

TECHNICAL INFORMATION

GENERAL		Duty cycle	100% continuous transmit
Frequency range:	118 to 136.975 MHz	Operating temperature	-20 to +55°C
Option 1	118 to 143.975 MHz	Storage temperature	-30 to +70°C
Channel spacing - AM	8.33 kHz and 25 kHz	Housing:	19" cabinet
Modes:	A3E AM-voice	Option	Desk mount
Options	AM-MSK	Power consumption:	
	VDL-2	ac	dc
	VDL-3	330 VA	10 A
Supported standards	ICAO Annex 10	70 VA	1.4 A
	EN 301 841-1	45 VA	0.5 A
	EN 300 676	ac: 99 to 264 V	48 to 62 Hz
Frequency stability	<1 ppm	dc: 21.6 to 32 V	
Ref oscillator adjust	From front panel rotary encoder		
CONTROL		Transmit	
Control and monitoring of the T6TR can be carried out locally from the front panel, or remotely via a RS422 serial port		Receive	
Pre-set channels	100	Standby	
Channel settings	Frequency, channel spacing, memory assignment	Supply	
Operation settings	Includes mode, TX power, modulation depth, squelch defeat/level, PTT time out		
Installation settings	Includes audio line levels, PTT/mute level/polarity, reference oscillator frequency	Remote control ports	LED indicators for standby, ready, alarm, receive and transmit
Local control facilities	Rotary encoder and backlit multifunction display provide menu driven control of all transceiver operating parameters and BIT functions		Mic/headset/diagnostic port for local operation and programming from computer via RS232 serial link
			Coaxial connector for monitoring reference oscillator frequency
			Facilities: Audio, control and BIT for AM operation
			MARC: RS422 serial port for control of radio from MARC or other compatible system
			HDLC: Serial interface for VDL operation
			T1: For connection to Remote Interface Unit for VDL operation
RECEIVE RF			
Sensitivity	-107 dBm for 10 dB (S+N)/N		interference to ensure the squelch opens whenever an input signal exceeds the set threshold and has a positive (S+N)/N ratio
Selectivity:		AGC RF	<3 dB change in audio output for RF signals between -107 dBm and +10 dBm
8.33 kHz	<6 dB at ±3.5 kHz		<1 dB change in audio output for modulation depth change between 90% and 30%. Automatically maintains audio at the 90% modulation equivalent level for maximum fidelity
	>70 dB at ±8.33 kHz	AGC audio	<-73 dBm
25 kHz	>80 dB at ±25 kHz		
	<6 dB at ±11 kHz		
Squelch	>80 dB at ±25 kHz	Antenna radiation	
	Threshold adjustable in 1 dB steps for RF input levels from -114 dBm to -60 dBm (<6 to >30 dB (S+N)/N). Incorporates Digital Coherent Mute (DCM) technology to dynamically filter on-channel interference. DCM automatically mitigates co-location		
TRANSMIT RF		Harmonic outputs	<-36 dBm
Carrier power	5 to 50 W in 1 W steps	Spurious outputs	<-46 dBm
Modulation	0 to 100% in 1% steps	VOGAD	<10% change in modulation depth for 30 dB change in input level
VSWR mismatch	Full power into VSWR of 2.5:1	Tx mute	5 dB below VOGAD threshold
	Infinite VSWR without damage	Time out	Off, or 2 s to 510 s in 2 s steps
AUDIO CHARACTERISTICS		Audio interface:	
Audio distortion	<5% THD	Line output	-30 dBm to +10 dBm in 1 dB steps
Audio bandwidth:		Line input	-40 dBm to 0 dBm in 1 dB steps
8.33 kHz	350 Hz to 2500 Hz	Loudspeaker	1 W
25 kHz	300 Hz to 3400 Hz	External speaker	3 Vac peak-to-peak
		Tape	-10 dBm
MECHANICAL		RF connectors	N-type sockets
Dimensions (mm)	89(H) x 483(W) x 450(D)		
Weight	14.5 kg		
ORDERING INFORMATION		User guide	Part No. 31-360000TR
T6TR	Part No. B6550	Microphone	Part No. 24-11030301
Option 1 (extended frequency range)	Part No. 6550OPT1	Headset/microphone	Part No. 24-12002801
Desk mount kit	Part No. 70-6550DESK	End-fed dipole antenna	Part No. B2080

Park Air Systems reserves the right to amend specifications in the light of continuing development - 042-2

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The PAE T6TR TRANSCEIVER

for advanced airspace communications

- VHF 118 to 144 MHz Multimode Digital Radio (MDR)
- 8.33 kHz and 25 kHz channel spacing
- 50 W RF output power
- Digital Coherent Mute (DCM) technology
- Compact 2U case
- Analogue and digital operation
- Extensive remote control facilities

The PAE T6TR TRANSCEIVER

for advanced airspace communications

The PAE T6TR multimode digital transceiver for ground-to-air communications is intended for use at low and medium density airports and air traffic control installations, emergency services and airline communications. The compact dimensions allow the T6TR to be conveniently used for both desk and rack mount operations. The radio supports both voice and ICAO defined data modes.

The radio can be operated locally using the front panel controls, or remotely via flexible control interfaces. STANDBY mode allows the radio to be powered on and off remotely to ensure minimal current drain on local power supplies. A 100 channel memory allows immediate recall of stored frequencies. Frequency change can be inhibited to prevent unauthorised tuning.

Both 8.33 kHz and 25 kHz channel spacing are incorporated. The T6TR recognises frequencies entered in ICAO format and automatically adjusts to the correct channel spacing. For multichannel operation, any combination of 8.33 kHz and 25 kHz channel spacing can be programmed.

Careful implementation of DSP techniques significantly reduces the component count within the radio. This leads to increased reliability and reduced logistic costs. All modulation and demodulation processes are carried out using DSP algorithms that provide consistent long-term performance to further enhance equipment reliability. All adjustable parameters within the radio can be modified using the front panel controls, or from a computer connected to the headset/diagnostics port, eliminating the need to remove equipment covers during the operational life of the radio.



The use of innovative RF engineering allied to sophisticated DSP technology provides class leading performance. The advanced design of the T6TR transceiver allows operation in demanding co-site conditions, reducing the need for external filters. The transmitter employs a sophisticated feedback technique that minimizes spectral noise and enhances signal purity. The power amplifier is designed for optimum performance and maximum reliability and will support continuous operation applications.

The receiver circuitry benefits from unique DSP implemented Digital Coherent Mute (DCM) technology. DCM uses specially developed algorithms that monitor on-channel activity and dynamically filter unwanted interfering signals. The receiver front-end has exceptional signal handling properties that ensure rejection of unwanted off-channel signals while maintaining excellent low level wanted signal performance.

Two antenna ports are provided allowing maximum flexibility, these may be configured for separate receiver and transmitter antenna connections, or a single combined receive/transmit antenna. The use of separate antenna ports allows the T6TR to be used with filter multicouplers in larger system applications. A solid state T/R switching relay is used to provide both long-term reliability and the high speed necessary for VDL modes.

Comprehensive Built-In Test (BIT) monitors both static and dynamic parameters. Results can be viewed on the front panel LCD and summarised via READY and ALARM indicators. All BIT data is available for remote monitoring via serial ports and transceivers can be readily networked for remote monitoring using the PAE Multi-Access Remote Control (MARC) or similar systems.