

Serial number

Model FAR-1

Model FAR-2

Output voltage :

Power supply :

Acquisition date :

Purchased in :

POWER SUPPLY SERIES FAR

FAR-1

For Load-cells

FAR-2

General Purpose



Manufactured by:



FEMA ELECTRÓNICA, S.A.
Centro Industrial Santiga
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Operator's Manual



WARRANTY

FEMA ELECTRÓNICA, S.A. warrants this product free of defects in workmanship for ONE (1) year from the date of shipment.

This Warranty is VOID if the unit shows evidence of damages as a result of misapplication, accident, misuse or if the product had been tampered or repaired by personnel or companies without the official authorization of **FEMA ELECTRÓNICA, S.A.** This Warranty is VOID also for damages caused by defective or inappropriate applications.

During the Warranty period if the Power Supply is found to be defective it will be repaired or replaced at the discretion of **FEMA ELECTRÓNICA, S.A.**

Before sending back the unit, please fill in the rear Cover of this Manual and send the Power Supply and the Manual (or one copy of it) free of charge and properly packed with a description of the anomaly or defect found in the product, directly to your Local Distributor or to the following address :

FEMA ELECTRÓNICA, S.A.

Altimira 14, Talleres 14, Nave 2
Centro Industrial Santiga.
P.O. Box 49.
E 08210 BARBERÀ DEL VALLÈS
BARCELONA (Spain)

LIMITATION OF LIABILITY : **FEMA ELECTRÓNICA, S.A.** shall not be responsible for any damage or loss to other equipment however caused, which may be experienced as a result of the installation or use of this product. **FEMA ELECTRÓNICA, S.A.** liability shall not exceed the purchase price paid of the product upon which liability is based. In no event shall **FEMA ELECTRÓNICA, S.A.** be liable for consequential, incidental or special damages.

CONTENTS

PAGE

Unpacking	2
Notes	3
General considerations	4 & 5
Open the Housing	6
Internal Overview	6
Power Supply, recommended wiring	7
Changing the Power Supply	7
FAR-1, Electrical Features (Specifications)	8
Wiring connections	9
Examples	10
FAR-2, Electrical Features (Specifications)	11
Wiring connections	12
Mechanical (Specifications)	13
Declaration of Conformity CE	14
Range production	15
Warranty	16

UNPACKING

You have purchased a product of our **ESASGARD's** Series, Manufactured and Distributed by **FEMA ELECTRÓNICA, S.A.**

It is advisable to do a detailed reading of this Manual before mounting the instrument. This Operator's Manual contains all the technical specifications : electricals as well as mechanics, both necessary to do a correct installation and also a good use of the instrument. At the same time the user will acquire the knowledge needed to obtain the best performances of the product.

Check that inside the present cardboard box, there are :

- 1 Power Supply Model FAR-1 or FAR-2.
- 1 Operator's Manual.

The Characteristic's Label located on the external part of the cardboard box must have the same data as the side Label stuck on the case.

If there are some doubts or enquiries about the present instrument, please contact with your Local Distributor or with **FEMA ELECTRÓNICA, S.A.**

When the shipment is arrived remove the Packing List and verify that you have received all equipment. Then inspect the box and the instrument, and if there is evidence of damage caused by bad handling during the transport, it is advisable to make a careful inspection of all damages making a note of all of them and to pass on this information directly to the Transport Company.

If this occurs but with insured material, ask the Transport Company for instructions about submitting a claim. Finally **FEMA ELECTRÓNICA, S.A.** thanks you for your confidence in our range of products.

RANGE PRODUCTION :

Digital Panel Meters :

Signal Input	Digits	Digit Size	Power Supply
<input checked="" type="checkbox"/> Vdc	<input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> 10 mm LED	<input checked="" type="checkbox"/> 230 Vac
<input checked="" type="checkbox"/> Vac	<input checked="" type="checkbox"/> 3 ½	<input checked="" type="checkbox"/> 12 mm LCD	<input checked="" type="checkbox"/> 115 Vac
<input checked="" type="checkbox"/> Idc	<input checked="" type="checkbox"/> 4	<input checked="" type="checkbox"/> 14 mm LED	<input checked="" type="checkbox"/> 24 Vac
<input checked="" type="checkbox"/> Iac	<input checked="" type="checkbox"/> 4 ½	<input checked="" type="checkbox"/> 100 mm LED	<input checked="" type="checkbox"/> 48 Vac
<input checked="" type="checkbox"/> Process	<input checked="" type="checkbox"/> 6		<input checked="" type="checkbox"/> 15...30 Vdc. -10%
<input checked="" type="checkbox"/> Thermocouples		Options	Dimensions
<input checked="" type="checkbox"/> Thermoresistance RTD		<input checked="" type="checkbox"/> Single Setpoint	<input checked="" type="checkbox"/> 48 x 24 mm.
<input checked="" type="checkbox"/> Resistance		<input checked="" type="checkbox"/> Dual Setpoint	<input checked="" type="checkbox"/> 96 x 24 mm.
<input checked="" type="checkbox"/> Strain Gauge / Load Cells		<input checked="" type="checkbox"/> RS-232 Output	<input checked="" type="checkbox"/> 72 x 36 mm.
<input checked="" type="checkbox"/> Pulses / frequency		<input checked="" type="checkbox"/> BCD parallel Output	<input checked="" type="checkbox"/> 96 x 48 mm.
<input checked="" type="checkbox"/> BCD Parallel Code		<input checked="" type="checkbox"/> Analog Output	<input checked="" type="checkbox"/> 480 x 180 mm.
<input checked="" type="checkbox"/> RS-232 Serial			

