MULTIMETER

CLAMP-ON CURRENT PROBE FOR TESTING DIRECT AND ALTERNATING CURRENTS UP TO A MAXIMUM OF 400 A, WITH RED/BLACK LEADS FOR CONNECTION TO AN MT 04, MT 07 OR MT 701 MULTITESTER

item number :
STZ 01 (041712)

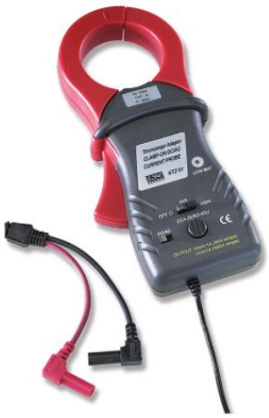
DESCRIPTION

- For the measurement of direct and alternating currents up to max. 400 A in connection with Multitester MT 07, MT 701 or MT 09
- Robust and ergonomic housing
- Opening width of the clamp-on current probe Ø 52 mm
- Technical data:
- Alternating current (AAC rms) 0–400 AAC rms (2 ranges, 40 AAC rms, 400 AAC rms)
- Direct current (ADC) 0–400 ADC (2 ranges, 40 ADC, 400 ADC)
- Max. Voltage in measuring circuit 600 V rms
- Max. Frequency 400 Hz Output in 40 A range 10 mV/1A / in 400 A range 1 mV/1A
- Accuracy ± (2% + 20 digits), 400 A (2% + 5 digits) @ 23° C ± 5 °C
- Battery 9 V block
- Dimensions 200 x 90 x 35 mm (L x W x D)
- Weight 450 g

SCOPE OF DELIVERY

- 1 clamp-on current probe
- 1 fexible connecting lead red/black, length 1.60 m (4.6 ft)

CLAMP-ON CURRENT PROBE FOR TESTING DIRECT AND ALTERNATING CURRENTS UP TO A MAXIMUM OF 1000 A, WITH RED/BLACK LEADS FOR CONNECTION TO AN MT 07, MT 701 OR MT 09 MULTITESTER



item number :
STZ 02 (041718)

DESCRIPTION

- For the measurement of direct and alternating currents up to max. 1000 A in connection with Multitester MT 07, MT 701 or MT 09
- Robust and ergonomic housing
- Opening width of the clamp-on current probe Ø 52 mm

SCOPE OF DELIVERY

- 1 clamp-on current probe
- 1 fexible connecting lead red/black, length 1.60 m (4.6 ft)

INSULATION RESISTANCE TESTER

item number :
MTi 801 (041710_1)

DESCRIPTION

- Portable, convenient and battery-powered multimeter for quick and easy voltage and resistance measurement, continuity test and insulation measurement
- The growing market for electric and hybrid vehicles means that even the most accurate measurements of resistance values are becoming increasingly important. The MTi 801 offers the perfect solution
- Accurate and reliable measurements
- Durable design (impact protection up to 3 m drop height)
- The bar graph shows the measurement result in the usual analogue look
- DMM functions (AC/DC, resistance and continuity)
- Safety: CAT III 1000 V and CAT IV 600 V
- Measurement option; Range; Resolution; Accuracy*+; Overload protection

DC voltage (AC) 400.0 mV; 0.1 mV; ±(1.0% + 8); 1000 Vrms

4.000 mV; 0.001 V; ±(1.0% + 8); 1000 Vrms
40.00 V; 0.01 V; ±(1.0% + 8); 1000 Vrms
400.0 V; 0.1 V; ±(1.0% + 8); 1000 Vrms
1000 V; 1 V; ±(1.0% + 8); 1000 Vrms

Input impedance (nominal) 10 MΩ, < 100 pF

Reaction mean effective value

- Measurement option; Range; Resolution; Accuracy*; Overload protection

DC voltage (DC) 400.0 mV; 0.1 mV; ±(0.8% + 10); 1000 Vrms
4.000 mV; 0.001 V; ±(0.8% + 10); 1000 Vrms
40.00 V; 0.01 V; ±(0.8% + 10); 1000 Vrms
400.0 V; 0.1 V; ±(0.8% + 10); 1000 Vrms
1000 V; 1 V; ±(0.8% + 10); 1000 Vrms

input impedance (nominal) 10 MΩ, < 100 pF

- Measurement option; Range; Resolution; Accuracy*; Overload protection

Resistance; 400.0 Ω; 0.1 Ω; ±(1.0% + 5); 400 Vrms
4.000 KΩ; 0.001 KΩ; ±(1.0% + 5); 400 Vrms
40.00 KΩ; 0.01 KΩ; ±(1.0% + 5); 400 Vrms
400.0 KΩ; 0.1 KΩ; ±(1.0% + 5); 400 Vrms
4.000 MΩ; 0.001 MΩ; ±(1.0% + 5); 400 Vrms
40.00 MΩ; 0.01 MΩ; ±(1.5% + 10); 400 Vrms

input impedance (nominal) 10 MΩ, < 100 pF

- Measurement option; Output voltage; Display range; Resolution; Test current; Accuracy*

