KOSMOS SERIES

CE

DIGITAL PANEL INSTRUMENT
FOR USE WITH LOAD CELL

JUNIOR-LCC
JUNIOR20-LCC

CODE: 30727169 EDITION: 06-10-2006

ECF

DITEL

INTRODUCTION TO THE KOSMOS SERIES

This manual does not constitute a formal agreement. All information given in this manual is subject to change without notice.

The KOSMOS SERIES brings a new philosophy in digital panel instrumentation, which is expressed by multipurpose, modular-concept devices providing a rich array of basic functions and advanced capabilities.

With a fully MODULAR DESIGN, it is possible to implement a wide variety of applications by only adding the adequate options.

Intelligence within allows the meter to recognize the options installed and ask for the necessary parameters to properly function within desired margins. The basic instrument without output options omits these data in the program routines.

The instrument CALIBRATION is realized at the factory eliminating the need for adjustment potentiometers.
Any circuit or option liable to be adjusted incorporates a memory where calibration parameters are stored, making it possible the optional cards be totally interchangeable without need of any subsequent adjust.

Valid for panel meters #232857 and so on

Custom CONFIGURATION for specific applications can be made quickly and easily through five front panel keys, following structured choice menus aided by display prompts at each programming step.

Other features of the KOSMOS family include:

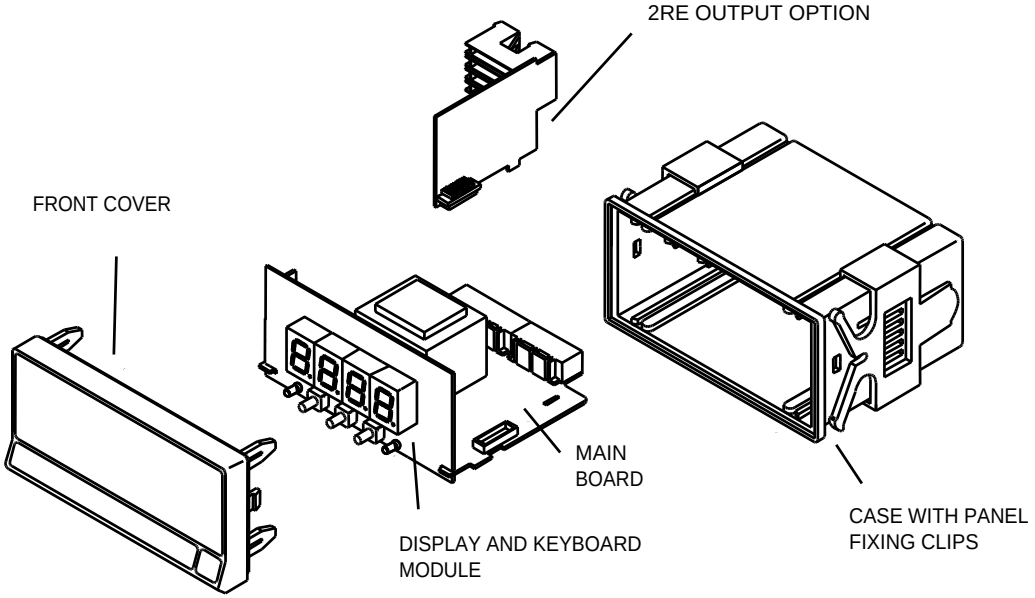
- CONNECTIONS via plug-in terminal blocks without screws and CLEMP-WAGO clips cable retention system.
- DIMENSIONS
  Models ALPHA & BETA 96 x 48 x 120 mm DIN 43700
  Models MICRA & JR/JR20 96 x 48 x 60 mm DIN 43700
- CASE MATERIAL UL-94 V0-rated polycarbonate.
- PANEL INSTALLATION by means of single part fingertip without screws.

To guarantee the meter's technical specifications, it is advised to check calibration parameters at periodical intervals according to the ISO9001 standards for the particular application operating criteria.
Recalibration of the meter should be made at the factory or in a qualified laboratory.

DIGITAL PANEL INSTRUMENT **JUNIOR FAMILY**

JUNIOR-LCC & JUNIOR20-LCC

INDEX


2RE OUTPUT OPTION
FRONT COVER
MAIN
BOARD
DISPLAY AND KEYBOARD
MODULE
CASE WITH PANEL
FIXING CLIPS

1. MODELS JUNIOR-LCC and JUNIOR20-LCC

This manual describes the models Junior-LCC and Junior20-LCC both instruments are small format.

The difference between both models is the size of the digits of the display. Model JR20-LCC provides 20 mm-high digits which make it easy readable at long distances. In this manual both models are referred with the generic name of JR/ JR20-LCC.

The models JR/ JR20-LCC are ideals for direct connection to one Load Cell and indication in engineering units. Totally software configurable, allows choosing INPUT level signal (30 ó 300 mV), excitation voltage for one Load Cell (5/10 V DC) and two programming ways for scaling the instrument, one by key board and the other by Teach method that allows using real field signals.

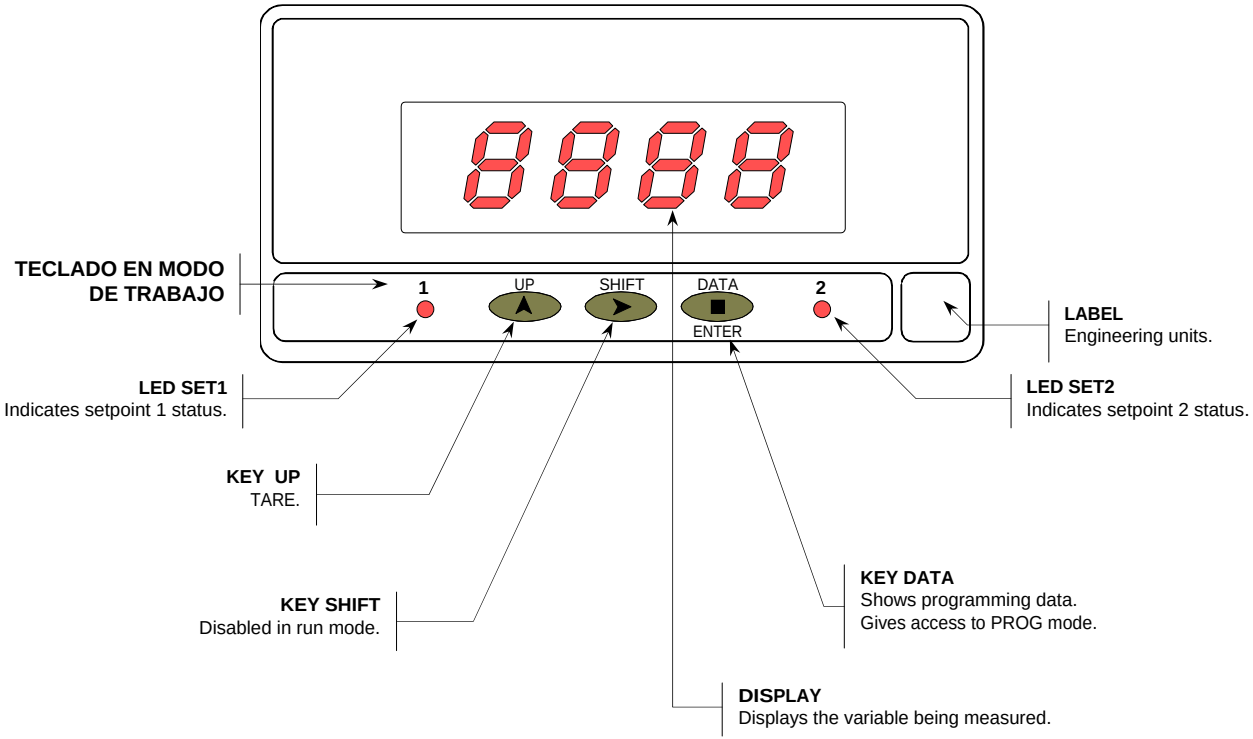
The basic instrument is a soldered assembly composed of the main board, and the display and keyboard module.