Transmitters

Signal Input	Signal Output	Power Supply
<input checked="" type="checkbox"/> Vdc	<input checked="" type="checkbox"/> Thermocouples	<input checked="" type="checkbox"/> 230 Vac
<input checked="" type="checkbox"/> Vac	<input checked="" type="checkbox"/> Thermoresistance RTD	<input checked="" type="checkbox"/> 115 Vac
<input checked="" type="checkbox"/> Idc	<input checked="" type="checkbox"/> Resistance	<input checked="" type="checkbox"/> 24 Vac
<input checked="" type="checkbox"/> Iac	<input checked="" type="checkbox"/> Strain Gauge / Load Cells	<input checked="" type="checkbox"/> 48 Vac
<input checked="" type="checkbox"/> Process	<input checked="" type="checkbox"/> Pulses / frequency	<input checked="" type="checkbox"/> 24 Vdc

TACHOMETERS. COUNTERS.

MODULAR DISPLAYS FOR BCD PARALLEL INPUT. LOOP POWERED GALVANIC ISOLATOR.

POWER SUPPLY

FAR-1 : Specially designed to power up Load-Cells (Strain gauge).

FAR-2 : With 6 ranges of Voltage outputs : 5, 9, 12, 15, 18 and 24 Vdc.

GENERAL CONSIDERATIONS

INSTALLATION



PRECAUTIONS.- The installation and the future use of this unit must be done by suitable qualified personnel. The unit has not AC (mains) switch, neither internal protection fuse, it will be in operation as

soon as power is connected. The installation must incorporate an external mains switch with a protection fuse (See page 7 table 1) and also the necessary devices to protect the operator and the process when using the unit to control a machine or process where injury to personnel or damage to equipment or process, may occur as a result of failure of the unit.

SAFETY PRESCRIPTIONS.- The unit has been designed and tested under



EN-61010-1 rules and is delivered in good condition. This operator's manual contains useful information for electrical connections. Do not make wiring signal changes or connections when power is applied to the unit. Make signal connections before power is applied and, is reconnection is required, disconnect the AC (mains) power before such wiring is attempted.

Install the unit in a places with a good ventilation to avoid the excessive heating. And far from electrical noise source or magnetic field generators such as power relays, electrical motors, speed controls etc...

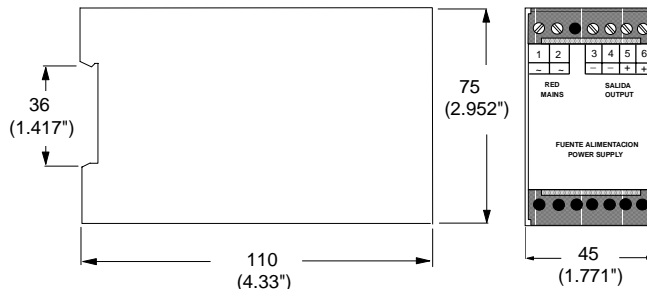
The unit cannot be installed in open places. Do not use until the installation is finished.

POWER SUPPLY.- The power supply must be connected to the adequate terminals (see the wiring connections). The characteristics of the power supply are showed on the side label. Please make sure that the unit is correctly connected to a power supply of the correct voltage and frequency.

Do not connect the unit to power sources heavily loaded or to circuits which power loads in cycle ON-OFF or to circuits which power inductive loads.

MECHANICAL

DIMENSIONS mm. (inches)

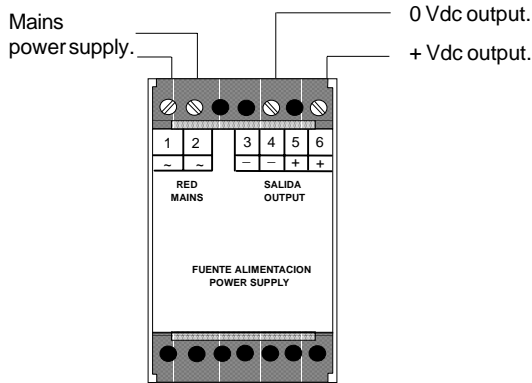


TECHNICAL DATA

WEIGHT	350 g.
HOUSING BASE	Polycarbonate, RAL 7032, UL 94 V-1 light grey, IP-40.
TERMINAL HOUSING, COVER AND BLIND PLUGS	Polycarbonate, UL 94 V-2 dark brown, IP-20.
WIRE CROSS SECTION	4 mm ² .

