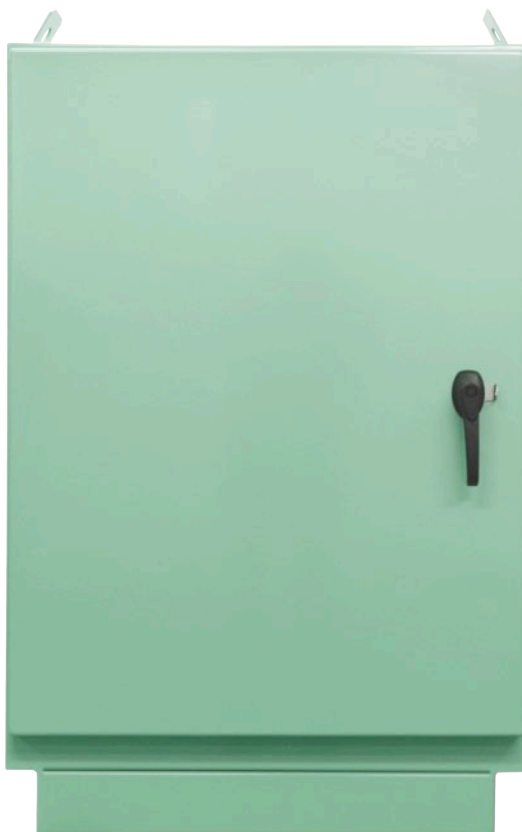


864 Fiber Distribution Hub (864 FDH)

P97-18391-XX-XX 864 FDH Cabinet

User Manual



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Revision History

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1	08/16/2019	Original Release
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About This Manual

This publication describes Priority Electronics Ltd's 864 Fiber Distribution Hub (864 FDH). The 864 FDH is equipped with 864 distribution ports. Also included are procedures for installing additional splitters, storing splitter output fibers, connecting the splitter output fibers to distribution fibers, pass-through routing procedure, replacing damaged components and installation instructions.

ADMONISHMENTS

Important safety admonishments are used throughout this manual to warn of possible hazards to persons or equipment. An admonishment identifies a potential hazard and then explains what may happen if the hazard is not avoided. These warnings are flagged by use of the alert triangle (See Below) and are listed in order of severity of injury or damage and likelihood of occurrence.



Danger: Danger is used to indicate the presence of a hazard that will or can cause severe personal injury, death or substantial property damage if the hazard is not avoided.



Warning: Warning is used to indicate the presence of a hazard that can cause severe personal injury, death or substantial property damage if the hazard is not avoided.



Caution: Caution is used to indicate the presence of a hazard that will or can cause minor personal injury or property damage if the hazard is not avoided.

GENERAL SAFETY PRECAUTIONS



Danger: Do not look into the ends of any optical fiber. Exposure to laser radiation may result. Do not assume the laser power is turned off or that the fiber is disconnected at the other end. Priority Electronics Ltd recommends the use of video inspection microscopes for inspecting connector end faces in the field.



Danger: Do not stand under the cabinet as it is being lifted into position for mounting. Serious personal injury and/or significant damage to the cabinet may result if dropped.



Warning: Check with all local utilities for the presence of buried cables or pipes before digging. Contact with underground cables or pipes, especially electric power cables and gas service lines, could interrupt local utility service and cause serious personal injury and extensive property damage.