Optionally, it can be equipped with a 2-relay control output card (2RE). This option provides an output connector at the rear of the meter; status LED's visible from the front and specific programming routines, which are enabled automatically once the card is installed.

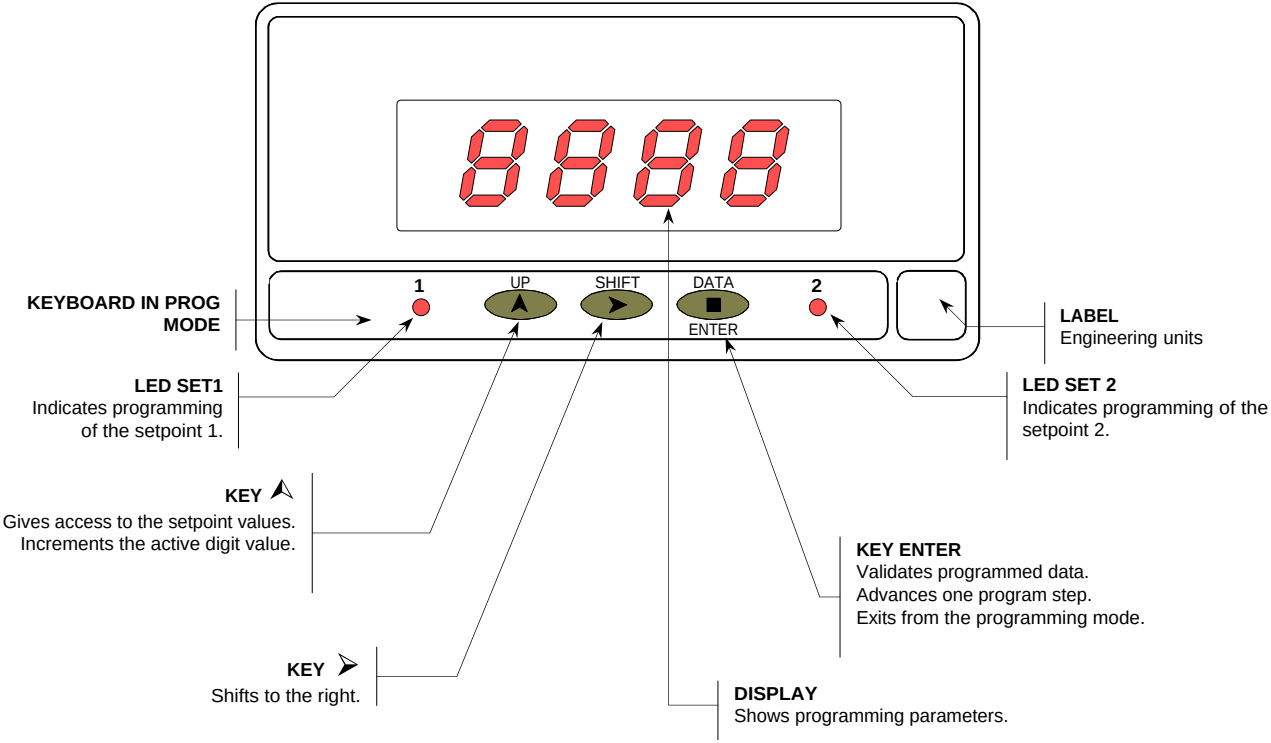
The outputs are isolated from signal input and power supply.

This instrument conforms the following community standards: 89/336/CEE and 73/23/CEE
WARNING: Refer to the instructions manual to preserve safety protections.

FRONT-PANEL FUNCTIONS DESCRIPTION (RUN MODE)



FRONT-PANEL FUNCTIONS DESCRIPTION (PROG MODE)



2. OPERATING INSTRUCTIONS

PACKING CONTENTS

- ❑ Instructions manual in English including Declaration of Conformity.
- ❑ The digital panel instrument JR/ JR20-LCC.
- ❑ Accessories for panel mounting (sealing gasket and fixing clips).
- ❑ Accessories for wiring connection (removable terminal block connectors and fingertip).
- ❑ Wiring label stuck to the instrument's case JR/ JR20-LCC
- ❑ Set of 4 labels with different engineering units.

✓ **Check packing contents.**

CONFIGURATION

Power supply (pages 9 & 10)

- ❑ The instruments for 115/230V AC power supply are set up at the factory for 230V AC. (USA market 115 V AC).
- ❑ The instruments for 24/48V AC power supply are set up at the factory for 24V AC.
- ❑ If the instrument is supplied for 12V DC, 24V or 48V DC power supply, it is not necessary to make any change.

✓ **Check wiring label before connecting the instrument to the supply.**

Programming instructions (page 11)

- ❑ The software inside the instrument allows configuring the input and display parameters. If a two-relay output option is installed ref. 2RE (page 27), the software detects it on power up enabling a specific routine for setpoints configuration.

