

# FLASH TECHNOLOGY



## FTW 175-SAT Wireless Monitoring System

Reference Manual for  
Part Number F1905285

SERIAL NUMBER

Flash Technology, 332 Nichol Mill Lane, Franklin, TN 37067  
[www.flashtechology.com](http://www.flashtechology.com)  
(615) 261-2000



## **Front Matter**

### ***Abstract***

This manual contains information and instructions for installing, operating, and maintaining the FTW 175-SAT Wireless Monitoring System.

### ***Copyright***

Copyright ©2019, Flash Technology, Franklin, TN, 37067, U.S.A.

All rights reserved. Reproduction or use of any portion of this manual is prohibited without express written permission from Flash Technology and/or its licensor.

### ***Trademark Acknowledgements***

Flash Technology and Vanguard are registered trademarks of SPX Corporation.

All other trademarks and product names mentioned are properties of their respective companies and are recognized and acknowledged as such by Flash Technology.

### ***Disclaimer***

While every effort has been made to ensure that the information in this manual is complete, accurate and up-to-date, Flash Technology assumes no liability for damages resulting from any errors or omissions in this manual, or from the use of the information contained herein. Flash Technology reserves the right to revise this manual without obligation to notify any person or organization of the revision.

In no event will Flash Technology be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of or the inability to use this manual.

### ***Warranty***

With proper installation and with normal operating conditions, Flash Technology warrants all components, for 2 years.

# Table of Contents

- Front Matter ..... i
- Table of Contents ..... ii
- List of Figures ..... iii
- List of Tables ..... iii
- Section 1 – Introduction ..... 1
  - Introduction ..... 1
  - Description ..... 1
  - Specifications ..... 1
- Section 2 – Initial On-Site Installation Checks ..... 3
  - Before Installation ..... 3
  - Unpacking ..... 3
  - Finding the Best Install Location ..... 3
- Section 3 – Base Unit Mounting and Installation ..... 4
  - Mounting ..... 4
  - Installation ..... 4
    - AC Power Wiring ..... 4
    - Dry Contact Input Wiring ..... 4
    - Grounding ..... 4
- Section 4 – Pole Mount Installation Guide for Satellite Terminal ..... 7
- Section 5 – Activation ..... 9
  - Monitoring ..... 9
- Section 6 – Recommended Spare and Replaceable Parts ..... 10
  - Customer Service ..... 10
  - Ordering Parts ..... 10
- Return Material Authorization (RMA Policy) ..... 11

## List of Figures

Figure 1-1 – FTW 175-SAT Internal Wiring and Component Layout.....	2
Figure 3-2 – Dry Contact Input Label.....	5
Figure 3-4 – Enclosure Mounting Footprint .....	6
Figure 4-1 – Terminal Sticker.....	7
Figure 4-3 – Bracket and Screws .....	7
Figure 4-4 – Vertical Mount Orientation .....	8
Figure 4-5 – Cable Connector.....	8
Figure 4-6 – Service Loop .....	8
Figure 4-7 – Pole Mount Installation .....	8
Figure 5-1 – Wireless Number.....	9

## List of Tables

Table 6-1 – Major Replaceable Parts.....	10
Table 6-2 – Optional Items .....	10



## Section 1 – Introduction

### *Introduction*

The FTW 175 SAT Wireless Monitoring System is a global short message satellite service using IsatData Pro from Inmarsat. Monitoring of site equipment is provided through three (3) 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 175-SAT will generate an alert message when transitioning states. Flash Technology's National Operations Center (NOC) will configure each alert message to alarm on either open or closed status. **Alarm on open is preferred for fail safe monitoring.**

All alarm and communication monitoring are handled by the Flash NOC.

**Important: When removing power from the equipment, ensure that the red wire to the battery is disconnected first. Reconnect battery after work is completed.**

### *Description*

The component layout and internal wiring of the unit is shown in Figure 1-1. The dry contact inputs are located on TB1 as shown in Figure 3-3.

### *Specifications*

#### Physical

13.33H x 11.30W x 7.11D inches  
(External)

10.6 lbs.

#### Electrical

AC Voltage 120 VAC, 60 Hz

Power 7VA

Battery Operation 4+ hrs.



## Section 2 – Initial On-Site Installation Checks

### *Before Installation*

Flash Technology will be providing the monitoring service, the tower owner must submit a site detail form to [FlashNOC@spx.com](mailto:FlashNOC@spx.com) prior to dispatch in order to create the site profile in the database.

