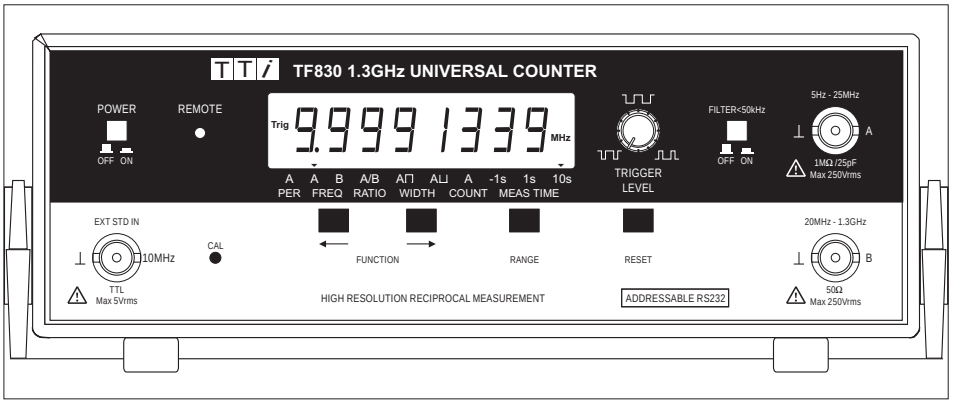
THURLBY THANDAR INSTRUMENTS

TF830 1.3GHz 8 digit LCD Universal Counter



- Frequency, period, pulse width, frequency ratio and event counter modes
- High resolution reciprocal counting gives at least 7 digits of resolution per second of measurement time
- 5Hz to 1.3GHz range, 0.001mHz resolution
- High sensitivity across the frequency range
- Low power consumption, mains or battery
- Optional addressable RS-232 interface gives remote operation and read-back

A wide range of functions

In addition to frequency measurement the TF830 offers period measurement, frequency ratio, pulse width measurement and event counting.

Pulse width measurements can be made from rising to falling edge or vice versa.

High resolution reciprocal counting

The TF830 uses the reciprocal frequency counting technique to achieve high resolution at all frequencies.

Reciprocal counting involves synchonised multiple period measurements followed by computation of the reciprocal value. This results in high resolution measurements regardless of the signal frequency and eliminates the +/-1 input cycle errors of a conventional frequency counter.

The system yields at least 7 digits of resolution per second of measurement time and can measure low frequencies to a resolution of 0.001mHz.

Low power operation gives true portability

To ensure maximum flexibility the TF830 can operate from disposable batteries, rechargeable batteries or AC line.

Low power circuitry is combined with an LCD display to give up to 200 hours of operation from alkaline batteries.

Remote control and read-back

The TF830 is available with the option of an addressable RS-232 interface. This can be used as a normal RS-232 interface or as part of a multi-instrument setup under the TTi ARC system.

All front panel functions can be remotely controlled and measurements can be read back to the controller. This makes it suitable for use in a wide variety of automatic measurement systems.

Functions

Frequency (Range A)

Frequency range:	5Hz to 25MHz
Input socket:	A
Resolution:	0.001mHz to 100Hz (see Note 1)

Frequency (Range B)

Frequency range:	20MHz to 1.3GHz
Input socket:	B
Resolution:	1Hz to 10kHz (see Note 1)

Period

Input socket:	A
Frequency range:	5Hz to 25MHz
Resolution:	10^{-7}ns to 1us (see Note 1)

Count

Input socket	A
Counter range:	1 to 268435456 (2^{28}), only the least significant 8 digits shown with overflow indication past 99999999 pulses
Frequency range:	1Hz to at least 14MHz
Minimum pulse width:	20ns

Ratio A/B

Frequency range:	A - 5Hz to 25MHz B - 20MHz to 1.3GHz
Resolution:	The answer is displayed with 8 significant digits irrespective of actual input frequencies and measurement time

Pulse Width

Input socket:	A
Mode:	Falling to rising edge or rising to falling edge
Pulse width Range:	1us to 26s
Resolution:	100ns
Measurement time:	0.1s and 1s ranges determine the inter-measurement time. 10s range will hold until reset

Note 1: The resolution depends upon the measurement time and input frequency. At least 7 digits are displayed per second of measurement time.

Input Specifications

Input A

Input impedance:	1MOhm//25pF
Frequency range:	5Hz to 25MHz
Sensitivity:	Sinewave 15mVrms 10Hz to 20MHz; pulse 40mV pk-pk 0Hz to 14MHz
Trigger level:	Continuously adjustable by front panel control
Max. permissible input voltage:	200Vdc; 250Vrms 50/60Hz reducing to 1Vrms above 1MHz
Low pass filter:	Switchable 50kHz low pass noise filter
Coupling:	AC

Input B

Input impedance:	50 Ohm nominal
Frequency range:	20MHz to 1.3GHz
Sensitivity:	10mVrms 20MHz to 700MHz, <50mVrms to 1.3GHz
Max. permissible Input voltage:	250Vdc; 250Vrms 50/60Hz; 1Vrms 20MHz to 1.3GHz
Coupling:	AC

External Standard Socket

Frequency:	10MHz
Selection:	Automatic detection and change-over
Sensitivity:	TTL/CMOS compatible, AC coupled
Max. permissible input voltage:	5Vrms, 50V dc

Timebase

Oscillator:	10MHz Xtal
Initial adjustment error:	<±1ppm at 23°C
Temperature coefficient:	Typically less than ±0.3ppm/°C 18°C to 28°C, ±10ppm -20°C to 70°C
Ageing rate:	<±5ppm/year

RS232 Interface (TF830-RS232 ONLY)

Addressable RS-232 interface, all functions remote-controllable including trigger level and filter. Complies fully with the TTi ARC interface standard.

Power Requirements

Battery type:	6 'C' size disposable or rechargeable cells,
Battery life: (Alkaline cells)	Typical figures TF830 - 200 hrs
AC Input:	230 volts ±14% AC nominal or 115 volts ±14% AC nominal.
Consumption:	8VA max.

General

Electrical Safety:	Complies with EN61010-1
EMC:	Complies with EN50081-1 and EN50082-1
Environmental operating range:	+5°C to +40°C, 20% to 80% RH
Environmental storage range:	-20°C to +70°C
Size:	257(W) x 224(D) x 88(H) excluding handle and feet
Weight:	1.55kg(excluding batteries)

Thurlby Thandar Instruments Ltd. operates a policy of continuous development and reserves the right to alter specifications without prior notice.

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