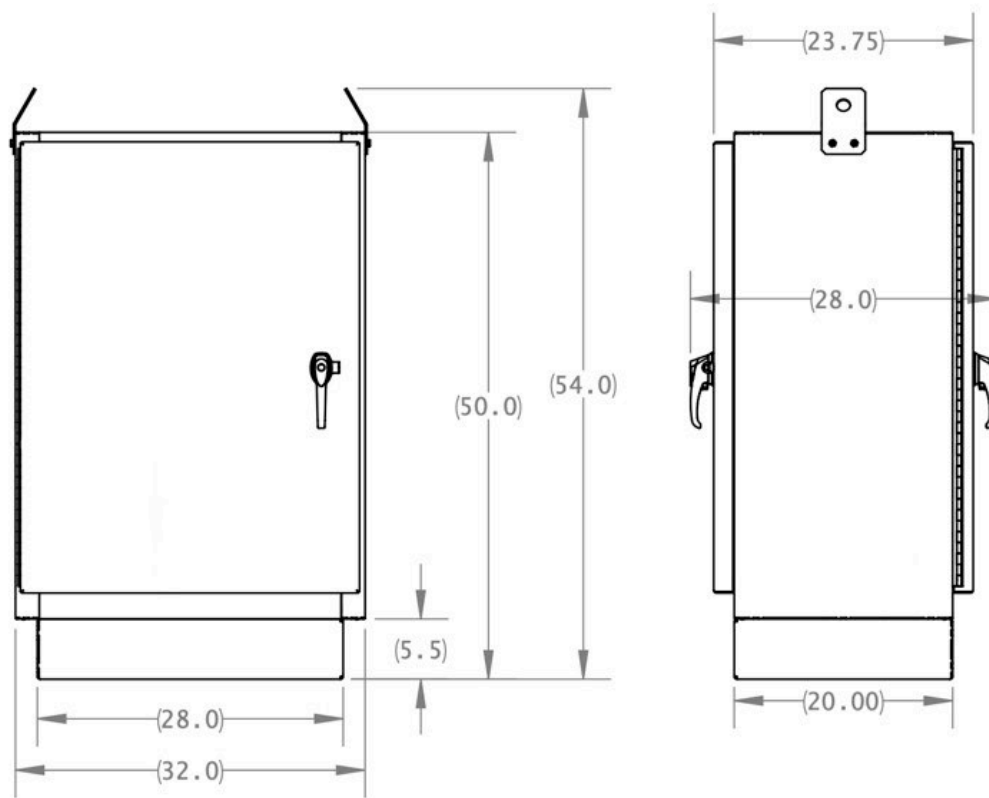


Fig 1. Cabinet Outer Dimensions

1. Description

Priority's 864 FDH Cabinet is designed to protect and manage fiber optic cable for broadband delivery in outdoor applications. The cabinet is constructed with welded aluminum and coated with polyester powder paint. The cabinet contains optical splitters that allow input signals to be split into multiple connectorized outputs. Subscribers can be added in a switchboard fashion by positioning the output connectors into the Subscriber's distribution port.

The **P97-18391-XX-XX** 864 FDH contains 864 distribution ports with two factory installed 432 fiber ribbon Outside Plant (OSP) all-dielectric distribution cables. The stub length is based upon the Customer's requirements, typically 30m. The cabinet also contains 72 feeder ports with a 72 fiber OSP loose tube all-dielectric feeder cable to service up to 864 subscribers as well as pass through fibers where required. Feeder cable stubs are available at any length but are typically the same length as the distribution stub (30m).

Cabinet Features

- ✓ Seamless foam-in-place gasket seals doors against moisture and dust
- ✓ Wind latch mechanism on door controls door when open
- ✓ Removable lifting lugs
- ✓ Grounding buss bar
- ✓ 3-point latching mechanism and padlocking handle on the doors provides security
- ✓ 5" (127mm) aluminum mounting plinth to allow for cable alignment
- ✓ Insulation on interior walls

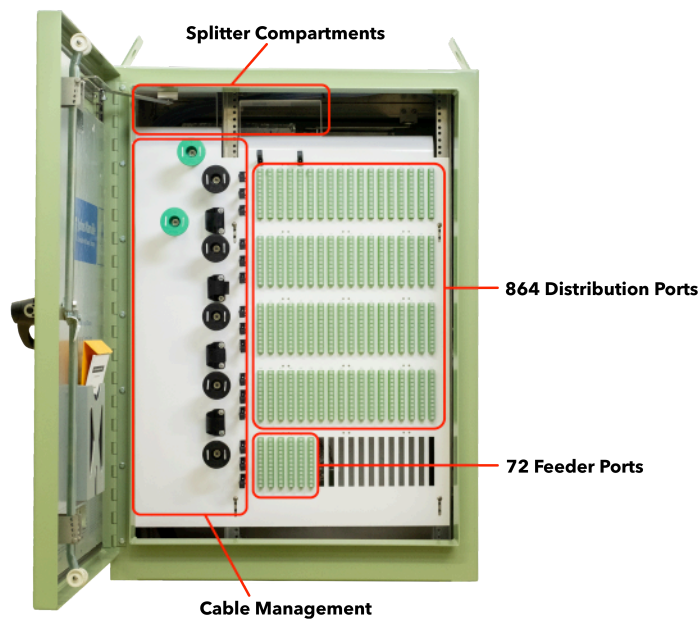


Fig 2. Cabinet Contents

864 FDH Cabinets are equipped with the following:

Splitter Compartment: Provides mounting space for up to 36 splitters in two 18 position splitter brackets.

Cable Management: Provides adequate space for managing splitter output fibers with routing arcs, finger arcs and cable clips.

Distribution Ports: Provides a point for connecting the splitter output fibers with the pre-terminated distribution cable fibers. The distribution cable fibers terminate at the rear of the 4 rows of 216 SCapc distribution ports. Ports are identified on 8.5"x11" labels. Port numbers from 1-864 start in the top left-hand corner of distribution row #1.

Feeder Ports: Provides a point for connecting the splitter input fiber with the pre-terminated 72 fiber OSP cable. The feeder ports are located in the row below the 4 rows of distribution ports. Ports number from 1-72 start in the top left-hand corner of the feeder row, with room for an additional 144 feeder ports.

Cabinet	Specifications
Nominal Dimensions	44.5 x 32 x 20 in (1130.3 x 812.8 x 508 mm)
Distribution Ports	4x 216 = 864
Feeder / Distribution Cable Lengths	Optional (Note: feeder & dist stubs can be different lengths)
Splitter Capacity	36
Feeder Ports	72
Splitter Modules	
Output Tails	Bend Tolerant fiber terminated with Scapc connectors
Operating Wavelength	1260 - 1650nm
Return Loss	>55dB
Max Insertion Loss	
1x16	14.5dB
1x32	17.3dB

Table 1. Cabinet Specifications

2. Feeder and Distribution Cable Information

The 864 FDH Cabinets are equipped with pre-installed all dielectric OSP feeder and distribution cables. The cable stub ends must be spliced to the network feeder and distribution cables at a separate splice enclosure (not provided). The feeder and distribution cables are available in optional lengths (typically 30m).

