PG-Flex® FRE-860/865/867 Outdoor RT Enclosures – Quick Installation Guide

This document describes the procedures for installing and wiring the PG-Flex FRE-860, FRE-865, and FRE-867 outdoor Remote Terminal Enclosures.

RT Enclosures

The PG-Flex FRE-860 outdoor Remote Terminal (RT) Enclosure is designed for pedestal mounting. The FRE-865 and FRE-867 outdoor (RT) Enclosures are designed for wall or pole mounting. The RT Enclosures are compatible with universal and integrated 24 channel PG-Flex systems.

The line and channel units installed in these RT enclosures are powered over the HDSL and auxiliary power pairs from the Central Office Terminal (COT) shelf.

Table 1
FRE-860/865/867 RT Enclosure Feature Matrix

		860		865			867		
	Feature	L1	L1A	L1	L1A	L1B	L1	L1A	L1B
	Mounting:								
	Wall			●	●	●	●	●	●
	Pole			●	●	●	●	●	●
	Pedestal	●	●	●	●	●	●	●	●
Subscriber	Lines:								
	24	●	●	●	●	●			
	48						●	●	●
	Terminations:								
	35' Gel Stub			●	●		●	●	
	35' Air Stub					●			●
	Dterminator 2®	●	●						
	Protection:								
	5-Pin Sockets	●	●	●	●	●	●	●	●
HDSL	Terminations:								
	35' Gel Stub			●	●		●	●	
	35' Air Stub					●			●
	Dterminator 2	●	●						
	Protection:								
	5-Pin Sockets	●	●	●	●	●	●	●	●

Note: The suffix "P" after the model number (i.e. FRE-865P List 1) indicates that the RT Enclosure includes 5-pin gas-tube protectors for all HDSL, Auxiliary Power, Bypass, and Subscriber Pair terminations.

Mount the RT Enclosure

PG-Flex outdoor RT enclosures can be wall, pole, or pedestal mounted, as described below.

FRE-860

The FRE-860 can be mounted in a Marconi® UP10900 pedestal using the mounting flanges and hardware included with the FRE-860 (see Figure 1).

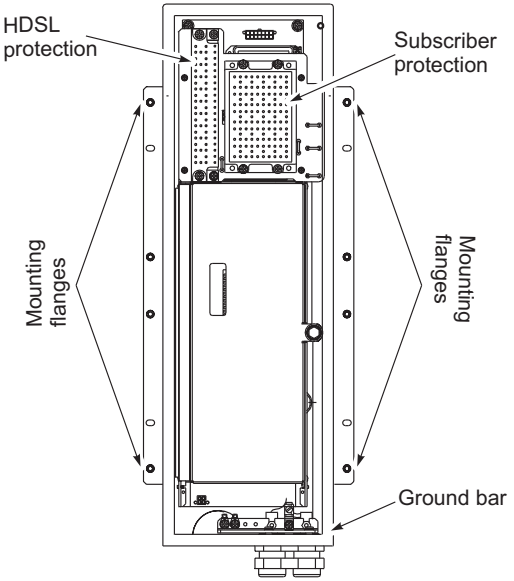

Figure 1
FRE-860 RT Enclosure

1. Remove the horizontal crossbars from the UP10900 pedestal prior to mounting the FRE-860.
2. Attach the FRE-860 to the pedestal frame using the mounting flanges (see Figure 1). Use the 10-32 x ⅜" mounting hardware provided with the FRE-860 to secure the RT enclosure to the pedestal.
3. After installing the FRE-860, continue with the *Wire the RT Enclosure* section on page 2.

FRE-865 and FRE-867

The FRE-865 (see Figure 2) and FRE-867 (see Figure 3) RT Enclosures can be wall, pole, or pedestal mounted. This section describes the procedures for wall mounting these enclosures.

Note: Contact ADC for information on mounting kits for attaching these RT enclosures to a pole or installing them in a pedestal.

1. Select a location on the wall that allows for easy routing of the HDSL and subscriber cables and provides room for the cover door to be opened fully.
2. Install appropriate hardware for the top mounting tab, leaving it out far enough so the top mounting tab can be slid over the head of the screw.
3. Hang the RT enclosure on the screw installed in step 2.
4. Install appropriate hardware for the bottom mounting tab and tighten both screws to secure the RT enclosure to the wall.

