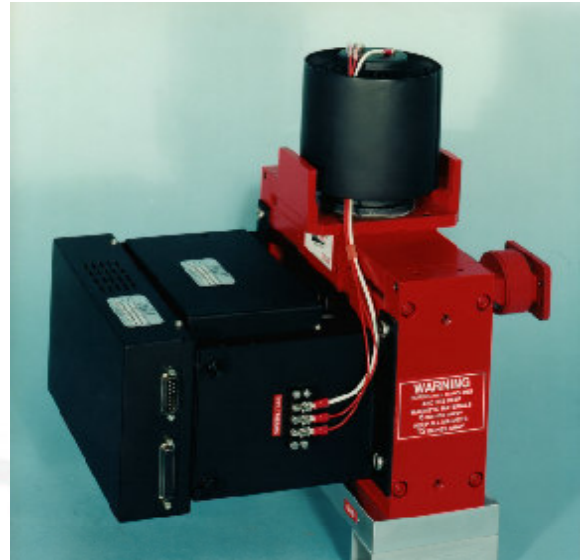


DIGITAL FAST TUNING SYSTEM (DFTS) FOR COMMUNICATION KLYSTRONS

CPI, the leading manufacturer and supplier of Satcom klystrons, is offering the latest in klystron tuner technology, a fully "all digital" fast tuning system (DFTS). This digital klystron tuner offers sub-second channel changing, outstanding repeatability and long life. Utilizing optical encoders and DC stepper motors, this DFT System prevents mechanical wear to achieve its unparalleled repeatability and long term reliability. DFTS equipped klystrons may be used in GEN III and GEN IV klystron amplifiers.



KEY FEATURES

- Complete "All Digital" design, using off the shelf components, equals unparalleled reliability and facilitates easy repair.
- Non-contacting positioning system avoids mechanical wear.
- Demonstrated Repeatability: Incredible repeat performance! No distinguishable change in RF bandpass performance even after more than 2,000 channel change cycles.
- Demonstrated Reliability: Mechanical components tested over 100,000-channel change cycles to date
- Sub-second channel change times for S, C, X and Ku-band, and DBS klystrons.
- Backup tuning capability: Mechanically tunable using standard screwdriver.
- Controller uses standard 24 Volt DC and RS232/422 digital interfaces.
- On board, non-volatile memory, has initial capacity for 50 pre-set channels.

DESCRIPTION

The DFTS consists of:

1. An electronic control module operating from a standard 24 Volts DC drawing a maximum of 3 Amperes.
2. A motor driver assembly or, containing a personality interface module (PIM), which is permanently attached to the klystron.

The motor driver assembly contains the heart of the DFTS, the optical stepper and DC encoder motors, which allow for a non-contacting positioning system eliminating mechanical wear and increasing overall reliability. The DC stepper motors, supported by high resolution micro step drivers, provide a highly accurate tuner solution, as well as avoiding the need for an A/D conversion process. Operation of the DFTS occurs via the klystron power amplifier (KPA) controls. The DFTS provides a choice of user control interfaces for added flexibility.

RS232 and RS422 are both supported full-time and can be accessed by a PC as well as by the KPA.

The personality interface module (PIM) also contains the klystron preset channel frequency and tuner positioning information. The PIM is a memory reservoir to preserve the klystron's original frequency and tuner positioning information.

The electronic control modules are fully interchangeable and field replaceable with other electronic control modules as well as with different klystrons. The electronic control module has all the klystron preset channel frequency and tuner positioning information embedded in memory. During field replacement, a spare electronic control module can be attached to the motor driver assembly and the user can maintain the klystrons previous frequency and tuner positioning information, located in the personality interface module (PIM). Conversely, the user can re-program the PIM by using new klystron frequency and tuner positioning information in the replacement electronic control module, if required. The electronic control module has EPROM backup, providing full redundancy, and has initial capacity for 50 preset channels.

The DFTS software enables complete interchangeability between the electronic control module and the motor driver assembly providing a totally flexible solution for field replacement. For added flexibility, in the unlikely event that an electronic control module does fail and a spare module is unavailable, it is possible to remove the damaged module and field tune the klystron with a standard screwdriver.

Although the DFTS consists of two major modules, the electronic control module and the motor drive assembly, it is furnished as a complete assembly which offers a low profile for easy installation and which helps to conserve space in the klystron power amplifier.

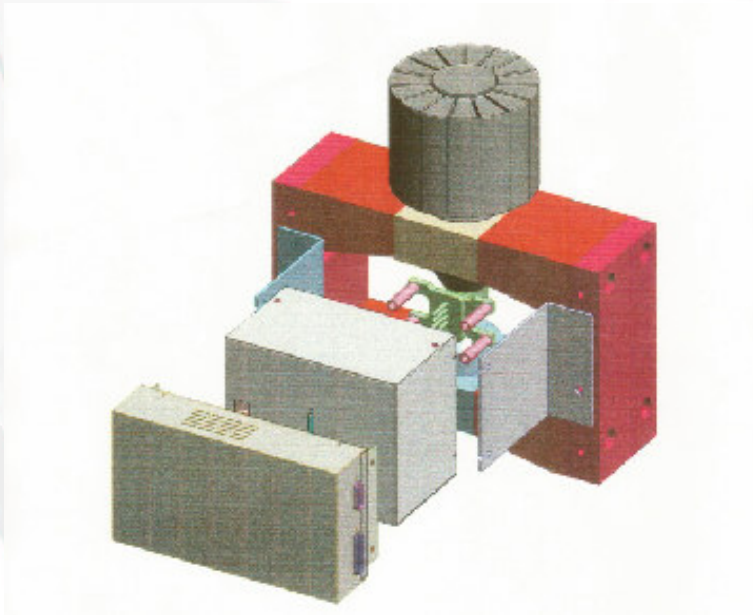
INPUT REQUIREMENTS

RS232, RS422: 9600 bps, 8 bits, no parity, 1 stop bit.
ASCII-coded alphanumeric string.
DC 24VDC +1V, -2V

CONTROLLER INPUTS

The DFTS-equipped klystron must be used with a controller (CPI Canada P/N 760122 or equivalent provided by Satcom OEMS).

The controller input, a DB15 socket, is for DC input power, as well as RS232 and RS422 connections.

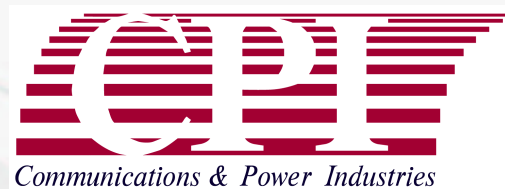


Pin Assignment for DB15 Connector

Pin	Description
1, 9	GND
2	RS232 Rx
3	RS232 Tx
4	N/C
5	N/C
6	RS232 0V
7 & 14	0V DC Supply
8 & 15	+24V DC Supply
10	RS422 Rx A
11	RS422 Rx B
12	RS422 Tx A
13	RS422 Tx B

AVAILABILITY

The DFTS is available attached to S, C, X and Ku-band satcom klystrons, both single collector (GEN III) and MSDC (GEN IV). types



For complete information on the DFTS and klystrons used in satellite communications, please contact your local CPI office, or CPI Canada Inc.

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