Once on site and before beginning installation of the FTW 175-SAT device, contact the Flash Technology NOC at 800-821-5825, Option 7 and let them know that the installation is about to begin. The NOC will obtain equipment information and instruct you to call back when the installation is complete for activation, see section 5.

### *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.

The FTW 175-SAT contains two main components:

- The base unit, where the dry contact alarms and power will be wired. Installation of the base unit is described in section 3.
- The SkyWave terminal, or the satellite antenna, and its mounting hardware. Installation of the terminal is described in section 4.

### *Finding the Best Install Location*

The SkyWave terminal contains the transceiver that will be communicating with the satellite.

Although the terminal does not need to be pointed, it does need to be located with a permanent unobstructed view of the southern sky. The terminal's line of site to the sky should not be blocked by any structures or vegetation.

Mount the terminal so that the top surface is horizontal (flat). Failure to do so may compromise line of sight between the satellite and the terminal.

Do not mount the terminal close to other electrical equipment due to possible radiated and/or conducted electromagnetic interference.

Do not mount the terminal close to radar or other communications antennas. Use the following guidelines:

- 1 m from VHF/UHF antenna
- 3 m from loop antenna
- 4 m from MF/HF antenna
- 5 m from other satellite antennas
- Not within a radar beam

## Section 3 – Base Unit Mounting and Installation

### *Mounting*

The base unit has four (4) mounting tabs as shown in Figure 3-4. Mounting hardware is not included. An adapter kit for uni-strut installations is available. Contact [Flash Technology sales](#) for details.

### *Installation*

#### **AC Power Wiring**

AC Power terminal block TB1 incorporates an MOV and circuit breaker (CB1 and CB2) for increased protection against AC power transients. Also, the circuit breaker (CB1 and CB2) acts as a power disconnect to the unit. When you pull the circuit breaker down to disconnect power, you will see green in both indicators.

Connect 120 VAC power to terminal block TB1 (L, N, GND) as shown in Figure 3-1, but leave power turned off until you are ready for activation (see Section 5). The terminal block uses spring-cage contacts to provide rugged, trouble-free connections that are vibration-proof, and gas-tight, thus providing long-term stability.

To install a wire, follow these steps:

1. Strip the insulation, exposing **0.4 inch** (10 mm) or more of conductor.
2. Insert a standard 1/8” width flat-blade screwdriver into the rectangular slot and push down to create the opening for the wire termination.
3. Insert the conductor fully into the round terminal compartment and then remove the screwdriver. The conductor automatically makes contact.

4. Pull on the wire to ensure it is securely seated in the terminal block and check that contact is made to conductor metal and not the wire insulation.

#### **Dry Contact Input Wiring**

Each dry contact will have a pair of connections on the terminal block labeled IN1, IN2, and IN3. Connect the equipment to be monitored via dry contact inputs as shown in Figure 3-1. Each input will send a message on any state change (open-to-closed or closed-to-open). A label has been provided on the inside cover of the unit to record each input, up to three (3), that is connected. Figure 3-2 depicts the dry contact input label.

#### **Grounding**

To provide increased immunity from lightning damage to the FTW 175-SAT, it is essential that the Ground Lug located in the lower left corner of the FTW baseplate (Figure 1-1) be properly connected by a 6 AWG conductor to the site Grounding System. Observe proper Grounding procedures.

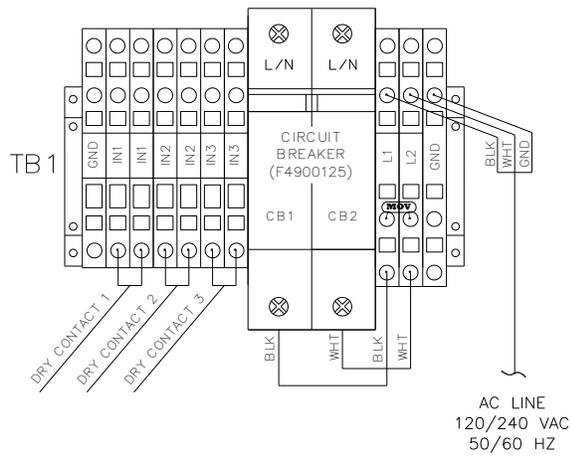
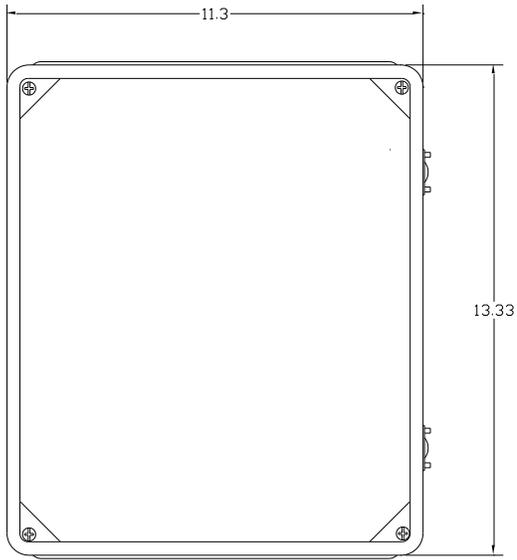