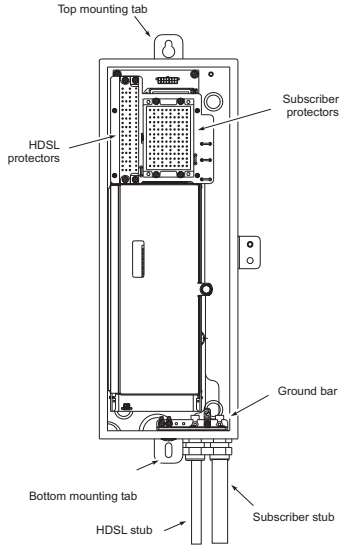

Figure 2
FRE-865 RT Enclosure

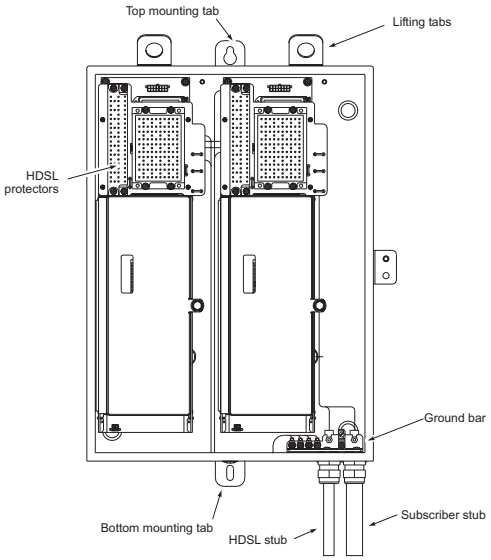

Figure 3
FRE-867 RT Enclosure

Note: The FRE-867 includes lifting tabs (see Figure 3) that can be used to hold the RT enclosure in position while installing the mounting hardware.

WIRE THE RT ENCLOSURE

The ground wire for the FRE-860, FRE-865, and FRE-867 RT Enclosures is terminated on the ground buss at the bottom of the enclosure. HDSL, auxiliary power, bypass, and subscriber pairs are terminated on Insulation Displacement Terminations (IDTs) on the FRE-860 enclosure, and cable stubs on the FRE-865 and FRE-867 enclosures.

Ground

A ground termination is required for primary and secondary protection of the PG-Flex line and channel units.

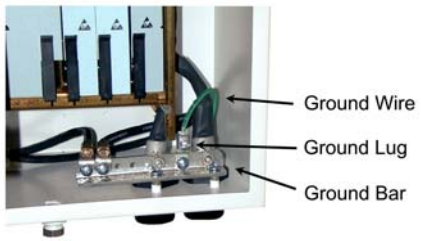

Figure 4
Ground Bar

Note: Use 6 AWG (minimum) wire for the ground connection.

1. Route the ground wire through the small hole in the strain relief on the bottom of the RT enclosure.
2. Connect one end of the ground wire to the ground lug on the ground bar (see Figure 4).
3. Connect the other end of the ground wire to a suitable ground termination point following local practice (ground rod or cold water pipe).
4. Tighten the strain relief around the ground wire.

HDSL, Auxiliary Power, Bypass Pairs

Note: For each doubler installed between the COT shelf and RT enclosure, two additional power pairs are required between the COT shelf and RT terminal. These power pairs do not need to pass through the doubler housings.

HDSL, auxiliary power, and bypass pairs should be tested and qualified before terminated on the RT enclosure:

- ❑ < 3 Vdc TR, TG, RG
- ❑ < 3 Vac TR, TG, RG
- ❑ > 3 MΩ TR, TG, RG
- ❑ < 2.5 kft total bridged taps (remove all bridged taps if possible, especially those close to the RT enclosure)
- ❑ No load coils

Table 2 indicates the maximum distance of the HDSL circuits for different wire gauges at 68º F

Table 2
24 Channel PG-Flex HDSL Distance

26 AWG	24 AWG	22 AWG	19 AWG
9.0 kft	12.3 kft	16.1 kft	22.8 kft

FRE-860

The FRE-860 uses DTerminator 2 IDT strips located on the back of the RT enclosure for connecting HDSL, auxiliary power, and bypass pairs (see Figure 5).

