

Multifunctional electrical installation tester

MI 3155 InstaltestXD

NEW

Electrical Installation Safety



MI 3155InstaltestXD is the newest flagship of Metrel's most advanced line of multi-functional measuring instruments and is designed specifically for testing in industry. What differentiates this instrument from the rest is its ergonomic design and an intuitive user interface, encompassing a memory organizer and fully programmable AUTO SEQUENCES, managed through a large colour touch screen display. It is fully compliant with functionality standards (e.g. IEC/EN 61557) and other reference standards for testing (e.g. IEC/EN/HD 60364-4-41,...) as is required for any instrument that performs TRMS current measurements, RCD tests, line and loop impedance tests with 3 (and 4) wires and earth resistance measurements. Besides those, the instrument supports a wide range of tests and measuring functions, including on-line voltage monitoring, phase sequence testing, varistor testing, PI/DAR calculation, luminance measurement, discharge time testing, ISFL measurements, IMD tests as well as functional and visual inspections.

MEASURING FUNCTIONS

- **Live Transformer's Impedance Measurement with Four Wire Test;**
- Hi-precision Short Circuit Current evaluation with Calculated Hot factor;
- **3-wire test of PE** (RPE function) without extension lead conductor;
- **Autotest insulation function between L-N, N-PE and L-PE** (R ISO ALL function);
- **4 wire continuity test;**
- Insulation resistance with **DC voltage from 50 V to 2500 V** and **PI, DAR calculation;**
- **Varistor test;**
- Continuity of PE conductors with 200 mA DC test current with polarity change;
- Continuity of PE conductors with 7 mA test current without RCD tripping;
- **2-wire and 3-wire loop impedance (L-PE)** measurement with Trip Lock RCD function;
- **Touch voltage / Contact voltage** measurement with **external P/S probe.**
- **2-wire and 3-wire line impedance (L-L, L-N)** measurement;
- **1-phase / 3-phase TRMS voltage** and frequency measurements;
- **Line, loop and RCD** measurements at frequency range **16 ... 400 Hz;**
- Phase sequence;
- Power and THD measurement (up to the 12th harmonic);
- RCD testing (general and selective, type AC, A, F, B, B+, **MI RCD, EV RCD, PRCD, PRCD-K, PRCD-S**);

- Earth resistance (3-wire and 2-clamps method);
- Specific earth resistance with Ro-adapter (option);
- TRMS leakage and load currents (option);
- First fault leakage current (ISFL);
- Testing of Insulation Monitoring Devices (IMDs);
- **Machine mode support** with time discharge;
- Illumination (option);
- High resolution Loop impedance (mΩ) (option);
- **EVSE** (Electrical Vehicle Supply Equipment) **support** (option);
- Determining location of cables (option);
- QR and/or barcode scanner support (option).

KEY FEATURES

- **Programmable AUTO SEQUENCES. ***
- **Predefined profile dependent AUTO SEQUENCES.**
- **Predefined Automatic tests:**
 - Auto TT (U, ZIn, Zs, Uc);
 - Auto TN/RCD (U, ZIn, Zs, Rpe);
 - Auto TN (U, ZIn, Zlpe, Rpe);
 - Auto IT (U, ZIn, Isc, Isfl, IMD).
- **Functional inspections.**
- **Visual inspections.**
- **Custom inspections** (visual and functional) which may be incorporated into AUTO SEQUENCES.
- **EVSE AUTO SEQUENCES and function inspections;**

- **Machine functional and visual inspections;**
- **Built-in help screens** for referencing on site.
- **Built-in fuse tables** for automatic evaluation of the line / loop impedance result.
- **Monitoring of all 3 voltages** in real-time.
- **Automatic polarity reversal** on continuity test.
- **Automated RCD testing procedure (RCD AUTO).**
- **Automated Impedance testing procedure (Z AUTO).**
- **Measurement filtering according to the selected area group.**
- **Built-in charger** and rechargeable batteries as standard accessory.
- **BT communication with PC, Android tablets and smart phones** via built-in BT.
- **PC SW Metrel ES Manager** (structure and report creation, data upload/download).
- **Optional aMESM Android app** (structure and report creation, data upload/download).

