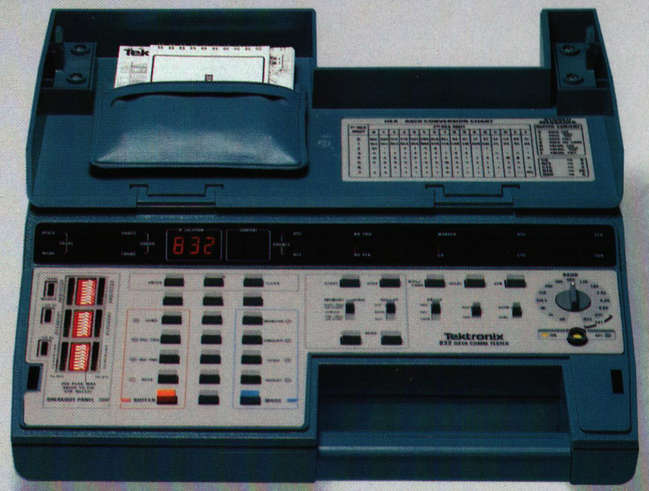
Tektronix Data Communications Testers

833

Put the 833 into the hands of your first-line service technicians.

Finally. A fast and economical approach to data communication problem solving.



Because extensive data communications knowledge isn't required to operate the 832 or 833, service people need less training time. And Tektronix makes it even simpler with training aids and manuals.

High performance. Low cost.

You get the answers you need, faster. That saves time and money. And because the 832 and 833 are affordable, you can equip your entire field service force so they'll solve more problems in less time. Meanwhile, your specialists with their sophisticated analyzers will be free to deal with more complicated problems.

Tektronix, worldwide leader in service instrumentation, leads the way again.

When you service a product yourself, you know service. That's why Tektronix saw the need for a portable data communications tester that would locate most problems right away without requiring a specialist. So we developed two. The 832 and 833. Both can be used by field service technicians to pinpoint most communications problems on the first call. And both give you plenty for your money.

Easy to learn. Easy to use.

Rugged and lightweight, each tester weighs less than 5.5 kg (12 lb), and that includes cables and a Users Guide packed right in the case.

They're easy to learn and operate, too. For example, both instruments feature keyboard entry. A customized User PROM can be programmed at your main service center, with test messages stored for later use on-site, so hand-keying messages at the test location is not needed.

The 833 can do it!

Tektronix took the proven capabilities of the 832 Data Communications Tester, and, to develop the 833, we added significant features like BERT/BLERT analysis. To verify correct operation of the modem or phone line, the 833 performs the standard bit error rate/block error rate test on the entire data link.

The 833 will simulate DCE (Data Communications Equipment) so you can verify correct operation of terminals or CPU.

You can set your 833 to match the parameters of virtually any data communications network, including half or full duplex, synchronous or asynchronous, up to 9600 bits per second. It will monitor HDLC protocol messages with standard or NRZI encoding, so you can use it in the latest data communications networks.

With the RS-232/CCITT V. 24 interface, plus the current loop adapter, your instrument has nearly universal application on all networks.

Error detection codes such as CRC-16, CRC-CCITT and LRC-8 can be calculated to verify message accuracy.

The User-definable PROM will store pre-programmed test messages. You can create messages to fit your specific application, then access them on-site, using only four keystrokes.

The 833's trigger positioning allows you to analyze data before, after, or on each side of the programmed trigger.

All in all, the 833 gives you 80 to 90% of the functions supplied by data communications analyzers that cost three to four times as much.

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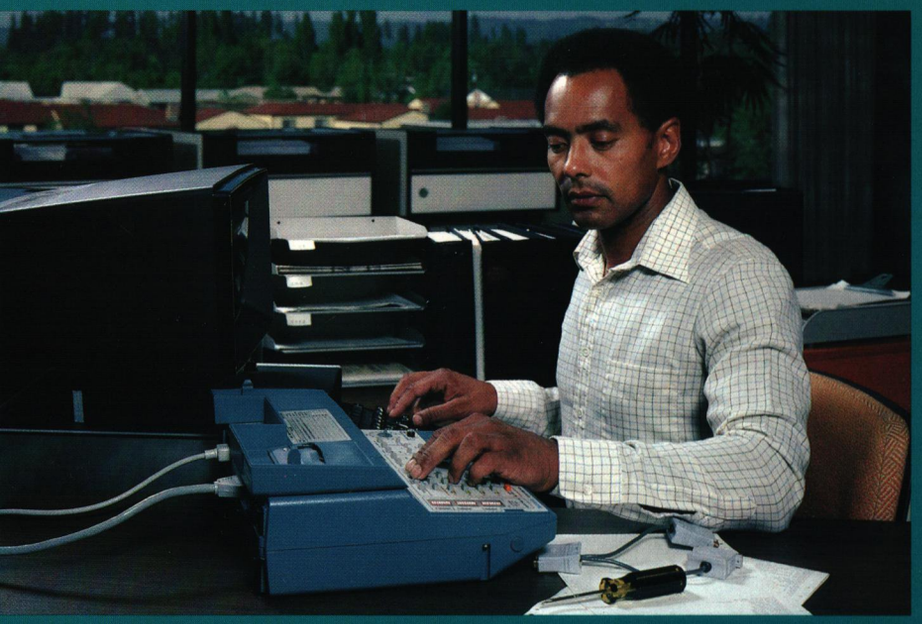

