

DTWA528-02 Issue 2 Series of 2-Slot Universal Data Mountings

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1. GENERAL

1.1 Document Purpose

This document describes the Westell DTWA528-02 Issue 2 series of 2-Slot, Universal, Data Mounting Assemblies. A typical assembly is shown in Figure 1.

- NOTE -

Hereafter, the DTWA528-02 Issue 2 series may be referred to as the "528-02I2" or "assembly." Specific model or list numbers will be referenced where differences apply.

1.2 Document Status

Whenever this practice is updated, the reason will be stated in this paragraph. This practice replaces practice 030-101584 for the models listed in Table 6. Revision B updates Table 6, the first paragraph in Part 3, and Paragraph 3.6. Revision C updates the boxed Precautionary Statement in Part 3, Table 4, the second sentence in Part 3, and Paragraphs 2.4 and 3.6.

1.3 Product Purpose and Application

The 528-02I2 is a universal, data wall-mount assembly which has two slots or circuits to terminate either one 400-mechanics-type module or two 200 MECHANICS®-type modules (high-density). The assembly accepts modules designed for the purposes listed below (also see Figure 2 for typical applications).

- Network Interface Units (NIUs) in 1.544 Mb/s Hi-Cap digital (T1) and High-bit-rate Digital Subscriber Line (HDSL) applications
- DSTs in Analog Data Service applications
- DDIs in Digital Data Service applications
- Any combination of the above applications

All Network Interface (Telco) connections are made at screw terminal blocks (or wirewrap pin headers for the List 4-9 option). Customer Interface (CI) connections are made at either RJ48C/S modular jacks or at screw terminal blocks (no screw terminals for the List 4-9 option). A locking metallic cover protects the Customer and Telco connections with the List 4-9 option.



Figure 1. Isometric View of DTWA528-02I2

1.4 Product Mounting

The 528-02I2 is typically wall-mounted at the customer premises on the network side of the point of demarcation. Holes for mounting screws are provided in the bottom of the assembly. The 528-02I2 also may be set on a desk, shelf, or tabletop for horizontal mounting. The 528-02I2 also can be installed in 19-inch or 23-inch equipment racks with Westell's MBA1923-2 mounting bracket kit.

1.5 Product Features

Features of the 528-02I2 are as follows:

- Small footprint
- Accepts either one 400-type module or up to two 200 MECHANICS-type modules for use in Hi-Cap/T1/Digital/Analog applications
- Network connections made to screw terminal blocks (or to wirewrap pins for the List L4-9 option)
- Customer connections to screw terminal blocks or to RJ48C/S jacks (no screw terminals blocks with L4-9 option)
- Power/ground connections made to screw terminal block
- 2 switches to select either RJ48C or RJ48S jack applications
- Tinted, see-through, front window allows visual monitoring of plug-in module's status LEDs plus easy module access
- Built-in swing-out bracket allows (lockable, List 4 option) cover to swing-out to provide easy access to all internal components and doubles as a 2-slot module housing
- In closed position, assembly allows convenient rear access to customer RJ48C/S jacks while protecting the Telco and customer terminal block connections
- Compact, versatile, wall-mountable or tabletop-mountable metallic case

