

TECHNICAL DATA

Fluke 120B Series Industrial ScopeMeter[®] Hand-Held Oscilloscopes



KEY MEASUREMENTS

Voltage, current and power waveforms with numerical values including harmonics, resistance, diode, continuity and capacitance measurements.

AUTOMATICALLY CAPTURE, VIEW AND ANALYZE COMPLEX WAVEFORMS Fluke Connect and View[™] triggering automatically displays waveforms without having to adjust amplitude, timebase and trigger settings, while Intellaset[™] technology analyzes the signal and automatically displays critical numerical readings, making troubleshooting faster than ever.

FLUKE CONNECT[®] COMPATIBLE* View data locally on the instrument, or via Fluke Connect mobile app.

*Not all models are available in all countries. Check with your local Fluke representative.

Simplified testing, more insight and faster electro-mechanical troubleshooting

The compact ScopeMeter® 120B Series, is the rugged oscilloscope solution for industrial electrical and electro-mechanical equipment troubleshooting and maintenance applications. It's a truly integrated test tool, with oscilloscope, multimeter and high-speed recorder in one easy-to-use instrument. The ScopeMeter 120B Series also integrates with Fluke Connect® mobile app and FlukeView® for ScopeMeter software to enable further collaboration, data analysis and archiving of critical test information.

The 120B Series Industrial ScopeMeter Test Tools include innovative functions designed to help technicians troubleshoot faster and get the answers they need to keep their systems up and running. Display waveforms with Connect and View[™] trigger and setup technology and automatically view related numerical measurements using Fluke IntellaSet[™] technology, all without making manual measurement adjustments. With Recorder Event Detect capabilities, elusive intermittent events are captured and logged for easy viewing and analysis.

- Dual-input digital oscilloscope and multimeter
- 40 MHz or 20 MHz oscilloscope bandwidth
- Two 5,000-count true-rms digital multimeters
- Connect-and-View[™] trigger simplicity for hands-off operation
- IntellaSet[™] technology automatically and intelligently adjusts numerical readout based on the measured signal
- Dual-input waveform and meter reading recorder for trending data over extended periods
- Recorder Event Detect captures elusive intermittent signals on repetitive waveforms up to 4 kHz

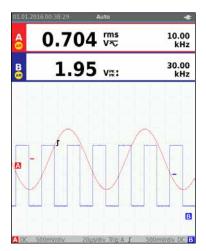






- Shielded test leads for oscilloscope, resistance and continuity measurements
- Resistance, continuity, diode and capacitance meter measurements
- Power measurements (W, VA, VAR, PF, DPF, Hz)
- Voltage, current and power harmonics
- Check Industrial networks with BusHealth physical layer tests against defined reference levels
- Save or recall data and instrument setups
- Store instrument setups defined by a test sequence for routine maintenance or most often used test procedures.
- External optically isolated USB interface to transfer, archive and analyze scope or meter data
- Optional WiFi adapter connected to internal USB port to wirelessly transfer information to the PC, laptop or Fluke Connect[®] mobile app*
- FlukeView[®] ScopeMeter[®] Software for Windows[®]
- Rugged design to withstand 3g Vibration, 30g shock, and rated IP51 according to EN/IEC60529
- Highest safety rating in the industry: safety rated for CAT IV 600 V
- Li-Ion rechargeable battery, seven-hours operation (with four-hour charge time)

*Not all models are available in all countries. Check with your local Fluke representative.



Fluke Connect-and-View™ triggering with Auto Reading function using Fluke IntellaSet™ technology gives you quick access to the data you need.

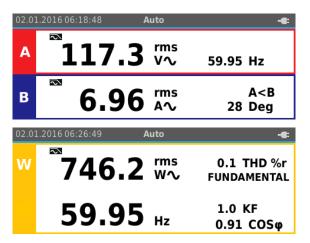
Connect-and-View™ triggering for an instant, stable display

Oscilloscope users know how difficult triggering can be. Using the wrong settings can lead to unstable waveform captures, and sometimes the wrong measurement data. Fluke's unique Connect-and-View[™] triggering technology recognizes signal patterns, and automatically sets up the correct triggering to provide a stable, reliable and repeatable display. Connect-and-View[™] triggering is designed to work with virtually any signal, including motor drives and control signals-without adjusting parameters, or even touching a button. Signal changes are instantly recognized and settings are automatically adjusted, providing a stable display even when measuring multiple test points in quick succession.

IntellaSet"/AutoReading

The Auto Readings function with Fluke IntellaSet™ technology uses proprietary algorithms to intelligently analyze the measured waveform and automatically displays the most appropriate numerical measurements on screen, so you can get the data you need easier than ever before. As an example, when the measured waveform is a line voltage signal, the Vrms and Hz readings are automatically displayed, whereas if the measured waveform is a square wave, the Vpeak-peak and Hz readings are automatically displayed. Using IntellaSet™ technology in conjunction with Connect-and-View™ automatic triggering you can be sure you're seeing not only the correct waveform, but the appropriate numerical reading as well. All without touching a button.

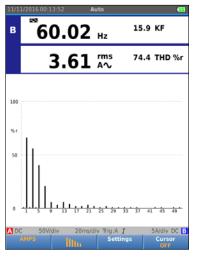




Industrial equipment needs a reliable power supply to operate properly, use the dual input to obtain key power measurements.

For single phase or 3-phase balanced systems, the dual inputs of the Industrial ScopeMeter[®] 12OB Series can measure ac+dc rms voltage on channel A and ac+dc rms current on channel B. The Fluke 125B can then calculate; frequency, phase angle, active power (kW), reactive power (VA or var), power factor (PF) or displacement power factor (DPF) and can also calculate the power values for a 3-phase system where all phases have equal voltage and currents. This applies to both balanced system and resistive loads.

Easily obtain key power characteristics to validate a system power.



Harmonics measurements

Harmonics are periodic distortions of voltage, current, or power sine waves. Harmonics in power distribution systems are often caused by non-linear loads such as switched mode dc power supplies and adjustable speed motor drives. Harmonics can cause transformers, conductors, and motors to overheat. In the Harmonics function, the Test Tool measures harmonics to the 51st. Related data such as dc components, THD (Total Harmonic Distortion), and K factor are measured to provide a complete insight in to the electrical state of health of your loads.

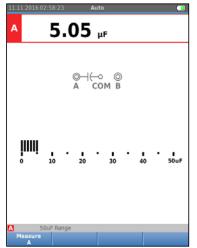


FlukeView[®] ScopeMeter[®] Software for Windows[®]

Get more out of your ScopeMeter 120B with FlukeView[®] Software:

- Store instrument's screen copies on the PC, in color
- Copy screen images into your reports and documentation
- Capture and store waveform data from your ScopeMeter on your PC
- Create and archive
 waveform references for easy
 comparison
- Copy waveform data into your spreadsheet for detailed analysis
- Use cursors for parameter measurement
- Add user text to instrument setups and send them to the instrument for operator reference and instructions

Harmonic spectrum overview with cursors to measure the distortion as a percentage of the fundamental.



