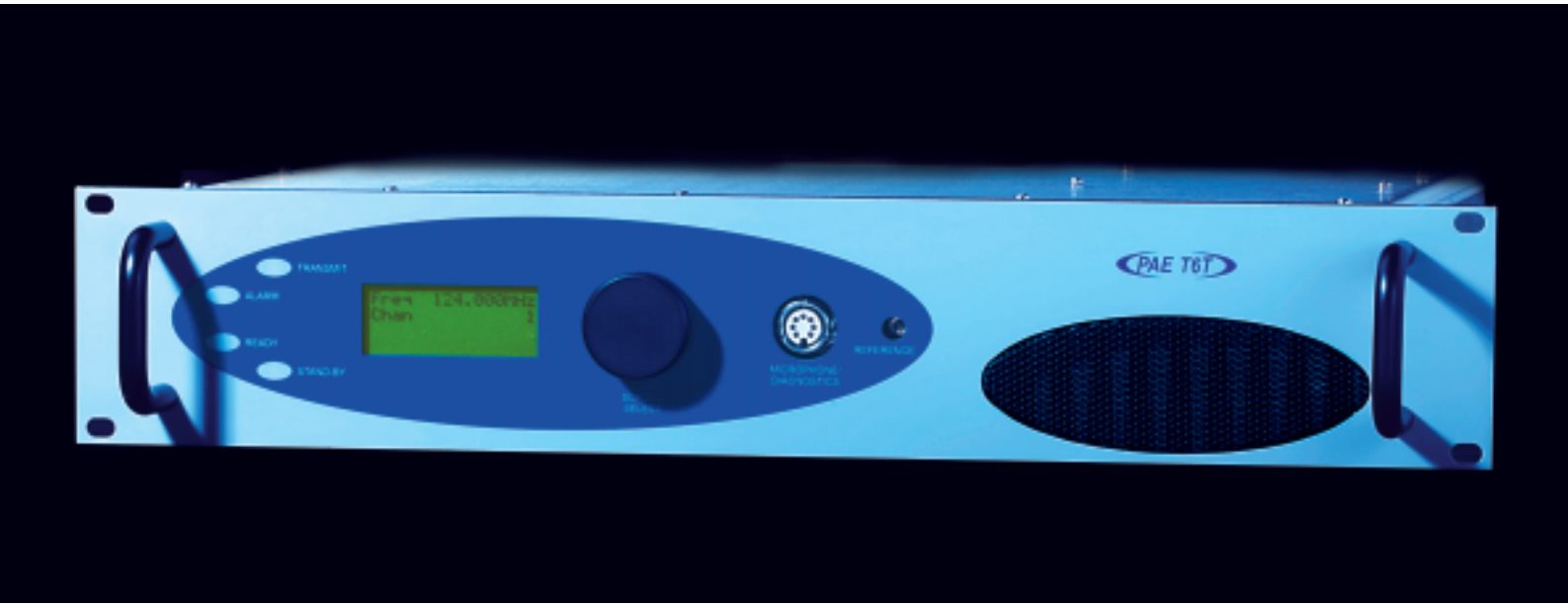

PARK AIR ELECTRONICS | T6T VHF TRANSMITTER

50W Digital Multimode Transmitter

FEATURES

Analogue and Digital programmable modulation modes

AM voice with 25 kHz and 8.33 kHz channel spacing

AM-MSK for Mode 1 (ACARS)

D8PSK for Mode 2 (CSMA) and Mode 3 (TDMA)

Five carrier offset capable

50 W Continuous duty operation

Compact 2U high rack mounting package

Class leading RF performance

Static and dynamic BIT

The T6 Series represent the latest generation of Park Air ATC radios which are designed for professional applications in airport and en-route centres. The T6 Series fulfils both analogue (AM) modulation and the future digital (D8PSK) modes, which are being planned by ICAO. The T6 Series makes extensive use of advanced DSP (digital signal processing) technology to enable the transition from analogue to digital modulation modes to be made via software upgrade. Investment in radio systems is thereby protected against obsolescence as new digital modulation waveforms are introduced.

The T6T operates in the VHF aviation band and provides both 25KHz and 8.33KHz channel spacing. Frequency offsets can be set on 25KHz channels to enable the transmitter to operate in offset carrier area coverage systems and a 100-channel memory is incorporated for recall of pre-set frequency and operating modes in multichannel applications.

