

OSCILLOSCOPES



MODEL OX 5042

One of the few oscilloscopes on the market with isolated channels that fit into one hand



SPECIFICATIONS

INTERFACE	
Display	3.5" color TFT LCD screen; Resolution 320 x 240 – LED backlighting
Commands	Direct adjustments on front panel & on-screen menus via browser (principal & secondary without "hidden menus")
Display Mode	2500 real acquisition points on screen
Display of Curves on Screen	2 curves + 2 references + memory trace or mathematical calculation
Integrated Interactive Help Function	11 languages: French, English, German, Spanish, Italian, Swedish, Romanian, Russian, Finnish, Polish, Dutch
OSCILLOSCOPE MODE	
VERTICAL DEFLECTION	
Bandwidth	40MHz
Bandwidth Limiter	1.5MHz, 5kHz
Number of Channels	2 totally isolated channels
Input Impedance	1M Ω $\pm$ 0.5%, approx. 17pF
Maximum Input Voltage	600V – Derating -20dB per decade from 100kHz
Vertical Sensitivity	5mV to 200V/div
HORIZONTAL DEFLECTION	
Sweep Speed	25ns/div to 200s/div – Roll Mode from 100ms to 200s/div
Horizontal Zoom	Zoom factor: x1, x2, x5
TRIGGERING	
Mode	Automatic, triggered, one-shot & triggered Roll
Type	Edge, pulse width (20ns – 20s)
Coupling	AC or DC (depending on the coupling of the triggering channel) HF, LF or noise rejection
Sensitive	$\leq$ 1.2 divisions p-p up to 40MHz
DIGITAL MEMORY	
Maximum Sampling Rate	2GS/s in ETS mode – 50MS/s in one-shot mode on each channel
Vertical Resolution	9 bits
Memory Depth	2500 points per channel
User Storage	2MB for storing files: trace (.trc), text (.txt), configuration (.cfg), image files (.bmp)
Glitch Mode	Duration $\geq$ 20ns – 1250 min/max pairs
Display Modes	Envelope, Averaging (factors 2 to 64) and XY (vector)
Other Functions	
Math Functions	Channel inversion, addition, subtraction, multiplication and division (adjustable scaling)
Cursor Measurement	2 cursors: V, T, dV, dt simultaneously – 4-digit display resolution
Automatic Measurement	18 time or level measurements and phase measurement
MULTIMETER MODE	
General Specifications	2 channels, 8000-count display + min/max bargraph – Graphic recording of 2700 measurements (5min to 1 month)
Operating Modes	Absolute or relative display (absolute, deviation, ref, ref%) – Monitoring (instantaneous, min, max, Avg)
AC, DC & AC+DC Voltages	Ranges from 600mV to 600Vrms, 800mV to 800Vdc – accuracy for Vdc $\pm$ 1% reading +20D –50kHz bandwidth
Resistance	Range from 80 Ω to 32M Ω – accuracy $\pm$ 2% reading + 10D –10ms quick continuity test
Capacitance	Ranges from 5nF to 5mF – basic accuracy $\pm$ 2% reading + 10D
Other Measurements	Frequency, rotation speed, 3.3V diode test, temperature measurement (with K-type thermocouple or infrared probe)
POWER	
Measurements	Single-phase and balanced three-phase active power values (with or without neutral), simultaneous display of current
HARMONIC ANALYZER MODE	
Multi-Channel Analysis	2 channels, 31 orders, fundamental frequency from 40 to 450Hz
Simultaneous Measurements	Total VRMS, THD and selected order (% fundamental, phase, frequency, VRMS)
GENERAL	
Screenshots	Up to 100 files in standard ".bmp" format, viewable on the instrument
PC Communication	Isolated optical USB interface "SX-Metro" PC application software (included)
Power Supply	6 LR6 or 6AA NiMH batteries – Battery life up to 8hrs 30min Universal line adapter isolated from the channels – Quick charging in 2hrs 30min
Safety/EMC	Safety according to IEC61010-1 Ed3 – 600V CAT III, EMC according to EN61000-3 & EN61326-1

