FLASH
T E C H N O L O G Y

AN SPX DIVISION

FTW 171-3 / FTW 172-3 CDMA

Wireless Monitoring System
Reference Manual
Part Number 7911713CDMA

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Front Matter

Abstract

This manual contains information and instructions for installing, operating and maintaining the FTW 171-3 CDMA and FTW 172-3 CDMA Wireless Monitoring Systems.

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Warranty

Flash Technology warrants all components, under normal operating conditions, for 1 year.

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Section 1 – Introduction

Introduction

This manual covers in detail the following two products: the FTW 171-3 CDMA and the FTW 172-3 CDMA.

The FTW 171-3 CDMA provides wireless monitoring through the use of four (4) dry contact inputs. The unit also monitors site power. Dry contacts are typically alarm relays provided by equipment for external monitoring of alarm conditions.   Each input of the FTW 171-3 CDMA can be configured by the NOC to alarm on either open or closed status. **Alarm on open is preferred for fail safe monitoring.**

The FTW 172-3 CDMA functions in the same manner as the FTW 171-3 CDMA but with the added benefit of RS-485 communication with Flash Technology lighting systems that are equipped with PCB 4747 or PCB 9038.

Alarm and communication monitoring is handled by the Flash Technology National Operations Center (NOC).

Additionally, the FTW 171-3 CDMA is RS-485 capable but not RS-485 enabled when shipped from the factory. Enabling the RS-485 on a FTW 171-3 CDMA will change the wireless monitoring unit to a FTW 172-3 CDMA.   If interested in upgrading, call the NOC at 1-800-821-5825 for assistance on this enhancement to your system.

PLEASE NOTE

Before permanently installing and/or wiring the wireless monitoring unit, power-up the system on-site to ensure wireless service in your area. Refer to Section 2 for detailed instructions.

Description

The component layout and internal wiring of the units are shown in Figure 1-1. The dry contact inputs are located on J2 of PCB 9039 as shown in Figure 3-5.

Specifications

Physical
    12H x 10W x 6D inches (Internal)
    10 lbs.