2.1 OSP Feeder Cable Information

The 864 FDH feeder cable has a fiber count of 72 loose tube fibers. All 72 fibers are terminated with SCapc connectors and installed into the 72 port feeder ports in the feeder row located below the 4 rows of distribution ports. There is room for an additional 144 feeder ports.

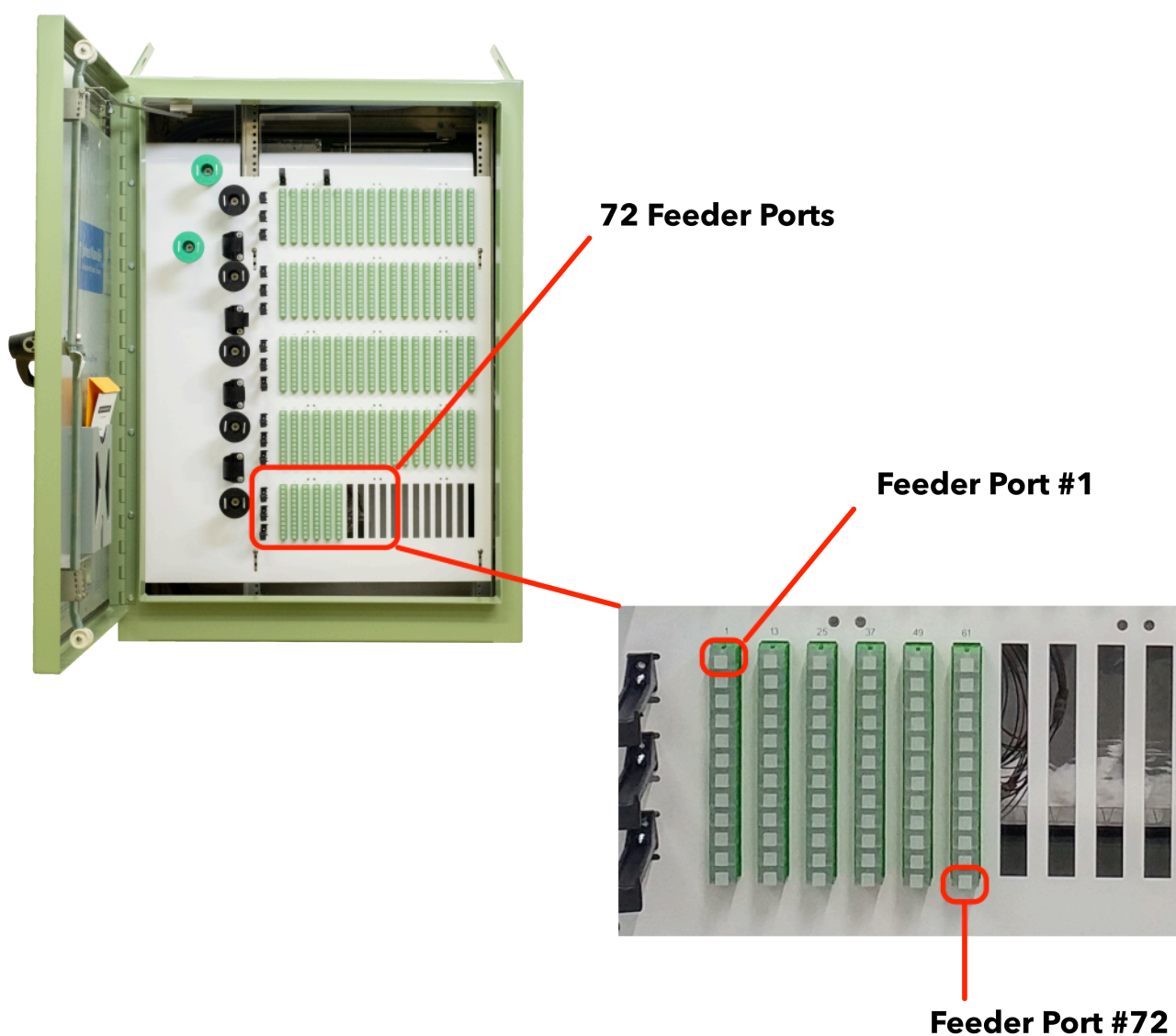


Fig 3. Feeder Plate

2.2 Splitter Bracket Information

Up to 36 HD Splitter modules may be mounted in the 864 FDH in two 18 position splitter brackets.

The splitters are equipped with temperature hardened furcation tubing and bend tolerant fiber.

The splitter modules include a 32 port foam block parking lot for output connectors. The foam block is equipped with a magnetic strip that allows the parking lot to be stored at the bottom of the cabinet.

