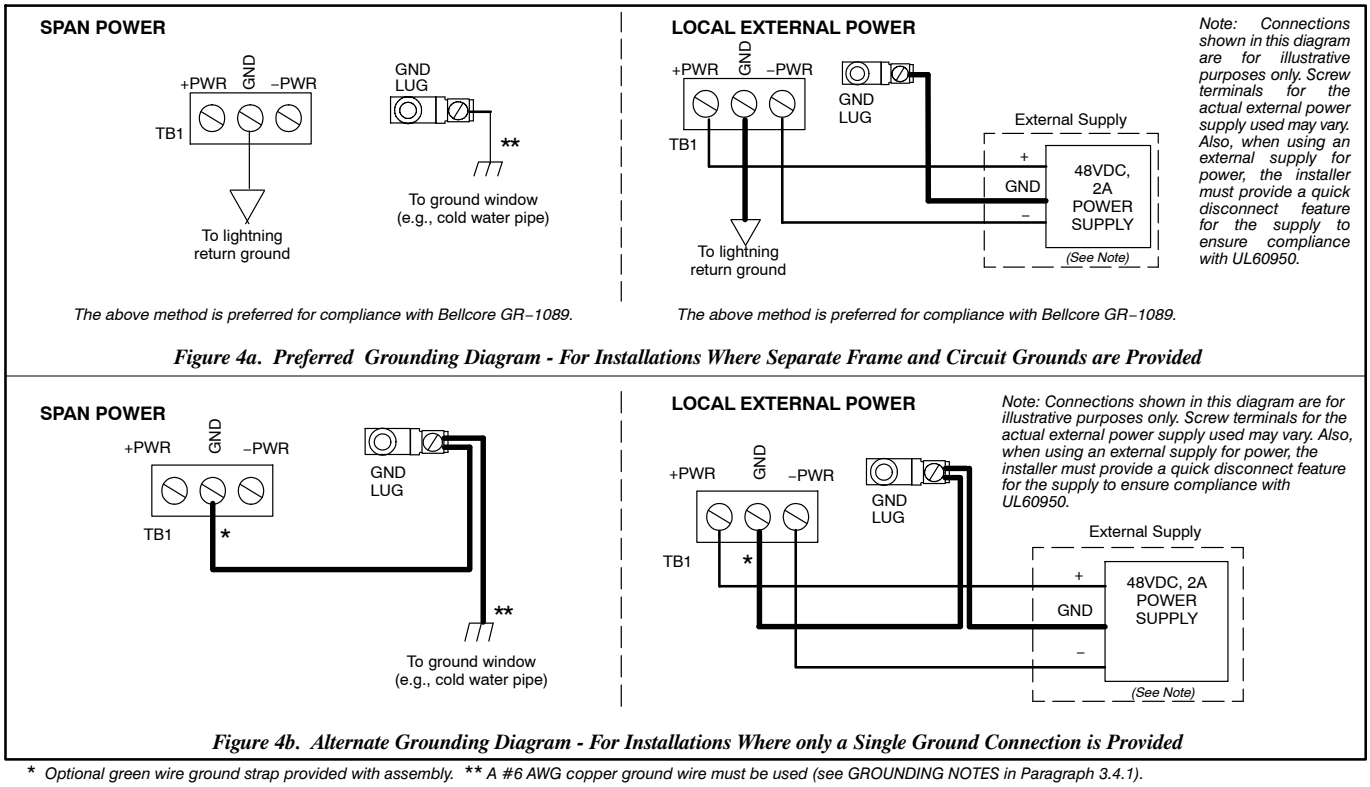


Figure 4a. Preferred Grounding Diagram - For Installations Where Separate Frame and Circuit Grounds are Provided

Figure 4b. Alternate Grounding Diagram - For Installations Where only a Single Ground Connection is Provided

* *Optional green wire ground strap provided with assembly.* ** *A #6 AWG copper ground wire must be used (see GROUNDING NOTES in Paragraph 3.4.1).*

Figure 4. Typical Grounding Diagrams

supply module inserted into the right-most card slot of the assembly, or external with a DC power supply.