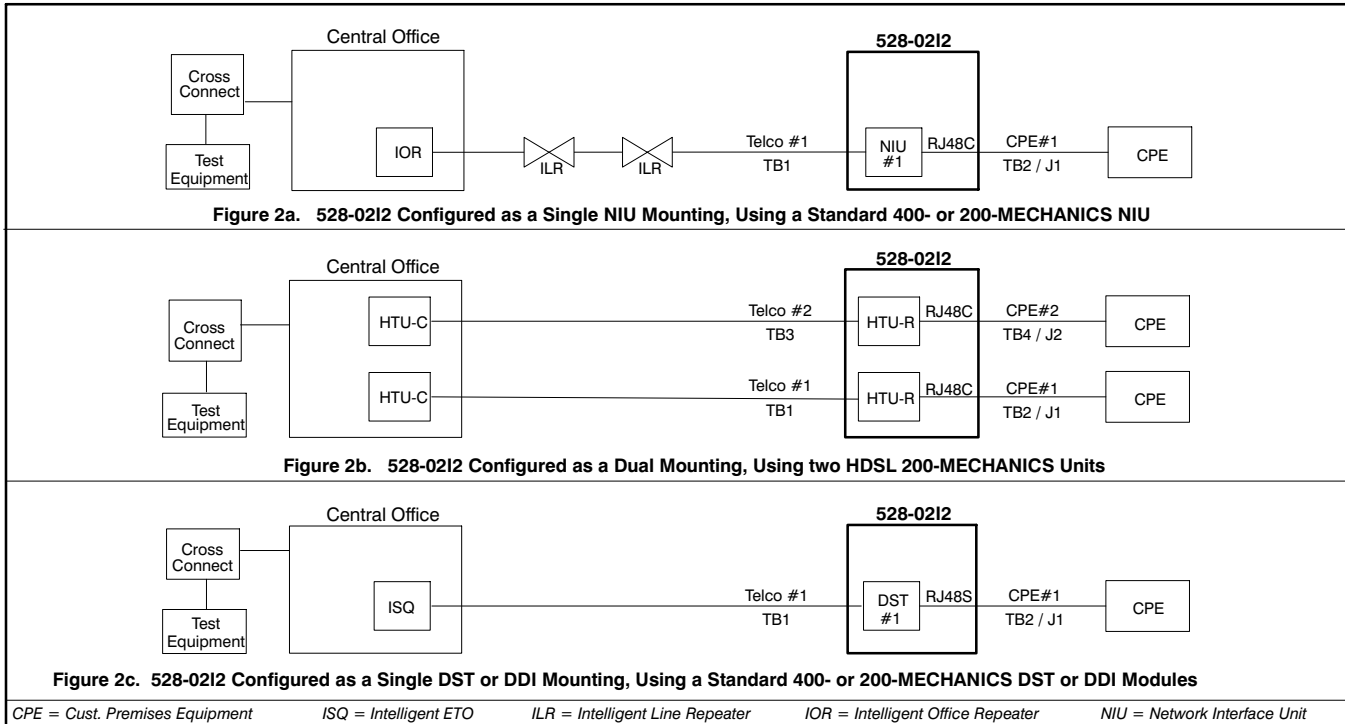


Figure 2. 528-0212 Applications

- Wiring diagram provided on the inside cover
- Chassis ground lug
- Cable ties (provided)
- NEBS Level 3 certified
- UL 60950 listed by an NRTL
- Certified to CAN/CSA-C22.2 No. 60950

2. OPTIONS & FEATURES

The 528-0212 contains various features, switches, and terminal blocks, as shown in Figure 3 and Figure 4 and described below, to option the unit for proper operation.

- LIST 4-9 WIREWRAP PIN NOTE -

The 528-0212 List 4-9 option provides wirewrap pin connectors inside the unit for Network connections, instead of screw terminals. Substitute the term "wirewrap pin header" for "screw terminal block" when referencing the 528-0212, List 4-9.

2.1 TB1 and TB3 - Telco/Network Connections

TB1 and TB3 are 4-position screw terminal blocks for terminating the Telco/Network connections. The four positions are T, R, T1 and R1, as shown in Table 2. TB1 is used to interface with circuit/module #1 and TB3 is used to interface with circuit/module #2. If a 400-type module (twice the width of 200 MECHANICS®-type modules) is used, it is inserted into slot/circuit #1 (top slot when assembly is in the closed position) and interfaces with TB1.

2.2 TB2 and TB4, or J1 and J2 RJ48C/S Jacks - Customer Premises Equipment Connections

Customer Premises Equipment (CPE) connections to the assembly can be made to the 4-position screw terminal blocks TB2 and TB4 (see Table 3) or to jacks J1 and J2 (either RJ48C or RJ48S-type modular jacks). Use Switches S1 and S2 to select the correct configuration, either RJ48C or RJ48S.

