Electrical Equipment / Machine / Switchboard safety
MI 3365 OmegaEE XD

New upgraded series of OmegaEE XD brings 4 models of the instrument, intended for professional use in the most demanding applications. All of them support user accounts, which means that one device can be used by several electricians. Model versions cover the following fields of testing: portable appliances, welding equipment, medical devices, professional testing of PRCD devices, and testing of EV charging cables mode 2 and mode 3. All instruments have an advanced built-in user interface that enables the execution of pre-defined and user-created AUTOSEQUENCE®s. Large memory capacity (8 GB microSD card) enables the user long term saving and archiving of data. All the instruments are specially designed for long-term testing, since their memory structure enables simple searching through the archive of devices and quick re-execution of (periodic) tests. Great emphasis was put on support for peripheral devices such as printers and barcode or QR code scanners and RFID readers (in Bluetooth and wired versions). On top of that, all instrument versions are supported by our Metrel ES Manager PC software.

MEASURING FUNCTIONS

EN 50678 / EN 50699
- Visual inspections;
- Continuity // Protective earth resistance 200mA;
- Continuity // Protective earth resistance 10A, 25A;[1]
- Insulation Resistance (Riso, Riso-S);
- Protective conductor current (Direct, Residual, Alternative);
- Touch leakage current (Direct, Alternative);
- Leakage current produced by a floating input, PE current (Direct, Residual);
- Leakage current produced by a floating input, Touch current (Direct);
- Leaks & Power (Itou, Idiff, P, S, Q, PF, THDu, THDi, CosØ, I, U);
- Power (P, S, Q, PF, THDu, THDi, CosØ, I, U);
- PRCD test, (2 pole, 3 pole, K/ Di (varistor), S (3-pole));
- PRCD test (PE conductor, Open conductor, PE probe);
- RCD test (type A, AC, B, B+, F);
- IC-CPD test (EV-RCD, PE conductor);
- Voltage, SELV/PELV;
- Flash test, (1500V, 3000V);[2]
- Polarity / Active polarity test;
- EVSE Diagnostic test;
- Fuse test;
- Clamp current;[3]
- Functional inspections.

[1](25A, M, F, models only),[2](MI 3365 F model only), [3](With optional A 1283)

IEC/EN 62353 extended to tests in acc. with IEC 60601, (MI 3365 M only)
- Insulation resistance;
- Touch leakage current;
- Patient leakage current;
- Equipment leakage (Direct, Differential, Alternative);
- Applied part leakage (Direct, Alternative);

IEC/EN 60974-4 (optional A 1422)
- Insulation resistance;
- Welding circuit leakage;
- Protective conductor leakage;
- No-load voltage;

KEY FEATURES

- Pre-defined AUTOSEQUENCE®s, according to: **EN 50678, EN 50699, EV-Cables, P-RCDs, Floating inputs, EN 62368-1, EN 60974-4, EN 62353**.
- Read the code and test: QR and barcode system of labelling in combination with AUTOSEQUENCE®s enables the user quick and simple testing of electrical devices.
- Testing groups: the instruments have built-in filters in accordance with their area of application, which enables the user simple choice of needed test sequences.
- Support for **IC-CPD** testing: support for testing **Mode 2** and **Mode 3 EV cables** in combination with supported adapters.
- Support for PRCD testing: support for all types of PRCDs, including 2-pole, 3-pole, K/Di (varistor), S (3 pole) and testing with the PE probe.
- Fuse testing: the instrument has a special, integrated testing module for quick testing of all types of fuses.
- High-voltage testing (only MI 3365 F): the instrument enables insulation resistance measurement that has to be performed after repairs or maintenance of electrical devices.
- Testing of medical devices (only MI 3365 M): the instrument enables testing of medical devices in accordance with IEC/EN 62353 extended to tests in acc. with IEC 60601.
- Simulation of Single fault conditions enables testing of Audio/video, information and communication technology equipment IEC/EN 62368.
- Testing of welding equipment (only in combination with A 1422): all models of OmegaEE XD support testing of welding equipment in accordance with IEC/EN 60974-4.
- Hard-wired devices: the instruments have integrated additional test terminals that enable the user simple testing of hard-wired devices.
- Large memory: support for microSD memory cards, 8 GB card already integrated in the instrument, although that can be expanded to 32 GB.
- PC SW Metrel ES Manager: enables creation of test structures, user-defined AUTOSEQUENCE®s, professional test reports and data transfer for archiving.
- Touch screen: high resolution colour touch screen, 4.3" TFT.
- Double manipulation: keyboard and touch screen enable the user to control the instrument in any manner they like.
- aMESM Android SW: enables QR code scanning, and uploading of pre-prepared user-defined AUTOSEQUENCE®s.

