

# Avionics

## IFR 4000 Nav/Comm Test Set



The IFR 4000 is a compact, lightweight and weatherproof unit designed for testing ILS, VOR, Marker Beacon and VHF/UHF Communications avionics systems.

- Accurate measurement of VHF/UHF transmitter, frequency, output power, modulation (AM and FM and receiver sensitivity)
- Accurate measurement of HF transmitter, frequency, output power, modulation (AM and SSB USB/LSB) receiver sensitivity
- Generation of ARINC 596 Selective Calling Tones
- Accurate measurement of HF/VHF/UHF antenna and or feeder SWR (Standing Wave Ratio)
- Simulation of Localizer and Glideslope (CAT I, II and III Ground Station) Signals with variable DDM settings
- Swept Localizer DDM for coupled Auto Pilot testing (Simultaneous Localizer, Glideslope and Marker signals)
- Simulation of VOR beacon with variable bearing
- Simulation of Marker Beacon, Selectable Airways (Z), Outer and Middle Marker Tones
- Accurate measurement of 121.5/243 MHz emergency beacon transmitter frequency, output power, modulation (AM). Headphone audio output to monitor swept tone (Option 1 required)
- Accurate measurement of 406 MHz COSPAS/SARSAT emergency beacon transmitter frequency, output power. Decode and display of all location and user protocols (Option 1 required)
- Guided Test capability cuts down total test time
- 5.7 inch LCD display with user adjustable backlight and contrast
- Internal battery allows eight hours of operation before recharge

The IFR 4000 verifies the operation and installation of ILS, VOR and Marker Beacon receivers and VHF/UHF AM/FM and HF AM/SSB transceivers.

The IFR 4000, with its lightweight size (under 8 lbs.), long run time battery (8 hrs) and ergonomic design, will provide the user with the most portable navigational communications ramp test set on the market today. Cockpit and bench use testing can be easily interchanged.

The menu driven functionality and guided test capability make this instrument extremely easy to use. Combine these benefits with the outstanding price and the user has an instrument that delivers total value.

The IFR 4000 is designed to provide test support for ramp or bench environments by utilizing the supplied trimode antenna for over the air measurements or direct connection to the unit's RF I/O port. VOR provides signal generation over the VOR band of 108.00 to 117.95 MHz with 30 Hz variable phase and 9960 Hz (sub-carrier frequency modulated with 30 Hz reference phase) amplitude modulated at 30% per tone. VOR bearing selection is provided in pre-set steps of 30 degrees and variable steps of 0.1 degrees. Localizer provides signal generation over the Localizer band of 108.10 to 111.95 MHz with 90 Hz and 150 Hz tones, amplitude modulated at 20% per tone. Variable and fixed DDM control is provided. Glideslope provides signal generation over the Glideslope band of

329.15 to 335.00 MHz with 90 Hz and 150 Hz tones, amplitude

modulated at 40% per tone. Variable and fixed DDM control is provided.

Marker Beacon provides 75 MHz signal generation, amplitude modulated at 95% with selectable 400, 1300 and 3000 Hz tones.

ILS provides simultaneous Localizer (with swept DDM), Glideslope and Marker Beacon signals.

COMM AM provides signal generation and monitoring of transmitter power and modulation depth over the range of 10.0000 to 400.0000 MHz. A 1020 Hz tone, amplitude modulated at 30% is also provided. Frequency control is provided in 8.33 kHz / 25 kHz channel steps or 1 kHz variable steps.

COMM FM provides signal generation and monitoring of transmitter power and FM deviation over the range of 10.0000 to 400.0000 MHz. A 1000 Hz tone, frequency modulated at 5 kHz deviation is also provided. Frequency control is provided in 25/12.5 kHz channel steps or 1 kHz variable steps.

COMM SSB provides signal generation and monitoring of transmitter power and modulation depth over the range of 10.0000 to 30.0000 MHz. A 1000 Hz tone or variable tone 25 to 3000 Hz, SSB modulated (LSB or USB), is also provided. Frequency control is provided in 100 Hz steps.

SWR provides selected CW frequency, SWR measurement or swept SWR measurement over a 10.0000 to 400.0000 MHz range.

SELCAL (Selective Calling) provides selectable consecutive tone pulse pairs which may be sent continuously or as a burst (VHF AM) for testing SELCAL decoders.

MORSE CODE provides 1 - 4 characters transmitted in the VOR and ILS localizer mode.

FREQUENCY COUNTER provides external frequency measurement over the RF I/O connector and ANT connector from 10 to 400 MHz and over the AUX connector from 1 to 10 MHz.

121.5/243 BCN provides monitoring for 121.5/243 MHz swept tone short range emergency beacons including monitoring of transmitter power, frequency, AM modulation depth, modulation swept tone start and stop frequencies. A headphone receive audio output is provided via the Aux Port (requires user manufactured adapter cable).

406 BCN provides monitoring for 406 MHz COPAS/SARSAT Emergency Locator Transmitter (ELT), Emergency Position Indicating Radio Beacons (EPIRB and Personal Locator) PLB Beacons including transmitter frequency and power. The beacon utilizes BPSK data to transmit position information derived from a long range navigation system or GPS receiver. All protocols defined in COSPAS/SARSAT G.005 Issue 2 Rev 1 are supported. They consist of 6 user protocols (plus a test protocol), 5 location protocols (plus a test protocol). The Protocol management and data field decode is automatically handled by the IFR 4000. Transmitter frequency and power are monitored.

#### Ordering

##### Numbers Versions

4000-110 IFR 4000 Nav/Comm Ramp Test Set, with US mains leads

4000-220 IFR 4000 Nav/Comm Ramp Test Set, with European mains leads

4000OPT1 ELT (121.5/243 MHz beacon and 406 MHz COSPAS/SARSAT beacon test)

##### Standard Accessories

VHF/UHF multi-band antenna

Customized transit case

Operation manual (CD)

AC/DC power supply  
AC line cord  
TNC (male) to TNC (male) coaxial cable  
TNC short  
Spare fuse  
Optional Accessories  
AC0820 Desk top stand  
AC0821 RS-232 cable  
AC0822CD 4000 maintenance manual (CD)  
AC0823CD 4000 operation manual (CD)

Extended Standard Warranties with Calibration for 4000  
W4000/203C Extended standard warranty 36 months with  
scheduled calibration  
W4000/205C Extended standard warranty 60 months with  
scheduled calibration

#### NOTES

Note 1 - External attenuator required for input power greater than  
30 W  
Note 2 - Accuracy specification excluding external attenuator  
Note 3 - Battery charging temperature range: 5° to 40°C (controlled by internal  
charger)  
Note 4 - Li Ion battery must be removed below -20°C and above 60°C  
Note 5 - Temperature range extended to -20°C to 55°C.  
Note 6 - Temperature range reduced to -30°C to 71°C.