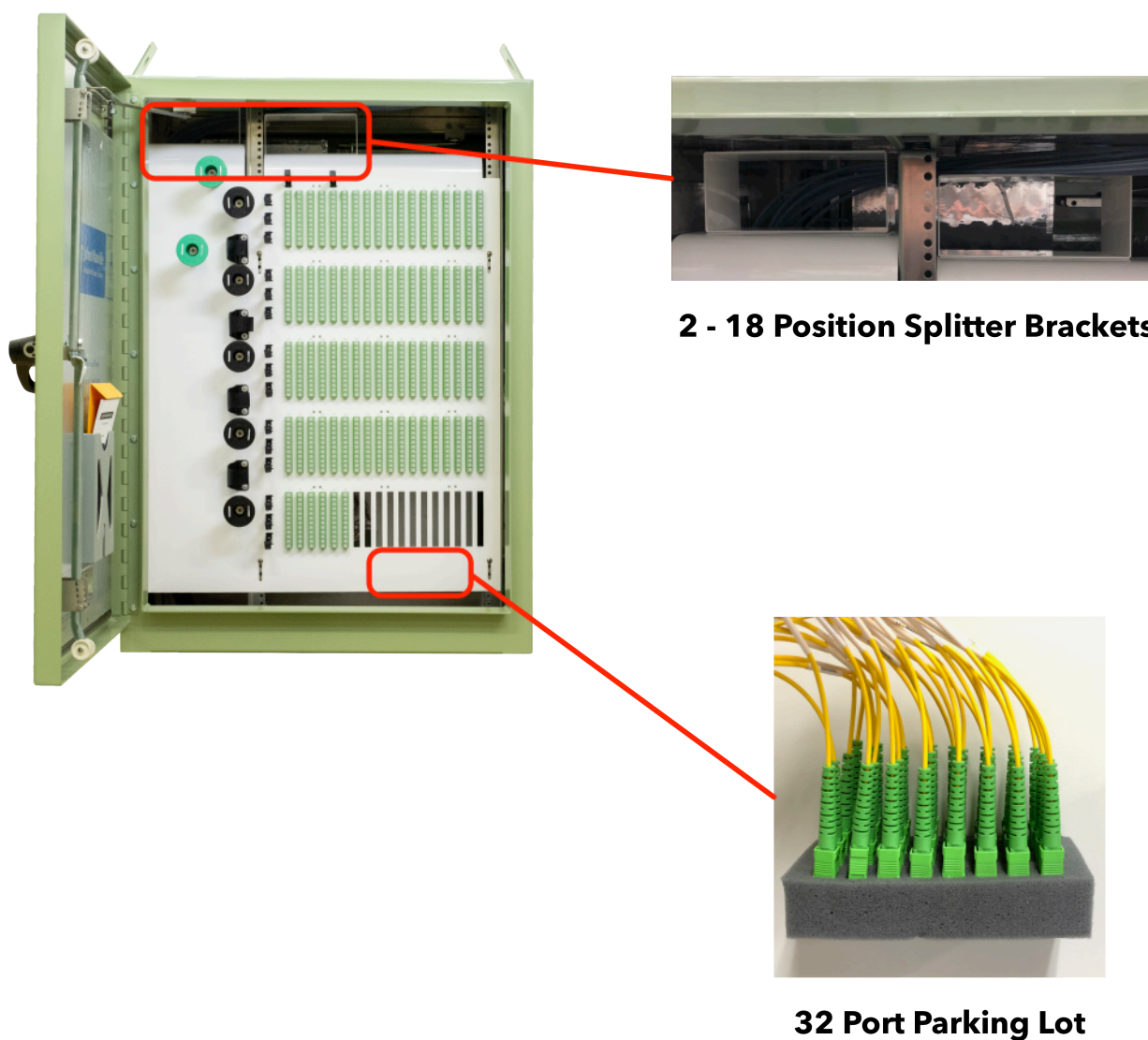


Fig 4. Splitter Brackets

2.3 OSP Distribution Cable Information

The 864 FDH is equipped with two 432 fiber ribbon all-dielectric OSP distribution stub cables. Distribution cable #1 services ports 1 - 432 and distribution cable #2 services ports 433 - 864.

Within the cabinet, the distribution cables are secured to tie-down points on the floor of the cabinet and the rear of the distribution rows. Each sub-unit is fanned out into 12 individual fibers, each of which is terminated with an SCapc connector. 216 individual fibers are routed to the back of each distribution row. Each fiber is connected to a specified bulkhead adapter within the specified distribution row. See Figure 6 below for distribution port locations.

8.5" x 11" designation labels are provided for recording Subscriber information. The 8.5" x 11" labels indicate fiber number, color code as well as corresponding port identifications.