METREL®

TECHNICAL SPECIFICATION

FUNCTION		MEASURING RANGE	RESOLUTION	ACCURACY
Continuity / Protective earth resistance	R	0.00 Ω ... 19.99 Ω	0.01 Ω	±(2 % of reading + 2 D)
[1]Continuity (200 mA)		20.0 Ω ... 99.9 Ω	0.1 Ω	± 3 % of reading
		100.0 Ω ... 199.9 Ω	0.1 Ω	± 5 % of reading
		200 Ω ... 1999 Ω	1 Ω	± 5 % of reading
[1]Continuity (10 A, 25 A)	R	0.00 Ω ... 19.99 Ω	0.01 Ω	±(2 % of reading + 2 D)
		20.0 Ω ... 99.9 Ω	0.1 Ω	± 3 % of reading
		100.0 Ω ... 199.9 Ω	0.1 Ω	± 5 % of reading
		200 Ω ... 999 Ω	1 Ω	Indicative
Insulation Resistance (Riso, Riso-S)				
[2]Insulation resistance, Insulation resistance – S (250 V, 500 V)	Riso	0.00 MΩ ... 19.99 MΩ	0.01 MΩ	±(3 % of reading + 2 D)
	Riso - S	20.0 MΩ ... 99.9 MΩ	0.1 MΩ	± 5 % of reading
		100.0 MΩ ... 199.9 MΩ	0.1 MΩ	± 10 % of reading
Output voltage	Um	0 V ... 600 V	1 V	±(3 % of reading + 2 D)
Substitute Leakage Current, Substitute leakage current – S				
[3]Substitute Leakage Current, Substitute leakage current – S	Isub	0.00 mA ... 1.99 mA	0.01 mA	±(3 % of reading + 3 D)
	Isub - S	2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Differential Leakage				
[4]Differential leakage current	Idiff	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
		2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Power	P	0.00 W ... 19.99 W	0.01 W	±(5 % of reading + 5 D)
		20.0 W ... 199.9 W	0.1 W	± 5 % of reading
		200 W ... 1999 W	1 W	± 5 % of reading
		2.00 kW ... 3.70 kW	10 W	± 5 % of reading
Touch Leakage	Itou			
[5]Touch leakage current	Itou, a.c.	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
	Itou, d.c.	2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Power	P	0.00 W ... 19.99 W	0.01 W	±(5 % of reading + 5 D)
		20.0 W ... 199.9 W	0.1 W	± 5 % of reading
		200 W ... 1999 W	1 W	± 5 % of reading
		2.00 kW ... 3.70 kW	10 W	± 5 % of reading
Ipe Leakage	Ipe			
[5]PE leakage current	Ipe, a.c.	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
	Ipe, d.c.	2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Power	P	0.00 W ... 19.99 W	0.01 W	±(5 % of reading + 5 D)
		20.0 W ... 199.9 W	0.1 W	± 5 % of reading
		200 W ... 1999 W	1 W	± 5 % of reading
		2.00 kW ... 3.70 kW	10 W	± 5 % of reading
Ipe+Ifloating input (Ipe+Ifi)				
[5]Pe leakage current	Ipe	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
		2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
[4]Differential leakage current	Idiff	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
		2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
[6]Ifi	Ifi	0.00 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
		2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Ipe+Ifi	Ipe+Ifi	0.000 mA ... 1.999 mA	1 µA	Calculated values
Idiff+Ifi	Idiff+Ifi	2.00 mA ... 19.99 mA	0.01 mA	
Itouch+Ifloating input (Itou+Ifi)				
[5]Touch leakage current	Itou	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
		2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
[6]Ifi	Ifi	0.00 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
		2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Itou+Ifi	Itou+Ifi	0.000 mA ... 1.999 mA	1 µA	Calculated values
		2.00 mA ... 19.99 mA	0.01 mA	
Power		0.00 W ... 19.99 W	0.01 W	±(5 % of reading + 5 D)
Power (active)	P	20.0 W ... 199.9 W	0.1 W	± 5 % of reading
		200 W ... 1999 W	1 W	± 5 % of reading
		2.00 kW ... 3.70 kW	10 W	± 5 % of reading
Power (apparent)	S	0.00 VA ... 19.99 VA	0.01 VA	±(5 % of reading + 10 D)
		20.0 VA ... 199.9 VA	0.1 VA	± 5 % of reading
		200 VA ... 1999 VA	1 VA	± 5 % of reading
		2.00 kVA ... 3.70 kVA	10 VA	± 5 % of reading
Power (reactive)	Q	0.00 var ... 19.99 var	0.01 var	±(5 % of reading + 5 D)
		20.0 var ... 199.9 var	0.1 var	± 5 % of reading
		200 var ... 1999 var	1 var	± 5 % of reading
		2.00 kvar ... 3.70 kvar	10 var	± 5 % of reading
Power factor	PF	0.00 i ... 1.00 i	0.01	±(5 % of reading + 5 D)
		0.00 c ... 1.00 c		
Total Harmonic Distortion (voltage)	THDU	0.0 % ... 99.9 %	0.1 %	±(5 % of reading + 5 D)
Total Harmonic Distortion (current)	THDI	0 mA ... 999 mA	1 mA	±(5 % of reading + 5 D)
		0.00 A ... 16.00 A	0.01 A	± 5 % of reading
Cosine fi	Cos fi	0.00 i ... 1.00 i	0.01	±(5 % of reading + 5 D)
		0.00 c ... 1.00 c		

