

ETHOS 8400 SPECIFICATION

General Specification

Dimensions	H 115mm W 245mm D 140mm
Weight (With Batteries)	965g
Battery Type	6 x AA / LR6 Alkaline
Battery Life (Typical)	Idling: 13.5 hours ¹ Insulation according to BS EN61557-2: 1008 tests Continuity according to BS EN61557-4: 960 tests
Protective Device	F0.5A, 500V, HRC 6.3 x 32mm
LCD Display	TFT (Thin-Film-Transistor) Colour LCD 3.5" Diagonal 320xRGBx240 pixels
Category Rating	300V CAT IV 600V CAT III
Ingress Protection Rating	IP54
Operating Temperature	0°C to 40°C
Storage Temperature	-10°C to 60°C
Operating Humidity	80% @ 31°C to 50% @ 40°C
Operating Altitude	0 to 2000m

ETHOS 
Test Instruments

Distributed by MTi

Email: enquiries.ethos@adivision.co.uk

Web: www.ethos-instruments.co.uk

Measurement Specification and Accuracies

Loop/PFC-PSC

High Current: 2 wire test Live – Earth or Phase - Phase, 7A nominal at 230V.

Measurement range	Accuracy	System voltage Range	System voltage Frequency	Over voltage protection (BS EN 61557-10)
0.00Ω to 500.0Ω	± (3% + 3 digits)	50-440VAC	50-60Hz	550V

No-trip: 3 wire test Live-Earth, 13 mA nominal at 230V, max 5Ω Neutral impedance.

Measurement range	Accuracy	System voltage Range	System voltage Frequency	Over voltage protection (BS EN 61557-10)
0.00Ω to 500.0Ω	± (5% + 5 digits)	195-253VAC	50-60Hz	550V

Insulation

Test Voltage	Measurement Range	Accuracy	Short Circuit Current (Into 2KΩ)	Over voltage protection (BS EN 61557-10)
250V	0.001 to 200.0MΩ	±(3% +2 digits +10%/GΩ)	<2 mA	550V
500V	0.001 to 500.0MΩ	±(3% +2 digits +5%/GΩ)	<2 mA	550V
1000V	0.001 to 1000MΩ	±(3% +2digits +2.5%/GΩ)	<2 mA	550V



Distributed by MTi

Email: enquiries.ethos@adivision.co.uk

Web: www.ethos-instruments.co.uk

Output Voltage

Voltage	Load	Accuracy	Output Current	Short Circuit Current(Into 2K Ω)
250V	250k Ω	-0% +20%	1 mA	<2 mA
500V	500k Ω	-0% +20%	1 mA	<2 mA
1000V	1M Ω	-0% +20%	1 mA	<2 mA

Continuity

Measurement Range	Accuracy	Open Circuit	Short Circuit Current (At 2 Ω)	Max Lead Null Resistance	Over voltage protection
0.00 Ω to 19.99 k Ω	$\pm(3\%+2$ digits)	>4 V <10 V	>200mA	4 Ω	550V Fused

RCD – AC/A ACS/S

System voltage range	System voltage frequency	Nominal currents (mA)	Fault / touch accuracy	Over voltage protection (BS EN 61557-10)
195–253VAC	50-60Hz	30, 100, 300, 500	50V	550V

ETHOS
Test Instruments

Distributed by MTi

Email: enquiries.ethos@adivision.co.uk

Web: www.ethos-instruments.co.uk

RCD Capabilities

X0.5				
mA	AC	ACS	A	AS
30	Y	N	Y	N
100	Y	Y	Y	Y
300	Y	Y	Y	Y
500	Y	N	N	N

X1				
mA	AC	ACS	A	AS
30	Y	N	Y	N
100	Y	Y	Y	Y
300	Y	Y	Y	Y
500	Y	N	N	N

X5				
mA	AC	ACS	A	AS
30	Y	N	Y	N
100	N	N	N	N
300	N	N	N	N
500	N	N	N	N

RAMP				
mA	AC	ACS	A	AS
30	Y	N	Y	N
100	Y	Y	Y	Y
300	Y	Y	Y	Y
500	Y	N	N	N

Accuracy at Applied Test Current

TEST CURRENT	ACCURACY
1/2	+0% -10%
X1	+10% -0%
X5 (30mA only)	+10% -0%
▲ (Ramp)	±5% of rated I_N

Ramp Characteristics: 20% to 110% of rated I_N in 10% steps (300ms dwell time)



Distributed by MTi

Email: enquiries.ethos@adivision.co.uk

Web: www.ethos-instruments.co.uk

Operating Ranges and Uncertainties According to EN 61557

Function	Display Range	EN 61557 Measurement Range	EN 61557 Operating Uncertainty	Nominal Values
Insulation Resistance EN 61557-2	0.001 M Ω -1000M Ω	0.1M Ω - 1000M Ω	1.6%	$U_N = 250/500/1000$ VDC $I_N = 1.0$ mA
Loop Impedance EN 61557-3	0.01 Ω -500 Ω	1.04 Ω - 470 Ω	Hi-I: 4.8% No-Trip: 10.8%	$U_N = 230/400V_{AC}$ $f = 50/60$ Hz
Continuity EN 61557-4	0.00 Ω -20k Ω	0.1 Ω - 10k Ω	12%	4.0VDC <UQ <24VDC $R_{LO} 2.00\Omega$ $I_N > 200$ mA
RCD EN 61557-6	ΔT : 5ms- 2000ms $I_{\Delta N}$ -	ΔT : 38.2ms - 214.8ms $I_{\Delta N}$: 15mA-500m	ΔT : 2.8% $I_{\Delta N}$: 7.2%	$I_{\Delta N} = 30/100/300$ /500 mA

ETHQS
Test Instruments

Distributed by MTi

Email: enquiries.ethos@adivision.co.uk

Web: www.ethos-instruments.co.uk

Operating Uncertainties

Influence Quantity	Insulation Resistance Riso EN 61557-2	Loop Impedance Z _I EN 61557-3	Continuity Rlo EN 61557-4	RCD Δ T EN 61557-6	RCD I _{Δ} N EN 61557-6
A – Intrinsic Uncertainty	0.8%	0.9%	1%	1.5%	5.6%
E ₁ – Position	0%	0%	0%	0%	0%
E ₂ – Supply Voltage	1.0%	0.8%	10%	1.2%	0.3%
E ₃ – Temperature	0.8%	4.9%	0.7%	1.5%	2.1%
E ₆ – System Phase Angle	-	2.4%	-	-	-
E ₇ – System Frequency	-	0.4%	-	-	-
E ₈ – System Voltage	-	1.4%	-	1.5%	0.6%
E ₉ – System Harmonics	-	0.8%	-	-	-
E ₁₀ – System D.C Quantities	-	8.4%	-	-	-



Distributed by MTi

Email: enquiries.ethos@adivision.co.uk

Web: www.ethos-instruments.co.uk