A single test tool measures volts, ohms, amps or capacitance, in addition to displaying waveforms.

One test lead to measure multiple electrical parameters

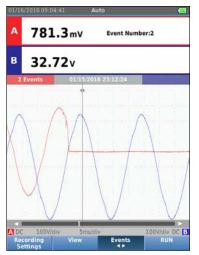
High frequency waveform, meter, capacitance and resistance measurements as well as continuity checks are all covered by single set of shielded test leads. No time is wasted finding or swapping leads.





Fluke Connect mobile app compatibility

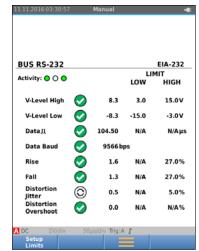
Automated industrial machinery is harder than ever to trouble shoot. It's not enough to just know where you have to test, vou also have to know what to look for—and that can be hard without baseline measurement data or access to subject matter experts. The Fluke Connect® Assets wireless system of software and wireless test tools enables technicians to reduce maintenance costs and increase uptime with accurate equipment records and maintenance data that is easy to interpret, and share. Compare and contrast test point measurement data and trends so you can better understand signal characteristics and changes over time. And, by storing maintenance data on the Fluke Cloud[™] you can enable team members to access it from wherever and whenever they need to so you can get advice or approvals in the field and get your systems up and running faster than ever before.



Quickly step through recorded events to identify and troubleshoot intermittent faults.

Use the comprehensive recorder modes to help find intermittent faults with ease

The toughest faults to find are those that happen only once in a while-intermittent events. They can be caused by bad connections, dust, dirt, corrosion or simply broken wiring or connectors. Other factors, like line outages and sags or the starting and stopping of a motor, can also cause intermittent events resulting in equipment shutdowns. When these events happen, you may not be around to see it. But, your Fluke ScopeMeter® Test Tool will. You can either plot the minimum and maximum peak measurement values or record the waveform trace. And, with expandable micro SD memory, recording sessions can be done for up to 14 days. This recorder is even more powerful with the addition of Recorder Event Detect, which makes detecting and logging intermittent faults easier than ever. Just set a threshold on a meter reading or scope trace and deviations are tagged as unique events. You no longer need to search through masses of data to pinpoint faults, and can quickly step from one tagged event to the next, while still having access to the full data set.



Quickly understand industrial field bus signal physical layer analog characteristics.

Industrial Bus Health Test verifies electrical signal quality on industrial buses

Bus Health Test analyzes the electrical signals on the industrial bus or network and gives a clear "Good", "Weak" or "Bad" indication mark for each of the relevant parameters, presented next to the actual measurement value. Measured values are compared to standard values based on the selected bus types (CAN-bus, Profi-bus, Foundation Field, RS-232 and many more), or, unique reference values can be set if different tolerances are required. The Fluke 125B can validate the quality of the electrical signals as soon as they are passed along the network, without looking at the data content. Additionally, the 125B checks the signal levels and speed, transition times and distortion, and compares these to the appropriate standards to help you find errors such as improper cable connections, bad contacts, incorrect grounding or improper terminators.



Specifications

Oscilloscope mode Vertical			
Frequency response - dc coupled	without probes and test leads (with BB120)	123B: dc to 20 MHz (-3 dB)	
		124B and 125B: dc to 40 MHz (-3 dB)	
	with STL120-IV 1:1 shielded test leads	DC to 12.5 MHz (-3 dB) / dc to 20 MHz (-6 dB)	
	with VP41 10:1 Probe	123B: dc to 20MHz (-3 dB) 124B and 125B: dc to 40 MHz (-3 dB)	
requency response - ac coupled	without probes and test leads	<10 Hz (-3 dB)	
f roll off)	with STL120-IV 1:1 shielded test leads	<10 Hz (-3 dB)	
	with VP41 10:1 Probe	<10 Hz (-3 dB)	
ise time, excluding probes, est leads	123B <17.5 ns 124B and 125B <8.75 ns		
nput impedance	without probes and test leads	1 MΩ//20 pF	
	with BB120	1 MΩ//24 pF	
	with STL120-IV 1:1 shielded test leads	1 MΩ//230 pF	
	with VP41 10:1 Probe	5 MΩ//15.5 pF	
ensitivity	5 mV to 200 V/div		
nalog bandwidth limiter	10 kHz		
isplay modes	А, -А, В, -В		
lax. input voltage A and B	direct, with test leads, or with VP41 Probe	600 Vrms CAT IV, 750 Vrms maximum voltage.	
	with BB120	600 Vrms	
lax. floating voltage, from any erminal to ground	600 Vrms CAT IV, 750 Vrms up to 400Hz		
Iorizontal			
scope modes	Normal, Single, Roll		
langes (Normal)	Equivalent sampling	123B: 20 ns to 500 ns/div,	
		124B and 125B: 10 ns to 500 ns/div	
	Real time sampling	1 μs to 5 s/div	
	Single (real time)	1 μs to 5 s/div	
	Roll (real time)	1s to 60 s/div	
Sampling rate (for both channels	Equivalent sampling (repetitive signals)	up to 4 GS/s	
imultaneously)	Real time sampling 1 µs to 60 s/div	40 MS/s	
rigger			
creen update	Free run, on trigger		
Source	A, B		
Sensitivity A and B	@ DC to 5 MHz	0.5 divisions or 5 mV	
	@ 40 MHz	123B: 4 divisions	
		124B and 125B: 1.5 divisions	
	@ 60 MHz	123B: N/A	
		124B and 125B: 4 divisions	
Slope	Positive, negative	1	
idvanced scope functions			
Display modes	Normal	Captures up to 25 ns glitches and displays analog-like persistence waveform.	
	Smooth	Suppresses noise from a waveform.	
	SHOOTH		
	Glitch off	Does not capture glitches between samples	
		Does not capture glitches between samples Records and displays the minimum and maximum of waveforms over time.	
Auto set (Connect-and-View™)	Glitch off	Records and displays the minimum and maximum of waveforms over time. ude, time base, trigger levels, trigger gap, and	

The accuracy of all measurements is within \pm (% of reading + number of counts) from 18 °C to 28 °C.