- POWER NOTES -

1. *This unit is to be connected to a reliably-grounded SELV (Safety Extra-Low Voltage; < 60 volts) source of supply.*
2. *Local Power Supply should be listed to UL 60950 I.T.E.*
3. *A listed circuit breaker, rated at 3 Amps maximum when supplied by a 48-volt DC source, shall be provided in the ungrounded supply.*
4. *Recommended wire gauge: 20 AWG for 0 to 2.6 A.*
5. *A readily-accessible disconnect device that is suitably approved and rated shall be incorporated in the field wiring.*

3.4.2.1 Local Power - External DC Supply

When using an external power supply to power the assembly, connections are made to TB1, the 3-position screw terminal block located in the top Facility Compartment area. The preferred wire entry hole is the strain-relief grommet on the top right side of the assembly. Make a small slit in the grommet, just enough to allow wire access, for maximum strain-relief purposes. The terminal block accepts stranded or solid wire. Consult the power supply practice for more power supply details. Dress wires per company practice and secure with cables ties to the tie-down provided on the mounting (after testing).

- NOTE -

When connecting the external power source to the mounting, a readily-accessible quick-disconnect device must be incorporated to ensure UL60950 compliance.

- FUSE NOTE -

When using an external power supply to power the mounting, a 2 Amp fuse, located in the top portion of the assembly next to TB1, is provided to protect the mounting against overvoltage or power surge. If an overvoltage or power surge occurs, the internal 2 Amp fuse opens to protect the assembly from damage, which lights the FA Fuse alarm LED at the assembly bottom.

3.4.2.2 Local Power - Plug-In Power Supply

For the 28MA208AP model, the included modular power supply plugs into the right-most assembly slot. The power cord and plug is routed back then upward through the mounting (top cover must be off) as the power supply is inserted into the slot. Then insert the power cord into the opening or groove on the side of the mounting for proper dressing of the cable.

- NOTE -

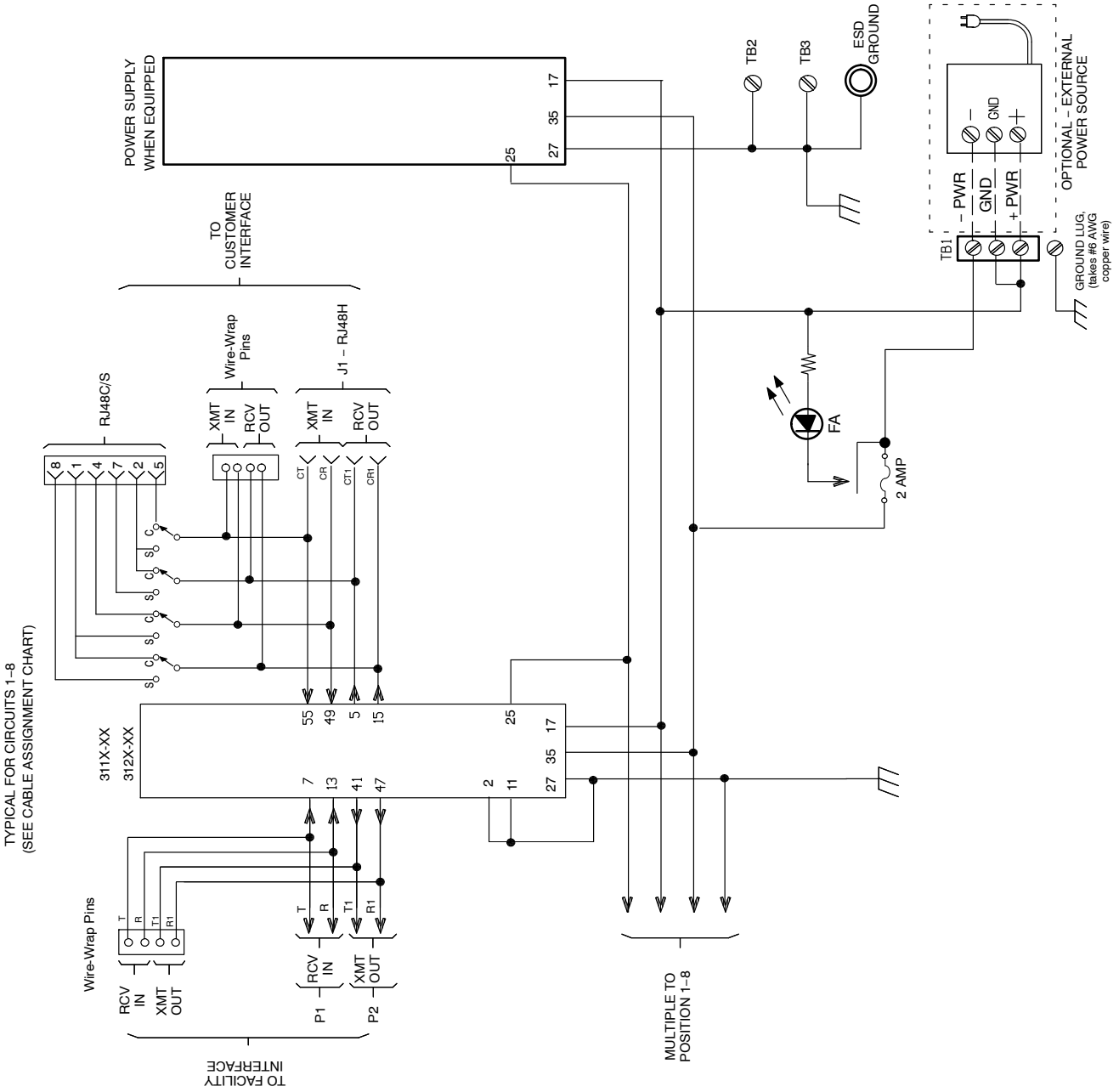
For the 28MA208AP model, a socket-outlet shall be installed near the unit and be readily accessible.

