Other instruments / adapters / accessories A 1632 eMobility Analyser



The A 1632 eMobility Analyser is a special accessory designed for diagnostic testing of Electric Vehicle Supply Equipment (EVSE) together with supported METREL testers. It supports verification of electrical safety and functional testing of Type 1 and/or Type 2 EVSE as well as testing of Mode 2 and Mode 3 electrical vehicle (EV) charging cables and communication monitoring between the charging station and the EV (simulated electric vehicle) during charging. It is also compatible with MESM software for station and cable-based professional reports

APPLICATION

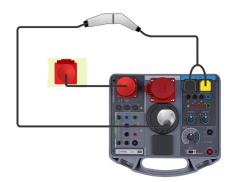
• EVSE functional and diagnostic testing according to EN 61851-1 and electrical safety testing according to EN 60364-6.



 Simulation of faults on mains for verification of Mode 2 electrical vehicle (EV) charging cable safety features.



- Electrical safety testing of 1-phase and 3-phase Mode 2 EV cables
- Electrical safety testing of Mode 3 EV cables.





COMPLETE EVSE TESTING

The combination of A 1632 eMobility Analyser or A 1532 EVSE adapter with Metrel's installation testers the MI 3155 EurotestXD or MI 3152 EurotestXC offers a complete solution for testing in circuits with a EV RCD or EV RCM 6 mA DC trip-out protection. It is possible to perform a compete RCD test sequence including the 6 mA DC ramp test and loop impedance (Zs rcd) measurement without tripping 6 mA DC EV RCD or EV RCM. This makes Metrel compliant with standards IEC 62572 (when Mode 2 EV cables are used) and EN 62955 (when Mode 3 cables are used).