Current	I	0 mA ... 999 mA 1.00 A ... 16.00 A	1 mA 0.01 A	±(3 % of reading + 5 D) ± 3 % of reading
Voltage	U	0.0 V ... 199.9 A 200 V ... 264 V	0.1 V 1 V	±(3 % of reading + 10 D) ± 3 % of reading
Leak's & Power	Itou			
[5]Touch leakage current	Itou, a.c. Itou, d.c.	0.000 mA ... 1.999 mA 2.00 mA ... 19.99 mA	1 µA 0.01 mA	±(3 % of reading + 3 D) ± 5 % of reading
[4]Differential leakage current	Idiff	0.000 mA ... 1.999 mA 2.00 mA ... 19.99 mA	1 µA 0.01 mA	±(3 % of reading + 3 D) ± 5 % of reading
Power (active)	P	0.00 W ... 19.99 W 20.0 W ... 199.9 W 200 W ... 1999 W 2.00 kW ... 3.70 kW	0.01 W 0.1 W 1 W 10 W	±(5 % of reading + 5 D) ± 5 % of reading ± 5 % of reading ± 5 % of reading
Power (apparent)	S	0.00 VA ... 19.99 VA 20.0 VA ... 199.9 VA 200 VA ... 1999 VA 2.00 kVA ... 3.70 kVA	0.01 VA 0.1 VA 1 VA 10 VA	±(5 % of reading + 10 D) ± 5 % of reading ± 5 % of reading ± 5 % of reading
Power (reactive)	Q	0.00 var ... 19.99 var 20.0 var ... 199.9 var 200 var ... 1999 var 2.00 kvar ... 3.70 kvar	0.01 var 0.1 var 1 var 10 var	±(5 % of reading + 5 D) ± 5 % of reading ± 5 % of reading ± 5 % of reading
Power factor	PF	0.00 i ... 1.00 i 0.00 c ... 1.00 c	0.01	±(5 % of reading + 5 D)
Total Harmonic Distortion (voltage)	THDU	0.0 % ... 99.9 %	0.1 %	±(5 % of reading + 5 D)
Total Harmonic Distortion (current)	THDI	0 mA ... 999 mA 0.00 A ... 16.00 A	1 mA 0.01 A	±(5 % of reading + 5 D) ± 5 % of reading
Cosine fi	Cos fi	0.00 i ... 1.00 i 0.00 c ... 1.00 c	0.01	±(5 % of reading + 5 D)
Current	I	0 mA ... 999 mA 1.00 A ... 16.00 A	1 mA 0.01 A	±(3 % of reading + 5 D) ± 3 % of reading
Voltage	U	0.0 V ... 199.9 A 200 V ... 264 V	0.1 V 1 V	±(3 % of reading + 10 D) ± 3 % of reading
PRCD test				
[7]Trip-out time	$t_{\Delta N}$	0 ms ... 300 ms (999 ms*) ($½xI_{\Delta N}$) 0 ms ... 300 ms ($I_{\Delta N}$) 0 ms ... 40 ms ($5xI_{\Delta N}$)	1 ms 1 ms 1 ms	± 3 ms ± 3 ms ± 3 ms
[7]Ttip-out current	I_{Δ}	$0.2x\ I_{\Delta N}$ ... $2.2x\ I_{\Delta N}$	$0.05x\ I_{\Delta N}$	$± 0.1x\ I_{\Delta N}$
RCD test				
[8]Trip-out time	$t_{\Delta N}$	0 ms ... 300 ms (999 ms*) ($½xI_{\Delta N}$) 0 ms ... 300 ms ($I_{\Delta N}$) 0 ms ... 40 ms ($5xI_{\Delta N}$)	1 ms 1 ms 1 ms	± 3 ms ± 3 ms ± 3 ms
[8]Trip-out current	I_{Δ}	$0.2x\ I_{\Delta N}$ ... $2.2x\ I_{\Delta N}$	$0.05x\ I_{\Delta N}$	$± 0.1x\ I_{\Delta N}$
Contact voltage	Uc	0.0 V ... 19.9 V 20.0 V ... 99.9 V	0.1 V 0.1 V	(-0 % / +15 %) of reading ± 20 D (-0 % / +15 %) of reading
PE conductor (PRCD)				
[9]PE conductor (Tye = 2pole, 3 pole, S(3 pole), S+)	R	0.00 Ω ... 19.99 Ω 20.0 Ω ... 99.9 Ω 100.0 Ω ... 199.9 Ω 200 Ω ... 999 Ω	0.01 Ω 0.1 Ω 0.1 Ω 1 Ω	±(2 % of reading + 2 D) ± 3 % of reading ± 5 % of reading indicative

