STANDARD
PANEL
METERS

FEMA ELECTRÓNICA

Series MAG-35

MILIAMMETERS for AC and DC currents

MAG-35-10	**miliAmmeter DC**	**up to 2000 mAdc**
MAG-35-15	**miliAmmeter AC**	**up to 2000 mAac**

IDEAL SOLUTION to measure current values in mA from both DC and AC current signals, up to 2000 mA. The instrument displays the value of the current at the input. Available options for relay output, analogue output, serial outputs and others. Varios rangos de medida seleccionables por jumpers.

FEMA ELECTRÓNICA, S.A.

USER'S MANUAL

(HT9695-r011206)

Series MAG-35

Direct miliAmmeters AC and DC

Panel meters to measure current signals up to 2000 mA in AC and DC. Direct value on display of the measured mA current at the input.

Additional options with relay outputs (1 or 2 relay), analogue outputs (in mA and Vdc), digital outputs in serial code (RS232 or RS485), parallel BCD code, display «Hold» function and power options in AC and DC.

GENERAL SPECIFICATIONS

DISPLAYS	Led 7 Segments Red Color
DIGIT HEIGHT	14 mm (0.55'')
DISPLAY	±1.8.8.8
POLARITY	Automatic ±
DECIMAL POINTS	Jumper selectable
INPUT CONFIGURATION	Bipolar Simple
A/D CONVERTER	Dual slope
INTEGRATION TIME	80 mSec.
NUMBER OF READINGS	3.12 per second
WARM-UP TIME	2 minutes
NMRR	50 dB
THERMAL DRIFT	100 ppM model 10 150 ppM model 15
TEMPCO ZERO	0.13% /ºC F.S.
OVERRANGE	+1999 flash
UNDERRANGE	-1999 flash
WORKING TEMP.	0°C to +50°C
STORAGE TEMP.	-40°C to +80°C
BURN-IN	48 hours
RECALIBRATION	Yearly
HOUSING	DIN 43700
DIMENSIONS	96 x 48 x 117 mm
PANEL CUT-OUT	44.5 x 92.5 mm
WEIGHT	310 gr.
CONNECTIONS	Plug-in screw clamps
CONSUMPTION	5.5 VA in AC 3.5 W in DC

OUTPUT AND CONTROL OPTIONS

MAG-35 instruments can be supplied with different options for data output and control. Compatibility between them is indicated at the «Ordering Reference» section down on this page. Technical data and operating instructions for these options are indicated in a separate user's manual.

«SP11»	1 Relay Output
«SP21»	2 Relay Output
«SAR»	Analogue Output
«HM»	Hold of display
«MPA2»	Detection of «peak and drop» signals
«SDA»	Parallel BCD
«RS2»	Serial RS232 output
«RS4»	Serial RS485 output

POWER OPTIONS

MAG-35 instruments can be supplied with different power options, for different AC and DC power ranges. The instruments do not have internal protection fuse. The value and type of the recommended fuse for each power type is indicated below.

Ref.	*Power*	*Recommended Fuse*
«0»	230 Vac 50/60 Hz	50 mA Time Lag
«1»	115 Vac 50/60 Hz	100 mA Time Lag
«2»	24 Vac 50/60 Hz	300 mA Time Lag
«3»	48 Vac 50/60 Hz	150 mA Time Lag
«6»	24 Vdc (15/30 Vdc Isolated)	350 mA Fast Fuse
«8»	48 Vdc (24/65 Vdc Isolated)	200 mA Fast Fuse

ORDERING REFERENCE

	Model	*Power*	*Option1*	*Option2*	*Option3*	*Scaling*
MAG-35 -		-	-	-	-	-
	10 15	0 1 2 3 6 8	SP11 SP21 SDA RS2 RS4	SAR MPA2	HM	0/2000 mA = 0/1999 mA 0/20 mA = 0/19.99 mA ...

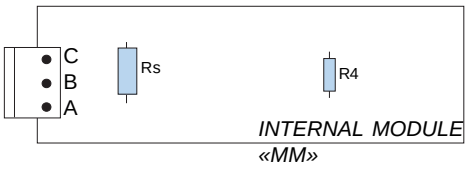
MAG-35-10

miliAmmeter DC Direct up to 2000 mAdc

Instrument with miliAmmeter function for DC current measures up to 2000 mA. Direct reading on display for the value in mA at the input. Default signal range at 2000 mA. Other ranges available on order basis. Bipolar input signal, allows negative currents at input.

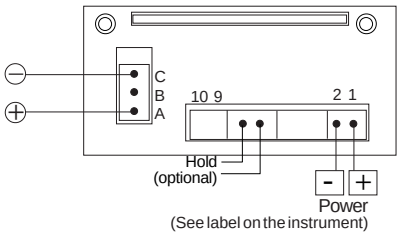
READING SCALE SELECTION

Select the values for resistances «R4» and «Rs» on the «MM» module, as shown on table below, to configure the unit to work on different ranges, and select jumpers «D» to light the decimal point (see figure1 on page 4). Potentiometer «SPAN» at the front of the instrument is for small «on-the-field» error corrections on the scaled display.