3.4.2.3 Span (Line) Power

Power connections are not necessary for use with span-powered modules; however, circuit ground on TB1, the 3-position screw terminal strip, must be connected as shown in Figure 4a.

3.4.3 Facility/Network Interface Connections

Facility side connections are made to either the 4-pin wirewrap connectors or to the two 50-pin/25-pair Telco Facility connectors (see Paragraph 2.2.5 and Table 1) in the Facility wiring compartment at the top of the OmniPak™ 8. For maximum air



PIN	COLOR	TO CUSTOMER INTERFACE DESIG	TO CUSTOMER INTERFACE CKT NO. J1	TO FACILITY INTERFACE DESIG P1	TO FACILITY INTERFACE CKT NO. P1	TO FACILITY INTERFACE DESIG P2	TO FACILITY INTERFACE CKT NO. P2
26	W/BL	CT1	1	T	1	T1	1
1	BL/W	CR1		R		R1	
27	W/O	CT1	2	T	2	T1	2
2	O/W	CR1		R		R1	
28	W/G	CT1	3	T	3	T1	3
3	G/W	CR1		R		R1	
29	W/BR	CT1	4	T	4	T1	4
4	BR/W	CR1		R		R1	
30	W/S	CT1	5	T	5	T1	5
5	S/W	CR1		R		R1	
31	R/BL	CT1	6	T	6	T1	6
6	BL/R	CR1		R		R1	
32	R/O	CT1	7	T	7	T1	7
7	O/R	CR1		R		R1	
33	R/G	CT1	8	T	8	T1	8
8	G/R	CR1		R		R1	
34	R/BR	SPARES		SPARES		SPARES	
9	BR/R						
35	R/S						
10	S/R						
36	BK/BL						
11	BL/BK						
37	BK/O						
12	O/BK						
38	BK/G						
13	G/BK						
39	BK/BR	CT	1				
14	BR/BK	CR					
40	BK/S	CT	2				
15	S/BK	CR					
41	Y/BL	CT	3				
16	BL/Y	CR					
42	Y/O	CT	4				
17	O/Y	CR					
43	Y/G	CT	5				
18	G/Y	CR					
44	Y/BR	CT	6				
19	BR/Y	CR					
45	Y/S	CT	7				
20	S/Y	CR					
46	V/BL	CT	8				
21	BL/V	CR					
47	V/O	SPARES					
22	O/V						
48	V/G						
23	G/V						
49	V/BR						
24	BR/V						
50	V/S						
25	S/V						

Figure 5. OmniPak™ 8 Block and Wiring Diagram

flow and compliance with NEBS fire safety requirements, do not dress the cables along the mounting's top surface perforations.

