

## Amplifier Units



### CMA 156: 6 Phase Current Amplifier (6 x 25 A)

VEHV1010

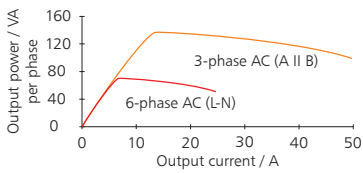
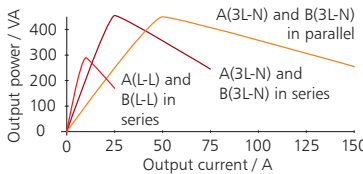


CMA 156 amplifier units can be used in combination with any CMC test set or in conjunction with digital real time power system network simulators. The outputs are galvanically separated from the inputs as well as from ground and are used independently or in addition to those of the CMC test sets.

The CMA 156 contains six independent current channels, arranged in two isolated groups (A, B). The outputs can be configured in various ways (connected in parallel, in series, etc.). For example, by using four CMA 156 units, 3 x 200 A can be generated. The connection to a CMC test set is made by a control cable at the back of the units.

Used for tests requiring more current channels than provided by the CMC test sets.

#### Technical Data<sup>1</sup>

Current amplifiers <sup>2</sup>		
Setting range	6-phase AC (L-N)	6 x 0 ... 25 A
	3-phase AC (L-N)	3 x 0 ... 50 A (Group A II B)
	1-phase AC (L-N)	1 x 0 ... 150 A (Group A II B)
	DC (L-N)	2 x 0 ... ±25 A 1 x 0 ... ±50 A
Power	6-phase AC (L-N)	6 x 70 VA at 7.5 A
	3-phase AC (L-N)	3 x 140 VA at 15 A (Group A II B)
	1-phase AC (3L-N)	1 x 420 VA at 22.5 A
		1 x 420 VA at 45 A (Group A II B)
	1-phase AC (L-L)	1 x 280 VA at 7.5 A
DC (L-N)	2 x 140 W at ±10.5 A	
	1 x 280 W at ±21 A (Group A II B)	
3/6 phase operation		
		
single phase operation		
		
Accuracy	error < 0.03 % typ., < 0.1 % guar.	
Distortion (THD+N) <sup>3</sup>	< 0.1 % typ., < 0.3 % guar.	
Bandwidth (-3dB)	> 8 kHz	
Phase lag at 50/60 Hz	1.07°/1.28°	
Input voltage	0 ... 5 V	
Amplification	5 A / V	
Max. compliance voltage (L-N)/(L-L)	15 Vpk / 60 Vpk	

Amplifiers, general		
Input impedance	> 40 kΩ	
Galvanic isolation Input/Output	1.5 kVDC	
Galvanic isolation amplifier groups	1.5 kVDC	
Connection	4 mm (0.16 in) banana sockets / combination socket	
Amplifiers, if controlled by a CMC		
Frequency	range sine signals	10 ... 1000 Hz
	range transient signals	DC ... 3.1 kHz
	accuracy/-drift	±0.5 ppm / ±1 ppm
Phase	resolution	5 μHz
	angle range	-360° ... +360°
	resolution	0.001°
error at 50/60 Hz	< 0.02° typ., < 0.1° guar.	
	Output current resolution	1 mA
Power supply		
Nominal input voltage	110 – 240 VAC, 1-phase	
Permissible input voltage	99 ... 264 VAC	
Nominal frequency	50/60 Hz	
Permissible frequency range	45 ... 65 Hz	
Power consumption	< 1000 VA	
Connection	Standard AC socket (IEC 60320)	
Environmental conditions		
Operation temperature	0 ... +50 °C (+32 ... +122 °F)	
Storage temperature	-25 ... +70 °C (-13 ... +158 °F)	
Humidity range	Relative humidity 5 ... 95 %, non-condensing	
Vibration	IEC 60068-2-6 (20 m/s <sup>2</sup> at 10 ... 150 Hz)	
Shock	IEC 60068-2-27 (15 g/11ms half-sine)	
EMC	Emission	Directive 2004/108/EC (CE conform) EN 61326-1, EN61000-6-4, EN61000-3-2/3 FCC Subpart B of Part 15 Class A
	Immunity	EN 61326-1, EN61000-6-2, EN 61000-4-2/3/4/5/6/11
Safety	Directive 2006/95/EC (CE conform) EN 61010-1, EN 60950-1, UL 61010-1, CAN/CSA-C22.2 No 61010-1-04	
Miscellaneous		
Weight	15.4 kg (34.0 lbs)	
Dimensions (W x H x D, without handle)	450 x 145 x 390 mm (17.7 x 5.7 x 15.4 in)	
Certifications	TÜV-GS	

<sup>1</sup> Guaranteed values valid over one year within 23 °C ±5 °C (73 °F ±10 °F), in the frequency range of 10 ... 100 Hz at nominal value. Specifications for three-phase systems under symmetrical conditions (0°, 120°, 240°).

<sup>2</sup> For higher current/power requirements: CMA units can be switched in parallel

<sup>3</sup> THD+N: Values at 50/60 Hz with 20 kHz bandwidth