Signal Converters Isolated

FEMA ELECTRÓNICA

Series CCT

Signal Converters with isolation for DC current signals

CCT-32 **Currents in DC** **up to 50 mAdc**

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.

USER'S MANUAL
(1256R02)

Model CCT-32

Converters for DC currents

Signal converters for DC currents. 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
CCT	**32**	-	**0**	-	**4/20mA**	=	**4/20mA**
	- 32		-0 (230 Vac) -1 (115 Vac) -2 (24 Vac) -3 (48 Vac) -6 (24Vdc isolated)		4/20 mA 0/50mA ...		4/20mA 0/10Vdc ...

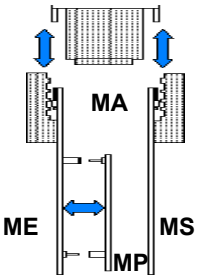
Technical Data

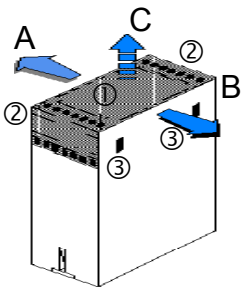
Accuracy CCT-32	Class <0.2
Ripple	<0,5 %
Temperature coefficient	<0,015 %/ °C
Pass band	1.5 Hz (-3 dB a 3Hz)
Response time	<250 mSec.
Output in mA	0/20 mA / 4/20 mA, ... R_L < 600 Ohms max. 22mA active output loop
Output in Vdc	0/10 Vdc, 0/1 Vdc, ... R_L > 1000 Ohms max. 11Vdc
Isolation	2 KVeff / 50Hz / 1 min (tested at 4 KVeff)
Isolated circuits	input / output / power
Weight	270 gr.
Wire section	4mm2 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	<3W
Storage temperature	-30 to +80 °C
Working temperature	-10 to +60 °C
Power wires	1 to 2.5mm² (AWG17 to AWG14)

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**:

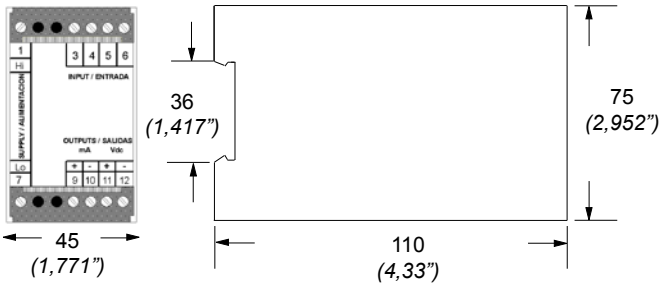
ME - Signal Input Module
MS - Signal Output Module
MA - Power Module
MP - Personalized Module





Remove front cover to access the internal circuits, reduces the protection to the operator (dangerous voltages may be accessible). The operation must be performed by qualified personnel only.

Mechanical dimensions mm (inch)



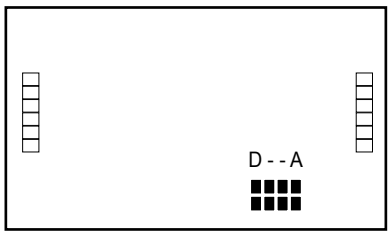
CCT-32

DC Current Signals up to 50 mAdc

Signal converter for current DC signals. Internal jumper selection for 4 different ranges of measure, ranging from 0/5 mAdc up to 0/5 Adc. It offers the excitation voltage (24 VDC @50mA) for passive transducers.

INPUT RANGE SELECTION

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

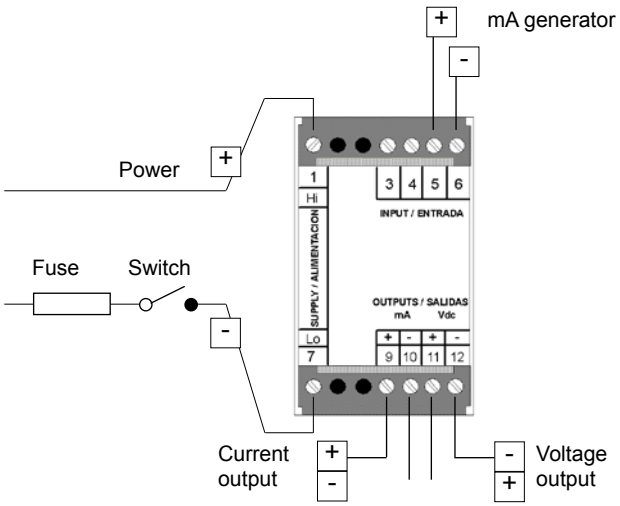


MP

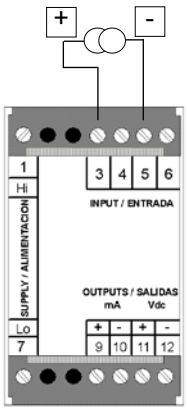
RANGE	JUMPERS «MP» / «ME»	OVERLOAD	Zin	RANGE MINIMUM
0/50mAdc	D / ---	100mAdc	20 Ohm	5mAdc
0/5mAdc	A,D / ---	100mAdc	20 Ohm	0.5mAdc
0/20mAdc	D / C			
4/20mAdc	D / A,C			

CONNECTIONS

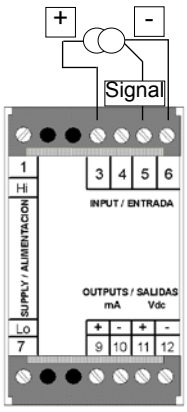
The excitation voltage +24 Vdc @ 50mA for power transducers is supplied at terminal 3.