3.4.3.1 4-Pin Wirewrap Connectors

For wirewrap-pin connections, stripped Facility wires are "wirewrapped" to each pin with a wirewrap tool. The Facility Compartment cover first must be removed, then wires are routed through the round grommet at the top right side of the assembly. Make a small slit in the grommet, just enough to allow wire access, for maximum strain-relief purposes. Then route, dress, and secure wires to the pins per company practice. Secure the wires to the cable tie-down on the OmniPak™ 8 with cable ties, when complete (after testing). For wiring details and pin designations, see Figure 2 and Figure 5.

3.4.3.2 25-Pair Connectors

Facility side connections alternately may be made to the two 50-pin/25-pair Telco Facility connectors in the Facility Compartment area. The Facility Compartment cover first must be removed, then cables are routed through the other cable access opening provided at the top right side of the assembly (created when the Facility Compartment cover is set in place, best seen in the assembled view in Figure 1). After securing the connectors, attach drain wires to screw terminals TB2 and TB3, route cables through the right side opening, and secure cables to the cable tie-downs on the OmniPak™ 8 with cable ties, when complete (after testing). For wiring details and pin designations, see Figure 2 and Figure 5.

3.4.3.3 Cable Drain (Ground) Wiring Connector

If not already performed, make all cable drain wire connections at the appropriate stud or screw. Refer to Figure 2 for the location of these studs/screws used for cable drain (ground) wiring. Please note only one end of the drain wire should be connected to prevent a ground loop.

3.4.4 Customer Interface Connections

Customer side connections are made to either the 4-pin wirewrap connectors, to the RJ48C/S jacks, or to the 50-pin/25-pair RJ48H connector (see Paragraph 2.2.6 and Table 1) all located in the Customer wiring area at the bottom of the OmniPak™ 8. See the paragraph below that applies to the customer connection method preferred. After wiring installation and testing, secure all wires/cables with a cable tie and the cable tie-down provided.

3.4.4.1 4-Pin Wirewrap Connectors

For wirewrap pin connections, stripped customer wires are "wirewrapped" to each pin with a wirewrap tool. The Customer Wirewrap Pin cover first must be removed, then wires are routed through the grommet at the bottom right side of the assembly. Make a small slit in the grommet, just enough to allow wire access, for maximum strain-relief purposes. Then route, dress, and secure wires to the pins per company practice. Secure the wires to the cable tie-down on the OmniPak™ 8 with cable ties, when complete (after testing). For wiring details and pin designations, see Figure 2 and Figure 5.

3.4.4.2 RJ48C/S Jacks (and 2-Position Jack Switches)

Customer connections alternately can be made via the RJ48C/S jacks, which do not require the removal of the Customer Wirewrap Pin cover. Firmly insert each RJ48C/S plug into each jack. To the right of each jack is a 2-position switch , labelled "S" at the top of the switch and "C" at the bottom. If the application requires an RJ48S-type jack, set or slide the switch to the "S" position, towards the top. If the application requires an RJ48C-type jack, set the switch to the "C" position, towards the bottom. Each switch is recessed, for security, and requires a narrow or pointed tool (such as a narrow screwdriver) to change the setting. Secure all cables to the cable tie-down with a cable tie, after testing. For wiring details and pin designations, see Figure 2 and Figure 5.