S1/S2 Position	Application Type
RJ48C	T1, Hi-Cap, NIU, HDSL
RJ48S	Analog Data Services, DST Module, Digital Data Service, DDI Module, IDSL (ISDN DSL)

Table 1. S1/S2 Positions for Typical Applications/Modules

2.3 S1 and S2 Slide Switches

The 528-0212 contains two slide switches, S1 and S2, to provision the J1 and J2 customer RJ48 jacks for use in an RJ48C or an RJ48S configuration. If the customer application requires RJ48C jacks, set S1 and S2 to the RJ48C position. If the customer application requires RJ48S jacks, set S1 and S2 to the RJ48S position. If a 400-type module (twice the width of 200 MECHANICS® module) is used in the assembly, it is inserted into the top slot (when in the closed position) and interfaces with only J1 and S1.

2.4 TB5 - Power and Ground Connections

TB5 is a 4-position screw terminal block for power and ground connections to the assembly. The four positions are +PWR, FRAME GND, CIRCUIT GND and -PWR, as listed in Table 4. The +PWR position is used to connect the positive terminal from a Westell A90-204100 power supply or an equivalent power supply. FRAME GND is available as an option to connect to

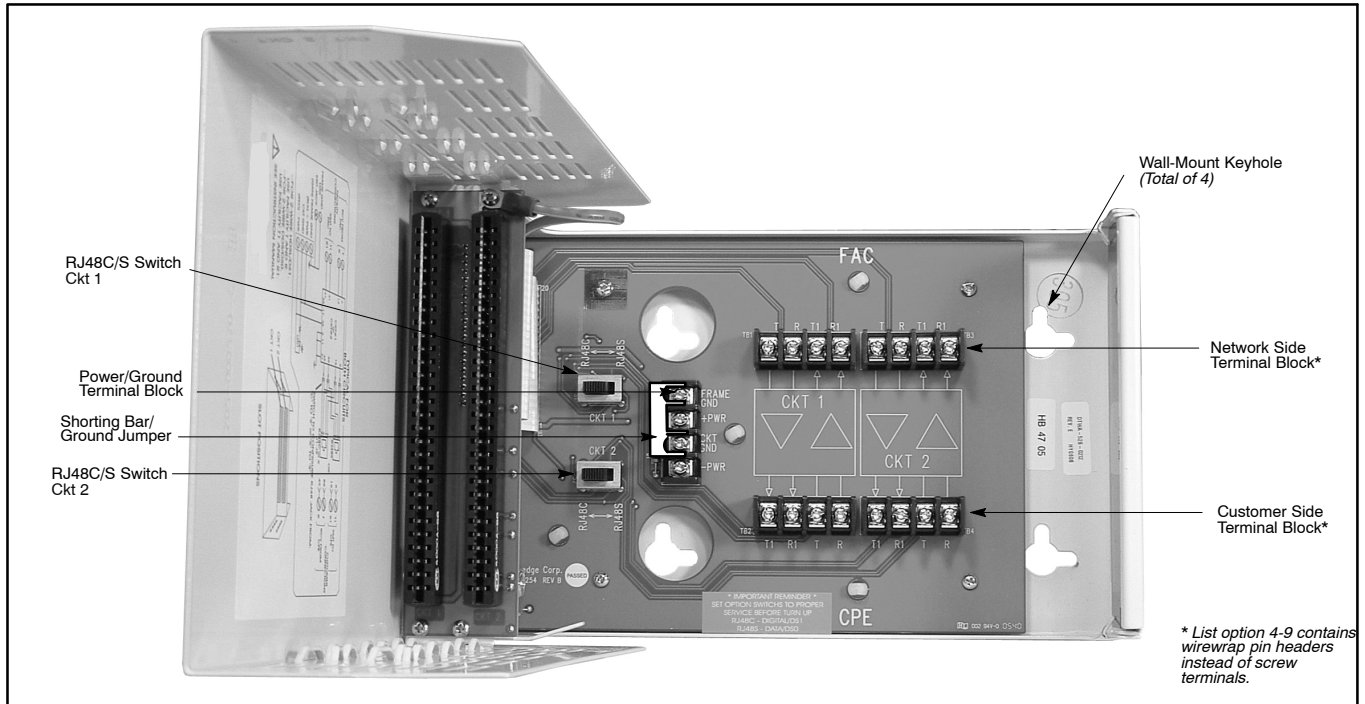


Figure 3. Top View of 528-0212 Interior (Cover Open for Visual Clarity), Typical Wall-Mounted Position