Functional Displays

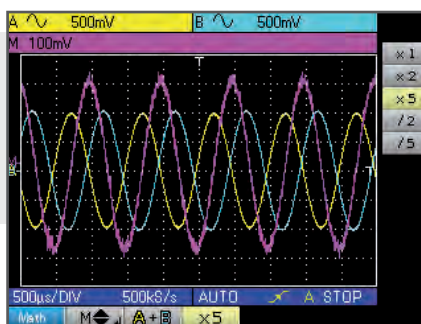
FEATURES

- Two isolated channels
- Three instruments in one
 - 40MHz oscilloscope
 - Double 8000-count TRMS multimeter / Power analyzer
 - Harmonic analyzer
- 3.5" color LCD screen LED backlighting technology
- Integrated interactive multilingual help function
- 2MB recording data
- Store graphic recordings of 2700 measurements (5 min to 1 month)
- Communication via isolated USB SCPI protocol



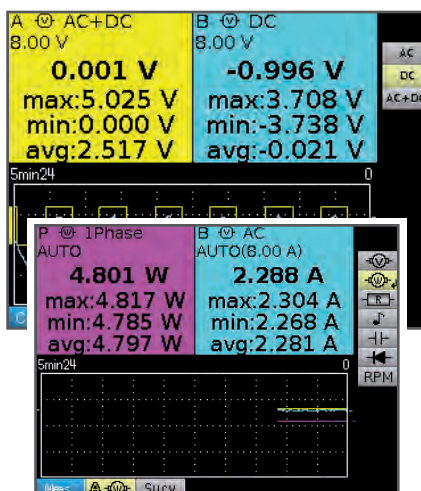
Shown: Model 2150.22 and 2150.23

HIGH PERFORMANCE



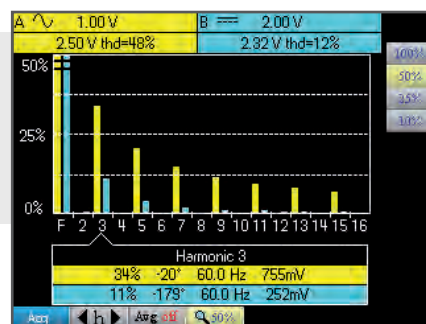
Automatically displays measurements for both isolated channels from your choice of 19 measurement types.

TWO INDEPENDENT 8000-COUNT TRMS DIGITAL MULTIMETERS



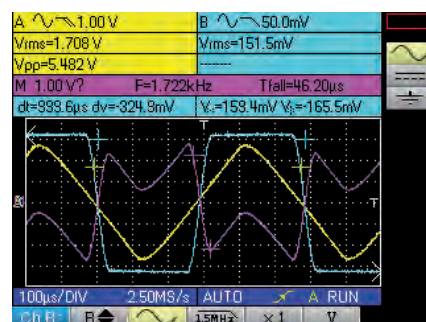
Instantly displays measurements in multimeter mode at the press of a button.

HARMONIC ANALYZER



Measures two channels of individual harmonic content up to the 31st harmonic.

STORAGE COMMUNICATION & PC SOFTWARE



View real-time measurements on your PC, configure the Handscope, export data to spreadsheet using the SX-Metro included software.

KITS INCLUDE

2150.21

Meter, small classic tool bag, US Wall plug, USB Cable, Set of 2, 10 ft. Color-coded Leads (red/black), Set of 2, Color-coded Alligator Clips (red/black), Set of 2, color-coded Probes (red/black), BNC Adapter, 2 Probe 10:1 600V BNC male, 1.2V NiMH rechargeable batteries, quick start guide, and USB drive with software and user manual.

2150.22

Meter, field case, US Wall plug, USB Cable, Set of 2, 10 ft. Color-coded Leads (red/black), Set of 2, Color-coded Alligator Clips (red/black), Set of 2, Color-coded Probes (red/black), BNC adapter, 1- Probe 10:1 600V BNC male, AC Current Probe Model MN251T, MiniFlex Sensor 3000-24-1-1, 1.2V NiMH rechargeable batteries, quick start guide, and USB drive with software and user manual.

2150.23

Meter, field case, US Wall plug, USB Cable, Set of 2, 10 ft. Color-coded Leads (red/black), Set of 2, Color-coded Alligator Clips (red/black), Set of 2, Color-coded Probes (red/black), BNC adapter, 1- Probe 10:1 600V BNC male, AC Current Probe Model MN379T, MiniFlex Sensor 3000-24-1-1, 1.2V NiMH rechargeable batteries, quick start guide, and USB drive with software and user manual.

