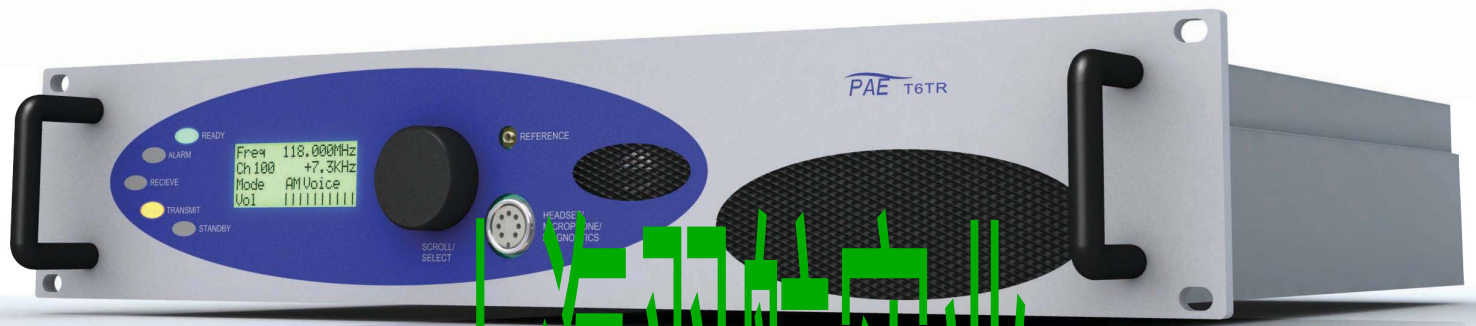


▼ PAE T6 MDR

B6550 50W VHF Transceiver



Park Air Systems T6 multimode digital radios (PAE T6 MDR) offer a versatile range of software programmable radios that fulfil today's analogue needs and the growing demand for digital communications within the aerospace environment. Designed for long maintenance free service, T6 radios are the optimum choice for professional ATC provision.

Capable of containing four different software defined air interface waveforms the B6550 Transceiver has power output adjustable from 5 to 50W and the receiver utilises advanced DSP algorithms to maximise dynamic range and fidelity for optimum performance in the congested r.f. environments commonly experienced in ATC installations.

Two variants are available covering the 118-136.975MHz ATC band and the extended VHF band 112-155.975MHz, both are designed to provide optimal performance in existing AM 25kHz and 8.33kHz analogue services and to offer capability for VDL modes where a suitable ground infrastructure is in place.

The transceiver supports ICAO Annex 10 recommendations for 2, 3, 4 and 5 carrier climax (off-carrier) operation with 25 KHz channels and 2 carrier climax operation with 8,33 KHz channels.

The radio interfaces provide for simple integration into various alternative communication system architectures developed by Park Air Systems to satisfy all sizes of ATC infrastructure needs. Interfaces include a fully implemented E1 digital connection for optimal networking capability of audio, control and RCMS functions. In addition 600 ohm 4-wire E&M analogue facilities, RS422 serial ports and split or combined TX and RX antenna ports offer multiple interface alternatives.

Comprehensive continuous and interruptive built-in tests (BIT) provide confidence of the radio's serviceability with results viewed on the front panel LCD and summarised by alarm indicators. BIT results are rolled-up and transported via E1 and serial interfaces for remote analysis via PAE MARC or similar RCMS systems. Front panel microphone/

headset connection and integral loudspeaker cater for local control applications.

Power supplies may be either standard ac mains, or a low voltage 28Vdc nominal supply. When both input supplies are connected, the dc supply acts as a back up that is automatically connected if the mains supply fails.

Features

- Multi-mode software defined radio compliant with ETSI specifications
- 50W 112-155.975MHz capability
- Comprehensive analogue and digital interfaces
- Flexible power supply
- Designed for long maintenance free service

GENERAL CHARACTERISTICS

| | |
|--------------------|---|
| Frequency Range | 118-136.975 MHz or 112-155.975 MHz variants both with 4 pre-settable band edges |
| Channel Spacing | 25 KHz and 8.33 KHz |
| Frequency Accuracy | 1 ppm |
| Waveforms | AM voice |
| Optional Waveforms | AM MSK, D8PSK (VDL Mode 2, VDL Mode 3) |
| Channel Presets | Storage for 100 presets containing a frequency |
| Dimensions | 2U 19" rack mounting, 483(w) 430(d) 88(h) mm |
| Weight | 13.5 kg |
| Supply voltage | AC 99 to 264 V 48 to 62 Hz. DC 21.6 to 32 V automatic c/o to DC on AC supply failure |
| Power Consumption | Typical under normal conditions AC 300 VA, DC 8.5 A transmit AC 60 VA, DC 1 A receive |
| Temperature Range | |
| <i>Operating</i> | -20° to +55° C |
| <i>Storage</i> | -30° to +70° C |
| Humidity | 5-95% non-condensing |
| Ventilation | Fan cooled, speed dependent on environment |
| Altitude | Operating 5000 m, Transport 15,000 m |
| Primary Standards | ICAO Annex 10, ETSI EN 300-676, EN 301-489 |

