

VirtualEdge® VELGX-90 Media Panel, with Nine LGX-Type Positions, Front Tray, and Top Cover

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1. GENERAL

1.1 Document Purpose

This practice describes Westell’s VirtualEdge® VELGX-90, a universal media panel with nine, 118mm, LGX®-type panel positions, as shown in Figure 1 (field-populated version shown in Figure 2). Westell offers a variety of panels, couplers, cables, and other orderable options for terminating services for use with the VELGX-90 or other models in the VirtualEdge family. Contact Westell for details.

- NOTE -

Hereafter, the Westell VirtualEdge VELGX-90 Universal Panel may be referred to as “the panel” or the “VELGX-90.”

1.2 Document Status

Whenever this installation guide is updated, the reason will be stated in this paragraph.

1.3 Product Purpose and Description

The VirtualEdge (VE) VELGX-90 is a universal, LGX-compatible interface panel used at the CPE point of demarcation. It has nine, empty, rectangular cut-outs designed to accept 118mm LGX-type panels and/or LGX-sized fiber cassettes. A circuit identification (ID) card is provided inside a clear plastic packet, which allows installers to label each coupler position.

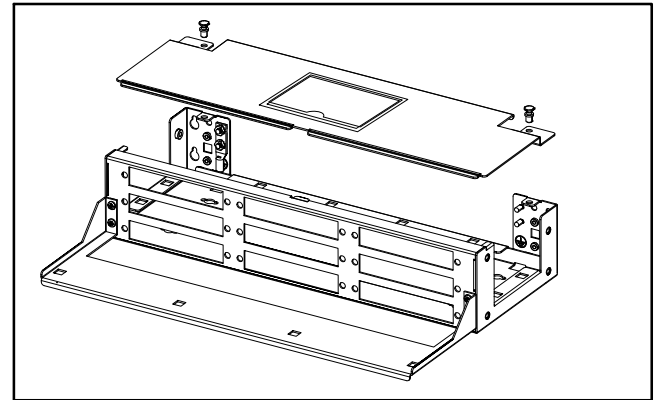
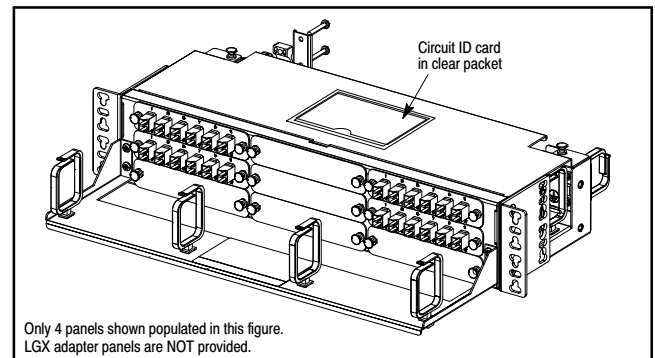


Figure 1. Isometric View of Empty VELGX-90 Panel



Only 4 panels shown populated in this figure.
LGX adapter panels are NOT provided.

Figure 2. VELGX-90 with 4 Populated Panels, Clips/Clamps

The VELGX-90 comes equipped with a front-mounted cable management fiber tray, 8 cable management D-rings, 2 mounting ears, a detachable top cover, and includes the components shown in Table 1. Optional features include LGX adapter panels, couplers, fiber cassettes/trays and D-rings.

Quantity	Component	Description
1	Panel	3.5" high (2 RUs) panel frame, with 9 empty positions for LGX adapter panels (or for LGX-sized fiber cassettes), 2 hole sets for rack ears at sides, wall-mount holes in bottom & rear sides, small square perimeter holes for mounting cable management D-rings
1	Top cover	Easy-on/easy-off detachable, low-profile, top cover
1	Tray	Front-mounted cable management tray with holes for D-rings for convenient cable support & management at the front of the panel
2	Mounting ears	Adjustable/reversible for 19 or 23" racks or wall-mounting, with 8 screws to attach ears to panel and panel to rack (in parts bag)
8	D-rings	8 cable management D-rings or clips, overlapping ends for easy cable/fiber entry, square posts mount in square holes
2	Push-pins	2 spare Nylatch push-pin fasteners to mount and secure LGX panels on product
Orderable Options & Accessories		
	LGX Panels	Empty, solid, or populated 118mm LGX-type, detachable, adapter panels. Includes 2 push-pins.
	Splice Tray	LGX-sized splice tray
	Fiber Cassette	Westell, Corning or TE 118mm fiber cassette or the JDSU BrightJack

