SERIE KOSMOS

ECF

INSTRUCTIONS MANUAL
ANALOG OUTPUT OPTION

ANA

DITEL
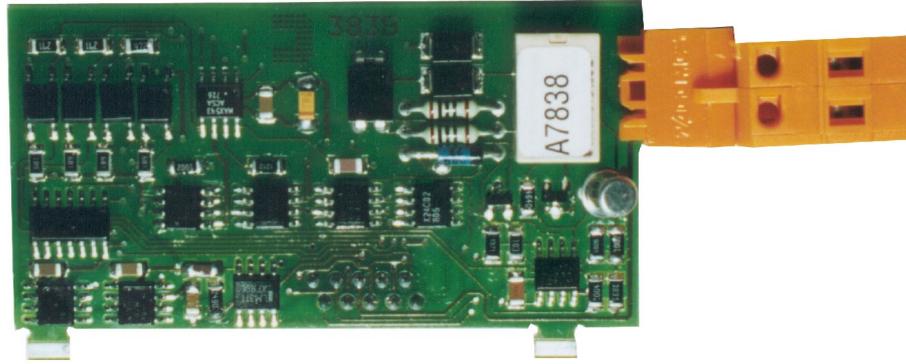
ANALOG OUTPUT OPTI ON

INDEX

1. ANA ANALOG OUTPUT OPTION

1.1 − INTRODUCTION

Two ranges of analog output (0-10V and 4-20mA) can be incorporated to the KOSMOS instrument by means of an additional card (ANA option) which is installed on the meter's main board via plug-in connectors.
The outputs are opto-isolated with respect to the signal input.

The optional board provides a two terminal connector [ANA(+) and ANA(-)] that drives out a signal variation from 0 to 10V or from 4mA to 20mA proportional to a user-defined display range.

This way, the meter is furnished with an output signal that can be utilized for proportional control purposes and also be used to drive a variety of terminal equipment such as graphic recorders, controllers, remote displays or other devices that accept input data in analog form.
An exceptional feature is the possibility of setting the rate at which the output signal may change by either making it follow the display or the input signal conversion rate.

The voltage and current outputs cannot simultaneously be used; the output type is selectable via the software programming module that is included automatically in the program routines when the card is installed.

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

A display HOLD command also freezes the analog output data.

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

2. SETUP AND CONNECTIONS

2.2 – INSTALLATION

Lift out the electronics assembly from the case and use a screwdriver to pull on the junctions between the case and the grey-marked area to detach it from the case. The so performed orifice will allow the analog output board connector be brought out at the rear of the instrument.Install the circuit board so that the lower pin fits into the corresponding main board insertion slot and push down to plug the M4 option connector in the main board M4 location.If the instrument is to be installed in high vibrating environments, it is recommended to solder the card to the main board making use of the copper tracks on both sides of the card pin and around the main board hole on its solder side.

Before inserting the electronics in the case, you should verify that the access to the programming modules is enabled, since this is the next operation to be made after powering the unit.
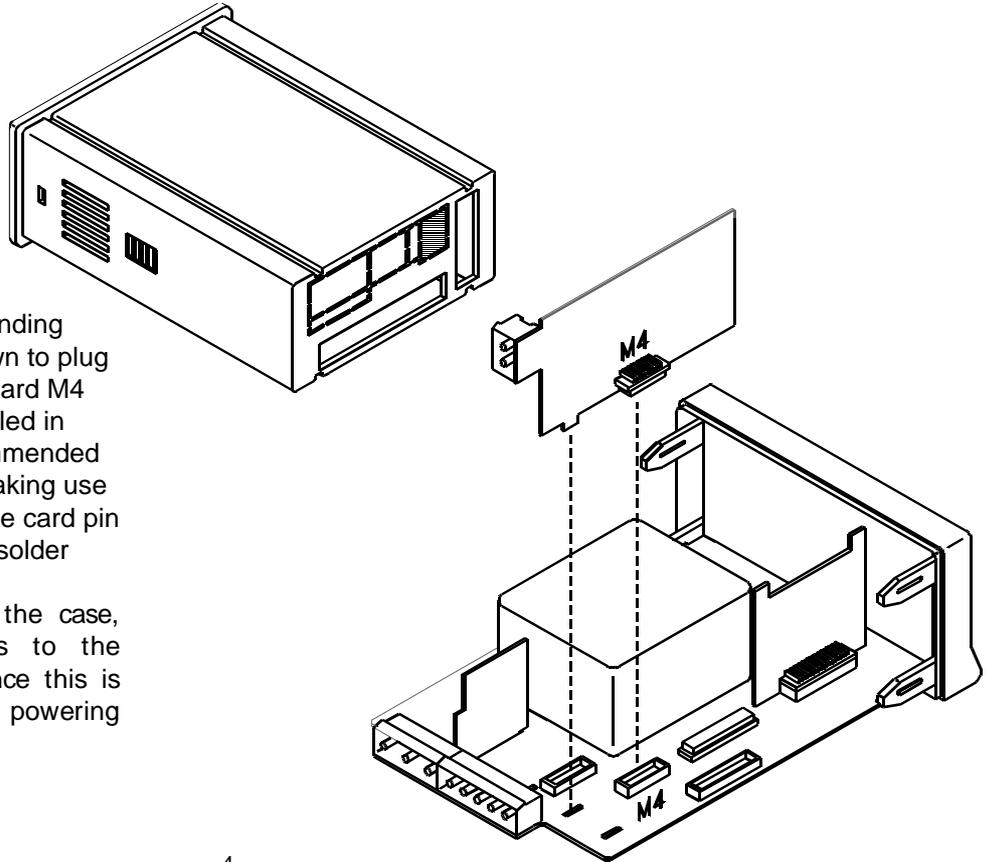
2.2– CONNECTION