Insulation test
100 V; 0.01 ~ 20.00 MΩ; 0.01 MΩ; 0.5 mA @ 100 KΩ; (3% + 5)
100 V; 20 ~ 100 MΩ; 0.1 MΩ; 0.5 mA @ 100 KΩ; (3% + 5)
250 V; 0.01 ~ 20.00 MΩ; 0.01 MΩ; 0.5 mA @ 250 KΩ; (3% + 5)
250 V; 20.0 ~ 200.00 MΩ; 0.01 MΩ; 0.5 mA @ 250 KΩ; (3% + 5)
500 V; 0.01 ~ 20.00 MΩ; 0.01 MΩ; 0.5 mA @ 500 KΩ; (3% + 5)
500 V; 20.0 ~ 200.0 MΩ; 0.1 MΩ; 0.5 mA @ 500 KΩ; (3% + 5)
500 V; 200 ~ 500 MΩ; 1 MΩ; 0.5 mA @ 500 KΩ; (5% + 5)
1000 V; 0.01 ~ 20.00 MΩ; 0.01 MΩ; 0.5 mA @ 1 MΩ; (3% + 5)
1000 V; 20.0 ~ 200.0 MΩ; 0.1 MΩ; 0.5 mA @ 1 MΩ; (3% + 5)
1000 V; 200 ~ 2000 MΩ; 1 MΩ; 0.5 mA @ 500 KΩ; (5% + 5)

Short-circuit test current (nominal) 0.5 mA

Automatic discharge/discharge time <1 sec. for C ≤ 1 uF

Minimum of measurement 0.1 MΩ

- Measurement option; Overload protection; Open circuit voltage: Responding value;

Continuity test 400 Vrms; < 0.44 V; < 40 Ω

* The accuracy is specified with ± (% of the measured value + counter lowest digit) at 23 °C ± 5 °C, with a relative humidity below 80%. 50 Hz ~ 60 Hz

- Dimensions: 178 x 89 x 48 mm
- Weight. 425 g
- Battery: 6x AAA batteries (NEDA 24 A or IEC LR03)

MULTIMETER IN SHOCK PROTECTED THERMOPLASTIC CASE WITH ROTARY SWITCH, 3 1/2” ILLUMINATED DIGITAL DISPLAY

item number :
MT 701 (041716_1)

DESCRIPTION

- Professional multimeter for car and commercial vehicle electrics and electronics
- Automatic polarity display and optical signal for overload and acoustic signal for continuity test
- With measurement value storage
- With additional possibility to connect the clamp-on current probe STZ 01, 0...400 A or STZ 02, 0...1000 A.
- Specifications:
- Direct voltage (DC): 0 to 1000 V
- Alternating voltage (AC): 0 to 1000 V (40 Hz to 400 Hz)
- Accuracy: Direct voltage (DC) -0.5% / Alternating voltage (AC) -0.75%
- Direct current (DC): 0 to 10 A (20 A for 30 seconds) Alternating current (AC): 0 to 10 A (20 A for 30 seconds)
- Resistance (Ohm): 0 to 40 MΩ Capacity: 0.01 nF to 100 uF Frequency: 0.5 Hz to 10 MHz
- Operating cycle: 0.1% to 99.9% at 0.5 Hz to 500kHz (for pulse width > 2usec.)
- Diode measurement: 2.5 V
- Continuity test: Acoustic signal at < 10 Ω (response time < 1ms)
- Dimensions: 40 mm x 92 mm x 172 mm
- Weight: 386 g
- Battery: 9 V block

SCOPE OF DELIVERY

- 1 multimeter
- 1 test lead set red/black

SPARE PARTS

- ET 331 (121347) fuse for MT 701, 400 mA/1000 V
- ET 332 (121348) fuse for MT 701, 11 A/1000 V
- ET 247 (120426) test lead set