Table 1. VELGX-90 Components & Options

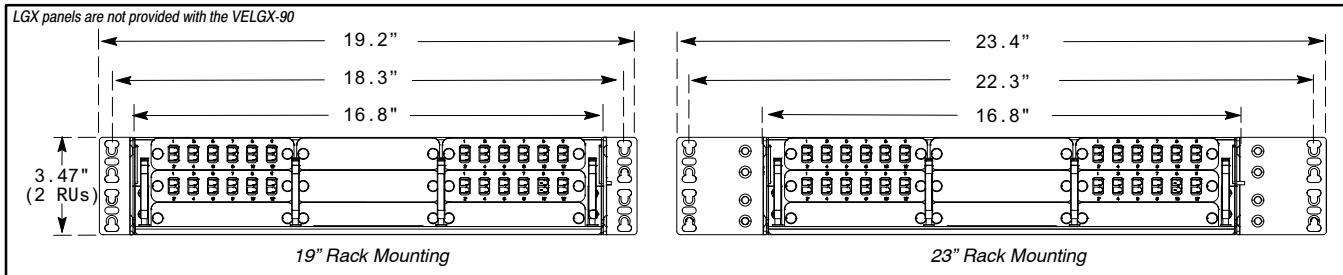


Figure 3. Dimensions for Rack Mounting

1.4 Product Mounting

The panel can be flush wall-mounted using the keyhole-shaped mounting holes on either the bottom or the rear surfaces, or it can be rack mounted using the included reversible mounting ears (included in the bag of parts) which can be attached to the side walls. Two sets of rack-mounting ear holes on the side walls allow flush or projected positions in both 19" and 23" standard EIA relay racks. Optionally, flip and reposition the ears in the rear mounting hole set for an alternate type of wall-mounting. See Part 2 and Figure 4 for more detailed mounting information.

1.5 Applications

To enable a greater variety of service and interface offerings, service providers are putting more fiber into customer premises, either with 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 creates numerous applications for Westell's VirtualEdge panels. These panels are intended to be simple, sturdy, and versatile mechanical platforms, used to terminate high-speed Ethernet, fiber, or copper services in any combination(s). Additional interfaces can also be installed on a per-circuit basis.

See Figure 4 for a view of a VELGX-90 populated with 8 LGX panels. See Figure 5 for a view of the VELGX-90 equipped with cable management clips and cable clamps (top cover off).

1.6 Product Features

The VELGX-90 panel offers the following features.

- 2 Rack Units (2 RUs) high
- 9 horizontal, empty, LGX-type cut-out positions (118mm) to accept any field-provided LGX-type panel, cassette, or insert, such as:
 - 118mm-LGX-type panels (which may contain any combination of SC or LC type fiber couplers, RJ45 [Cat5e for Ethernet] couplers, BNC [DS3] couplers, or any other Keystone type coupler)
 - 118mm-LGX-sized fiber cassettes
 - 118mm-LGX-sized splice trays
 - JDSU BrightJack
- Mounts on wall or in 19" or 23" relay racks or cabinets
- Adjustable, reversible, mounting ears

- VELGX-90 chassis/framework provides cable support and cable tie-downs for cables coming from the Network/Customer Premises
- Front tray and D-rings for convenient front panel cable management
- Steel construction
- Circuit identification card
- Rack mounting hardware included
- Two dual ground posts and one dual ground lug
- Optional couplers, additional cable management clips/rings, cable clamps, pigtail fan-outs, and fiber kits available (contact Westell for details)

- 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.

- 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 3 for telephone number).

2. INSTALLATION

The VELGX-90 panel can be mounted on a wall or in 19" or 23" relay racks with standard EIA 1.75" hole spacing. The following paragraphs and Figure 4 provide further details. Screws to attach the mounting ears to the panel are provided, as well as screws to mount the panel to a rack.

2.1 Mounting in a 19" Rack (Figure 4)

The panel is shipped from the factory pre-assembled. Each panel includes two, L-shaped, reversible mounting ears (located in the bag of parts). When rack mounting, the panel can be installed so the front of it (without the front tray) is flush with the front of the rack, or mounted in a projected position in the rack. For 19" rack mounting, the mounting ear's short flange attaches to the rack channel.