Add 0.1x (specific accuracy) for each °C below 18 °C or above 28 °C. For voltage measurements with 10:1 probe, add probe uncertainty +1 %. More than one waveform period must be visible on the screen.

uncertainty +1 %. More than one wa	avelorm period must be visible on the screen.		
Input A and input B			
DC voltage (VDC)			
Ranges	500 mV, 5 V, 50 V, 500 V, 750 V		
Accuracy	± (0.5 % +5 counts)		
Common mode rejection (CMRR)	>100 dB @ dc, >60 dB @ 50, 60, or 400 Hz		
Full scale reading	5000 counts		
True-rms voltages (V ac and V ac	+dc)		
Ranges	500 mV, 5 V, 50 V, 500 V, 750 V		
Accuracy for 5 % to 100 % of	DC to 60 Hz (V ac+dc)	± (1 % +10 counts)	
range (DC coupled)	1 Hz to 60 Hz (V ac)	± (1 % +10 counts)	
Accuracy for 5 % to 100 % of range (AC or dc coupled)	60 Hz to 20 kHz	± (2.5 % +15 counts)	
DC rejection (only VAC)	>50 dB		
Common mode rejection (CMRR)	>100 dB @ dc		
	>60 dB @ 50, 60, or 400 Hz		
Full scale reading	5000 counts, reading is independent of any signal	crest factor.	
Peak			
Modes	Max peak, Min peak, or pk-to-pk		
Ranges	500 mV, 5 V, 50 V, 500 V, 2200 V		
Accuracy	Accuracy Max peak or Min peak	5 % of full scale	
	Accuracy Peak-to-Peak	10 % of full scale	
Full scale reading	500 counts		
Frequency (Hz)			
Ranges	123B: 1 Hz, 10 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz,1 MHz, 10 MHz, and 50 MHz		
	124B and 125B: 1 Hz, 10 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz, 10 MHz, and 70 MHz		
Frequency range	15 Hz (1 Hz) to 50 MHz in continuous autoset		
Accuracy @1 Hz to 1 MHz	± (0.5 % +2 counts)		
Full scale reading	10 000 counts		
RPM			
Max reading	50.00 kRPM		
Accuracy	± (0.5 % +2 counts)		
Duty cycle (PULSE)			
Range	2 % to 98 %		
Frequency range	15 Hz (1 Hz) to 30 MHz in continuous autoset		
Pulse width (PULSE)			
Frequency range	15 Hz (1 Hz) to 30 MHz in continuous autoset		
Full scale reading	1000 counts		
Amperes (AMP)			
With current clamp	Ranges	same as V dc, V ac, V ac+dc, or PEAK	
	Scale factors	0.1 mV/A, 1 mV/A, 10 mV/A, 100 mV/A, 400 mV/A, 1 V/A, 10 mV/mA	
	Accuracy	same as V dc, V ac, V ac+dc, or PEAK (add current clamp uncertainty)	



