

MODEL 3200

EXTENDED SPECIFICATIONS



ELECTRICAL TEST EQUIPMENT CALIBRATOR

DECLARATION OF CONFORMITY

CE

Manufacturer's Name: Transmille Ltd.
Manufacturer's Address: Unit 4, Select Business Centre
Lodge Road
Staplehurst
TN12 0QW.
United Kingdom.

Declares, that the product

Product Name: Electrical Test Calibrator
Model Number: 3200
Product Options:
This declaration covers all options of the above product(s)

Conforms with the following European Directives:

The product herewith complies with the requirements of the Low Voltage Directive 73/73EEC and the EMC Directive 89/336/EEC (including 93/68/EEC) and carries the CE Marking accordingly

Conforms with the following product standards:

EMC

IEC616326-1:1997+A1:1998 / EN 61326-1:1997+A1:1998 EN55011:1991

Standard

***IEC 61000-4-2:1995+A1:1998 / EN 61000-4-2:1995
IEC 61000-4-3:1995 / EN 61000-4-3:1995
IEC 61000-4-4:1995 / EN 61000-4-4:1995
IEC 61000-4-5:1995 / EN 61000-4-5:1995
IEC 61000-4-6:1996 / EN 61000-4-6:1996
IEC 61000-4-11:1994 / EN 61000-4-11:1994***

Limit

***Group 1 Class A
4kV CD, 8kV AD
3 V/m, 80-1000 MHz
0.5kV signal lines, 1kV power lines
0.5kV line-line, 1kV line-ground
3V, 0.15-80 MHz 1 cycle, 100%
Dips: 30% 10ms; 60% 100ms
Interrupt > 95%@5000ms***

SAFETY

IEC 61010-1:1990+A1:1992+A2:1995 / EN 61010-1:1993+A2:1995

06/03/2006

Date Of Issue



Managing Director

Warm Up Time	Double the time since last used up to 20 minutes maximum	
Standard Interfaces	RS232	
Optional Interfaces	USB (Universal Serial Bus)	
Temperature Performance	Storage : -5°C to +60°C Operation : 0°C to +50°C	
Relative Humidity	Operation : <80% to 30°C, <70% to 40°C, <40% to 50°C Storage : <95%, non-condensing	
Altitude	Operation : 3000m (10,000ft) Maximum Transit : 12000m (40,000ft) Maximum	
EMC & Safety	The calibrator line input plug must be earthed See D.O.C for full details	
Line Power	Line Voltage Selectable : 110V / 230V Line Frequency : 50Hz to 60Hz Line Voltage Variation : -6% +10%	
Power Consumption	28 Watts	
Connections	PAT Testing Connection	1x IEC Plug
	LOOP & RCD Testing Connection	1x UK / European / Australian type socket
	Insulation Tester Connection	1xBlack : 1xRed 4mm Low Thermal Sockets
	PAT Ground Connection	1x 4mm terminal post
	RS232 Interface	1x Female 'D' type socket
RS232 Settings	Baud Rate	9600
	Parity	None
	Data Bits	8
	Stop Bits	1
Display Information	Type	Backlit Black on white film STN type
	Viewing Area	124.3mm * 34mm
	Resolution	256 * 94 dots
	Backlight Type	Cold fluorescent lamp
	Brightness	70 to 90 cd/m ²
Indicators	PAT Testing Connection	Red LED above plug
	LOOP & RCD Testing Connection	Red LED above socket
	Insulation Tester Connection	Red LED above terminals
Keyboard	Membrane type with tactile feedback	
Fuses	Loop (Live)	5A Anti-Surge
	Mains	2A
	Loop (Neutral)	5A Anti-Surge
	RCD	2A
	ACV	100mA
	PAT	1A
	Insulation Resistance	100mA
Isolation	Outputs are opto-isolated from mains earth and the RS-232 interface Maximum common mode voltage between earth and the low terminals 30 Volts ac/dc.	
Dimensions & Weights	Calibrator Only	45cm x 44cm x 14cm : 10kgs
Warranty Period	1 Year	
Recommended Service Interval	1 Year	
Supplied Connections	1x Serial Interface Connection 1x 1m PAT Test Lead	
Mounting Kit (optional)	3U rack mount kit	
Case Colour	Cream (RAL9002)	

Due to continuous development specifications may be subject to change.