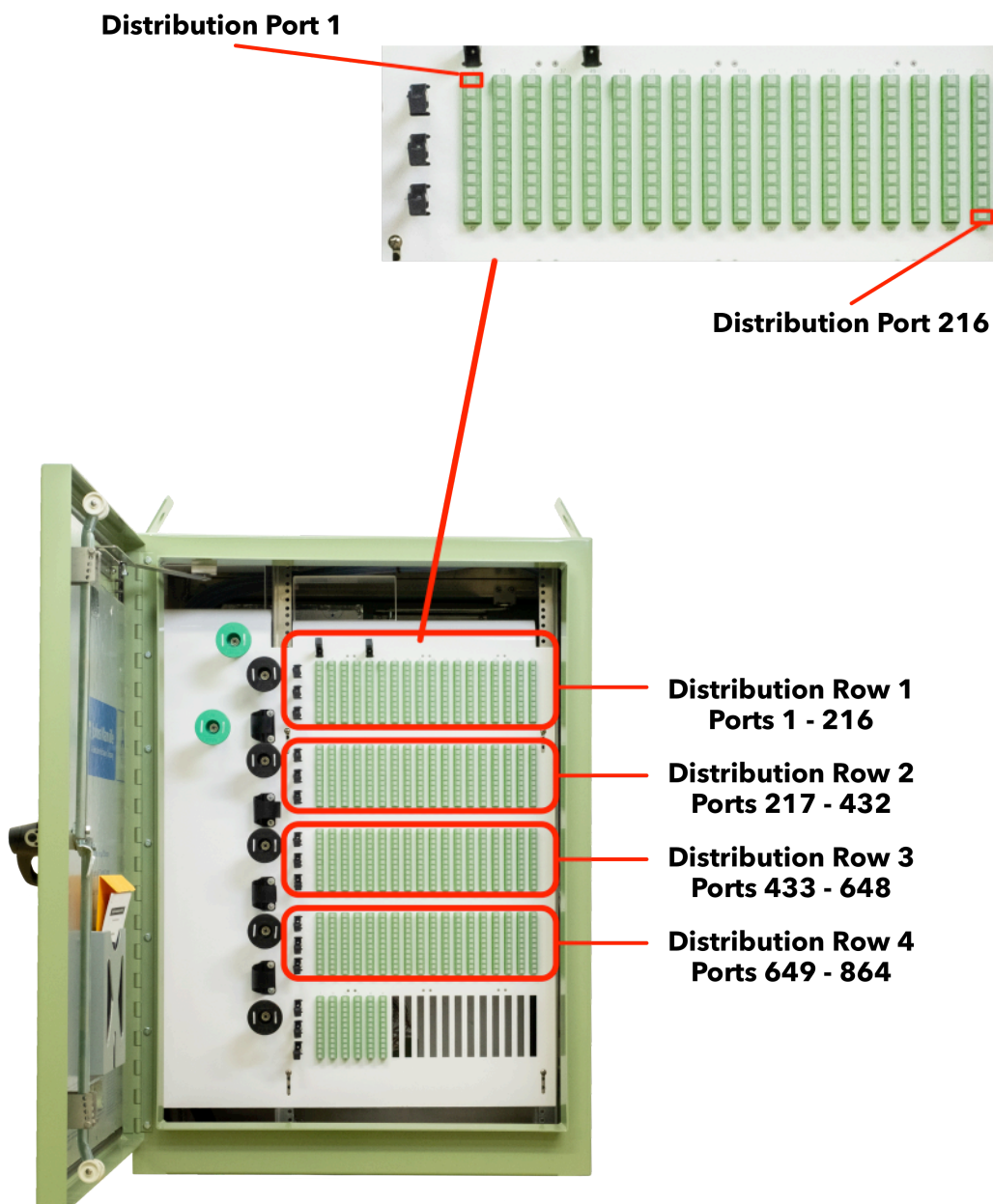


Fig 5. Distribution Row ID

3. Splitter Module Installation

The 864 FDH Cabinet can accommodate up to 36 HD splitter modules in two 18 position splitter brackets. Each splitter module is equipped with one connectorized input fiber distinguished with black temperature hardened tubing. Splitter modules are equipped with 32 connectorized output fibers that are stored in a foam parking lot. The parking lot can be stored at the bottom of the cabinet. The output fibers may be stored for later use or routed to the distribution rows for connection to the distribution ports. Additionally there are options for two 1x16 splitters housed in one splitter module. In this case, there are two input legs per splitter module.

Use the following procedure to install additional splitters in the cabinet:

1. Open the front door of the cabinet.
2. Identify the next available splitter mounting position
Note: Install splitters into the splitter brackets located at the top of the cabinet.
3. Slide the splitter into the next available slot until the retaining clip on the top of the splitter snaps into position within the mounting slot. Gently manipulate the clip to ensure that it is properly latched.
4. Route the output legs down the left side of the cable management to the bottom of the cabinet. Use the magnetic strip on the foam block to secure the parking lot to the bottom of the cabinet.
5. Remove the dust cap from the next available feeder bulkhead adapter in the feeder row.



Warning: Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters or connectors. Exposure to invisible laser radiation may result. An optical power meter should be used to verify active fibers. A protective cap must be placed over any adapter or optical connector to avoid the potential of dangerous amounts of radiation exposure.

6. Route the input leg from the splitter toward the feeder row, follow the path shown in Fig 6.
Note: Take care to avoid routing the fiber in an area that will interfere with future installation.
7. Remove the dust cap from the Input connector. Clean if necessary.
Note: Priority Electronics Ltd recommends the use of video inspection microscopes for inspecting end-faces to minimize potential infrared laser radiation exposure.
8. Insert the connector into the adapter.



Caution: To ensure that neighbouring fibers are not damaged during connector installation, Priority Electronics Ltd recommends the use of insertion/removal tooling.

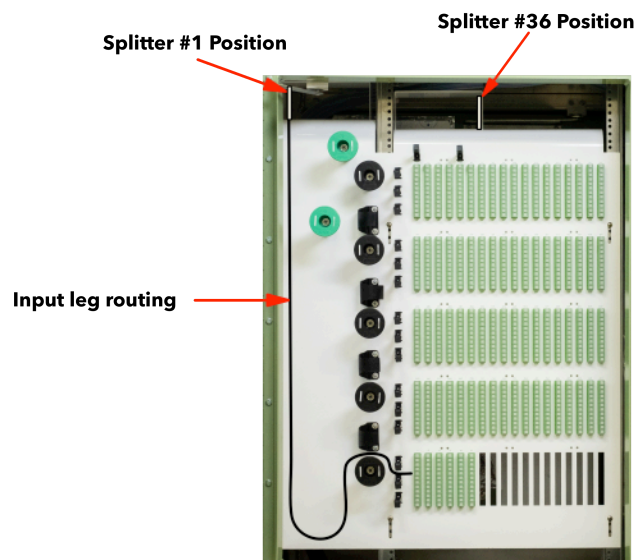


Fig 6. Splitter Install

4. Routing and Connecting the Splitter Output Fibers

Splitter modules include a foam parking lot for parking output fiber connectors. The foam parking lot is stored at the bottom of the cabinet.

