FLASH
T E C H N O L O G Y

AN SPX DIVISION

SERIAL NUMBER

FTW 170 / FTW 170-2

Wireless Synchronization Unit
Reference Manual
Part Number 791170

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(615) 261-2000

Front Matter

Abstract

This manual contains information and instructions for installing, operating and maintaining the FTW 170/ FTW 170-2 Wireless Synchronization Unit.

Copyright

Trademark Acknowledgements

Disclaimer

Warranty

Table of Contents

List of Figures

List of Tables

Section 1 – Introduction and Operation

Operation

The FTW 170/170-2 Wireless Synchronization Unit supplies a timing pulse to synchronize any number of controllers or power converters. One tower or system may have several interconnected controllers or power converters and would require one FTW 170/170-2 Wireless Unit. Each additional tower or system to be synchronized would require its own FTW 170/170-2 Wireless Unit. The towers to be synchronized can be any distance apart without limit.

The FTW 170/170-2 Wireless Unit provides a synchronization pulse of a nominal 5 volts in amplitude and a minimum of 50 milliseconds in duration. The pulse typically occurs once per minute and is provided on terminal 10.

The FTW 170-2 permits extended separation between itself and the controlled units as compared with the FTW 170. For the FTW 170-2, the separation may be up to 500 feet. For separation over 6 feet, shielded cable must be used.

Specifications

Dimensions (H x W x Depth, Weight):

      8.25 x 6.50 x 4.50 in., 6.50 lbs.

      210 x 165 x 114 mm, 2.95 kg.

Aerodynamic Wind Area:

      0.34 ft.^{2}, 0.032 m^2

Electrical:

      AC Voltage: 24 VAC

      Volt-Amperes: 5 VA

Section 2 - Mounting and Installation

Unpacking

Inspect shipping carton for signs of damage before opening them. Check package contents against the packing list and inspect each item for visible damage. Damage claims must be reported promptly to the freight handler.

Tools

Although no special tools are necessary, FTCA suggests the following tools for installation and maintenance:

- #2, flat-blade screwdriver
- 5/16 inch, flat blade screwdriver
- #2, Phillips® 9-inch shank screwdriver
- Long-nose pliers
- 8- or 10-inch adjustable wrench

Unit Access

A quick-release latch secures the cover. When you release it you can open the cover for internal access.

Location

IMPORTANT: The location of the FTW 170/170-2 must be selected to provide for good reception by its antenna.

The antenna must be mounted horizontally with an unobstructed view of the full sky. Buildings, towers, trees, and so forth act as barriers because the GPS information travels by "line of sight" and cannot penetrate through most barriers.

Mounting

Mounting and outline dimensions for the FTW 170 Wireless Unit are shown in Figure 2-1.

Ensure that adequate space exists around the equipment for access during installation, maintenance and servicing.

Flash Technology does not furnish mounting hardware unless you order it as part of an installation kit.

Wiring

Refer to Figure 2-2 for wiring to PC 311, 312, 314, 324 or FTC-121-2. Refer to Figure 2-3 for wiring to the FLC-36xx Controller. The total separation (wire length) between the FTW 170-2 and any unit receiving the synchronization signals must not exceed 500 feet. For separation over 6 feet, shielded cable must be used.

On multi-beacon systems (PC 311, 312, 314, 324) where there is one master and one or more slaves, all units must be connected to the same GPS source. Connect the GPS signal to the GPS connector on the master unit and also to GPS connector on each of the slave units. Please note this is J11 for 4747 boards and J14 for 9038 boards. This must be done in addition to the master/slave connection.

Error Condition

When lit, the Satellite Error LED indicates that less than three satellites are being received. This may be caused by improper antenna location. This error prevents a sync pulse from being sent to the controlled unit.