Each output card is supplied with an adhesive label that indicates the wiring connections of each option. To help identifying each terminal, this label should be placed in the lower side of the meter case, beside the basic functions label.
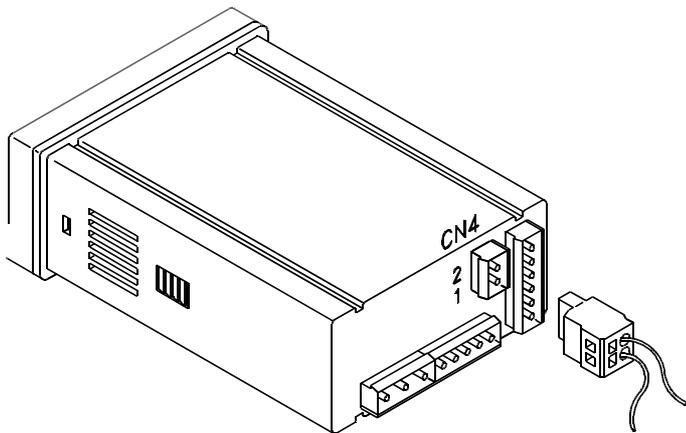
fig 7.1. Option label

ANA - ANALOG OUTPUT OPTION
CN4 CONNECTOR
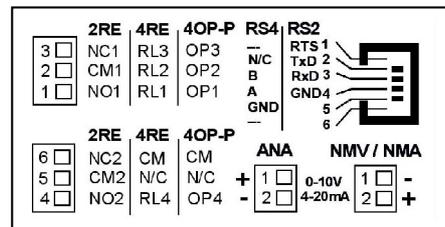   PIN 2 = (-) 0-10V / 4-20mA
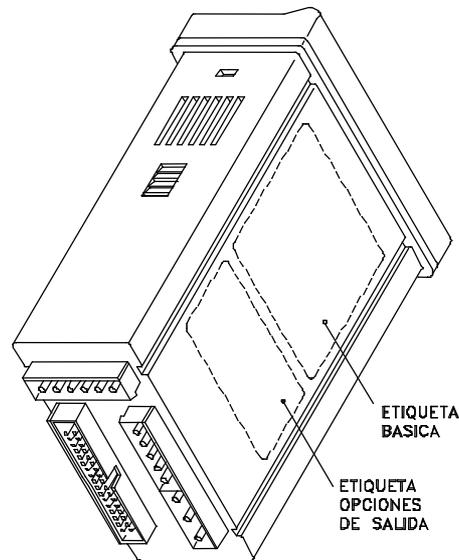   PIN 1 = (+) 0-10V / 4-20mA

Fig. 7.3. Label position

3. TECHNICAL SPECIFICATIONS

CHARACTERISTICS	0-10V OUTPUT	4-20mA OUTPUT
RESOLUTION	12 BITS	12 BITS
ACCURACY	0.1 % F.E. ± 1 BIT	0.1% F.E. ±1 BIT
RESPONSE TIME	60ms	60ms
THERMAL DRIFT	0.2mV/ºC	0.5µA/ºC
MAXIMUM LOAD	>= 500Ω	<=800Ω