- PROJECTION NOTE -

The front tray, when attached, projects forward from the rack. Minimize the projection by attaching ears in the rear-most set of holes in the ear's long flange (19" racks only, see bottom of Figure 4).

- Determine vertical position in rack.** Select the vertical mounting location in the rack. This panel requires two vertical Rack Units (2 RUs) in a standard Telco relay rack.
- Remove ears from bag.** Locate the bag of parts shipped with the panel and remove the two L-shaped mounting ears and the rack mounting hardware. Each ear flange has several sets of mounting holes in it.
- Attach long flange of ear to panel.** Attach both ears to the forward position on the side walls of the panel, using the hardware provided. Place the ear's long flange against the panel, line up the holes in the ear with the holes in the side of the VELGX-90, then insert and thread the provided mounting screws through the holes. Repeat for the other ear. Tighten all screws.
- Attach panel to rack.** Lift the panel and attach it to the rack channels in the correct vertical rack position. Align the holes in the ear's short flange with the proper holes in the rack channels, at either the front or back side of the channel, per company practice. Insert the provided screws into the aligned set of holes, then tighten the screws. Repeat for the other ear.

2.2 Mounting in a 23" Rack

The panel is shipped from the factory pre-assembled. Each panel includes two, L-shaped, reversible mounting ears (located in the bag of parts). For 23" rack mounting, the mounting ear's long flange attaches to the rack channel.

- Determine vertical position in rack.** Determine and select the vertical mounting location in the rack. This panel requires *two vertical* Rack Units (RUs) in a standard Telco relay rack.
- Remove ears from bag.** Locate the bag of parts shipped with the panel and remove the two L-shaped mounting ears and the rack mounting hardware. Each ear flange has several sets of mounting holes in it.
- Attach short flange of ear to panel.** Attach both ears to the forward position on the side walls of the panel, using the hardware provided. Place the ear's short flange against the panel, line up the holes in the ear with the holes in the side walls of the VELGX-90, then insert and thread the provided mounting screws through the holes. Repeat for the other ear. Tighten all screws.
- Attach panel to rack.** Lift the panel and attach it to the rack channels in the correct vertical rack position. Align the holes in the ear's long flange with the proper holes in the rack channels. Insert the provided screws into the aligned set of holes, then tighten the screws. Repeat for the other ear.

2.3 Mounting on a Wall

The VELGX-90 can be flush-mounted horizontally or vertically on a wall or backboard using the keyhole-shaped mounting holes on either the bottom surface or on the rear wall of the unit (see Figure 7); or alternately, the mounting ears can be attached near

