

# Series CCT

**Signal Converters with isolation  
for resistance and potentiometer signals**



**CCT-90**  
**CCT-95**

**potentiometer signals**  
**resistance signals**

**up to 1MΩ**  
**up to 200KΩ**

*IDEAL SOLUTION to convert a wide range of analogue signals (process, temperatures, current, frequencies...) to standard 10Vdc or 20mA process signals, for further retransmission to a remote data acquisition system or PLC's. The galvanic isolation offered by the CCT instruments between the signal circuit and the remote equipment, reduces to a minimum any eventual problem related to ground loops between different circuits.*

# Models CCT-90 and CCT-95

## Converters for resistance and potentiometer signals

Signal converters for potentiometers and resistances. Selection of input and output ranges with internal jumpers and potentiometers. Galvanic isolation between input, output and power circuits.



### Order Reference

	Model	Power	Input	Output
<b>CCT</b>	<b>90</b>	<b>0</b>	<b>0/100%</b>	<b>4/20mA</b>
	- 90	-0 (230 Vac)	0/100%	4/20mA
	- 95	-1 (115 Vac)	0/50%	0/10Vdc
		-2 (24 Vac)	0/100 KOhm	...
		-3 (48 Vac)	0/10 KOhm	
		-6 (24Vdc isolated)	...	

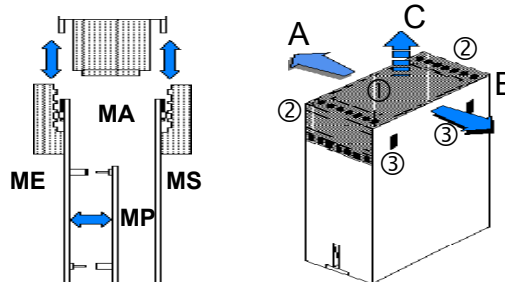
### Technical Data

Accuracy CCT-90	Class <0.2
Accuracy CCT-95	Class <0.2
Ripple	<0,5 %
Temperature coefficient	<0,015 %/ °C
Pass band	1.5 Hz (-3 dB a 3Hz)
Response time	<250 mSec.
Output in mA	0/20 mA / 4/20 mA, ... $R_L < 600 \text{ Ohms}$ max. 22mA active output loop
Output in Vdc	0/10 Vdc, 0/1 Vdc, ... $R_L > 1000 \text{ Ohms}$ max. 11Vdc
Isolation	2 KVeFF / 50Hz / 1 min (tested at 4 KVeFF)
Isolated circuits	input / output / power
Weight	270 gr.
Wire section	4mm <sup>2</sup> maximum
Housing IP protection	IP40
Terminals IP protection	IP20
Housing material	polycarbonate, light grey RAL 7032, UL 94 V-1
Mounting	standard DIN rail (DIN 46277,
DIN EN 50022) (35 x 7,5mm) (1,38 x 0,3")	
Terminals	Polycarbonate, UL 94 V-2
Consumption	<1,5 VA
Storage temperature	-30 to +80 °C
Working temperature	-10 to +60 °C

### Access to internal circuits

With a flat screwdriver, force the front cover and walls towards **A** and **B**, until fixations '3' are free. Take the instrument from points '2', and extract it pulling towards **C**, until the internal circuits appear. The internal circuits have the following names:

ME .- Signal Input Module  
MS .- Signal Output Module  
MA .- Power Module  
MP .- Personalized Module



### Power options

The CCT converters allow different power modules in AC and DC. The instrument does not have internal protection fuse. Following is a recommendation on value and type of fuse for each power module available.

Ref.	Power	Fuse Recommended
«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	300 mA Fast Fuse

# CCT-90

## Potentiometer signals up to 1 MOhm

Signal converter for potentiometer signals. Potentiometer values between 100 Ohms and 1 MOhms. Default configuration is 0/100% of potentiometer range. Also accepts configuration for part of the potentiometer range.

### INPUT RANGE SELECTION

There is only one input range, without jumpers for range selection. The default range is 0/100% of potentiometer value. If you want to change this range, you can use the jumpers and potentiometers in the input signal module (ME), on the next page of this manual.



