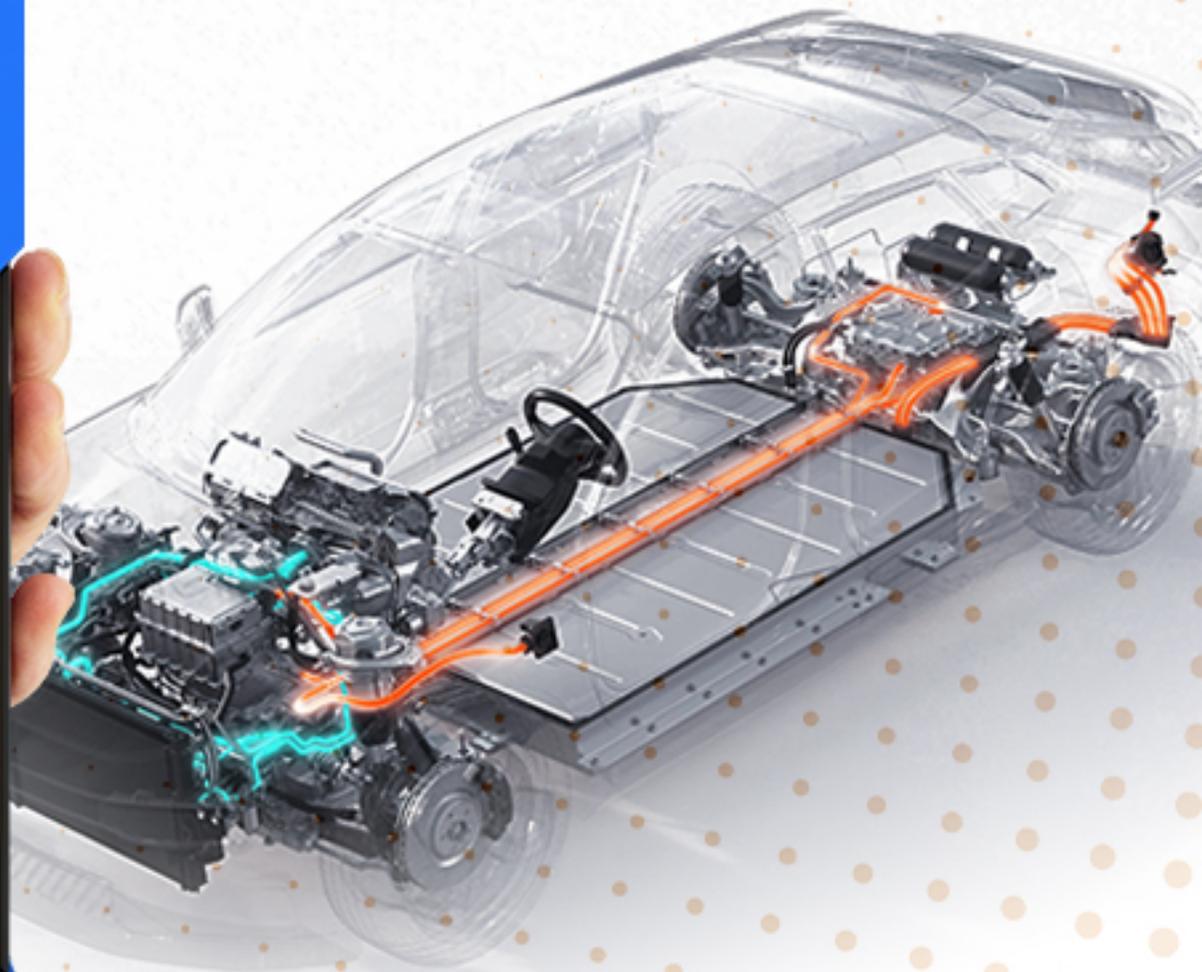


HDS2102A

Automotive Diagnostic Oscilloscope

Professional · Efficient · Portable



2CH
Channel

100MHz
Bandwidth

500MSa/s
Sampling Rate

4 1/2 Digit
Multimeter

Core Advantages

Just What You Need!



HDS2102A

3 in 1



(Oscilloscope+Automotive Diagnostics+Multimeter)

Other

2 in 1

(Oscilloscope+Automotive Diagnostics)

