

VE-3600 VirtualEdge® 36-Position Connectivity Panel

PART #	PAGE #
1. GENERAL	1
2. INSTALLATION	2
3. ACCESSORIES	4
4. CUSTOMER & TECHNICAL SERVICES	5
5. WARRANTY & REPAIRS	5
6. SPECIFICATIONS	5

1. GENERAL

1.1 Document Purpose

This practice describes Westell's VirtualEdge® Connectivity Panel, model VE-3600, shown in Figure 1.

- NOTE -

Hereafter, the Westell® VirtualEdge Connectivity Panels may be commonly referred to as "the panel." The 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. Revision B updates Table 2.

1.3 Product Purpose and Description

The VirtualEdge (VE) VE-3600 connectivity panel is a 36-position interface panel that is used by the service provider to terminate any 10Base-T, 100Base-T, fiber, or Coax services (or a combination thereof, or any other services) typically at the CPE point of demarcation. The empty positions allow a variety of individual terminations to be installed in the panel, as needed by the application or customer. The service terminated is determined by the coupler type selected. Westell offers a variety of couplers and cables as orderable options for terminating various services (see Table 2). A rear cable-management tray is factory-attached to the bottom of the panel. A provided circuit ID card allows installers to mark the physical position of the circuits terminated in the panel.

1.4 Product Mounting

The assembled panel can be rack or wall mounted. Pre-drilled holes in the panel and mounting ears allow for mounting in either 19" or 23" standard EIA equipment racks, in addition to wall-mounting, and installing the panel in either a flush or 'projected' position.

1.5 Applications

1.5.1 To enable a greater variety of service and interface offerings, service providers are putting more fiber into customer

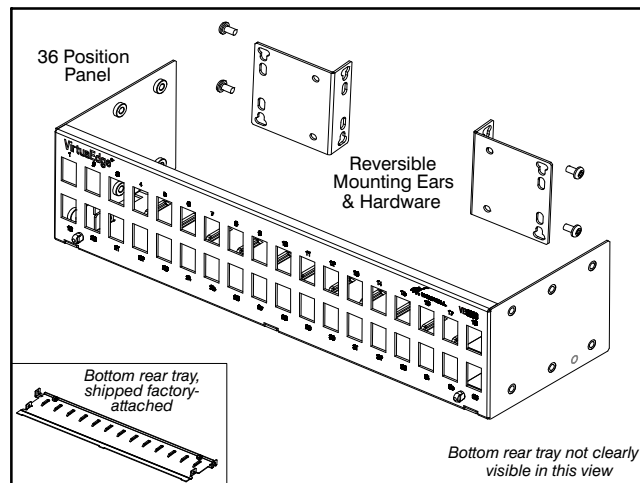


Figure 1. Isometric View of VE-3600 Connectivity Panel

premises, via either Fiber-to-the-Premise or placing more fiber multiplexers and IP aggregation devices closer to subscribers. In business markets, the strong demand for Transparent LAN and Virtual Private Network services, where the customer's LAN is extended over the Service Provider Network to provide native Ethernet service, creates numerous applications for Westell's VirtualEdge Enclosure Series.

1.5.2 The panel is intended to be a simple, sturdy, and versatile mechanical platform used to terminate high-speed Ethernet services in any combination(s). Additional interfaces can also be installed on a per-circuit basis.

1.6 Product Features

The VirtualEdge connectivity panels offer the following features.