The Satellite Error LED may remain lit from approximately 20 seconds to approximately 20 minutes from a "cold" start-up as the unit acquires satellites. If it remains lit for over 20 minutes, there is an excellent chance that the antenna must be repositioned to eliminate any barriers to its acquisition of satellites.
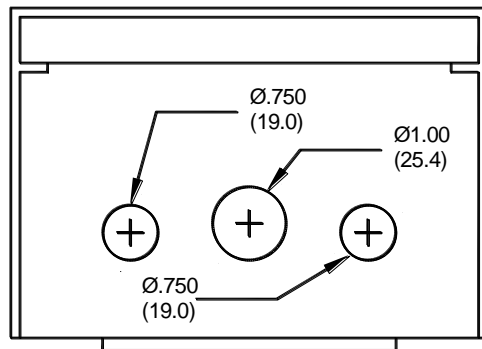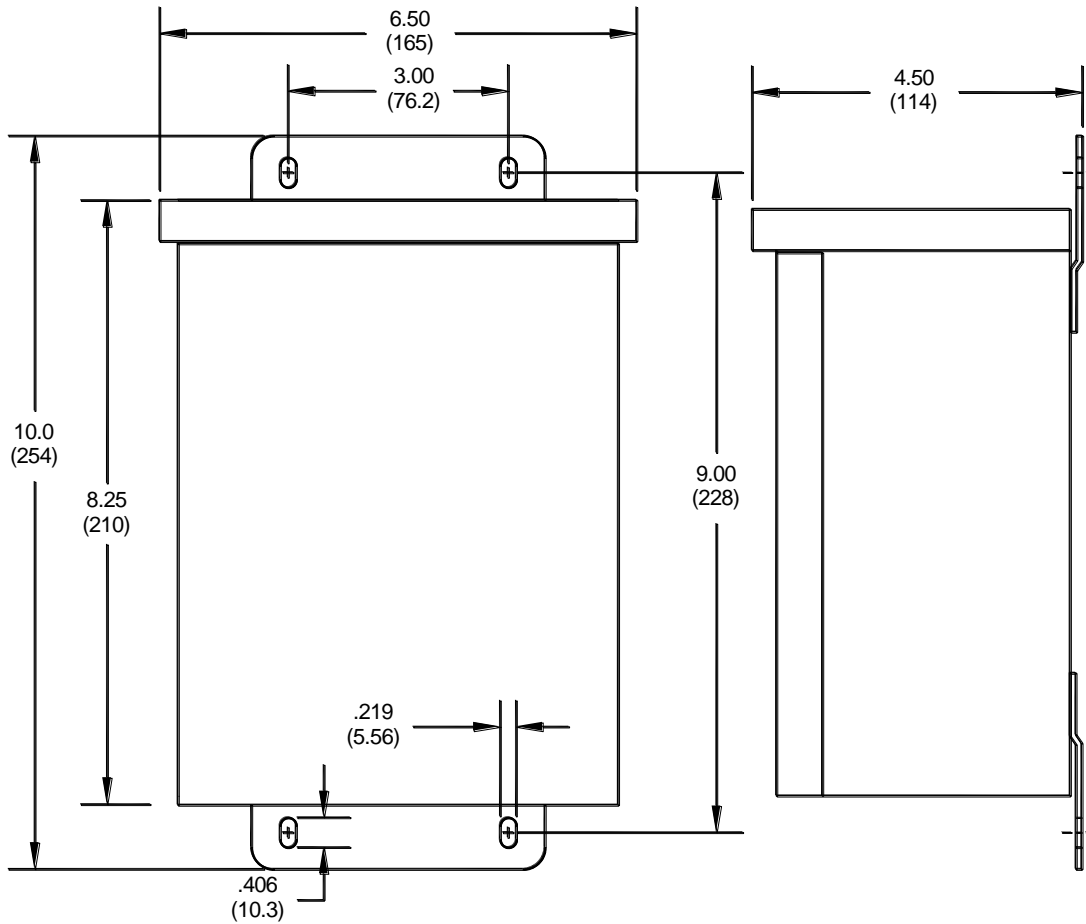
NOTE: ALL DIMENSIONS ARE IN INCHES (MILLIMETERS)