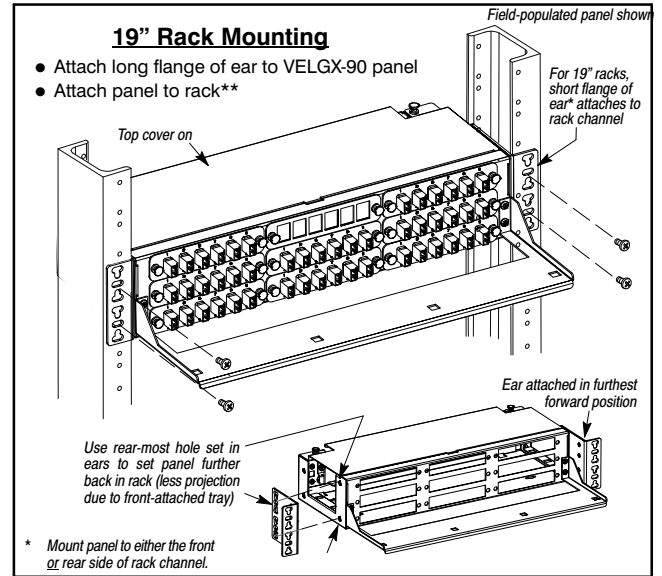


Figure 4. Flush 19" Rack Mounting

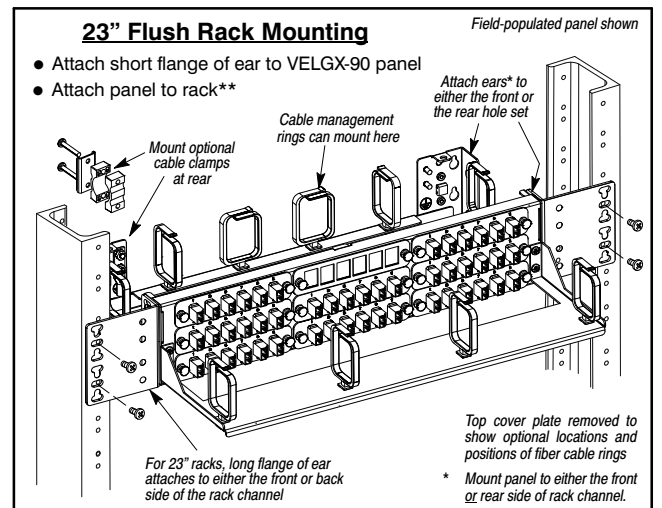


Figure 5. Flush 23" Rack Mounting (Top Cover Plate Removed)

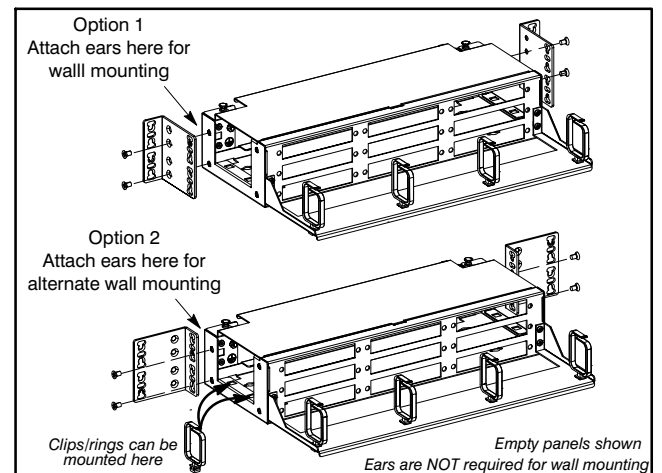


Figure 6. Optionally Attaching Ears for Wall Mounting

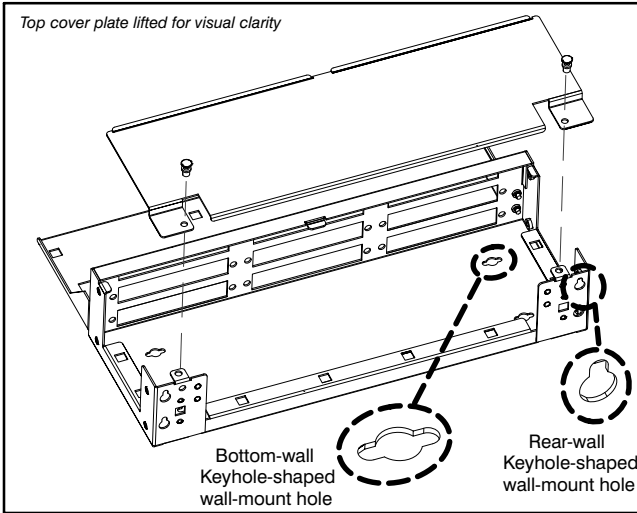


Figure 7. Top/Rear View Showing Keyhole Mounting Holes

the back of the unit for wall mounting. Follow local codes and company practices for the proper wall type.

- WALL MOUNTING WITH EARS NOTE -

As an option, the rack mount ears can be used for wall-mounting the unit, using the last, rear-most, hole-set on the sides of the VELGX-90. As shown in Figure 9, this mounting configuration provides an additional 2" of free space at the rear of the unit for cables, etc., if desired. Note that cable clamps will not work well with this mounting option.

1. **Determine position on wall.** Select the mounting location on the approved wall. The VELGX-90 may be mounted horizontally or vertically with the large bottom surface abutting the wall (Figure 8), or with the smaller rear surface abutting the wall (Figure 7).
2. **Mark and drill holes.** Place the VELGX-90 against the wall in the desired mounting location, then mark the mounting hole locations to be drilled. Set the unit aside then drill the mounting holes, per company practice. Do not drill holes too big.
3. **Partially install screws.** Install a screw (with a head diameter smaller than the diameter of the largest part of the keyholes on the unit) into each drilled hole in the wall and thread it into the wall until only 1/4 remains and protrudes from the wall. Repeat for each screw.
4. **Hang unit from protruding screws.** Lift then hang the unit (at the keyhole-shaped mounting holes) from the protruding screws in the wall. Slide the unit left or right, or up or down, til the narrow part of the keyholes are behind the screw heads.
5. **Tighten the screws.** Finish driving all mounting screws until hand-tight. Attempt to wiggle the unit to test the installation stability. Correct any instability.