3.4.4.3 25-Pair RJ48H Connector

Customer connections alternately can be made via the 25-pair RJ48H connector, which does not require the removal of the Customer Wirewrap Pin cover. Firmly insert the connector into the receptacle provided (labelled "CUSTOMER INTERFACE"), then secure the cable to the cable tie-down with a cable tie, after testing. For wiring details and pin designations, see Figure 5.

3.4.4.4 Cable Drain (Ground) Wiring Lug

If not already performed, make all cable drain wire connections at the cable drain (ground) wiring studs/screws. Refer to Figure 2 for the location of these stud/screws. Please note only one end of the drain wire should be connected to prevent a ground loop.

3.4.5 Module Installation

Both 200- and 400-type plug-in modules can be inserted into the OmniPak™ 8 after the mounting installation is complete. Before installing modules, set any option switches to the desired positions. Align the module with the card guides above and below the unit and insert as far as it will go into the slot connector.

- NOTE -

To maintain the UL Listing of these assemblies, ***only*** *UL recognized modules that do not exceed the "per slot" ratings outlined in Table 2 can be used. Also note that all modules will not necessarily be rated for both AC and DC operation.*

- CAUTION -

Use care when installing and removing modules - *do not force a module into place*. If a module resists insertion, remove it and check for obstructions in or near the connectors and mounting slots and gently re-insert the module.

3.4.6 Re-Installing Covers and Door

When all modules are installed, the assembly door can be repositioned, and the locking device secured. After making all the necessary connections, the top cover can be positioned back into place and the thumb-screw re-tightened (manually or with a screwdriver). The bottom cover can also be closed and the thumb screw re-tightened manually or with a screwdriver.

4. TESTING & TROUBLESHOOTING

4.1 Testing

This equipment should not be field repaired. If the equipment is suspected of being faulty, replace it with another unit, optioned identically, and retest. If the replacement unit appears to operate correctly, the original unit may be faulty and should be returned to Westell for repair or replacement (Paragraph 6.2).

4.2 Troubleshooting

If trouble is encountered, verify all installer connections and check that any fuses are not blown. Also verify all module connections, switch settings, and verify modules are making positive connections with the mounting connectors. If trouble persists, replace suspect unit and repeat procedures outlined. These procedures are not designed to effect repairs or modifications. Tests beyond those outlined herein, or repairs made beyond replacing a faulty unit, are not recommended and may void the warranty.

5. CUSTOMER & TECHNICAL SERVICES

5.1 Customer Service & Technical Assistance

If technical or customer assistance is required, contact Westell by calling or using one of the following options:

Voice: (800) 377-8766
email: *global_support@westell.com*

For additional information about Westell, visit the Westell World Wide Web site at http://**www.Westell.com.**

5.2 Part Numbers

As shown in Table 1, this equipment is identified by a part number (A90-28MA208A). Each part number contains an equipment issue letter (A), the assembly type (90), and the specific model number (28MA208A). Each time a product change affects the form, fit, or function of the product, the issue letter is incremented or advanced by one. Indicate the issue level as well as the model number when making inquiries about the equipment.

6. WARRANTY & REPAIRS

6.1 Warranty

Westell warrants this product to be free of defects at the time of shipment. Westell also warrants this product to be fully functional for the time period specified by the terms and conditions governing the sale of the product. Any attempt to repair or modify the equipment by anyone other than an authorized Westell representative will void the warranty.

6.2 Repair and Return

Westell will repair or replace any defective Westell equipment without cost during the warranty period if the unit is defective for any reason other than abuse, improper use, or improper installation. To return defective equipment, first request a Return Material Authorization (RMA) number from Westell by calling or using one of the options shown below. Once an RMA number is obtained, return the defective unit (freight prepaid), along with a brief problem description, to the address we will provide to you when you contact us.

Voice: (630) 375-4211
email: rgmdept@westell.com

Replacements will be shipped in the fastest manner consistent with the urgency of the situation. Westell will continue to repair or replace faulty equipment beyond the warranty period for a nominal charge. Contact Westell for details.

7. SPECIFICATIONS

To order units, call the telephone number shown in Paragraph 5.1 and please specify a specific model number shown in Table 1. The electrical, physical, and regulatory agency specifications are shown in Table 2.