Figure 2-1 – Mounting and Outline

FLASH TECH WIRELESS UNIT

WARNING!
DO NOT
CONNECT
BATTERY
UNTIL
INSTALLED
AT SITE

BATTERY 12V

GPS
BOARD

SATELLITE ERROR LED
LESS THAN THREE
SATELLITES BEING
RECEIVED (ON FOR ERROR)

ANTENNA

(WITH
CABLE
ATTACHED)

BLK

RED

TB1

1	2	3	4	5	6	7	8	9	10	11	12
GRN	BLK	RED	ORN						WHT		

3-8832-04 REV A

COAXIAL CABLE

EARTH GND

GND

24 VAC +

24 VAC −

GPS

CONNECT TO UNIT TO BE SYNCHRONIZED.
CONNECT TO UNIT TO BE SYNCHRONIZED.

CONNECT TO 24 VAC SOURCE IN UNIT TO BE SYNCHRONIZED.
MAY BE CIRCUIT BOARD OR TERMINAL BLOCK CONNECTION.

CONNECT TO CHASSIS OF UNIT TO BE SYNCHRONIZED. CHASSIS MUST BE EARTH GROUNDED.

5/C #18 CABLE (6FT)
FACTORY ATTACHED TO FLASH TECH WIRELESS UNIT

INSTALLATION NOTES

WARNING:
REMOVE POWER BEFORE STARTING INSTALLATION
A. INSTALL BATTERY
B. TIGHTEN TIE WRAPS
C. CONNECT RED TO BATTERY +
D. CONNECT BLACK TO BATTERY -
E. COAT BATTERY TERMINALS AND
   CONNECTORS WITH ANTI-OXIDATION
   PASTE SUCH AS "NoOx"

1. MOUNT THE ANTENNA TO THE TOP OF AN OUTDOOR
   STRUCTURE FACING AN UNOBSTRUCTED VIEW OF
   THE SKY. IF POSSIBLE, PROVIDE A MATERIAL BELOW
   IT THAT ATTRACTS THE ANTENNA'S MAGNET.
   DO NOT PLACE ANY MATERIALS ABOVE THE
   ANTENNA (INCLUDING MATERIALS USED TO
   SECURE IT) THAT BLOCK RF ENERGY.

