

Wire Test Solutions: PCI-3145R Handheld TDR

The PCI-3145R, a high-performance, improved replacement for the popular Tektronix 1502 series TDR, is packaged in a lightweight, battery-operated, rugged MIL-810F qualified, handheld form-factor.

TEST SIGNAL

- Step pulse; variable amplitude (up to 5 volts into 50 ohms)
- Variable pulse width, automatically selected with range
- 50 ohm output impedance; standard BNC/SMA connection

HORIZONTAL PRECISION (TIME BASE)

- 8 selectable ranges: 0 to 60,000 feet (18,000m)
- 0.1% distance resolution (e.g., +/- 3cm for 30m long cable)
- 4,096 data point waveform record

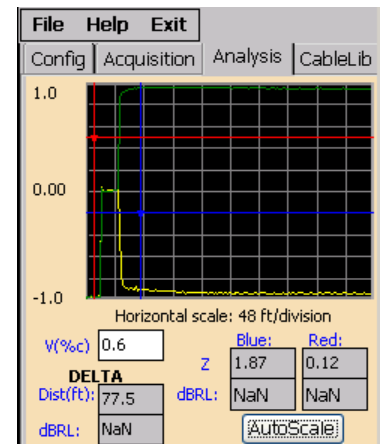
VERTICAL PRECISION (REFLECTION RATIO)

- 10 bit A/D; 1,024 impedance/reflection values



SOFTWARE

- Two versions included: PDA and PC companion program
- PDA software
 - Acquires data; saves and labels waveforms for storage
 - Superimpose up to four stored signatures
 - Built-in cable library stores V_p and characteristic impedance
 - Single cursor reads distance, impedance, and dBRL values
 - Stored signatures transferred to another PC using USB, or optional Bluetooth or wireless 802.11B LAN
- Companion program
 - Superimpose up to eight stored waveforms
 - Two cursors read distance, impedance, and return loss (dBRL)
 - Zoom and pan functions
 - Built-in cable library stores V_p and characteristic impedance
 - Z-template function displays distributed impedance values
 - Print hardcopies of waveforms



BATTERY OPERATION

- Internal rechargeable battery pack provides over 6 hours of continuous operation

PHYSICAL AND ENVIRONMENTAL

- Weight: 1.25 lbs (<1kg)
- Size: 10 in. x 4 in. x 2 in. (250mm x 100mm x 50mm); convenient, ergonomic handle
- Operating temperature -4°F to +140°F (-20°C to +60°C)
- Storage temperature -60°F to +158°F (-50°C to +70°C)
- Qualified to MIL-STD-810F; CE Mark

OPTIONAL TRANSIT CASE includes an external charger and test lead adapter kit

- MIL-810F qualified transit case organizes all the gear needed to support testing in the field



A Precision TDR in a Handheld Form-Factor

PCI-3145R Specifications

Characteristic	PCI-3145R Handheld TDR System
Test Signal	<ul style="list-style-type: none"> ◆ Step pulse; 50 ohm output impedance ◆ Variable amplitude; 1 V to 5 V ◆ Variable pulse width; automatically selected with range
Range and Horizontal Resolution*	<p style="text-align: center;">8 selectable ranges; 0 to 61,440 feet (0 to 18.74 km) 4,096 point data record</p> <ul style="list-style-type: none"> ◆ 0 to 61,440 feet (0 to 18.74 km) – Resolution 15 feet/point (4.6 m/point) ◆ 0 to 30,720 feet (0 to 9.36 km) – Resolution 7.5 feet/point (2.3 m/point) ◆ 0 to 15,360 feet (0 to 4.68 km) – Resolution 3.75 feet/point (1.15 m/point) ◆ 0 to 7,680 feet (0 to 2.34 km) – Resolution 1.8 feet/point (0.55 m/point) ◆ 0 to 3,840 feet (0 to 1.17 km) – Resolution 0.93 feet/point (0.28 m/point) ◆ 0 to 1,920 feet (0 to 585 m) – Resolution 5.5 inches/point (14 cm/point) ◆ 0 to 960 feet (0 to 292 m) – Resolution 2.8 inches/point (7 cm/point) ◆ 0 to 480 feet (0 to 146 m) – Resolution 1.4 inches/point (3.55 cm/point)
Vertical Resolution	10 bit A/D converter; 1,024 values
Software Features	<ul style="list-style-type: none"> ◆ Standard software includes two programs: PDA and companion software <ul style="list-style-type: none"> ■ The PDA program performs data acquisition, temporary storage of signatures and limited analysis on the smaller, handheld display. ■ The companion program is loaded on a notebook or desktop PC to provide advanced analysis features in a convenient desktop environment. ◆ User can define and save up to 10 test configurations (number of averages, range, amplitude) to simplify testing ◆ Cursor positioning auto-calculates distance, impedance, and return loss (dBRL) ◆ Cable Library <ul style="list-style-type: none"> ■ Used in PDA and companion software ■ Manages characteristic impedance and V_p data for both military and commercial cables ■ Users can define additional entries ◆ TDR signatures are saved using in a pseudo-XML format and are self-documenting Information such as test date, test time, and user comments are stored to capture all test critical parameters ◆ Internal archival storage capacity for 10's of thousands of TDR signature for trending circuit performance across a wide range of critical assets
Controller Features	<ul style="list-style-type: none"> ◆ 625 MHz processor (Intel Bulverde PXA270) ◆ 128 MB RAM; 128 MB Compact Flash for operating system ◆ 4-inch sunlight readable, touch sensitive, transfective TFT liquid crystal display ◆ Windows Mobile 6 operating system ◆ Sealed magnesium case ◆ Battery pack provides over 6 hours of continuous operation
Environmental Features	<ul style="list-style-type: none"> ◆ Operating temperature -4°F to +140°F ◆ Storage temperature -60°F to +160°F ◆ CE Mark, IP65 (Dustproof; Splashproof) ◆ Certified to MIL-STD-810F (Environmental)
Physical	<ul style="list-style-type: none"> ◆ Weight : 20oz (<1kg) ◆ Size: 10 in. x 4 in. x 2 in. (250mm x 100mm x 50mm)

* Assuming a velocity of propagation (V_p) of 60% of the speed of light

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