

# Transformer testing

## MI 3280 Digital Transformer Analyser



Digital Transformer Analyser (MI 3280) is a Multi-function, portable battery (Li-ion) powered test instrument with excellent IP protection: IP65 (case closed), IP54 (case open), intended for diagnosing of: turn ratio, phase deviation and excitation current of single and three phase transformers and winding resistance of single and three phase transformers.

NEW

High Voltage Insulation / Continuity / Earth

### MEASURING FUNCTIONS

Available functions and features offered by the Digital Transformer Analyser:

- Turn ratio measurement of single phase transformers;
- Phase deviation between high voltage and low voltage winding;
- Excitation current when measuring turn ratio;
- Turn ratio measurement of three phase transformers:
  - Phase deviation between high voltage and low voltage winding;
  - Excitation current when measuring turn ratio;
- Winding resistance measurement of single phase transformers;
- Winding resistance measurement of three phase transformers.

### KEY FEATURES

- A 3.4" color LCD display with touch screen offers easy-to-read results and all associated parameters.
- The operation is straightforward and clear to enable the user to operate the instrument without the need for special training.
- Test results can be stored on the instrument. PC software that is supplied as a part of standard set enables transfer of measured results to PC where they can be analysed or printed.
- Built-in help screens for referencing on site.
- Autotest sequences.
- 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 for creation of test structures and uploading, downloading of test results, autotest editor and report creation.
- High degree of protection IP 65 (case closed), IP 54 (case open).

### APPLICATION

- Power Transformers up to 1,6 MVA.
- Voltage transformers.
- Current transformers.

### STANDARDS

#### Functionality

- C57.12.70

#### Electromagnetic compatibility

- EN 61326

#### Safety

- EN 61010 - 1
- EN 61010 - 2 - 030
- EN 61010 - 2 - 033
- EN 61010 - 031

#### Li - ion battery pack

- IEC 62133

## TECHNICAL SPECIFICATION

Function		Measuring range	Resolution	Accuracy
<b>TURN RATIO</b> <b>r, rA, rB, rC</b>	Excitation voltage 80 V	0.8000 ... 9.9999	0.0001	±(0.2% of reading + 2 digits)
		10.000 ... 99.999	0.001	±(0.2% of reading + 2 digits)
		100.00 ... 999.99	0.01	±(0.2% of reading + 2 digits)
		1000.0 ... 1999.9	0.1	±(0.5% of reading + 2 digits)
		2000.0 ... 3999.9	0.1	±(0.5% of reading + 2 digits)
	Excitation voltage 40 V	4000.0 ... 8000.0	0.1	±(1.0% of reading + 2 digits)
		0.8000 ... 9.9999	0.0001	±(0.2% of reading + 2 digits)
		10.000 ... 99.999	0.001	±(0.2% of reading + 2 digits)
		100.00 ... 999.99	0.01	±(0.2% of reading + 2 digits)
		1000.0 ... 1999.9	0.01	±(0.5% of reading + 2 digits)
	Excitation voltage 10 V	2000.0 ... 3999.9	0.1	±(0.5% of reading + 2 digits)
		4000.0 ... 8000.0	0.1	n/a
		0.8000 ... 9.9999	0.0001	±(0.2% of reading + 2 digits)
	Excitation voltage 5 V	10.000 ... 99.999	0.001	±(0.2% of reading + 2 digits)
		100.00 ... 999.99	0.01	±(0.5% of reading + 2 digits)
		1000.0 ... 8000.0	0.1	n/a
Excitation voltage 1 V	0.8000 ... 9.9999	0.0001	±(0.2% of reading + 2 digits)	
	10.000 ... 99.999	0.001	±(0.5% of reading + 2 digits)	
	100.00 ... 999.99	0.01	n/a	
<b>EXCITATION CURRENT</b> <b>i, iA, iB, iC</b>	Test frequency 55, 65 or 70 Hz	1000.0 ... 8000.0	0.1	n/a
		0.10 mA ... 9.99 mA	0.01 mA	±(2 % of reading + 0.20 mA)
		10.0 mA ... 99.9 mA	0.1 mA	±(2 % of reading + 2 digits)
		100 mA ... 999 mA	1 mA	±(2 % of reading + 2 digits)
<b>PHASE DEVIATION</b> <b>fi, jA, jB, jC</b>	Test frequency 55, 65 or 70 Hz	1.00 A ... 1.10 A	0.01 A	±(2 % of reading + 2 digits)
		-180.00 ... 180.00 °	0.01°	±(0.05°)
<b>WINDING RESISTANCE</b> <b>R, RA, RB, RC</b>	Test current 10 mA ... 1000 mA	1.0 mΩ ... 999.0 mΩ	0.1 mΩ	±(2 % of reading + 3 digits)
		1.000 Ω ... 9.999 Ω	0.001 Ω	±(2 % of reading + 2 digits)
		10.00 Ω ... 99.99 Ω	0.01 Ω	±(2 % of reading + 2 digits)
		100.0 Ω ... 999.9 Ω	0.1 Ω	±(2 % of reading + 2 digits)
<b>GENERAL</b>	Battery power supply	14.4 V DC (4.4Ah Li-ion)		
	Battery charging time	typical 4.5 h (deep discharge)		
	Mains power supply	90-260 VAC, 45-65 Hz, 100 VA (300 V CAT II)		
	Protection classification	reinforced insulation		
	Over-voltage category	50 V CAT IV		
	Pollution degree	2 <input type="checkbox"/>		
	Degree of protection	IP 65 (case closed), IP 54 (case open)		
	Dimensions (w x h x d)	360 x 160 x 330 mm		
Weight	8.8 kg, (with battery and accessories)			


## ORDERING INFORMATION



- Instrument MI 3280
- 4 wire test lead with Kelvin clips, 2.5 m 4 pcs
- USB cable
- Mains cable
- Soft carrying bag
- Metrel ES Manager BASIC license\*
- Instruction manual
- Calibration certificate

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

## OPTIONAL ACCESSORIES

Photo	Order No.	Acc. description
	S 2081	Set of test leads with Kelvin clips, 5 m

### METREL D.D.

Measuring and Regulation Equipment Manufacturer  
Ljubljanska 77, SI-1354 Horjul, Slovenia  
T +386 (0)1 75 58 200, F +386 (0)1 75 49 226  
metrel@metrel.si, www.metrel.si

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