Function

Display

Automotive Diagnostics

Cursor Measurement

X-Y Mode

Auto Measurement

Multimeter

True RMS

Battery

Interface

3.5-inch LCD

6 Categories of Automotive Waveform Library/Custom Waveforms

✓

✓

✓

20,000 Count High-Precision

✓

18650 Lithium Battery

Type-C

2.8-inch Screen

Limited Automotive Waveform Library

×

×

×

×

×

×

×



2CH Oscilloscope Functionality

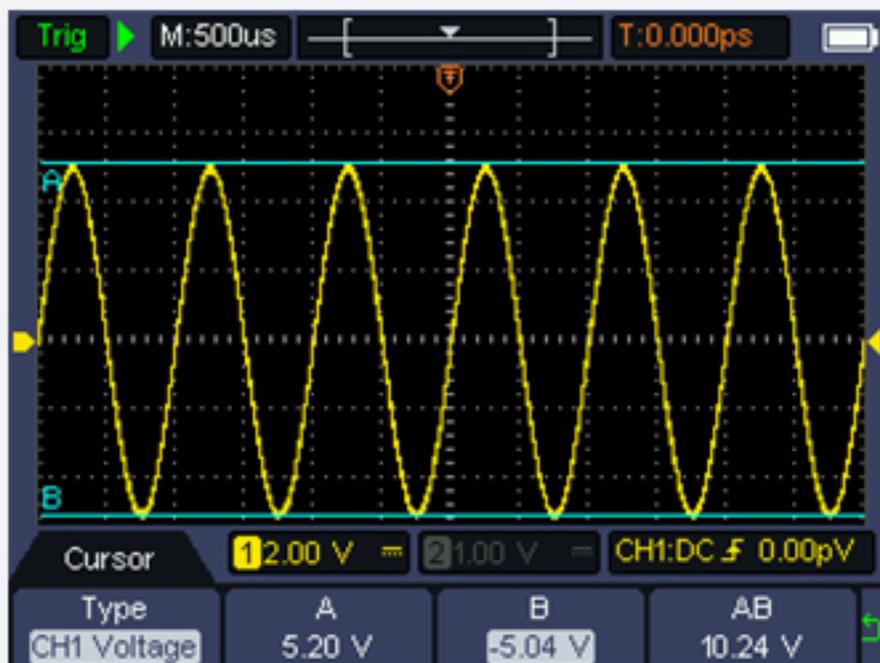
Engineered to capture fast transients and elusive faults in automotive electronics — a professional tool for diagnosing bus and sensor issues.



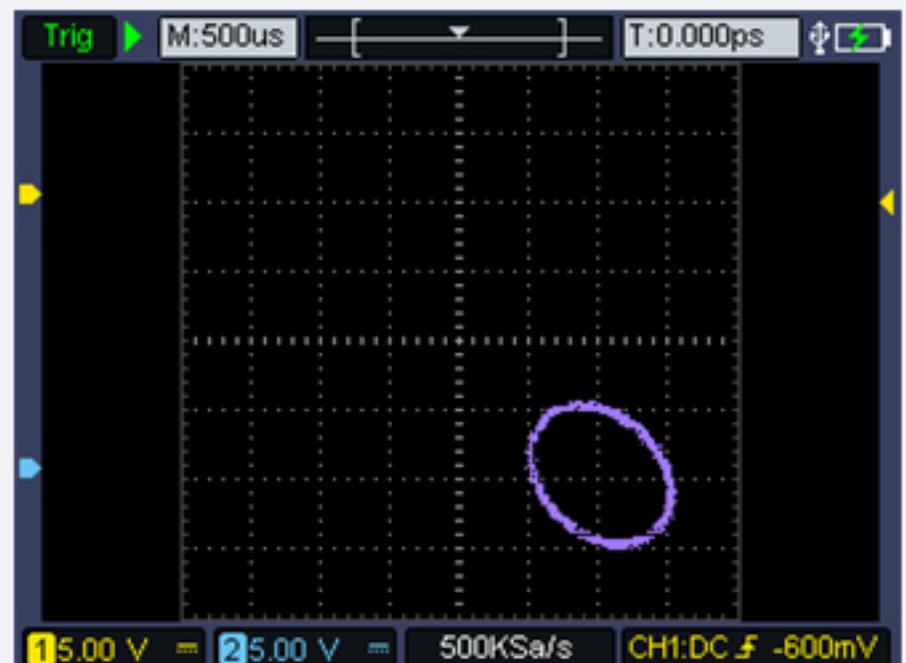
- ✓ 100MHz Bandwidth
- ✓ 500MSa/s Real-Time Sampling Rate
- ✓ 10,000wfms/s Waveform Refresh Rate