FUNCTION	**Test principle**
[10]PE conductor (Type = K/ Di (varistor))	A voltage is applied between PE connections of the PRCD-K. There is a 'PASS' if PRCD trips.
Open conductor (PRCD)	Mains voltage is applied to the mains test socket. Disconnection of the L, N and PE connections is performed inside the instrument. There is a 'PASS' if the PRCD trips.
[11]PRCD PE probe test	Mains voltage is applied to the mains test socket. A safe voltage sufficiently high to activate the protection circuit in the PRCD is applied to the P/S terminal.

FUNCTION	**Result**	**Test current**		**Range**	**Resolution**	**Accuracy**
EV RCD test	$t_{\Delta N}$	a.c.				
[12]Trip-out time		pulse d.c. (A)	$½xI_{\Delta N}$	0.0 ms ... 300.0 ms	0.1 ms	± 3 ms
			$I_{\Delta N}$	0.0 ms ... 300.0 ms	0.1 ms	± 3 ms
			$2xI_{\Delta N}$	0.0 ms ... 150.0 ms	0.1 ms	± 3 ms
			$5xI_{\Delta N}$	0.0 ms ... 40.0 ms	0.1 ms	± 3 ms
		Smooth d.c.	$½xI_{\Delta N}$	0.0 ms ... 999.9 ms	0.1 ms	± 3 ms
				1.0 ms ... 9.99 ms	0.01 ms	± 30 ms
			$I_{\Delta N}$	0.0 ms ... 999.9 ms	0.1 ms	± 3 ms
				1.0 ms ... 9.99 ms	0.01 ms	± 30 ms
			$10xI_{\Delta N}$	0.0 ms ... 300.0 ms	0.1 ms	± 3 ms
[12]Trip-out current	$I_{\Delta N}$	a.c.		$0.2x\ I_{\Delta N}$ ... $1.1x\ I_{\Delta N}$	$0.05x\ I_{\Delta N}$	$±0.1x\ I_{\Delta N}$
		pulse d.c. (A)		$0.2x\ I_{\Delta N}$ ... $1.5x\ I_{\Delta N}$	$0.05x\ I_{\Delta N}$	$±0.1x\ I_{\Delta N}$
		smooth d.c.		1.5 mA ... 6.0 mA	$0.05x\ I_{\Delta N}$	$±0.1x\ I_{\Delta N}$

FUNCTION	Test principle
EVSE Diagnostic test (A 1632)	This test is performed in combination with an external test adapter / instrument. For technical specification refer to A 1632 eMobility Analyser Instruction manual.

FUNCTION		Range	Resolution	Accuracy
PE conductor (EV RCD)	R	0.00 Ω ... 19.99 Ω	0.01 Ω	±(2 % of reading + 2 D)
[9]PE conductor (I test = Standard)		20.0 Ω ... 99.9 Ω	0.1 Ω	± 3 % of reading
		100.0 Ω ... 199.9 Ω	0.1 Ω	± 5 % of reading
		200 Ω ... 999 Ω	1 Ω	indicative
[12]PE conductor (I test = Low)		0.00 Ω ... 19.99 Ω	0.01 Ω	±(2 % of reading + 2 D)
		20.0 Ω ... 99.9 Ω	0.1 Ω	± 5 % of reading
		100.0 Ω ... 199.9 Ω	0.1 Ω	Indicative
		200 Ω ... 999 Ω	1 Ω	indicative

FUNCTION	Test principle
Polarity	Normal ... test voltage (< 50V)
	Active ... test voltage (mains voltage)