Electrical
    AC Voltage   120 VAC, 60 Hz
    Power   7VA

TO BODY
MOUNT
ANTENNA

BATTERY

MODEM

RED

+

‒

BLK

RED   BLK   RED   BLK

+   ‒   +   ‒

DC   BAT

POWER

F1

N
G
L

WHT
GRN
BLK

BLK RED WHT BLK RED

COM RST RX TX COM 12V   J5

12V
COM

RED
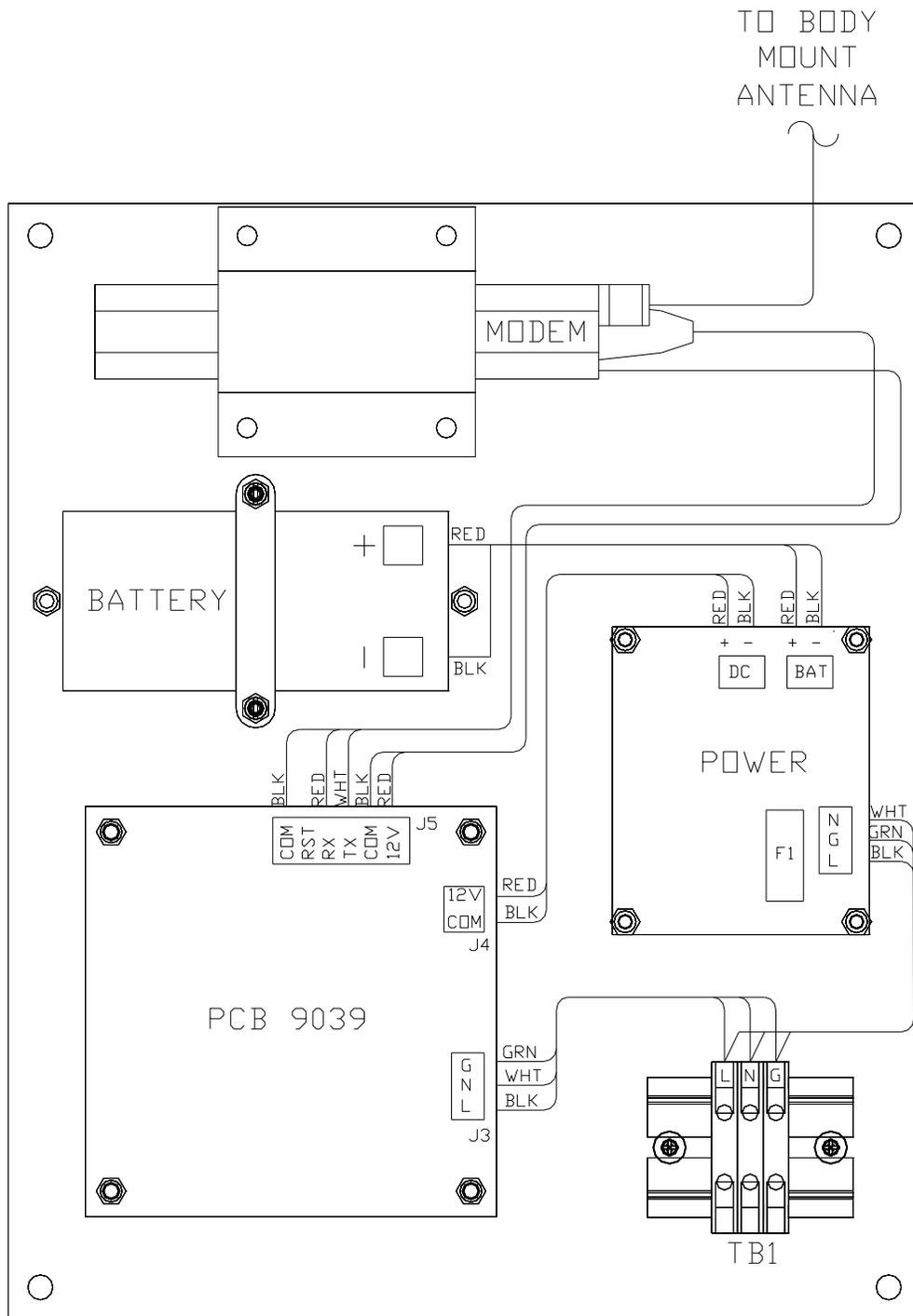BLK

J4

PCB 9039

G
N
L

GRN
WHT
BLK

J3

L N G

TB1

Figure 1-1 – FTW 171-3 / FTW 172-3 CDMA Internal Wiring Component & Layout

Section 2 – Initial On-Site Wireless Service Check

Unpacking

Inspect shipping cartons for signs of damage before opening them. Check package contents against the packing list and inspect each item for visible damage. Report damage claims promptly to the freight handler.

Important

The following steps will verify wireless service in your area and must be performed at the location where the unit is to be installed. A label located on the inside front cover of the monitoring unit is provided to call attention to this process. Figure 2-1 depicts the label noted above.

Prior to installation, the on-site technician should apply 120 VAC to the unit and then monitor the green LED indicator labeled "ACTIVE" on PCB 9039 for illumination. See Figure 3-5 for location of LED. If wireless service is available, the LED will blink indicating that the unit has connected to the wireless network. Once a wireless signal is found, the unit will then attempt to connect to Flash Technology's National Operations Center (NOC). If communication is achieved, the "ACTIVE" LED will illuminate solid. This process may take several minutes.

Upon successful completion of these steps, shut off power to the unit and proceed with installation.

Optional External Antenna

If problems are encountered obtaining a signal, an optional external antenna is available with a 12' cable. Refer to Recommended Spare Parts in Section 5 for ordering information. In some cases, it may be necessary to use a high gain antenna, such as a "Yagi Antenna". Please contact Flash Technology for assistance or recommendation.

ATTENTION

Prior to installation, apply power to the unit and observe the "ACTIVE" LED to verify service.
  OFF - No service. Discontinue installation.
  BLINKING - Wireless network found, waiting for verification.
  ON - Communication with NOC verified. Begin installation.

Please note this process may take several minutes. Contact the NOC at (800) 821-5825 for technical support.

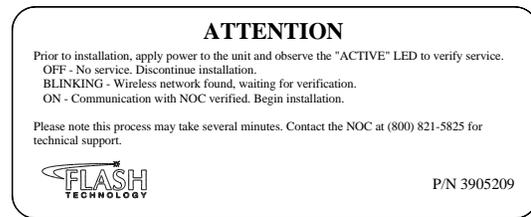FLASH TECHNOLOGY   P/N 3905209

Figure 2-1 – Wireless Service Label

Section 3 – Mounting and Installation

Mounting

The base of the unit has four (4) mounting feet as shown in Figures 3-3a and 3-3b. Mounting hardware is not included.

Installation

Wiring

Connect 120 VAC to the terminal block as shown in Figure 3-1, but leave power turned off until you are ready for activation (see Section 4).

