Handheld Battery Operated Oscilloscope/ DMM/Power Analyzers

▶ THS700 Series

▶ THS730A.

THS700 Series

Handheld Battery Operated Oscilloscopes

The TekScope® THS700 Series Oscilloscope/DMM combines a full-featured real-time oscilloscope with a True RMS digital multimeter in rugged, battery-operated instruments. Scope and meter modes can operate simultaneously and independently on the same or separate signals. The high-resolution, backlit display and pop-up menus make it easy for users to take full advantage of the instrument's many features. These include cursors, video trigger, voltage and resistance measurements, and storage of waveforms, data and instrument setups. In addition, they offer the most comprehensive triggering capabilities – external trigger and extensive triggering including delay, pulse width and video.

The THS700A Series is ideal for electronic applications – at the bench or at the site. The THS720P Oscilloscope/DMM includes features to address the needs of electrical/ power electronics measurements.

▶ THS720P.

▶ Features & Benefits

THS730A/THS720A/ THS720P

200 and 100 MHz Bandwidth

1 GS/s and 500 MS/s Sampling Rates per Channel

Two Channels and Dual Digitizers

External Trigger

3¾ Digit DMM with Datalogger

Roll Mode

Extra Bright Backlit Display

8 ns Glitch Capture

Independently Floating Isolated Oscilloscope and DMM Channels for Safety

Full Floating Measurement Capability up to 600 V_{RMS}

Advanced Trigger – Delay, Pulse and Video (Line Count and Field Select)

21 Automatic Measurements

RS-232 Programmability/ Communications

NiCd Battery and AC Adapter

Deluxe Soft Carrying Case

THS720P Only

Measures Harmonics up to 31st (Fundamental from 30 Hz to 450 Hz)

Automatic Power Measurement with Statistics

Advanced Trigger – Delay, Pulse, Video (Line Count and Field Select), PWM Motor Drive

1 kV High-voltage Probes

▶ Applications

THS730A/THS720A/ THS720P

Field or Bench Electronic Troubleshooting

Floating (Nongrounded) System Measurements

Industrial Electronic Equipment Troubleshooting (THS720P)

Power Quality Surveys (THS720P)

Tektronix
Enabling Innovation

The Only Safe Measurement Solution for Power Electronics

The THS720P TekScope IsolatedChannel™ Oscilloscope/DMM is ideal for electrical/power electronics applications.

The THS720P includes features specifically for electrical/power electronics measurements which allow testing and verifying correct operation of motors, checking transformer efficiency, verifying power-supply performance and measuring the effect of neutral current. These features include harmonic analysis, power measurements and statistics and PWM motor drive triggering. It also contains the powerful features of a modern oscilloscope that enable troubleshooting and verification of complicated electronic control circuits controlling the high-voltage power-electronics circuitry.

The THS720P shares measurement features with the THS730A, THS720A Oscilloscope/DMMs, which are ideal for electronic applications.

▸ Characteristics

▸ Oscilloscope Functions

	THS730A	THS720A	THS720P
Bandwidth	200 MHz	100 MHz	100 MHz
Sample Rate (each channel)	1 GS/s	500 MS/s	500 MS/s
Time/Division Range	2 ns to 50 s/div	5 ns to 50s/div	5 ns to 50s/div
Power Measurements	N	N	Y

Oscilloscope Functions

Channels – Two.
Sensitivity –
5 mV to 50 V/div (to 500 V/div with 10X probe).
Position Range – ±10 div.
DC Gain Accuracy – ±2%.
Vertical Resolution – 8-Bits.
Record Length – 2500 points.
Horizontal Accuracy – ±200 ppm.
Roll Mode – ≥ 0.5 s/div.
Autorange – User-selectable.
Trigger Modes – Auto, Normal.
Trigger Types – Edge, Pulse, Video, External.
Video Trigger Formats and Field Rates –
Odd field, even field and line.
Motor Trigger (THS720P only) –
Triggers on 3- and 5-level pulse-width modulated power signal.
Harmonics (THS720P only) –
Up to 31st (30 Hz to 450 Hz).
External Trigger Input – 5 MHz TTL compatible.
Waveform Processing –
Add, Subtract, Multiply, Calculate Watts = V x I.
Waveform Storage – 10 waveforms.
Acquisition Modes –
Sample, Envelope, Average, Peak Detect.
Cursor Measurements –
delta Volts, Δ Time, 1/Δ Time (Hz),
Degree (phase).
Cursor Types –
Horizontal Bars, Vertical Bars, Paired (volts @ time).
Display System –
Interpolation: Sin(x)/x.
Format: YT and XY.
Mode: Vector, Dot, Vector Accumulate, Dot Accumulate.