✓ **Read carefully this paragraph.**

Input type (pages 13-15)

- ❑ The instrument accepts signals coming from transducer that produces signal in the range of 30 or 300 mV DC. Supplying excitation voltage of 5/10 V @ 30 mA for transducer excitation, normally Load Cells. Factory set to 10 V. (Jumper J3 out)

✓ **Check transducer type and signal input level.**

Programming lockout (page 26)

- ❑ As shipped from the factory, the instrument allows full access to change programming parameters.
  To disable the possibility of making changes on the configuration, it is necessary to remove a plug-in jumper located on the main board.

✓ **Check jumper position.**

2.1 – Power supply and connectors

To change the meter's physical configuration remove the case as shown in figure 9.1.

115/230 V AC: The instruments with 115/230 V AC power are set up at fabrication for 230 V AC (USA market 115 V AC), see figure 9.2. To change power supply configuration to 115 V AC, make the jumpers indicated in figure 9.3 and table 1. The wiring label should be modified to match the new configuration.

24/48 V AC: The instruments with 24/48 V AC power are set up at fabrication for 24 V AC, see figure 9.2. To change power supply configuration to 48 V AC, make the jumpers indicated in figure 9.3 and table 1. The wiring label should be modified to match the new configuration.

12, 24 or 48V DC: Instruments for DC power are set up for the supply voltage specified in the wiring label (12V, 24V or 48V according to the order reference).

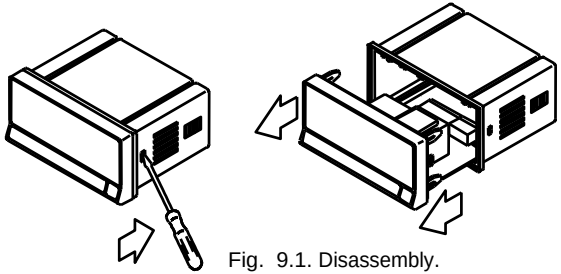


Fig. 9.1. Disassembly.

Table 1. Jumper settings.

Pin	1	2	3	4	5
230V AC	-	▬		▬	
115V AC	▬		▬		-
48V AC	-	▬		▬	
24V AC	▬		▬		-

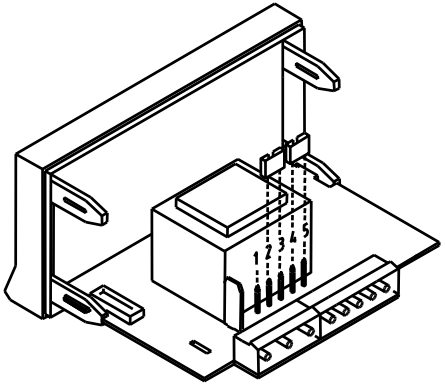


Fig. 9.2. Jumper settings for 230 V or 48 V AC

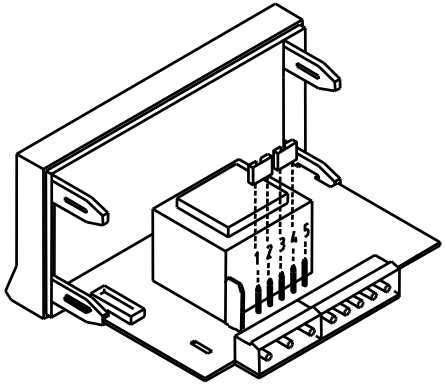
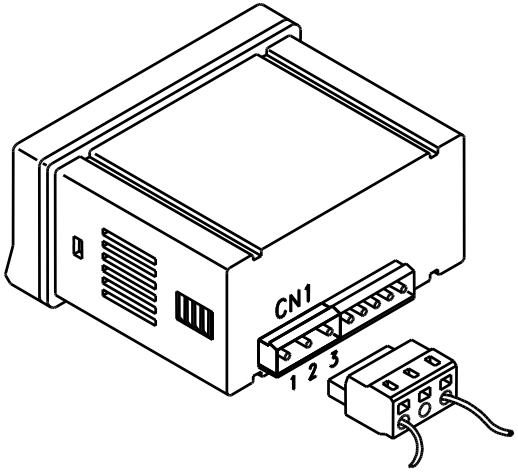


Fig. 9.3. Jumper settings for 115 V or 24 V AC

POWER CONNECTION



AC VERSIONS
PIN 1 – AC PHASE
PIN 2 – GND (GROUND)
PIN 3 – AC NEUTRAL

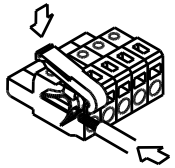
DC VERSIONS
PIN 1 – DC POSITIVE
PIN 2 – Not connected
PIN 3 – DC NEGATIVE

INSTALLATION
To meet the requirements of the directive EN61010-1, where the unit is permanently connected to the mains supply it is obligatory to install a circuit breaking device easy reachable to the operator and clearly marked as the disconnect device.

WARNING
In order to guarantee the electromagnetic compatibility, the following guidelines should be kept in mind:
- Power supply wires may be routed separated from signal wires. Never run power and signal wires in the same conduit.
- Use shielded cable for signal wiring and connect the shield to the ground of the indicator (pin2 CN1).
- The cables section should be ≥ 0.25 mm^2

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

CONNECTORS



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 while pushing the fingertip down to open the clip inside the connector as shown in the figure.
Proceed in the same manner with all pins and plug the terminal block back to the corresponding meter's connector.
Each terminal can admit wires of section between 0.08 mm² and 2.5 mm² (AWG 26 ÷ 14).
Some terminals have removable adaptors to provide proper fastening for wires of sections less than 0.5 mm².

2.2 – Programming Instructions

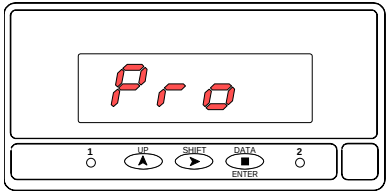
To enter in the programming mode
Connect the meter to the main supply, for approx. 1s a self-test routine automatically activates all the digits of the display. After, the instrument goes to the normal operating mode (RUN).
To enter in the programming mode press for 5 seconds until the indication **Pro** shown in figure 11.1 appears on the display.

To exit from the programming mode
To return to the run mode, it is necessary to pass through the different menu steps by successively pressing the ENTER key until the meter displays the indication **Stor** while internally stores the programmed parameters into the memory. After, it automatically goes to the normal operating mode.

How to interpret the programming instructions
The programming software routine is composed by a series of hierarchically organized menus, each allowing the setting of a specific parameter. In general, the normal sequence at each step is to push the ▶ key a number of times to make changes and the ENTER key to store them in the memory and advance to the next step.

