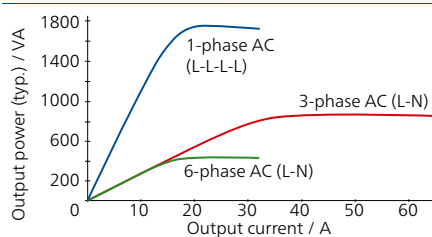


Overview of technical specifications¹

CMS 356

Current amplifier

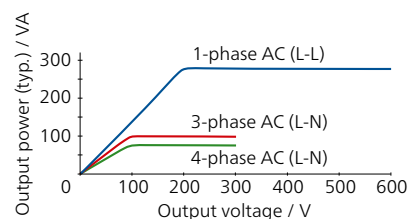
Setting range	6-phase AC (L-N)	6 x 0 ... 32 A
	3-phase AC (L-N)	3 x 0 ... 64 A (Group A II B)
	1-phase AC (LL-LN)	1 x 0 ... 128 A (Group A II B)
	DC (LL-LN)	1 x 0 ... ±180 A (Group A II B)
Power	6-phase AC (L-N)	6 x 430 VA typ. at 25 A 6 x 250 W guar. at 20 A
	3-phase AC (L-N)	3 x 860 VA typ. at 50 A 3 x 500 W guar. at 40 A
	1-phase AC (L-L-L)	1 x 1740 VA typ. at 25 A 1 x 1100 W guar. at 20 A



Accuracy	Error < 0.1 % rd. ² + 0.04 % rg. ² typ. Error < 0.3 % rd. + 0.1 % rg. guar.
Distortion (THD+N) ³	< 0.1 % typ., < 0.3 % guar.
Resolution	1 mA
Max. compliance voltage (L-N)/(L-L)/(L-L-L)	35 Vpk / 70 Vpk / 140 Vpk

Voltage amplifier

Setting range	4-phase AC (L-N)	4 x 0 ... 300 V
	2-phase AC (L-L)	2 x 0 ... 600 V
	DC (L-N)	4 x 0 ... ±300 V
Power	4-phase AC (L-N)	4 x 75 VA typ. at 100 ... 300 V 4 x 50 VA guar. at 85 ... 300 V
	3-phase AC (L-N)	3 x 100 VA typ. at 100 ... 300 V 3 x 85 VA guar. at 85 ... 300 V
	1-phase AC (L-L)	1 x 275 VA typ. at 200 ... 600 V 1 x 250 VA guar. at 200 ... 600 V



Accuracy	Error < 0.06 % rd. ² + 0.02 % rg. ² typ. (at 0 ... 300 V) Error < 0.16 % rd. + 0.04 % rg. guar.
Distortion (THD+N) ³	0.03 % typ., < 0.1 % guar.
Ranges	150 V / 300 V
Resolution	5 mV / 10 mV in range 150 V / 300 V

Amplifiers, general

Bandwidth (-3 dB)	> 2.5 kHz typ., > 1 kHz guar.
Propagation delay (with input type "analog")	500 μs (error < ±2 μs typ., ±5 μs guar.)
Output delay (with input type "Sampled Values")	Configurable, setting range: 1000 – 6000 μs

Analog inputs

Number	6
Input impedance	47 kΩ
Input voltage range (selectable)	±10 Vpk (7.071 Vrms) ±7.071 Vpk (5 Vrms)
Amplification at 5 Vrms input range	Voltage output: 60 V/V Current output: 6.4 A/V
Galvanic isolation input/output	Yes

¹ The full technical specifications are available on request. All data specified are guaranteed, except where indicated otherwise. OMICRON guarantees the specified data for one year after factory calibration, within 23 °C ±5 °C / 73 °F ±10 °F in the frequency range from 10 to 100 Hz and after a warm-up phase > 25 minutes

² rd. = reading, rg. = range

³ THD+N: at nominal values, 50/60 Hz and 20 kHz measurement bandwidth



IEC 61850

Subscribing

Sampled Values	IEC 61850-9-2 ("9-2LE") IEC 61869-9
Number of streams	2
Sampling frequency	4000 Hz – 1 sample per packet 4800 Hz – 1 sample per packet 5760 Hz – 1 sample per packet 12800 Hz – 8 samples per packet 15360 Hz – 8 samples per packet 4800 Hz – 2 samples per packet 14400 Hz – 6 samples per packet

Time synchronization

CMS 356 to external reference

Precision Time Protocol (PTP)	IEEE 1588-2008 IEEE C37.238 (Power Profile) IEC 61850-9-3 (Utility Profile)
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Internal system clock

Frequency drift	< 0.37 ppm / 24 h < 4.6 ppm / 20 years
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Power supply

Nominal input voltage	100 ... 240 VAC, 1-phase (50/60 Hz)
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Environmental conditions

Operation temperature ¹	0 ... +50 °C / +32 ... +122 °F
Storage temperature	-25 ... +70 °C / -13 ... +158 °F
Humidity range	Relative humidity 5 ... 95 %, non-condensing
Acoustics – noise emission	ISO 7779
Idle – full load	47 – 55 dB(A)

Equipment reliability

Electromagnetic interference (EMI)

International / Europe	IEC/EN 61326-1, IEC/EN 61000-6-4, IEC/EN 61000-3-2/3, CISPR 32 (Class A)/EN 55032 (Class A)
North America	47 CFR 15 Subpart B (Class A) of FCC

Electromagnetic susceptibility (EMS)

International / Europe	IEC/EN 61326-1, IEC/EN 61000-6-2/5, IEC/EN 61000-4-2/3/4/5/6/8/11/16/18
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Safety

International / Europe	IEC/EN 61010-1
North America	UL 61010-1, CAN/CSA-C22.2 No. 61010-1

Mechanical tests

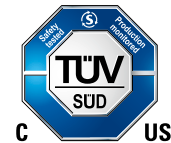
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27

Miscellaneous

Weight	16.3 kg / 35.9 lbs
Dimensions (W x H x D, without handle)	450 x 145 x 390 mm / 17.7 x 5.7 x 15.4 in
PC connection	2 PoE (Power over Ethernet) ports USB Type-B port (PC) USB Type-A port (optional Wi-Fi adapter for wireless control)

Certifications

Developed and manufactured under an ISO 9001 registered system



¹ For an operational temperature above +30 °C / +86 °F a duty cycle of down to 50 % may apply