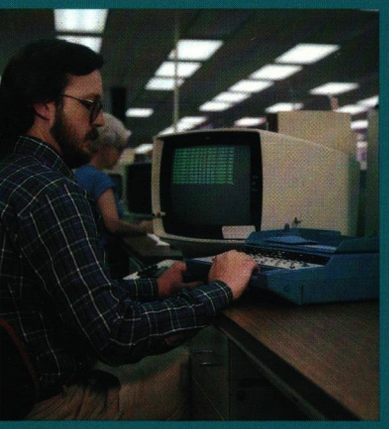

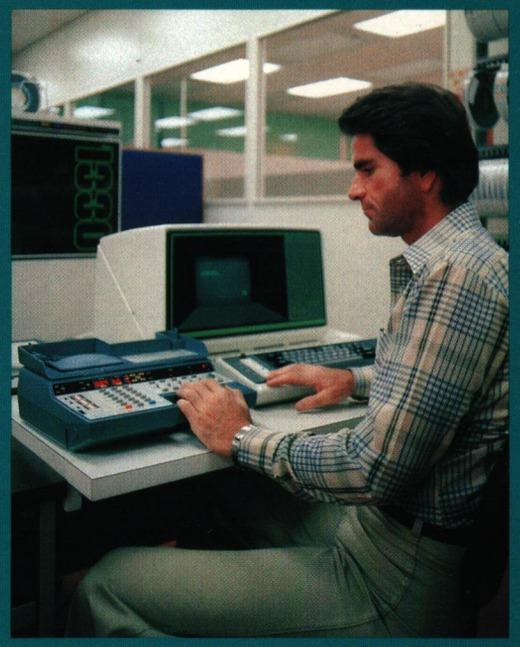

Want to know more?

For more information on the 833 Data Communications Tester, call your nearest Tektronix Field Office. Or write to Tektronix, Inc., P.O. Box 1700, Beaverton, Oregon 97075

ELECTRICAL

Data Transmission Timing — Synchronous and asynchronous.

Communications Mode — Half- or full-duplex.

Bits Per Character — 5, 6, 7, or 8.

Data Transfer Rates —
Internal (crystal controlled) — 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, and 4800 bits per second. 9600 bits per second at 8 bits per character only. Accuracy — within 0.5%.
External — Determined by the DCE or DTE clock.

Parity — Odd, even, or none.

Block Check Characters — CRC-16, CRC-CCITT, LRC.

Synchronizing Character (SYN), (synchronous mode only) — Programmable to require one or two characters. If not programmed, defaults to ASCII SYN character.

RTS/CTS Delay, (half-duplex mode only) — Programmable from 0 to 255 ms. If not programmed, defaults to 200 ms. Accuracy — Within 1% ±1 ms.

Stop Bits (asynchronous mode only) — Programmable to 1, 1½, 2.

Trigger — Programmable to require a sequence of 1, 2, or 3 characters.

Trigger Position — Location of last trigger character in Receive Buffer: Post Trig, 000; Center, 127; Pre Trig, 255.

Bit Error Rate/Block Error Rate Tests — Standard 511-bit pattern stream for 1000-bit blocks; continuous, 10^5 or 10^6-bit block test; stores bits in error, blocks sent, blocks in error, and sync faults.

String Search — Programmable to search for one sequence of 1, 2, or 3 characters.

RS232 DCE CONNECTOR (J1405)

Inputs

Pin 3 Received Data, Pin 5 Clear to Send, Pin 6 Data Set Ready, Pin 8 Carrier Detect, Pin 15 Transmission Signal Element Timing (DCE source), Pin 17 Receiver Element Timing (DCE source) — MARK or OFF: $-25\ V \leq V$ in $\leq +0.75\ V$.
SPACE or ON: $+1.5\ V \leq V$ in $\leq +25\ V$. Input Impedance: $3\ k\Omega \leq Z$ in $\leq 7\ k\Omega$.

Pin 20 Data Terminal Ready, Pin 24 Transmit Signal Element Timing (DTE source) — MARK or OFF: $-25\ V \leq V$ in $\leq -3\ V$. SPACE or ON: $+3\ V \leq V$ in $\leq +25\ V$. Input impedance with corresponding pin in DTE connector disconnected: Pin 20 Z in $\geq 40\ k\Omega$. Pin 24 Z in $\geq 100\ k\Omega$.

Outputs

Pin 2 Transmitted Data, Pin 4 Request to Send —
MARK or OFF: V out $\leq -7.5\ V$.
SPACE or ON: V out $\geq +7.5\ V$.
With load impedance: $R^L \geq 3\ k\Omega$.

