KOSMOS SERIES

CE

INSTRUCTIONS MANUAL
ANALOG OUTPUT 4-20mA
FOR MICRA MODELS (P-C-T-E)

MAN

DITEL
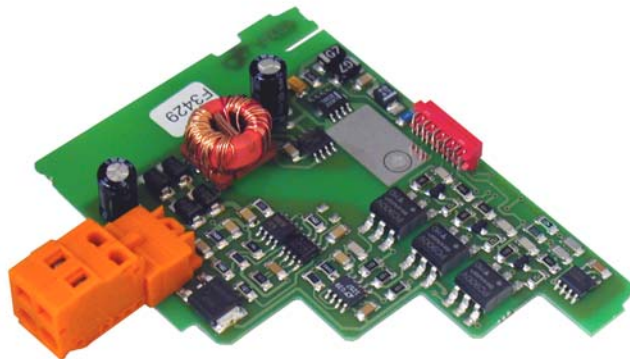
```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                        ╲
│   ANALOG OUTPUT 4-20 mA                       MICRA'S FAMILY            ╲
│                      OPTION MAN                                          >
│                                                                        ╱
└─────────────────────────────────────────────────────────────────────┘
```

INDEX

1. GENERAL INFORMATION OPTION MAN

VERY IMPORTANT !
The new analog output MAN should be only plugged into MICRA'S specifically designed for that. How can I know if my MICRA is compatible with analog output MAN?. First of all ,verify that your owners manual is carrying the compatibility mark on the right bottom of first sheet (see figure 4.1). Second, verify that, on the label of your instrument is printed the conection of MAN. If this two requeriments are not respected, the output option MAN could be broken down seriously.

The option **MAN** is, a specific analog output of 4-20 mA for MICRA instruments (except MICRA-I, MICRA-F, MICRA-S and MICRA-M).

The output is **isolated** from all inputs,relay outputs and power supply.

The output option board provides a two terminal connector [MAN(+) y MAN(-)] that drives out a signal variation from 4 to 20 mA proportional to an user-defined display range.

This way ,the meter is furnished with an output signal that can be used for proportional control purposes and also be used to drive a variety of terninal equipment such as graphic recorders, controllers, remote displays or other devices that accept input data in analog form.

The display values producing the full scale output (**HI** and **LO**) are also introduced via front-panel buttons in the corresponding programming module. The analog output then follows the display variation between **HI** and **LO** programmed points.

The output signal can be set-up for reverse action by programming the high display value for low output (**LO**) and the low display value for the high output (**HI**).

2. INSTALATION AND CONNECTIONS

2.1 – Installation

To install the output card MAN, lift out the electronic assembly from the case, in the way is printed on fig 5.1.

The MAN option is installed horizontally, parallel to the main board with the components side looking downwards. The card is attached to the meter by means of a connector that is plugged in to the rear side of the display. The fig 5.2 shows a perspective of the circuit MAN installed (the main and the input boards have been removed for clarity) where it can be seen the connections to the display. Two protrudings at each side of the front part of the circuit allows it to be installed between the slots of the upper tabs of the front cover in the same way as the main board is. Fig 5.3 shows a perspective of the installed option.

Detach the marked window at the back of the case and insert back the instrument so that the main and the option boards slide over the inside tracks of the case.

Fig. 5.1. Lift out the electronic assembly

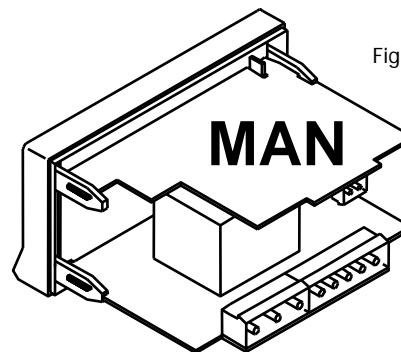Fig. 5.2. Detail of plugged option to the display connector.

Fig. 5.3.Installed MAN

2.2 - CONNECTION

Before installing the option, **verify that your instrument is compatible with output option MAN**. The connection of analog card will be printed on the label of related MICRA and looks like in fig 6.2. Remember that if the instrument is not carrying this kind of label ,is not prepared to work with analog output **MAN** and should be damaged.

