Signal Converters Isolated

FEMA ELECTRÓNICA

Series CCT

Signal Converters with isolation for frequency signals

CCT-05 **for frequency signals** **up to 40 KHz**

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
(1253R02)

Model CCT-05

Converters for frequency signals

Signal converters for frequency signals. 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	**05**	-	**0**	-	**0/1 KHz**	=	**4/20mA**
			-0 (230 Vac) -1 (115 Vac) -2 (24 Vac) -3 (48 Vac) -6 (24Vdc isolated)		0/40 KHz 0/1 KHz 0/700 Hz 0/100 Hz ...		4/20mA 0/10Vdc ...

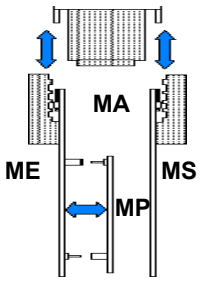
Technical Data

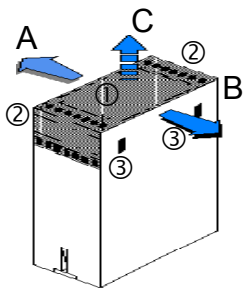
Accuracy CCT-05	Class <0.2
Ripple	<0,5 %
Temperature coefficient	<0,015 %/ °C
Pass band	1.5 Hz (-3 dB a 3Hz)
Response time	<250 mSec.
Output in mA	0/20 mA / 4/20 mA, ... R_L < 600 Ohms max. 22mA active output loop
Output in Vdc	0/10 Vdc, 0/1 Vdc, ... R_L > 1000 Ohms max. 11Vdc
Isolation	2 KVeff / 50Hz / 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	<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

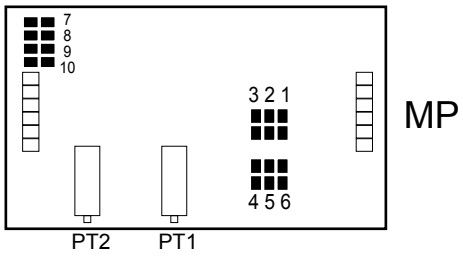
CCT-05

Frequency Signals up to 40 Khz

Signal converter for frequency signals. Internal jumper selection for 5 different ranges of measure, ranging from 0/40 Hz up to 0/40 Khz. Accepts PNP, NPN, Namur and sinusoidal signal types. Provides two types of excitation voltages for transducers, 24 Vdc for PNP and NPN types, and 8,2 Vdc for NAMUR types.

INPUT RANGE SELECTION

Configure the desired frequency input range and sensor type by selecting the appropriate jumpers on «MP» module, as shown on the tables below:



PT1 - Fine Gain Adjustment. (Additional P2 potentiometer on input module ME).

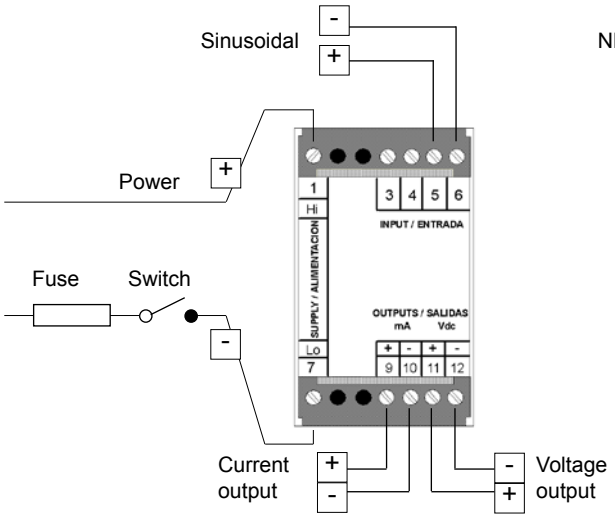
PT2 - Trigger Adjustment. Is the voltage level at which the input signal is recognized to be as logic '1' or logic '0'. It can be set empirically operating on potentiometer PT2.

