

## Appendix A: Specifications

The tables in this chapter list the characteristics and features that apply to this instrument after it has had a warm-up period of at least five minutes.

The Performance Requirement column describes the limits of the Characteristic. Supplemental Information describes features and typical values or other helpful information.

### Electrical Characteristics

| Characteristic                      | Performance Requirement  | Supplemental Information  |
|-------------------------------------|--|---|
| Excitation Pulse<br>Reflected Pulse | $\leq 200$ ps (0.096 feet)   | Vp set to 0.99; 10 to 90%, into a precision short   |
| Aberrations                         | $\pm 5\%$ peak within 0 to 10 feet after rise<br>$\pm 0.5\%$ peak beyond 10 feet     | Excluding front panel aberrations   |
| Jitter                              | $\leq 0.02$ feet ( $\leq 40$ ps) peak-to-peak  | Vp set to 0.99, DIST/DIV set to 0.1 ft/div<br>At 23.4 feet to 46.8 feet, jitter is $\leq 0.04$ feet.  |
| Output Impedance                    | $50\Omega \pm 2\%$   | After risetime stabilizes into $50\Omega$ termination   |
| Pulse Amplitude                     | 300 mV nominal into $50\Omega$ load  |   |
| Pulse Width                         | 25 $\mu$ s nominal   |   |
| Pulse Repetition Time               | 200 $\mu$ s nominal  |   |
| Vertical<br>Scales                  | 0.5 mp/div to 500 mp/div, > 240 values   | Includes 1, 2, 5 sequences  |
| Accuracy                            | Within $\pm 3\%$ of full scale   |   |
| Set Adj                             | Set incident pulse within 3%   | Combined with VERT SCALE control  |
| Vertical Position                   | Any waveform point is moveable to center screen                                      |   |
| Displayed Noise                     | $\pm 5$ mp peak or less, filter set to 1<br>$\pm 2$ mp peak or less, filter set to 8 |   |
| Input Susceptibility                | $\pm 1$ A  | Into diode clamps   |
| Distance Cursor<br>Resolution       | 1/25th of 1 major division   |   |
| Cursor Readout<br>Range             | -2 ft to $\geq 2,000$ ft   |   |
| Resolution                          | 0.004 ft   |   |
| Distance Measurement<br>Accuracy    | 1.6 inches or $\pm 1\%$ of distance measured,<br>whichever is greater                | For cables with Vp = 0.66<br>For delta mode measurements<br>Error $\leq 0.5\%$ for distance $\geq 27$ ft<br>Error $\leq 1.0\%$ for distance $\geq 14$ ft<br>Error $\leq 2.0\%$ for distance $\geq 7$ ft<br>Error $\leq 10\%$ for distance $\geq 1.5$ ft |

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## Specifications

| Characteristic               | Performance Requirement   | Supplemental Information   |
|------------------------------|---|--|
| Cursor Ohms Readout<br>Range | 1 $\Omega$ to 1 k $\Omega$  |  |
| Resolution                   | 3 significant digits  |  |
| Accuracy                     | $\pm 10\%$ with serial cable impedance correction (relative impedance measurements $\pm 2\%$ )  |  |
| Horizontal Scales            | 0.1 ft/div to 200 ft/div (0.25 m/div to 50 m/div)   |  |
| Range                        | 1 ft to 2,000 ft (0.25 m to 500 m)  |  |
| Horizontal Position          | Any distance to full scale can be moved on screen   |  |
| V <sub>p</sub><br>Range      | 0.30 to 0.99  | Propagation velocity relative to air   |
| Resolution                   | 0.01  |  |
| Accuracy                     | Within $\pm 1\%$  | Included in total timebase error tolerance   |
| Custom Option Port           | Tektronix Chart Recorders YT-1 and YT-1S are designed to operate with the 1502C. Produces a high resolution thermal dot matrix recording of waveform and switch values. |  |
| Line Voltage                 | 115 VAC (90 to 132 VAC) 45 to 440 Hz<br>230 VAC (180 to 250 VAC) 45 to 440 Hz   | Fused at 0.3 A<br>Fused at 0.15 A  |
| Battery Pack<br>Operation    | 8 hours minimum, 30 chart recordings maximum  | +15° C to +25° C charge and discharge temp, LCD backlight off. Operation of instrument with backlight on or at temps below +10° C will degrade battery operation specification |
| Full Charge Time             | 20 hours maximum  |  |
| Overcharge Protection        | Charging discontinues once full charge is attained  |  |
| Discharge Protection         | Operation terminates prior to battery damage  |  |
| Charge Capacity              | 3.4 Amp-hours typical   |  |
| Charge Indicator             | Ba/low will be indicated on LCD when capacity reaches approximately 10%   |  |