- Terminates any combination of 10/100Base-T, fiber, Coax, or other services
- Occupies two vertical Rack Units (2 RUs)
- Mounts on wall or in 19" or 23" relay racks or data cabinets
- Adjustable, reversible, mounting ears
- Circuit ID card for easy circuit identification
- Ground lug and nut
- Steel construction (panel, bottom tray, and ears)
- Removable bottom tray provides cable support and cable tie-downs for Network/service provider cables
- Includes bottom tray and mounting ears hardware
- Optional couplers, front cable management tray, and combination kits available (see Table 2)

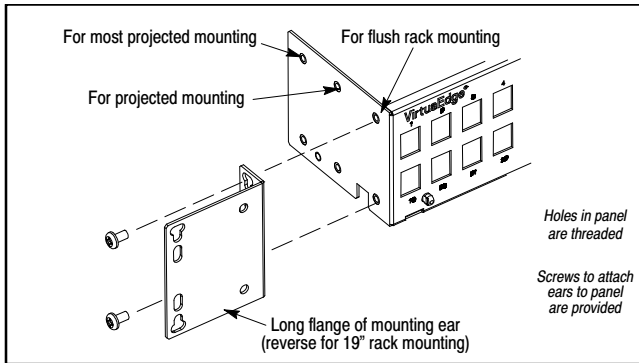


Figure 2. Attaching Ears for Flush-mounting in 23" Racks

2. INSTALLATION

The VirtualEdge panel can be mounted on a wall or in 19" or 23" relay racks with standard EIA 1.75" hole spacing. When rack mounting, the panel can be installed so the front of it is flush with the front of the rack, or mounted in one of two projected positions in the rack. The following paragraphs and Figure 3 provide further details. Screws to attach the mounting ears to the panel are provided.

Installation consists of inspecting the product, following all safety precautions, attaching the mounting ears to the panel, mounting the assembled panel to the rack or wall, and performing all installer connections such as grounding the panel, and installing couplers and cables.

- INSPECTION NOTE -

Visually inspect the unit for damages prior to installation. If the equipment has been damaged in transit, immediately report the extent of the damage to the transportation company and to Westell (see Part 4 for telephone number).

- 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.

2.1 Mounting in a 23" Rack

To mount the panel in a standard 23" relay rack, first locate and attach to the panel the two, provided, L-shaped, mounting ears. For 23" rack mounting, the mounting ear's short flange attaches to the panel, and the long flange attaches to the rack channel.

1. **Determine vertical placement in rack.** Determine the vertical mounting location in the rack. This panel requires two *vertical* Rack Units (2 RUs) in a standard relay rack.
2. **Determine shelf projection.** The mounting ears and the panel's side flanges have three sets of mounting holes from which to choose, for the desired amount of projection in the rack (see Figure 2). If a *projected look* or orientation in the rack is desired, attach the ears to the panel in the

middle or the furthest back position on the side of the panel, so that the panel will be projected forward in the rack. If a *flush-mount* position is desired, use the holes in the side of the panel that are closest to the front of the panel.

3. **Attach ears to the panel.** Place the ears' short flange against the side of the panel, align the holes in the short flange with the selected holes in the side of the panel (per the desired shelf-projection position selected in Step 2 above), and secure the ears to the panel using the provided screws.
4. **Attach panel to rack.** Once the mounting ears are attached to the panel in the desired orientation or shelf-projection positioning, lift then attach the panel to the rack channels.

2.2 Mounting in a 19" Rack

To mount the panel in a standard 19" relay rack, first locate and attach to the panel the two, provided, L-shaped, mounting ears. For 19" rack mounting, the mounting ear's long flange attaches to the panel, and the short flange attaches to the rack channel.

1. **Determine vertical placement in rack.** Determine the vertical mounting location in the rack. This panel requires one *vertical* Rack Unit (RU) in a standard relay rack.
2. **Determine shelf projection.** The mounting ears and the panel's side flanges have several mounting holes from which to choose, for the desired amount of projection in the rack. If a *projected look* or orientation in the rack is desired, attach the ears to the panel in the furthest back position on the side of the panel, so that the panel will be projected further forward in the rack. If a *flush-mount* position is desired, use the holes in the side of the panel that are closest to the front of the panel.
3. **Attach ears to the panel.** Place the ears' long flange against the side of the panel, align the holes in the long flange with the selected holes in the side of the panel (per the desired shelf-projection position selected in Step 2 above), and secure the ears to the panel with the provided screws.
4. **Attach panel to rack.** Once the mounting ears are attached to the panel in the desired orientation or shelf-projection positioning, lift then attach the panel to the rack channels.