Cursor measurement function



X-Y function

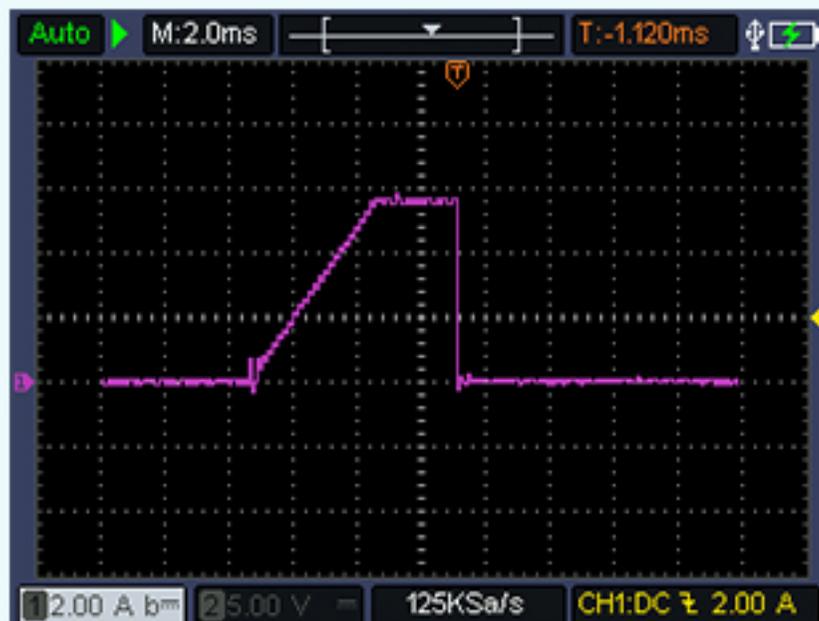
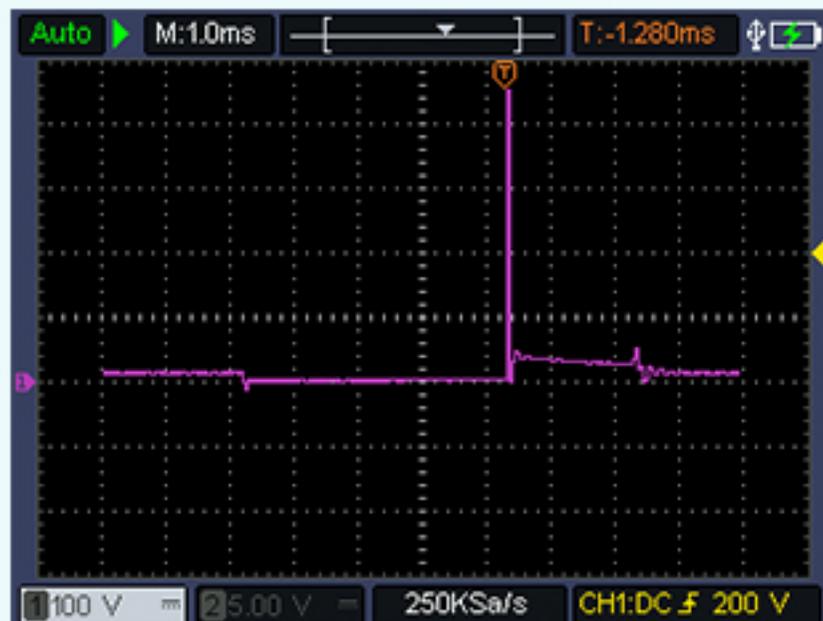


Expert Automotive Diagnostics, Fast Fault Detection

With six built-in categories of automotive waveform libraries and support for custom waveforms, you can perform real-time comparisons to swiftly and accurately locate faults.