Fig 6.1. Rear view of the instrument
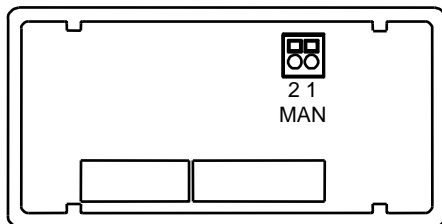
MAN - OPCION SALIDA ANALOGICA
      PIN 2 = (-) 4-20 mA
      PIN 1 = (+) 4-20 mA

To perform wiring connections,remove the terminal block from the meter's connector,strip the wire leaving from 7 to 10 mm exposed and insert it into the proper terminal pushing the fingertip down to open the clip inside the connector as indicated in the fig 6.3.

Proceed in the same manner with all pins and plug the terminal block into the corresponding meter´s connector. Each terminal can admit cables of section between 0.08 mm² and 2.5 mm² (AWG 26 ÷ 14).
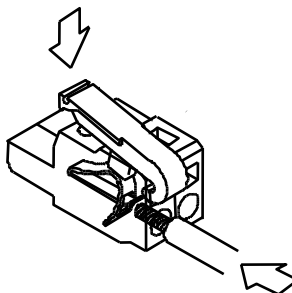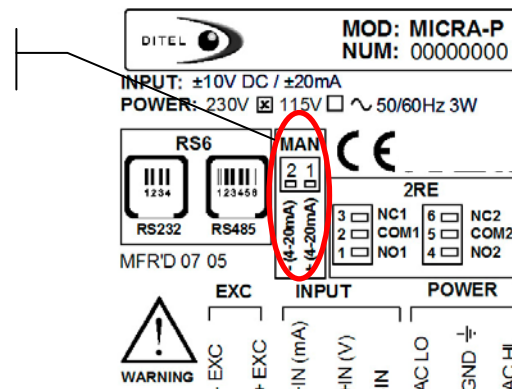
Fig 6.2. Description of conection MAN

Fig 6.3. Wiring connections

WARNING:

In order to guarantee electromagnetic compatibility, the following guidelines should be kept in mind:

-   Use shielded cable for signal wiring and connect the shield to ground of the indicator (pin2 CN1).

-   The cable section must be
    ≥ 0.25 mm².

If not installed and used in accordance with these instructions, protection against hazards may be impaired.

3. TECHNICAL SPECIFICATIONS

OUTPUT 4-20 mA

Resolution .... 12 bits

Accuracy .... 0.2 % F.S ±1 bit at 23 ° ±5 °C

Response time .... 120 ms

Thermal drift .... 2 μA/ °C

Maximum load .... 500 Ω

Isolation between analog output and input signal .... 3750 V AC

Isolation between analog output and power supply and relay output .... 2300 V AC

4. PROGRAMMING INSTRUCTIONS

Apply power to the instrument,it automatically enters in a self-test routine activating all segments of the display, then the instrument will start in (RUN) mode. From this point, press key ENTER to enter into programming mode. Display will show **Pro** with led F4 on (see fig 8.1).

To accede the the analog output programming module , press repeatedly the ► key until F2 turns on (see fig 8.2).

Fig. 8.1. Programming mode, led F4 on.

Previous Considerations

Programming the analog output consist of introducing the low and high value of the range of display to be covered . Then the output signal will provide a current between 4 mA and 20 mA linearly proportional to the range of the display defined in this way.

Normaly ,it is enough to fit low and high ends with the ends of the display range; be in direct or inverted relationship. Nevertheless, it is possible to programm the whole span of analog output to a defined part of the display range. In every case, note that , when the instrument shows Overrange with positive slope the output signal will be 20 mA and when shows Overrange with negative slope the output signal will be 4 mA, independently of other consideration.
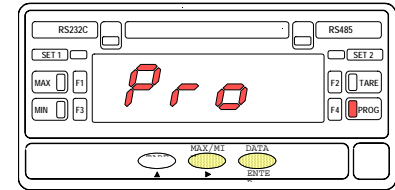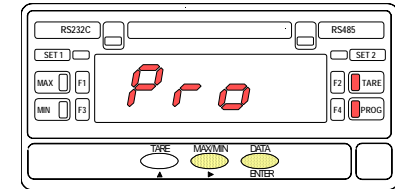
Fig. 8.2. Programming module of analog output , led F2 y F4 on.