TABLE

Testing capability	Range	Accuracy	Resolution
Direct voltage (DC)	0 mV...1000 V	± 0.5% + 2 dig.	0.1 mV
Alternating voltage (AC)	0 mV...1000 V (40...400 Hz)	± 0.75% + 3 dig.	0.1 mV
Direct current (DC)	0 µA...10 A	± 1.0% + 2 dig.	0.1 µA
Alternating current (AC)	0 µA...10 A	± 1.0% + 5 dig.	0.1 µA
Resistance	0...10 MOhm	± 0.5% + 3 dig.	0.1 Ohm
Capacity	0.01 nF...100 µF	± 2.5% + 10 dig.	1 pF

Testing capability	Range	Accuracy	Resolution
Frequency	0.5 Hz...10 MHz	± 0.02% + 2 dig.	0.001 Hz
Continuity test	X		
Diode test	X		
IEC 1010 CAT. lll	1000 V		

MULTIMETER IN RUBBER-PROTECTED PLASTIC CASE, WITH ROTARY SWITCH, 3 1/2 DIGIT DISPLAY

item number :
MT 07 (041708)

DESCRIPTION

- Professional multimeter for car and commercial vehicle electrics and electronics
- Automatic polarity display and optical signal for overload and acoustic signal for continuity test
- With measurement value storage
- Diode test: test voltage < 3 V, short circuit current 1 mA
- Continuity test: 150 Ohm or less
- Technical data:

measuring options
DC voltage (DC); Range, accuracy; Resolution
200 mV; ± 0.5% rdg + 1 dig; 100 µV
2 V; ± 0.5% rdg + 1 dig.; 1 mV
20 V; ± 0.5% rdg + 1 dig.; 10 mV
200 V ± 0.5% rdg + 1 dig.; 100 mV
1000 V; ± 0.5% rdg + 1 dig.; 1 V

Alternating current (AC); Range, accuracy; Resolution
200 mV; ± 0.8% + 3 dig.; 100 µV
2 V; ± 0.8% + 3 dig.; 1 mV
20 V; ± 0.8% + 3 dig.; 10 mV
200 V; ± 0.8% + 3 dig.; 100 mV
750 V; ± 1.2% + 3 dig.; 1 V

Direct current (DC); Range, accuracy; Resolution
200 µA; ± 0.8% + 1 dig.; 0.1 µA
2 mA; ± 0.8% + 1 dig.; 1 µA
20 mA; ± 0.8% + 1 dig.; 10 µA
200 mA; ± 0.8% + 1 dig.; 100 µA
2 A; ± 0.8% + 1 dig.; 1 mA
10 A; ± 2% + 10 dig.;10 mA

Alternating current (AC); Range, accuracy; Resolution
200 µA; ± 1.0% + 3 dig.; 0.1 µA
2 mA; ± 1.0% + 3 dig.; 1 µA

20 mA; ± 1.0% + 3 dig.; 10 µA
200 mA; ± 1.0% + 3 dig.; 100 µA
2 A; ± 1.0% + 3 dig.; 1 mA
10 A; ± 3% + 10 dig.; 10 mA

Resistance; Range, accuracy; Resolution
200 Ohm; ± 0.5% + 3 dig.; 0.1 Ohm
2 kOhm; ± 0.5% + 1 dig.; 1 Ohm
20 kOhm; ± 0.5% + 1 dig.; 10 Ohm
200 kOhm; ± 0.5% + 1 dig.; 100 kOhm
2 MOhm; ± 0.5% + 1 dig.; 1 kOhm 20 MOhm ± 1% + 2 dig. 10 kOhm

Diode test: test voltage (open) < 3 V Short-circuit current approx. 1 mA
Continuity test: 150 Ohm or less

- Dimensions: 47 mm x 100 mm x 203 mm
- Weight: 610 g
- Battery: 9V, NEDA 1604 or 6F22 or 006P
- Safety: Protection class II according to 1010-1