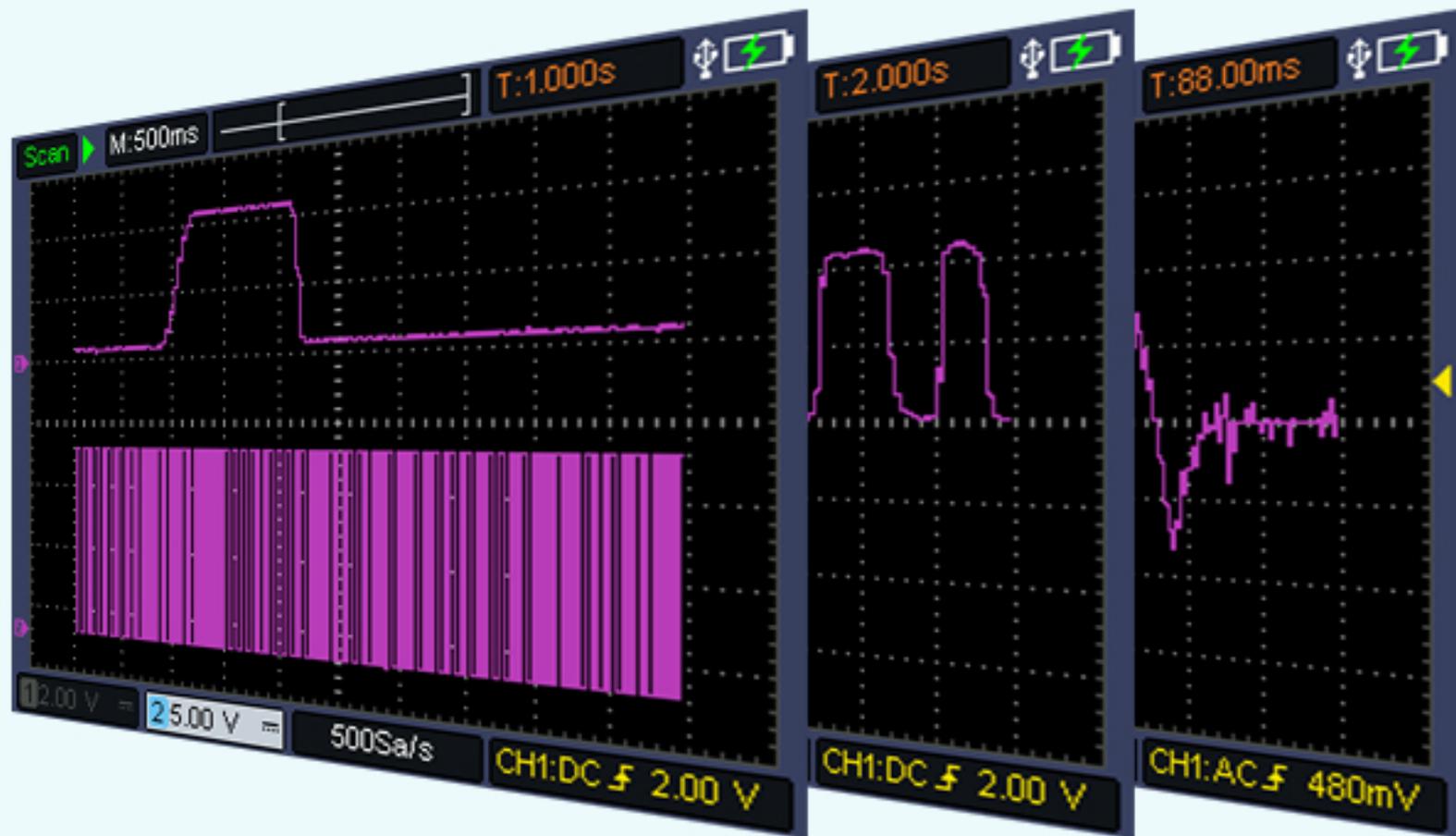
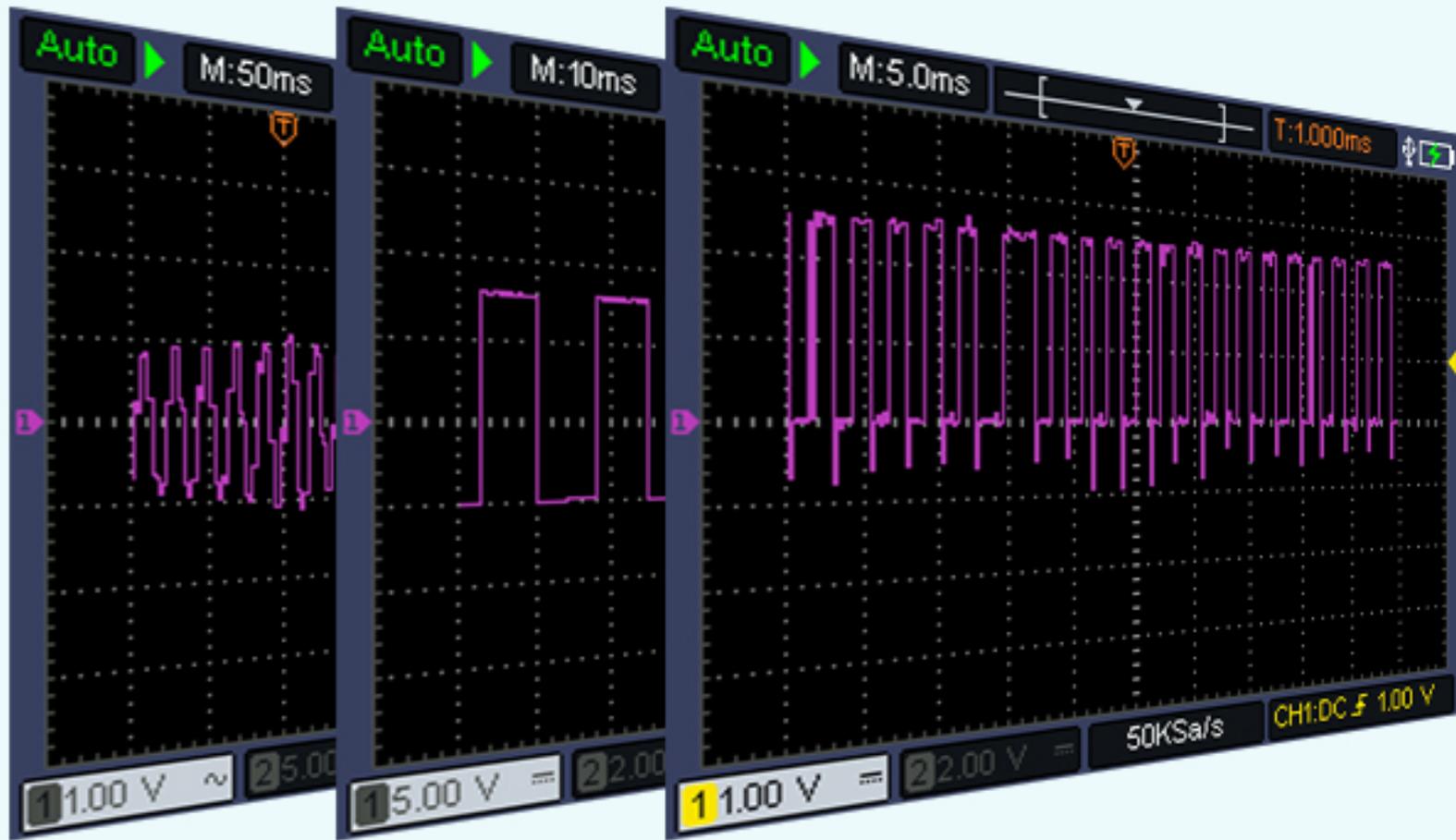
Engine Ignition Testing