TECHNICAL SPECIFICATION

Nominal system voltage range	Measurement functions		Measuring range	Resolution	Accuracy
Nominal frequency range					±2 % of reading + 2 dig)
Phase rotation	, , ,				
Voltage UCP+, UCP-	. , , ,				
Frequency				1 V	±(2 % of reading + 2 dig)
Duty cycle					
Evise					
Toff O 399 ms 1 ms ±(1% of reading functions) PP simulation functions n.c > 300 kΩ > 300 kΩ > 300 kΩ > 320 kΩ > 320 kΩ > 320 kΩ > 300 kΩ > 320 kΩ > 320 kΩ > 320 kΩ > 320 kΩ > 300 kΩ >					
Simulation functions State functions Misc. PP simulation functions n.c. > 300 kΩ 13 A 1.5 kΩ ± 1.5 % 20 A 680 Ω ± 1.5 % 32 A 220 Ω ± 1.5 % 63 A 100 Ω ± 1.5 % 80 A 56 Ω ± 1.5 % CP simulation A > 300 kΩ B 2.74 kΩ ± 1.5 % C 88 Ω ± 1.5 % D 246 Ω ± 1.5 % D 246 Ω ± 1.5 % D 245 Ω ± 1.5 % D 245 Ω ± 1.5 % D D 245 Ω ± 1.5 % B1 EV connected A2 no EV connected / PWM B1 EV connected / PWM B2 EV connected / PWM B1 EV connected / PWM B2 EV connected / PWM B2 EV charged on Ventilation on / PWM E7 Failure					±(1 % of reading + 5 dig)
functions PP simulation n.c > 300 kΩ 13 A 1.5 kΩ ± 1.5 % 20 A 680 Ω ± 1.5 % 32 A 220 Ω ± 1.5 % 63 A 100 Ω ± 1.5 % 80 A 56 Ω ± 1.5 % CP simulation A > 300 kΩ B 2.74 kΩ ± 1.5 % C 882 Ω ± 1.5 % D 246 Ω ± 1.5 % Diag. functions Error System state A1 no EV connected A2 no EV connected / PWM B1 EV connected / PWM B2 EV connected / PWM B1 EV connected / PWM B2 EV connected / PWM C1 EV charged / PWM C1 EV charged / PWM D1 EV charged and ventilation on / PWM E Error F Failure Invalid CP signal can't be classified Error Failure Invalid CP signal can't be classified Error Failure		State		11113	±(1 /0 01 1cddilig 1 3 dig)
$\begin{array}{c} 13 A & 1.5 k\Omega \pm 1.5 \% \\ 20 A & 680 \Omega \pm 1.5 \% \\ 32 A & 220 \Omega \pm 1.5 \% \\ 80 A & 56 \Omega \pm 1.5 \% \\ 80 A & 56 \Omega \pm 1.5 \% \\ 80 A & 56 \Omega \pm 1.5 \% \\ \hline \\ CP simulation & A & > 300 k\Omega \\ \hline & B & 2.74 k\Omega \pm 1.5 \% \\ \hline & C & 882 \Omega \pm 1.5 \% \\ \hline & D & 246 \Omega \pm 1.5 \Omega \pm 1.5 \% \\ \hline & D & 246 \Omega \pm 1.5 \Omega \pm $		State	Misc.		
$\begin{array}{c} 20 A \\ 32 A \\ 32 A \\ 220 0 \pm 1.5 \% \\ 63 A \\ 80 A \\ 56 0 \pm 1.5 \% \\ 80 A \\ 56 0 \pm 1.5 \% \\ 80 A \\ 56 0 \pm 1.5 \% \\ 80 A \\ 56 0 \pm 1.5 \% \\ 80 A \\ 50 0 \pm 1.5 \% \\ 80 A \\ 50 0 \pm 1.5 \% \\ 82 0 \pm 1.5 \% \\ 6 \\ 82 0 \pm 1.5 \% \\ 7 \\ 82 0 \pm 1.5 \% \\ 82 0 \pm 1.5 \% \\ 82 0 \pm 1.5 \% \\ 83 0 \pm 1.5 \% \\ 84 0 \pm 1.5 \% \\ 85 0 \pm 1.5 \% \\ 85 0 \pm 1.5 \% \\ 86 0 \pm 1.5 \% \\ 87 0 \pm 1.5 \% \\ 89 0 \pm 1.5 \% \\ 89 0 \pm 1.5 \% \\ 80 0 \pm 1.5 \% \\ 81 0 \pm 1.5 \% \\ 82 0 \pm 1.5 \% \\ 83 0 \pm 1.5 \% \\ 84 0 \pm 1.5 \% \\ 85 0 \pm 1.5 \% \\ 86 0 \pm 1.5 \% \\ 87 0 \pm 1.5 \% \\ 89 0 \pm 1.5 \% \\ 80 0 \pm 1.5 \% \\ 81 0 \pm 1.5 \% \\ 81 0 \pm 1.5 \% \\ 82 0 \pm 1.5 \% \\ 82$		n.c	> 300 kΩ		
32 A 220 Ω ± 1.5 % 63 A 100 Ω ± 1.5 % 80 A 56 Ω ± 1.5 % 80 A > 300 kΩ B 2.74 kΩ ± 1.5 % C 882 Ω ± 1.5 % D 246 Ω ± 1.5 % D 240 Ω ± 1.0 % D 240 Ω		13 A	1.5 kΩ ± 1.5 %		
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CP simulation A > 300 kΩ B 2.74 kΩ ± 1.5 % C 882 Ω ± 1.5 % D 246 Ω ± 1.5 % Diag. functions Error System state A1 no EV connected A2 no EV connected / PWM B1 EV connected / PWM B2 EV connected / PWM C1 EV charged C C2 EV charged PWM D1 EV charged and ventilation on D2 EV charged and ventilation on / PWM E E rror F Failure Invalid CP signal can't be classified Error functions State Uinput fault L/L1op L/L2op L/L1 conductor open L/L2op L/L2 conductor open L/L3op L/L3 conductor open L L>PE L LY/L2op L/L2 conductor open L L LYPE L/L1 and PE conductors crossed L LYPE LYPE<		32 A	220 Ω ± 1.5 %		
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$\begin{array}{lll} CP \ simulation \\ B & 2.74 \ k\Omega \pm 1.5 \% \\ C & 882 \ \Omega \pm 1.5 \% \\ D & 246 \ \Omega \pm 1.5 \% \\ D & 246 \ \Omega \pm 1.5 \% \\ \end{array}$ $\begin{array}{lll} Diag. \ functions \\ System \ state \\ A1 & no \ EV \ connected \\ A2 & no \ EV \ connected \ PWM \\ B1 & EV \ connected \ PWM \\ B2 & EV \ connected \ PWM \\ C1 & EV \ charged \ PWM \\ C2 & EV \ charged \ PWM \\ D1 & EV \ charged \ and \ ventilation \ on \ PWM \\ E & EV \ charged \ and \ ventilation \ on \ PWM \\ E & EFror \ Failure \\ Invalid & CP \ signal \ can't \ be \ classified \\ \hline Error functions & State & Misc. \\ \hline Uinput fault & L/L1 \ conductor \ open \\ L/L2 \ op & L/L2 \ conductor \ open \\ L/L3 \ op & L/L3 \ conductor \ open \\ L/L3 \ op & L/L3 \ conductor \ open \\ PE \ op & PE \ conductor \ open \\ PE \ op & PE \ conductor \ open \\ L \ c>PE & L/L1 \ and \ PE \ conductor \ scrossed \\ Uext \ (PE) & External \ voltage \ on \ PE \ (on \ input \ side) \\ \hline Uoutput fault & Diode \ short \ Error 1 & CP \ diode \ shorted \\ \hline CP \ short/Error 2 & CP \ PE \ shorted \\ PE \ open/Error 3 & PE \ opened \\ \hline General & Battery \ power \ supply & 7.2 \ V \ DC \ (4.4 \ Ah \ Li \ ion) \\ \hline Battery \ charging \ time & typically \ 4 \ h \ (deep \ discharge) \\ \hline Mains \ power \ supply & 15 \ V \ - 10 \% \\ 230 \ V \ - 410 \% \\ 230 \ V \ - 410 \% \\ 230 \ V \ - 400 \ V \ 3 \ \pm 10 \% \\ 50 \ Hz \ - 60 \ Hz, \ 60 \ VA \\ \hline Protection \ category & 300 \ V \ CAT \ II \\ \hline Degree \ of \ protection & Po \ General \\ \hline \ Moving \ temperature \ range & Maximum \ relative \ humidity & 90 \ \%RH \ (0 \ ^c \ 40 \ ^c), \ non-condensing \\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \$					
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D 246 Ω ± 1.5 %		С			
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A1	Diag. functions	Error			
A2			no EV connected		
B1 EV connected B2 EV connected / PWM C1 EV charged C2 EV charged / PWM D1 EV charged and ventilation on D2 EV charged and ventilation on / PWM E E Error F Failure Invalid CP signal can't be classified Error functions State Misc. Uinput fault L/L1op L/L1 conductor open L/L2op L/L2 conductor open L/L3op L/L3 conductor open Nop N conductor open Nop N conductor open L <l>PED L/L1 and PE conductor scrossed Uext (PE) External voltage on PE (on input side) Uoutput fault Diode short/Error 1 CP diode shorted CP short/Error 2 CP-PE shorted PE open/Error 3 PE opened General Battery power supply 7.2 V DC (4.4 Ah Li-ion) Battery charging time typically 4 h (deep discharge) Mains power supply 115 V ~ ± 10 % 230 V ~ ± 10 % 230 V ~ ± 10 % 50 Hz - 60 Hz, 60 VA Protection category 300 V CAT II Degree of protection IP 65 (case closed) IP 40 (case open) IP 20 (mains test socket) Dimensions (W x H x D) 8 cm x 16 cm x 33 cm Working temperature range Maximum relative humidity 90 %RH (0 °C 40 °C), non-condensing</l>					
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Battery charging time typically 4 h (deep discharge) Mains power supply 115 V ~ ± 10 % 230 V ~ ± 10 % 230 V / 400 V 3~ ± 10 % 50 Hz - 60 Hz, 60 VA Protection category 300 V CAT II Measuring category 300 V CAT II Degree of protection IP 65 (case closed) IP 40 (case open) IP 20 (mains test socket) Dimensions (W x H x D) 36 cm x 16 cm x 33 cm Working temperature range -10 °C 50 °C Maximum relative humidity 90 %RH (0 °C 40 °C), non-condensing	General				
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Maximum relative humidity 90 %RH (0 °C 40 °C), non-condensing					
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Working nominal altitude up to 3000 m					
Bluetooth module Class 2		Bluetooth module	LIass 2		