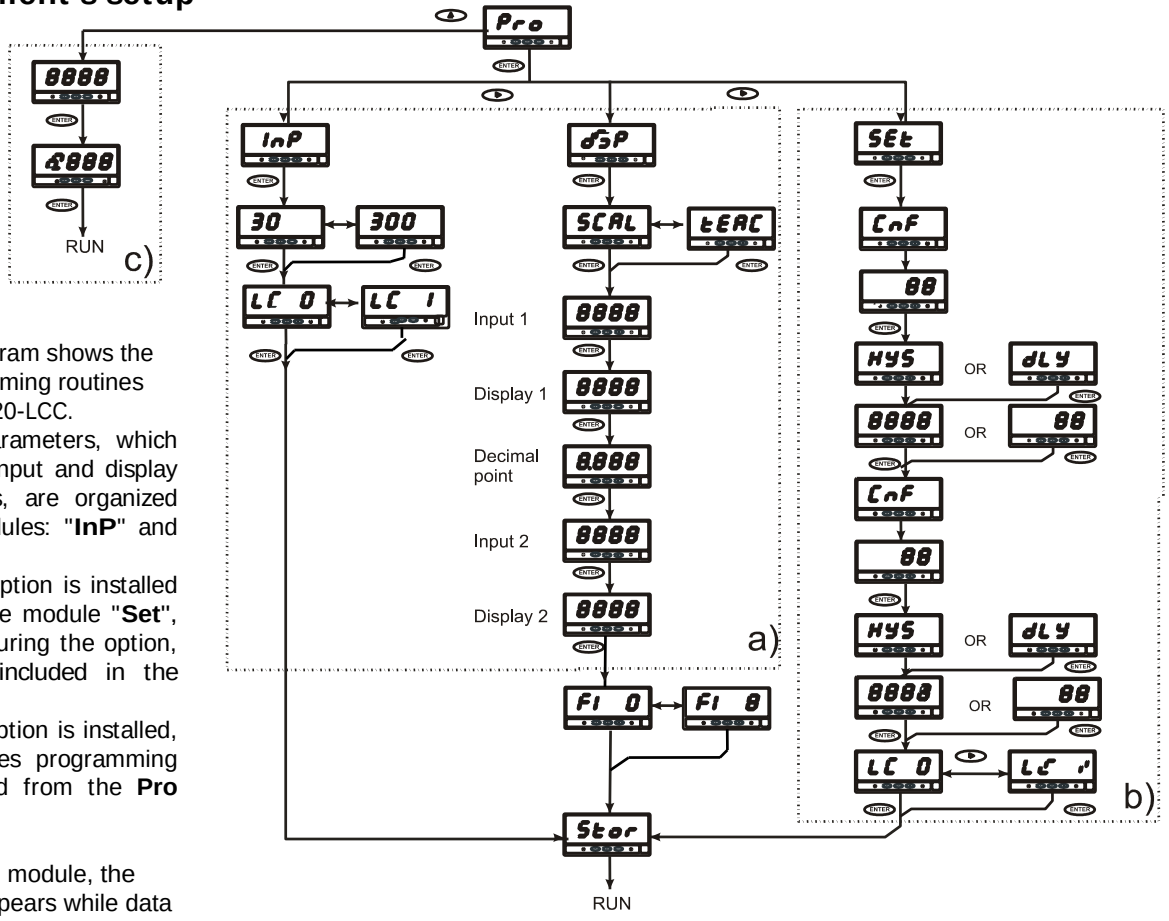
The elements used along the programming instructions are described following.

[11.1] Programming Method



The programming instructions for each menu step are accompanied by a figure representing the display indication for the corresponding parameter. Pay special attention to the LED indications and active keys and follow the procedure described on the text to introduce correctly the desired data.
When the display indication is represented with blank segments, it means that this is one of the possible options of this menu (normally the default one) depending on the previous selection.
A series of blanked '8' represents any numerical value that can be changed by use of keys ▶ (change digit) and (change value).

2.3 - Instrument's setup



The enclosed diagram shows the complete programming routines for models JR/ JR20-LCC.

a) The basic parameters, which refer to the input and display configurations, are organized into two modules: "**InP**" and "**dSP**".

b) If a 2-relay option is installed (see page 27), the module "**Set**", that allows configuring the option, is automatically included in the routines.

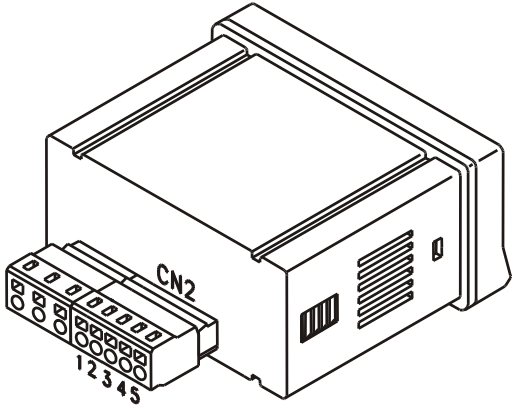
c) If a 2-relay option is installed, the setpoint values programming is directly entered from the **Pro** stage.

At the end of each module, the indication **Stor** appears while data is saved in the memory.

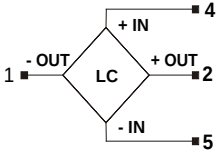
2.4 – INPUT connections

Check the transducers connections diagrams and the recommendations on Page 10.

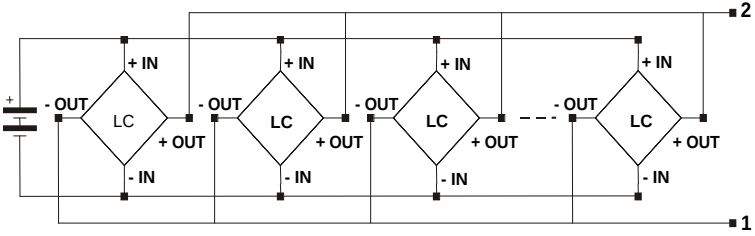
INPUT SIGNAL CONNECTION (CN2)
PIN 1 = -IN (signal negative)
PIN 2 = +IN [30 mV, 300 mV]
PIN 3 = TARE
PIN 4 =+EXC (excitation positive)
PIN 5 = -EXC (excitation negative)/ TARE

