

# Multimeters for the laboratory

## C.A 400 Series

AMP METER  
VOLT METER  
ZERO GALVANOMETER  
WATT METER  
MULTI METER



... teaching  
from experience !

These analogue multimeters, sturdy and simple to use, are perfectly suited to the teaching needs and requirements of laboratories:

- Single switch. Safety sockets.
- HBC fuses and electronic protection.
- Double insulation  (in accordance with standard IEC 1010)



## AC/DC AMMETER

### C.A 401 Ref : 1703.01

Magneto-electric mechanism with rectifier

- 11 DC ranges: 100  $\mu$ A to 10 A
- 1 range 100mV DC for shunts
- 7 AC ranges: 10 mA to 10 A

Accuracy

- $\pm 2\%$  on DC
- $\pm 2.5\%$  for 10A DC range
- $\pm 2.5\%$  on AC
- $\pm 3.5\%$  for 10 A AC range

Frequency response

- Reference range: 45 Hz to 65 Hz
- Operating range: 45 Hz to 400 Hz

Display

- 2 black scales on DC (0 to 100 and 0 to 30)
- 2 red scales on AC (0 to 100 and 0 to 30)

Fuses

- 1A HBC and 10A HBC



## AC/DC VOLTMETER

### C.A 402 Ref : 1703.02

Magneto-electric mechanism with rectifier

- 8 DC ranges: 100 mV to 1000 V
- 6 AC ranges: 3 V to 1000 V

Internal resistance

- 20 k $\Omega$ /V DC and 6.32 k $\Omega$ /V AC

Accuracy

- $\pm 1.5\%$  on DC
- $\pm 2.5\%$  on AC

Frequency response

- Reference range: 45 Hz to 65 Hz
- Operating range: 20 Hz to 400 Hz

Display

- 2 black scales (0 to 30 and 0 to 100)
- 1 red scale for the 3V AC range



## GALVANOMETER WITH CENTRAL ZERO

### C.A 403 Ref : 1703.03

Magneto-electric mechanism

- 2 ranges 30  $\mu$ A DC and 3 mA DC
- 1 range 100 mV DC for shunts

Accuracy

- $\pm 1.5\%$

Display

- 2 black scales (0 to 30 and 0 to 100)

Fuse

- 315 mA HBC

## SINGLE PHASE AC/DC WATTMETER

### C.A 404 Ref: 1703.04

Ferro-dynamic mechanism

- 4 voltage ranges: 60 V to 480 V
- 2 current ranges: 0.5 A and 1 A

Accuracy

- $\pm 1\%$  on AC and  $\pm 2.5\%$  on DC

Frequency response

- Reference range: 45 Hz to 65 Hz
- Operating range: DC to 500 Hz

Display

- 1 black scale (0 to 120)

Fuse

- 1.25 A HBC



## SINGLE PHASE & 3-PHASE AC/DC WATTMETER

### C.A 405 Ref: 1703.05

Ferro-dynamic mechanism

- 6 DC or AC single phase voltage ranges: 60 V to 480 V
- 4 AC 3-phase balanced voltage ranges:  $60\text{ V}\sqrt{3}$  to  $240\text{ V}\sqrt{3}$
- 1 current range: 5 A

Accuracy

- $\pm 1\%$  on single phase AC
- $\pm 2\%$  on 3-phase balanced AC
- $\pm 2.5\%$  on DC

Frequency response

- Reference range: 45 to 65 Hz
- Operating range: 15 Hz to 500 Hz

Display

- 1 black scale (0 to 120)
- 1 red scale (0 to 90)

Fuse

- 6.3 A HBC



## MULTIMETER

### C.A 406 Ref: 1703.06

Magneto-electric mechanism

- 8 DC voltage ranges: 100 mV to 1000 V - Accuracy:  $\pm 1.5\%$
- 6 AC voltage ranges: 3 V to 1000 V - Accuracy:  $\pm 2.5\%$
- 4 DC current ranges: 1 mA to 1 A
- 1 range 50  $\mu\text{A}$  (common to the 100 mV DC range) - Accuracy:  $\pm 2\%$
- 5 AC current ranges: 0.3 mA to 3 A
- 1 range 150  $\mu\text{A}$  AC (common to 3 V AC range)
- Accuracy:  $\pm 2.5\%$  and  $\pm 3\%$  for the 3 A AC range.
- 3 resistance ranges: 0.5  $\Omega$  - 1 k $\Omega$  to 1 M $\Omega$  - Accuracy:  $\pm 5\%$