RANGE	JUMPERS «MP» / «ME»
0/100%	--- / ---

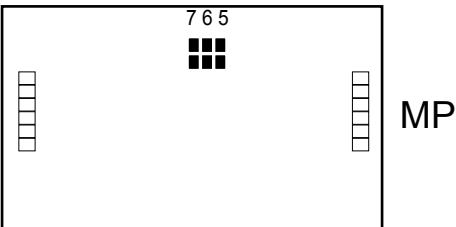
# CCT-95

## Resistance signals up to 200 KOhm

Signal converter for resistance signals. The converter can be configured in order to adequate the input and output signal ranges to the final application. 2 wire measuring technique. Does not apply automatic compensation of the resistance introduced by the measuring wires. Maximum admissible resistance is 1 MOhm

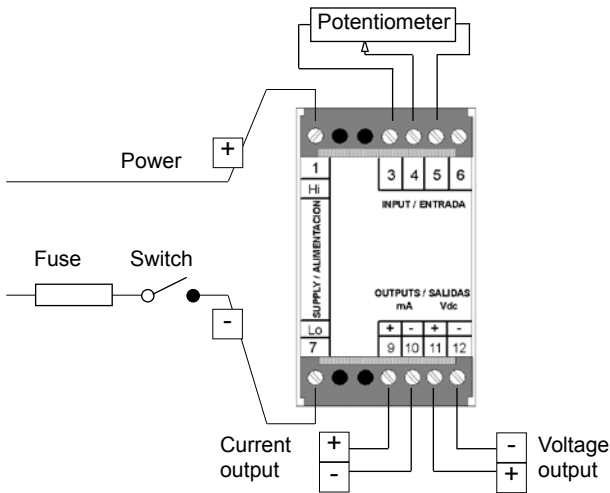
### INPUT RANGE SELECTION

Configure the desired resistance input range by selecting the appropriate jumpers on «MP» module, as shown on the table below:

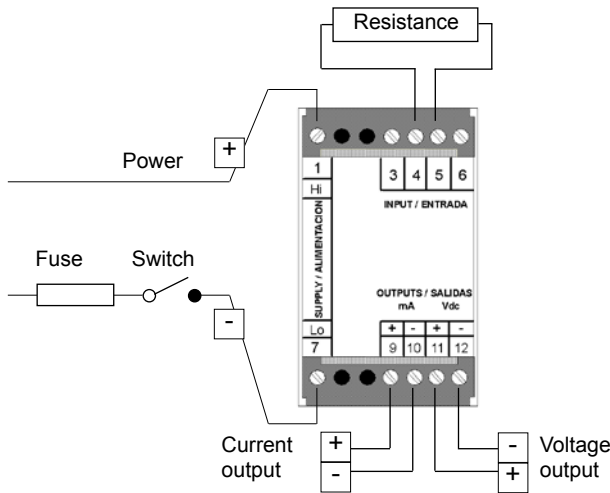


RANGE	JUMPERS «MP» / «ME»	RANGE MINIMUM
200 Kohm	--- / ---	20 Kohm
20 Kohm	7 / ---	2 Kohm
2 Kohm	6 / ---	200 Ohm
200 Ohm	5 / ---	20 Ohm

### CONNECTIONS

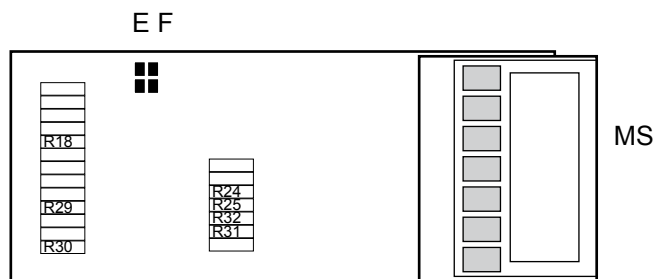


### CONNECTIONS



## Output signal module (MS)

The CCT has available outputs in voltage and current. Only one of the outputs can be active. Additional to the standard 0/10 Vdc and 4/20mA outputs, it is possible to reconfigure the instrument to any of the outputs shown in the table below.