TECHNICAL SPECIFICATION

Function		Measuring range	Resolution	Accuracy
CONTINUITY	Test Current 7 mA 2-wire	0.00 Ω ... 19.99 Ω 20.0 Ω ... 1999 Ω	0.1 Ω 1 Ω	$\pm(5\% \text{ of } r. + 3 \text{ digits})$
	Test Current 200 mA 2-wire, 4-wire	0.00 Ω ... 19.99 Ω 20.0 Ω ... 199.9 Ω 200.0 Ω ... 1999 Ω	0.01 Ω 0.1 Ω 1 Ω	$\pm(3\% \text{ of } r. + 3 \text{ digits})$ $\pm(5\% \text{ of } r.)$ $\pm(5\% \text{ of } r.)$
INSULATION RESISTANCE	R iso, R iso all ¹ Test Voltage 50/100/250 V	0.00 M Ω ... 19.99 M Ω 20.0 M Ω ... 99.9 M Ω 100.0 M Ω ... 199.9 M Ω	0.01 M Ω 0.1 M Ω 0.1 M Ω	$\pm(5\% \text{ of } r. + 3 \text{ digits})$ $\pm(10\% \text{ of } r.)$ $\pm(20\% \text{ of } r.)$
	R iso, R iso all ¹ Test Voltage 500/1000 V	0.00 M Ω ... 19.99 M Ω 20.0 M Ω ... 199.9 M Ω 200 M Ω ... 999 M Ω	0.01 M Ω 0.1 M Ω 1 M Ω	$\pm(5\% \text{ of } r. + 3 \text{ digits})$ $\pm(5\% \text{ of } r.)$ $\pm(10\% \text{ of } r.)$
	R iso, R iso all ¹ Test Voltage 2500 V	0.00 M Ω ... 19.99 M Ω 20.0 M Ω ... 199.9 M Ω 200 M Ω ... 999 M Ω 1.00 G Ω ... 19.99 G Ω	0.01 M Ω 0.1 M Ω 1 M Ω 0.01 G Ω	$\pm(5\% \text{ of } r. + 3 \text{ digits})$ $\pm(5\% \text{ of } r.)$ $\pm(10\% \text{ of } r.)$ $\pm(10\% \text{ of } r.)$
	DAR, PI	0.01 ... 9.99 10.0 ... 100.0	0.01 0.1	$\pm(5\% \text{ of } r. + 2 \text{ digits})$ $\pm(5\% \text{ of } r.)$
	Varistor test AC, DC ²	0 V ... 1000 V (DC) 0 V ... 625 V (AC)	1 V	$\pm(3\% \text{ of } r. + 3 \text{ digits})$
RCD	RCD Uc	0.00 V ... 19.99 V 20.0 V ... 99.9 V	0.1 V	$(-0\%/+15\%) \text{ of } r. \pm 10 \text{ digits}$ $(-0\%/+15\%) \text{ of } r.$
	RCD (t), RCD I Ramp	0.00 ms ... 40.0 ms 0.0 ms ... max. time	0.1 ms	$\pm 1 \text{ ms}$ $\pm 3 \text{ ms}$
		0.2xI Δ N ... 1.1xI Δ N (AC, MI, EV a.c.) 0.2xI Δ N ... 1.5xI Δ N (A, I Δ N $\geq 30 \text{ mA}$) 0.2xI Δ N ... 2.2xI Δ N (A, I Δ N <30 mA) 0.2xI Δ N ... 2.2xI Δ N (B, MI, EV d.c.)	0.05xI Δ N	$\pm 0.1xI\Delta N$
IMPEDANCE	Zline (L-L, L-N), Ipsc, Zline 4-wire ³	0.00 Ω ... 9.99 Ω 10.0 Ω ... 99.9 Ω 100 Ω ... 999 Ω 1.00 k Ω ... 9.99 k Ω	0.01 Ω 0.1 Ω 1 Ω 10 Ω	$\pm(5\% \text{ of } r. + 5 \text{ digits})$ $\pm(10\% \text{ of } r.)$
	Zloop (L-PE), Ipfsc, Zloop 4-wire ³	0.00 Ω ... 9.99 Ω 10.0 Ω ... 99.9 Ω 100 Ω ... 999 Ω	0.01 Ω 0.1 Ω 1 Ω	$\pm(5\% \text{ of } r. + 5 \text{ digits})$ $\pm(10\% \text{ of } r.)$