Provided with a snap fastener for attaching to DIN 46277 and DIN EN 50022 (35 x 7.5 mm) (1.38 X 0.3") assembly rails.

WIRING CONNECTIONS



SIGNAL WIRING.- Certain considerations must be given when install the signal input wires. If the wires are longs can act like an antenna and introduce the electrical noise to the unit, therefore :

Do not install the signal input wires in the same conduit with power lines, heaters, solenoids, SCR controls etc...and always far from these elements.

When shielded wires are used, leave unconnected the shield on the transmitter side and connect the other end of the shield to the ground terminal of the machine.

SAFETY CONSIDERATIONS

PRESCRIPTIONS.- Before starting any operation of adjustment, replacement, maintenance or repair, the unit must be disconnected from any kind of power supply.

Keep the unit clean, to assure good functioning and performance.

To prevent electrical or fire hazard, do not expose the unit to excessive moisture.



Do not operate the unit in the presence of flammable gases or fumes, such an environment constitutes a definite safety hazard. The unit is designed to be mounted in rail DIN, inside the metal cabinet.

If the unit shows signs of damage, or is not able to show the expected measures, or has been stored in a bad conditions or a protection failure can occur, then do not attempt to operate and keep the unit out of service.

IN CASE OF FIRE



- 1.- Disconnect the unit from the power supply.
- 2.- Give the alarm according to the local rules.
- 3.- Switch off all the air conditioning devices.
- 4.- Attack the fire with carbonic snow, do not use water in any case.

WARNING : In closed areas do not use systems with vaporized liquids.

OPEN THE HOUSING

PROCEDURE

1. Insert a screwdriver or similar tool in the points marked ①.
2. Turn the screwdriver until the case walls begin to separate towards **A** and **B**, so the two side lugs ③, are free.
3. Grab the Power Supply body, at the points marked ②, and pull it towards **C**, until the two side lugs ③ are out of their housing and the internal circuits are visible. See the sketch below for the disassembly of the circuit boards.
4. Before reinserting the Power Supply into the case, the following must be checked :
 - The front label (blue colour) must be in its correct position, with terminals 1 and 2 (power supply) separated from the other terminals.
 - The internal board must be inserted correctly in their internal case guides.

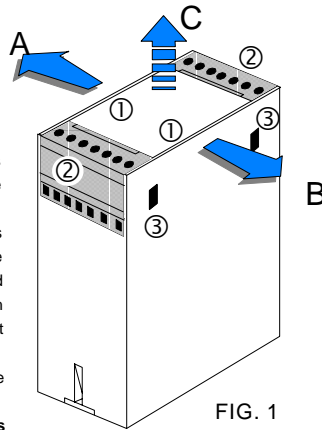
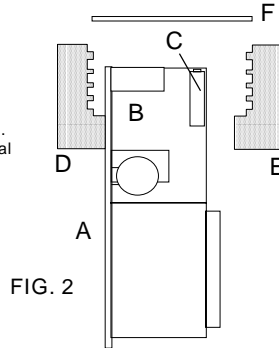


FIG. 1

INTERNAL OVERVIEW

- A.- Mother board.
- B.- Control board
- C.- Trimmer to regulate the voltage output.
Maximum regulation 6 % of the nominal output voltage.
- D.- Terminal body.
- E.- Terminal body without application.
- F.- Plastic cover.



FAR-2, ELECTRICAL FEATURES

Specially designed to power up sensors and transducers or any other device, in which an external power supply is required. This series consists of 6 different models providing a voltage output from 5 to 24 Vdc. (See table 2).

POWER SUPPLY :

Voltage and frequency See characteristics label.

OUTPUT: There are 6 different values of voltage and current which are indicated on the table.

Ref.	Voltage Vdc	Current max. mA
A	5	225
B	9	225
C	12	200
D	15	100
E	18	100
* F	24	150

TABLE 2

* Standard voltage for all orders, unless specified otherwise.

Voltage output adjustable 6 % by internal trimmer.
Output ripple @ I_{max} 0.02% tip.
Storage temperature -30 to +80 °C (-22 to 176 °F).
Operating temperature 0 to +60 °C (32 to 140 °F).