FUNCTION		Range	Resolution	Accuracy
[18]Clamp current	I	0.10 mA ... 9.99 mA	0.01 mA	±(5 % of reading + 10 D)
	Idiff	10.0 mA ... 99.9 mA	0.1 mA	±(5 % of reading + 5 D)
	Ipe	100 mA ... 999 mA	1 mA	±(5 % of reading + 5 D)
		1.00 mA ... 9.99 mA	0.01 A	±(5 % of reading + 5 D)
		10.0 A ... 24.9 mA	0.1 A	±(5 % of reading + 5 D)
Flash test				
[13]Current a.c. (apparent)	I	0.00 mA ... 2.50 mA	0.01 mA	±(5 % of reading + 5 D)
Insulation resistance Riso (welding equipment)				
[14]Riso	Riso	0.00 MΩ ... 19.99 MΩ	0.01 MΩ	±(3 % of reading + 2 D)
		20.0 MΩ ... 99.9 MΩ	0.1 MΩ	± 5 % of reading
		100.0 MΩ ... 199.9 MΩ	0.1 MΩ	± 10 % of reading
Output voltage	Um	0 V ... 600 V	1 V	±(3 % of reading + 2 D)
Welding Circuit leakage (Ileak W-PE)		Refer to chapter Technical specifications in 3-phase adapter instrument user manual.		
Protective Conductor current (Idiff)		Refer to chapter Technical specifications in 3-phase adapter instrument user manual.		
No-load voltage		Refer to chapter Technical specifications in 3-phase adapter instrument user manual.		
Insulation Resistance Riso (medical equipment)	Riso	0.00 MΩ ... 19.99 MΩ	0.01 MΩ	±(3 % of reading + 2 D)
[14]Riso		20.0 MΩ ... 99.9 MΩ	0.1 MΩ	± 5 % of reading
Output voltage	Um	0 V ... 600 V	1 V	±(3 % of reading + 2 D)
Equipment Leakage				
[15]Equipment leakage current (direct, differential, alternative)	Ieq	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
		2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Ulpe (direct, differential, alternative)	Ulpe	0 V ... 299 V	0 V ... 299 V	
Power (direct, differential)	P	0.00 W ... 19.99 W	0.01 W	±(5 % of reading + 5 D)
		20.0 W ... 199.9 W	0.1 W	± 5 % of reading
		200 W ... 1999 W	1 W	± 5 % of reading
		2.00 kW ... 3.70 kW	10 W	± 5 % of reading
Applied Part Leakge				
[16]Applied Part Leakage current (direct, alternative)	Iap	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
		2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Uap (direct, alternative)	Uap	0 V ... 299 V	1 V	±(2 % of reading + 2 D)
Power (direct)	P	0.00 W ... 19.99 W	0.01 W	±(5 % of reading + 5 D)
		20.0 W ... 199.9 W	0.1 W	± 5 % of reading
		200 W ... 1999 W	1 W	± 5 % of reading
		2.00 kW ... 3.70 kW	10 W	± 5 % of reading
Touch Current (medical equipment)				
[5]Touch current	Itou	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
		2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Ulpe	Ulpe	0 V ... 299 V	1 V	±(2 % of reading + 2 D)
Power	P	0.00 W ... 19.99 W	0.01 W	±(5 % of reading + 5 D)
		20.0 W ... 199.9 W	0.1 W	± 5 % of reading
		200 W ... 1999 W	1 W	± 5 % of reading
		2.00 kW ... 3.70 kW	10 W	± 5 % of reading
Patient Leakage	Ip			
Patient leakage	Ip, a.c.	0.000 mA ... 1.999 mA	1 µA	±(3 % of reading + 3 D)
	Ip, d.c.	2.00 mA ... 19.99 mA	0.01 mA	± 5 % of reading
Power (direct)	P	0.00 W ... 19.99 W	0.01 W	±(5 % of reading + 5 D)
		20.0 W ... 199.9 W	0.1 W	± 5 % of reading
		200 W ... 1999 W	1 W	± 5 % of reading
		2.00 kW ... 3.70 kW	10 W	± 5 % of reading

SELV/PELV Voltage				
[17]Voltage (u trms, Uac)	U trms U ac	0.0 V ... 199.9 V 200 V ... 264 V	0.1 V 1 V	±(2 % of reading + 10 D) ± 2 % of reading
Voltage Udc	U dc	0.0 V ... 199.9 V 200 V ... 264 V	0.1 V 1 V	±(2 % of reading + 10 D) ± 2 % of reading
Frequency	Freq	0 Hz (DC) 15.0 Hz ... 499.9 Hz	 0.1 Hz	Indicative ±(0.2 % of reading + 1 D)