	Zs RCD ⁴	1.00 k Ω ... 9.99 k Ω	10 Ω	
VOLTAGE	TRMS (0.14 ... 500 Hz)	0 ... 550 V	1 V	$\pm(2\% \text{ of } r. + 2 \text{ digits})$
	Frequency	0.00 Hz ... 9.99 Hz 10.0 Hz ... 499.9 Hz	0.01 Hz 0.1 Hz	$\pm(0.2\% \text{ of } r. + 1 \text{ digits})$
CURRENT	TRMS, AC with A 1018, range=20 A	0.0 mA ... 99.9 mA 100 mA ... 999 mA 1.00 A ... 19.99 A	0.1 mA 1 mA 0.01 A	$\pm(5\% \text{ of } r. + 5 \text{ digits})$ $\pm(3\% \text{ of } r. + 3 \text{ digits})$ $\pm(3\% \text{ of } r.)$
	TRMS, AC with A 1019, range=20 A	0.0 mA ... 99.9 mA 100 mA ... 999 mA 1.00 A ... 19.99 A	0.1 mA 1 mA 0.01 A	Indicative $\pm(5\% \text{ of } r.)$ $\pm(3\% \text{ of } r.)$
	TRMS, AC/DC with A 1391, range=40 A	0.00 A ... 1.99 A 2.00 A ... 19.99 A 20.0 A ... 39.9 A	0.01 A 0.01 A 0.1 A	$\pm(3\% \text{ of } r. + 3 \text{ digits})$ $\pm(3\% \text{ of } r.)$ $\pm(3\% \text{ of } r.)$
	TRMS, AC/DC with A 1391, range = 300 A	0.00 A ... 19.99 A 20.0 A ... 39.9 A 40.0 A ... 299.9 A	0.01 A 0.1 A 0.1 A	Indicative Indicative $\pm(3\% \text{ of } r. + 5 \text{ digits})$
EARTH RESISTANCE	3 wire ⁵	0.00 Ω ... 19.99 Ω 20.0 Ω ... 199.9 Ω 200.0 Ω ... 9999 Ω	0.01 Ω 0.1 Ω 1 Ω	$\pm(5\% \text{ of } r. + 5 \text{ digits})$
	2 clamp	0.00 Ω ... 19.99 Ω 20.0 Ω ... 30.0 Ω 30.1 Ω ... 39.9 Ω	0.01 Ω 0.1 Ω 0.1 Ω	$\pm(10\% \text{ of } r. + 10 \text{ digits})$ $\pm(20\% \text{ of } r.)$ $\pm(30\% \text{ of } r.)$
	Specific earth resistance	0.0 Ω m ... 99.9 Ω m 100 Ω m ... 999 Ω m 1.00 k Ω m ... 9.99 k Ω m 10.0 k Ω m ... 99.9 k Ω m 100 k Ω m ... 9999 k Ω m	0.1 Ω m 1 Ω m 0.01 k Ω m 0.1 k Ω m 1 k Ω m	$\pm(5\% \text{ of } r.) \text{ for } R_e 1 \Omega \dots 1999k\Omega$ $\pm(10\% \text{ of } r.) \text{ for } R_e 2 k\Omega \dots 19.99k\Omega$ $\pm(20\% \text{ of } r.) \text{ for } R_e > 20 k\Omega$
POWER	Power (P, S, Q)	0.00 W (VA, Var) ... 99.9 kW (kVA, kVar)		
	Power factor	-1.00 ... 1.00		
	Voltage THD	0.1 % ... 99.9 %		
HARMONICS	Voltage harmonics	0.1 V ... 500 V		
	Voltage THD	0.1 % ... 99.9 %		
	Current harmonics and Current THD	0.00 A ... 199.9 A		
FIRST FAULT LEAKAGE CURRENT (ISFL)	Isc1, Isc2	0.0 mA ... 19.9 mA	0.1 mA	$\pm(5\% \text{ of } r. + 3 \text{ digits})$
IMD TEST	Threshold indicative insulation resistance	5 ... 640 k Ω	5 k Ω	Indicative values, up to 128 steps