2. CONNECT CABLES AS FOLLOWS
   PC 310, 311, 312, 314, 324 (PCB1 4747 OR 9038)
       FTW170 TB1 POS 2 (EARTH GND) to PWR CONV CHASSIS
       FTW170 TB1 POS 3 (GND) to PCB1 J11 (4747) OR J14 (9038) PIN2
       FTW170 TB1 POS 4 (24VAC+) to PCB1 J3 PIN1
       FTW170 TB1 POS 5 (24VAC-) to PCB1 J3 PIN2
       FTW170 TB1 POS 10 (GPS) to PCB1 J11 (4747) OR J14 (9038) PIN1
   FTC 121-2
       FTW170 TB1 POS 2 (EARTH GND) to CONTROLLER CHASSIS
       FTW170 TB1 POS 3 (GND) to TB2 POS 11
       FTW170 TB1 POS 4 (24VAC+) to TB3 POS 29
       FTW170 TB1 POS 5 (24VAC-) to TB3 POS 30
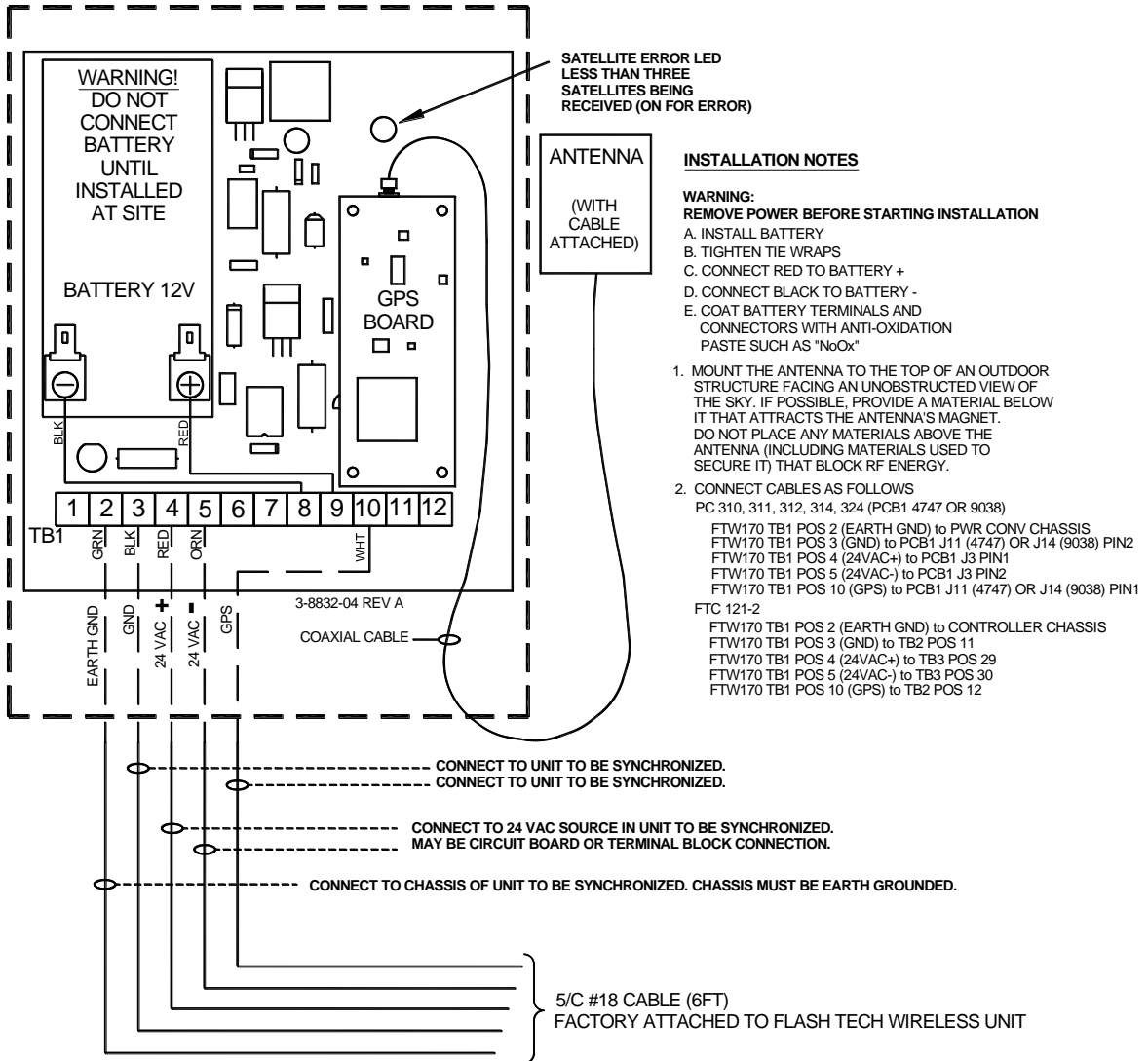   FTW170 TB1 POS 10 (GPS) to TB2 POS 12