Comprehensively tests primary and secondary coil voltage, current, and trigger feedback signals in distributor-less and Independent ignition systems, helping users identify potential faults with precision.



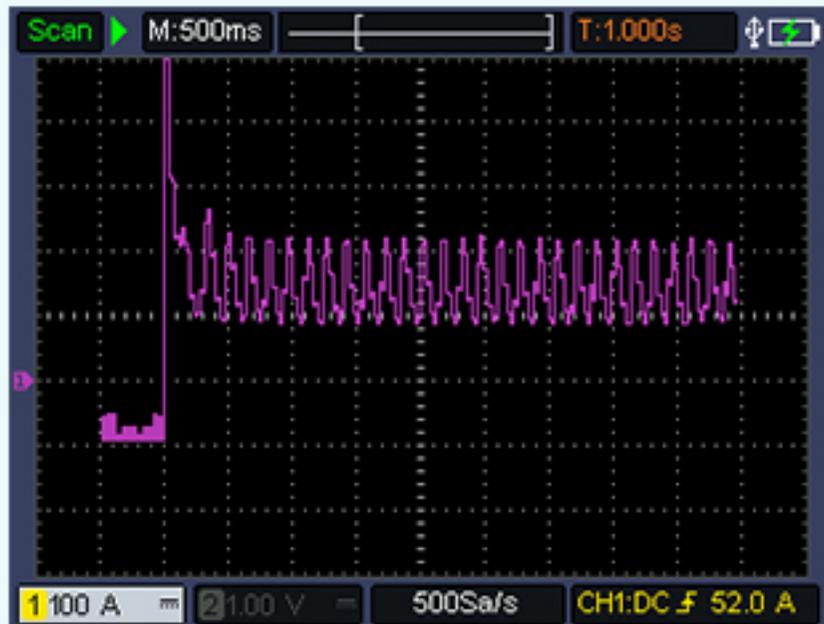
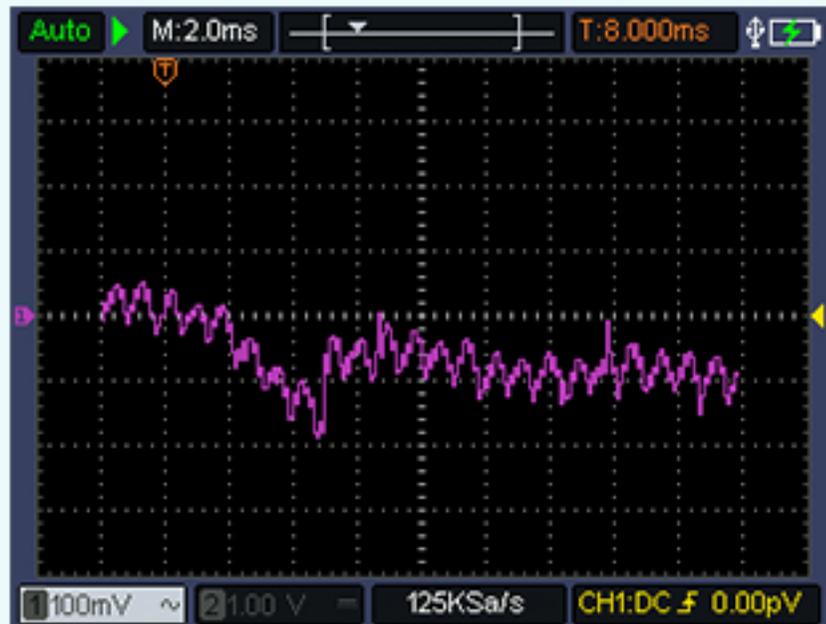
Comprehensive Sensor Testing

Supports diagnostics for ABS, throttle, crankshaft, camshaft, knock, O2 sensors, and more, covering all major automotive systems.