FTW 171-3 and FTW 172-3

Connect the equipment to be monitored via dry contact inputs as shown in Figure 3-5. A label has been provided on the inside cover of the unit to record each input, up to four (4), that is connected. Figure 3-2 depicts the dry contact input label.

RS-485 Setup (FTW 172-3 Only)

Connect the equipment to be monitored via RS-485 as shown in Figures 3-4. Figure 3-5 shows the layout of the PCB 9039 board including the location of jumpers JP1 and JP2. If the PCB 9039 Modem Interface has configurable headers and shunts at JP1 and JP2, refer to Table 3-1 for the proper configuration of these jumpers. If the PCB 9039 has soldered-in wires at JP1 and JP2, no configuration of these jumpers is necessary.

Figure 3-1 – AC Termination

Figure 3-2 – Dry Contact Input Label
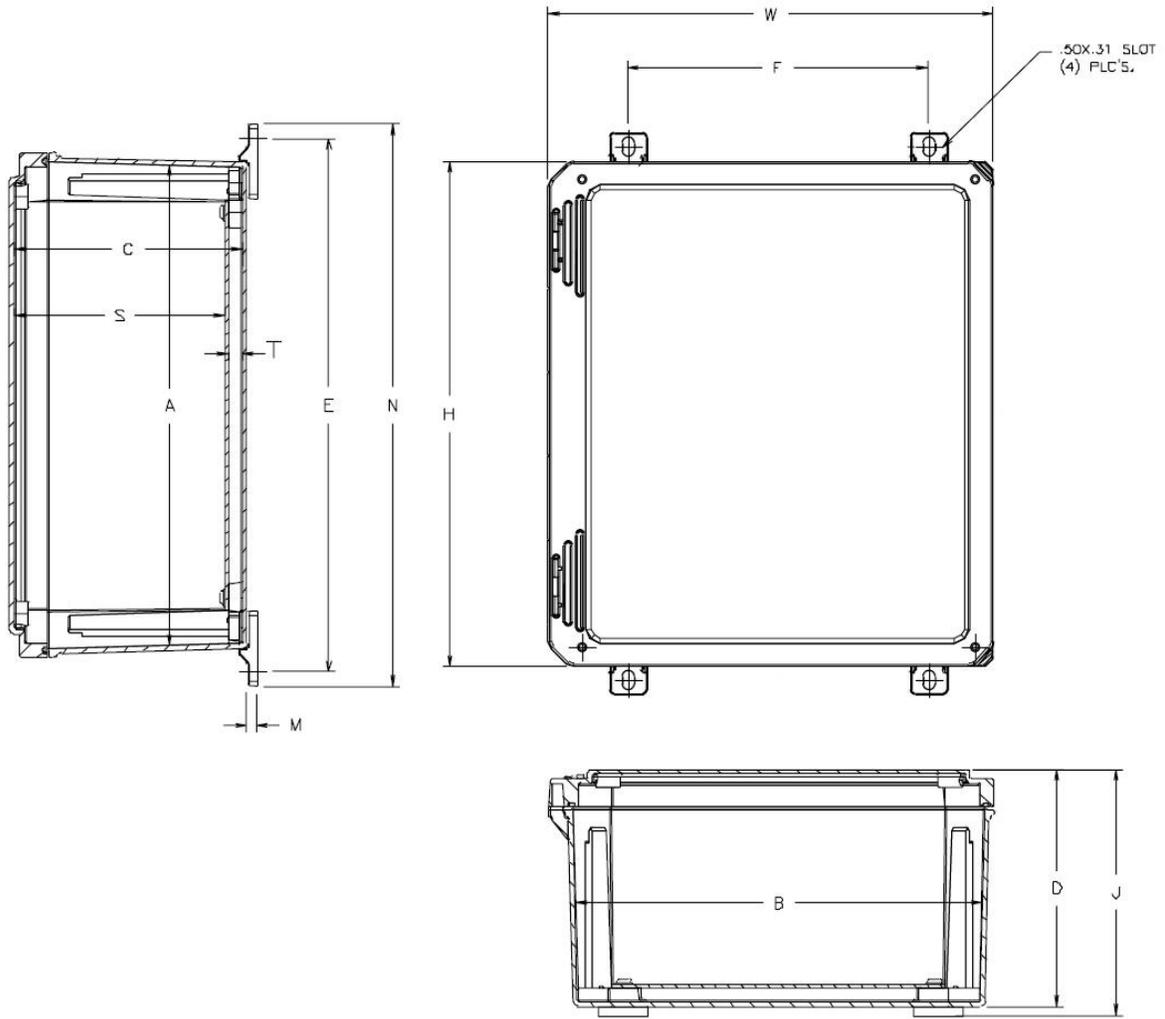
H	W	D	A	B	C	S	T	E	F	N	J	M
13.45	11.83	6.31	12.69	10.69	6.06	5.60	0.38	14.18	8.00	14.95	6.56	0.25

Dimensions are in inches.