4. PROGRAMMING THE ANALOG OUTPUT MODEL BETA-M

4.1 MODEL BETA-M PROGRAMMING INSTRUCTIONS
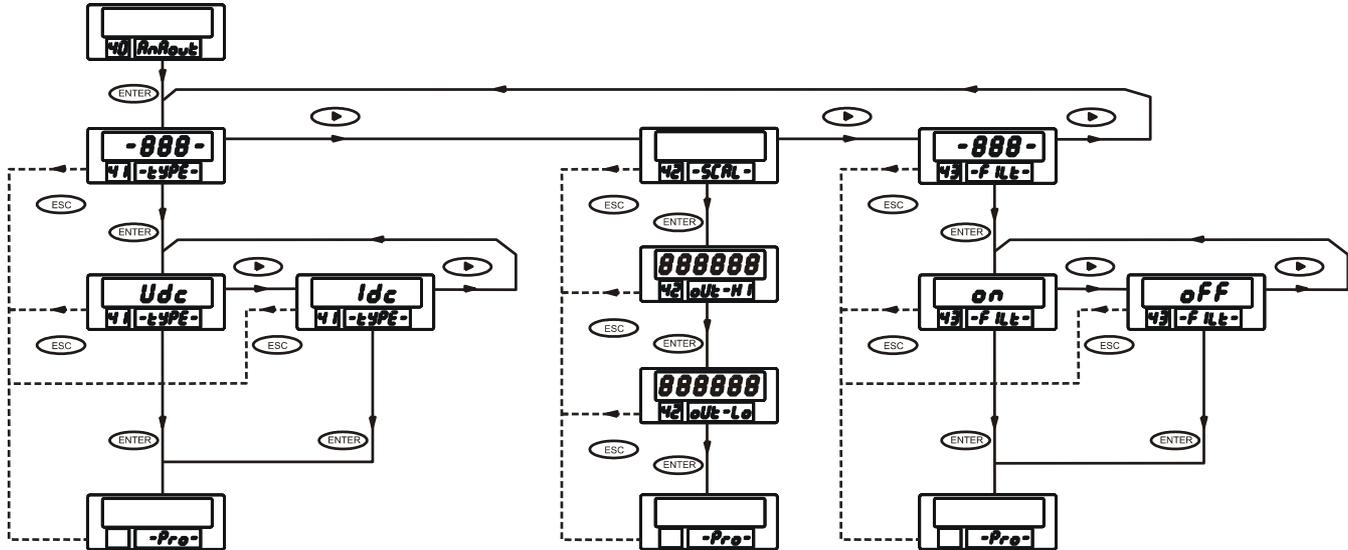
MODULE 40 - ANALOG OUTPUT

The enclosed figure shows the diagram of the MODULE 40 for configuration of the analog output that appears in the programming routines of model BETA-M when the corresponding option is installed.

The module provides three menus of independent access that permit user-selection of the following parameters :

Menu 41 -TYPE- : Selection of the output type (0-10V or 4-20mA).

Menu 42 -SCAL- : Programming of the display values that are wanted to produce the high and low output values.

Menu 43 -FILT- : Selection of whether the analog output must change at the same rate as the input signal conversion (filter OFF) or as the display (filter ON).
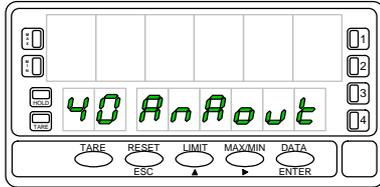
Press the (ENTER) button to pass from the run mode to the programming mode (**-Pro-** indication, **PROG** LED) and press repeatedly the (►) button until the meter displays the indication given on the left figure. Press (ENTER), to acceed to the first programming menu, or

(►) To advance to the next program module.

(ESC) To return to the programming access level (indication -Pro-).

menu 41 - TYPE OF OUTPUT
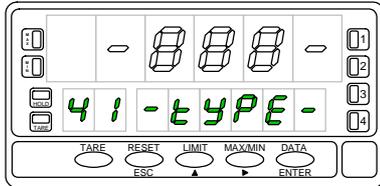
From the level shown in figure 9.1, a push of (ENTER) makes the meter read the indications corresponding to the entry stage of the 41 menu (figure 9.2) where the main display presents the previously chosen output (-Vdc- for 0-10V or -Idc- for 4-20mA). If the existing configuration is already the desired one, press the (►), key to skip over this menu and acceed to the output scaling

(ENTER) If wanted to change the current output, press "ENTER" to acceed to this menu.