Function		Measuring range	Resolution	Accuracy
ILLUMINANCE	Type B	0.01 lux ... 19.99 lux	0.01 lux	±(5 % of r. + 2 digits)
		20.0 lux ... 199.9 lux	0.1 lux	
		200 lux ... 1999 lux	1 lux	±(5 % of r.)
		2.00 klux ... 19.99 klux	10 lux	
	Type C	0.01 lux ... 19.99 lux	0.01 lux	±(10 % of r. + 3 digits)
		20.0 lux ... 199.9 lux	0.1 lux	
		200 lux ... 1999 lux	1 lux	±(10 % of r.)
		2.00 klux ... 19.99 klux	10 lux	
DISCHARGING TIME	Discharging time	0.0 s ... 10.0 s	0.1 s	±(5 % of r. + 2 digits)
	Peak voltage	0 V ... 550 V	1 V	±(5 % of r. + 3 digits)
	Power supply	7.2 V (4400 mAh Li-Ion battery pack)		
	Overvoltage category	600 V CAT III; 300 V CAT IV		
GENERAL	Protection class	double insulation		
	COM port	BT, USB, RS232		
	Weight	1.78 kg		
	Size (l x h x w)	252 x 111 x 165 mm		

¹ Measuring current 1 mA ... 3 mA

² Threshold current 1 mA

³ I_{test} = 20 A @ 230 V; 16 ... 400 Hz

⁴ I_{test MAX} = 0.5 x I_{ΔN}

⁵ U_{DC} < 30 V_{AC}; I_{SC} < 30 mA; f = 15 Hz

STANDARDS

Functionality

- EN 61557;
- DIN 5032

Other reference standards for testing:

- IEC/EN/HD 60364-4-41;
- IEC/EN 61008;
- IEC/EN 61009;
- BS 7671;
- AS/NZ 3017;

Electromagnetic compatibility (EMC):

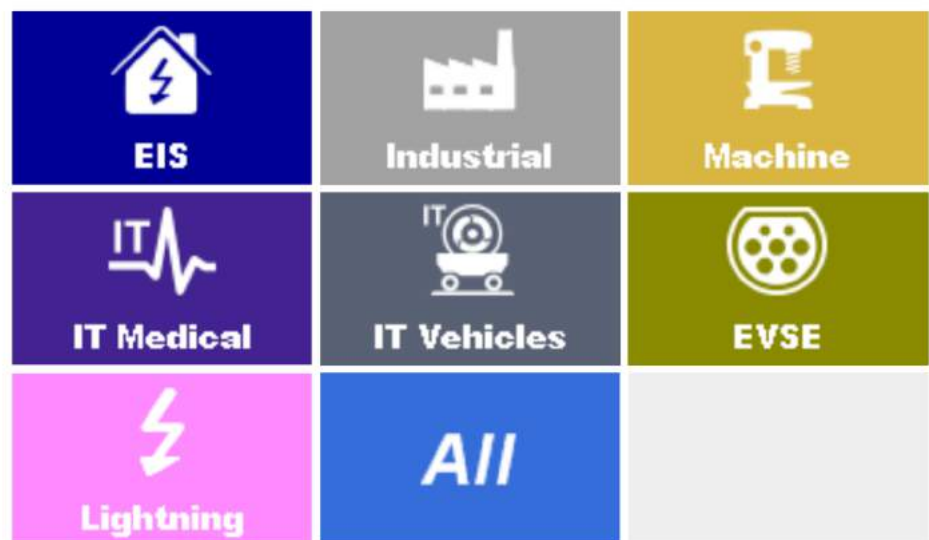
- IEC/EN 61326-1

Safety

- IEC/EN 61010-1;
- IEC/EN 61010-031;
- IEC/EN 61010-2-030;
- IEC/EN 61010-2-032

APPLICATION

- Testing of TT, TN and IT systems;
- Testing of single and multiphase systems;
- Initial and periodic testing of domestic and industrial installations;
- LV Installation safety testing;
- Maintenance;
- Lightning installations;
- Testing on high and low frequency installations (industrial, aircraft, railway, mining, chemistry, ferry boat);
- Construction sites;
- Mobile LV Generator Units;
- Machine and switchboard testing;
- Medical installation testing;
- Fire brigades, ambulance, military and police vehicles;
- Mobile Video/Audio, Concert Halls, Fairs, Playgrounds;
- Electrical Vehicle Supply Equipment (EVSE) testing;
- Observation of insulation trends.