4.1 Providing Service to a Subscriber

Use the following procedure to provide service to a Subscriber:

1. Locate the subscriber port on the specified distribution row. Remove the dust cap on the specified adapter.
2. Select and remove an unused output fiber from the foam parking lot and carefully work it free from any other fibers.
3. See Fig 7 for recommended routing. As a rule of thumb, route the output leg down below the distribution row, through the cable clip adjacent to the distribution row and then transition the leg up over the arc positioned next to the distribution row. Proceed with the leg running under the appropriate finger arc attached to the left side of the distribution row and onto the desired port.
4. Remove the ferrule dust cap and clean the connector as required.



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Note: Priority Electronics Ltd recommends the use of video inspection microscopes for inspecting end-faces to minimize potential infrared laser radiation exposure.

5. Connect the output fiber to the subscriber port.
6. Manage any excess slack not required to bridge the distance from the module to the desired port by allowing the slack to form a natural loop on the cable management (waterfall). As a rule of thumb, manage the excess slack by working backward from the distribution port.
7. Once the connection is complete ensure that some slack remains and the output leg is not tight. It is necessary to ensure there is a small amount of slack in every connected output leg to accommodate any possible cold temperature related contractions. This is imperative as additional output legs are routed, space will become a premium and moving fibers afterwards will become time consuming.
8. Record Subscriber information on the 8.5" x 11" designation label as required.

Splitter

Output Fiber routing

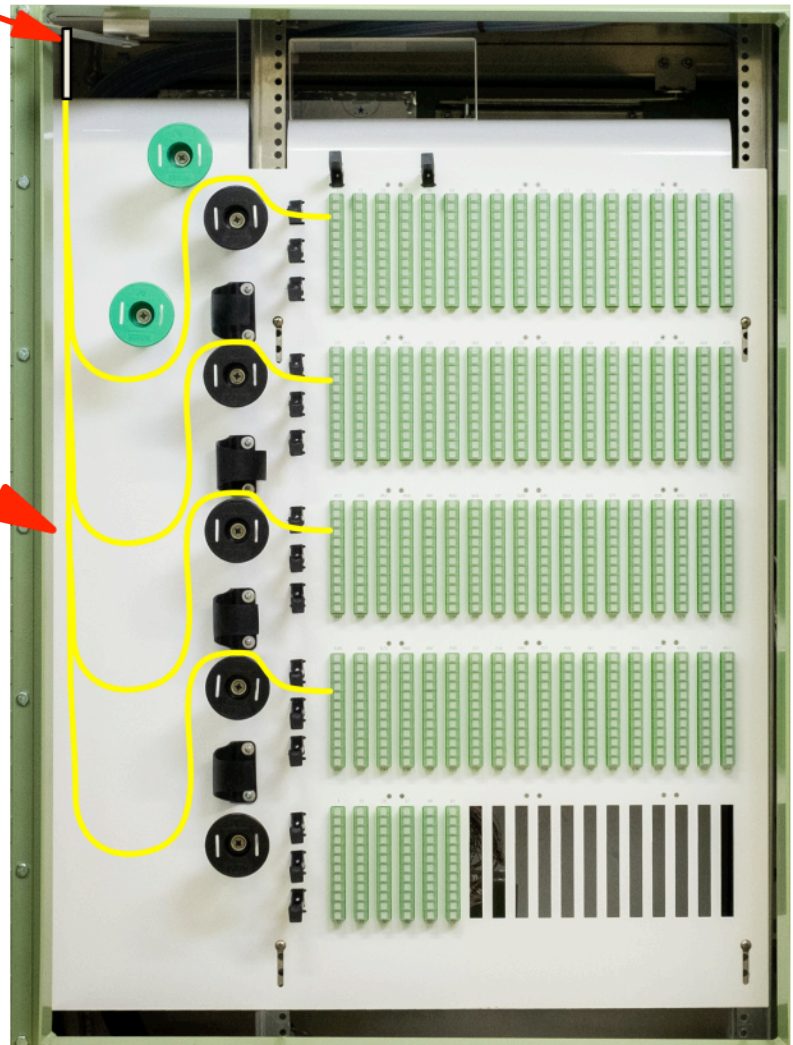


Fig 7. Splitter Output Fiber Routing

5. Pass-Through Routing Procedure

Pass-through routing is used when it is necessary for a feeder cable optical signal to be passed directly to a distribution port. This involves connecting a patch-cord (not supplied) between a feeder port and a distribution port.

Temperature Hardened Patch-cord

1. Open the door of the 864 FDH.
2. Locate an unused terminated feeder fiber port within the 72 fiber feeder ports.
3. Remove the dust cap from the adapter of the selected port.
4. Remove the dust cap from the patch-cord connector.



