

FTS-FTU – IRIG Flight Termination System Mobile Ground Station / Field Test Unit



FTS – FTU
with FTS
Receiver/Decoder

The TESTEM FTS-FTU is a full-featured mobile ground station to control or test the functions of an on board systems with TFTR (flight termination receiver/decoder), which are part of a FTS flight termination system. It's mounted into a yellow portable and lockable Peli case (water and dust proof according IP67) with handle.

The FTS-FTU contains:

- a programmable flight termination encoder (FTE) to produce tone frequencies according to IRIG standard (full range, 20 tones up to 73,95 kHz)
 - an UHF RF transmitter (TX) with an RF output power of up to 5 W, programmable in center frequency (395 to 450 MHz) and output power
 - a control panel with micro controller
 - a LiPo battery loader with integrated balancer
- a S4 LiPo battery pack 3700 mAh
 - a line power supply unit 115 to 230 V AC 50/60 Hz
 - a connection for car or truck battery, input voltage 9 to 36 V DC
 - RF output for antenna or input of high power amplifier
 - Control output for optional high power amplifier

The control panel shows:

- a key switch for System ON / OFF with LED showing Power ON
- one blue illuminated push button for the commands Activate/Deactivate RF and Reset THLV (optionally connected high power amplifier)
- four horizontally lined illuminated push buttons for the commands:
NONE (green) SAFE (green) ARM (yellow) TERMINATE (red, cover protected)
- four vertically lined yellow push buttons for the IRIG tones
- a display and control for the battery loader
- five vertically lined LEDs for:
LiPo / MCU Active / MCU Error / Prog. TX / Prog. FTE
- a key switch for Prog. TX / OPERATION / Prog. FTE

Connections:

- THLV control (7 pole rank connection jack) for control connection of high power amplifier
- RF Out (N connection jack), output of the RF transmitter either to antenna or high power amplifier
- Connector for AC line power 115 to 230 VAC, 50/60 Hz
- DC In (lockable car battery connection jack, female), 9 to 36 VDC
- USB Input connector for programming FTE and TX

System operation:

The FTS-FTU works with main power, car power or for a certain time with the integrated LiPo battery. After having connected an antenna and switching on the FTS-FTU it does a short self-test and is then ready to use. The operator may use either the four IRIG tone push buttons single or in any combination or the four push buttons for the IRIG commands NONE, SAFE, ARM and TERMINATE to control on board flight termination components. The cover protected TERMINATE button may only be activated if before the NONE, SAFE and the ARM button were pressed one after the other. The TERMINATE button in standard mode activates a toggling transmission mode between ARM and TERMINATE (2 Hz) command. The toggling makes sure that the TERMINATE command arrives at flying object even if there is a small interruption in transmission. Alternative a continuous TERMINATE signal (in case of activation) is also possible on request.

Included in delivery:

- Line power cable, car power cable
- Ground plane test antenna T18005 adjusted to application frequency with connection cable (2 m)
- USB-Interface cable and software for programming tones, RF center frequency and RF output power

Options:

- integrated additional 60 W amplifier (works only in line power mode, more RF power in separate case possible, more information request)
- low loss RF cable for connection of ground antenna (length on request)
- external high power RF amplifier with up to 2 kW RF output power
- ground antennas, helical directional or omnidirectional different types

TESTEM will be happy to assist you in finding the right combination for your application.

General technical data:

Encoder section FTE IRIG compatible:	
- Programmable digital tone encoder for up to 4 simultaneous tones (according to IRIG standard, full range, 20 tones from 7,5 up to 73,95 kHz), tone-on delay 400us, tone-off delay 200us	
RF transmitter TWBT4:	
Frequency Range (version U)	395 to 450MHz, programmable
Antenna Output Impedance	50 Ohm (max. VSWR = 2:1)
Reference Oscillator Stability	5ppm (1ppm typ.)
RF power output	0,1 to 5 W programmable (protected against short circuit and mismatch)
ESD protection (FTE and TWBT4):	
Peak Voltage (IEC 1000-4-2) ±8kV (contact discharge)	Peak Voltage (MIL 833-3015.7) ±15kV
Peak Current (Supply Voltage) 100A (8/20µs)	Peak Current (all other I/O pins) 20A (8/20µs)
Environmental	
Operational Temperature: -10°C to +40°C (case temp.) Humidity • 95% RH	
System Power:	
AC 115 to 230 VAC, 50/60 Hz	
DC Car voltage 9 to 36 VDC	
Battery:	LiPo Accu 3700 mAh, S4
RF output power: up to 5 W RF @ 50 Ohm	