ADDITIONAL INSTALTEST XD FUNCTIONALITY

The IntestTest XD is the newest flagship of Metrel's most advanced line of multi-functional measuring instruments, it offers some additional functions over other models in the range, including:

- User defined Auto Sequences allow users to combine multiple single electrical tests into a single key press operation. (where as the MI 3152 will only have pre programmed Auto Sequences which cannot be user defined)
- User defined Inspections allows users to generate their own visual and functional inspections and check lists, this is stored and reported along with the test results replacing paper-based checklists.
- Includes ES Manager PRO software license, allows for Auto Sequences and inspections upload/download and, this advanced version also provides professional report creation functionality.
- There are various extra measurement improvements and functions, such as 2500v insulation testing (compared with 1000V on the MI 3152) See the full set of functions on page 2 and 3.
- This unit includes a rechargeable li-ion battery pack (rather than the NiMH AA batteries of the MI 3152)

OPTIONAL ACCESSORIES

Photo	Order No.	Acc. description
	A 1569	Power supply adapter 12 V / 3 A
	A 1567	4400mAh battery pack
	A 1568	8800mAh battery pack
	A 1551	Small carrying bag with Metrel logo
	A 1552	Large carrying bag with Metrel logo
	MI-TPI-3 phase testing adapters	MI-TPI-20A-4 4 Pin MI-TPI-20A-5 5 Pin MI-TPI-32A-4 4 Pin MI-TPI-32A-5 5 Pin
	A 1401 BLK	Tip commander
	A 1018	Current clamp (low range, leakage)
	A 1019	Current clamp
	A 1391	AC/DC Current clamp
	A 1172	Luxmeter sensor, type B (PS/2)
	A 1173	Luxmeter sensor, type C (PS/2)
	A 1191	Receiver R10K
	A 1192	Selective probe for R10K
	A 1437	Test lead with Kelvin probe
	4087363	Bluetooth Scanner
	A 1195	Switchboard Resistor Box

Photo	Order No.	Acc. description
	S 2027	Earth test set, 3-wire, 50 m
	S 2058	Insulation test plates
	A 1012	Test lead, green, 4 m
	A 1154	Test lead, black, 4 m
	A 1026	Test lead, red, 20 m
	A 1153	Test lead, black, 20 m
	A 1164	Test lead, black, 50 m
	S 2012	Continuity test lead, 10 m, 2 pcs (red, black)
	S 2025	Test lead, 1.5 m, 2 pcs (black, red)
	A 1198	Magnetic contact probe
	A 1201	Insulated rod for CONTINUITY measurement
	A 1202	Additional extension part for A 1201
	A 1532	A 1532 EVSE adapter
	A 1199	Ro-adapter
	A 1143	Euro Z 290 A
	A 1632	eMobility analyser (for EVSE)

ORDERING INFORMATION



- Instrument MI 3155 Instaltest XD
- Battery pack, 7.2 v, 4400 mAh
- Power supply adapter 12 v
- Mains measuring cable, 1.5 m
- Test lead, 4-wire, 1.5m
- Test lead, 3 wire, 1.5 m
- Test lead, 2-wire, 2.5 kV, 1.5 m
- Test lead, green, 1.5 m
- Test probe, 6 pcs (1 pcs of black, brown, blue, red, and 2 pcs green)
- Crocodile clip, 7 pcs (1 pcs of brown, blue, green, and 2 pcs of black and red)
- Soft carrying bag
- Soft carrying neck belt
- Metrel ES Manager SW CD, PRO license
- Short instruction manual
- Instruction manual (CD)
- Handbook (CD)
- Calibration certificate
- USB cable

METREL D.D.

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Note! Photographs in this catalogue may slightly differ from the instruments at the time of delivery.
Subject to technical change without notice.