Figure 2-2 – FTW 170/170-2 Wiring to PC 311, 312, 314, 324 or FTC 121-2 only
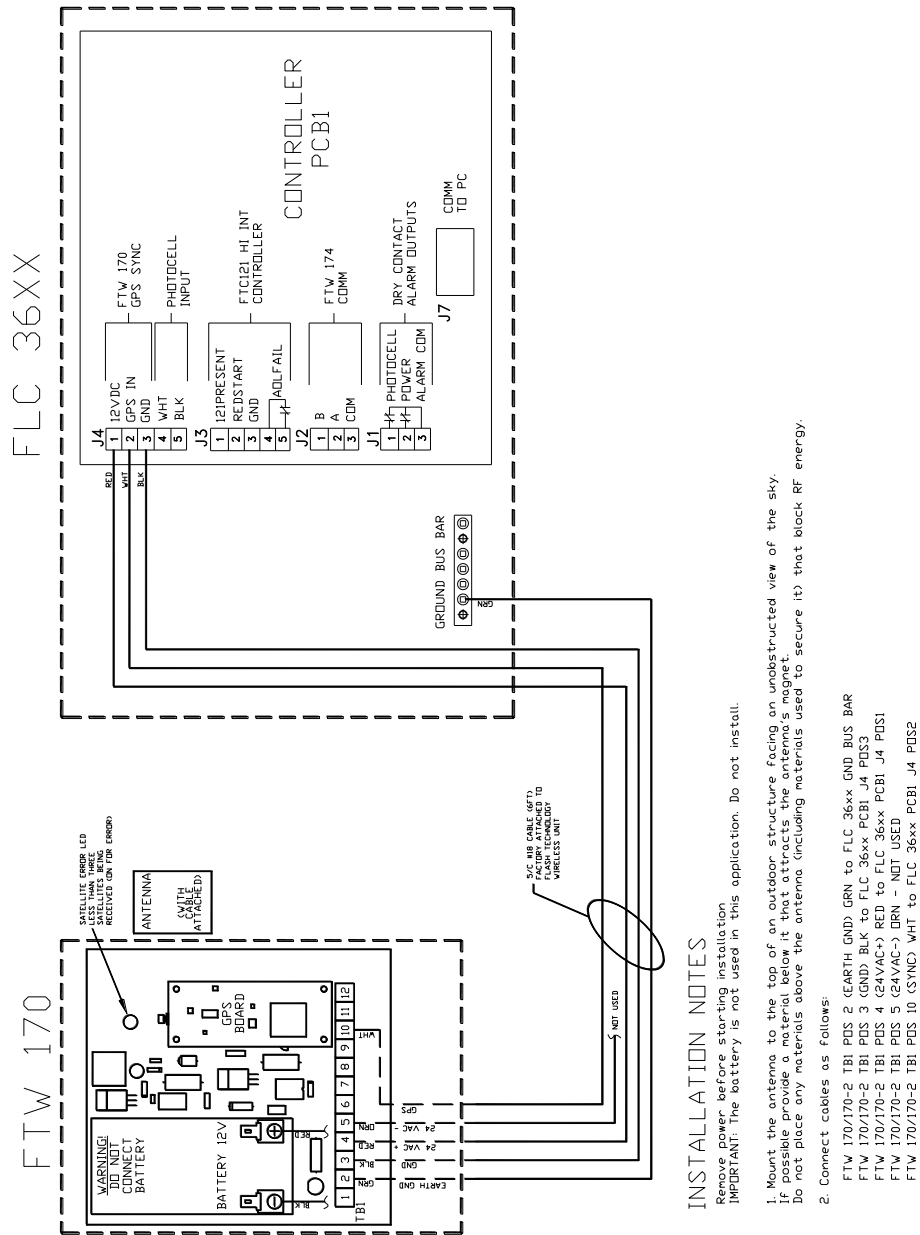
Figure 2-3 – FTW 170/170-2 Wiring to FLC 36xx Controller Only

Section 3 – 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 3-1 – Replacement Parts

Description	Part Number
12V Battery	4991875
DC Battery Board	2872205
GPS Board	6903298
Antenna kit GPS 75 feet Extension	11000004213
FTW170 Receiver Board	2872205