2.3 Mounting on a Wall

To mount the panel on a wall, first locate and attach to the panel the two, provided, L-shaped, mounting ears (as described below). For wall mounting, the mounting ear's long flange attaches to the panel, and the short flange attaches to the wall.

1. **Determine placement on wall.** Determine the approximate mounting location on the wall. Note that the panel can be mounted in a vertical position, if desired.
2. **Determine panel projection.** The mounting ears and the panel's side flanges have three sets of mounting holes from which to choose, for the desired amount of projection from the wall. For the most *projected position* from the wall, attach the ears to the panel in the furthest back position on the side of the panel, so that the panel will be projected furthest forward from the wall. For less projection, use the middle set of holes in the side of the panel. For the least amount of projection, use the holes closest to the front of the panel.
3. **Attach ears to the panel.** Place the ears' long flange against the side of the panel, align the holes in the long flange with

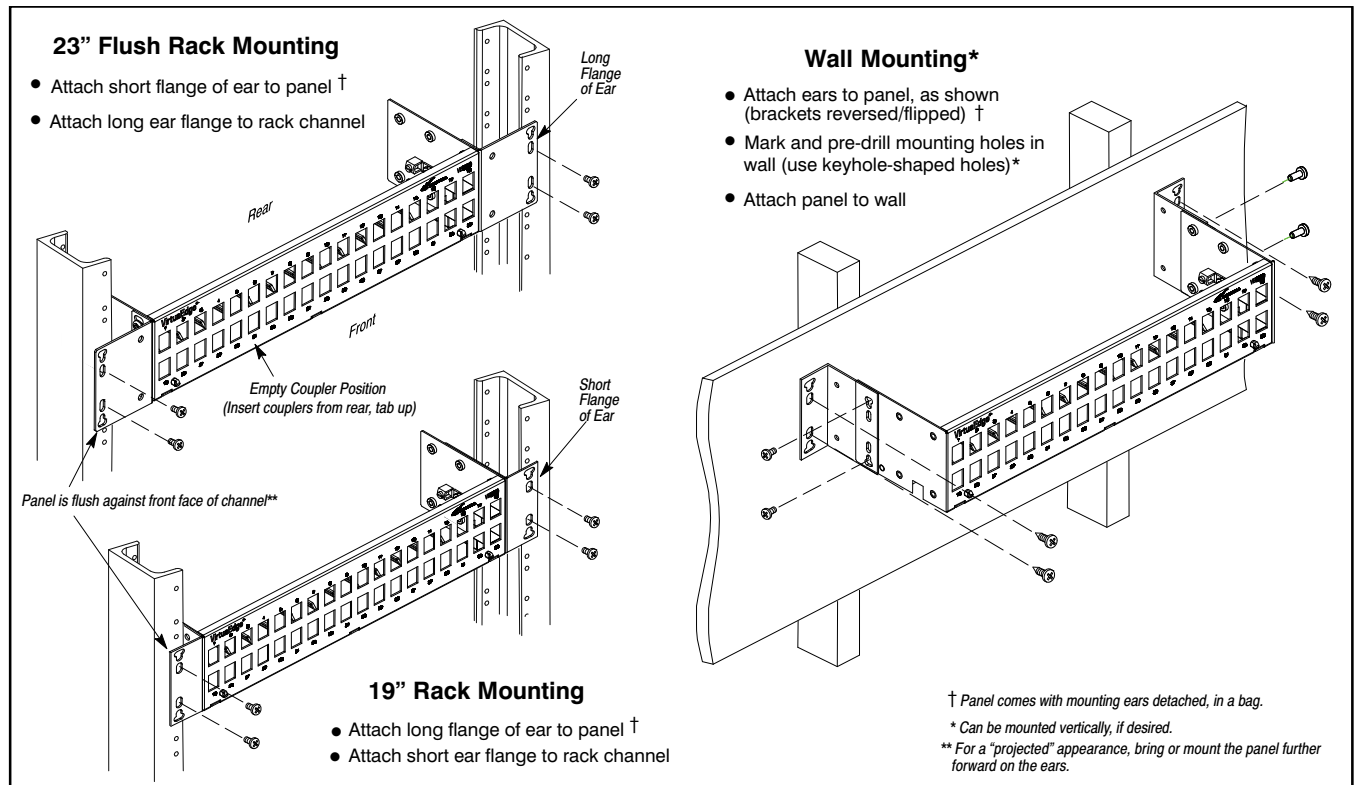


Figure 3. Rack and Wall Mounting Views

the selected set of holes in the side of the panel (per the desired panel-projection position selected in Step 2 above), and secure the ears to the panel using the screws provided.

4. **Mark mounting hole location on wall.** Next, lift and place the panel against the wall in the desired final position (level it if desired) and with a marking utensil, mark the mounting hole locations (holes in the ears' short flanges) to be drilled in the wall.
5. **Drill holes.** Set aside the panel and drill the holes. Do not make the holes too big.
6. **Attach panel to wall.** Again lift the panel and align the holes in the mounting ears with the drilled holes in the wall, then insert and tighten the mounting screws (not provided).