(ESC) Rückkehr zur Eingangsebene des Programmiermoduls (-Pro-).
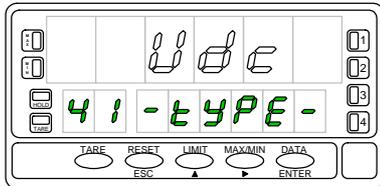
By pressing the (►) key, the display alternates between the indication "**Vdc**" (corresponding to 0-10V) and "**Idc**" (corresponding to 4-20mA). When the desired option is present on the display, press (ENTER) to validate the choice and return to the -Pro- stage.

(ESC) : Returns the meter to the -Pro- stage without saving changes

MENU 42 - SCALE

[10.1]
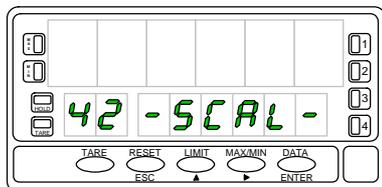
By pressing ⟨ENTER⟩ and ⟨▶⟩ from the programming stage shown in figure 9.1, the meter displays the indication given by the left figure corresponding to the entry stage of the 42 menu. The programmable parameters of this menu are the display values corresponding to both extremes of the analog output range.
Press ⟨ENTER⟩ to set up these parameters, or
⟨▶⟩ To pass to the next menu (fig. 14.1)
⟨ENTER⟩ To return to the -Pro- stage (-Pro-).

[10.2]
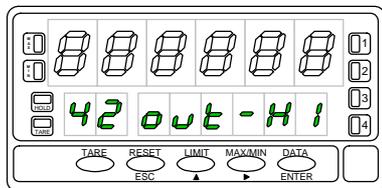
At this step, the display shows the current display value corresponding to 10V or 20mA with the first digit in flash. To modifie this item, press repeatedly the ⟨▲⟩ key to change the value of the flashing digit and the ⟨▶⟩.
key to advance to the next digit to be modified. Repeat these operations for every digit until the desired value is composed on the display.
⟨ENTER⟩, Validate the entry and advance to the next programming step

⟨ESC⟩ Return to the -Pro- stage (-Pro-).

[10.3]
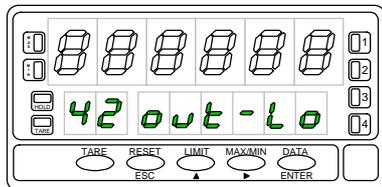
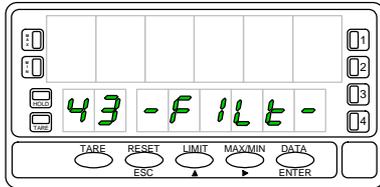

Repeat the process described for the previous phase (⟨▲⟩ and ⟨▶⟩), to program the display value corresponding to 0V or 4mA. Reverse operation is accomplished by programming the high display in this step and the low display in the previous one.
⟨ENTER⟩ Validate the entry and return to the programming access stage (indication -Pro-).
⟨ESC⟩ Return to the -Pro- stage

MENU 43 - FILTER

[11.1]

From the program step indicated in figure 9.1, press once the ENTER key to acceed to the top menu level and three times the ▶, key to bring the meter to the entry stage of the 43 -FILt- menu (see figure 11.1).This menu offers the possibility of selecting whether the analog output should be transmitted at the same rythm as the display updating or at the input signal conversion rate. Press ENTER. to get access to the programming of this parameter and go to figure 11.2

▶   Skips over this menu and pass to the output type selection (Abb. 12.2.).

ESC   Returns the meter to the programming access level (-Pro-).

[11.2]
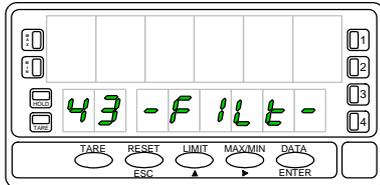
Under some conditions, the rate at which the input signal is converted may result so fast, thus making the analog output reflect all variations and even unwanted phenomena present at the input. In such cases it is convenient to increase the output response time by filtering the output signal to the same level as it has been selected for the display.At this menu step the display shows one of the following options ; The "OFF" option will make the analog output be updated at the same rythm as the input conversion (without filter) and the "ON" option will allow to use the output signal as a display image, presenting the same filtered values. If it is desired to modify the existing configuration, press ▶, to alternate the display indication ["**-on-**" / "**-oFF-**"] and ENTER to validate the choice and go to the -Pro- stage.

If the existing configuration is already the desired one, press ESC to return to the -Pro- stage without saving changes.