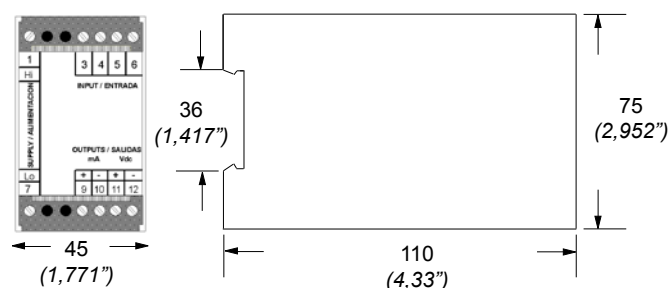
Other mA outputs (Resistances in Ohms)				Other Vdc outputs (Resistances in KOhms)			
OUTPUT	R18	R24	R25	OUTPUT	R29	R30	R31
0/5mA	---	100	---	±10Vdc	49,9	---	200
0/10mA	---	49,9	---	0/1Vdc	---	---	11
1/5mA	100K	124	---	0/5Vdc	---	---	100
0/20mA	---	---	24,9	1/5Vdc	---	100	66,5

Jumpers E and F .- Closed in 4/20 mA output. Open for other outputs  
Note .- The symbol «- - -» means «NOT installed»

## Readjustment procedure

- 1.- Open the housing to access the instrument internal circuits
- 2.- Select jumpers on boards «ME», «MP» and «MS»
- 3.- Connect signal generator to signal input terminals
- 4.- Connect multimeter to signal output terminals
- 5.- Power up the instrument as indicated on the label
- 6.- Generate the low signal level and operate potentiometer P1 on «ME» until the multimeter shows the desired signal output
- 7.- Generate the high signal level and operate potentiometer P2 on «ME» until the multimeter shows the desired signal output
- 8.- Repeat steps 6 to 7 in order to correct deviations and check the adjust

## Mechanical dimensions mm (inch)

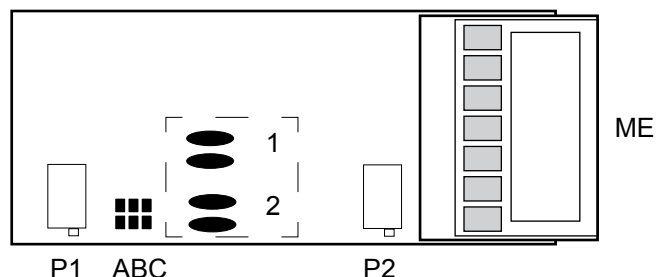


## Input signal module (ME)

Placed on the «ME» module are the potentiometers and jumpers for Zero and Gain adjustment.

Jumper 1 .- Closed for Gross Positive Offset  
Jumper 2 .- Closed for Gross Negative Offset  
Jumper A .- Closed for Fine Negative Offset

Jumper B .- Closed for Maximum GAIN  
Jumper C .- Closed for Middle GAIN  
Jumper B and C .- Open for Minimum GAIN



P1 .- Zero Adjust Potentiometer  
P2 .- Gain Adjust Potentiometer

## CE Declaration of conformity

Manufacturer FEMA ELECTRÓNICA, S.A.  
Altimira 14 - Pol. Ind. Santiga  
E08210 - Barberà del Vallès  
BARCELONA - SPAIN  
[www.fema.es](http://www.fema.es) - [info@fema.es](mailto:info@fema.es)

Series CCT, models 01, 04, 06, 08, 20, 22, 23, 24, 25, 26, 27, 32, 55I, 55V, 80, 90, 95

The manufacturer declares that the instruments indicated comply with the directives and rules indicated below.

Directive of electromagnetic compatibility 2004/108/CEE  
Directive of low voltage 73/23/CEE

Security rules 61010-1  
Emmission rules 50081-1  
Immunity rules 50082-1

Barberà del Vallès October 2009  
Daniel Juncà - Quality Manager