Physical Feature	U.S.	Metric
Height	12 inches	30.5 cm
Width	8 inches	20.3 cm
Depth	7.5 inches	19.05 cm
Weight w/o modules (OmniPak ™ 8A approx.)	7 pounds	3.2 Kilograms
Weight w/o modules (OmniPak ™ 8AP approx.)	8.5 pounds	3.9 Kilograms
Operating Temperature	-18° C to +50° C	0° to 122° F
Regulatory/Agency Specifications		
• UL 60950 certified by an NRTL • NEBS Level 3 certified • CAN/CSA-C22.2 No. 60950-00		
Electrical Feature		
48 Volt Power Supply: -48 Vdc at 2 Amps, equipped on 28MA208AP only.		
Fusing: 2.0 Amp GMT-type (available from Westell by specifying part number 009-000008).		
Per Slot Ratings: Mechanics Type / AC Rating / DC Rating 400-Type [2] / 18 to 42 Vac @ 70 mA / 22 to 56 Vdc @ 350 mA[1] 200 MECHANICS[3] / 18 to 42 Vac @ 70 mA / 22 to 56 Vdc @ 65 mA *Note 1: For the 28MA208AP, the maximum DC current draw for a fully-populated mounting cannot exceed 2.0 Amps.* *Note 2: The "per slot" power dissipation for a 400-type module should not exceed 7.5 watts.* *Note 3: The "per slot" power dissipation for a 200 MECHANICS ® module should not exceed 3.75 watts.*		

Table 2. Specifications

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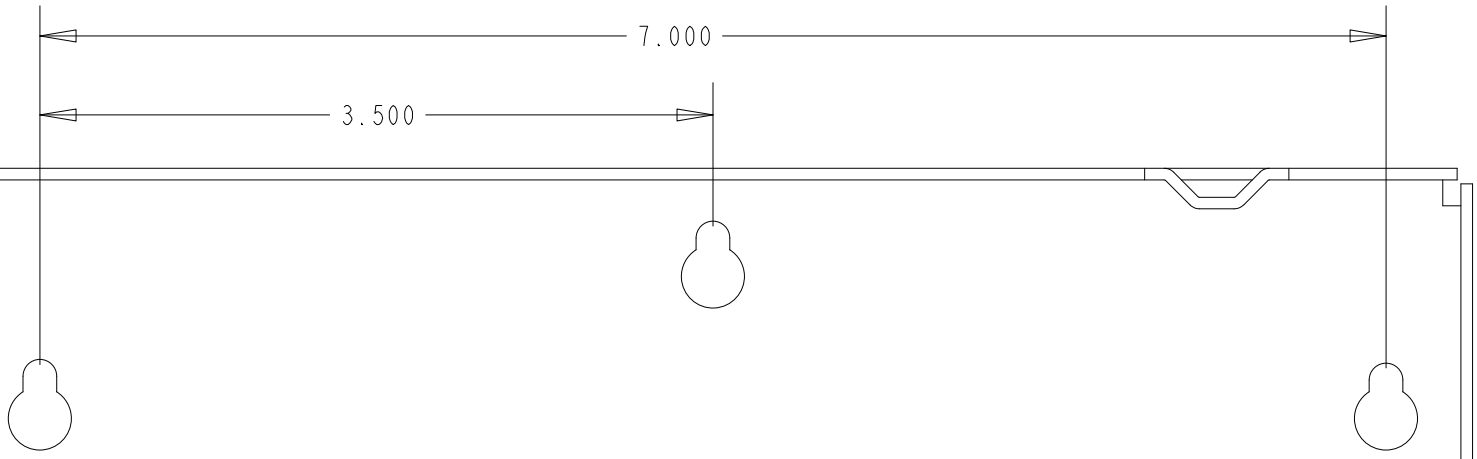

TEMPLATE

FOR MARKING WALL-MOUNTING HOLES

Place this template on the wall in the desired mounting location, then mark the top mounting holes. The center hole can be used to self-center the assembly. See Paragraph 3.3.1 for mounting details.