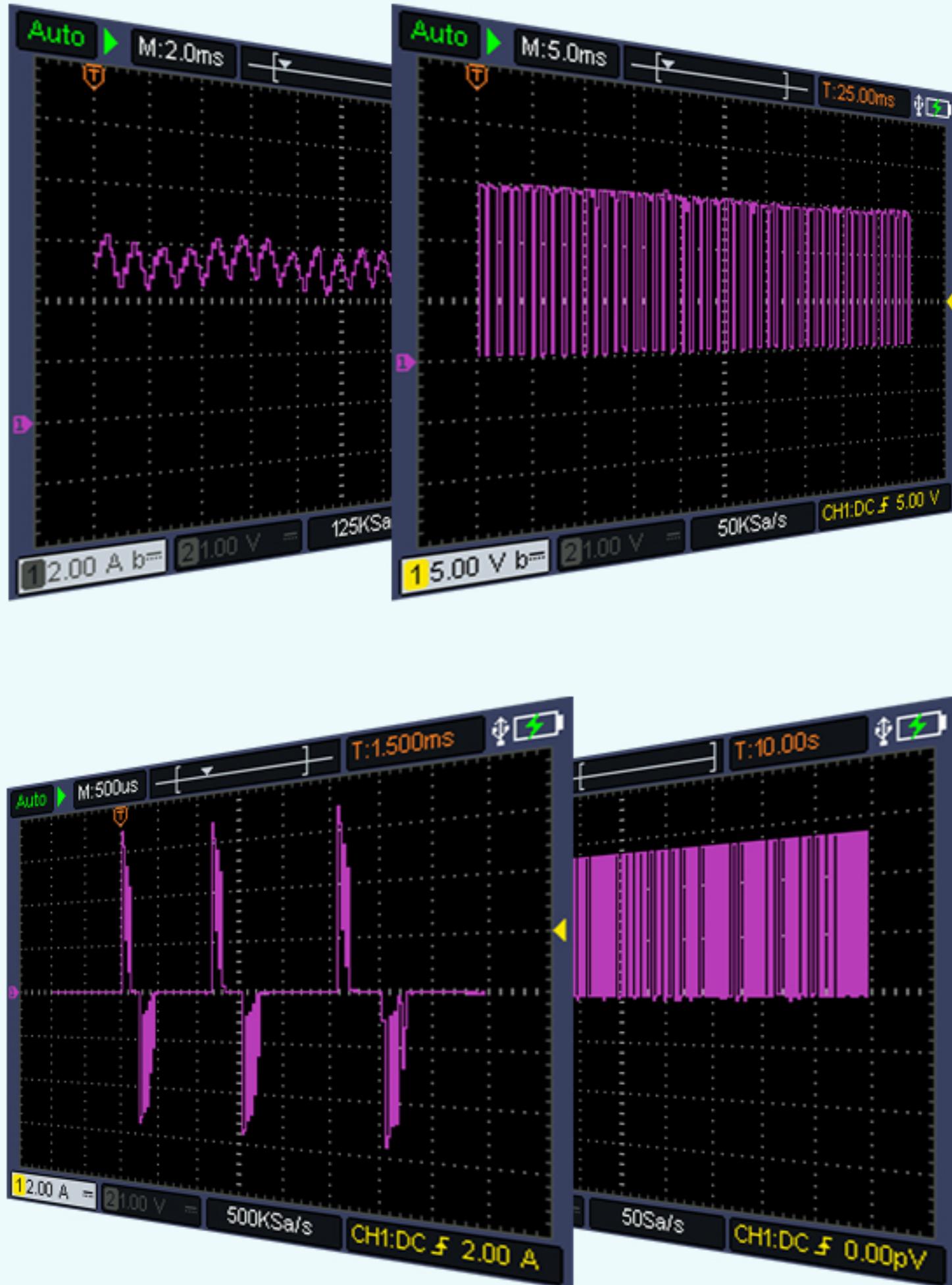
Starting & Charging Test

Check operating status during cranking and monitor ripple, voltage, and current in 12V/24V charging systems.