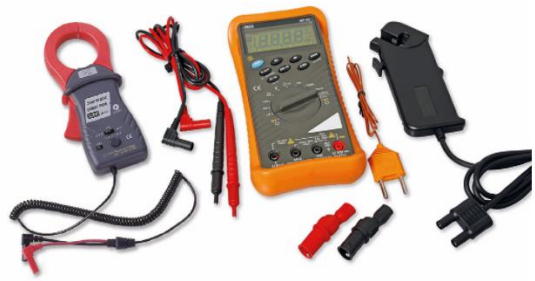
SCOPE OF DELIVERY

- 1 multimeter MT 07
- 1 test lead set red/black

TABLE

Testing capability	**Range**	**Accuracy**	**Resolution**
Direct voltage (DC)	200 mV		100 µV
	2 V		1 mV
	200 V		100 mv
	1 kV		1 V
Alternating voltage (AC)	200 mV		100 µV
	2 V	± 0.8% + 3 dig.	1 mV
	20 V		10 mV
	200 V		100 mV
	750 V	± 1.2% + 3 dig.	1 V
Direct current (DC)	200 µA		0.1 µA
	2 mA		1 µA
	20 mA	± 0.8% + 1 dig.	10 µA
	200 mA		100 µA
	2 A		1 mA
	10 A	± 2% + 10 dig.	10 mA
Alternating Current (AC)	200 µA		0.1 µA
	2 mA		1 µA
	20 mA	± 1.0 + 3 dig.	10 µA
	200 mA		100 µA
	2 A		1 mA
	10 A	± 3% + 10 dig.	10 mA
Resistance	200 Ohm		0.1 Ohm
	2 kOhm		1 Ohm
	20 kOhm	± 0.5% + 1 dig.	10 Ohm
	200 kOhm		100 kOhm
	2 MOhm		1 kOhm
	20 MOhm	± 1% + 2 dig.	10 kOhm

UNIVERSAL MULTITESTER MT 09 INCL. SUPPLEMENTARY CLAMP-ON CURRENT PROBE STZ 01, 0...400 A.



item number :
MT 092 (041721_1)

DESCRIPTION

- Professional universal multitester with clamp-on current probe 0...400 A, ideal for car and commercial vehicle electrics and electronics
- Multitester description:
- Digital, 4-digit LCD display and additional bar display
- Overload protection with optical and acoustic signal. Automatic switch-off after 30 minutes
- Basic functions for the rotary switch:
- DC and AC current measurement, DC and AC voltage measurement, resistance measurement, continuity test, diode test, temperature measurement, speed and frequency, etc.
- Button functions:
- Hold = measurement value storage
- REC = maximum, minimum and average value measurement
- REL = relative measurement
- RANGE = range (+/-), trigger cylinder cycles
- % DUTY = pulse duty factor
- DWL = closing angle, continuity measurement
- DC/AC = switching between AC and DC or °F and °C
- % duty cycle 0.9 - 99.9% (30 RPM -19.999 RPM, pulse range > 2µs)
- Closing angle 0.0 - 356.4° (30 RPM - 19.999 RPM, pulse range > 2µs)
- Pulse ranges 0.002 - 199.9 ms (30 RPM - 19.999 RPM, pulse range > 2µs)
- Continuous test 1.2 V - Diode test max. 2.5 mA - Meter sensitivity 150 mV
- Technical data:

Measurement options;
DC voltage (DC V); Range; Resolution; Accuracy; Input impedance
4 V; 1 mV; ±(0.3% + 2 dig.); approx. 11 MΩ
40 V; 10 mV; ±(0.3% + 2 dig.); approx. 10 MΩ
400 V; 0.1 V; ±(0.75% + 3 dig.); approx. 10 MΩ
1000 V; 1 V; ±(0.75% + 2 dig.); approx. 11 MΩ

- DC voltage (DC mV); Range; Resolution; Accuracy; Input impedance
400 mV; 0.1 mV; ±(0.3 % + 2 dig.); >100 MΩ
- AC voltage (AC V [45 Hz to 1 KHz]); Range; Resolution; Accuracy; Input impedance
4 V; 1 mV; 50 Hz - 60 Hz ±(0.75 % + 3 dig.) / 45 Hz - 1 KHz ±(2.5% + 5 dig.); approx. 11 MΩ
40 V; 10 mV; 50 Hz - 60 Hz ±(0.75 % + 3 dig.) / 45 Hz - 1 KHz ±(2.5% + 5 dig.); approx. 10 MΩ
400 V; 0.1 V; 50 Hz - 60 Hz ±(0.75 % + 3 dig.) / 45 Hz - 1 KHz ±(2.5% + 5 dig.); approx. 10 MΩ
750 V; 1 V; 50 Hz - 60 Hz ±(0.75 % + 3 dig.) / 45 Hz - 1 KHz ±(2.5% + 5 dig.); approx. 10 MΩ
- AC voltage (AC A [45 Hz to 1 KHz]); Range; Resolution; Accuracy; Input impedance
400 µA; 0.1 µA; ±(0.5% + 1 dig.);100 µV/µA
4000 µA; 1 µA; ±(0.5% + 1 dig.);100 µV/µA