Continuity Resistance*

Standard Accuracy - Relative to Calibration Standards Specifications

Range	Type	Resolution	Accuracy		
			%	±	mΩ
0.2Ω to 20Ω	Continuously Variable	10mΩ	1	±	25
100Ω	Fixed	10mΩ	1	±	25
1kΩ	Fixed	10mΩ	1	±	25

High Accuracy (option) - Relative to Calibration Standards Specifications

Range	Type	Resolution	Accuracy		
			%	±	mΩ
0.2Ω to 20Ω	Continuously Variable	10mΩ	0.25	±	25
100Ω	Fixed	10mΩ	0.25	±	25
1kΩ	Fixed	10mΩ	0.25	±	25

* Maximum Test Current 300mA

Test current maximum can be exceeded for a maximum of 5 seconds

Continuity Current Measurement

Accuracy - Relative to Calibration Standards Specifications

Range	Load	Accuracy		
		%	±	Counts
0 to 320mA	1Ω	1.3	±	6

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Insulation Resistance

Standard Accuracy - Relative to Calibration Standards Specifications

Range	Type	Resolution	Maximum Voltage/Power ¹	Accuracy %
0Ω to 5MΩ	Continuously Variable	10kΩ	1.1kV or 1 Watt	0.3
5MΩ to 2GΩ	Continuously Variable	10kΩ	1.1kV or 1 Watt	3

High Accuracy (option) - Relative to Calibration Standards Specifications

Range	Type	Resolution	Maximum Voltage/Power ¹	Accuracy %
0Ω to 5MΩ	Continuously Variable	10kΩ	1.1kV or 1 Watt	0.1
5MΩ to 2GΩ	Continuously Variable	10kΩ	1.1kV or 1 Watt	1

Note 1 : A 5kV option is available for Insulation Testers incorporating *Active Guard*.

10GΩ Range (Option) - Relative to Calibration Standards Specifications

Range	Type	Resolution	Maximum Voltage/Power ¹	Accuracy %
2GΩ to 10GΩ (Option)	Continuously Variable	10kΩ	1.1kV or 1 Watt	5

Note : Can be fitted to Standard or High accuracy models

Insulation Test Voltage Measurement

Accuracy - Relative to Calibration Standards Specifications

Ranges	Current Measurement	Resolution	Accuracy		
			%	±	Counts
50V • 100V • 250V • 500V • 1kV	0.5mA • 1mA	0.1V	1	±	8

AC Voltage Output

Accuracy - Relative to Calibration Standards Specifications

Ranges	Accuracy		
	%	±	Counts
100V • 200V • 230V • 300V • 400V	0.2	±	1

Resistance Multiplier Option 5KV

Multiplies resistance output of 3200 by 100

Accuracy - Relative to Calibration Standards Specifications

Range	Resolution	Maximum Voltage Peak AC+DC	Accuracy
1GOhm to 1TOhm ¹	1MOhm	10kV	1.50% ± R ^{CAL}

¹Requires 10GOhm Option fitted to 3200, otherwise maximum resistance = 200GOhms

R^{CAL} = Resistance set on 3200

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RCD Time

Accuracy - Relative to Calibration Standards Specifications

Range	Resolution
20ms to 5s	10ms

RCD (Residual Current Device) Current

Trip Current Range 0.5 to 3000mA

Current Multiplier 0.5, 1, 2, 5

3200 Keypad Input : 1mA to 1000mA in 1mA steps

Accuracy - Relative to Calibration Standards Specifications

Range	Resolution	Time Interval*	Series Resistance	Accuracy		
				%	±	Counts
3mA to 10mA	0.01mA	up to 5s <190ms	100Ohms	1.2	±	6
				5	±	20
10.1mA to 100mA	0.01mA	up to 5s <190ms	10Ohms	1.2	±	6
				5	±	20
101mA to 1A	0.1mA	up to 5s <190ms	1Ohm	1.2	±	6
				5	±	20
1.01A to 3A	1mA	up to 5s <190ms	0.1Ohm	1.2	±	6
				5	±	20

Range selection automatic, depending on trip value : All ranges 15% Overrange

Additional Features	
Timing Modes	Immediate • Zero Crossing
Current Modes	½I • I • 2I • 5I
Display Modes	0°, 180° of Phase & Half Wave / DC

Intelligent Protection :

The 3200 incorporates a pre-test scan where power is ramped up to the UUT - the test is automatically aborted if a faulty UUT is detected.

This avoids further damage to the UUT and safeguards the 3200.

*Current measurement modes :

Above 200ms : DC coupled True RMS allowing accurate measurement of both sinusoidal current and half wave (positive or negative)

Intelligent firmware captures and analyses the current waveform automatically discarding pre-test (no-trip) currents and switch on spikes automatically capturing and measuring only the true test current.

Fast Mode (Below 200ms) : Peak capture divided by 1.41 to give mathematically calculated RMS for sinusoidal only

RCD Current Duration

RCD current duration is the measurement of the period the fault current flows

RCD Current Duration	
Measurement Range	10ms to 5s
Resolution	0.1ms
Timing Accuracy	0.4ms

Due to continuous development specifications may be subject to change.

