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USER'S MANUAL AND MAINTENANCE

DISPLAY FOR MAGNETIC BAND
WITH INTERNAL BATTERY POWER SUPPLY TYPE "F20-"

Manual purpose
This manual has been designed by the Manufacturer to provide the necessary information regarding the instrument F18_ to those who are authorized to carry out safely its installation, maintenance, dismantling and disposal. All the necessary information for the buyers and planners can be found in the Sales catalogue. Other than adopting good technical construction methods, the information should be read carefully and strictly applied. Inobservance of this information could cause risks for the health and safety of people and economical damage. This information, provided by the Manufacturer in the original language(Italian) is also available in other languages to satisfy legislative and/or commercial needs. This manual must be kept in good conditions by a responsible person in an ideal place so that it is always available for consultation. In case this manual is lost or deteriorates, a replacement should be requested directly from the manufacturer quoting the manual's code. This manual reflects the state of skill of the instrument at the time of input on the market: however the manufacturer reserves the right to make changes, add or improve the manual without giving any reason to hold the present manual inadequate.

Identification of the equipment
The identification plate represented is applied on the instrument.
To find out the identification code of the instrument, consult the sales catalogue.

Environmental conditions
Temperature setting: min. 0°C, max. + 50°C.
It is forbidden to use the instrument other than its specific use and in potentially explosive conditions or where anti- explosive elements are used.

Storage
Here below are some references to be followed for the storage of the instrument.
Avoid environments with excessive humidity and those exposed to bad weather (avoid open areas). Avoid putting the instrument directly on the ground. Store the instrument in its original packing.

Conformity declaration and EC marking
The instrument answers to the following Communitarian Directives:
2014/30/EU Electromagnetic compatibility, 2011/65/EU RoHS.

Maintenance
The instrument does not needs a particular maintenance except cleaning to do only with a soft cloth dampen with ethylic alcohol or water. Do not use hydrocarbon solvents (petrol, diluents, etc.): the using of these products could affect the proper functioning of the instrument.
Reparations should be done only and exclusively at the FIAMA technical assistance centre.

Calibrations and tests
It is advisable to calibrate the instrument periodically, once every working year.
To do the calibration, follow the calibration procedure indicated in the present manual.

Assistance request procedure
For any kind of technical assistance request, contact the sales department of the Manufacturer directly indicating the information given on the identification plate, the number of hours used and the type of defect.

Manufacturer's responsibility
The manufacturer declines any responsibility in case of :
• Using the instrument contrary to the national safety and accident-prevention laws.
• Wrong installation, inobservance or wrong procedures of the instructions provided in the present manual.
• Defective electrical power supply.
• Modifications or tampering.
• Operations carried out by untrained or unqualified staff.
The safety of the instrument also depends on the strict observance of the procedures indicated in the manual: always operate the instrument in its functioning capacity and carry out a careful routine maintenance.
• All phases of inspection and maintenance should be done by qualified staff.
• The configurations provided in the manual are the only ones permitted.
• Do not try to use it anyway contrary to the indications provided.
• The instructions in this manual do not substitute but accomplish the obligations of the current legislation regarding the safety laws.

Installation

Before installing the instrument, read the following warnings:

a) Connect the instrument strictly following the instructions of the manual.

b) It is the responsibility of the user to check, before using, the correct settings of the parameters of the instrument to avoid damage to persons or things.

c) The instrument CANNOT function in a dangerous environment (inflammable or explosive).

d) The unit has sensible parts to electrostatic charge, therefore the handling of the inner electronic cards has to be carried out with appropriate care to avoid permanent damages.

Description

F20 is a dimension-display with integrated position sensor to be combined to the magnetic band **P25**, in order to carry out a complete device for measuring linear or angular shiftings.

The LCD display concurs the visualizzazione from -9999999 to +9999999 with a resolution of 0,1.

It is possible to select the count direction, the position of the decimal point, and the measure unit (mm, inches ore degrees).

The displayed value may be correct through a programmable multiplicative factor with values ranging from 0,000001 to 9999999.

The dimension display may be carried out either in absolute or in incremental mode by simply pressing the suitable key; this allows relative measuring within the measuring field. It is also possible to set a preset dimension that may be recalled through the suitable key.

There are also available 5 distinct origins for the correction of quota by using different tools and the offset function for balancing of tool wear. On the display all activated functions are showed by a symbol. The keys enabling to recall the preset dimension and the absolute/relative dimension switches may be inhibited in a very simply way.

On the display all activated functions are showed by a symbol.

The power supply is internal with 4 batteries type AA (LR6) of 1,5V, two-year-life

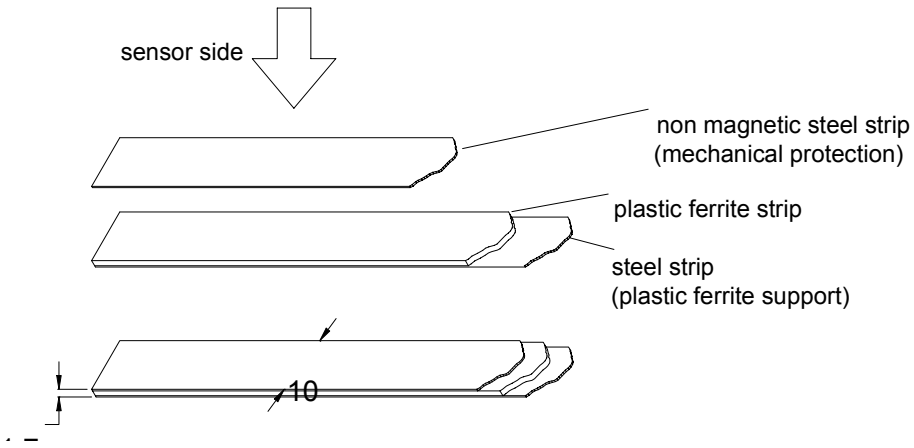
The run-down of battery is indicated with occasional blinking, 1 month before the complete flat the indication remains on; the battery has to be changed, in very easy way and without loosing quota, while the machine is standing.