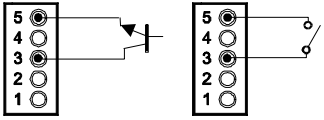


Connection for one LOAD CELL



Connection for more than one LOAD CELL

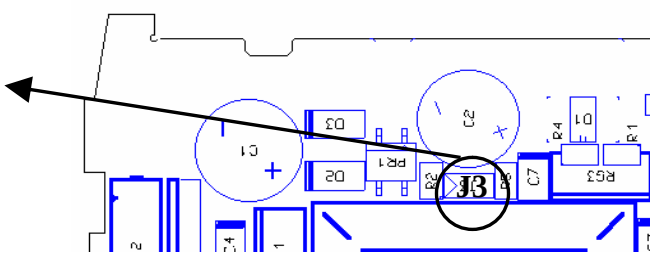




Remote connection for TARE

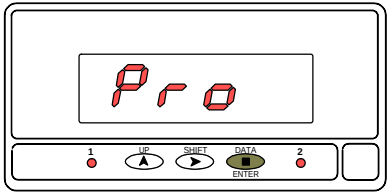
SELECTOR
V Excitation

J3 ON = 5 V DC
J3 OFF =10 V DC



START PROGRAMMING

[14.1] Programming mode

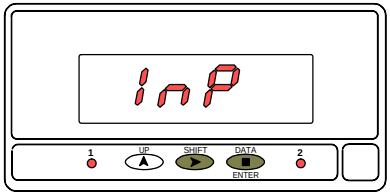


After plug-in the power supply according to indicated on the instrument's label, automatically, will do a test activating all segments of display. Next will show the software version and after that the instrument goes to "RUN" mode.
Press ENTER key to enter in programming mode.

On display will appear the figure 14.1, with the indication **Pro** and the two LED's flashing. Press ENTER to start programming.

2.5 – INPUT CONFIGURATION

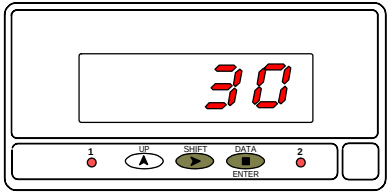
[14.2] INPUT menu



From "Pro" indication, press ENTER to access to the INPUT programming (figure. 14.2)

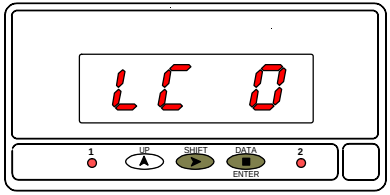
▶ Select other programming menu.

[14.3] INPUT configuration



On figure 14.3 is showing the type of INPUT selected last time. If the selection has to be changed, press ▶ key until display shows the desired value [**30** = INPUT up to 30 mV or **300** up to 300 mV]. Press ENTER key to validate the selection and pass to select the lock of TARE key.

[15.1] Lock TARE function



The figure 15.1 shows the indication corresponding to the TARE lock function by the key ▲, not the remote the always remains active. If needed to modify this parameter, press ▶ key until appears on display the desired option [**LC O** = lock disabled or **LC 1** = lock enabled]
Press ENTER to validate the selection. The indication **Stor** returns the instrument to run mode and store the programmed parameters.

If TARE lock is disabled, pushing less than 3 seconds the ▲ key or closing the contacts between PIN 3 and PIN 5 of connector CN2, the actual display value will pass to TARE memory and shows cero on display, and the most right decimal point will flash to indicates that a TARE value is in the memory. Is possible to make TARE as many times as needed meanwhile the accumulated value into TARE memory not be greater than the programmed full scale, in this case the indication OvE will appear.

If the instrument power supply is removed the TARE value remains in the memory.
To erase the TARE value is necessary to push ▲ key or the rear connector for more than three seconds after that the decimal point flashing will disappear and the TARE value will appear on display.
The TARE function by rear connector always is active.

NOTE. Before calibration or scaling the instrument the TARE have to be removed.

2.6 – Display configuration

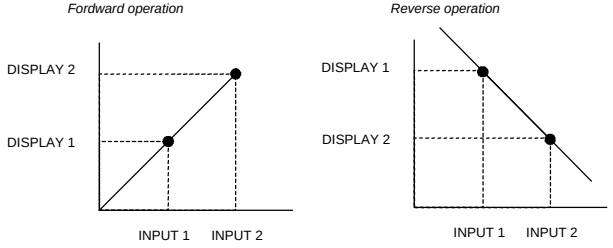
After configuring and connecting the input sensor is necessary to program the display range in order to get readings in the desired engineering units.

The display indication range can be between -1999 y 9999. To program the display range consists on introducing two INPUT values (INPUT 1, INPUT 2) and two display values (DISPLAY 1, DISPLAY 2) corresponding to the two input values.

The input signal values of the scaling points must be all increasing or all decreasing. Avoid programming two different displays for two equal inputs.

The display values can be entered in any order and even be repeated for two input values. When scaling the meter the two points should be located near the process limits for the best possible accuracy. The decimal point position will complete the indication in engineering units required.

Next figure represents two modes of operation obtained by programming increasing or decreasing display values for increasing input values.



Forward operation:

- When input signal increases, the display increases.
- When input signal decreases, the display decreases.

Reverse operation:

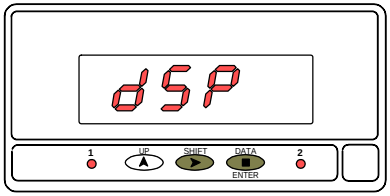
- When input signal increases, the display decreases.
- When input signal decreases, the display increases.

On the scale programming menu, first have to be introduced the INPUT and DISPLAY values corresponding to Point 1, after that is placed the decimal point and next the values for of INPUT and DISPLAY for Point 2.

Introducing the input values the decimal point position is automatically placed according to the selected input range in order to have the best accuracy.

Introducing display values, decimal point can be placed in any position being the same for DISPLAY 1 and DISPLAY 2 and remaining in this position for all other programming steps related to display.

[17.1] Display menu

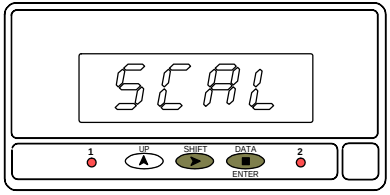


From the indication "Pro", press ENTER and select by ▶ key, the configuration display menu (Figure. 17.1)

ENTER Access to display configuration.

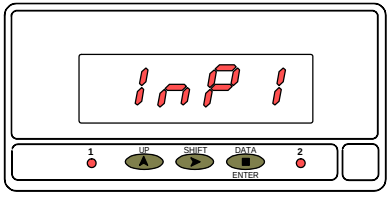
NOTE: Before proceeding to scale the instrument the TARE memory have to be erased. (See if the most right decimal point is blinking)

[17.2] Configuration method



The figure 17.2 shows the indication (SCAL) corresponding to entry stage into the scaling menu. To modify this parameter press ▶ key until the desired meted appears on display [**SCAL** = key board method configuration or **tEAC** = method with acceptation of actual INPUT values] and press ENTER to validate the selection and go to the next programming step.