5. MODELS ALPHA-P/-C 32000 POINTS ANALOG OUTPUT PROGRAMMING

5.1 INSTRUCTIONS DE PROGRAMMATION MODELES ALPHA-P / -C 32000 POINTS
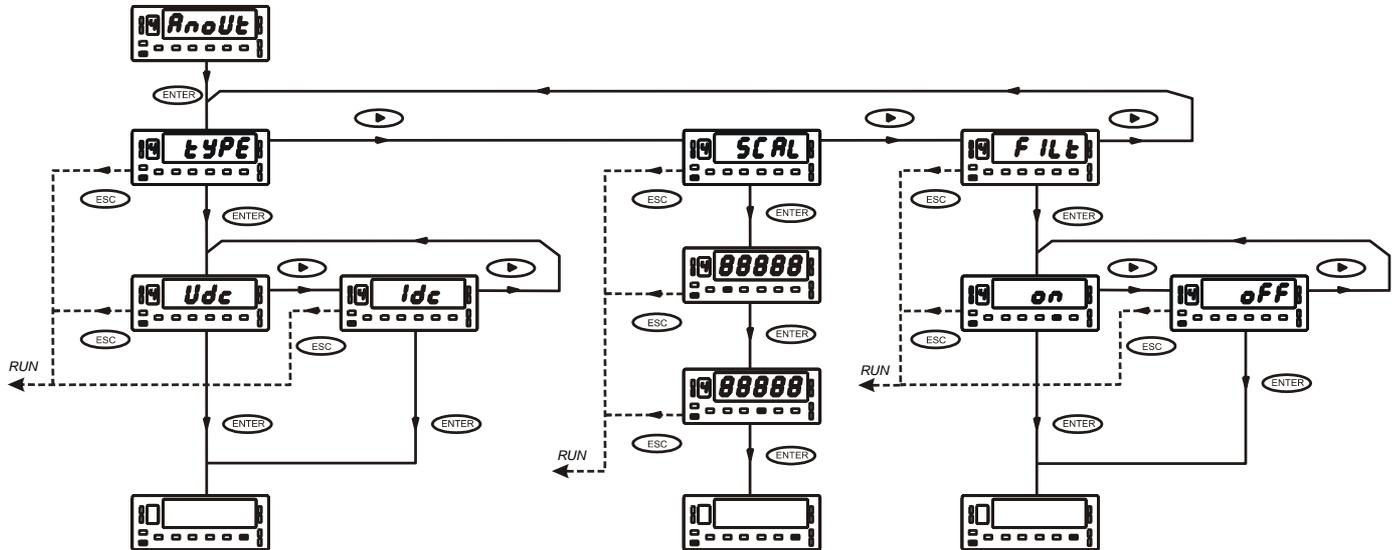
MODULE 4 - ANALOG OUTPUT

The enclosed figure shows the diagram of the MODULE 4 for configuration of the analog output that appears in the programming routines of ALPHA-P and ALPHA-C 32000 points models when the corresponding option is installed. The module provides three menus of independent acces that permit user-selection of the following parameters:
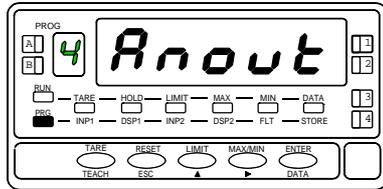
Menu 4A ANOUT: Selection of the output type (0-10V or 4-20mA).

Menu 4B ANSCL: Programming of the display values that are wanted to produce the high and low output values.

Menu 4AB FILTR: Selection of whether the analog output must change at same rate as the input signal conversion (filter OFF) or as the display (filter ON)

ACCES TO THE ANALOG OUTPUT PROGRAMMING
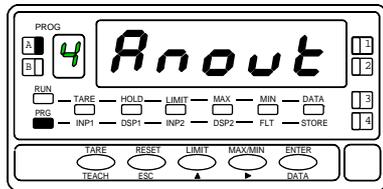
[14.1]

Press the "ENTER" button to pass from the run mode to the programming mode (-Pro- indication, PROG led) and press repeatedly the ► button until the display shows the indication represented in figure 14.1. Press ENTER to acceed the first programming menu, or

► : To move on to the next program module,

ESC : To go back to the run mode.
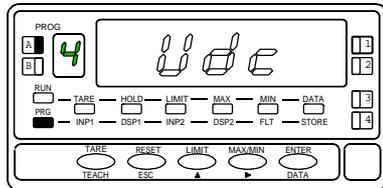
MENU 4A - TYPE OF OUTPUT

[14.2]

The figure 14.2 shows the input stage of the 4A menu (the A led energizes). This menu allows selection of one of two available output ranges: 0-10V or 4-20mA. Press the ENTER key if you want to modifie the initial choice, or

► : To pass to the following programming menu

ESC : To return to the normal operation.