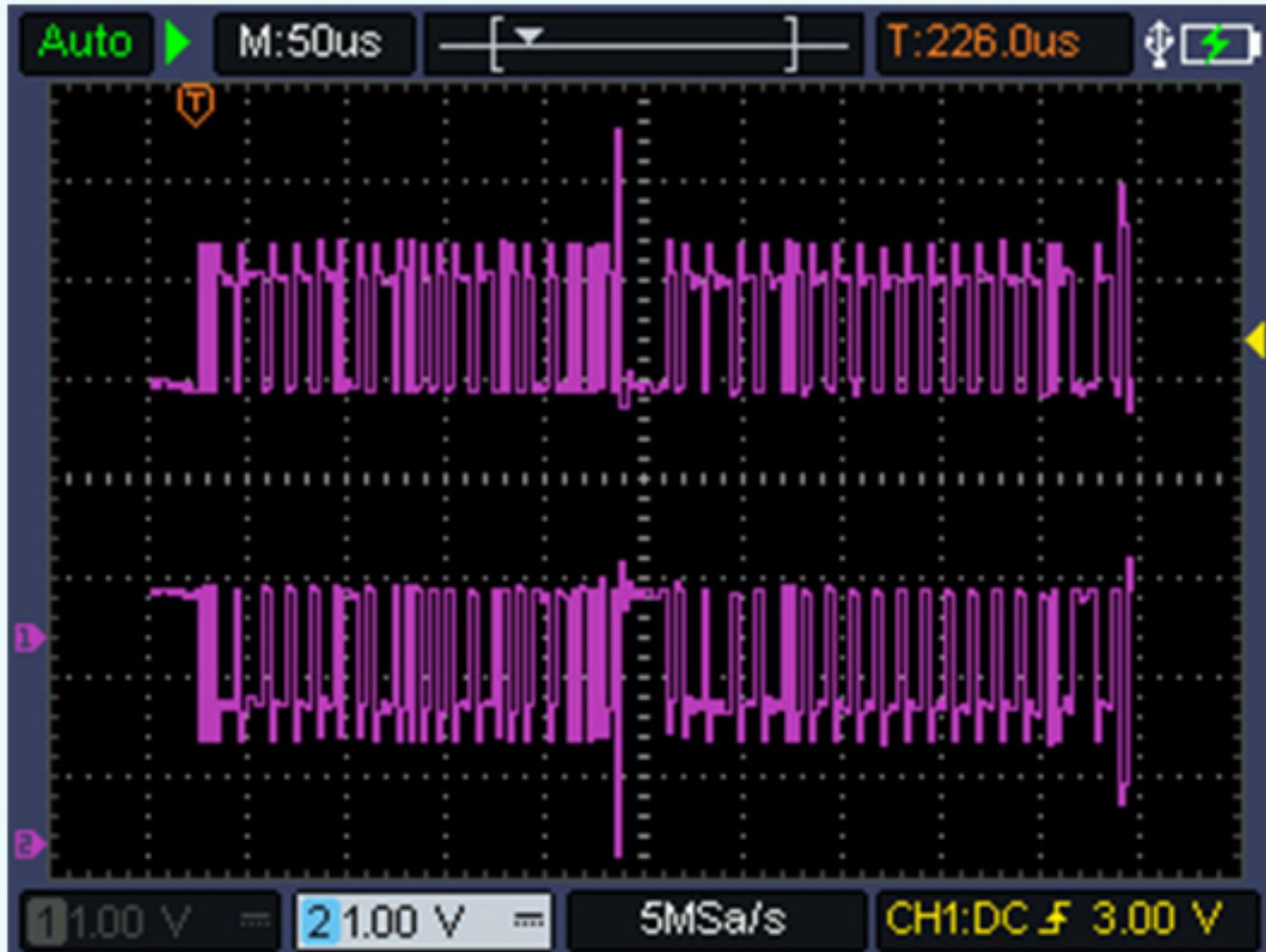
Comprehensive Engine Test

Supports testing of various Engine including injectors, glow plugs, fuel pumps current, pressure control valves, purge solenoids voltage, and variable speed cooling fans, EGR solenoid, and quantity control valves.



Bus Diagnostics

Compatible with FlexRay, K-Line, LIN, and CAN protocols for automotive communication diagnostics.





4½ True RMS Multimeter

Maximum Input Voltage: AC 750V, DC 1000V





Waveform Details Clearly Visible

High Resolution, High Contrast LCD Display





Ultra-efficient Power Use

Equipped with a 18650 lithium battery, supports continuous operation for 3-6 hours. Compatible with Type-C charging and power bank supply.

26000 Extended
Endurance
mAh x2



Functional Area Annotation



Oscilloscope input terminal



Dimension



96mm * 198mm * 38mm (W*H*D)
Approx. 0.6 kg (main unit)