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Note: Priority Electronics Ltd recommends the use of video inspection microscopes for inspecting end-faces to minimize potential infrared laser radiation exposure.

5. Clean the patch-cord connector if required and install the connector into the adapter.
6. Locate the distribution row and the port to which the pass-through patch-cord is to be connected.
7. Route the patch-cord under the appropriate finger arc of the feeder ports, up the cable management, through a cable clip adjacent to the distribution row and over the routing arc positioned next to the distribution row. Route the patch-cord under the appropriate finger arc and to the selected port. Install the connector into the distribution port. As a rule of thumb, manage the excess slack by working backward from the distribution port.

Patch-cord routing

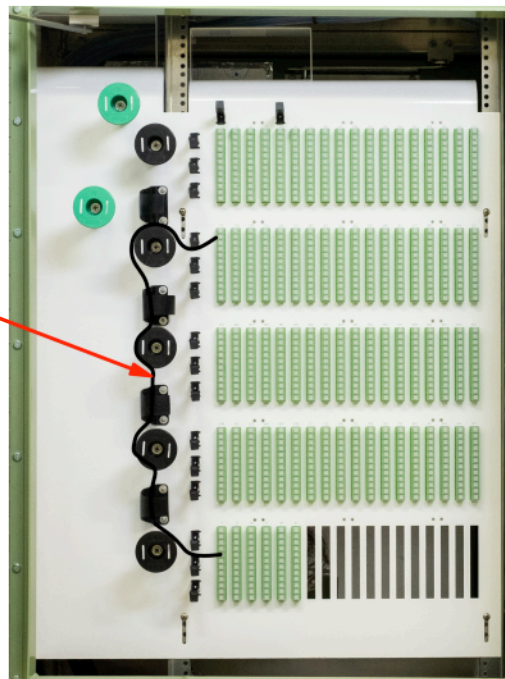


Fig 8. Pass-Thru Routing

6. Maintenance and Repair Procedures

The 864 FDH Cabinet requires no regular maintenance to ensure continuous and satisfactory operation. Maintenance is limited to repairing or replacing any cabinet components that may be damaged or broken in the course of normal operation.

6.1 Distribution Row Adapter Replacement

1. Open the front and rear doors of the 864 FDH. Disconnect the splitter output fiber connector from the front side of the distribution port. Install a dust cap on the connector.



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2. Disconnect the distribution connector from the rear side of the distribution row and install a dust cap.



Caution: To ensure that neighbouring fibers are not damaged during connector installation, Priority Electronics Ltd recommends the use of insertion/removal tooling.

3. Working from the rear of the distribution row, depress the two metal tabs that retain the adapter in the plate. Then push the adapter forward until the adapter is removed from the slot.
4. Discard damaged adapter.
5. Install the replacement adapter by inserting it into the distribution row from the front. Take care to ensure that the alignment key is orientated the same as surrounding adapters.
6. Clean the distribution and splitter output fiber connectors.



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7. Install the distribution connector to the rear side of the replaced adapter.
8. Install the splitter output connector to the front side of the replaced adapter.

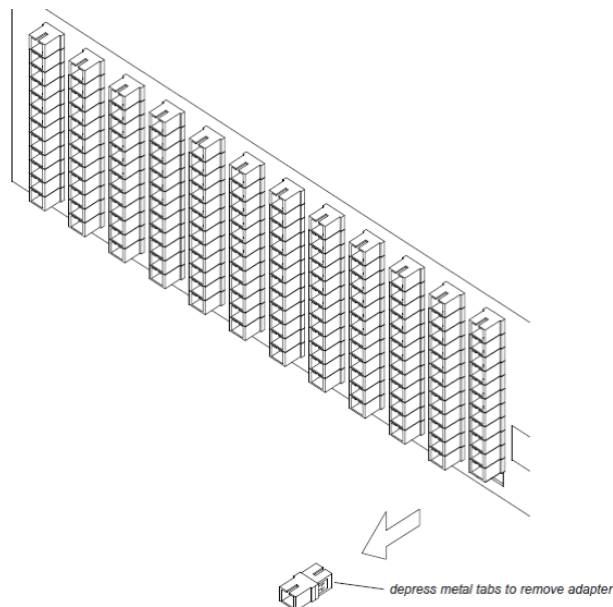


Fig 9. Adapter Replacement

6.2 Replacing a Damaged Fiber or Connector

A damaged fiber or connector can usually be replaced.

Replacement Options:

Damaged splitter Output Connector: Replace the connector using a field-installable connector.

Note: the temperature hardened fiber coatings can be difficult to remove in preparation for field installation. Priority Electronics Ltd. Recommends returning the splitter module for repair, contact Priority for RMA at 1-800-478-0447.

Damaged Distribution or Feeder Connector: Replace the connector at the bulkhead adapter if the connector alone is damaged. Use a field-installable connector.

Procedure:

1. Disconnect the damaged connector and the good connector from the adapter and install a dust cap on both connectors.



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2. Replace the damaged connector as specified in the procedures provided with the field-installable connector.
3. Clean both connectors if necessary.

Note: Priority Electronics Ltd recommends the use of video inspection microscopes for inspecting end-faces to minimize potential infrared laser radiation exposure.