Figure 3-3a – Enclosure Mounting Footprint (Stahlin)

FRONT VIEW

11.30

13.33

RIGHT SIDE VIEW

1.61   3.96

12.75

BOTTOM VIEW
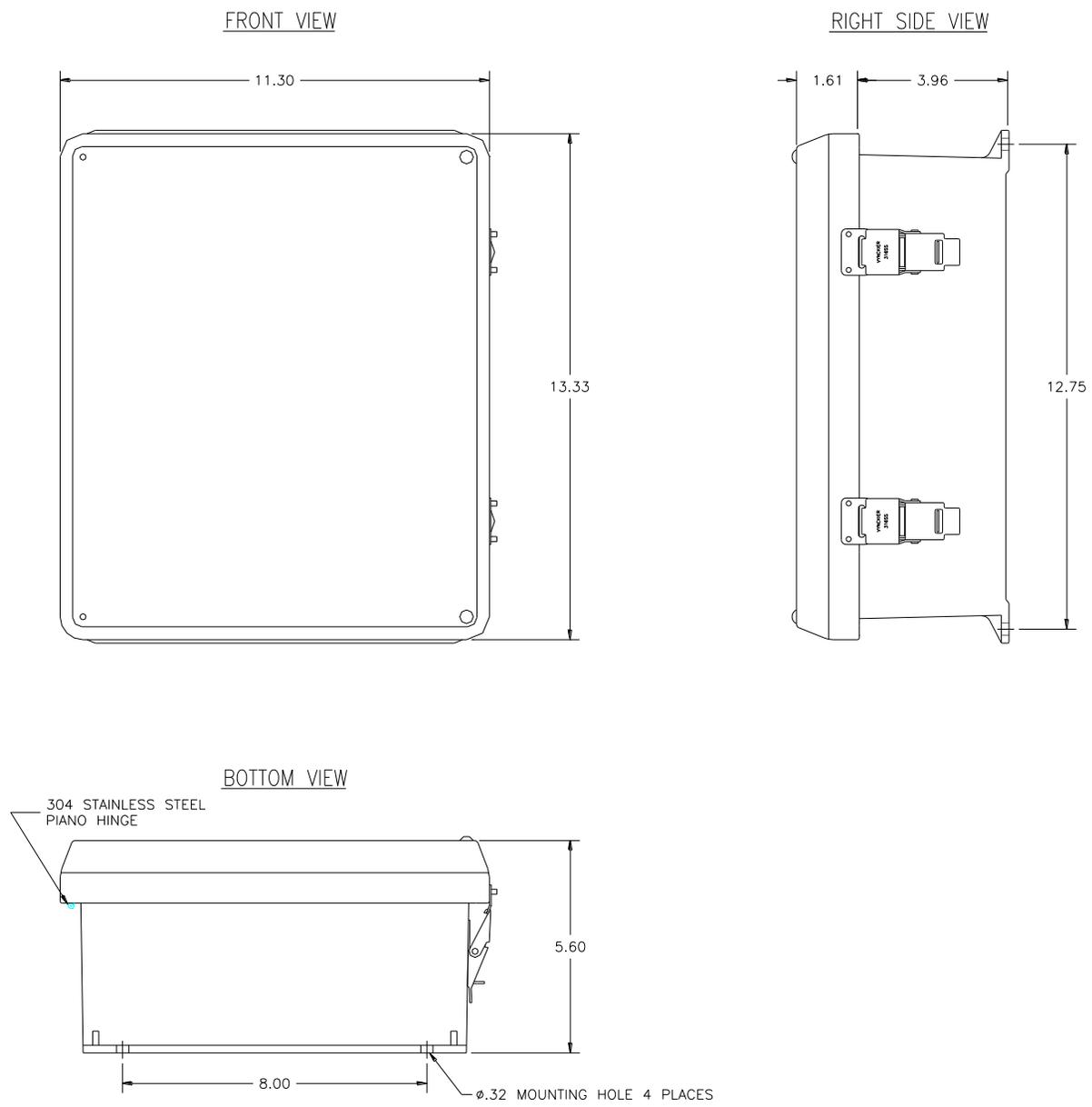
304 STAINLESS STEEL
PIANO HINGE

5.60

8.00

ø.32 MOUNTING HOLE 4 PLACES

Figure 3-3b – Enclosure Mounting Footprint (Vynckier)

Table 3-1 – PCB 9039 Wireless Interface

Item	Description	Action
JP1	RS485PUP	Remove Shunt
JP2	RS485TERM	Install shunt on both pins

If the TTB in the last power converter in a chain has a PCB 4747, connect a 220 Ohm termination resistor at J9 terminals 1 and 2 on this TTB <u>only</u>. If the last power converter has a PCB 9038, refer to Table 3-2 below. All other power converters should have neither shunt installed.