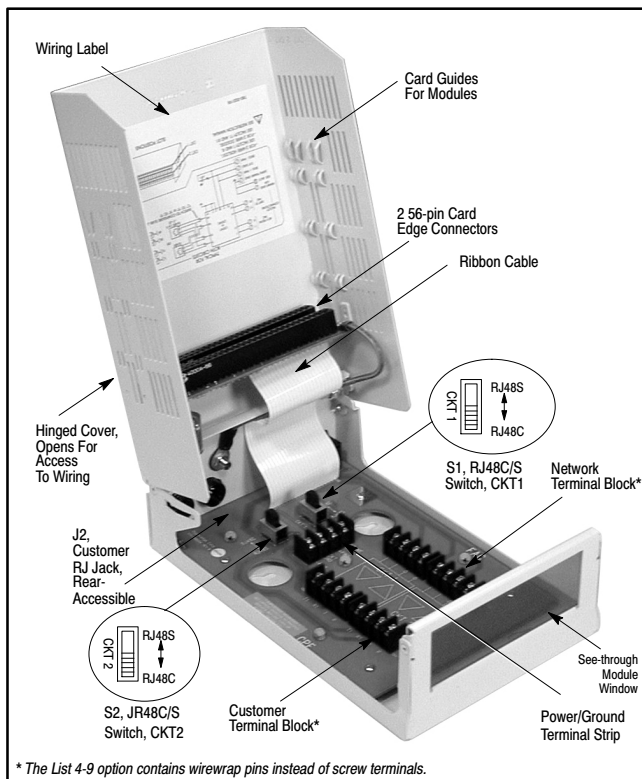


Figure 4. 528-0212 Interior, Cover Open, Typical Table-top Mount Position

Earth ground as stated in Paragraph 2.5. CIRCUIT GND must be connected to an earth ground regardless of the power source. Use 24 AWG or greater insulated wire (see Figure 7).

The -PWR position is used to connect the negative terminal from the power supply.

2.5 Frame Ground Connections

The metal housing can be connected to earth ground by using one of the methods below. On some units, this optional strap is provided in the parts bag, and on the DTMA528-0212L4 it is factory installed.

- **Exterior Frame Ground Lug on Rear of Assembly (Preferred Method).** A frame ground lug, labeled FRAME GND, is provided on the rear of the metal housing. This lug should be used to connect the metal housing to earth ground.
- **Interior TB5 Frame Ground Screw Terminal (Inside Assembly).** A frame ground screw terminal, labeled TB5, located inside the assembly can be used as an optional method for earth grounding the metal housing (Figure 3 and Figure 8) when local power is supplied.
- **Optional Interior TB5 Removable Ground Strap.** The 528-0212 features a factory-assembled, pre-installed, ground strap for applications requiring frame ground to be connected to circuit ground. The strap is connected across TB5's FRAME GND and CIRCUIT GND terminals. On some units, this optional strap is provided, but not factory-installed.

3. INSTALLATION

The assembly should be installed by authorized, trained personnel only. This assembly is for use with NEBS-certified 200 MECHANICS® or 400-type cards. Installation consists of inspecting the assembly for damage, selecting the mounting site or location, gathering all necessary tools and hardware, mounting

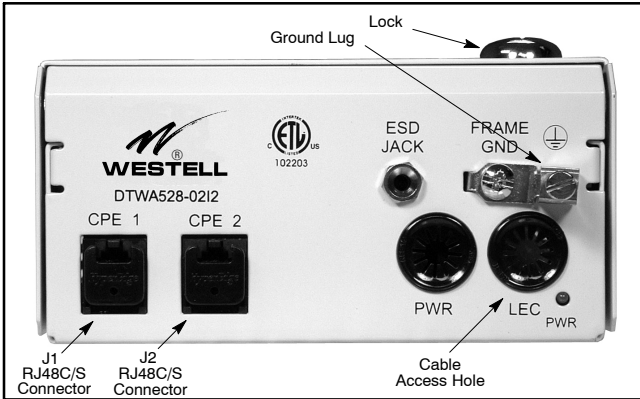


Figure 5. Rear View of 528-0212

the assembly, making all grounding and power connections, performing the installer connections for network and customer wiring and installing the plug-in module(s) into the assembly.