FUNCTION	**Test principle**
Fuse checker	Fuse checker, integrated in the OmegaEE XD instrument, is intended for verification of fuses. Continuous sound ... Fuse OK No sound ... Fuse blown
[1]**Operating range (acc. to EN 61557-4)** Test currents Current source (at nominal mains voltage, use of standard accessories) Open circuit voltage	0.08 Ω ... 199.9 Ω 0.2 A, 10 A, 25 A > 0.2 A @ R < 2 Ω > 10 A @ R < 0.1 Ω @ 230 V > 25 A into short circuit @ 230 V < 9 V a.c.
[2]**Operating range (acc. to EN 61557-2)** Nominal voltages Un Short circuit current	0.08 MΩ ... 199.9 MΩ 250 V, 500 V (- 0 %, + 10 %) max. 2.0 mA
[3]**Operating range (acc. to EN 61557-2)** Open circuit voltage Current calculated to mains supply voltage (110 V or 230 V) is displayed.	0.02 mA ... 19.99 mA 230 V a.c., 110 V a.c.
[4]**Operating range (acc. to EN 61557-16)** Influence of load current	0.010 mA ... 19.99 mA < 0.02 mA / A
[5]**Operating range (acc. to EN 61557-16)**	0.010 mA ... 19.99 mA
[6]**Operating range (acc. to EN 61557-16)** Output voltage	0.02 mA ... 19.99 mA ≤250 V a.c., max, ≤2 mA
***According to standard AS/NZS 3017**	
[7]**Test current type** Test currents (IΔN) Test current size (PRCD standard is AS/NZS 3017) Test current size (general)	sin-wave (AC), pulsed (A, F), smooth DC (B, B+) 10 mA, 15 mA, 30 mA 100 mA, 300 mA with A 1322, A 1422 ± 5% -0/+10%
[8]**Test current type** Test currents (IΔN) Test current size (PRCD standard is AS/NZS 3017) Test current size (general)	sin-wave (AC), pulsed (A, F), smooth DC (B, B+) 10 mA, 15 mA, 30 mA ± 5% -0/+10%
[9]**Operating range (acc. to EN 61557-4)** Current source (at nominal mains voltage, use of standard accessories) Open circuit voltage	0.08 Ω ... 199.9 Ω > 0.2 A @ R < 2 Ω < 9 V a.c.
[10]**Open circuit voltage** Output resistance	24 V 220 Ω ± 10 % ($I_{\Delta N}$ = 30 mA), 620 Ω ± 10 % ($I_{\Delta N}$ = 10 mA)
[11]**Test voltage (active)** Maximal current	> 100 V a.c. < 1 mA
[12]**Current source**	cca 5 mA @ R < 2 Ω
[13]**Open circuit test voltage** Short circuit current Output resistance	1500 V, 3000 V (-0/+5%) @ supply voltage 115 V, 230 V < 3.5 mA 480 kΩ @ 1500 V, 960 kΩ @ 3000 V,
[14]**Operating range (acc. to EN 61557-2)** Nominal voltages Un Short circuit current	0.08 MΩ ... 199.9 MΩ 500 V (- 0 %, + 10 %) max. 2.0 mA
[15]**Operating range direct and differential method (acc. to EN 61557-16)** Operating range alternative method (acc. to EN 61557-16) Influence of load current (differential method)	 0.010 mA ... 19.99 mA 0.020 mA ... 19.99 mA < 0.02 mA/A
[16]**Operating range direct method (acc. to EN 61557-16)** Operating range alternative method (acc. to EN 61557-16) Voltage source	0.010 mA ... 19.99 mA 0.020 mA ... 19.99 mA ≤250 V a.c. max, ≤2 mA
[17]**Result type** Input resistance Nominal frequency range Bandwidth	True r.m.s (TRMS), AC, DC Input P/S 200 kΩ to earth Input PE 200 kΩ to earth 0 Hz (DC), 15 Hz ... 500 Hz 1 kHz
[18]**Nominal frequency range**	50 Hz ... 200 Hz

GENERAL DATA

Mains supply	
Supply voltage, frequency	110 V / 230 V AC, 50 Hz / 60 Hz
Supply voltage tolerance	±10 %
Max. power consumption	300 VA (without load on test socket)
Max. load	10 A continuous, 16 A short duration, 1.5 kW motor
Mains supply overvoltage category	CAT II / 300V
Altitude	≤ 2000 m
Measuring categories	
Instrument	Cat II / 300 V
Test socket	Cat II / 300 V
Plug test cable	Cat II / 300 V
Altitude	≤ 2000 m
Protection classifications	
Power supply	Class I, mains supply, Class II, only battery supply
Pollution degree	2
Degree of protection	IP 40 IP 20 (mains test socket)
Case	Shock proof plastic / portable
Operation	Indoor use
Display	Colour TFT display, 4.3 inch, 480 x 272 pixels
Touch screen	Capacitive
EMC classifications	
Emission	Class B
Immunity	Industrial environment
Communication	
Memory	depends on microSD card size
RS232 interfaces	2
USB 2.0	Standard USB Type B
Bluetooth	Class 1
Dimensions (w×h×d)	31 cm × 13 cm × 25 cm
Weight	6.1 kg
Reference conditions	
Reference temperature range	15 °C ... 35 °C
Reference humidity range	35 % ... 65 % RH
Operation conditions	
Working temperature range	0 °C ... +40 °C
Maximum relative humidity	85 % RH (0 °C ... 40 °C), non-condensing
Storage conditions	
Temperature range	-10 °C ... +60 °C
Maximum relative humidity	90 % RH (-10 °C ... +40 °C) 80 % RH (40 °C ... 60 °C)