Internal resistance

- 20 k $\Omega$ /V DC and 6.32 k $\Omega$ /V AC

Frequency response

- Reference range: 45 to 65 Hz
- Working range: 20 Hz to 400 Hz

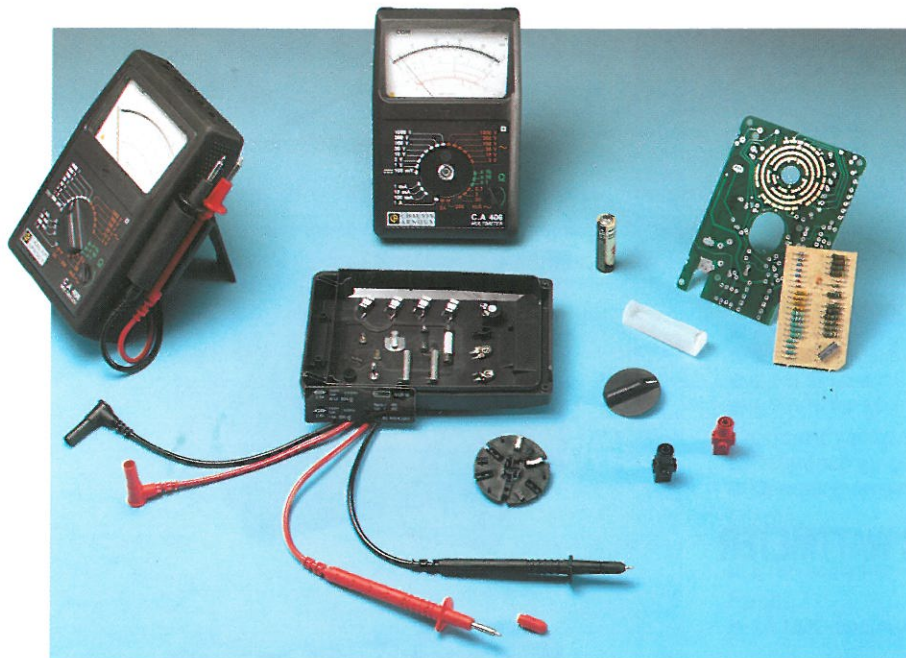
Display

- 2 black scales (0 to 30 and 0 to 100)
- 1 extended green  $\Omega$  scale (0 to 1000)
- 1 red scale A AC (0 to 30)
- 1 red scale 3 V AC (0 to 3)
- 1 red scale decibel (-10 dB to +12 dB)

Fuses

- 3.15 A HBC and 160 mA HBC





## MULTIMETER

### C.A 406 KIT

Ref : 1707.01

For Hands-on teaching: a multimeter in a kit designed for the professionals of tomorrow.

For self assembly, this version of the C.A 406 is specially designed for students in technical and professional courses as well as those who enjoy amateur electronics.

- Specifications identical to the C.A 406 multimeter
- Easy to build and attractive
- Minimum tooling: soldering iron, pliers and screwdriver
- Supplied with carefully detailed, illustrated assembly leaflet.

**The shockproof case.** An accessory recommended for the whole C.A 400 series. The prods can be stored on the side of the case when not in use.

#### To order:

The meters in the C.A 400 series, except for the C.A 406, are supplied without leads. The C.A 406 and C.A 406 kit multimeters are supplied with a set of leads with prods and a 1.5V battery (R6). All these meters are supplied with a User Manual.

Accessories	Ref.
- Leads n°181A/B (1.5m) .....	1008.19
- Shockproof case .....	2980.10
- M.AT2 test accessories (set of 8) .....	1017.59
- 10 A shunt (100 mV) .....	1652.01
- 20 A shunt (100 mV) .....	1652.02
- 30 A shunt (100 mV) .....	1652.03
- 50 A shunt (100 mV) .....	1652.04
- 100 A shunt (100 mV) .....	1652.05
- 5 kV HT probe .....	1008.36
- 30 kV HT probe .....	1008.27
- ST2 temperature probe (- 50°C to 1000°C) .....	6525.01
- Photo-electric cell (up to 10000 lux) .....	1008.26
- Tachymetric probe (100 to 10000 rpm) .....	1973.01
- More than 30 models of AC and DC current clamps <i>please ask for details</i>	
Spares	
- Fuse 1 A HBC (set of 10) 380 V. 50 kA .....	2975.07
- Fuse 10 A HBC (set of 10) 380 V. 50 kA .....	2975.10
- Fuse 315 mA HBC (set of 10) 380 V. 50 kA .....	2975.09
- Fuse 1.25 A HBC (set of 10) 380 V. 50 kA .....	2975.15
- Fuse 6.3 A HBC (set of 10) 380 V. 100 kA .....	2970.16
- Fuse 3.15 A HBC (set of 10) 380 V. 50 kA .....	2975.11
- Fuse 160 mA HBC (set of 10) 380 V. 50 kA .....	2975.08

NB: Dimensions of fuses: 6.3 x 32 mm

#### Common specifications of the C.A 400 series

##### Display

- Complete with anti-parallax mirror
- Scale length: 80 mm

##### Case

- Self extinguishing polycarbonate
- Double insulation  (in accordance with standard IEC 1010)
- Watertightness IP403 (in accordance with standard IEC 529)
- Safety terminals. The leads must be disconnected to open the case
- Folding stand for use in inclined position
- Dimensions and weight: 165 x 105 x 50 mm - 450 g

##### Operating climatic conditions

- Temperature : - 10° C à + 55° C
- Relative humidity: from 20 to 90% RH

Your distributor:

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