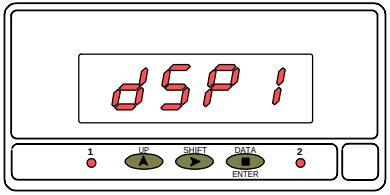
[17.3] Input 1 value



On figure 17.3 the indication "**InP1**" will be present during 2s before to pass to the programming INPUT value for point 1(InP1) Depending on the selected method the indication will be:

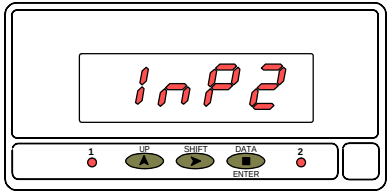
- Method **SCAL**. A value (according last programmed) with the first left digit flashing will be showed on display. To modify the value (range from -1999 to 9999), press ▲ key to change the active digit and ▶ key to shift to next digit right. Repeat these operations until have the desired value. Validate this value as an INPUT for (InP1) pressing ENTER key.
- Method **tEAC**. The INPUT value will be the actual INPUT signal present in INPUT signal connector. Validate this values as an INPUT for point 1 (InP1) pressing ENTER key

[18.1] Display 1 value



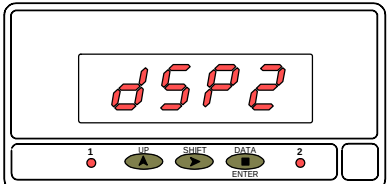
On figure 18.1 the indication "**dSP1**" will be present for 2 s before passing to program the display value for point 1 (dSP 1)
The display will show a numerical value (according last programmed) with the firs digit left flashing. To modify the value (range from -1999 to 9999), press ▲ key to change the active digit and ▶ key to shift to next digit. Repeat these operations until to have the desired value.
Validate this value as a display for point 1 (dSP 1) pressing ENTER key
Then, decimal point will be flashing to indicate that is possible to modify its position pressing ▶ key. If decimal point is not desired, have to be placed on the most right position. Press ENTER key to validate and pass to the next programming step.

[18.2] Input 2 value



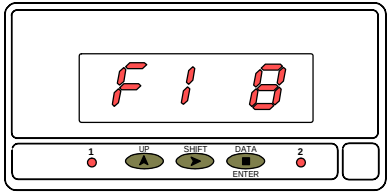
On figure 18.2 the indication "**InP2**" will be present for 2 s before passing to program the INPUT value for point 2 (InP 2)
The procedure is the same as described on 17.3.

[18.3] Display 2 value



On figure 18.3 the indication "**dSP2**" will be present for 2 s before passing to program the display value for point 2 (dSP 2)
The display will show a numerical value (according last programmed) with the firs digit left flashing. The procedure is the same as described on step 18.2. The decimal point is already fixed.
Press ENTER key to validate selection and pass to select filter level.

[18.4] Filter value

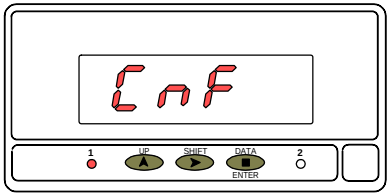


In this step is possible to select or [**FI 0** that means no digital filter enabled or **FI 1** that apply a first order digital filter of 1,20 Hz at –3dB], or **FI X** being **X a value form 2 to 8,** that applies a second order digital filter, the selection depends on the type of signal on the load-cell. See page 24.
By ▶ key select the desired filter level.
Press ENTER to validate the selection. The indication **Stor** returns the instrument to the run mode and stores the programmed parameters.

2.7 SETPOINT CONFIGURATION (accessible if 2RE option is installed)

If a two-relay option is installed (see page 23) the instrument will allow entering on the following routines: activation mode, delay or hysteresis and setpoint program lockout. From the **Pro** stage (see fig. 15.1), press the ▶ key to access to the setpoint configuration module, indication "**SET**". The setpoint numerical values, from the run mode press ENTER to recall the **Pro** stage and press ▲ to access the first setpoint value.

[23.1] Setpoint 1 Configuration



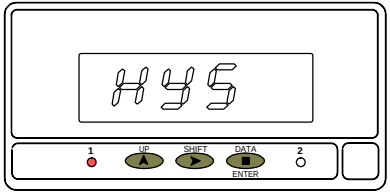
LEFT DIGIT VALUE	RIGHT DIGIT VALUE
MODE HI=0 MODE LO=1	DELAY=0 HYSTERESIS=1

The indication shown in figure 23.1 appears on the display to indicate that the next step is to program the setpoint 1 operating parameters (led Setpoint 1 activated). After 2 seconds or by a press of ENTER, the meter allows access to this menu.

The display then shows two digits: the leftmost one corresponds to the output mode (HI or LO) and the rightmost one corresponds to the delay unit (time -delay- or counts of display -hysteresis-) according to the table below the figure. Use the ▲ key to change the active digit value (in flash) and the ▶ key to go to the next digit to be set.

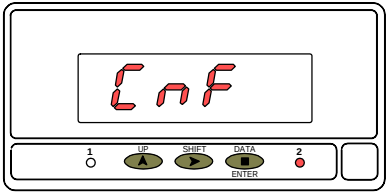
Press ENTER to validate selections and advance to the next phase.

[23.2] SET1 Hysteresis/Delay Hysteresis/Delay



Depending on previous phase choice, the display will show for 2 seconds the indication corresponding to the selected delay units before giving access to the time delay or hysteresis magnitude programming (**dLY**) or (**HYS**). After 2 seconds or by a press of ENTER, the initially programmed numerical value appears on the display with the first digit in flashing. To program the desired value (from 0 to 9999 counts of hysteresis or from 0 to 99 seconds of time delay) use the ▲ key to increment the active digit value and the ▶ key to advance to the next digit to be modified. Repeat this procedure until desired value is completed on the display and press ENTER to validate and access to the programming of the setpoint 2 parameters.

[20.1] Setpoint 2 Configuration



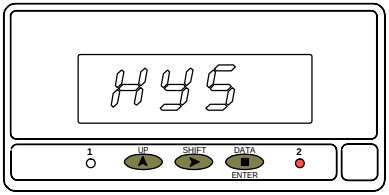
LEFT DIGIT VALUE	RIGHT DIGIT VALUE
MODE HI=0 MODE LO=1	DELAY=0 HYSTERESIS=1

The indication shown in figure 20.1 appears on the display to indicate that the next step is to program the setpoint 2 operating parameters (led Setpoint 2 activated). After 2 seconds or by a press of ENTER, the meter allows access to this menu.