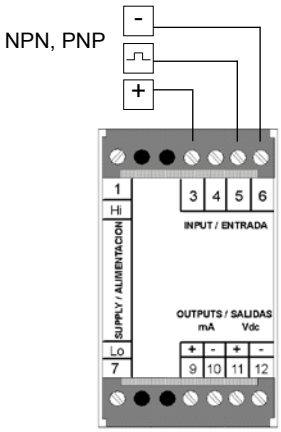
RANGE	JUMPER «MP»
0/22.5-40 KHz	1,6
0/12.5-22.5 KHz	1,5
0/7-12.5 KHz	1,4
0/4-7 KHz	1
0/2.25-4 KHz	2,6
0/1.25-2.25 KHz	2,5

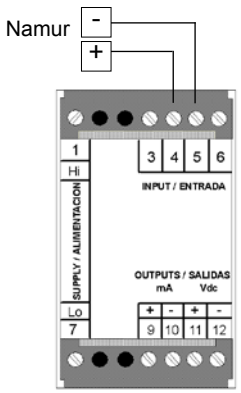
RANGE	JUMPER «MP»
0/700-1250 Hz	2,4
0/400-700 Hz	2
0/225-400 Hz	3,6
0/125-225 Hz	3,5
0/70-125 Hz	3,4
0/40-70 Hz	3

SENSOR	JUMPER «MP»	CONNECTIONS
Push-Pull (3 wires)	10	3,5,6
NPN-PNP (3 wires)	10	3,5,6
NPN (open collector)	10,7	5,6
PNP (open collector)	10,8	5,6
NAMUR	10,9	4,5
Vac<100V	10	5,6
Vac>100V	---	5,6

CONNECTIONS

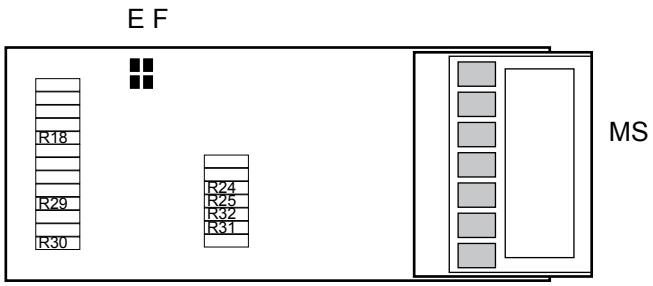






Output signal module (MS)

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)

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

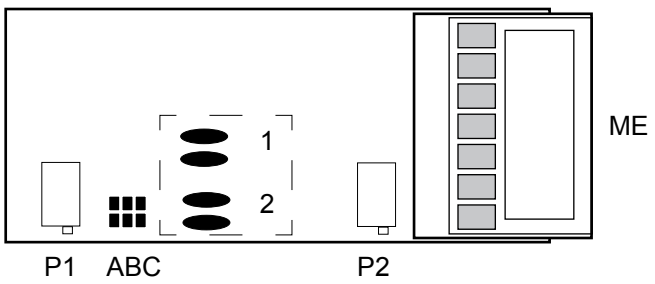
Jumpers E and F .- Closed in 4/20 mA output. Open for other outputs
Note .- The symbol «- - -» means «NOT installed»

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

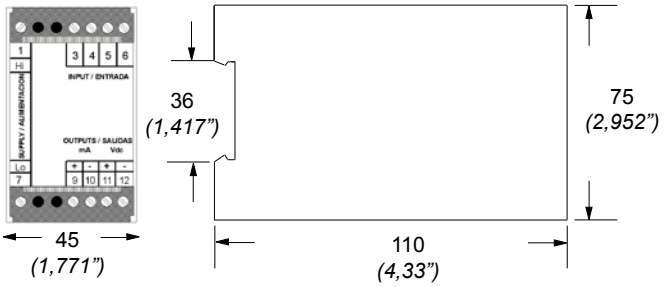


P1 .- Zero Adjust Potentiometer
P2 .- Gain Adjust Potentiometer

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

Mechanical dimensions mm (inch)



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

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