2.4 Making Ground Connections

The Westell VE panels are shipped from the factory with ground lug posts (see Figure 11) capable of accepting #6 ground wire for rack and wall-mount applications. The installer should make a ground connection to the ground posts using

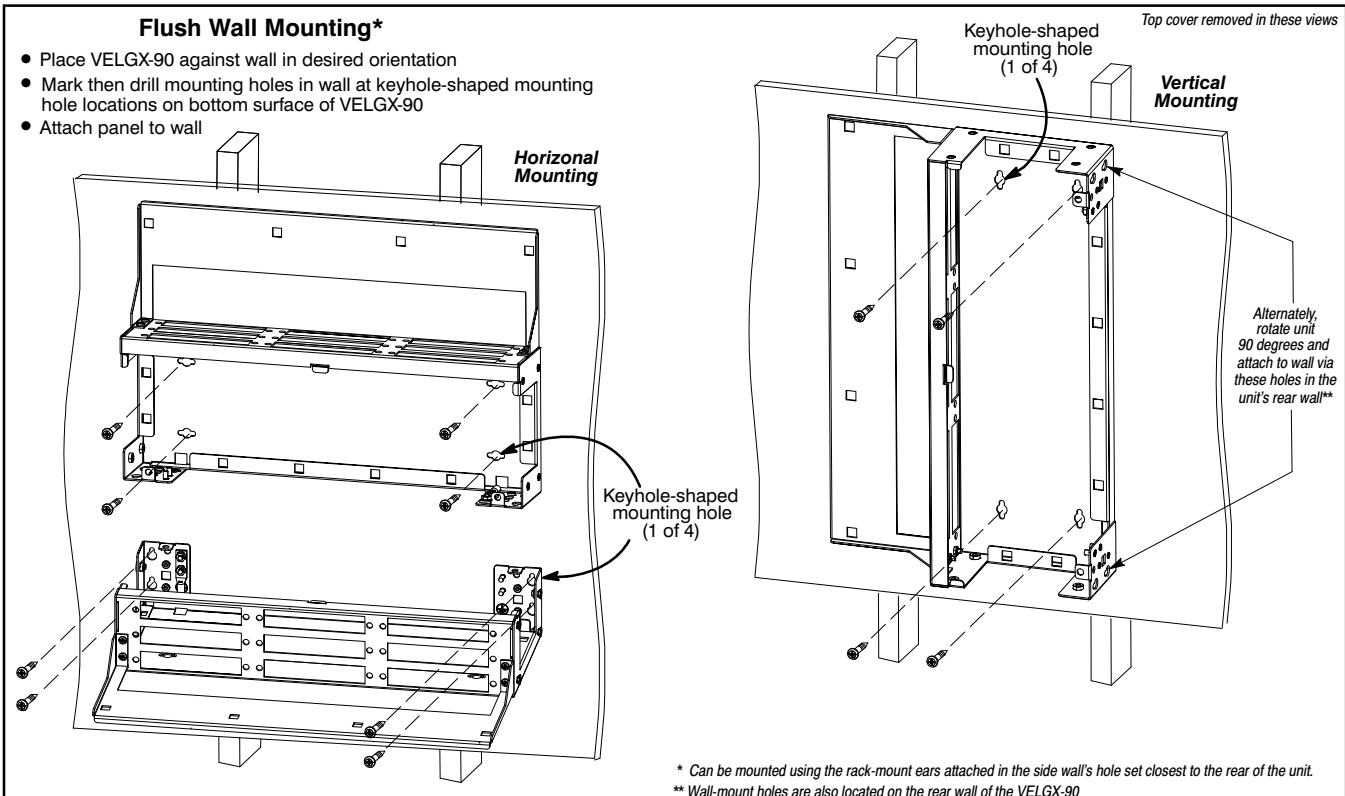


Figure 8. Typical Wall Mounting Views, Mounting Ears Not Used

* Can be mounted using the rack-mount ears attached in the side wall's hole set closest to the rear of the unit.
 ** Wall-mount holes are also located on the rear wall of the VELGX-90