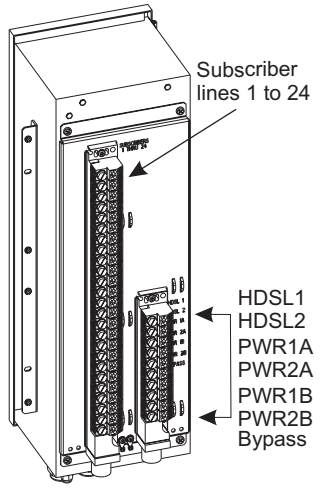

Figure 5
FRE-860 Termination Panel

Repeat the following procedure for each HDSL, auxiliary power, and bypass pair:

1. Use a 216 tool or slotted screwdriver to back the IDT cover off until it clicks.
2. Insert the pair into the wire entry port until it passes over the colored insert inside the module and stops.
3. Hold the conductors in place while tightening the IDT cover until it bottoms out.
4. After terminating the HDSL, auxiliary power, and bypass pairs, continue with the *Subscriber Pairs* section on page 3.

FRE-865 and FRE-867

The FRE-865 and FRE-867 RT Enclosures use cable stubs for HDSL, auxiliary power, and bypass pair terminations.

Refer to Table 3 for FRE-865 wiring information and Table 4 for FRE-867 wiring information. Follow local procedures for connecting to these cable stubs.

Table 3
FRE-865 HDSL, Auxiliary Power, Bypass Pair Wiring

Termination	Tip	Ring
HDSL 1	WH	BL
HDSL 2	WH	OR
Bypass	WH	GN
PWR 1A	WH	BN
PWR 2A	WH	SL
PWR 1B	RD	BL
PWR 2B	RD	OR

Note: The FRE-865 uses a 12-pair cable for HDSL, auxiliary power, and bypass pair wiring. Any pairs not listed in Table 3 are unused.

Table 4
FRE-867 HDSL, Auxiliary Power, Bypass Pair Wiring

System	Termination	Tip	Ring
1	HDSL 1	WH	BL
	HDSL 2	WH	OR
	Bypass	WH	GN
	PWR 1A	WH	BN
	PWR 2A	WH	SL
	PWR 1B	RD	BL
	PWR 2B	RD	OR
2	HDSL 1	RD	GN
	HDSL 2	RD	BN
	Bypass	RD	SL
	PWR 1A	BK	BL
	PWR 2A	BK	OR
	PWR 1B	BK	GN
	PWR 2B	BK	BN

Note: The FRE-867 uses a 25-pair cable for HDSL, auxiliary power, and bypass pair wiring. Any pairs not listed in Table 4 are unused.

Subscriber Pairs

Subscriber circuits and their associated channel units are listed in Table 5.

Table 5
Subscriber Terminations

Channel Unit #1		Channel Unit #2		Channel Unit #3	
Subscriber	Ckt	Subscriber	Ckt	Subscriber	Ckt
1	1	9	1	17	1
2	2	10	2	18	2
3	3	11	3	19	3
4	4	12	4	20	4
5	5	13	5	21	5
6	6	14	6	22	6
7	7	15	7	23	7
8	8	16	8	24	8

FRE-860

The FRE-860 uses DTerminator 2 IDT strips located on the back of the RT enclosure for connecting subscriber pairs (see Figure 5).

Repeat the following procedure for each subscriber pair:

1. Use a 216 tool or slotted screwdriver to back the IDT cover off until it clicks.
2. Insert the pair into the wire entry port until it passes over the colored insert inside and the module and stops.
3. Hold the conductors in place while tightening the IDT cover until it bottoms out.
4. After terminating the subscriber pairs, continue with the *Install 5-Pin Protectors* section on page 3.

FRE-865 and FRE-867

The FRE-865 and FRE-867 RT Enclosures use cable stubs for subscriber terminations.

Refer to Table 6 for wiring information. Follow local procedures for connecting to these cable stubs.