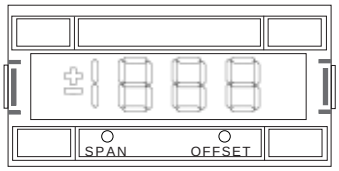


RANGE	Rs	R4	JUMPER «D»	DISPLAY	ACCURACY *(±1 digit)*
±2000 mAdc	0.1 Ohm	88K7	---	±1999 mA	0.05%
±200 mAdc	1.5 Ohm	57K6	D1	±199.9 mA	0.05%
±20 mAdc	15 Ohm	57K6	D2	±19.99 mA	0.05%
±2 mAdc	150 Ohm	57K6	D3	±1.999 mA	0.05%

CONNECTIONS



FRONT VIEW



SPAN *Light adjust of span*
OFFSET *Disabled*

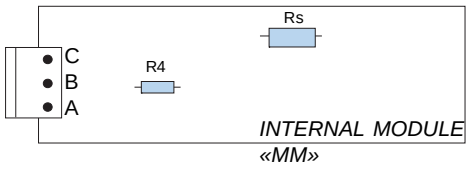
MAG-35-15

miliAmmeter AC Direct up to 2000 mAac

Instrument with miliAmmeter function for AC current measures up to 2000 mA. Direct reading on display for the value in mA at the input. Default signal range at 2000 mA. Other ranges available on order basis.

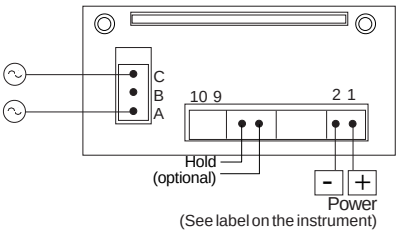
READING SCALE SELECTION

Select the values for resistances «R4» and «Rs» on the «MM» module, as shown on table below, to configure the unit to work on different ranges, and select jumpers «D» to light the decimal point (see figure1 on page 4). Potentiometer «SPAN» at the front of the instrument is for small «on-the-field» error corrections on the scaled display.

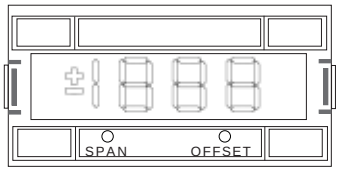


RANGE	Rs	R4	JUMPER «D»	DISPLAY	ACCURACY *(±1 digit)*
2000 mAac	0.187 Ohm	1K58	---	1999 mA	0.2%
200 mAac	2.21 Ohm	1K82	D1	199.9 mA	0.2%
20 mAac	22.1 Ohm	1K82	D2	19.99 mA	0.2%
2 mAac	221 Ohm	1K65	D3	1.999 mA	0.2%

CONNECTIONS



FRONT VIEW



SPAN *Ajuste fino de lectura máxima*
OFFSET *Deshabilitado*

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FIGURE1 - DECIMAL POINT SELECTION

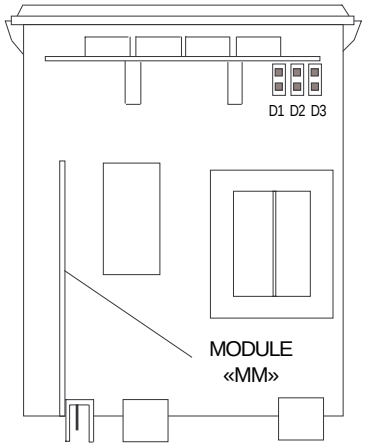
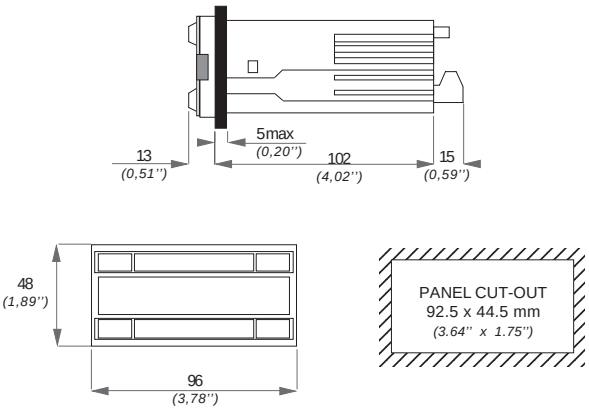


FIGURE2 - SIZES in mm (*inches*)



DECLARATION OF CONFORMITY

Manufacturer.- **FEMA ELECTRÓNICA, S.A.**
Address .- Pol. Ind. Santiga - Altimira 14 (T14 - N2)
E-08210 Barberà - BARCELONA
ESPAÑA - SPAIN

Conforming Products
Series .- MAG-35
Models .- 01, 02, 03, 04, 06, 07, 08, 10, 11, 12, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27, 32, 35, 36, 80, 90, 95

We hereby declare that the above products conform to the essential protection requirements of Directives and Standards stated below.

DIRECTIVES

EUROPEAN DIRECTIVE FOR LOW VOLTAGE D73/23/CEE AMENDED BY D93/68/CEE. Equipments powered from 50 to 1000 Vac and/or from 75 to 1500 Vdc

ELECTROTECHNICAL REGULATION FOR LOW VOLTAGE (RBT) ITC21, ITC29, ITC35. Equipments with power supply lower than 50 Vac and/or 75Vdc.

EUROPEAN DIRECTIVE FOR ELECTROMAGNETIC COMPATIBILITY D89/336/CEE AMENDED BY D93/68/CEE

STANDARDS

IMMUNITY
UNE EN 50082-1 (1997)

EMMISIONS
UNE EN 50081-1 (1993)

ELECTRICAL SAFETY
UNE EN 61010-1 (1996)
UNE EN 60204-1 (1997)

Signed .- D. Juncà
Position .- Quality Manager
Barberà, 2005