



Datron World Communications Inc.

TW5830

Preselector/Postselector



- **1.6 to 30 MHz**
- **Fast Tuning (10ms, max.)**
- **Remote Control**
- **High Unwanted Signal Attenuation (40 dB, typ.)**
- **BITE**
- **Selectable Gain**
- **Automatic Protection Mode During RF Overload**
- **Automatic Bypass during Operation outside of Coverage Range**
- **Automatic Switching Between Modes for Use with Transceivers**
- **1u Rack Mount Package**

The TW5830 permits operation of co-located receivers and transmitters on frequencies separated by as little as 10%. When used with receivers, the unit functions as a preselector, providing an additional front end selectivity stage. This reduces the receiver desensitization and overload that would normally occur in the presence of strong adjacent RF transmissions. The unit is used as a postselector with transmitters. It rejects spurious outputs and broadband noise in the transmit signal before it reaches the power amplifier, thereby limiting interference to neighboring receivers. The TW5830 performs both functions with a transceiver; it follows the radio's keyline and switches between the preselector and postselector modes.

The TW5830 operates from 1.6 to 30 MHz. It offers a selectivity of 40 dB, typical, at 10% from the nominal tuned frequency, with an ultimate rejection of 70dB, typical. The input and output both have a nominal in-band impedance of 50 ohms.

The TW5830 accepts frequency input in 10 kHz increments, automatically tracking the radio's operating frequency via either serial (RS232) or parallel BCD frequency information from its companion radio. Tuning time is 10msec, maximum, making the TW5830 suitable for automatic link establishment (ALE) or adaptive applications. No octave or sub-octave filters are used.

The TW5830 offers two levels of gain; the level may be selected remotely or via the unit's front panel. The unit enters a Protection Mode whenever there is an extreme RF overload. In this mode, the antenna port is open circuited, while the unit's internal input is grounded. A Bypass Mode can also be selected either remotely or via the front panel; the TW5830 automatically switches to this mode while the internal self-test is in progress and when its controlling radio switches to a frequency outside of the 1.6 to 30 MHz coverage range. Front panel LEDs signal the unit's present operating mode.

The TW5830 is housed in a standard 1u rack mount package. Standard operation is from 115/230 Vac or from 12/24 Vdc.

SPECIFICATIONS

GENERAL

Size	1.75" H x 19" W x 19" D
Weight	12 lbs (5.4 kg)
Ac Input Power	115 or 230 Vac +/- 15%, 47-63 Hz, 20VA, max.
Dc Power Supply	+12 Vdc or +24 Vdc, internally selectable. Automatic switchover between ac and dc.
Front panel controls	Power ON/OFF, High/Low Gain, Bypass, BIT
Front panel indicators	Power, bypass, low gain, BIT, overload, fault

Electrical

Tuned frequency range	1.60 to 29.99 MHz
Bandwidth	+/-2% at -3dB
Unwanted signal rejection	40dB, typical; 35dB, min., at +/- 10%
Ultimate Rejection	70dB, typical
High gain	0dB, +2/-4
Low Gain	-8dB, +2/-4
RF Overload Protection (Preselector Mode)	Enters protection mode above 10Vrms input
Maximum RF input (T/R Switch)	200 Vrms
Noise Figure	High Gain: 20dB, nominal Low Gain: 13dB, nominal
IMD (output 3 rd order Intercept point)	+35dBm, min., +40 dBm, typical
Tuning Time	10msec, max.
Remote Control	Parallel (BCD), Serial (RS232/RS422)
Bit Synthesizer range	1.6 to 30 MHz
BIT	The response of the network is tested at each tuned frequency using a built-in synthesizer and detector. Other tests complete alignment of the unit with minimal external test equipment.

Environmental

Operating temperature	-20 degrees C to +55 degrees C.
Storage temperature	-40 degrees C to +85 degrees C.
Humidity	Up to 95% @ +55 degrees C (non-condensing)
Shock	MIL-STD-810D, method 516.3, procedure VI
Vibration	MIL-STD-810D, method 514.3, category I
Altitude	Up to 10,000 feet

Note: all specifications subject to change without notice



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