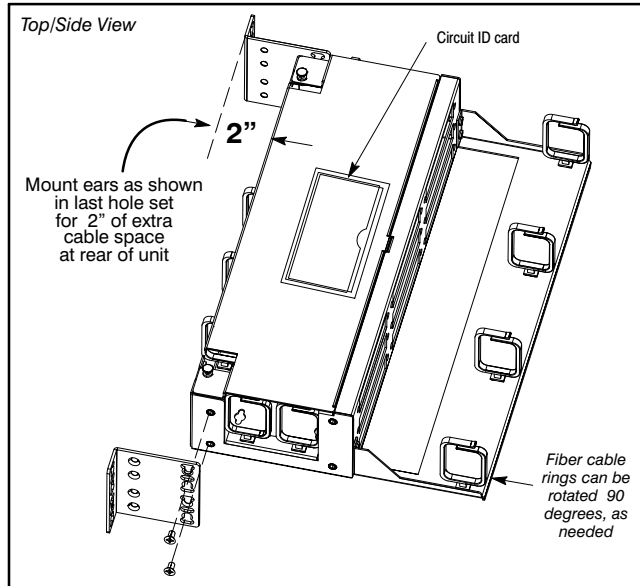


Figure 9. Wall Mount Ear Position for Extra Rear Space

an approved ground strap or #6 ground wire, then ground the panel to an earth ground or according to local installation procedures for grounding and bonding equipment.

- 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.

2.5 Making Installer Connections

After the panel is mounted, up to nine separately-ordered LGX panels fiber cassettes (fiber trays) may be installed at the front of the VELGX-90. A variety of LGX type panels or cassettes can be installed, as well as various types of keystone couplers may be installed in any LGX panel, per company practice. After LGX panels and keystone couplers are installed, fiber cable connections are made at the front of the VELGX-90. Use the provided circuit ID card (see Figure 9 and Figure 10), folded up and located in a clear packet on the top cover, as connections are made, to identify each line.

- CAUTION -

Use care when installing and removing couplers and adapter panels - 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 Provided Fiber Cable Management Rings

Cable management D-rings or clips are provided to assist in neat management of the fiber cables and to provide safe guidance and support of the cables that run to and from the LGX panels and couplers. Westell provides 8 fiber rings, shipped loose in a bag of parts. They may be installed near the front, back, and side edges of the VELGX90, in the small square mounting holes provided. Any ring may be rotated 90 degrees, to accommodate cables entering the VELGX-90 from any direction. The design of the provided rings allows existing or newly-installed cables/jumpers to be safely contained yet easily inserted into the ring, without disconnecting, re-feeding, or re-routing. Route the fiber through the contact-free gap between the ends of the ring, flexing the ends if or as needed, then direct the fiber toward the center of the fiber ring.

TOP																	
73	75	77	79	81	83	85	87	89	91	93	95	97	99	101	103	105	107
74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108
37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71
38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
1	19	37	55	73	91	2	20	38	56	74	92	3	21	39	57	75	93
4	22	40	58	76	94	5	23	41	59	77	95	6	24	42	60	78	96
7	25	43	61	79	97	8	26	44	62	80	98	9	27	45	63	81	99
10	28	46	64	82	100	11	29	47	65	83	101	12	30	48	66	84	102
13	31	49	67	85	103	14	32	50	68	86	104	15	33	51	69	87	105
16	34	52	70	88	106	17	35	53	71	89	107	18	36	54	72	90	108

Figure 10. Circuit ID Card (Located in Clear Packet on Top Cover)

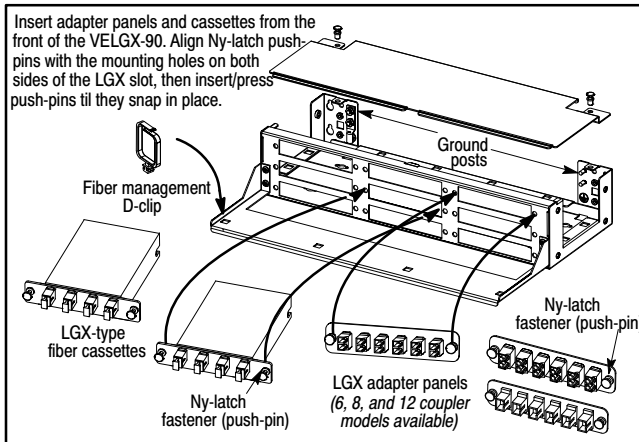


Figure 11. Inserting LGX Panels and Fiber Cassettes

- LGX-SIZED CASSETTES NOTE -

If LGX-sized cassettes or trays are installed in the VELGX-90 panel, follow the manufacturer's instructions for installer connections at the tray or cassette.