- INSPECTION NOTE -

Visually inspect the equipment for signs of damage at the time of delivery. If the equipment has been damaged in transit, immediately report the extent of the damage to the transportation company and to Westell (see Part 5 for telephone number).

CAUTION - STATIC-SENSITIVE

This product and the plug-in product installed inside the assembly may contain static-sensitive components! Proper electrostatic discharge procedures must be followed to maintain personal and equipment safety. Do not store units near magnetic, electromagnetic or electrostatic fields.

- 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/terminals unless the telephone line is disconnected at the network interface.
 Use caution when installing or modifying telephone lines.

3.1 Selecting the Mounting Location

The 528-0212 should be wall-mounted in accordance with local practices. The installation site should provide adequate lighting and equipment access. The distance from the cable entry point should be consistent with local installation practices. Allow adequate clearance to accommodate the motion required by the key-hole slots (1/4-inch) when locating the assembly for installation. Also ensure that adequate clearance is available for opening the cover/door and for inserting and removing the module(s), which slide(s) into place inside the cover.

3.2 Gathering the Mounting Tools and Hardware

The tools required to mount the assembly include:

- Flat-blade screw driver (to adjust the terminal block screws and to adjust the mounting screws and ground lug)
- Wire strippers (for signal, power, and ground wires)

- Drill and drill bits (to drill holes for mounting screws/bolts)
- Mounting hardware (four screws or bolts)
- Wirewrap tool (optional, for L4-9 option only)

- NOTE -

The 528-0212 optionally may be set on a table, shelf, or desk. For desktop installations, four self-adhesive rubber feet are provided and are to be installed on the bottom of the assembly to help prevent marring the desktop surface.

3.3 Mounting the Assembly to a Wall

1. Loosen the top-cover screw and open the cover.
2. Using the mounting screw keyholes in the assembly's base plate as a template, carefully lift the assembly to the desired mounting position on the wall and mark the four mounting screw keyhole locations for the assembly (see Figure 3). The keyholes allow the assembly to be mounted so the Customer Interface connections may face either left, right, or down. Set aside the assembly.
3. Drill the four holes in the mounting surface.
4. Insert and drive the mounting screws into their holes in the wall until they are just shy of the wall (until approximately 1/4-inch protrudes/remains).
5. Lift the assembly, align the keyholes with the protruding screws in the wall, and hang the assembly from the screws.
6. Finish driving all screws until snug. Do not over-tighten the screws.

- CAUTION -

Never apply power until all installer connections are complete.

- GROUNDING NOTE -

Always follow the National Electrical Code (NEC) rules, 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 Connecting Telco/Network Interface Cables

Telco or network interface connections to the assembly are made to one or both screw terminal blocks, TB1 and TB3, using shielded twisted pair cable (22-24 AWG minimum) of a length consistent with local installation practices. If only one module is used in the unit, insert it into the top (upper) slot or position and use TB1 for the network connections. Telco/network connection pin numbers are listed in Table 2.