Table 3-2 – PCB 9038 Medium Intensity TTB

Item	Description	Action
JP3	RS485PUP	Remove Shunt
JP4	RS485TERM	Only at the last power converter in a chain, install a shunt on both pins

Table 3-3 shown below describes the LED's that are present on the PCB 9039. The location of the LED's is shown in Figure 3-5.

Table 3-3 – PCB 9039 LED's

Item	Description
ACTIVE	Indicates that the modem has signal and it connected to the wireless network.
232RX	The RS-232 port is receiving data from the modem.
232TX	The RS-232 port is transmitting data to the modem.
485TX	The RS-485 port is transmitting data to the lighting system.
485RX	The RS-485 port is receiving data from the lighting system.
IN1	Dry contact input #1 is closed or shorted.
IN2	Dry contact input #2 is closed or shorted.
IN3	Dry contact input #3 is closed or shorted.
IN4	Dry contact input #4 is closed or shorted.

Notes:

1. RS-485 PORT J1 PINS 1, 2, AND 3 ON THE FTW 172 MUST BE CONNECTED TO J9 (PCB 4747) OR J8 (PCB 9038).

   TO PCB 4747:
   J1 PIN 1 TO J9 PIN 1
   J1 PIN 2 TO J9 PIN 2
   J1 PIN 3 TO J9 PIN 3

   TO PCB 9038:
   J1 PIN 1 TO J8 PIN 1
   J1 PIN 2 TO J8 PIN 2
   J1 PIN 3 TO J8 PIN 3

2. THE LAST POWER CONVERTER (PC) TIMING AND TRIGGER BOARD (TTB) IN THE CHAIN GETS A TERMINATION RESISTOR.

   FOR PCB 4747 ONLY, INSTALL A 220 OHM RESISTOR BETWEEN PINS 1 AND 2 ON J9 AS SHOWN

   OR

   FOR PCB 9038 ONLY, INSTALL JUMPER ON RS485TERM (JP4) TO ACTIVATE THE ON-BOARD TERMINATION RESISTOR.

3. EACH PCB 4747 (OR PCB 9038) MUST HAVE A UNIQUE ADDRESS. THE ADDRESS IS SETUP USING DIPSWITCH S1 AS FOLLOWS:

ADDRESS	SW2	SW3	SW4
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON

4. FOR SYSTEMS WITH MULTIPLE PC'S, REFER TO WIRING DIAGRAM IN PC MANUAL FOR RECOMMENDED MASTER/SLAVE WIRING CONFIGURATION.
5. JUMPER SETTINGS FOR JP1 & JP2 ARE PROVIDED IN RS-485 SETUP SECTION OF THE MANUAL.
6. IF USING PCB 4747, MUST HAVE REVISION 6.9 OR HIGHER OF FIRMWARE.
7. IF USING PCB 4747, PAL U3 MUST BE VERSION 4 OR HIGHER.

POWER CONVERTER INTERNAL PCB (LAST ONE IN CHAIN)

POWER CONVERTER INTERNAL PCB

PCB 4747 (SHOWN)
PCB 9038 (SIMILAR)

SEE NOTE 2

INSTALL 220 OHM TERMINATION RESISTOR (PCB 4747 ONLY)

INSTALL JUMPER RS485TERM (PCB 9038 ONLY)