- GROUNDING NOTE -

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.

2.4 Making Ground Connections

2.4.1 The Westell VE panels are shipped from the factory with a ground lug capable of accepting #6-14 ground wire for wall-mount applications. The installer should locate the ground lug and hex-nut from the bag of parts shipped with the panel and install the lug on the post located on the inside wall of the panel, securing the ground lug to the threaded post with the nut (see Figure 4). The installer makes the ground connection to the ground lug using a #6-14 ground wire (per company practice)

and then grounds the panel to an earth ground or according to local installation procedures for grounding and bonding equipment.

2.4.2 If the VE panel is installed in a relay rack, the #6 ground lug is not required, but a bond wire may be used to connect the VE panel's chassis to the common ground or bond for the relay rack or cabinet, per local procedures.

2.5 Making Installer Connections

After the panel is mounted, any necessary installer connections can be made to the panel.

- CAUTION -

Use care when installing and removing couplers - do not force into place. If a coupler resists insertion, remove it and check for debris in or near the coupler or hole. Then gently re-insert the coupler.

2.5.1 Installing Couplers

The VE-3600 panel comes without couplers installed in the panel (the positions are empty, as shown in Figure 4), to allow the technician to install the coupler(s) of choice, depending on the application or service desired. Follow the steps below to insert the coupler(s) of choice.

1. Call Westell to order the coupler(s) of choice for the application (see Table 2).
2. Insert couplers from the rear of the panel and orient the coupler into the proper position before insertion. Each