STANDARDS

- EN 50699 Recurrent Tests of Electrical Equipment
- EN 50678 Verification of Electrical Equipment After Repair
- IEC 62368-1 Audio/video, information and communication technology equipment
- IEC 62353 Recurrent test and test after repair of medical electrical equipment
- IEC 60601 Medical electrical equipment[1]
- IEC IEC 60974-4 Arc welding equipment – Periodic inspection and testing[2]
- IEC 62752 In-cable control and protection device for mode 2 charging of electric road vehicles (IC – CPD)

APPLICATION

- General electrical equipment testing.
- Medical electrical equipment testing.
- Arc welding equipment testing.
- Mode 2 EV, emergency charging cables testing[3].
- Mode 3 EV, charging cables testing[4].
- P-RCD testing (PRCD, PRCD-K, PRCD-S, PRCD-S pro, 2-pole, 3-pole).
- Mobile power distribution boxes testing.
- Testing devices with floating inputs (unique measuring function).
- Three-phase equipment testing.

[1]Partially covered / [2]In combination with A 1422 / [3]In combination with A 1632 or A 1532 / [4]In combination with A 1832

SELECTION GUIDE FOR ELECTRICAL EQUIPMENT TESTERS

MEASURING FUNCTION	MI 3365	MI 3365 25A	MI 3365 M	MI 3365 F
Visual inspections (EN 50678, EN 50699, EN 62353, EN 60974-4, General)	•	•	•	•
Continuity // Protective earth resistance, 200mA, 10A, 25A	• / - / -	• / • / •	• / • / •	• / • / •
Insulation Resistance (Riso, Riso-S)	•	•	•	•
Protective conductor current, (Alternative, Residual, Direct)	•	•	•	•
Touch leakage current, (Direct, Alternative)	•	•	•	•
Leakage current produced by a floating input, PE current (Direct, Residual)	•	•	•	•
Leakage current produced by a floating input, Touch current (Direct)	•	•	•	•
Polarity / Active polarity test	•	•	•	•
Power (P, S, Q, PF, THDu, THDi, CosØ, I, U)	•	•	•	•
P-RCD / RCD test, (2 pole, 3 pole, K/ Di (varistor), S (3-pole))	•	•	•	•
IC-CPD, EV-RCD, (PE conductor, Trip current, Trip time)	•	•	•	•
USELV/PELV	•	•	•	•
EVSED Diagnostic test	•	•	•	•
Flash test, (1.5 kV, 3.0 kV)				•
Equipment leakage (direct, differential, alternative), IEC/EN 62353		Optional	•	
Applied part leakage (direct, alternative), IEC/EN 62353		Optional	•	
Patient leakage (Ip ME), IEC/EN 62353, IEC 60601		Optional	•	
Welding circuit leakage (optional A 1422), IEC/EN 60974-4	•	•	•	•
Primary leakage (optional A 1422), IEC/EN 60974-4	•	•	•	•
No-load voltage (optional A 1422), IEC/EN 60974-4	•	•	•	•
Clamp current (with optional A 1283)	•	•	•	•
Fuse test	•	•	•	•
Functional inspections (EN 50678, EN 50699, EN 62353, EN 60974-4, General)	•	•	•	•

CAN BE USED TOGETHER WITH

1322
Active 3-phase adapter

Metrel's A 1322 Multifunctional test adapter is designed for troubleshooting, as well as for periodic testing on 3-phase appliances and machinery. Unique functions such as, active polarity testing, differential leakage testing and testing of 3-phase RCD's make the A 1322 Active 3-phase Adapter an ideal instrument for advanced applications. The A 1322 adapter is designed for use alongside the MI 3325 MultiServicerXD, and MI 3365 OmegaEE XD series, enabling functional tests to be carried out on machines up to 40 A. Several test socket outlets make this instrument an ideal tester for testing industrial extension leads that may also be RCD protected.

A 1422
Active 3-phase adapter plus

Metrel's A 1422 Multifunctional test adapter is designed for troubleshooting, as well as for periodic testing on 3-phase appliances and machinery. Unique functions such as, active polarity testing, differential leakage testing and testing of 3-phase RCD's make the A 1422 Active 3-phase Adapter an ideal instrument for advanced applications. The A 1422 adapter is designed for use alongside the MI 3325 MultiServicerXD, and MI 3365 OmegaEE XD series, enabling functional tests to be carried out on machines up to 40 A. Several test socket outlets make this instrument an ideal tester for testing industrial extension leads that may also be RCD protected. The A 1422 Multifunctional test adapter has complete support for testing of Arc Welding Equipment in accordance to EN 60974-4 and VDE 0544-4.

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 installation 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 during charging. Fully supported professional station-based and cable-based report creation with MESM software.

A 1532 XA
EVSE adapter XA

The A 1532 EVSE XA adapter is used for verification of electrical safety and functional testing of EVSE together with supported METREL installation testers. It is intended for testing Mode 3 EV supply equipment with a type 2 connector. XA version supports 3 phase load testing up to 13 A and different error types, including PE open. If used together with Metrel AutoSequences®, prebuilt in the newer multifunctional testers, the complete EVSE charging station can be tested (state-by-state) electrically and functionally with a push of a button. It is possible to create a professional station-based report with MESM.