Table 6
FRE-865 and FRE-867 Subscriber Wiring

FRE-865 or FRE-867 System 1 (Blue Binder Group)			FRE-867 System 2 (Orange Binder Group)		
Subscriber	Tip	Ring	Subscriber	Tip	Ring
1	WH	BL	1	WH	BL
2	WH	OR	2	WH	OR
3	WH	GN	3	WH	GN
4	WH	BN	4	WH	BN
5	WH	SL	5	WH	SL
6	RD	BL	6	RD	BL
7	RD	OR	7	RD	OR
8	RD	GN	8	RD	GN
9	RD	BN	9	RD	BN
10	RD	SL	10	RD	SL
11	BK	BL	11	BK	BL
12	BK	OR	12	BK	OR
13	BK	GN	13	BK	GN
14	BK	BN	14	BK	BN
15	BK	SL	15	BK	SL
16	YL	BL	16	YL	BL
17	YL	OR	17	YL	OR
18	YL	GN	18	YL	GN
19	YL	BN	19	YL	BN
20	YL	SL	20	YL	SL
21	VI	BL	21	VI	BL
22	VI	OR	22	VI	OR
23	VI	GN	23	VI	GN
24	VI	BN	24	VI	BN
(spare)	VI	SL	(spare)	VI	SL

Note: The FRE-865 RT Enclosure uses a 25-pair cable stub for subscriber wiring.

The FRE-867 RT Enclosure uses a 50-pair cable stub for subscriber wiring.

INSTALL 5-PIN PROTECTORS

Install protectors in the sockets – refer to the labeling in the RT enclosure for the location of the sockets used.

Only unbalanced gas tube or high voltage (≥ 265 Vdc) solid-state protectors should be used. Carbon protectors can generate noise on these circuits and will degrade over time, causing system failures.

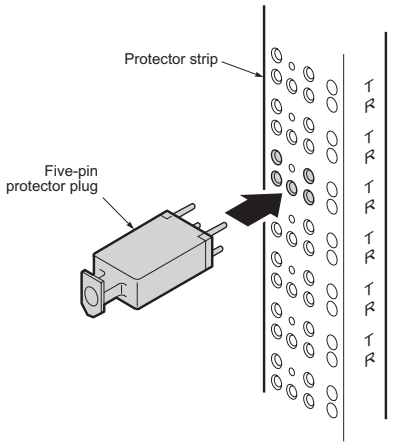

Figure 6
5-Pin Protector Module

LIMITED WARRANTY

Product warranty is determined by your service agreement. Refer to the ADC Warranty/Software Handbook for additional information, or contact your sales representative or Customer Service for details.

FCC CLASS B COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

MODIFICATIONS

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by ADC voids the user's warranty.

All wiring external to the product(s) should follow the provisions of the current edition of the National Electrical Code.

TECHNICAL SUPPORT

Technical assistance is available 24 hours a day, 7 days a week by contacting the ADC Technical Assistance Center (TAC) at:

Telephone:	800.366.3891 (toll-free in the U.S. and Canada)
E-mail:	wsd_support@adc.com
Knowledge Base:	http://adc.com/Knowledge_Base/index.jsp
Web:	www.adc.com

REVISION HISTORY

Rev	Date	Revisions
01	12/14/01	Initial release
02	1/20/03	Updated Product Support Information

PG-Flex FRE-860/865/867 Outdoor RT Enclosures Quick Installation Guide

Section SCP-FRE860-010-02Q
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This document applies to the following products:

Model	CLEI	Description
FRE-860 List 1 FRE-860P List 1	VAMRMS0A~~ VAMRMS0A~~	24 Channel Pedestal Mount RT Enclosure
FRE-865 List 1 FRE-865 List 1A FRE-865 List 1B FRE-865P List 1 FRE-865P List 1B	VAMRNS0A~~ VAMRVS0A~~ VAMRNS0A~~ VAMRNS0L~~ VAMRNS0L~~	24 Channel Outdoor RT Enclosure
FRE-867 List 1 FRE-867 List 1B FRE-867P List 1 FRE-867P List 1B	VAMRP40A~~ VAMRP40A~~ VAMRP40L~~ VAMRP40L~~	48 Channel Outdoor RT Enclosure

ISO 9001
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