The display then shows two digits; the one on left corresponds to the output mode (HI or LO) and the rightmost one to the delay unit (time -delay- or counts of display -hysteresis-). See table in figure 20.1. Use the ▲ key to change the active digit value (in flashing) and the ▶ key to go to the next digit to be modified.

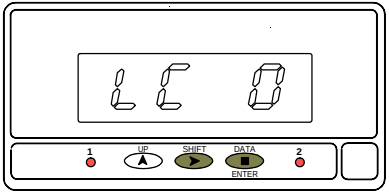
Press ENTER to validate changes and advance to the next phase.

[20.2] SET 2 Hysteresis/Delay



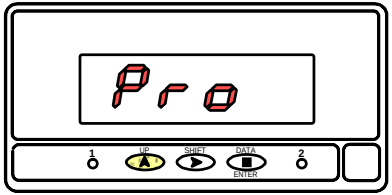
The display shows for 2 seconds the indication corresponding to the selected delay units before giving access of the time delay or hysteresis magnitude programming (**dLY**) or (**HYS**). After 2 seconds or by a press ENTER, the initially programmed numerical value appears on the display with the first digit in flashing. To change the value (from 0 to 9999 counts of hysteresis or from 0 to 99 seconds of time delay) use the ▲ key to increment the active digit value and the ▶ key to advance to the next digit to be modified. Repeat this procedure until desired value is completed on the display and press ENTER to validate and advance to the next step.

[20.3] Setpoint Program lockout



The figure 24.3 shows one of the two options available at this stage [**LC O** = setpoint values programming enabled (unlocked) or **LC 1** = setpoint values programming disabled (locked)].
If wanted to modify this parameter, use the ▶ key to switch to the desired option. If you decide to lock the setpoint values, it will be also necessary to lock out the entire program routines (see page 18).
Press ENTER to validate the choice, save programmed data and return to the run mode (indication **Stor**).

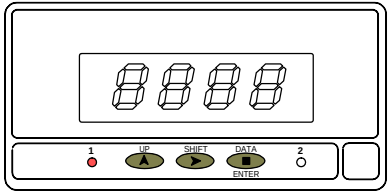
[21.1] Setpoints Programming



To program the setpoint values, press ENTER to access the programming mode (indication **Pro**, figure 25.1) and press ▲ to make the display show the previously programmed value of setpoint 1.

NOTE: The setpoint values should be programmed within the selected measurement range.

[21.2] Setpoint 1

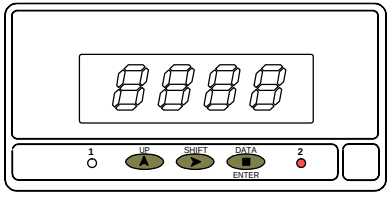


Program setpoint 1 value, LED 1 activated.

The initially programmed value appears on the display with the first digit flashing. Press repeatedly the ▲ key to increment the active digit from 0 to 9 until it takes the desired value and press ▶ to advance to the next digit to be modified. Repeat these operations to complete the desired setpoint value with sign.

Press ENTER to validate the entry and pass to the programming of setpoint 2.

[21.3] Setpoint 2



Program setpoint 2 value, LED 2 activated.

Program the setpoint 2 value with sign by means of the ▲ (change value) and ▶ (change digit) procedure as described in previous phase.

Press ENTER to store programmed data in the memory and exit from the programming mode.

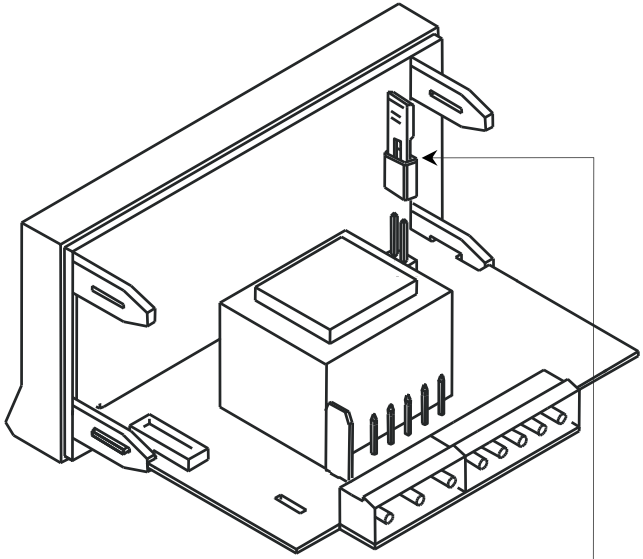
2.8 – Programming lockout

After completing the instrument's programming, it is recommended to lockout the access to the programming to prevent from accidental or unauthorized modifications.

This operation is made by taking off a plug-in jumper located on the main board circuit (see figure at right).

NOTE: Disconnect power before changing the jumper position.

While the instrument is locked out it is however possible to access to the programming routines to check the current configuration, but it won't be possible to entry or modify data. In this case, a push of ENTER to access the programming routines will show the indication **dAtA** instead of **Pro**.



3. RELAY OUTPUT OPTION

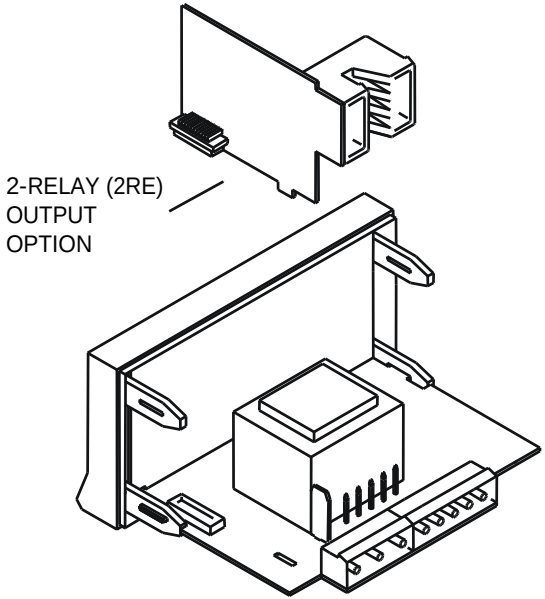
As an option, the Jr/Jr20-LCC models can be equipped with the following output option:

• A control output card with two SPDT relay outputs rating 8 A @ 250 V AC / 150 V DC. The outputs can be programmed for HI or LO operation and selectable time delay or hysteresis action. **Ref. 2RE**

The 2RE option consists of an additional card installable to the meter's main board by means of a plug-in connector.