Range 200 °C/div (200 °T/div) Scale factor 1 mV/° and 1 mV/F Accuracy as V dc (add temp. probe uncertainty) Decibel (13) 0 O dBu (600 Ω /50 Ω) 1 mV referenced to 600 Ω or 50 Ω O dBu (600 Ω /50 Ω) 1 mV referenced to 600 Ω or 50 Ω Gala reading 1000 counts Creat factor (GR557) The second or 50 Ω Range 1 to 10 Full scale reading 900 Counts Forse The Second O or 50 Ω or 50 Ω Modes A to B, B to A Range 0 to 359 degrees Range 0 to 359 degrees Range 1 phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (PF) Ratio between watts and VA range - 0.00 to 1.00 Wat RAS reading or multipying corresponding samples or input A (wolts] and input B (amperes) Pull scale reading 999 counts VA Vins x Arms Pull scale reading 999 counts VA Vins x Arms Pull scale reading 999 counts VA Vins arms	Temperature (TEMP) with o	ptional temperature probe			
Accuracy as V dc (add temp. probe uncertainty) Decibal (dB) 0 dBv (f60 0, /50 0) 1 vW referenced to 600 0 or 50 0. 0 dBm (f60 0, /50 0) 1 mW referenced to 600 0 or 50 0. Fail scale reading 1000 counts Crest factor (CK357)	Range				
Decibel (dB) 1 V 0 dBV 1 V 0 dBV 0 f80 (f8) (f8) (f8) (f8) D00 counts 000 counts Full scale reading 1000 counts Frail scale reading 900 counts Full scale reading 900 counts Phase 1 to 10 Phase 900 counts Phase 1 to 10 Phase 900 counts Phase 1 to 10 Phase 1 to 10 Phase 1 to 10 Phase 900 counts Phase 1 to 10 Phase 1 to 10 Phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power (1235 only) Insta starma Configurations 1 endarge reading 999 counts VA Ymax x xma 1997 counts VA Ymax X xma 1997 counts Vareactive (var) y(IVA) ^{2-W/2} 999 counts Vyvm Full scale reading 999 counts Purpose to measure on pulse width modulated signals. like motor drive inveter outputs perinciple	Scale factor	1 mV/°C and 1 mV/°F			
0 dSV I V 0 dBm (600 f/50 f) 1 mW referenced to 600 0 or 50 0 dB on V dc, V ac, or Vac+de 7000 counts Constant factor (GEST) Range 1 to 10 9 O Counts Phase Modes A to B, B to A Range 0 to 359 degrees Range 0 to 359 degrees Resolution 1 degree Power (1258 only) Configurations Only (1258 only) The sea / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (P1) Ratio between waits and VA range - 0.00 to 1.00 Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Full scale reading 999 counts VA Vmas A rans Full scale reading 999 counts VA Vmas A rans Full scale reading 999 counts Vareactive (var) (/(VA)^VA) Full scale reading 999 counts Vareactive (var) (/(VA)^VA) Full scale reading 999 counts Vareactive (var) (/(VA)^VA) Full scale reading<	Accuracy	as V dc (add temp. probe uncertainty)	as V dc (add temp. probe uncertainty)		
0 dBm (600 ft /50 Ω) 1 mW referenced to 600 Ω or 50 Ω dB on V dc, V a, or Vac+dc Full scale reading 1000 counts Greaf factor (GRSST) 300 counts Full scale reading 90 Counts Phase 1 to 1 0 Full scale reading 90 Counts Phase 1 to 1 degree Power (1255 only) 1 degree Configurations 1 base / 3 phase 3 conductor balanced loads [3 phase: fundamental component only, AUTOSET mod only) Power factor (PF) Ratio between watts and VA range - 0.00 to 1.0.0 Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Pull scale reading 999 counts VA Vrms x Arms Pull scale reading 999 counts VA Vrms x Arms Pull scale reading 999 counts VA Vrms x Arms Pull scale reading 999 counts Vinge Full scale reading 999 counts Vpwm Pull scale reading 999 counts Principle readings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency	Decibel (dB)				
dB on V dc, V ac, or Vac+dc Pull scale reading 1000 counts Grost Actor (CIST) Range 1 to 10 Pull scale reading 90 Counts OC	0 dBV	1 V			
Fail scale reading 1000 counts Great Factor (DIAST) Image Range 1 to 10 PUI scale reading 90 Counts Phase Image Modes A to B, B to A Range 0 to 359 degrees Resolution 1 degree Power [125B only] Image Configurations 1 phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (PF) Ratio between watts and VA range – 0.00 to 1.00 Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Pull scale reading 909 counts VI'ms x Arms Pull scale reading 909 counts Virms x Arms Pull scale reading 909 counts Virms Arms Pull scale reading 909 counts Virms Arms Pull scale reading 909 counts Virms Arms Pull scale reading 909 counts Principle to measure on pulse width modulated signals, like motor drive inverter outputs Principle to measure on pulse width modulated signals, like motor drive inverter outputs Principle to common son 0 n. 5 kfn,	0 dBm (600 Ω /50 Ω)	1 mW referenced to 600 Ω or 50 Ω			
Creat factor (CREST) Range 1 to 10 Phase 90 Counts Phase 90 Counts Phase 90 Counts Phase 1 degree Power (125B only) 0 to 359 degrees Configurations 1 phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (PF) Ratio between watts and VA range - 0.00 to 1.00 Watt EMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) VA Vins x Ams Full scale reading 999 counts VA reactive (var) (/(VA)^2-W) Full scale reading 999 counts Vpwm Purpose Purpose to measure on pulse width modulated signals, like motor drive inverter outputs readings show the effective voltage based on the average value of samples over a whole number of periods whose functional frequency Accuracy as Vins for sinewave signals Input A to common Object (56 % + 5 counts) 50 Ω ± (2 % + 20 counts) S0 Ω to 5 M0 + 5000 counts, 30 MΩ - 3000 counts J2B ± 0.0.6 % + 5 counts) 50 Ω ± (2 % + 20 counts) Full scale reading 50 Ω to 5 M0, 500 kΩ, 5 M0, 500 kΩ, 5 M0, 30 MΩ </td <td>dB on</td> <td>V dc, V ac, or Vac+dc</td> <td></td>	dB on	V dc, V ac, or Vac+dc			
Range 1 to 10 Pull scale reading 90 Counts Phate Modes A to B, B to A Range 0 to 389 degrees Resolution 1 degree Prower (125B only) Configurations 1 phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Prower (125B only) Watt EMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Full scale reading 999 counts Yurms x Arms Pull scale reading 999 counts Vareactive (var) ./((VA)²-W²) Pull scale reading 999 counts Vywm Partis cale reading 999 counts Vareactive (var) ./((VA)²-W²) Pull scale reading 999 counts Vpwm Partis data reading 999 counts Vareactive (var) ./((VA)²-W²) Ranges to measure on pulse width modulated signals, like motor drive inverter outputs readings show the effective voltage based on the average value of samples over a whole number of periods of the fundament	Full scale reading	1000 counts			
Full scale reading 90 Counts Vhase Vin Se Vin Se 0 to 359 degrees Resolution 1 degree Power (1255 only) I phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (PF) Ratio between watts and VA range - 0.00 to 1.00 Raw factor (PF) Ratio between watts and VA range - 0.00 to 1.00 Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Pull scale reading 999 counts VA Vmm x Arms Pull scale reading 999 counts Vpwm Pull scale reading 999 counts Puppose to measure on pulse width modulated signals, like motor drive inverter outputs Perpose to measure on pulse width modulated signals, like motor drive inverter outputs Accuracy as Vrms for sinewave signals 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 500 kΩ, 5 MΩ, 30 MΩ Input A to common 1238 and 1248 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 500 kΩ, 5 MΩ, 30 MΩ Yeal cale reading 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 500 kΩ, 5 MΩ, 30 MΩ 128 Ranges 1238 and 1248 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ 128 Put locale reading	Crest factor (CREST)				
Phase A to B, B to A Modes A to B, B to A Range O to 359 degrees Resolution 1 degree Power [125B only] Configurations Only 1 phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (PF) Ratio between watts and VA range - 0.00 to 1.00 Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Full scale reading 999 counts VA Vrms x Arms Full scale reading 999 counts V/A (VTms x Arms Full scale reading 999 counts V/pwm Full scale reading 999 counts Vpwm Full scale reading 999 counts Pariose to measure on pulse width modulated signals, like motor drive inverter outputs reactive (var) Full scale reading 999 counts Vpwm Parios intervave signals Impart A to common Accuracy as Vrms for sinewave signals Impart A to common Man (f) Intsale reading SOO 0, 5 kO, 500 kO, 500 kO, 500 kO, 5 MO, 30 MO 125B SOO 0, 5 kO, 500 kO, 500 kO, 5 MO,	Range	1 to 10			
Modes A to B, B to A Range O to 359 degrees Resolution 1 degree Power (125B only) Configurations 1 phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (PF) Ratio between watts and VA range - 0.00 to 1.00 Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Full scale reading 999 counts VA Vms x Arms Pull scale reading 999 counts Vywm Full scale reading 999 counts Vpwm Full scale reading 999 counts Vpwm readings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency Accuracy a Vrms for sinewave signals Input A to common Input A to common 1238 and 124B SOO Ω, 5 kΩ, 50 kΩ, 500 kΩ, 50 MΩ, 30 MΩ 1258 SOO Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ 1258 Full scale reading SO Ω Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ 1258 SOO Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ 1258 Input A to common SO Ω, 50 Ω,	Full scale reading	90 Counts			
Range 0 to 359 degrees Resolution 1 degree Power factor (PF) Ratio between watts and VA range - 0.00 to 1.00 Watt PMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Full scale reading 999 counts VMatt Pull scale reading 999 counts VA reactive (var) //(VA) ² -W ²)	Phase				
Resolution 1 degree Power (123B only) T phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (PP) Ratio between watts and VA range - 0.00 to 1.00 Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Full scale reading 999 counts VA Ymm x Arms Full scale reading 999 counts VA reactive (var) y((VA) ²⁻ W ²) Full scale reading 999 counts VPurmo Full scale reading Purpose to measure on pulse width modulated signals, like motor drive inverter outputs readings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency Accuracy as Vrms for sinewave signals Input A to common Jasta 1248 500 0, 5 k0, 50 k0, 500 k0, 5 M0, 30 M0 I25B S0 0, 0 s0 k0, 50 k0, 500 k0, 5 M0, 30 M0 25 M0, 30 M0 I25B S0 0, 0 s0 k0, 50 k0, 500 k0, 50 k0, 30 M0, 30 M0 125 M0 Full scale reading S0 0 to 5 M0 - 5000 counts 50 0, s0 k0, 50 k0, 50 k0, 50 k0, 30 M0, 30 M0 I25B S0 0 to 5 M0 - 5000 counts S0 0, s0 k0, 50 k0, 50 k0, 50 k0, 50 k0, 30 M0, 30 M0 <td>Modes</td> <td>A to B, B to A</td> <td></td>	Modes	A to B, B to A			
Powor (123E only) Configurations 1 phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (PF) Ratio between watts and VA range - 0.00 to 1.00 Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Full scale reading 999 counts VA Vmms x Arms Full scale reading 999 counts VA reactive (var)	Range	0 to 359 degrees			