Figure 3-1 – Terminal Block TB1 Layout, Dry Contact Wiring, and AC Termination

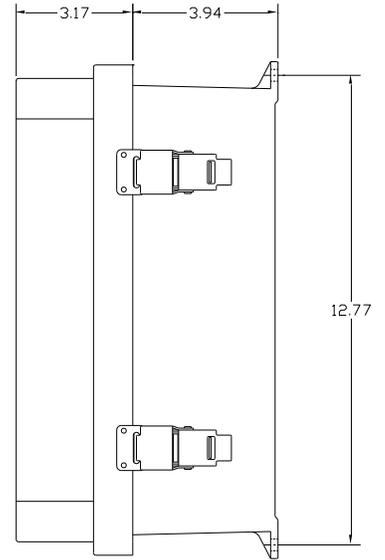
DRY CONTACT INPUTS	
DESCRIPTION	ALARM (CIRCLE ONE)
1 _____	OPEN / CLOSED
2 _____	OPEN / CLOSED
3 _____	OPEN / CLOSED
4 _____	OPEN / CLOSED

Figure 3-2 – Dry Contact Input Label

FRONT VIEW



RIGHT SIDE VIEW



BOTTOM VIEW

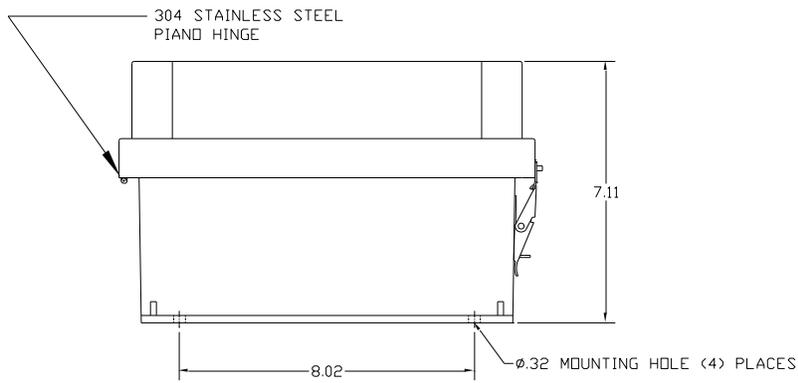


Figure 3-4 – Enclosure Mounting Footprint

## Section 4 – Pole Mount Installation Guide for Satellite Terminal

1. Two (2) self-adhesive stickers are included with the terminal (Figure 4-1). Attach (1) self-adhesive sticker to the underside of the pole mount bracket and (1) self-adhesive sticker inside the FTW 175-SAT enclosure cover.

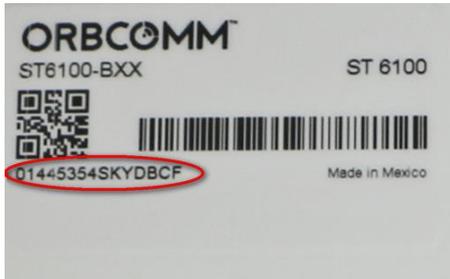


Figure 4-1 – Terminal Sticker

3. Secure the bracket with two adjustable clamps against the pole (Figure 4-4).

NOTE: Tighten each clamp to 30 in-lbs. (3.4 N-m). Do not cut clamp's excess length.

2. Insert pan head screws, lock washers, and flat washers from the top side of the terminal and secure screws to the bracket at four locations (Figure 4-3).

NOTE: Torque screws to 12 in-lbs. (1.4 N-m).



Figure 4-3 – Bracket and Screws



Figure 4-4 – Vertical Mount Orientation

4. Align and insert the cable connector to the terminal's connector key slot. Hand tighten the locking collar clockwise until a tactile click is felt (Figure 4-5).

NOTE: Do not use a wrench to tighten the locking collar.