2 wire transducer



3 wire transducer



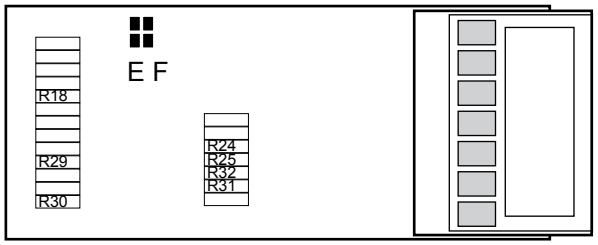
Fuses

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

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)

OUTPUT	R18	R24	R25
0/5mA	- - -	100	- - -
0/10mA	- - -	49,9	- - -
1/5mA	100K	124	- - -
0/20mA	- - -	- - -	24,9

Other Vdc outputs
(Resistances in KOhms)

OUTPUT	R29	R30	R31	R32
±10Vdc	49,9	- - -	200	- - -
0/1Vdc	- - -	- - -	11	100
0/5Vdc	- - -	- - -	100	100
1/5Vdc	- - -	100	66,5	100

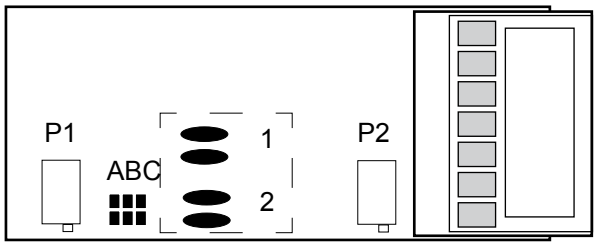
Jumpers E and F .- Closed in 4/20 mA output. Open for other outputs
Note .- The symbol «- - -» means «NOT installed»

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

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

Precautions on installation

This instrument has been designed and verified conforming to the 61010-1 CE Security Regulation, for industrial applications. Installation of this instrument must be performed by qualified personnel only. This manual contains the appropriate information for the installation. Using the instrument in ways not specified by the manufacturer may lead to a reduction of the specified protection level. Disconnect the instrument from all external circuits before starting any maintenance and / or installation action.

The instrument does not have a general switch and will start operation as soon as power is connected. The instrument does not have protection fuse, the fuse must be added during installation.

The instrument is designed to be DIN rail mounted, inside a cabinet, protected from direct impacts. An appropriate ventilation of the instrument must be assured. Do not expose the instrument to excess of humidity. Maintain clean by using a humid rag and do NOT use abrasive products such as alcohols, solvents, etc. General recommendations for electrical installations apply, and for proper functionality we recommend : if possible, install the instrument far from electrical noise or magnetic field generators such as power relays, electrical motors, speed variators, ... If possible, do not install along the same conduits power cables (power, motor controllers, electrovalves, ...) together with signal and/or control cables. Before proceeding to the power connection, verify that the voltage level available matches the power levels indicated in the label on the instrument. In case of fire, disconnect the instrument from the power line, fire alarm according to local rules, disconnect the air conditioning, attack fire with carbonic snow, never with water.

CE Declaration of conformity

Manufacturer FEMA ELECTRÓNICA, S.A.
Altimira 14 - Pol. Ind. Santiga
E08210 - Barberà del Vallès
BARCELONA - SPAIN
www.fema.es - info@fema.es

Products CCT-01,04,05,06,08,20,22,23,24,25,26,27,32,55I,55V,80,90,95

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

Electromagnetic compatibility directive 2014/30/EU
Low voltage directive 2014/35/EU
ROHS directive 2015/863/EU
WEEE directive 2012/19/EU

Security rules EN-61010-1

Instrument Fixed, Permanently connected
Pollution degree 1 and 2 (without condensation)
Isolation Double (exception for CCT-01 and CCT-08, when measuring between >300Vac/dc and 600Vac/dc, isolation is BASIC)
Overvoltage category 2

Electromagnetic compatibility rules EN-61326-1

EM environment Industrial
CISPR 11 Instrument ClassA & Class B Group 1

For a detailed declaration see document:
www.fema.es/docs/5232_CE-Declaration_CCT_en.pdf

Barberà del Vallès, October 2020
Xavier Juncà - Product Manager

According to directive 2012/19/EU, electronic equipment must be recycled in a selective and controlled way at the end of its useful life.