4. Reconnect the good connector and the replacement connector to the adapter.

7. Cabinet Information

7.1 Mounting Hole Pattern

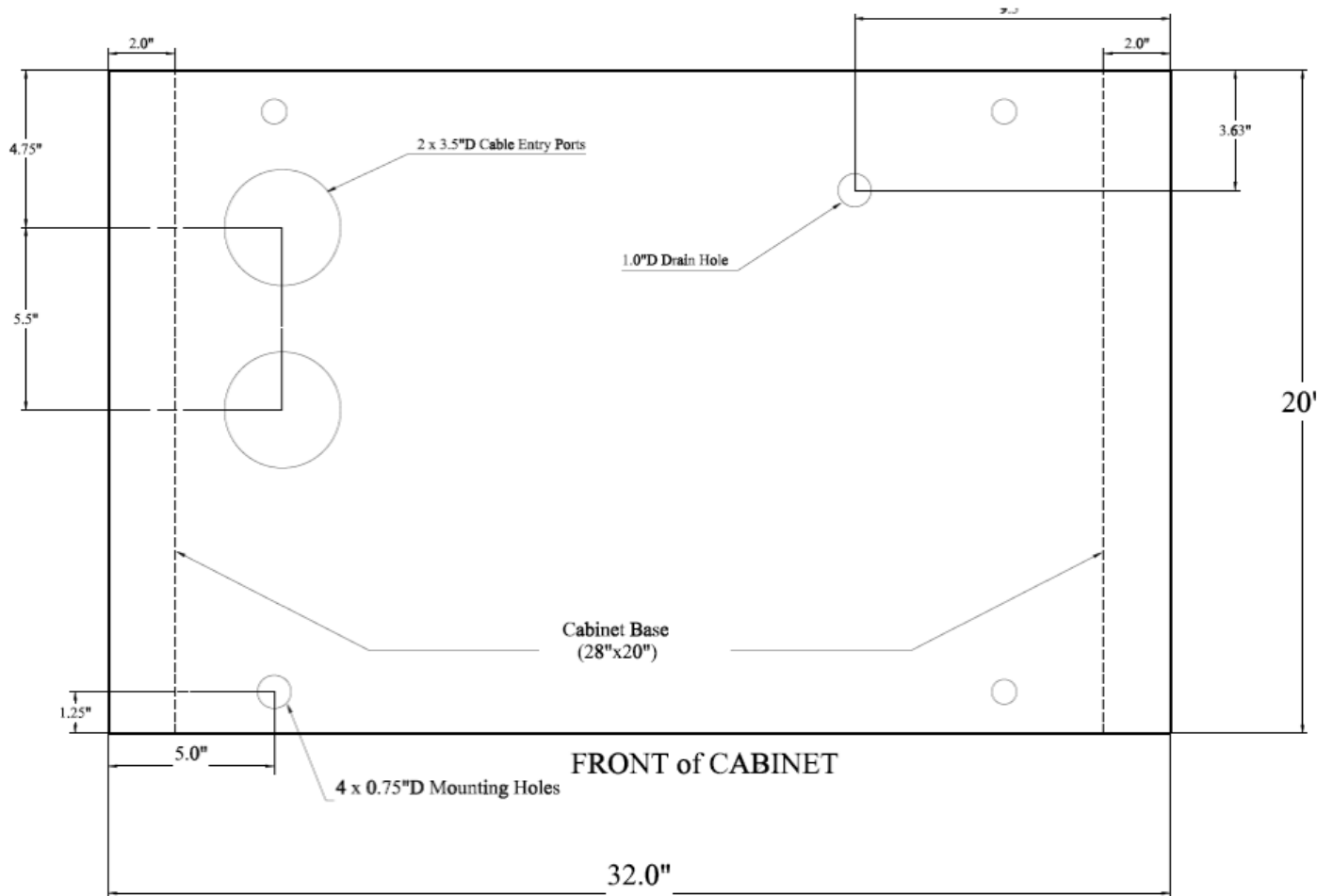
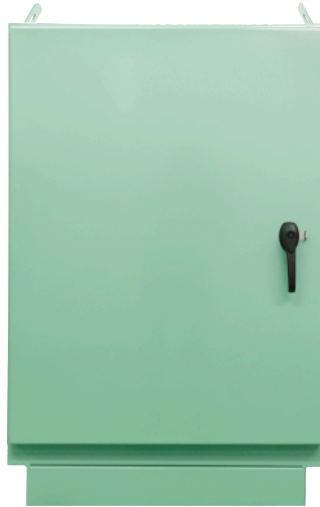


Fig 10. Mounting Holes

7.2 Cabinet Specifications



- Material: 5052-H32 .125" thick aluminum
- Finish: graffiti resistant polyester powder coated for long-lasting protection in outdoor applications
- Dual access doors on front and rear for convenient access
- 3-point latching and padlocking handles provide security
- Isoloss gasket seals doors against dust and moisture
- Wind latches on both doors
- EIA standard rack rails for equipment mounting
- Insulated top, sides and doors helps prevent condensation and reduces solar gain
- Pyramidal boots provided to seal various sizes of cables
- Grounding bus bar
- Seams continuously welded and ground
- Custom options available
- Industry Standards
 - CSA: Type 4, 4X & 12
 - UL: 508A
 - NEMA/EEMAC Type 3, 4, 4X
 - EC60529, IP66
 - Designed to meet Telcordia NEBS GR-487, GR-63