Card Edge Connector		Telco TB1/TB3 Position
Function	Pin #	
Receive from Network	7	T
Receive from Network	13	R
Transmit to Network	41	T1
Transmit to Network	47	R1

Table 2. Telco Interface Connections

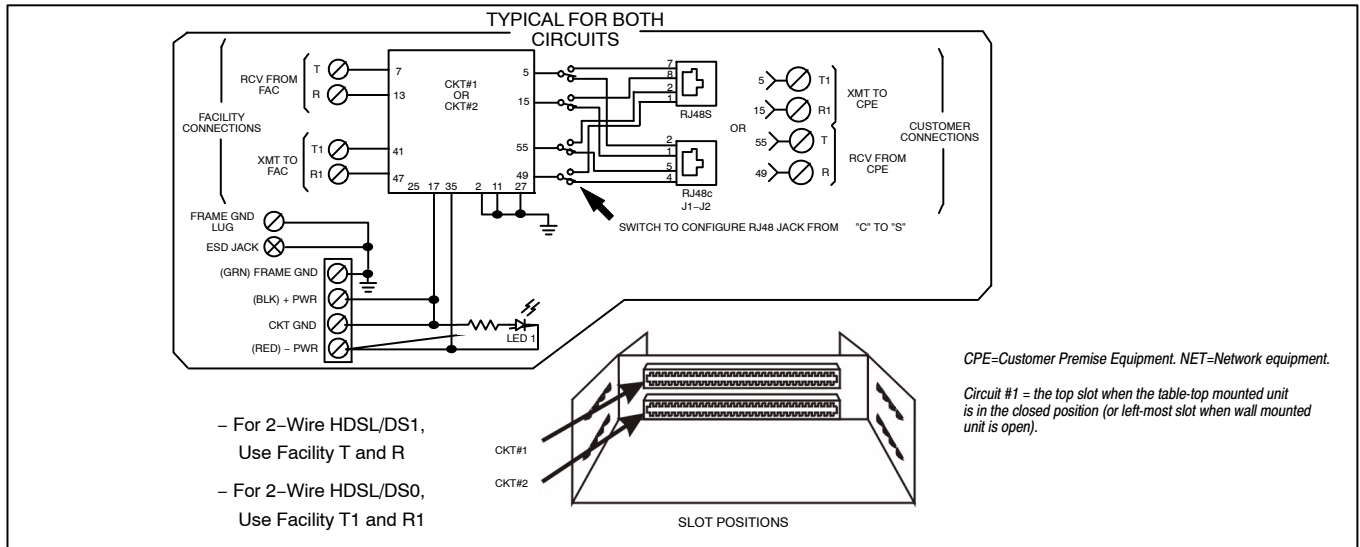


Figure 6. 528-02I2 Functional Wiring Diagram

- LIST 4-9 WIREWRAP PIN NOTE -
 The List 4-9 option provides wirewrap pin connectors inside the unit for Network connections, instead of screw terminals. Substitute the term "wirewrap pin header" for "screw terminal block" when referencing the 528-02I2, List 4-9.

Card Edge Connector		CI Connector Position/Pin		
Function	Pin #	TB2 TB4	RJ48C J1/J2	RJ48S J1/J2
Receive from CPE	55	T	5	2
Receive from CPE	49	R	4	1
Transmit to CPE	5	T1	2	7
Transmit to CPE	15	R1	1	8

Table 3. Customer Interface Connections

3.5 Connecting Customer Interface Cables

Make customer connections to J1 and J2 (the RJ48C/S jacks) or to one or both screw terminal blocks, TB2 and TB4, using shielded twisted pair cable (22-24 AWG minimum) of a length consistent with local installation practices. If only one module is used in the assembly, insert it into the top (upper) slot and use connector J1 or TB2 for customer connections. See Table 3 for pin numbers and lead designations.

Function	TB5 Terminal Block Label
Negative Power In	-PWR
Earth Ground	FRAME GROUND*
Ground Return	CIRCUIT GND*
Positive Battery In	+PWR

*Note: For applications requiring chassis ground to be connected to circuit ground, an optional ground strap is provided for installation between the FRAME GND and CIRCUIT GND terminals on TB5.