40 mA; 0.01 mA; ±(0.5% + 1 dig.);1.2 mV/mA
400 mA; 0.1 mA; ±(0.5% + 1 dig.);1.2 mV/mA
4 A; 0.001 A; ±(1.0% + 5 dig.); 75 mV/A

- Direct current (DC A); Range; Resolution; Accuracy; Input impedance

10 A; 0.01 mA; ±(1.0% + 5 dig.); 75 mV/A
400 µA; 0.1 µA; ±(1.0% + 5 dig.); 100 µV/mA
4000 µA; 1 µA; ±(1.0% + 5 dig.); 1.2 mV/mA
40 mA; 0.01 mA; ±(1.0% + 5 dig.); 1.2 mV/mA
400 mA; 0.1 mA; ±(1.0% + 5 dig.); 1.2 mV/mA
4 A; 0.001 A; ±(1.0% + 5 dig.); 75 mV/A
10 A; 0.01 A; ±(1.0% + 5 dig.); 75 mV/A

- Resistance (Ohm); Range; Resolution; Accuracy; Input impedance

400 Ω; 0.1 Ω; ±(0.5% + 10 dig.); <1.2 V
4 KΩ; 1 Ω; ±(0.5% + 3 dig.); <1.2 V
40 KΩ; 10 Ω; ±(0.5% + 3 dig.); <1.2 V
400 KΩ; 1 KΩ; ±(0.5% + 3 dig.); <1.2 V
4 MΩ; 1 KΩ; ±(0.5% + 3 dig.); <1.2 V
40 MΩ; 10 KΩ; ±(1.5% + 10 dig.); <1.2 V

- Continuity test; Test voltage < 1.2 V
- Diode test; Test voltage < 3 V; Max. test current 2.5 mA
- % duty cycle 0.9 - 99.9% (30 RPM -19.999 RPM, pulse range > 2µs)

Closing angle 0.0 - 356.4° (30 RPM - 19.999 RPM, pulse range > 2 µs)
Pulse ranges 0.002 - 199.9 ms (30 RPM - 19.999 RPM, pulse range > 2 µs)
Continuous test 1.2 V - Diode test max. 2.5 mA - Meter sensitivity 150 mV

- Dimensions: 54 x 103 x 208 mm
- Weight: 622 g
- Battery: 9 V block
- Description of clamp-on current probe:
- For the measurement of direct and alternating currents up to max. 400 A in connection with Multitester MT 09.
- Robust and ergonomic housing
- Opening width of the clamp-on current probe Ø 52 mm
- Technical data:
- Alternating current (AAC rms) 0–400 AAC rms (2 ranges, 40 AAC rms, 400 AAC rms)
- Direct current (ADC) 0–400 ADC (2 ranges, 40 ADC, 400 ADC)
- Max. voltage in measuring circuit 600 V rms
- Max. frequency 400 Hz
- Output in 40 A range 10 mV/1A / in 400 A range 1 mV/1A
- Accuracy ± (2 % + 20 digits), 400 A (2 % + 5 digits) @ 23 °C ± 5 °C
- Battery 9 V block
- Dimensions: 200 x 90 x 35 mm (L x W x H)
- Weight 450 g

SCOPE OF DELIVERY

- 1 multitester MT 09
- 1 test lead set red/black
- 1 temperature sensor
- 1 inductive clamp
- 1 clamp current probe STZ 01 with flexible connecting lead red/black, length 1.60 m (4.6 ft)
- 1 solid plastic case

UNIVERSAL MULTITESTER IN SHOCK-PROTECTED THERMOPLASTIC CASE

item number :
MT 09 (041719_1)

DESCRIPTION

- Universal multitester in shock-protected thermoplastic case. 4 digit display and additional analogous meter. Overcharge protection with optical and acoustic signal. Automatic cut-off after 30 min.
- **Basic functions of the rotary switch**:
- measuring of temperature, diode test, continuity, resistance measurement, measuring voltage, measuring current, speed, phase, frequency, dwell angle.
- **Key functions**:
- Hold = storage of measurements
- REL = relative-measuring
- REC = measuring of the max., the min. and the average value
- ON/OFF = switch on/switch off
- RPM IG = speed measurement
- DWL = dwell relation, continuity
- % DUTY = choice of phase, frequency
- RANGE = measuring range (+) or (-), trigger slope, no. of cylinder
- Cycle (%) 0.9 - 99.9% (30 RPM -19.999 RPM, impulse > 2µs)
- Dwell degrees (°) 0.0 - 356.4° (30 RPM - 19.999 RPM, impulse > 2µs)
- Impulse 0,002 - 199.9 mS (30 RPM - 19.999 RPM, impulse > 2µs)
- Continuity 1.2 V - Diode test max. 2.5 mA - Counter sensitivity 150 mV