Other

Pin 1 Ground — Connected to pin 1 of DTE connector.

Pin 7 Signal Ground — Connected to instrument ground.

Pins 9 thru 14, 16, 18, 19, 21 thru 23, and 25 — Connected through switches (Breakout Panel DIP switches) to their corresponding pins in the DTE connector.

RS232 DTE CONNECTOR (J2005)

Inputs

Pin 2 Transmitted Data, Pin 4 Request to Send — MARK or OFF: $-25\ V \leq V$ in $\leq +0.75\ V$.
SPACE or ON: $+1.5\ V \leq +V$ in $\leq +25\ V$.
Input impedance: $3\ k\Omega \leq Z$ in $\leq 7\ k\Omega$.

Pin 20 Data Terminal Ready, Pin 24 Transmit Signal Element Timing (DTE source) — MARK or OFF: $-25\ V \leq V$ in $\leq -3\ V$. SPACE or ON: $+3\ V \leq V$ in $\leq +25\ V$. Input impedance with corresponding pin in DCE connector disconnected: Z in $\geq 100\ k\Omega$.

Outputs

Pin 3 Received Data, Pin 5 Clear to Send, Pin 6 Data Set Ready, Pin 8 Carrier Detect, Pin 15 Transmission Signal Element Timing (DCE source), Pin 17 Receiver Signal Element Timing (DCE source) —
MARK or OFF: V out $\leq -7.5\ V$.
SPACE or ON: V out $\geq +7.5\ V$.
With load impedance: $R^L \geq 3\ k\Omega$.

Other

Pin 1 Ground — Connected to pin 1 of DCE connector.

Pin 7 Signal Ground — Connected through a switch (Breakout Panel DIP switch) to instrument ground.

Pin 9 thru 14, 16, 18, 19, 21 thru 23, and 25 — Connected through switches (Breakout Panel DIP switches) to their corresponding pins in the DCE connector.

BREAKOUT PANEL

Probe —
Space: $+3\ V \leq V$ in $\leq +25\ V$.
Mark: $-25\ V \leq V$ in $\leq -3\ V$.
Input Impedance: $\geq 50\ k\Omega$.

Marker — MARK or OFF: $-25\ V \leq V$ in $\leq -3\ V$.
SPACE or ON: $+3\ V \leq V$ in $\leq +25\ V$ (Schmitt input).

+12 Volt Source — $+12\ V \pm 1\ V$ (no load). Output Impedance approx $3\ k\Omega$ (each pin).

−12 Volt Source — $-12\ V \pm 1\ V$ (no load). Output Impedance approx $3\ k\Omega$ (each pin).

DISPLAY

Buffer CONTENT — 2 hexadecimal digits: 7-segment, LED displays.

Buffer LOCATION — 3 decimal digits: 7-segment, LED displays

Data Source — DCE, DTE: 2 LED indicators.

Error — Parity, Frame: 2 LED indicators.

No Trig, No Syn — 2 LED indicators.

RS232 Control Lines — DSR, DC, CTS, RTS, DTR, and MARKER: 6 LED indicators.

Probe — Mark, Space: 2 LED indicators.

MEMORY

Receive buffer and send buffer are each 256 characters. Basic instrument contains in memory a group of 7 separate standard test messages such as "THE QUICK BROWN FOX —" and the full ASCII Alphanumeric set.

There is provision in the 833 for installation of user defined and programmed EPROMs containing messages specific to particular tests. A total memory space of 2048 characters is available for user specification.

PHYSICAL

Dimensions (approx.)	cm	in
Width	33	13
Height	10	4
Length	31	12
Weight	**kg**	**lb**
Net	5	11

POWER REQUIREMENTS

Line Voltage Ranges —
115 V — 90 to 132 V.
230 V — 180 to 250 V.

Line Frequency Range — 48 to 440 Hz.

Power Consumption — Approx 15 watts.

ENVIRONMENTAL

Temperature — Operating: 0° to +50°C (+32° to +122°F). Nonoperating: −55° to +75°C (−67° to +167°F).

Humidity — 5 cycles (120 hrs), 30° to 60°C, 95% relative humidity.

Altitude — Operating: To 15,000 feet (4500m). Nonoperating: To 50,000 feet (15,000m).

Vibration — Cycle the vibration frequency from 10 to 55 to 10 Hz (linear or logarithmic sweep) for a duration of 15 minutes in each major axis at a displacement of 0.025 inches (0.64 mm) peak to peak. Dwell for 10 minutes in each major axis at any resonant frequency.

Shock — 50 g's, ½ sine, 11 ms duration, three shocks in each major axis for a total of 18 shocks.

INCLUDED ACCESSORIES

RS-232 cable assembly (012-0815-00), jumper set (198-4006-00), power cord (061-0066-00), Y connector (012-0893-00).

OPTIONAL ACCESSORIES

Self Test Adapter

Current Loop Pod Accessory

9/79 AX-4228

Tektronix®
COMMITTED TO EXCELLENCE