## Environmental Characteristics

| Characteristic                | Performance Requirement  | Supplemental Information   |
|-------------------------------|--|--|
| Temperature<br>Operating      | -10° C to +55° C   | Battery capacity reduced at other than +15° C to +25° C  |
| Non-operating                 | -62° C to +85° C   | With battery pack removed. Storage temp with battery pack in is -35° C to +65° C. Contents on non-volatile memory (stored waveform) might be lost at temps below -40° C. |
| Humidity                      | to 100%  | Internal desiccant with cover on and option port cover installed.  |
| Altitude<br>Operating         | to 15,000 ft   | MIL-T-28800C, Class 3  |
| Non-operating                 | to 40,000 ft   |  |
| Vibration                     | 5 to 15 Hz, 0.06 inch p-p<br>15 to 25 Hz, 0.04 inch p-p<br>25 to 55 Hz, 0.013 inch p-p                       | MIL-T-28800C, Class 3  |
| Shock, Mechanical<br>Pulse    | 30 g, 11 ms 1/2 sine wave, total of 18 shocks  | MIL-T-28800C, Class 3  |
| Bench Handling                |  | MIL-STD-810, Method 516, Procedure V   |
| Operating                     | 4 drops each face at 4 inches or 45 degrees with opposite edge as pivot                                      | Cabinet on, front cover off  |
| Non-operating                 | 4 drops each face at 4 inches or 45 degrees with opposite edge as pivot. Satisfactory operation after drops. | Cabinet off, front cover off   |
| Loose Cargo Bounce            | 1 inch double-amplitude orbital path at 5 Hz, 6 faces  | MIL-STD-810, Method 514, Procedure XI, Part 2  |
| Water Resistance<br>Operating | Splash-proof and drip-proof  | MIL-T-28800C, Style A<br>Front cover off   |
| Salt Atmosphere               | Withstand 48 hours, 20% solution without corrosion   |  |
| Sand and Dust                 | Operates after test with cover on, non-operating   | MIL-STD-810, Method 510, Procedure I   |
| Washability                   | Capable of being washed  |  |
| Fungus Inert                  | Materials are fungus inert   |  |

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## Specifications

| Characteristic                | Performance Requirement  | Supplemental Information |
|-------------------------------|--|--------------------------|
| Electromagnetic Compatibility | VDE 0871 Class B<br><br>Emission: per standard EN50081-1<br>EN55022, Class B, Radiated<br>EN55022, Class B, Conducted<br>EN60555-2, AC Power, Conducted<br><br>Immunity: per standard EN50082-1<br>IEC 801-2, Electrostatic Discharge<br>IEC 801-3, RF Electromagnetic Field<br>IEC 801-4, Electrical Fast Transients/Burst, AC Mains<br>IEC 801-4, Electrical Fast Transient/Burst, Signal & I/O<br>IEC 801-5, Power Line Surge |                          |

## Physical Characteristics

| Characteristic  | Description                                  |                      |
|-----------------|--|----------------------|
| Weight          | without cover                                | 14.25 lbs (6.46 kg)  |
|                 | with cover                                   | 15.75 lbs (7.14 kg)  |
|                 | with cover, chart recorder, and battery pack | 19.75 lbs (8.96 kg)  |
| Shipping Weight | domestic                                     | 25.5 lbs (11.57 kg)  |
|                 | export                                       | 25.5 lbs (11.57 kg)  |
| Height          | 5.0 inches (127 mm)                          |                      |
| Width           | with handle                                  | 12.4 inches (315 mm) |
|                 | without handle                               | 11.8 inches (300 mm) |
| Depth           | with cover on                                | 16.5 inches (436 mm) |
|                 | with handle extended to front                | 18.7 inches (490 mm) |