

# FLIGHT TERMINATION RECEIVER/DECODER

## MODEL HFTR60-1



SUPPLYING HIGH PERFORMANCE FLIGHT INSTRUMENTATION, RF/MICROWAVE ASSEMBLIES, POWER AMPLIFIERS, IFF AND DATA ACQUISITION SYSTEMS FOR SEVERE ENVIRONMENTS.

### DESCRIPTION

The Ultra Electronics Herley HFTR60-1 Flight Termination Receiver/Decoder is a four (4) tone unit designed for missile and target applications. This unit is compact, and desirable for usage where size and weight are important considerations. The HFTR60-1 is a single-conversion receiver, with phase-locked loop tone decoders and advanced phase lock loop local oscillator. It is designed to the requirements of both RCC313-94 and RCC319-99 documents.

The design of the HFTR60-1 employs the latest in devices, circuitry, and modern production processes to provide a reliable product with extremely long operating life. This unit is intended for programs and applications with stringent environmental, EMI, and reliability requirements.



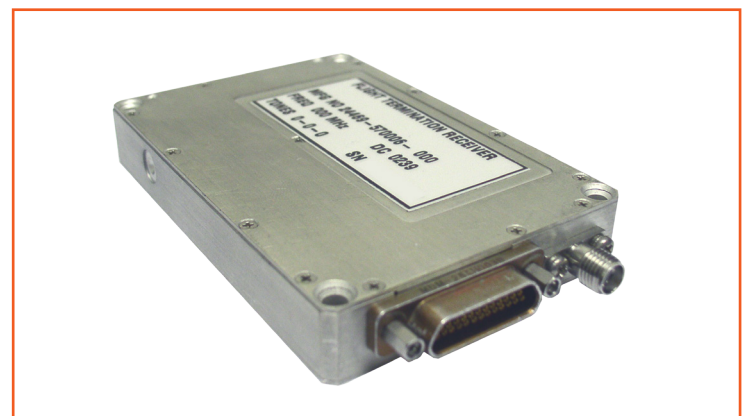
Due to U.S. Export Control Reform Ultra Electronics Herley Lancaster's Radar Transponders have transitioned from ITAR to Department of Commerce Export Administration Regulations (EAR) making them ITAR-free!

### FEATURES

- Covers full 370 to 390 Mhz, & 406 to 450 MHz bands
- 4 tone decoders
- All solid-state design
- Over 2 Amp dc, 7.5 Amp pulsed output current capability
- High sensitivity receiver
- Small, less than 3.7 cubic inches
- Lightweight, less than 5 ounces
- No RF/IF tuning elements
- Standard range safety logic
- Reverse polarity power protection

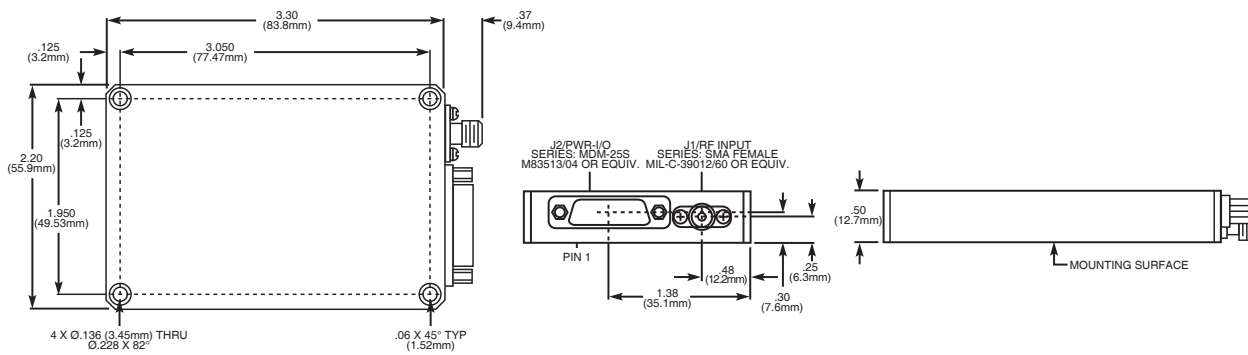
### OPTIONS

- No Failsafe, STD Failsafe, Commanded and STD Failsafe
- Operating Temperature to -54° and +85°
- Common Returns: Signal strength and command returns
- All Returns Connected to Chassis
- Audio Output: 7kHz to 32kHz, 155mV to 310mV RMS