BELDEN CABLE #9462 OR EQUIVALENT FLASH PART #5905302

J9-4747/ J8-9038

FTW 172 MONITORING UNIT

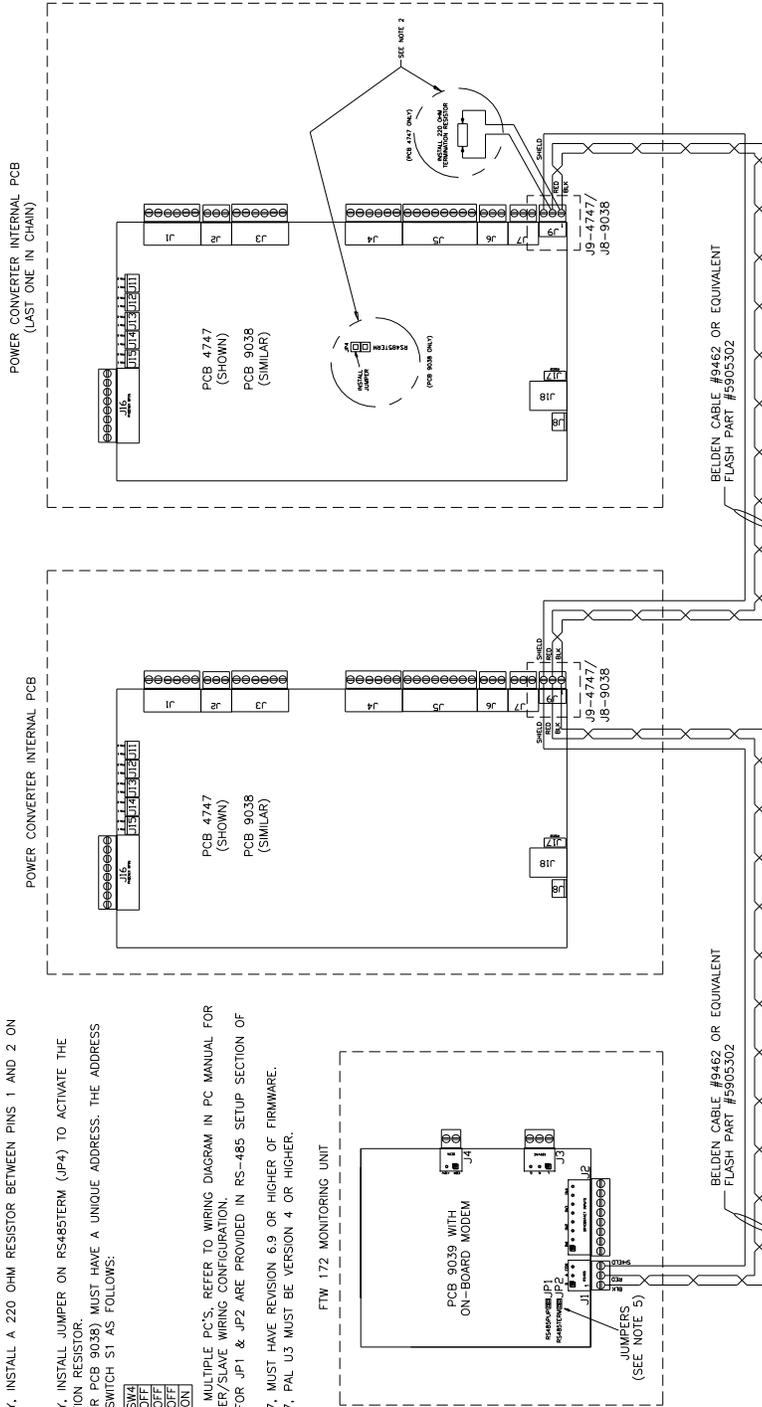PCB 9039 WITH ON-BOARD MODEM

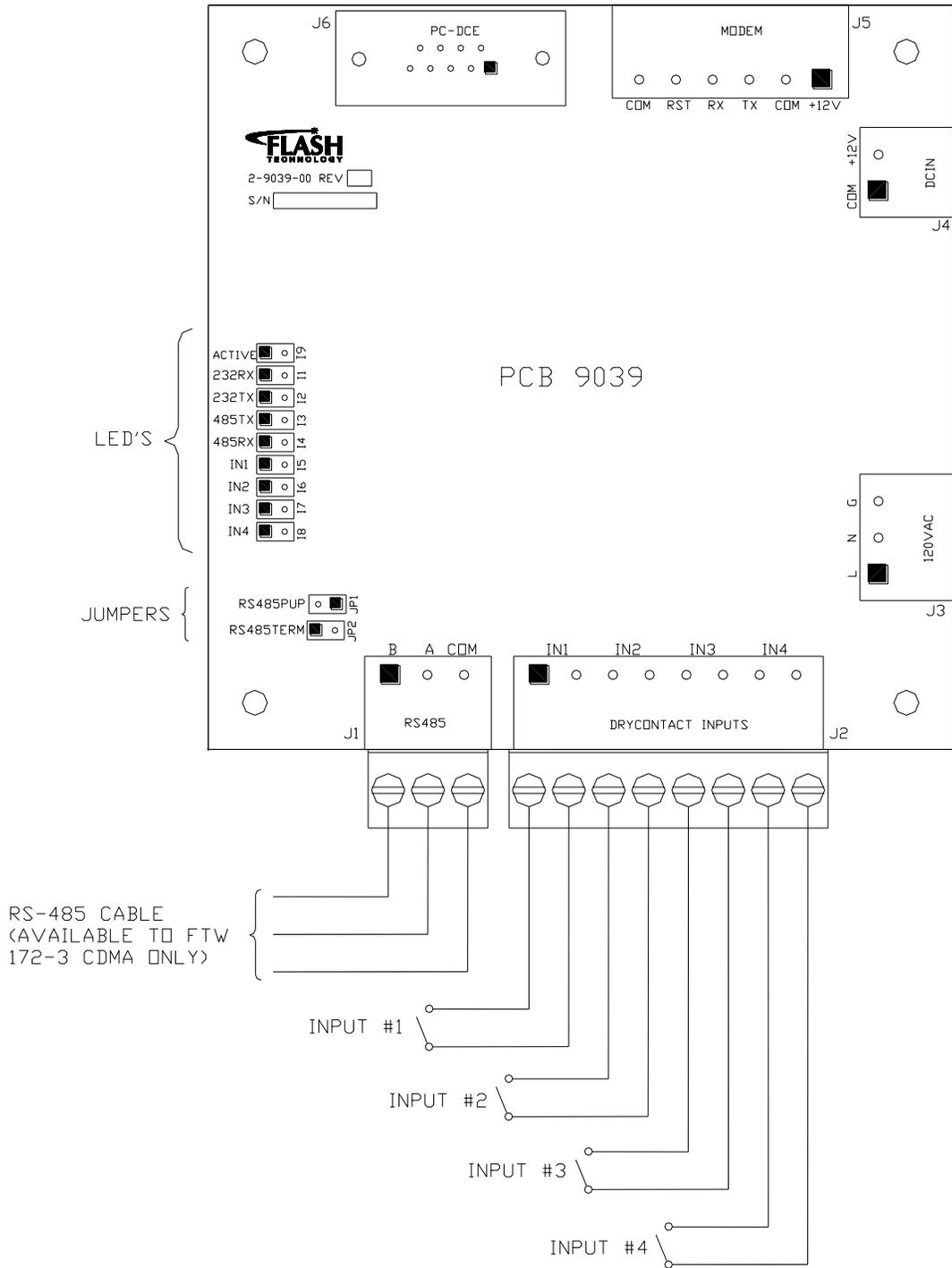JUMPERS (SEE NOTE 5)

Figure 3-4 – RS-485 Installation

Figure 3-5 – PCB 9039 Layout and External Wiring

Section 4 – Activation

Monitoring

Once the installation is complete, follow the procedure below to activate the service and begin monitoring:

1. Please be prepared to provide the following information:

   - The wireless address for this unit. See Figure 4-1. This label is located on the inside front cover.

   - Your name, contact number and company.

   - If monitoring an FCC registered tower site, the site number and FCC number.

   - Descriptions of the items being monitored by each input.

2. Re-apply power to the equipment and observe the "Active" LED shown in Figure 3-5. The green LED should first blink when the unit has connected to the wireless network and illuminate solid when communicating with Flash Technology's monitoring network. This process may take several minutes.

3. Connect the red wire to + (Positive) and the black wire to – (Negative) on the battery as shown in Figure 1-1.

4. Call 1-800-821-5825 to initiate monitoring while on-site. The NOC technician will request several tests to be performed to verify correct installation and operation of the system.

5. Please note that once the unit is powered and communication is established, it will automatically send a message to the NOC to initiate service and billing will begin.
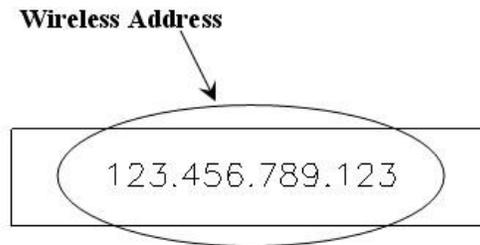

Figure 4-1 – Wireless Address

Section 5 – Recommended Spare & Replaceable Parts

Customer Service

Customer Service: (800) 821-5825

Telephone: (615) 261-2000

Facsimile: (615) 261-2600

Shipping Address:

> Flash Technology
> 332 Nichol Mill Lane
> Franklin, TN 37067

Ordering Parts

To order spare or replacement parts, contact customer service at 1-800-821-5825.