CATALOG NO.	DESCRIPTION
2150.21	Handscope Portable Oscilloscope Model OX 5042
2150.22	Handscope Model OX 5042 w/MN251T & MF 3000-24-1-1 {BNC Output}
2150.23	Handscope Model OX 5042 w/MN379T & MF3000-24-1-1 (BNC output; Low AC current measurement)



MODEL MN251T & MN379T

RANGE 0.05 TO 240A

MODEL #MN251T

RANGE 0.005 TO 120A

MODEL #MN379T

SPECIFICATIONS

	MN251T	MN379T
ELECTRICAL		
Nominal Range	200A	5A / 100A
Measurement Range	0.5 to 240A	0.005 to 6A; 0.1 to 120A
Accuracy	3% of Reading @ 5A; 1% of Reading @ 200A	1% of Reading @ 5A; 1% of Reading @ 100A
Phase Shift	≤2.5° @ 20A / ≤2.5° @ 100A	≤4° @ 5A / ≤2.2 @ 100A
Overload	240A for 10 min ON, 30 min OFF	
Frequency Range	40 to 10kHz	
Limit Operating Conditions	200A permanently to 1kHz; Derating above 3kHz: 200A x (1/0.333F), F in kHz	
Working/Common Mode Voltage	600Vrms	
Output Termination	10ft (~3m) BNC Lead	
Output Signal	1mV/AAC (200mV @ 200A)	200mV/A AC (1V @ 5A) & 10mV/A AC (1V @ 100A)
MECHANICAL		
Operating Temperature	14° to 131°F (-10° to 55°C)	
Storage Temperature	-40° to 158°F (-40° to 70°C)	
Operating Relative Humidity	10 to 35°C (50 to 95°F) 85% RH (without roll-off above 35°C (95°F))	
Jaw Opening	0.83" (21mm)	
Maximum Conductor Size	0.78" (20mm)	
Dimensions	5.47 x 2.00 x 1.18" (139 x 51 x 30mm)	
Weight	6.5 oz (180g)	
Polycarbonate Material	Polycarbonate with fiberglass charge, UL94 V0	
SAFETY		
Electrical	EN 61010-2-32	
Double Insulation	Yes	
CE Mark	Yes	



FEATURES

- Small, compact size
- True RMS measurements
- Large jaw opening accommodates conductor sizes up to 250MCM
- 10 foot leads makes measurement in hard to reach areas possible
- 40Hz to 10kHz response

MINIFLEX® 3000-14-1-1 & 3000-24-1-1

SPECIFICATIONS

	3000-14-1-1	3000-24-1-1
ELECTRICAL		
Range	3000A	
Signal Output	1mV/A	
Frequency Range	10Hz to 20kHz with current derating	
Influence Of Conductor Positioning	1.5% typical, 3% max	
Influence Of Conductor Positioning In Sensor Against Handle	4% typical, 6% max	
External Conductor Influence	35dB to 40dB on contact	
Power Source	9V Alkaline battery (included)	
MECHANICAL		
Sensor Diameter	Ø 0.2 (5mm)	
Sensor Length	14" (~355mm)	24" (~609mm)
Max Conductor Size	3.93" (~100mm)	7.6" (~190mm)
Connection Cable Length	10ft (~3.04M)	
Drop Test	Per IEC 68-2-32	
Vibration	Per IEC 68-2-6	
Mechanical Shock	Per IEC 68-2-27	
Weatherproofing	IP 50	
ENVIRONMENTAL		
Operating Temperature Range	14° to 131°F (-10° to +55°C)	
Storage Temperature Range	-40° to 158°F (-40° to +70°C)	
Altitude	Operating: 0 to 6560ft (2000m), working voltage derating above; Non-operating: 0 to 39370ft (12,000m)	
SAFETY		
Safety Rating	EN 61010, 1000V CAT III; 600V CAT IV	



FEATURES

- True RMS Measurements
- 14" (~35cm) sensor included, 24" (~60cm) sensor optional
- 10 foot (~3m) leads makes measurement in hard to reach areas possible
- Measurement range of 0.5 to 3000Arms
- Accuracy ±1% of Reading ±0.25A
- No core saturation or damage if measured circuit is overloaded
- 20kHz frequency response
- Low phase shift for power measurements
- Insensitive to DC: measures only the AC component on DC + AC signals
- Excellent linearity
- 9V Alkaline battery typically provides 150 hrs of continuous operation

RANGE 5 TO 3000A

MODEL #3000-14-1-1 optional

RANGE 5 TO 3000A

MODEL #3000-24-1-1 included in kit



OSCILLOSCOPES

OX 9000 SERIES

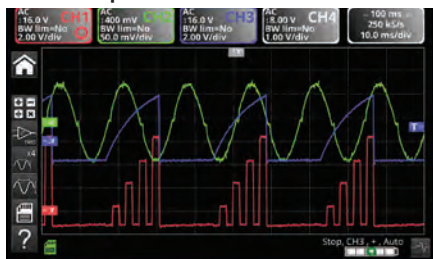


NEW!