Measuring and Regulation Equipment Manufacturer Ljubljanska 77, SI-1354 Horjul, Slovenia T +386 (0)175 58 200, F +386 (0)175 49 226 metrel@metrel.si, www.metrel.si

KEY FEATURES

- Functional testing of EVSE via simulation of electrical vehicle's CP and PP circuits
- · Diagnostic testing of EVSE via simulation of errors on CP circuit.
- Electrical safety testing of EVSE.
- Functional testing of Mode 2 EV cables via simulation of electrical vehicle's CP and PP circuits.
- Diagnostic testing of Mode 2 EV cables via simulation of errors on CP circuit.
- Simulation of faults on mains for verification of Mode 2 EV charging cable safety features.
- Electrical safety testing of Mode 2 and Mode 3 EV cables.
- Accessible inputs/outputs for connection of safety testers.
- 1-phase and 3-phase Mode 2 cable connections.
- Integrated 4400 mAh Li-Ion battery.
- Bluetooth communication with Metrel safety testers.

SUPPORTED INSTRUMENTS

- MI 3152 EurotestXC
- MI 3152H EurotestXC 2.5kV
- MI 3155 EurotestXD
- MI 3325 MultiServiserXD

STANDARDS

Electromagnetic compatibility

• EN 61326

- **Safety** EN 61010-1
- EN 61010-2-030
- EN 61010-031

Functionality

- EN 61851-1
- EN 61557 series
- EN 60364-6

Li - ion battery pack

• IEC 62133

ORDERING INFORMATION



Standard set A 1632

- A 1632 eMobility Analyser
- Type 2 Male plug adapter with long CP pin (2 x Metrel connector), 2 m
- 1-phase EU 3 phase CEE (16 A) mains cable, 2 m
- 2 mm banana to 4 mm cascade banana adapter, 1 m
- · Protective bag for accessories (mounted on the case)
- Metrel eMobility App for Android*
- Instruction manual
- · Calibration certificate
- *The eMobitliy App can be downloaded free of charge from Android Market.

Note: The Android app eMobility allows only performing functional EVSE tests.