Table 4. Power and Ground Connections

3.6 Connecting Power and Ground

The module(s) in the 528-02I2 can be span/line powered or local powered with an external NRTL-Listed Limited Power

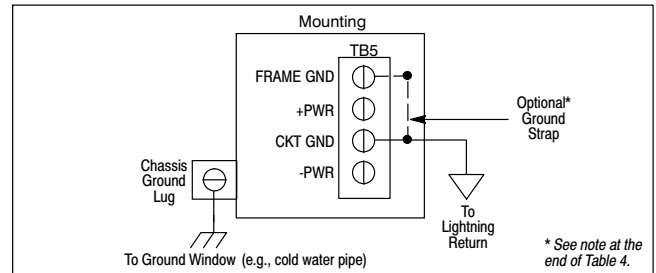


Figure 7. Grounding with Span Power

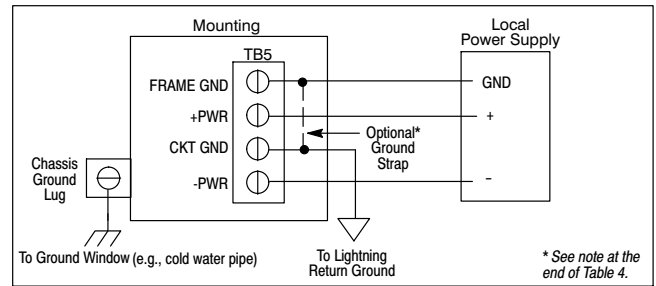


Figure 8. Grounding with Local Power

Source. Local power and ground connections to the assembly are made to TB5. See Table 4 for power and ground connections. For convenience, Westell offers a wall-mounted (plug-in) power supply, part A90-204100.

3.7 Securing Cables

After the assembly has been mounted and all wire connections have been made, use the four cable ties provided to secure all wires/cables.

3.8 Installing Modules

When all wiring is completed and secured, the module(s) may be installed inside the assembly cover. The unit makes electrical connection when installed and properly seated in the 56-pin card-edge connector of the assembly. Refer to the appropriate

practice for optioning and testing information for each module. When testing is complete and the circuit is functioning correctly, close and re-lock the cover (List 4 and 4-9 options).

- CAUTION -

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

4. TROUBLESHOOTING

If trouble is encountered, verify all installer connections to the assembly and check that the CO power fuse is not blown. Also verify all module connections and option switch settings, and verify the modules are making a positive connection with the shelf connector. If trouble persists, replace the suspect assembly and repeat procedures outlined. These procedures are not designed to effect repairs or modifications. Procedures beyond those outlined herein or repairs made beyond replacing a faulty assembly 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

This equipment is identified by a model number and an issue number. Each time a change is made to the product which changes the form, fit, or function of the product, the issue number is incremented or advanced by one. Be sure to indicate the issue number 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) 375-4457
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.

- TL9000 RECYCLING NOTE -

Westell recommends that its products be recycled at the end of their product life. For Westell products that have reached their product End Of Life (EOL), please recycle and dispose of the products per your company practice, per local recycling programs and local codes, and per state statutes.

7. SPECIFICATIONS

To order assemblies, call the telephone number shown in Paragraph 5.1 and specify a part number shown in Table 6. The electrical and physical specifications are shown in Table 5.

Physical Feature	U.S.	Metric
Height	3.25 in.	8.3 cm
Width (including door)	5.75 in.	14.6 cm
Depth (incl. ground lug)	9.25 in.	23.5 cm
Weight (empty, approx.)	3.1 lb.	1.4 Kg
Operating Temp.	-40°F to 149°F	-40° to 65°C
Humidity	0 to 95% (non-condensing)	
Electrical Feature	Description	
Input Power	-42 to -56 VDC, or simplex line power	
Output power to plug-ins	-42 to -56 VDC, or simplex line power	
NEBS Level 3 and UL60950 certification by an NRTL		

Table 5. Specifications

Part Number	CLEI* Code / Barcode / CPR	FAC Connections		CPE Connections		Locking Cover
		Wirewrap pins	Screw Terminals	RJ48C/S	Screw Terminals	
DTWA528-02I2L4	VAM72B0ARA / 445284 / N70793		X	X	X	X
DTWA528-02I2L4-9	VAM74B0ARA / 445286 / N70795	X		X		X
Optional Equipment for use with the DTWA528-02I2 Series Mountings						
A90-204100	Optional external AC to -48VDC/1.25A power supply.					

* CLEI is a trademark of Telcordia Technologies.

Table 6. Ordering and Option Information