Specification

[Oscilloscope] Specifications

Bandwidth	100MHz	Channels	2-CH
Sample Rate	500MSa/s	Acquisition Model	Normal, Peak detect
Record Length	8k	Display	3.5-inch LCD
Waveform Refresh Rate	10,000wfms/s	Input Coupling	DC, AC, and Ground
Input Impedance	1MΩ ± 2%, in parallel with 16pF ± 10pF	Max. input Voltage	400V (DC+AC, PK-PK, 1MΩ input impedance) (10:1 probe attenuation)
Bandwidth Limit (typical)	20MHz	Probe Attenuation Factors	1X, 10X, 100X, 1000X, 10000X
Vertical Resolution	8 bit	Horizontal Scale	5ns/div - 1000s/div, step by 1 - 2 - 5
Vertical Sensitivity	10mV/div - 10V/div	Trigger Type	Edge
Trigger Modes	Auto, Normal, single	Cursor Measurement	ΔV, ΔT, ΔT&ΔV between cursors
Automatic Measurement	Frequency, Period, Amplitude, Max, Min, Mean, PK-PK	Communication Interface	USB Type-C

[Multimeter] Specifications

Max. Resolution	20,000 counts	Diode	0 - 2V	Input Impedance	10MΩ
Max Input Voltage	AC:750V DC:1000V	Max Input Current	AC:10A DC:10A		
Testing Mode	Voltage, Current, Resistance, Capacitance, Diode, and Continuity test				

[Vehicle Diagnosis] Specifications

Test Items				
Ignition	Independent Ignition System	Primary Voltage / Primary Voltage&Current / Primary&Secondary Voltage / Trigger&Feedback		
	Distributorless System	Primary Current / Primary Voltage / Primary Voltage&Current / Primary&Secondary Voltage/ Sec DIS(Negative-fired) / Sec DIS(Positive-fired)		
Sensors	Accelerator Pedal	Digital Signal / Analog Signal		
	Crankshaft	Inductive Type	During cranking (floating ground)	
			During cranking (non-floating ground)	
			During operation (floating)	
			During operation (non-floating)	
		Hall Effect Type		
	ABS	Inductive Type / Reluctance Type / Hall Effect Type		
	Camshaft	Inductive Type / Hall Effect Type		
	Lambda	Sensor Titania / Sensor Zirconia		
	MAP	Digital(Fuel) / Simulated Turbocharging(Diesel) / Analog(Fuel) / Pressure & temperature (Turbocharged diesel engine)		
	Throttle Position	Switch / Potentiometer		
		Knock Sensor		
	Coolant Temperature (5V)			
	Common Rail Diesel			
	Road Speed Sensor			
Bus Diagnosis	Physical Layer	FlexRay-P / FlexRay-N / K-line / LIN / CAN		
Engine	Injector Diagnosis	Diesel	Piezo Injector Current (Bosch Common Rail)	
			Solenoid Injector Current (Bosch Common Rail)	
		Petrol	Multi-Point Injection / Gasoline Direct Injection	
	Glow Plugs (Diesel)	Individual Voltage / Individual Voltage & Current /Current		
	Fuel Pump Current			
	Pressure Control Valve (Bosch Common Rail Diesel)			
	Purge Solenoid Voltage			
	Variable Speed Cooling Fan			
	EGR Solenoid			
	Quantity Control Valve (Bosch Common Rail Diesel)			
Charge & Startup	Charging Circuits	Alternator AC Ripple		
		Alternator Voltage&Current		
		Parasitic Drain Current		
	Starting Circuits	Relative Cylinder Compression Pressure	Diesel Engine / Gasoline Engine	

HDS2102A-2



HDS2102A-3



Comparison table of package configurations

HDS2102A-1



HDS2102A-2



HDS2102A-3



Accessories	HDS2102A-1	HDS2102A-2	HDS2102A-3
USB Type-C Cable	1	1	1
Oscilloscope Probe	1	1	1
Multimeter Probe	1	1	1
BNC to Alligator Clip	1	1	1
20_1 Attenuator	1	2	2
Acupuncture Probe Set& Test Clip	1	1	1
Auto Ignition Probe	1	1	1
COP Extension Cord	1	1	1
Auto Test Leads	1	2	2
Alligator Clip Set	-	1	1
Automotive diagnostic leads	-	1	1
CP024 Probe	-	-	1
Instrument Case	1	1	1

Packing List

Main Unit



Oscilloscope Probe
(Order No.OW3100)



Multimeter Probe
(Order No.7MP101)



USB Type-C Cable
(Order No.7ULC08)



BNC to Alligator Clip
(Order No.7Lead-A05)



Soft Bag
(Order No.7BAG-A02)



20_1 Attenuator
(Order No.7ATT-A01)
(optional)



Alligator Clip Set
(Order No.7CP-A01)
(optional)



Acupuncture Probe Set &
Test Clip
(Order No.7CP-A02)
(optional)



Automotive diagnostic
leads (Order No.7Lead-A01)
(optional)



Auto Ignition Probe
(Order No.7Lead-A02)
(optional)



COP Extension Cord
(Order No.7Lead-A03)
(optional)



Auto Test Leads
(Order No.7Lead-A04)
(optional)



CP024 Probe
(Order No.8CP024)
(optional)



Instrument Case
(Order No.7BAG-A01)
(optional)