The option is supplied with a specific instructions manual describing installation and characteristics. Nevertheless, the programming instructions are given in the Jr/Jr20-LCC manual.

For more detailed information on characteristics, applications and mounting please refer to the specific 2RE instructions manual.



4. TECHNICAL SPECIFICATIONS

INPUT SIGNAL

- Configuration ..... differential asymmetrical
- Input ..... ± 30 mV ..... ± 300 mV
- Resolution ..... 5 μV ..... 10 μV
- Input impedance ..... 100 MΩ ..... 100 MΩ
- Filter (cut-off frequency @ –3 dB) ..... 1,20 Hz
- Filter 2 to 8 (cut-off frequency @ –3 dB) ..... 0.44 Hz, 0.41 Hz, 0.38 Hz, 0.35 Hz, 0.29 Hz, 0.23 Hz, 0.18 Hz
- Excitation ..... 5 V / 10 V @30 mA

ACCURACY

- Max. Error ..... ± (0.05% of reading +4 digits)
- Temperature Coefficient ..... 100 ppm/ ºC
- Warm-up ..... 5 minutes

POWER SUPPLY

- AC Voltages .... 230/115 V, 24/48 V (±10%) 50/60 Hz AC
- DC Voltages
- ..... 12 V (10.5 a 16 V), 24 V (21 a 32 V), 48 V (42 a 64 V)
- Power ..... 3 W

FUSES (DIN 41661) - (Recommended, not included)

- JR/ JR20-LCC (230/115 V AC) ..... F 0.1A / 250 V
- JR/ JR20- LCC2 (24/48 V AC) ..... F 0.2A / 250 V
- JR/ JR20- LCC3 (12 V DC) ..... F 1A / 250 V
- JR/ JR20- LCC4 (24 V DC) ..... F 0.5A / 250 V
- JR/ JR20- LCC5 (48 V DC) ..... F 0.5A / 250V

A/D CONVERSION

- Technique ..... Sigma-Delta
- Resolution ..... ±15 bits
- Rate ..... 25/ s

DISPLAY

- Type ..... -1999/ 9999, 4 digits, 14 mm red
- Junior-LCC ..... 4 digits, 14 mm red
- Junior20-LCC ..... 4 digits, 20 mm red
- Decimal point ..... programmable
- LEDs ..... 2 outputs
- Display update time ..... 250 ms
- Positive over-range ..... OvE
- Negative over-range ..... OvE

ENVIRONMENTAL

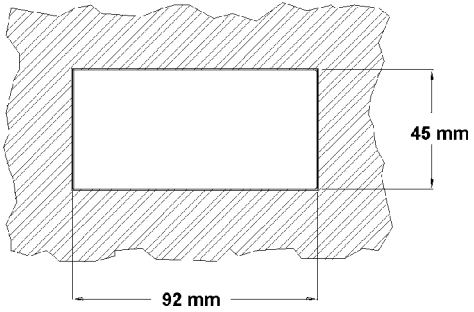
- Indoor use
- Operating temp ..... -10 ºC to +60 ºC
- Storage temperature ..... -25 ºC to +85 ºC
- Relative humidity (not condensed) ..... <95 % @ 40 ºC
- Altitude Max. ..... 2000 meters

MECHANICAL

- Dimensions ..... 96 x 48 x 60 mm
- Panel cutout ..... 92 x 45 mm
- Weight ..... 250 g
- Case material ..... poly carbonate s /UL 94 V-0

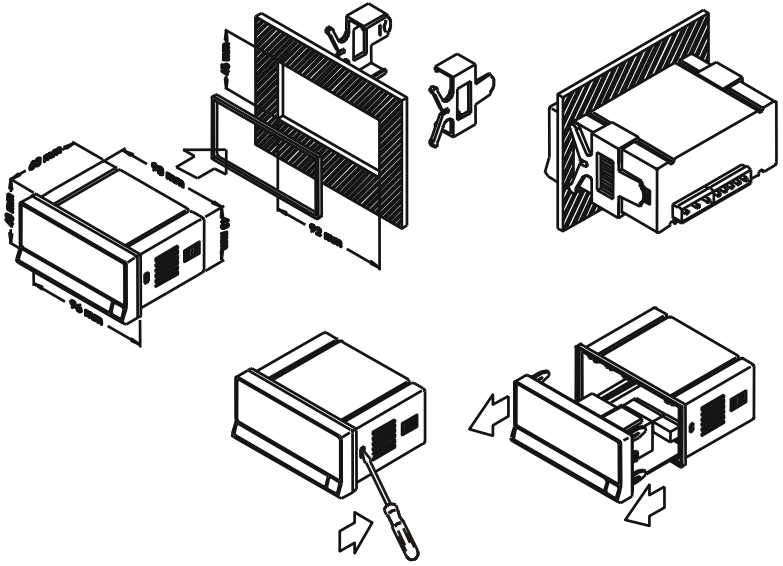
4.1 - Dimensions and mounting

To install the instrument into the panel, make a 92 x 45 mm cutout and insert the instrument from the front placing the sealing gasket between this and the front bezel.



Place the fixing clips on both sides of the case and slide them over the guide tracks until they touch the panel at the rear side.
Press slightly to fasten the bezel to the panel and secure the clips.

To remove the instrument from the panel, pull outwards the fixing clips rear tabs to disengage and slide them back over the case.



CLEANING: The front cover should be cleaned only with a soft cloth soaked in neutral soap product. DO NOT USE SOLVENTS

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

6 - DECLARATION OF CONFORMITY

Manufacturer : DITEL - Diseños y Tecnología S.A.

Address: Travessera de les Corts, 180
08028 Barcelona
ESPAÑA

Declares, that the product:

Name: Digital panel meter

Model: JUNIOR-LCC and JUNIOR20-LCC

Conforms with: EMC 89/336/CEE
LVD 73/23/CEE

Date: February 2002
Signed: José M. Edo
Charge: Technical Manager

Applicable Standards: EN55022/CISPR22	**EN50081-1** Generic emission Class B
Applicable Standards: IEC1000-4-2	**EN50082-1** Generic immunity Level 3 Criteria B Air Discharge 8 kV Contact Discharge 6 kV
IEC1000-4-3	Level 2 Criteria A 3V/m 80...1000 MHz
IEC1000-4-4	Level 2 Criteria B 1 kV Power Lines 0.5 kV Signal Lines
Applicable Standards: IEC1010-1	**EN61010-1** Generic Safety Installation Category II Transient Voltages <2.5 kV Degree of Pollution 2 Conductive pollution excluded Insulation type Enclosure: Double Inputs/Outputs: Basic

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.

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