Figure 4-5 – Cable Connector

5. Route and secure cable with the provided cable tie as shown in Figure 4-6 for service loop to reduce cable strain. Cut off any excess cable tie.



Figure 4-6 – Service Loop



Figure 4-7 – Pole Mount Installation

## Section 5 – Activation

### Monitoring

**Important: Before leaving the site, ensure that the battery is connected.**

**When removing power from the equipment, ensure that the red wire to the battery is disconnected first. Reconnect battery after work is completed.**

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

1. Before calling the NOC, please be prepared to provide the following information:
  - The wireless number for this unit. See Figure 5-1. The number is on the self-adhesive sticker included with the terminal. This sticker should now be located inside the cover of the enclosure.
  - Your name, contact number, and company.
  - If monitoring an FCC registered tower site, the site number, and the FCC number.
  - Descriptions of the items being monitored by each input.
2. Secure the Satellite Terminal on the Satellite Terminal Mounting Bracket in a location that provides an unobstructed view of the southern sky. Refer to section 4 for mounting instructions.
3. Apply power to the equipment. Once power is applied, the AC and DC LEDs on PCB 1 will illuminate. At this point, the terminal can establish communication with the NOC. There are no visual indicators on the terminal to indicate communication is

established. This needs to be verified by the Flash Technology NOC. It typically takes less than 5 minutes to establish communication.

4. Connect the red wire to + (Positive) and the black wire to – (Negative) on the battery as shown in Figure 1-1.
5. Call 1-800-821-5825, option 7 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.
6. 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.

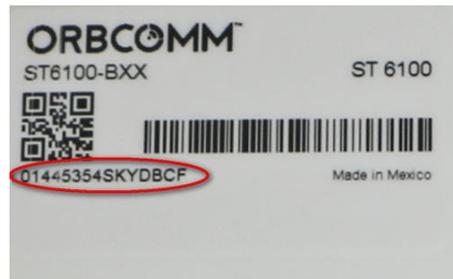


Figure 5-1 – Wireless Number

## Section 6 – Recommended Spare and Replaceable Parts

### *Customer Service*

You may reach us via phone at 1-800-821-5825 (please see menu options below)

Department	Call Menu Option		Email
Sales	Lighting System Sales	4	<a href="mailto:FlashSales@spx.com">FlashSales@spx.com</a>
	Spare Parts Sales	4	
NOC	Site Access	5	<a href="mailto:FlashNOC@spx.com">FlashNOC@spx.com</a>
	Lighting Inspection	6	
	New Installation	7	
	All other Monitoring Support	8	
Technical Support	Lighting Technical Support (including RMA & Warranty requests)	9	<a href="mailto:FlashSupport@spx.com">FlashSupport@spx.com</a>

### *Ordering Parts*

To order spare or replacement parts, contact Spare Parts Sales at 1-800-821-5825, option 4

Table 6-1 – Major Replaceable Parts

Reference	Description	Part Number
SATELLITE TERMINAL	Satellite Terminal FTW 175 SAT	5905120
HARNESS	Harness FTW 175 SAT Cable	4372000
HARNESS	Harness FTW175 SAT AC Power	4372010
HARNESS	Harness FTW 175 SAT Battery	4372020
BATTERY	12V Battery 1.2AH	4991875
POWER	Power Supply	5370500
TERMINAL BLOCK	Terminal Block Assembly FTW 175 SAT	1362200
ANTENNA MOUNTING	Pole Mount Kit SAT	5905125
CIRCUIT BREAKER	Circuit Breaker FTW 175 SAT	4900125

Table 6-2 – Optional Items

Reference	Description	Part Number
CABLE	Dry Contacts; 4 Pair, 22 AWG, Red/Black	5993101

## **Return Material Authorization (RMA Policy)**

If any system or part(s) purchased from Flash Technology need to be returned for any reason (subject to the warranty policy), please see the current RMA policy available online at [flashtechnology.com/rma](http://flashtechnology.com/rma).

To initiate an RMA, call the Flash Technology NOC to receive technical assistance (800-821-5825 option 9, M-F, 7 a.m. to 7 p.m. CT). For sites not requiring detailed troubleshooting, you may request an RMA online at <http://flashtechnology.com/rma-request-form/>.

NOTE: An RMA number must be requested from Flash Technology prior to return of any product. No returned product will be processed without an RMA number. Failure to follow the below procedure may result in additional charges and delays. Any product received without an RMA number is subject to return back to the sender. All RMA numbers are valid for 30 days.