Loop Resistance

Accuracy - Relative to Calibration Standards Specifications

Nominal Resistance Values	Resolution	Accuracy		
		%	±	mΩ
0.05Ω	0.1mΩ	0.5	±	4
0.1Ω	0.1mΩ	0.5	±	4
0.22Ω	0.1mΩ	0.5	±	4
0.33Ω	0.1mΩ	0.5	±	4
0.5Ω	0.1mΩ	0.5	±	4
1Ω	0.1mΩ	0.5	±	4
5Ω	0.1mΩ	0.5	±	4
10Ω	0.1mΩ	0.5	±	4
100Ω	1mΩ	0.5	±	4
1kΩ	1mΩ	0.5	±	4

Power Dissipation :

All resistors are 50W : Maximum test current for 200ms = 40A
Thermal protection is provided in the event of overheating.

Intelligent Protection :

The 3200 incorporates a pre-test scan where power is ramped up to the UUT -
the test is automatically aborted if a faulty UUT is detected.

This avoids further damage to the UUT and safeguards the 3200.

Manual Loop Correction

Correction range 0.001 to 2 Ohms - manually entered using 3200 keypad

Auto Loop (Option)

The auto loop function automatically corrects for supplied loop impedance.

Maximum Correction	2Ω
Resolution	100uΩ
Accuracy	±18mΩ
Measurement Current	4A

Due to continuous development specifications may be subject to change.

All PAT functions are isolated from mains earth to enable calibration of PAT testers which cannot function with connections to ground.

PAT Earth Bond Resistance

Accuracy - Relative to Calibration Standards Specifications

Nominal Resistance Values	Resolution	Accuracy		
		%	±	mΩ
0.05Ω	0.1mΩ	0.5	±	4
0.1Ω	0.1mΩ	0.5	±	4
0.22Ω	0.1mΩ	0.5	±	4
0.33Ω	0.1mΩ	0.5	±	4
0.5Ω	0.1mΩ	0.5	±	4
1Ω	0.1mΩ	0.5	±	4
5Ω	0.1mΩ	0.5	±	4
10Ω	0.1mΩ	0.5	±	4
100Ω	1mΩ	0.5	±	4
1kΩ	1mΩ	0.5	±	4

PAT Earth Bond Current Measurement

Range	Resolution	Accuracy		
		%	±	Counts
100mA	1mA	1.5	±	6
10A	10mA	1.5	±	6
30A	10mA	1.5	±	6

PAT Insulation Resistance

Standard Accuracy - Relative to Calibration Standards Specifications

Range	Type	Resolution	Maximum Voltage/Power ¹	Accuracy %
0Ω to 5MΩ	Continuously Variable	10kΩ	1.1kV or 1 Watt	0.3
5MΩ to 2GΩ	Continuously Variable	10kΩ	1.1kV or 1 Watt	3

High Accuracy (Option) - Relative to Calibration Standards Specifications

Range	Type	Resolution	Maximum Voltage/Power ¹	Accuracy %
0Ω to 5MΩ	Continuously Variable	10kΩ	1.1kV or 1 Watt	0.1
5MΩ to 2GΩ	Continuously Variable	10kΩ	1.1kV or 1 Watt	1

PAT Leakage Current

Range	Resolution	Accuracy		
		%	±	Counts
240uA	1uA	1.5	±	2
1mA		1.5	±	2
3mA	1uA	1.5	±	2

Due to continuous development specifications may be subject to change.

PAT Leakage Test Voltage

Range (RMS)	Resolution	Accuracy		
		%	±	Counts
100V to 300V	0.1V	1.5	±	9

PAT Load Testing

Range	Accuracy		
	Ohms	±	%
Short Circuit	-	-	-
Open Circuit	-	-	-
0.13kW	440Ω	±	5

PAT Flash Voltage Measurement

Class	Range	Resolution	Load Resistance	Accuracy		
				%	±	Counts
Class 1 (1.5kV)	1kV to 1.8kV	1V	600kΩ (2.5mA@1.5kV)	4	±	10
Class 2 (3kV)	2kV to 3.6kV	1V	1.2MΩ (2.5mA@3kV)	4	±	10

PAT Flash Current Measurement

Range	Resolution	Accuracy
		%
1mA to 3mA	10uA	5

Due to continuous development specifications may be subject to change.

Line Voltage Measurement

Range	Resolution	Accuracy
200V to 260V	0.1V	0.8% ± 6 Counts

Due to continuous development specifications may be subject to change.

AC/DC VOLTAGE MEASUREMENT

Range	Resolution	Accuracy (1 Year Rel.)		
		%	±	Counts
3kV	10V	0.5	±	3
12kV	10V	0.5	±	3

AC/DC CURRENT MEASUREMENT

Range	Resolution	Accuracy (1 Year Rel.)		
		%	±	Counts
200uA	100nA	0.5	±	4
2mA	1uA	0.5	±	3
20mA	10uA	0.5	±	3

Due to continuous development specifications may be subject to change.