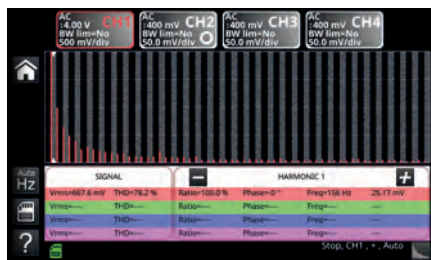
MODEL OX 9062, OX 9102, OX 9104 & OX 9304

Ergonomic, hand-held oscilloscope with 100MHz bandwidth and 4 models: oscilloscope, multimeter, analyzer and recorder

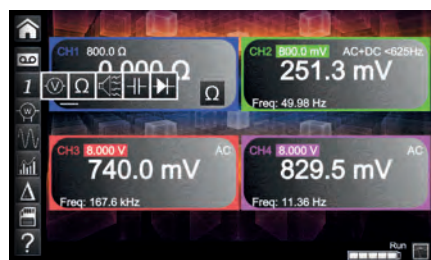
Oscilloscope



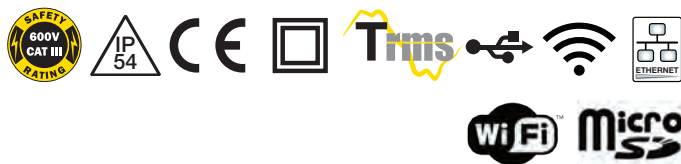
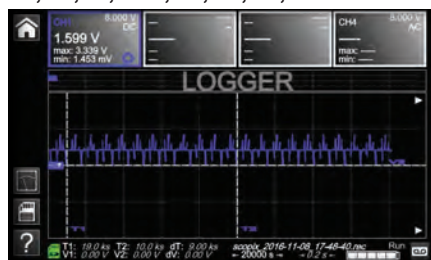
Harmonics



4 Simultaneous Channels



Measurement between H and V cursors:
T1, T2, Dt, 1/Dt, V1, V2, dV, Ph



FEATURES

- wider bandwidth up to 300 MHz
- new triggering and recording options
- increased storage capacity, and more!
- 12 bit resolution
- 2.5 GS/sec

PRODUCT INCLUDES

Scope in carrying case with shoulder strap, set of two 5 ft color-coded leads, alligator clips and test probes, 10 ft USB cable, μ SD memory card, 1-PROBIX Banana Plug Adapter, set of 5 stylus pens, LI-ION 5.8 Ah battery pack, PA40W-2 power adapter with 110V power cord. Additional accessories may be model dependent.

ACCESSORIES & REPLACEMENTS

2124.73
PROBIX PRHX1 10:1 Probe,
250MHz 600V CAT III

2124.77
PROBIX Current Probe,
20mA-20A 1MHz-3dB

5000.17
Set of 5 stylus pens



CATALOG NO.

DESCRIPTION

2150.31	Handscope Portable Oscilloscope Model OX 9062
2150.32	Handscope Portable Oscilloscope Model OX 9102
2150.33	Handscope Portable Oscilloscope Model OX 9104
2150.34	Handscope Portable Oscilloscope Model OX 9304