Configurations 1 phase / 3 phase 3 conductor balanced loads (3 phase: fundamental component only, AUTOSET mod only) Power factor (PF) Ratio between watts and VA range - 0.00 to 1.00 Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Full scale reading 999 counts VA Vms x Arms Pull scale reading 999 counts VA reactive (var) /((VA) ² -W ²) Pull scale reading 999 counts Vpwm 999 counts Purpose to measure on pulse width modulated signals, like motor drive inverter outputs readings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency Accuracy as Vrms for sinewave signals Input 4 common 000 0, 5 k0, 50 k0, 500 k0, 5 M0, 30 M0 125B 500 0, 5 k0, 50 k0, 500 k0, 5 M0, 30 M0 125B 500 0, 5 k0, 50 k0, 50 k0, 50 k0, 5 M0, 30 M0 125B 50 0 fo 5 M0 - 5000 counts, 30 M0 - 3000 counts Measurement current 0.5 mA to 50 0 A, decreases with increasing ranges Open circuit voltage 4 V Continuity (Cont) Eepp Beep <(30 0 ± 5 0) in 50 0 range	Resolution	1 degree			
onlyisPower factor (PF)Ratio between watts and VA range - 0.00 to 1.00WattReading of multiplying corresponding samples of input A (volts) and input B (amperes)Full scale reading999 countsVAVrms x ArmsPull scale reading999 countsVA(I(NA) ² -W ²)Full scale reading999 countsVpwmPurposePurposeto measure on pulse width modulated signals, like motor drive inverter outputsreadings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequencyAccuracyas Vrms for sinewave signalsInput Å to common123B and 124B500 0., 5 k0, 50 k0, 500 k0, 5 M0, 30 M0125B50 0. 1, 5 k0, 50 k0, 500 k0, 5 M0, 30 M0125B50 0. 1 (2 % + 20 counts)Full scale reading50 0. 1 (5 M M - 5000 counts, 30 M0 - 3000 countsMeasurement current0.5 mA to 50 A, decreases with increasing rangesOpen circuit voltage<(30 0 ± 5 0) in 50 0 rangeMeasurement voltage<(30 0 ± 5 0) in 50 0 rangeMeasurement voltage<(30 0 ± 5 0) in 50 0 rangeMeasurement voltage<2.8 VContinuity (Cont)Measurement current0.5 mADiodoDiodoMeasurement current0.5 mADiodoContinuityAndMeasurement current0.5 mADiodoDiodoContinuityMeasurement current0.5 mAPolarity	Power (125B only)				
Watt RMS reading of multiplying corresponding samples of input A (volts) and input B (amperes) Full scale reading 999 counts VA Yms x Arms Full scale reading 999 counts VA reactive (var) ./((VA) ² -W ²) Full scale reading 999 counts Vpwm	Configurations		ed loads (3 phase: fundamental component only, AUTOSET mod		
Full scale reading 999 counts VA Vrms x Arms Full scale reading 999 counts VA reactive (var) Full scale reading 999 counts V/Wm Full scale reading 999 counts VpWm Full scale reading 999 counts Principle to measure on pulse width modulated signals, like motor drive inverter outputs Principle treadings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency Accuracy as Vrms for sinewave signals Input A to common Om (d) Ranges 123B and 124B 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ 125B 50 Ω, 50 Ω, 5 kΩ, 500 kΩ, 50 M, 30 MΩ Recuracy ± (0.6 % + 5 counts) 50 Ω ±(2 % + 20 counts) Full scale reading 50 Ω to 5 MΩ - 5000 counts Measurement current 0.5 mA to 50 n A, decreases with increasing ranges Open circuit voltage <4 V	Power factor (PF)	Ratio between watts and VA range -	0.00 to 1.00		
VA Vms x Arms Full scale reading 999 counts VA reactive (var) $J((VA)^{2}-W^{2})$ Full scale reading 999 counts Vpwm Full scale reading 999 counts Purpose to measure on pulse width modulated signals, like motor drive inverter outputs readings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency Accuracy as Vrms for sinewave signals Input A to common 123B and 124B 500 Ω , 5 k Ω , 50 k Ω , 50 k Ω , 30 M Ω 125B 50 Ω , 50 Ω , 50 k Ω , 50 k Ω , 50 k Ω , 30 M Ω 30 M Ω Accuracy \pm (0.6 % + 5 counts) 50 $\Omega \pm (2 % + 20 counts)$ 50 Ω , 50 k Ω , 50 k Ω , 50 k Ω , 30 M Ω Full scale reading 50 Ω to 5 M Ω - 5000 counts, 30 M Ω - 3000 counts Measurement current 0.5 mA 50 Ω , 50 k Ω , 50	Watt	RMS reading of multiplying correspon	ding samples of input A (volts) and input B (amperes)		
Full scale reading 999 counts VA reactive (var) /([VA] ² -W ²) Full scale reading 999 counts Vpwm		Full scale reading	999 counts		
VA reactive (var) √((VA) ² -W ²) Full scale reading 999 counts Vpwm Full scale reading 999 counts Purpose to measure on pulse width modulated signals, like motor drive inverter outputs Principle readings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency Accuracy as Vrms for sinewave signals Input A to common	VA	Vrms x Arms			
Full scale reading 999 counts Vywm Purpose to measure on pulse width modulated signals, like motor drive inverter outputs Principle readings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency Accuracy as Vrms for sinewave signals Input A to common as Vrms for sinewave signals Input A to common 123B and 124B SoO Ω, 5 kΩ, 50 kΩ, 500 kΩ, 50 MΩ, 30 MΩ 125B 50 Ω, 50 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ Accuracy ± (0.6 % + 5 counts) 50 Ω ±(2 % + 20 counts) Full scale reading 50 Ω to 5 MΩ - 5000 counts, 30 MΩ - 3000 counts Measurement current 0.5 mA to 50 nA, decreases with increasing ranges Open circuit voltage <4 V		Full scale reading	999 counts		
Vpvm v Purpose to measure on pulse width modulated signals, like motor drive inverter outputs Principle readings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency Accuracy as Vrms for sinewave signals Input A to common Input A to common Ohm (Ω) Input A to common Ranges 123B and 124B 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ Accuracy ± (0.6 % + 5 counts) 50 Ω ±(2 % + 20 counts) Full scale reading 50 Ω to 5 MΩ - 5000 counts, 30 MΩ - 3000 counts Measurement current 0.5 mA to 50 nA, decreases with increasing ranges Open circuit voltage <4 V	VA reactive (var)	√((VA)²–W²)			
Purposeto measure on pulse width modulated signals, like word drive inverter outputsPrinciplereadings show the effective voltage based on the werage value of samples over a whole number of periods of the fundamental frequencyAccuracyas Vrms for sinewave signalsInput 4 to commonsolo for sinewave signalsOther (C)Itage and 124BSolo Ω, 5 kΩ, 50 kΩ, 50 kΩ, 50 kΩ, 30 MΩAccuracyto (5 % + 5 counts) 50 Ω ± (2 % + 20 counts)Sol Ω, 5 kΩ, 50 kΩ, 50 kΩ, 50 kΩ, 30 MΩ, 30 MΩAccuracyto (5 % + 5 counts) 50 Ω ± (2 % + 20 counts)Sol Ω, 50 Ω, 5 kΩ, 50 kΩ, 50 kΩ, 50 MΩ, 30 MΩAccuracyto (5 % - 5 counts) 50 Ω ± (2 % + 20 counts)Sol Ω, 50 Ω Ω, 5 kΩ, 50 kΩ, 50 kΩ, 50 MΩ, 30 MΩAccuracyto (5 % - 5 counts) 50 Ω ± (2 % + 20 counts)Sol Ω, 50 Ω Ω, 5 kΩ, 50 kΩ, 50 kΩ, 50 MΩ, 30 MΩAccuracyto (5 % - 5 counts) 50 Ω ± (2 % + 20 counts)Sol Ω, 50 Ω Ω, 5 kΩ, 50 kΩ, 50 kΩ, 50 MΩ, 30 MΩAccuracyto (5 % - 5 counts) 50 Ω ± (2 % + 20 counts)Sol Ω, 50 Ω Ω, 50 RΔ, 50		Full scale reading	999 counts		
Principle readings show the effective voltage based on the average value of samples over a whole number of periods of the fundamental frequency Accuracy as Vrms for sinewave signals Input A to common	Vpwm				
periods of the fundamental frequency Accuracy as Vrms for sinewave signals Input A to common	Purpose	to measure on pulse width modulated	signals, like motor drive inverter outputs		
Input A to common Ohm (Ω) Ranges 123B and 124B 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ 125B 50 Ω, 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ 125B 50 Ω, 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ Accuracy ± (0.6 % + 5 counts) 50 Ω ±(2 % + 20 counts) Full scale reading 50 Ω to 5 MΩ - 5000 counts, 30 MΩ - 3000 counts Measurement current 0.5 mA to 50 nA, decreases with increasing ranges Open circuit voltage <4 V	Principle				
Ohm (A)Ranges123B and 124B500 Ω , 5 k Ω , 50 k Ω , 50 k Ω , 50 k Ω , 30 M Ω 125B50 Ω , 5 0 Ω , 5 k Ω , 50 k Ω , 50 k Ω , 50 k Ω , 30 M Ω Accuracy \pm (0.6 % + 5 counts) 50 Ω \pm (2 % + 20 counts)Full scale reading50 Ω to 5 M Ω - 5000 counts, 30 M Ω - 3000 countsMeasurement current0.5 mA to 50 nA, decreases with increasing rangesOpen circuit voltage<4 V	Accuracy	as Vrms for sinewave signals			
Ranges 123B and 124B 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ 125B 50 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ Accuracy ± (0.6 % + 5 counts) 50 Ω ±(2 % + 20 counts) Full scale reading 50 Ω to 5 MΩ - 5000 counts, 30 MΩ - 3000 counts Measurement current 0.5 mA to 50 nA, decreases with increasing ranges Open circuit voltage <4 V	Input A to common				
125B50 Ω, 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩAccuracy± (0.6 % + 5 counts) 50 Ω ±(2 % + 20 counts)Full scale reading50 Ω to 5 MΩ - 5000 counts, 30 MΩ - 3000 countsMeasurement current0.5 mA to 50 nA, decreases with increasing rangesOpen circuit voltage<4 V	Ohm (Ω)				
Accuracy± (0.6 % + 5 counts) 50 Ω ±(2 % + 20 counts)Full scale reading50 Ω to 5 MΩ - 5000 counts, 30 MΩ - 3000 countsMeasurement current0.5 mA to 50 nA, decreases with increasing rangesOpen circuit voltage<4 V	Ranges	123B and 124B	500 Ω , 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ		
Full scale reading50 Ω to 5 MΩ - 5000 counts, 30 MΩ - 3000 countsMeasurement current0.5 mA to 50 nA, decreases with increasing rangesOpen circuit voltage<4 V		125B	50 Ω, 500 Ω , 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 30 MΩ		
Full scale reading50 Ω to 5 MΩ - 5000 counts, 30 MΩ - 3000 countsMeasurement current0.5 mA to 50 nA, decreases with increasing rangesOpen circuit voltage<4 V	Accuracy	\pm (0.6 % + 5 counts) 50 Ω \pm (2 % + 2	0 counts)		
Open circuit voltage <4 V	Full scale reading	50 Ω to 5 MΩ – 5000 counts, 30 MΩ –	3000 counts		
Continuity (Cont) Beep <(30 Ω ± 5 Ω) in 50 Ω range	Measurement current	0.5 mA to 50 nA, decreases with incr	easing ranges		
Beep <(30 Ω ± 5 Ω) in 50 Ω range	Open circuit voltage	<4 V			
Beep <(30 Ω ± 5 Ω) in 50 Ω range	Continuity (Cont)				
Measurement current 0.5 mA Detection of shorts of ≥1 ms Diode		$<$ (30 $\Omega \pm 5 \Omega$) in 50 Ω range			
Detection of shorts of ≥1 ms Diode	•				
Diode Image: Constance (CAP) @0.5 mA >2.8 V @open circuit <4 V		≥1 ms			
Measurement voltage @0.5 mA >2.8 V @open circuit <4 V	Diode				
@open circuit <4 V		@0.5 mA	>2.8 V		
Measurement current 0.5 mA Polarity + on input A, - on COM Capacitance (CAP) Ranges 50 nF, 500 nF, 5 μF, 50 μF, 500 μF					
Polarity + on input A, - on COM Gapacitance (GAP) - Ranges 50 nF, 500 nF, 5 μF, 50 μF, 500 μF	Measurement current	•			
Capacitance (CAP) Ranges 50 nF, 500 nF, 5 μF, 50 μF, 500 μF					
Ranges 50 nF, 500 nF, 5 μF, 50 μF, 500 μF					
-		50 nF 500 nF 5 uF 50 uF 500 uF			
	-				