A 1832
Mode 3 Charging Cable Adapter

The A 1832 Mode 3 Charging cable adapter is used for verification of electrical safety testing of Mode 3 EV charging cables with Type 2 connectors together with supported METREL or third-party testers. If used together with Metrel AUTOSEQUENCES®, prebuilt in the newer multifunctional testers, the complete EV charging cable can be tested and functionally with a push of a button. It is possible to create a professional report with MESM SW.

OPTIONAL ACCESSORIES

Photo	Order No.	Acc. decription
	A 1207	3 phase adapter with schuko connector
	A 1556	Medical probe adapter
	A 1316	Test cable L=2m BLK 3x1,5mm2 CEE-RED 16A/Schuko EU male
	A 1317	Test cable L=2m BLK 3x1,5mm2 CEE-RED 32A/Schuko EU male
	A 1388	Test cable 3x0,4m BLK/GRN/BLU 2,5mm2 Schuko EU female/Schuko EU male
	A 1389	Test cable 5x0,4m BLK/BLU/GRN/ BRN/RED 2,5mm2 CEE-RED 16A/ CEE-RED 16A
	A 1390	Test cable 5x0,4m BLK/BLU/GRN/ BRN/RED 2,5mm2 CEE-RED32A/ CEE-RED 32A
	A 1474	Test cable L=0,3m 3x1,5mm2 CEE-YEL 16A/ Type G connector Test cable L=0,3m 3x1,5mm2 CEE-YEL 16A/ Type I connector
	A 1579	Leakage current clamp I=10 A Dia=40 mm - RED/BLK
	A 1488	BT Able printer, (battery or mains operated)
	A 1489	Label Printer Able, with power and data cables, (battery or mains operated)
	A 1520	Labels for ABLE printer, (250 labels per roll)
	S 2062	BT label printer set, (mains operated)
	A 1450 A 1628	Spare label roll for S 2062 2500 Pcs Spare label roll for S 2062 800pcs
	A 1610	Continuity test adapter
	A 1694	Tip commander DB9/stack. banana plug L=2,5m
	A 1105	Barcode scanner
	A 1105 2D	Barcode scanner 2D
	A 1652	Barcode scanner Bluetooth
	A 1653	QR/Barcode scanner Bluetooth

Photo	Order No.	Acc. decription
	A 1571	NFC reader/writer
	A 1572	NFC tags, Dia=34 mm self-stick 50 Pcs
	A 1573	NFC labels, Dia=29 mm self-stick 50 Pcs
	A 1574	NFC cable-tie, L=130 mm, 50 Pcs
	A 1297	Crocodile clip BRN CAT III 1000V
	A 1309	Crocodile clip GRN CAT III 1000V
	A 1298	Test probe Brown CAT III 1000V
	A 1062	Test probe Green CAT III 1000V
	A 1341	Test lead L=1,5m GRN 2,5mm2 stack. banana plug/stack. banana plug
	A 1342	Test lead L=1,5m BRN 2,5mm2 stack. banana plug/stack. banana plug
	A 1670	Test cable L=1,5m BLK/GRN/BLU 3x0,75mm2 IEC connector/3x stack. banana Plug
	A 1331	Test lead L=1,5m BLK 1,5mm2 Crocodile clip/stack. banana plug
	A 1578	Communication cable L=0,5m DB9/ USB ext. USB Keyboard
	A 1550	Soft padded carrying bag Size: XXL
	P 1101	BASIC to PRO licence key upgrade for Metrel ES Manager
	P 1102 AND	Metrel aMESM PRO Licence Key Upgrade
	P 1301	MI 3365 M licence key
	P 1102	Metrel FW Profile Licence Key With PRO SW Set
	A 1268	Test Probe with brush BLK
	A 1271	Carrying bag Size: S

ORDERING INFORMATION

Standard set MI 3365

- Instrument MI 3365 (25A, M, F) OmegaEE XD
- A 1493 Power cable L=2m 1.5mm2 EU, 2pcs
- A 1340 Test lead L=1,5m 2,5mm2 Black
- A 1014 Test probe Black CAT III 1000V
- A 1013 Crocodile clip Black CAT III 1000V
- A 1271 Carrying bag Size: S
- A 1727 USB cable L=1m
- A 1047 Test lead L=2m 0,75mm2 Red (MI 3365 F only)
- A 1064 Crocodile clip Red CAT III 1000V (MI 3365 F only)
- Instruction manual (short version)
- Calibration Certificate
- SW 1201 PC SW Metrel ES Manager BASIC*

**Metrel ES Manager can be downloaded free of charge from Metrel Web server.*

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Note! Photographs in this catalogue may slightly differ from the instruments at the time of delivery.
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