2.5.4 Labelling Circuit Positions

A circuit identification card (label) and a clear plastic packet is provided for quick and easy circuit labelling and identification. Complete and fill in the card per company practice.

3 CUSTOMER & TECHNICAL SERVICES

3.1 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>.

3.2 Part Numbers

This equipment is identified by a product number (A90-VELGX90), which consists of three parts: the issue letter of the equipment (A), the assembly type (90), and the specific model number (VELGX90). 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.

4. WARRANTY & REPAIRS

4.1 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.

4.2 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.

2.5.2 Installing Optional Fiber Cable Clamp(s)

An optional, rubber-padded, fiber cable clamp may be ordered and installed at either or both rear corners of the VELGX-90. The expandable clamp accommodates single or groups of cables of various sizes. Contact Westell for further details.

2.5.3 Installing Optional Adapter Panels and Couplers

The VELGX-90 panel supports 9 LGX-type adapter panels, fiber cassettes, or JDSU BrightJacks. Order and install optional LGX-type adapter panels, fiber cassettes, or JDSU BrightJacks per the specific application, company practice, or service desired. Follow the steps below to install the cassettes, couplers and adapter panels in the VELGX-90.

1. Call Westell to order the fiber cassettes, couplers or LGX-type panels of choice for the application (see Table 3).
2. If and as necessary, populate any blank LGX panels per company practice by installing the desired or any different couplers into their proper or designated Keystone positions in the field-provided LGX-type adapter panels.
3. Remove the VELGX-90's top cover, for easy panel access.
4. Align the two, plastic, Nylatch fasteners (push-pins) located on each side of the fiber cassette, LGX adapter panel or JDSU BrightJack with the holes at both sides of the selected, empty, LGX-type cut-out position at the front of the VELGX-90. Insert the push-pin fasteners into the holes, and press them until they click, snap, or lock in place. Verify the adapter panel is securely attached to the panel (see Figure 11).

- EXTRA PUSH-PINS FOR LGX PANEL NOTE -

For convenience, two extra Nylatch easy-on/easy-off push-pins are provided in a bag of parts shipped with the VELGX-90.

5. Connect fiber (pigtailed/fan-outs) at the installed LGX adapter panels and/or fiber cassettes as needed and make all installer connection per company practice.
6. Use the circuit ID card to identify all coupler positions.
7. Repeat for all adapter panels to be installed.

Feature	U.S.	Metric
Height	3.47 inches (2 RUs)	8.81 cm
Width, w/o ears	16.8 inches (approx.)	42.67 cm
Width, w/ears in 19" rack position	19.325" (overall) 18.312" (mounting holes)	49.1 cm 46.5 cm
Width, w/ears in 23" rack position	23.525" (overall) 22.312" (mounting holes)	59.8 cm 56.7 cm
Depth, minimum	6.08 inches	15.44 cm
Depth, with tray, without rear clips/clamps	10.95 inches	27.81 cm
Weight	29 ounces	822 g
Operating Temp.	-40° to 149°F	-40° to 65°C
Humidity	0 to 95% (non-condensing)	

Table 2. Physical Specifications

5. SPECIFICATIONS

5.1 Physical Specifications

The physical specifications are shown in Table 2.

5.2 Ordering Specifications

To order units, call the telephone number shown in Paragraph 3.1 and please specify a specific part number shown in Table 3.

Part #	Description
A90-VELGX90	VirtualEdge® Universal Connection Media Panel for LGX-type fiber cassettes/trays and/or LGX-type fiber panels, with 9 LGX-sized positions, top cover, cable management tray, and D-rings. Rack/wall mountable (2 RUs high).
Orderable Options*	
033-100045	Cable management ring, 1.38" x 1.73" (inside dimensions)
A90-VE118LCU6	LGX-type panel with 6 LC/UPC duplex couplers
A90-VE118SCU6	LGX-type panel with 6 SC/UPC couplers
523-700194	12-fiber LC/UPC stranded pigtail
523-700202A	12-fiber LC/UPC ribbon pigtail

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

Table 3. Ordering and Option Information