Table 5-1 – Replacement Parts

Reference	Description	Part Number
MODEM	Wireless Modem (CDMA)	5905218
BATTERY	12V Battery	4991875
POWER	Power Supply	5905202
PCB 9039	Board, Modem Interface	2903902
TB1	Terminal Block Assembly	1903677
ANTENNA	Body Mount w/TNC Connector (as provided)	4905219
ANTENNA	Optional External w/ 12' (ft) cable (TNC connector)	4905229
HARNESS	Harness, FTW 171, Input Power	4905204
HARNESS	Harness, FTW 171, Modem Input Power CDMA	4905216
HARNESS	Harness, FTW 171, Modem Signal CDMA	4905217
CABLE	RS-485; Single Pair, 22 AWG, Red/Black	5905302
CABLE	Dry Contacts; 4 Pair, 22 AWG, Red/Black	5993101

Table 5-2 – System Upgrade (For FTW 171 ONLY)

Reference	Description	Part Number
SYSTEM	Upgrade FTW 171 to FTW 172	1905228

Disconnecting Power

When removing power from the equipment, ensure that the red wire to the battery is disconnected first.

Return Material Authorization (RMA) Policy

IF A PRODUCT PURCHASED FROM FLASH TECHNOLOGY MUST BE RETURNED FOR ANY REASON (SUBJECT TO THE WARRANTY POLICY), PLEASE FOLLOW THE PROCEDURE BELOW:

Note: An RMA number must be requested from Flash Technology prior to shipment of any product. No returned product will be processed without an RMA number. This number will be the only reference necessary for returning and getting information on the product's progress.

> Failure to follow the below procedure may result in additional charges and delays. Avoid unnecessary screening and evaluation charges by contacting Technical Support prior to returning material.

1. To initiate an RMA, customers should call Flash Technology's Network Operation Center at (800-821-5825) to receive technical assistance and a Service Notification number. The following information is required before a Service Notification number can be generated:

- Site Name/Number / FCC Registration number/ Call Letters or Airport Designator
- Site Owner (provide all that apply – owner, agent or subcontractor)
  - o Contractor Name
  - o Contractor Company
- Point of Contact Information: Name, Phone Number, Email Address, Fax Number and Cell Phone (or alternate phone number)
- Product's Serial Number
- Product's Model Number or part number
- Service Notification Number (if previously given)
- Reason for call, with a full description of the reported issue

2. The Service Notification number will then serve as a precursor to receiving an RMA number if it is determined that the product or equipment should be returned. To expedite the RMA process please provide:

- Return shipping method
- Purchase Order (if non-warranty repair)
- Shipping Address
- Bill To Address
- Any additional information to assist in resolving the issue or problem

3. A P.O. is required in advance for the replacement of product that may be under warranty. Flash will then, at its discretion issue a credit once the validity of the warranty has been determined.

4. A purchase order (P.O.) is also required in advance for all non-warranty repairs. NOTE: the purchase order is required prior to the issuance of the RMA number.

- If the P.O. number is available at the time of the call, an RMA number will be issued and the customer must then fax or email the P.O. with the RMA number as the reference, to ensure prompt processing.
- If the P.O. number is NOT available at the time of the call, a Service Notification Number will be given to the customer and should be referenced on the P.O. when faxed or emailed to RMA Rep.
- Flash will then, at its discretion repair or replace the defective product and return the product to the customer based on the shipping method selected.
- The customer may purchase a new product before sending in the existing product for repair. If Flash Technology determines the existing product is still covered under warranty a credit will be issued to the customer for the new product.

5. After receiving the Flash Technology RMA number, please adhere to the following packaging guidelines:

- All returned products should be packaged in a way to prevent damage in transit. Adequate packing should be provided taking into account the method of shipment.

> Note: Flash Technology will not be responsible for damaged items if product is not returned in appropriate packaging.

6. All packages should clearly display the RMA number on the outside of all RMA shipping containers. RMA products (exact items and quantity) should be returned to:

 Flash Technology
 Attn: RMA #XXX
 332 Nichol Mill Lane
 Franklin, TN 37067

7. All RMA numbers:

- Are valid for 30 days. Products received after may result in extra screening and delays.
- Must have all required information provided before an RMA number is assigned.

Return to Stock Policy

- **Parts can be returned within 60 days of ship date and will be subject to a 25% restocking fee. Product must:**
  - o Be in the original packaging
  - o Not be damaged
- **After 60 days no parts can be returned**