MENU F2 - PROGRAMMING ANALOG OUTPUT

This menu adjust the display values that give the output signal at two ends of the range, the low value (LOW) and high value (HIGH). In this way, the analog output will follow the change of display in the range choosed, geting 4 mA on the low value (or overrange with negative slope) and 20 mA on high value (or overrange with positive slope). The values you programm in this menu will show the decimal point if you have before chosen it in the SCAL menu , as is indicated in your MICRA manual.
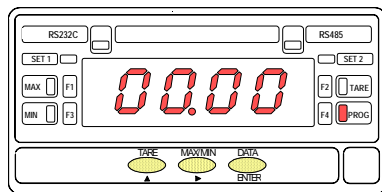
[9.1] Indication flag LOW
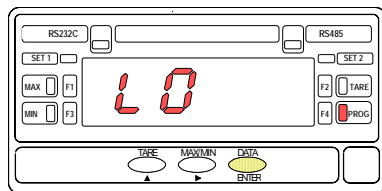
Display shows during 1 second the flag **LO** to point out that now are programming the value of display that corresponds to 4 mA.

ENTER Allows to program the display value that corresponds to output 4 mA.
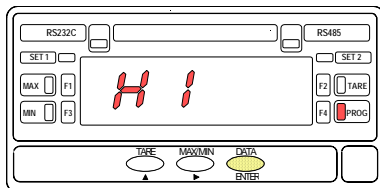
[9.2] Low Value

Programming of the display value for 4 mA output, led F4 on.
Introduce the value of display equivalent to low value of output signal, that means, 4mA. The initial value is shown with the first digit blinking. Push repeatedly the key ▲ to modify the value of the active digit. Push the key ▶ to shift to next digit and repeat the same operation until getting on display the desired value. If we wish to programm a negative value, at the end of numerical sequence of first digit we can select the negative sign.

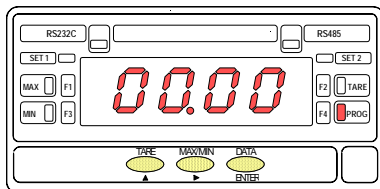ENTER Stores this value into memory and goes to next step.

[10.1] Indication flag HIGH

Display shows during 1 second the flag **HI** to point out that now are programming the value of display that corresponds to 20 mA.

ENTER Allows to program the display value that corresponds to output 20 mA.

[10.2] High value

Programming of the display value for 20 mA output, led F4 on.
Insert the value of display equivalent to high value of output signal, that means, 20 mA. The initial value is shown with the first digit blinking. Push repeatedly the key ▲ to modify the value of the active digit. Push the key ► to shift to next digit and repeat the same operation until getting on display the desired value. If we wish to program a negative value, at the end of numerical sequence of first digit we can select the negative sign.

ENTER Stores this value into memory and goes to next figure.

[10.3] Return to run mode
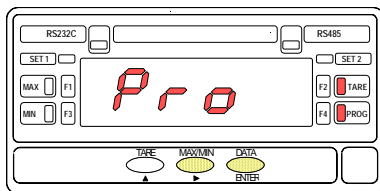
At this point, push key ► until having only F4 on, and then ENTER to go back to run mode, the analog output has been programmed.

The instruments are warranted against defective materials and workmanship for a period of three years from date of delivery.

If a product appears to have a defect or fails during the normal use within the warranty period, please contact the distributor from which you purchased the product.

This warranty does not apply to defects resulting from action of the buyer such as mishandling or improper interfacing.

The liability under this warranty shall extend only to the repair of the instrument. No responsibility is assumed by the manufacturer for any damage which may result from its use.

All the DITEL products benefit from an unlimited and unconditional warranty of THREE (3) years from the date of their purchase. Now you can extend this period of warranty up to FIVE (5) years from the product commissioning, only by fulfilling a form.

Fill out the form in our website:
http://www.ditel.es/warranty

INSTRUCTIONS FOR THE RECYCLING

This electronic instrument is covered by the **2002/96/CE** European Directive so, it is properly marked with the crossed-out wheeled bin symbol that makes reference to the selective collection for electrical and electronic equipment which indicates that at the end of its lifetime, the final user cannot dispose of it as unsorted municipal waste.

In order to protect the environment and in agreement with the European legislation regarding waste of electrical and electronic equipments from products put on the market after 13 August 2005, the user can give it back, without any cost, to the place where it was acquired to proceed to its controlled treatment and recycling.

DISEÑOS Y TECNOLOGIA, S.A.
Polígono Industrial Les Guixeres
C/ Xarol 8 C
08915 BADALONA-SPAIN
Tel : +34 - 93 339 47 58
Fax : +34 - 93 490 31 45
E-mail : dtl@ditel.es

 www.ditel.es