TELERAD

Aeronautical and Maritime Radiocommunication Systems

VHF TRANSMISSION COUPLING UNIT

CPE9000-2G

OVERVIEW

The CPE9000-2G has been designed to ensure the operation of two multi-channel transmitters in a coupled mode. The CPE9000-2G is 1U high and 19" wide.

The unit consists of one control PCB, one output RF coupler associated with a 50 Ω power-load and one digital PCB (optional).

The coupling unit ensures the following:

- selection of the RF signal supplied to both transmitters EM9000-2G,
- simultaneous monitoring of the two transmitters from the same P.T.T. control (local, test, remote),
- simultaneous modulation of the two transmitters through the same AF signal.

The RF coupler carries out the summing of the two transmitters RF signals. Direct and reflected powers are measured using a directional coupler. The RF power radiated inside the associated 50 Ω load is also measured.

The operating principle ensures a static redundancy of the unit for guarantying excellent frequency availability.

Optional PCB MIDS11216 can be added for allowing the monitoring of the CPE9000-2G. This option uses the telemonitoring connector and proposes two RS485 accesses under the JBUS protocol, 2 Ethernet links (VOIP and SNMP).

The coupling unit has a function that is both for self-monitoring as well as transmitters monitoring. It gives the operating information for an external acquisition device (remote monitoring).

Connecting to the equipment is similar to connecting to a single transmitter. In fact, the equipment ensures the distribution of the operating signals and makes them available on two specific connectors allocated to each transmitter. If required, the operating connector (which is usually connected to the coupling unit) can be directly connected to an EM9000-2G transmitter.

If the sum of transmitters power is excessive (100 W), the use of the EM9000-2G transmitters allows the operation at a reduced power value.

The redundancy of the frequency synthesis signals is ensured by the use of internal master oscillators of EM9000-2G transmitters. In addition to the monitoring of the two synthesizers inside the transmitters, devices for detecting the presence of these master oscillators are built in the CPE9000-2G.

A fully static switching device associated to this detection allows a Mains/Standby functioning of both the master oscillators.

The use of fewer components in the coupling unit and absence of mechanical and power switching elements help increase its reliability.

RADIOELECTRICAL CHARACTERISTICS

Power supply:
+24 V_{DC} supplied by the transmitters.
No degraded operation between +21 and +31 V_{DC}

Consumption:
< 1 A

Frequency range:
108-156 MHz

Output power:
Up to 140 W

RF Coupler insertion loss:
< 0.5 dB

Antenna impedance:
50 Ω

Alarms:
VSWR, temperature, imbalance, µP and/or MIDS PCB default

Mike input sensitivity:
Selection using internal jumper up to 1 mV or 100 mV

AF processing:
- AF gain: 0 dB between AF input and outputs
- S/N ratio: > 50 dB on each AF output line
- AF bandwidth: ≤ ± 1 dB, 300-3400 Hz
- Harmonic distortion: ≤ 2%

MECHANICAL CHARACTERISTICS

Height:
44 mm
Width:
482 mm
Depth:
460 mm
Weight:
3 kg

ENVIRONMENTAL CHARACTERISTICS

Operating temperature:
- -20 °C to +55 °C
- 95 % relative humidity at +40 °C (non-condensing)

Storage temperature:
-40 °C to +80 °C

OPTIONAL PCB MIDS11216

Interfaces:
4 wires RS485, Ethernet (2 links)

Protocols:
JBUS, VOIP (according to ED137-1), SNMP (V1, V2C and V3 according to ED137-4)

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