F6051
IRIG-B to GPS Converter

User Manual

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Preface

Who Should Read This Guide

This guide is intended for anyone who works with the [Product Name]. It is assumed that the reader is familiar with professional standards and safety practices.

Document Conventions

Notes and Warnings

This document uses icons to draw your attention to information of special importance, as follows.

NOTE! Notes provide supplemental information that may apply to only some circumstances.

CAUTION! Cautions provide information that prevents damage to hardware or data.

WARNING! Warnings tell you how to prevent injury or death to anyone near the test set or high-voltage equipment.

1. Converter

The F6051 Converter is designed to convert modulated and demodulated IRIG-B signals to GPS signals, allowing you to have synchronized GPS signals for the F6150 instrument.

IRIG-B signals enter through the 50-Ohm BNC connector on one end.

GPS signals exit the converter through the GPS OUT (RS-422) connector on the other end of the box. There is a connector for the provided power supply, and an LED that lights when there is power.

2. Synchronization Period

When the converter is powered up, with an IRIG signal present, the SYNCH LED flashes 1second on and 1 second off for 2.5 minutes, then lights continuously when the converter is synchronized with the IRIG-B signal. During this synchronizing period, the F6051 is synchronizing to the IRIG source, with the F6150 display showing an incrementing number of satellites, from 2 to 12. This display is not an actual count of how many satellites can be seen, but gives progress of the synchronizing process. When the F6150 displays 12 satellites, the F6150 begins synchronizing with F6051 GPS signal. This synchronizing may take several minutes, but typically completes in under a minute. When the F6150 displays the time, synchronizing is complete.

During synchronizing, if the IRIG signal is lost, the SYNCH LED goes off and the F6150 satellite count goes to 0. If the IRIG signal is re-gained, the process starts over. If the IRIG signal is not lost, but the GPS signal from the F6051 to the F6150 is lost, the F6150 displays “GPS Disconnected”. If the GPS signal is regained, the F6150 displays 12 satellites and immediately begins synchronizing with the F6051 GPS signal.

3. Specifications

Support Signal Types

Un-modulated IRIG-B000 and modulated IRIG-B120 formats are supported. There is no support for Manchester encoding. IRIG-A, D, E, G, and H are not supported.

Signal Accuracy

Type	Offset
IRIG-B000, 004 Un-modulated	+ 6µS
IRIG-B120, 124 Modulated	+ 9µS

Commercial Temperature Range

This board is ROHS compliant.

Operating: 0°C to 50°C

Storage: -20°C to 80°C

Dimensions

Length: 164 mm[1] without end caps, 173 mm[1] (6.8 inches) with end caps

Width: 107.5 mm without end caps, 114 mm (4.5 inches) with end caps

Height: 29.5 mm without end caps, 36 mm (1.43 inches) with end caps

1 - Does not include projection of connectors

Note: All dimensions approximate.

Weight

0.45 kg (16 ounces)

4. Connectors

Main Module Connector

There are three connectors associated with the F6051, 12 volt power, RS422 data and the BNC IRIG-B interface. There is also a 9-pin RS232 computer interface which is not accessible externally.

F6150 Interface Connector

This port emulates the GPS receiver. It is used to connect this unit to the F6150. The connector is a fifteen-pin male D-Sub connector. It implements a standard RS-422 serial port plus a separate RS-422 driver for the 1PPS signal. A standard, straight through, fifteen-pin male to female cable should be used to connect this port to the computer.

Pin Number	Signal Name	Description
1	Chassis	--
2	RX +	Input
3	TX +	Output
4	--	--
5	1PPS-	Output
6	Ground	--
7	--	--
8	--	--
9	RX -	Input
10	TX -	Output
11	--	--
12	1PPS-	Output
13	--	--
14	--	--
15	--	--

Computer Interface Connector

This port is configured as a Data Communication Equipment RS-232 port. It is used to connect this unit to a computer. The connector is a 9-pin female D-Sub connector. A standard, straight through, nine pin male to female cable should be used to connect this port to the computer.

Note: This is only accessible inside the box.

Pin Number	Signal Name	Description
1	DCD	Output
2	RX	Output
3	TX	Input
4	DTR	Input
5	Ground	--
6	DSR	Output
7	RTS	Input
8	CTS	Output
9	RI	Output

Electrical

Input power is 12V DC. This is supplied from a wall transformer. The current rating is 1 amp max. The transformer is rated for 120-240 volt AC.

5. What's Included

- F6051 unit (03D-2003-01)
- Power supply (384-0252)
- Nylon bag 12 x 7 inches to hold F6051 unit and Power supply (09B-0852-01)
- 10-foot BNC male-male cable (181-0118)
- 6 -foot DB 15 male-female (181-0828)
- F6051 User Manual (72A-3250-01)
- Nylon bag 12 x 18 x 4 inches to hold all of the above (2FB-3450-01)