TRANSMIT

| | |
|----------------------------|--|
| Carrier power output | 5 W to 50 W in 1 W steps |
| Power flatness | < +1 dB with frequency < ±1 dB with temperature < ±1 dB with VSWR to 2.5:1 (∞ VSWR without damage) < ±1 dB with DC supply 24-32 V, < +1-3 dB with DC supply 24-32 V |
| Duty Cycle | Continuous |
| Offset Carrier (25 KHz) | AM voice, 2, 3, 4 and 5 offsets as per ICAO |
| Offset Carrier (8.33 KHz) | AM voice, 2 offsets as per ICAO |
| Spectral Mask | |
| <i>Noise</i> | < - 150 dBc/Hz at >2 MHz offset |
| <i>Harmonics</i> | < - 36 dBm |
| <i>Spurious</i> | < - 46 dBm > 500 kHz from carrier |
| Modulation | AM, adjustable up to 95%. D8PSK, 31.5 KB |
| Modulation Noise | AM voice, -45 dB |
| Distortion | <5% normal conditions, <10% extreme conditions (VSWR >2.5:1, DC supply <24 V) |
| Frequency Response | |
| <i>AM voice (25 kHz)</i> | +0.5 - 1.5 dB 300 to 3400 Hz -20 dB at <100 Hz, -30 dB at >4000 Hz |
| <i>AM voice (8.33 kHz)</i> | +0.5 - 1.5 dB 350 to 2500 Hz -10 dB at <100 Hz, -30 dB at >3200 Hz |
| ALC (Vogad) | 30 dB range, Attack <20 mS, Decay >2 Sec |



RECEIVE

| | |
|----------------------------|---|
| Sensitivity | For 12dB SINAD with ITU/T weighting 107*dBm, 118-136.975 MHz 105*dBm, 112-117.975 and 137-155.975 MHz (*1dB reduction for combined TX/RX antenna configuration) |
| Selectivity | |
| <i>AM voice (25 kHz)</i> | <6 dB at ±11 kHz >80 dB at ±25 kHz |
| <i>AM voice (8.33 kHz)</i> | <6 dB at ±3.5 kHz >70 dB at ±8.33 kHz |
| Intermodulation | ≥80 dB, interferers at 100 kHz and 200 kHz |
| Blocking | ≥95 dB at >200 kHz, ≥105 dB at >3 MHz |
| Cross-modulation | ≥95 dB at >200 kHz, ≥105 dB at >3 MHz |
| Antenna Radiation | <-81 dBm |
| Maximum input | +36 dBm for 20 seconds, +27 dBm continuous |
| Frequency response | |
| <i>AM voice (25 kHz)</i> | +1 - 2dB 300 to 3400 Hz -20 dB at <100 Hz, -30 dB at >4000 Hz |
| <i>AM voice (8.33 kHz)</i> | +1 - 2 dB 350 to 2500 Hz -10 dB at <100 Hz, -30 dB at >4000 Hz |
| Distortion | <5% |
| RF AGC | <3dB from reference sensitivity to +10dBm At least 10dB SINAD with input up to +17dBm |
| Audio AGC | <1 dB from 30% to 100% modulation depth |
| Squelch | Adjustable -114dBm to -60dBm in 1dB steps Carrier operated with noise compensation and carrier override. Attack time <20mS Configurable squelch tone signalling 1800 to 3000Hz, -5 to -25dBm ref line level |

ANALOGUE & GENERAL PURPOSE INTERFACES

| | |
|------------|---|
| Microphone | Active (powered) or passive microphone input |
| Line | 600Ω balanced -20 to +10dBm in 1dB steps |
| FT | Via contact closure, phantom, +/- volts or tone 1800 to 3000Hz, -5 to -25dBm ref line level |
| Ref | For monitoring internal reference frequency |
| Antenna | Combined TX/RX or separate TX and RX ports |
| Facilities | Multiple interfaces for general purpose use |

DIGITAL INTERFACES

| | |
|-------------|--|
| E1 | Balanced 120Ω, 2.048Mbps E1 (G703, G704, G711) 64 KB digital audio, control and RCMS |
| MARC data | 2 off RS422 serial ports, RCMS data for MARC RCMS system and control of peripherals |
| HDLC | VDL Mode-2 interface |
| Diagnostics | RS232 port for local maintenance computer |

MODEL INFORMATION

| | |
|-------------|-----------------|
| B6550/NB/50 | 118-136.975 MHz |
| B6550/WB/50 | 112-155.975 MHz |

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