Measurement current	500 nA to 0.5 mA, increases with increasing	ranges		
Advanced meter functions				
Zero Set	Set actual value to reference			
AutoHold (on A)		Captures and freezes a stable measurement result. Beeps when stable. AutoHold works on the main meter reading, with thresholds of 1 Vpp for AC signals and 100 mV for DC signals.		
Fixed decimal point	Activated by using attenuation keys.			
Cursor Readout (124B and 125B)				
Sources	А, В			
Single vertical line	Average, min and max readout			
	Average, min, max and time from start of readout (in ROLL mode; instrument in HOLD)			
	Min, max and time from start of readout (in R	ECORDER mode; instrument in HOLD)		
	Harmonics values in POWER QUALITY mode.			
Dual vertical lines	Peak-peak, time distance and reciprocal time	e distance readout		
	Average, min, max and time distance readout (in ROLL mode; instrument in HOLD)			
Dual horizontal lines	High, low and peak-peak readout			
Rise or fall time	Transition time, 0 %-level and 100 %-level r possible in single channel mode)	Transition time, 0 %-level and 100 %-level readout (manual or auto leveling; auto leveling only possible in single channel mode)		
Accuracy	As oscilloscope accuracy			
Recorder	an in Motor Dogordor modo or continuously cont	waa waxafarm complex in Coope Decorder mode. The		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r	emory or on optional SD card (with the 125B or 1 recorder display that plots a graph of min and m	ures waveform samples in Scope Recorder mode. The 124B). ax values of Meter measurements over time or as a		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot	emory or on optional SD card (with the 125B or 1 recorder display that plots a graph of min and m	124B).		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings	emory or on optional SD card (with the 125B or 1 recorder display that plots a graph of min and m	124B).		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed	emory or on optional SD card (with the 125B or recorder display that plots a graph of min and m is all the captured samples. Maximum 2 measurements/s	124B).		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings	emory or on optional SD card (with the 125B or a recorder display that plots a graph of min and m is all the captured samples.	124B).		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average)	emory or on optional SD card (with the 125B or a recorder display that plots a graph of min and m as all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel	124B).		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span	emory or on optional SD card (with the 125B or intercorder display that plots a graph of min and m tas all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks	124B).		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events	emory or on optional SD card (with the 125B or intercorder display that plots a graph of min and m tas all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks	124B).		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record	emory or on optional SD card (with the 125B or is recorder display that plots a graph of min and m is all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024	124B).		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record Maximum sample rate	emory or on optional SD card (with the 125B or 3 recorder display that plots a graph of min and m is all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024 400 K sample/s	124B).		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record Maximum sample rate Size Internal memory	emory or on optional SD card (with the 125B or 3 recorder display that plots a graph of min and m its all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024 400 K sample/s 400 M samples Recorded Time	124B). ax values of Meter measurements over time or as a		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record Maximum sample rate Size Internal memory Span internal memory	emory or on optional SD card (with the 125B or 3 recorder display that plots a graph of min and m ts all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024 400 K sample/s 400 M samples Recorded Time 15 minutes at 500 µs/div	124B). ax values of Meter measurements over time or as a		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record Maximum sample rate Size Internal memory Span internal memory Record Size SD card	emory or on optional SD card (with the 125B or is recorder display that plots a graph of min and m its all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024 400 K sample/s 400 M samples Recorded Time 15 minutes at 500 µs/div 1.5 G samples	124B). .ax values of Meter measurements over time or as a 11 hours at 20 ms/div		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record Maximum sample rate Size Internal memory Span internal memory Record Size SD card Recorded Time Span SD card	emory or on optional SD card (with the 125B or is recorder display that plots a graph of min and m its all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024 400 K sample/s 400 M samples Recorded Time 15 minutes at 500 µs/div 1.5 G samples 11 hours at 500 µs/div	124B). .ax values of Meter measurements over time or as a 11 hours at 20 ms/div		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record Maximum sample rate Size Internal memory Span internal memory Record Size SD card Recorded Time Span SD card Maximum number of events	emory or on optional SD card (with the 125B or is recorder display that plots a graph of min and m its all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024 400 K sample/s 400 M samples Recorded Time 15 minutes at 500 µs/div 1.5 G samples 11 hours at 500 µs/div	124B). .ax values of Meter measurements over time or as a 11 hours at 20 ms/div		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record Maximum sample rate Size Internal memory Span internal memory Span internal memory Record Size SD card Recorded Time Span SD card Maximum number of events Power Quality (125B only)	emory or on optional SD card (with the 125B or is recorder display that plots a graph of min and m is all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024 400 K sample/s 400 M samples Recorded Time 15 minutes at 500 µs/div 1.5 G samples 11 hours at 500 µs/div 64	124B). .ax values of Meter measurements over time or as a 11 hours at 20 ms/div		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record Maximum sample rate Size Internal memory Span internal memory Span internal memory Record Size SD card Recorded Time Span SD card Maximum number of events Power Quality (125B only) Readings	emory or on optional SD card (with the 125B or is recorder display that plots a graph of min and m its all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024 400 K sample/s 400 M samples Recorded Time 15 minutes at 500 µs/div 1.5 G samples 11 hours at 500 µs/div 64 Watt, VA, var, PF, DPF, Hz	124B). .ax values of Meter measurements over time or as a 11 hours at 20 ms/div		
The recorder captures meter reading information is stored on internal me The results are displayed as Chart r waveform recorder display that plot Meter readings Measurement Speed Record Size (min, max, average) Recorded Time Span Maximum number of events Waveform record Maximum sample rate Size Internal memory Span internal memory Span internal memory Record Size SD card Recorded Time Span SD card Maximum number of events Power Quality (125B only) Readings	 Permory or on optional SD card (with the 125B or streecorder display that plots a graph of min and m its all the captured samples. Maximum 2 measurements/s 2 M readings for 1 channel 2 weeks 1024 400 K sample/s 400 M samples Recorded Time 15 minutes at 500 µs/div 1.5 G samples 11 hours at 500 µs/div 64 Watt, VA, var, PF, DPF, Hz 250 W to 250 MW, 625 MW, 1.56 GW 	124B). .ax values of Meter measurements over time or as a 11 hours at 20 ms/div 14 days at 20 ms/div		