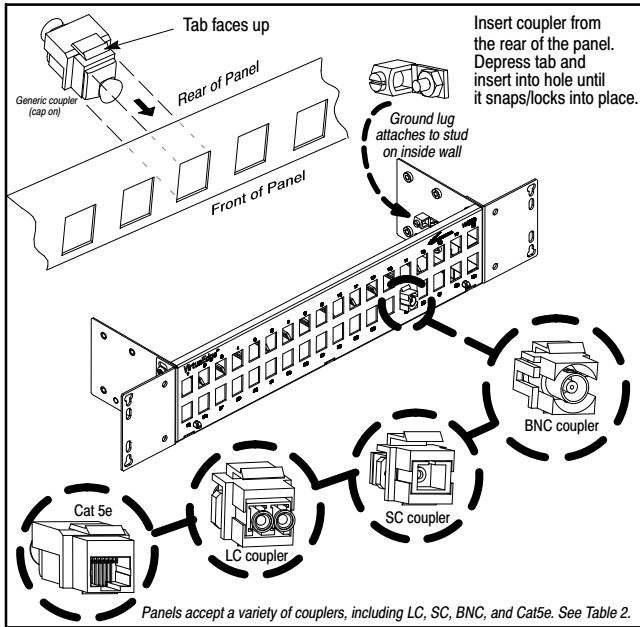


Figure 4. Inserting Couplers into VE-3600 Panels

coupler has a top tab (similar to a phone plug) and a front and rear connector of identical service type and gender. The coupler should be inserted from the rear of the panel, with the top tab facing up (see Figure 4). Angle the top tabbed surface slightly downward (so it is sure to enter and fit into the hole) and gently depress the top tab while firmly inserting the coupler into the hole. When properly inserted, the coupler snaps into place (tab catches on top of hole) for a firm fit.

2.5.2 Connecting Feed Cables

Supply or feed connections are made to the back of the installed coupler(s), at the back of the panel.

1. Remove any protective covering from the couplers and the cable connectors.
2. Run the cable of choice to the first coupler in the panel and insert the cable's connector into the back of the coupler.
3. Any excess cable or cord slack can be routed to either or both sides for neat cable management. Leave enough cable slack so as not to strain any cord or cable, and use the cable ties (provided) to secure the cables to the cable tie-downs provided on the rear tray.
4. Repeat for each cable and coupler.

When the Network equipment is activated, signals from the Network equipment should be present at the VE front panel where the end-user or customer equipment can be connected.

2.5.3 Connecting End-User Distribution or Customer Cables

After installing all feed or supply cables at the rear of the panel, the panel is typically ready for customer use. Customer equipment cables and cords are attached to the front side of the panel. Perform any customer equipment connections per company practice or per the steps below.

Customer connections are made to the connector at the front of coupler(s), at the front of the panel.

1. Remove any protective covering from the couplers and the cable connectors.
2. Run the cable of choice to the first coupler in the panel and insert the cable's connector into the front of the coupler.
3. Any excess cable or cord slack can be routed to either or both sides for neat cable management. Leave enough cable slack so as not to strain any cord or cable, and use the cable ties (provided) to secure the cables to the cable tie-downs provided on the rear tray.
4. Repeat for each cable and coupler.

2.5.4 Labelling Circuit Positions

A circuit-ID card is provided in a bag of parts to help identify each circuit or position in the panel. Fill out the card per company practice. It can be attached via a cable tie to one of the two cable tie-downs provided at the lower front corners of the front panel.

3. ACCESSORIES

3.1 Couplers

Westell's VirtualEdge panel accepts multiple coupler types that can be used or interchanged within the panel(s). Couplers are purchased separately using the part numbers shown in Table 2.

3.2 Front Cable Management Tray (Optional)

To facilitate cable management at the front of the panel(s), Westell offers a metallic Cable Management Tray (Figure 5, not provided) which acts as a cable tie-down shelf in front of the panel. This tray is attached as described in Figure 5. The tray is designed to allow jumpers and cables to cross in front of the panel without putting unnecessary downward force or strain on the installed couplers. The tray also has cable tie-downs to allow technicians to dress cables to the tray, if desired. Attach the tray as shown in Figure 5.

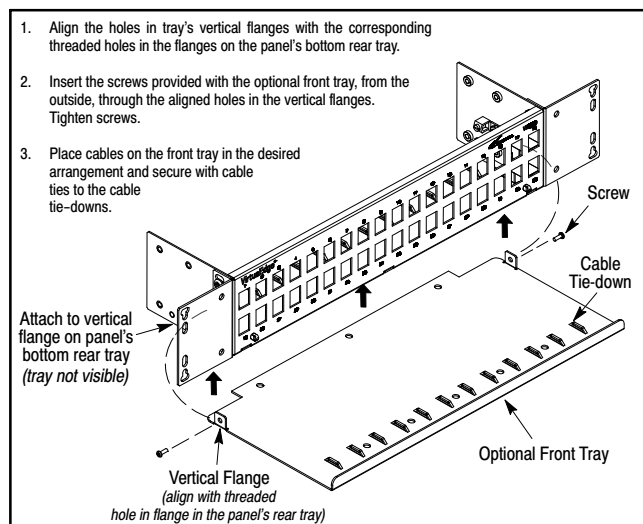


Figure 5. Installing Optional Front Cable Management Tray

3.3 Panel Kits

Kits that contain optional and cable management equipment are available from Westell. See Table 2 for ordering information.