Disconnecting Power

When removing power from the equipment, ensure that the red wire to the battery is disconnected first.
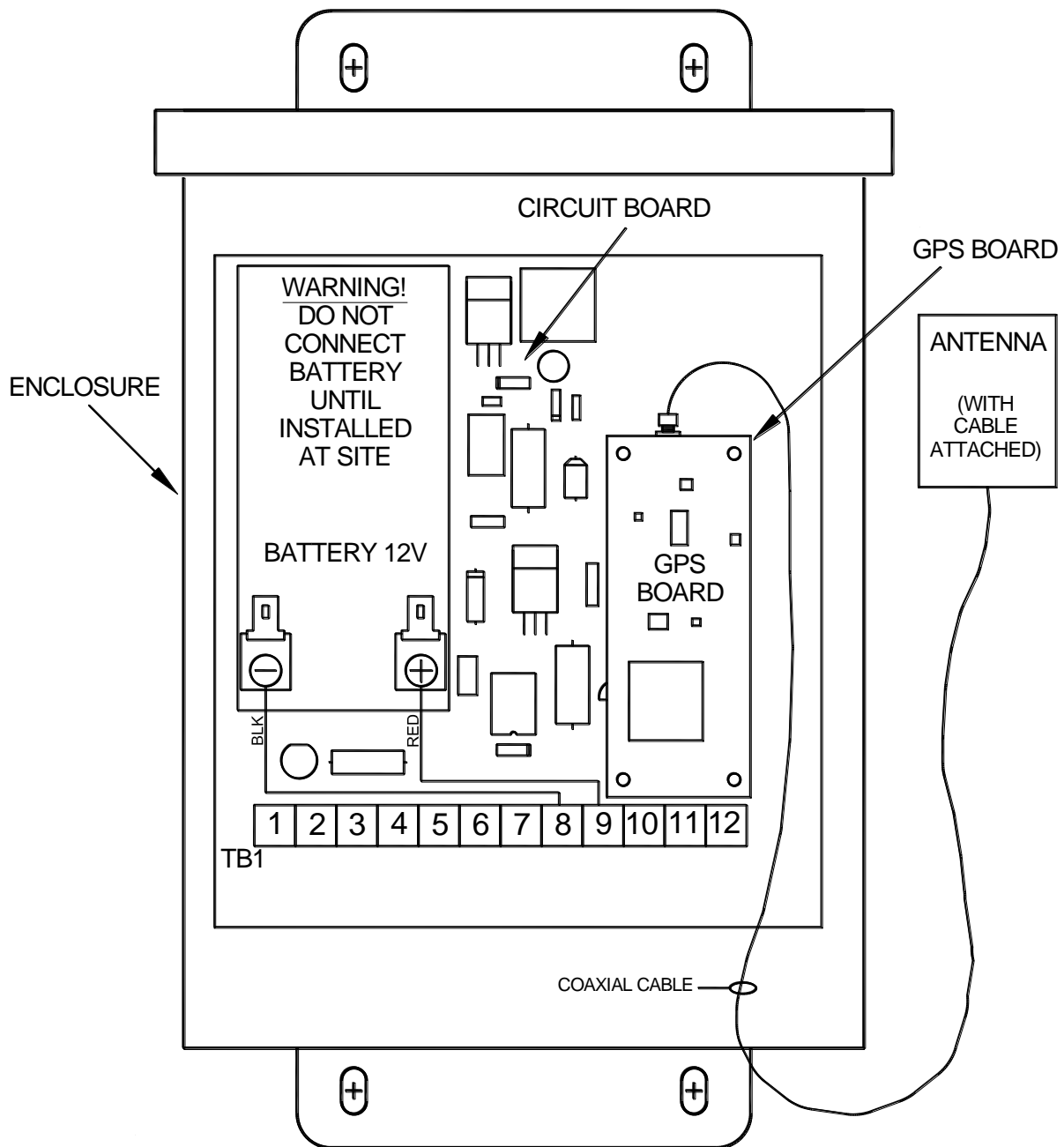
Figure 3-1 – Component Locations

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 National Operations Center (NOC) 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)
  - Contractor Name
  - 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:**
  - Be in the original packaging
  - Not be damaged
- **After 60 days no parts can be returned**