PF	0.00 to 1.00, ± 0.04		
Frequency range	10.0 Hz to 15.0 kHz	40.0 Hz to 70.0 Hz	
Number of Harmonics	DC to 51		
Readings / Cursor readings (fundamental 40 Hz to 70 Hz)	V rms / A rms /Watt each harmonic from fundamental for individual readings		
Includes frequency of fundamenta	l, phase Angle and K-factor (in Amp and Watt)		
Bus health tester (Fluke 125B o	nly)		
Туре	Subtype	Protocol	
AS-i	NEN-EN50295		
CAN	ISO-11898		
Interbus S	RS-422	EIA-422	
Modbus	RS-232	RS-232/EIA-232	
	RS-485	RS-485/EIA-485	
Foundation Fieldbus	H1	61158 type 1, 31.25 kBit	
Profibus	DP	EIA-485	
	РА	61158 type 1	
RS-232	EIA-232		
RS-485	EIA-485		
Miscellaneous			
Display	Туре	5.7-inch color active matrix TFT	
	Resolution	640 x 480 pixels	
Waveform Display	Vertical	10 div of 40 pixels	
	Horizontal	12 div of 40 pixels	
Power	External	via Power Adapter BC430	
	Input voltage	10 V DC to 21 V DC	
	Power consumption	5 W typical	
	Input connector	5 mm jack	
	Internal	via Battery Pack BP290	
	Battery power	Rechargeable Li-Ion 10.8 V	
	Operating time	7 hours with 50 % backlight brightness	
	Charging time	4 hours with test tool off.	
		7 hours with test tool on	
	Allowable ambient temp	0 to 40 °C (32 to 104 °F) during charging	
Memory	Internal memory can store 20 data sets (screen waveform and setup)	Micro SD card slot with optional SD card (max size of 32 GB)	
Mechanical	Size	259 mm x 132 mm x 55 mm (10.2 in x5.2 in x 2.15 in)	
	Weight	1.4 kg (3.2 lb) including battery pack	
Interface	Optically isolated	Transfer screen copies (bitmaps), settings and data	
	USB to PC/laptop	OC4USB optically isolated USB adapter/cable, (optional), using FlukeView [®] software for Windows [®] .	
	Optional WiFi adapter	Fast transfer of screen copies (bitmaps), settings and data to PC/laptop, tablet, smartphone, etc. A USB port is provided for attaching the WiFi dongle. Do not use the USB port with a cable for safety reasons.	
Environmental			