4. CUSTOMER & TECHNICAL SERVICES

4.1 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

Visit the Westell World Wide Web site at <http://www.Westell.com> for additional information about Westell.

4.2 Part Numbers

This equipment is identified by a product number (A90-VE3600), which consists of three parts: the issue letter of the equipment (A), the assembly type (90), and the specific model number (VE-3600). Each time a change is made to the product which changes the form, fit, or function of the product, the issue letter is incremented or advanced by one. Be sure to indicate the issue level as well as the model number when making inquiries about the equipment.

5. WARRANTY & REPAIRS

5.1 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.

5.2 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.

6. SPECIFICATIONS

6.1 Physical Specifications

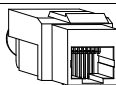




The physical specifications are shown in Table 1.

6.2 Ordering Specifications

To order units, call the telephone number shown in Paragraph 4.1 and please specify a specific part number shown in Table 2.

Feature	U.S.	Metric
Height	3.5 inches (2 RU)	8.9 cm
Width, w/o ears	17 inches	43.2 cm
Width, w/ears	Fits standard 19" or 23" racks	
Depth, w/o adapters	4.5 inches	10.2 cm
Depth, w/o adapters (wall-mounted, w/ears)	6.62 inches	16.8 cm
Operating Temperature	-40° to 149°F	-40° to 65°C
Humidity	0 to 95% (non-condensing)	

Table 1. Physical Specifications

Part #	Description
A90-VE3600	Model VE-3600 - 36-position, 2 RU high, VirtualEdge Connectivity Panel with 36 empty coupler positions. Includes bottom rear tray, mounting ears & ground lug.
Other Panels, Accessories, and Options*	
A90-VEUP30	Model VEUP-30 - VirtualEdge® 1-RU Universal Panel for LGX Fiber Panels and Keystone Couplers, with 3 LGX-118 Connectivity adapter panels.
A90-VE1200	12-position, 1 RU high, VirtualEdge® Connectivity panel with 12 empty coupler termination positions.
A90-VE1212	Model VE-1212 - Same as VE-1200 but equipped with 12 CAT 5e couplers.
A90-VE2400	Model VE-2400 - 24-position, 2 RU high, VirtualEdge® Connectivity Panel with 24 empty coupler termination positions.
A90-VE2424	Model VE-2424 - Same as VE-2400 but equipped with 24 CAT 5e couplers.
A90-VECMTRAY	Cable management tray (front projection)
A90-VECPL5E10	CAT 5e RJ48 Keystone style coupler (Qty = 10) 
A90-VECPL5ED10	CAT 5e coupler with IDC termination on Network side (Qty = 10)
A90-VECPLBNC10	BNC COAX coupler (Qty = 10) 
A90-VECPLSC1	Fiber coupler with SC-UPC connectors (Qty = 1) 
A90-VECPLSCA2	Fiber coupler with SC-APC connectors (Qty = 2) 
A90-VECPLLC1	Fiber coupler with LC connectors (Qty = 1) 
A99-VE2424BNC	Kit which contains a 24-position panel, 24 BNC couplers, a cable management tray, 2 D-rings, kit assembly hardware, and rack mounting hardware.
A99-VE2424SC	Same as A99-VE2424BNC but with SC couplers.

*A variety of cables and fiber jumpers also are available. Call Westell for details.

Table 2. Ordering and Option Information