SCOPE OF DELIVERY

- 1 multitester
- 1 test lead set red/black
- 1 temperature sensor
- 1 solid plastic case

SPARE PARTS

- ET 198 (120419) protective case (rubber)
- ET 200 (120421) fuse, 2 A
- ET 201 (120422) fuse, 15 A
- ET 247 (120426) test lead set for MT 04/07, ø 4 mm
- ET 204 (120425) inductive clamp (speed measurement)
- ET 203 (120424) temperature sensor
- ET 271 (121167) set croko clamps black/red

TABLE

FUNCTION	RANGE	RESOLUTION	ACCURACY	INPUT IMPEDANCE
DC V	4 V	1 mV	±(0.3% + 2 dgts)	Approx. 11 MΩ
DC V	40 V	10 mV	±(0.3% + 2 dgts)	Approx. 10 MΩ
DC V	400 V	0.1 V	±(0.3% + 2 dgts)	Approx. 10 MΩ
DC V	1000 V	1 V	±(0.75% + 3 dgts)	Approx. 10 MΩ
DC mV	400 mV	0.1 mV	±(0.3% + 2 dgts)	> 100 MΩ

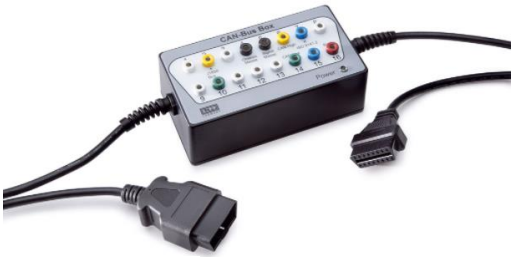
FUNCTION	RANGE	RESOLUTION	ACCURACY		INPUT IMPEDANCE
			50Hz - 60Hz	45Hz - 1KHz	
AC V (45Hz to 1KHz)	4 V 40 V 400 V	1mV 10mV 0.1 V	±(0.75% + 3 dgts)	±(2.5% + 5 dgts) ±(0.75% + 5 dgts)	Approx. 11 MΩ
	750 V	1 V			

FUNCTION	RANGE	RESOLUTION	ACCURACY	INPUT IMPEDANCE
DC A	400µA 4000µA 40mA 400mA	0.1µA 1µA 0.01mA 0.1mA	±(0.5% + 1 dgt)	100µV/µA 1.2mV/mA
	4A 10A	0.001A 0.01A	±(1.0% + 5 dgts)	75mV/A
AC A (45Hz to 1KHz)	400µA 4000µA 40mA 400mA 4A 10A	0.1µA 1µA 0.01mA 0.1mA 0.001A 0.01A	±(1.0% + 5 dgts)	100µV/mA 1.2mV/mA 75mV/A

FUNCTION	RANGE	RESOLUTION	ACCURACY	INPUT IMPEDANCE
Ohms	400Ω	0.1Ω	±(0.5% + 10 dgts)	< 1.2V
	4KΩ 40KΩ 400KΩ 4MΩ	1Ω 10Ω 0.1KΩ 1KΩ	±(0.5% + 3 dgts)	
	40MΩ	10KΩ	±(1.5% + 10 dgts)	
Continuity	Open Circuit Voltage: < 1.2V Threshold: Approx. < 100Ω			
Diode Check	Open Circuit Voltage: < 3V Max. Test Current: 2.5mA			

FUNCTION	RANGE	RESOLUTION	ACCURACY	INPUT IMPEDANCE

INTERFACE FOR TESTING CAN BUS SYSTEMS



item number :
CBB 01 (081004_1)

DESCRIPTION

- The "CBB 01" CAN bus breakout box is a mobile interface for testing the CAN bus system
- Easy access to all pins of the OBD breakout box to test or measure the existing signals through different end devices
- It offers the simultaneous connection of a multimeter or oscilloscope (to illustrate CAN high and CAN low signals) and an OBD end device
- Circuit, grounding, CAN bus signal quality, etc. can be checked.
- Quick test of vehicle electrical system and ground circuit
- Power supply via CAN bus interface; works without battery or power supply
- Simultaneous connection of other OBD tools possible
- OBD Connection Cable Length: 2.50m