Environmental

MIL-PRF-28800F, Class 2



Temperature	Battery Operation	0 to 40 °C (32 to 104 °F)	
	Power Adapter Operation	0 to 50 °C (32 to 122 °F)	
	Storage	-20 to 60 °C (-4 to 140 °F)	
Humidity (Operating)	@ 0 to 10 °C (32 to 50 °F)	noncondensing	
_	@ 10 to 30 °C (50 to 86 °F)	95 %	
	@ 30 to 40 °C (86 to 104 °F)	75 %	
	@ 40 to 50 °C (104 to 122 °F)	45 %	
Storage	@ -20 to 60 °C (-4 to 140 °F)	noncondensing	
Altitude	Operating at 3 km (10 000 feet)	CAT III 600 V	
	Operating at 2 km (6 600 feet)	CAT IV 600 V	
	Storage	12 km (40 000 feet)	
EMC electromagnetic compatibility	International	IEC 61326-1: Industrial, CISPR 11: Group 1, Class A	
	Korea (KCC)	Class A Equipment (Industrial Broadcasting & Communication Equipment)	
	USA (FCC)	47 CFR 15 subpart B. This product is considered an exempt device per clause 15.103.	
Wireless radio with adapter	Frequency range	2412 MHz to 2462 MHz	
	Output power	<100 mW	
Enclosure protection	IP51, ref: EN/IEC60529		
Safety	General	IEC 61010-1: Pollution Degree 2	
	Measurement	IEC 61010-2-033: CAT IV 600 V/CAT III 750 V	
Max. input voltage input A and B	Direct on input or with leads	600 Vrms CAT IV for derating	
	With Banana-to BNC Adapter BB120	600 Vrms for derating	
	Max. floating voltage from any terminal to ground	600 Vrms CAT IV, 750 Vrms up to 400 Hz	

	Fluke 123B	Fluke 124B	Fluke 125B
Functions			
Full function dual input scope and meter	•	•	•
Oscilloscope bandwidth MHz	20	40	40
Meter and Scope Recorder	•	•	•
Scope cursor measurements		•	•
Power and harmonics measurements			•
Bus health			•
Included accessories			
10:1 voltage probe		•	•
i400S AC Current Clamp			•



Ordering information

Fluke-123B Industrial ScopeMeter® Hand Held Oscilloscope (20 MHz)

Fluke-123B/S Industrial ScopeMeter[®] Hand Held Oscilloscope (20 MHz)*

Fluke-124B Industrial ScopeMeter® Hand Held Oscilloscope (40 MHz)

Fluke-124B/S Industrial ScopeMeter® Hand Held Oscilloscope (40MHz)*

Fluke-125B Industrial ScopeMeter® Hand Held Oscilloscope (40MHz)

Fluke-125B/S Industrial ScopeMeter® Hand Held Oscilloscope (40MHz)*

Includes: Li-Ion battery pack, charger/power adapter, 2 shielded test leads with ground leads, black test lead, red and blue hook clips, banana to BNC adapter, and WiFi USB adapter**

*Fluke 120B/S versions also include soft carry case, FlukeView™ for Windows® software, magnetic hanger, and screen protector.

**WiFi USB adapter NOT available in all countries. Check with your local Fluke representative.

STL120-IV Shielded Test Lead Set 600 V CAT IV **HC120-II** Set of 2 hook clips

BB120-II Set of 2 banana to BNC adapter **VPS41** Voltage probe set 40MHz 600 V CAT IV **C120B** Soft Carrying Case For 120B Series **SP120B** Screen Protector For 120B Series **SCC120B** Accessory Kit 120B Series **OC4USB** Fluke OC4USB USB Interface Cable

Fluke 80i 110s Fluke 80i-110s AC/DC Current Clamp

Fluke i1000s Fluke i1000s AC Current Probe Fluke i1010 Fluke i1010 AC/DC Current Clamp Fluke i200s Fluke i200s AC Current Clamp Fluke i3000s Flex 24 Fluke i3000s Flex-24 AC Current Clamp, 610 mm (24 in.) Fluke i3000s Flex 36 Fluke i3000s Flex-36 AC Current Clamp, 915 mm (36 in.) Fluke i30s Fluke i30s AC/DC Current Clamp Fluke-i310s Fluke i310s Current Probe Fluke i400s Fluke i400s AC Current Clamp Fluke i410 Fluke i410 AC/DC Current Clamp Fluke i55 Fluke i55 AC Current Clamp



FLUKE CONNECT

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