TECHNICAL SPECIFICATIONS	OX 9062	OX 9102	OX 9104	OX 9304
HUMAN-MACHINE INTERFACE				
Type of display	7" WVGA color TFT LCD touch screen, 800x480 – LED backlighting (adjustable standby mode)			
Different display mode	2,500 real acquisition points on screen - Vectors with interpolation			
Display of curves on screen	4 curves + 4 references – Split Screen & Full Screen modes			
Screen commands	Touch screen – icons and graphical commands – customizable channel colors			
Choice of language	15 complete languages, menus & online help			
OSCILLOSCOPE MODE				
Vertical deflection				
Bandwidth	60 MHz	100 MHz	100 MHz	300 MHz
	15 MHz, 1.5 MHz or 5 kHz bandwidth limiter			
Number of channels	2 isolated channels		4 isolated channels	
Input impedance	1 M Ω $\pm$ 0.5% , approx. 12 pF			
Maximum input voltage	600 V / CAT III (1,000V per Probix) – from 50 to 400 Hz – Probix safety connectors			
Vertical sensitivity	16 ranges from 2.5 mV to 200 V/div and up to 156 μ V/div in vertical zoom mode (12-bit converter) – Accuracy $\pm$ 2%			
Vertical zoom	"One Click Winzoom" mode (12-bit converter and direct graphical zoom on screen) – x 16 max.			
Probe factor (non-Probix)	1 / 10 / 100 / 1,000 or any scaling – definition of measurement unit			
Horizontal deflection				
Sweep speed	35 ranges from 1 ns/div to 200 s/div., accuracy $\pm$ [50 ppm + 500 ps] – Roll mode from 100 ms to 200 s/div			
Horizontal zoom	"One Click Winzoom" system (direct graphical zoom on screen) x 1 to x 5 or x 100 – storage 100 kpts/channel			
Triggering				
Mode	On all the channels: automatic, triggered, one-shot, auto level 50%			
Type	Edge, pulse width (16 ns-20 s), delay (48 ns to 20 s), counting (3 to 16,384 events) Continuous adjustment of Trigger position			
Coupling	AC, DC GND, HFR, LFR, noise – Level and Hold-Off adjustable from 64 ns to 15 s			
Sensitivity	$\leq$ 1.2 division p-p up to 300 MHz			
Digital storage				
Maximum sampling rate	2.5 GS/s in one-shot mode on each channel (100 GS/s max. in ETS mode)			
Vertical resolution	12 bits (vertical resolution 0.025 %)			
Memory depth	100 kpts per channel and file viewer in the manager			
User storage	Internal = 1 GB to store the files: trace, text, configuration, math functions, System memory: .pdf print files, .png image files			
File management	+ high-capacity removable μ SD-Card: SD 2 GB, SDHC 4-32 GB and SDXC > 32 GB			
GLITCH mode	Duration $\leq$ 2 ns – 500,000 Min/Max pairs			
Display modes	Envelope, vector, accumulation-, averaging (factors 2 to 64) – XY (vector) and Y(f)=FFT			
Other functions				
AUTOSET	Complete in under 5 s, with recognition of the channels – Frequency > 30 Hz			
FFT analyzer & MATH functions	2,500-point FFT (Lin or Log) with measurement cursors – Functions + , - , x , / and mathematical function editor			
Cursors	2 or 3 cursors: simultaneous V and T with AUTO measurement: T1, T2, Dt, 1/Dt, dBV, Ph			
Automatic measurements	Simultaneously with waveform, 20 automatic measurements per channel and on the 4 channels simultaneously with scroll			
MULTIMETER MODE				
General specifications	2 or 4 channels – 8,000 cts min/max/frequency/relative – TRMS – Time/date-stamped graphical recording in logger mode			
AC, DC and AC + DC voltages	600 mV to 600 VRMS, 800 mV to 800 VDC – VDC accuracy +/- (0.5 % + 25 D) – 200 kHz bandwidth			
Resistance	80 Ω to 32 M Ω – accuracy 0.5%R+ 25D – Quick continuity test < 10 ms			
Other measurements	Temperature (HX0035 = KTC, HX0036 = Pt100) / Capacitance 5nF to 5mF / Frequency 200 kHz / Diode test 3.3 V			
Single and three-phase power	Active, Reactive and Apparent power values plus Power Factor simultaneously with the U & I measurements			
HARMONIC ANALYSER MODE				
Multi-channel analysis	2 or 4 (depending on model), 63 orders, fundamental frequency 40 to 450 Hz in auto or manual mode			
Simultaneous measurements	Total Vrms, THD and selected order (% fundamental, phase, frequency, Vrms)			
LOGGER MODE				
Acquisition	Duration: 20,000 s – Interval: 0.2 s – Files: 100,000 measurements			
GENERAL SPECIFICATIONS				
Configuration memories	Not limited according to device - variable file sizes			
Printing	Network printing via Ethernet/Wifi in .png format			
PC communication – software link	Ethernet (100 baseT), WiFi-USB (device, 12 Mbs) – "ScopeNet" application software for PC			
Software	PC: Ethernet and USB, ScopeNet (remote control, data recovery, cursors and automatic measurements) Android tablet – ScopeAdmin Fleet Administration utility			
Mains power supply	Li-Ion rechargeable battery (6,900mAH-40 Wh) – Battery life of up to 8 hrs – Adjustable standby mode Adapter / 2-hour fast charger, universal 98-264 V / 50/60 Hz)			
Safety / EMC	Safety as per IEC 61010-2-30, 600V CAT III / 1000V CAT II – EMC as per EN61326-1			
Mechanical specifications	292.5 x 210.6 x 66.2 mm – 2.1 kg with batteries – IP54 protection			