Modulation waveforms are implemented using DSP algorithms, which provide consistent long term performance. D8PSK digital modulation waveforms require highly linear power amplifiers to achieve spectral purity, and the T6T employs a sophisticated feedback technique to ensure class leading RF performance. The power amplifier is designed for continuous operation for maximum reliability.

Description

Sophisticated DSP algorithms combined with conservatively rated components ensure the T6 Transmitter has class leading performance in the areas of distortion and low level spurious products. To minimise interference effects, the transmitter is designed to meet and exceed international targets for reduced spectral noise in the aviation band.

Control of transmitter operating parameters can be effected locally using a menu driven front panel LCD or remotely via serial ports on the rear panel. All transmitter adjustments are under software control and can be accessed externally avoiding any necessity to remove covers during the operational life of the equipment. Should software updates be required to support new modulation modes in the future, these can be simply effected via a front panel diagnostic port or remotely via rear panel serial ports.

The T6T has comprehensive BIT which monitors both static (supplies etc) and dynamic (power output, modulation etc) parameters. Results can be viewed on the front panel LCD and are summarised via READY and ALARM indicators. All BIT data is available for remote monitoring via the serial ports and transmitters can be readily networked for remote monitoring using PAE MARC or similar systems.

The transmitter is a compact 2U high, 19" rack mounted unit. Power can be 110/220 VAC or 24/28 VDC, with automatic switching to DC in the event of an AC failure. Both inputs are fully filtered and protected.

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50W Digital Multimode Transmitter | Specification

General Characteristics

Frequency range
117.975 to 136.975 MHz

Channel spacing
25 KHz and 8.333 kHz

Programmable channels
100

Frequency offsets
±4KHz, 5KHz, 7.3KHz and 8KHz to comply with ICAO offset carrier requirements

Frequency error
±1 ppm (option 0.3 ppm)

Modulation mode
AM voice
AM-MSK
D8PSK Mode 2 and Mode 3

Power supplies

ac: 110/120/220/240 V (±10%),45 to 65 Hz
330 VA typical, <500 VA max
dc: 21.4 to 32 V <12 A

Environmental

Operating: -20 to +55 degrees C
Storage: -30 to +70 degrees C

Duty cycle
Continuous

EMC/EMI
89/336/EEC

Weight/Dimensions

Width:	483 mm (19 inches)
Height:	2U/89 mm (3.5 inches)
Depth:	419 mm (16.5 inches)
Weight:	17 kg

RF Characteristics

Carrier power
Adjustable from 5 to 50 W in 1 W steps

Mismatch load
Full power into 2.5:1 VSWR, infinite VSWR without damage

Harmonic outputs
-80 dBc

Spurious outputs
AM -90dBc
D8PSK -54dBm in 25KHz BW

Tx timeout
Adjustable 2 to 510 secs in 2 sec increments or can be disabled for continuous operation

Modulation Characteristics (AM)
Response 25KHz channel spacing
300 Hz to 3.4 KHz +1/-3 dB ref 1 kHz
>20 dB attenuation at 100 Hz
>30 dB attenuation at 5 kHz

Response 8.33KHz channel spacing
350 Hz to 2.5KHz +2/-4 dB ref 1 kHz
>45 dB attenuation at 3.2 kHz

Modulation depth
Up to 95%

Distortion
<5% THD at 90% modulation

AGC (VOGAD)
<10% change in 90% modulation depth for 30dB change in input level

Mute
Adjustable to open from -40 dBm at line input

Audio inputs
600 ohm balanced line input adjustable -30 dBm to +10 dBm
600 ohm front panel microphone input

Tape
600 ohm tape/sidetone output -10dBm

Front Panel Facilities:
Rotary Encoded Switch and back lit 4-line LCD provide simple menu driven control of all transmitter operating parameters and BIT functions
LED indicators for standby, ready, alarm and transmit
Combined microphone and Virtual Front Panel (VFP) connector
PTT activation via menu or microphone (AM)
Recessed co-axial connector for monitoring internal reference oscillator

Rear Panel Facilities:
Antenna
N-type female connector

Supply connectors
ac and dc supply connectors with associated fuses

Facilities connector
15-way D-type includes audio, control, and BIT connections

Data connector
25-way D-type used to link transmitter to control computer when operating in digital modes. Provides two RS422 synchronous HDLC interfaces for status/control and transmission data plus real time data and timing for TDMA. Message protocol and packet structure conforms to ICAO/VDL SARPS requirements.

MARC connector
9-way D-type provides independent connection of audio/serial control data to MARC remote control and monitoring systems.

Options

OPTION 01:
0.3ppm high stability oscillator

PARK AIR ELECTRONICS

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