[14.3]

An "ENTER" made at previous step, makes the display read the indication "**Udc**" (corresponding to 0-10V) or "**Idc**" (corresponding to 4-20mA). The figure 14.3 shows one of these options.

To change the output type, press ► to toggle the display to the desired option and press ENTER to store changes in memory and automatically return to the normal operation

MENU 4B - SCALE

[15.1]
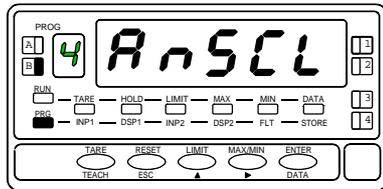
By pressing "ENTER" and ▶ from the programming stage shown in figure 14.1, the meter displays the indication AnSCL and LED B illuminates (see figure at left). This is the entry stage of the 4B menu, which programmable items are the display values corresponding to both extremes of the analog output range.

Press (ENTER) to set up these parameters, or

▶ : To pass to the 4AB menu,
(ESC) : To return to the normal operation.

[15.2]
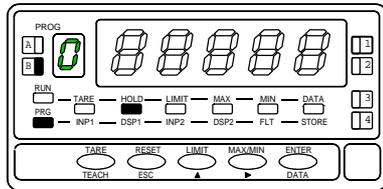
At this step, the DSP1 LED activates and the display shows the previously programmed display value corresponding to the low analog output (0V or 4mA depending on output type) with the auxiliary digit (sign) in flash. Use ▶ to switch between "0" (positive) and "-" (negative). Press ▶ to advance to the next key to advance to the right which goes in flash. Press repeatedly ▲ to increment the active digit until it takes desired value. Repeat this operation until the display reads the desired value and press (ENTER) to validate the entry and go to the next programming phase.
(ESC) : Returns the meter to the normal operation.

[15.3]
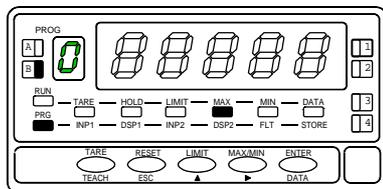
The DSP2 LED activates and the initial display value corresponding to the high analog output (10V or 20mA) appears on the display. Repeat the process described for the previous step (▶ and ▲ buttons) to program the desired value. Reverse operation is accomplished by programming the low display in this step and the high display in the previous one.
(ENTER) : Validates the entry and goes to the normal operation
(ESC) : Returns the meter to the run mode without saving changes..

MENU 4AB - FILTER

[16.1]
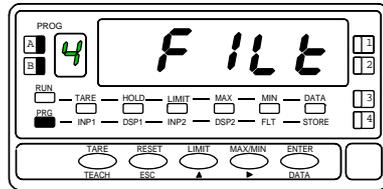
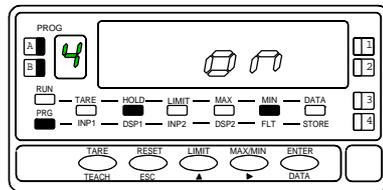From the program step indicated in figure 14.1, press once the "ENTER" key to acced to the top menu level and three times the ► key to bring the meter to the entry stage of the 4AB menu (FILtr indication, A and B leds activated). This menu offers the possibility of selecting whether the analog output should be transmitted at the same rythm as the display updating or at the input signal conversion rate. Press ENTER to get access to the programming of this parameter and go to figure 16.2

► : Skips over this menu and pass to the output type selection
ESC : Returns the meter to the run mode.

[16.2]

Under some conditions, the rate at which the input signal is conevrted may result so fast, thus making the analog output reflect all variations and even unwanted phenomena present at the input. In such cases it is convenient to increase the output response time by filtering the output signal to the same level as it has been selected for the display.
At this menu step the display shows one of the following options; the "OFF" option will make the analog output be updated at the same rythm as the input conversion (without filter) and the "ON" option will allow to use the output as a display image, presenting the same filtered values.
If it is desired to modify the existing configuration, press ► to alternate the display indication ["-on-" /"-oFF-"] and ENTER to validate the choice and go to the normal operation.
If the existing configuration is already the desired one, press ESC to return to the normal operation without saving changes

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.

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