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Pin	Function
1	+28 Vdc
2	DC Return - Optional Command
3	Power Return
4	DC Return - Terminate Command
5	DC Return - Monitor Command
6	Failsafe Enable (FSE)
7	Failsafe Input
8	TERMINATE Command
9	Audio Output (optional)
10	OPTIONAL Command
11	Low Voltage Sense
12	Tone C Monitor
13	Case Ground
14	+28 Vdc: Power
15	Failsafe Telemetry
16	Tone B Monitor
17	Tone A Monitor
18	DC Return - Arm Command
19	Failsafe Output
20	TERMINATE Command
21	Tone D Monitor
22	MONITOR Command
23	ARM Command
24	Signal Strength Telemetry
25	Signal Strength TM Return

## ELECTRICAL

- Frequency Range: 406 to 450 MHz (factory preset to customer specified frequency)
- Impedance: 50 ohms nominal
- VSWR: Less than 2:1
- Reverse Polarity Protection: Built-in
- Input Voltage: +22 to +36 Vdc
- Input Current: 210 mA max. at 22 Vdc 150 mA typ at 36 Vdc
- Low Voltage Sense: isolated input
- Telemetry Outputs: signal strength, 3 or 4 tone monitors, failsafe and low voltage sense
- Command Outputs: 4 solid-state outputs
- Command Outputs, Voltage Drop Under Load: , Arm, Monitor, Optional:  
2 Vdc maximum at 1 Amp  
3.5Vdc maximum at 2 Amps  
terminate: 4Vdc maximum at 7.5 amps, 100 msec
- Output Leakage Current: 50 microamps maximum
- Isolated Returns: Signal strength output isolated from DC return and chassis ground
- RFI/EMI: Meets MIL-STD-461C, tests; CE07, CS06. Meets MIL-STD-461D, tests; CE102, CE106, CS101, CS103, CS104, CS105, CS114, CS116, RE102 and RS103

## PHYSICAL

- Size: 3.3 X 2.2 X .5 inches (8.4 X 5.6 X 1.3 CM), less connectors
- Weight: 5 ounces maximum
- Antenna Connector (J1): RF input SMA
- Power and Signal Connector (J2): 25-pin Micro-D socket M83513/04-D05N

## ENVIRONMENTAL

- Random Vibration (ATP): 0.1 g/Hz (12 grms)
- Random Vibration (Qual): 35.87 grms
- Temperature, Operating (ATP): -40°C TO +71°C standard
- Temperature, Operating (Qual): -54°C TO +85°C
- Temperature, Storage (Qual): -62°C TO +95°C
- Shock (Qual): 100 g'S, 11 msecs, and 1100g, 0.5 msec, half-sine
- Pyrotechnic Shock (Qual): 9500 g'S peak
- Altitude (Qual): unlimited
- Humidity (Qual): 95%
- Acceleration (Qual): Up to 120 g'S

## RECEIVER

- Design: Single conversion super-heterodyne
- Sensitivity: -107 to -116 dBm
- Frequency Band: 370 to 390 MHz, and 406 to 450 MHz
- Frequency Tuning: Synthesized local oscillator
- Tuning Accuracy: 0.005%
- Dynamic Range: -107 dBm to +13 dBm
- Operating Bandwidth:  $\pm 45$  kHz minimum
- IF Bandwidth: 3dB @  $\pm 90$  kHz minimum
- Selectivity: 60 dB @  $\pm 180$  kHz maximum
- Image Rejection: Greater than 60 dB
- Capture Ratio: Greater than 0.8
- AM Rejection: 100% at 100 $\mu$ V input
- Frequency Deviation:  $\pm 30$  kHz per tone, nominal
- Signal Strength Monitor Output: No RF 0.5Vdc  $\pm$  0.25Vdc monotonically increases to 4.5Vdc minimum at -60 to -50dBm input. Maximum voltage 4.75Vdc  $\pm$  0.25Vdc.

## DECODER

- Command Response Time: 4 to 25 msec (5 msec typical)
- Number of Tone Decoders: 3 or 4
- Simultaneous Usable Tones: 3 or 4
- Tone Monitor Outputs (into 10k Ohm): Activated 4.5Vdc  $\pm$  0.5Vdc, Unactivated 0.0Vdc  $\pm$  0.5 Vdc
- Tone Decoder Bandwidth:  $\pm 1\%$  minimum at 2dB,  $\pm 4\%$  max at 14 dB
- Adjacent Tone Rejection: Rejects simultaneous adjacent tones at up to  $\pm 50$  kHz deviation
- Decoder Threshold Deviation:  $\pm 12$  kHz, typical
- Failsafe: Loss of Tone A (8 sec  $\pm$  2 sec, STD on failsafe units)
- Low Voltage Failsafe Sense: 23.0Vdc  $\pm$  0.5dc typical on failsafe units
- Redundant Failsafe: 2 receiver operation

## PRODUCT NUMBERS

- P/N 570006-xxx (see below for ordering options)

## SPECIAL NOTE

- When ordering, please specify receiver frequency, 4 tone configuration, failsafe option including loss of Tone A timeout (sec), and any additional options.



making a difference

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