



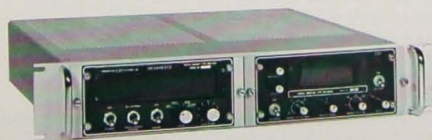
Technical Data

TYPE DRO-302A COUNTER



The CEI DRO-302A Counter has been designed to provide maximum versatility in a receiving system counter. Used alone it can indicate the tuned frequency of a receiver having a 21.4-MHz IF over the frequency range of 30 MHz to 300 MHz. The DRO-302A provides a direct digital display of the tuned frequency by counting the local oscillator frequency and automatically subtracting the intermediate frequency. Provisions are made for changing the internal preset so that the tuned frequency of HF receivers can be indicated down to 10 kHz. By placing the front-panel Preset switch in the off position, the unit can be used as a conventional frequency counter to display any input frequency between 10 kHz and 330 MHz. In the 10-kHz to 30-MHz range the readout accuracy is ± 100 Hz; in the 30-300-MHz range the accuracy is ± 1 kHz. When used with the DRX-1000 Digital Readout Extender the DRO-302A can be used to indicate the tuned frequency of CEI receiving equipment up to 1000 MHz. The four different presets required to cover the 30-MHz to 1000-MHz range are provided in the DRO-302A and switched by the DRX-1000.

The DRO-302A also features digital automatic frequency control (DAFC) which permits locking the receiver to a desired frequency with a long term stability approaching that of the counter's internal reference source. In addition to counteracting local oscillator drift, the DAFC, in effect, acts as a frequency synthesizer. In the 10-kHz



RACK MOUNTING

In this photograph a DRO-302A is shown installed in an EF-201A Equipment Frame with a signal monitor for rack mounting; see data sheet 725.50 for information on the frame. The signal monitor could be replaced by an SWP-602 Switching Panel (data sheet 785.50). The counter could then be switched between any of up to six inputs.

to 30-MHz range the receiver can be locked in 100-Hz increments. Over the 30-300-MHz range, the desired frequency can be set in 1-kHz increments. By using the DRX-1000 the DAFC capability is extended to 1000 MHz in 1-kHz increments. CEI receivers in the field can be converted for DAFC operation with a simple factory modification.

The 6-digit Nixie display on the DRO-302A continuously presents the receiver frequency with no visible flicker. The information is updated every 20 milliseconds, but only the final count is displayed. These features allow the counter to display the receiver frequency without interruption as the receiver is tuned or switched to a different band.

Operation of the counter is extremely simple. There are only five front-panel controls: a POWER switch, a DAFC last digit selector switch, a DAFC on-off and correction delay switch, a preset function switch, and a range switch. The DRO-302A has been designed using solid-state devices except for the neon display tubes. Extensive use has been made of integrated circuits. This permits the unit to be constructed in a compact package only 3.24 inches high, 8.0 inches wide, and 15.7 inches deep. Two DRO-302A Counters or a DRO-302A and a DRX-1000 can be supplied in an equipment frame for mounting in a standard 19-inch rack.

SPECIFICATIONS

Input Frequency Range	10 kHz to 330 MHz in two ranges: 10 kHz to 30 MHz and 30 MHz to 330 MHz
Input Impedance	50 ohms, nominal; BNC connector
Presets	1. Internal: presets for use with receiver having 21.4-MHz IF 2. External: for use with DRX-1000 or optional customer selected presets 3. Off: permits unit to be used as conventional frequency counter
Display	Six-digit decimal readout to nearest 100 Hz in 10 kHz to 30-MHz range, and to nearest 1 kHz in 30-330-MHz range
Accuracy:	
10 kHz to 30 MHz	±100 Hz (one count)
30 MHz to 330 MHz	±1 kHz (one count)
DAFC Stability:	
10 kHz to 30 MHz	Holds receiver within ±100 Hz of set frequency for indefinite period
30 MHz to 330 MHz	Holds receiver within ±1 kHz of set frequency for indefinite period
DAFC Output Voltage	Two options; selected by internal switch: 1. 10V, nominal, with a range of +4V to +24V (for use primarily with tube-type LO) 2. 0V, nominal, with a ±4V range (for use primarily with solid-state LO)
Sampling	Display updated 50 times per second
Input Level:	
10 kHz to 30 MHz	100 mV, minimum; 1V, maximum
30 MHz to 330 MHz	50 mV, minimum; 500 mV, maximum
Input Power	115 or 230 Vac, 50-400 Hz
Power Consumption	18 watts, approximately
Dimensions	8 inches wide, 3.25 inches high, 15.7 inches deep

PRICE: \$3,200.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

OPTIONS

1. Internal preset for IF's other than 21.4-MHz, or up to five customer-selected externally switched presets.
2. BCD output plus print and inhibit commands for printer such as the CMC-410A. Consult CEI for details.