EXAMPLES

6-WIRE BRIDGE

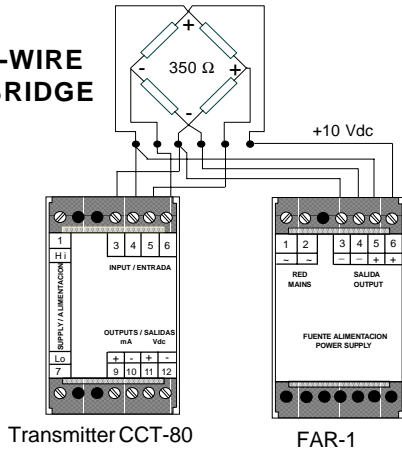


FIG. 5

4-WIRE BRIDGE

WARNING : If a load cell of 4 wires is used, then the sense function must be closed therefore link terminal 5 to 6 and terminal 3 to 4.

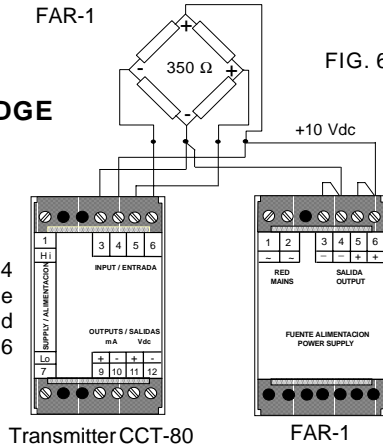


FIG. 6

POWER SUPPLY

RECOMMENDED WIRING

The power supply must be connected to terminals 1 and 2. The characteristics of the power supply are shown on the side label.

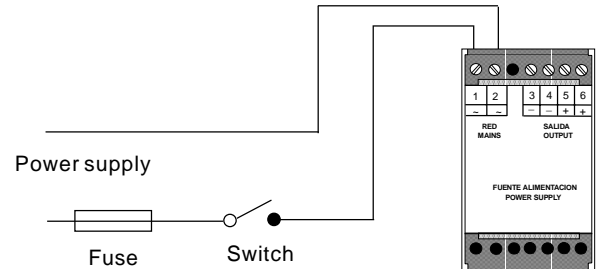


FIG. 3

PRECAUTIONS

The installation must incorporate safety devices to protect the operator and the process when using the Power Supply to power up sensors or controls which drive a machine or process where injury to personnel or damage to equipment or process, may occur as a result of failure of the Power Supply.

PROTECTIONS

See on table 1 the recommended value of the fuse for the different power supply availables. Use fast fuse according DIN 41661.

Power supply	Fuse value
230 Vac	50 mA
115 Vac	100 mA

TABLE 1

CHANGING THE POWER SUPPLY

The unit is not provided with a system to change the power supply. Contact your local distributor for instructions.

FAR-1, ELECTRICAL FEATURES

Specially designed to power up to four bridges (Load cells of 350 Ω typical each one) in parallel at 10 Vdc. This unit used with the converter CCT-80, suits 6 wire bridge circuits, where two wires provide bridge excitation, two wires sense the excitation at the bridge and the other two wires give the signal to the converter.

The sensed data is used to compensate errors due to the lead wire resistance.

If a load cell of 4 wires is used, then the function sense is out of service, therefore link terminal 5 to 6 and terminal 3 to 4.

POWER SUPPLY :

Voltage and frequency See characteristics label.

OUTPUT :

Excitation voltage +10 Vdc.
 Excitation adjustable 6 % by internal trimmer.
 Maximum current 250 mA.
 Output ripple @ I_{max} 0.02% tip.
 Load regulation 0.1 %.
 Tempco 0.01 %/°C operating range
 from 0 to 60 °C after 30 minutes
 warm-up

Maximum lead wire resistance
 compensation 10 Ω maximum.
 Storage temperature -30 to +80 °C (-22 to 176 °F).
 Operating temperature 0 to +60 °C (32 to 140 °F).

WIRING CONNECTIONS

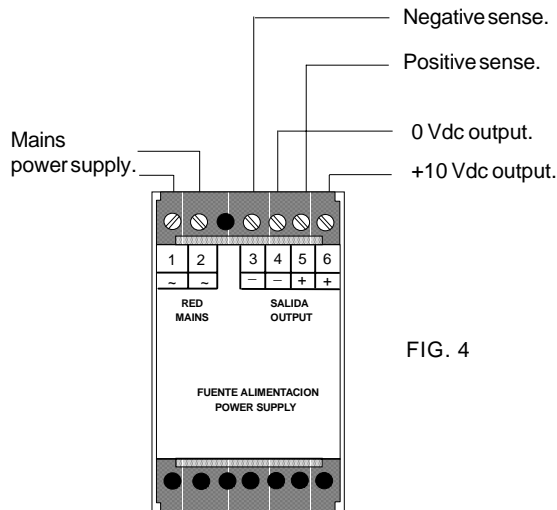


FIG. 4