▸ Automatic Measurements

Period	Frequency
+Width	–Width
Rise Time	Fall Time
+Duty Cycle	–Duty Cycle
+Overshoot	–Overshoot
High	Max.
Low	Min.
Peak-to-Peak	Amplitude
Mean	RMS
Cycle Mean	Cycle RMS
Burst Width	

▸ Power Measurements (THS720P Only)

W	True power
VA	Apparent power
VAR	Reactive power
V	Volts (RMS, Peak)
A	Amps (RMS, Peak)
THD-F	Total harmonic distortion as a percentage of the fundamental
THD-R	Total harmonic distortion of the RMS of the input signal
PF	Power factor
DPF	Displacement power factor
PHI	Phase difference between the voltage and current

DMM Specifications

DC Voltage Ranges – 400.0 mV to 880 V.
DC Volts Accuracy – ±(0.5% of reading + 5 counts).
True RMS AC Voltage Ranges – 400.0 mV to 640 V.
Maximum Float Voltage –
600 V_{RMS} CAT II, each channel (probe dependent).
Resolution – 4000 count, 3-3/4 digits.
AC Volts Accuracy – ±(2% of reading + 5 counts).
Resistance Ranges – 400.0 Ω to 40.00 MΩ.
Resistance Accuracy –
±(0.5% of reading + 2 counts); 40 MΩ: ±(2% of reading + 5 counts).
Diode Test Range – 0 to 2 V.
Continuity Check – Audible tone when < 50 Ω.
Modes – Min, Max, Δ, Max-Min, Avg, Hold.
Nonvolatile Storage – 10 DMM screenshots.
External Trigger Input – 5 MHz TTL compatible.
Vertical Zoom Capability – 2X, 5X, 10X.
dB Scale – Selectable, referenced from 1 mV to 10 V.
dBm Scale –
Selectable, referenced from 50 Ω to 600 Ω.

General Specifications

Setups – 10 front-panel setups.
Safety –
UL3111-1, CSA1010.1, EN61010-1, IEC61010.1.
EMC – Meets Directive 89/336/EEC.
Power –
NiCd rechargeable battery pack with AC adapter (both included).
Battery Life – Approx. 2 hours from full charge.
Display – Backlit LCD.
Display Resolution – 320 x 240.

Physical Characteristics

Dimensions	**mm**
Width	177
Height	217
Depth	51
Weight	**kg**
Net	1.45

▸ Ordering Information

THS730A, THS720A

Handheld Battery Operated Oscilloscope/DMM.

Includes: Two P6117 10X Passive Probes, User Manual, Quick Reference Manual, Standard Meter Lead Set, NiCd Rechargeable Battery Pack, AC Power Adapter, Soft Carrying Case, Cable and Adapters for RS-232, NIST-traceable Certificate of Calibration.

Please specify power plug and manual version when ordering.

THS720P

Handheld Battery Operated Oscilloscope/DMM.

Includes: Two P5102 10X Passive Probes, User Manual, Quick Reference Manual, Standard Meter Lead Set, NiCd Rechargeable Battery Pack, AC Power Adapter, Soft Carrying Case, Cable and Adapters for RS-232, NIST-traceable Certificate of Calibration.

Language Options

Opt. L0 – English User Manual.

Opt. L1 – French User Manual.

Opt. L2 – Italian User Manual.

Opt. L3 – German User Manual.

Opt. L4 – Spanish User Manual.

Opt. L5 – Japanese User Manual.

Opt. L6 – Portuguese User Manual.

Opt. L7 – Simplified Chinese User Manual.

Opt. L8 – Traditional Chinese User Manual.

Opt. L9 – Korean User Manual.

Opt. L10 – Russian User Manual.

Power Plug Options

Opt. A0 – US Plug, 115 V, 60 Hz.

Opt. A1 – Euro Plug, 220V, 50 Hz.

Opt. A2 – UK Plug, 240V, 50 Hz.

Opt. A3 – Australian Plug, 240V, 50 Hz.

Opt. A6 – Japanese Plug, 100V, 110/120 Volt, 60 Hz.

Recommended Accessories

P5102 – 10X 100 MHz Passive Probe for higher voltage application: 1000 V_{RMS} tip-to-reference; 600 V_{RMS} Reference-to-Earth Ground (float).

A621, A622 – Current Probes.

P6117 (replacement) – 10X Passive Probe.

Battery Charger – THS7CHG.

Rechargeable Battery (replacement) – THS7BAT.

Standard Meter Lead Set (replacement) – 012-1482-00.

Programming Manual – 070-9751-01.

Service Manual – 070-9752-01.

Soft Carrying Case (replacement) – 016-1399-01.

Software

WSTRO – WaveStar Software for Oscilloscopes, Windows 95/98/NT application for waveform capture, analysis, documentation and control from your PC.

Warranty

Three years (excluding probes).

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Our most up-to-date product information is available at:
www.tektronix.com

Product(s) are manufactured in ISO registered facilities.

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