Magnetic strip mounting

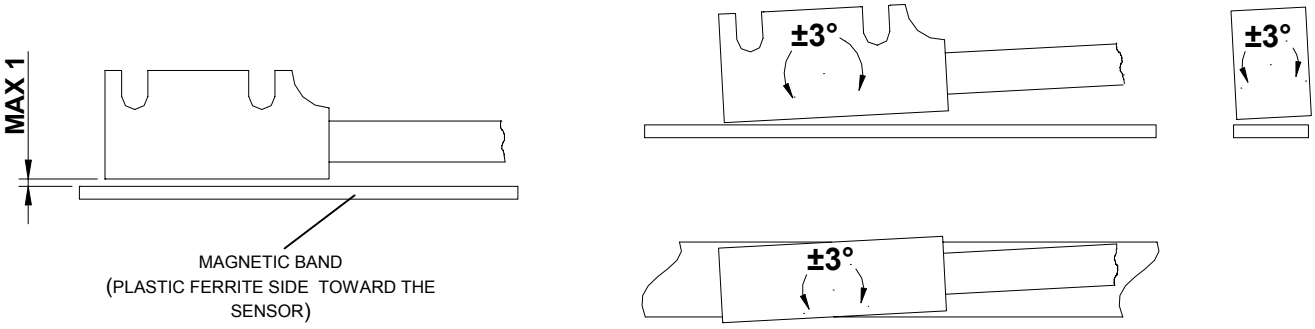
The magnetic strip P25 consists of a magnetized plastic ferrite strip with alternate magnetic poles of 2,5 mm pitch, carried by a ferromagnetic steel strip. Mechanical protection of the plastic ferrite strip is supplied by a non magnetic steel strip with thickness 0,2mm.

The magnetic strip is assembled by sticking it with a bi-adhesive tape. The surface has to be smooth, clean and dry: is advisable to clean it with a degreasing product (isopropyl alcohol, ethyl alcohol, solvents, etc). The magnetic strip has to be stuck holding the plastic ferrite side in the direction of the sensor, which means the steel side leaned on the stand surface. Fixed the magnetic strip, to keep off damages due to abrasions or grazes of the plastic ferrite strip, is advisable the appliance (always bi-adhesive) of the non magnetic protection strip.

The optimal ambient temperature for stick the bi-adhesive tape is over 10°C. The maximum adherence of the tape works out after 48 hours (about) of the application and is kept between –10 and 80°C.



Sensor mounting
The sensor has be mounted according to the following draw, and keeping the indicated tolerances.
For the optimal system functioning its is necessary that the distance between the sensor and the magnetic band is not over 1mm of the useful stroke.



N.B. if the distance between the sensor and the magnetic band is over 1mm on the display appears **notAPE** ,and the measured value is wrong.

Programming

To step into the parameter programming press key PGM fino a che apparirà sul display la scritta **PASS**, now press 2 times key RESET/ENTER and appear 4 zeroes, the first on the right is blinking, with keys ▲ (digit increase) and ◀ (digit selection), set out password **0273** and confirm with RESET/ENTER. . In case of wrong set-out of password it goes out of the programming.
The parameters that have to be set can be run with key ▲ and in order of appearance they are:

u VISUAL	value to be displayed for 100mm of sensor displacement,
ndEC	number of decimal digits,
d IrCOn	count direction,
MtASt I	keys opening mode
oFFSEt	displacement of origin,
SEtUP	not used.

To enter into the modification of the selected parameter press two times RESET (one time displays only the value) and with keys ▲ and ◀ set the wanted value to be confirmed with RESET.
To go out of the programming press ◀ .

u VISUAL Value to be displayed for 100 mm of sensor displacement
This parameter together with the following allows the programming of the value on the display for a certain displacement of the sensor. It means that is necessary to set the value which has to be displayed corresponding to a displacement of the sensor on the magnetic band of 100mm.
The Factory value is VISUAL=100.0, which is the necessary value to read the displacement in millimetres with decimal resolution.
The range allowed is from 0,000001 to 9999999 with setting of decimal point position that is, after programming of the last digit on the left, pressing key ◀ will blink the decimal pinpoint and with key ▲ it can be moved to the wanted position. Confirm with RESET/ENTER.

ndEC Number of decimal digits
It is the number of decimal digits to visualize on the display, range allowed from 0 to 5.
Example 1: for each 100 mm of sensor desplacement will have a displacement on the machine of 50, set **u VISUAL**=50 and **ndEC**=0.
Example 2: for each 100 mm of sensor desplacement on display has to appear 12,3. Set **u VISUAL** = 000012,3 e **ndEC** = 1.

dIrCOn Count direction

Set out the count direction of the display, range allowed 0 or 1. Factory default 0.
Setting 0, the value on the display increases moving the sensor to the right (sensor as per draw on page 1).
Setting 1, the value on the display increases moving the sensor to the left.

MtASt 1 Keys opening mode

This parameter programmes the functions linked to the keys.
The value to set is a number of three digits so each key corresponds to a digit; the digit on the right stands for setting of key RESET, the digit in the middle stands for key ▲ while the last digit on the left stand for key ◀
The Factory default is 101 or rather with the functions of absolute/relative quote (ABS/REL key) and reset (RESET/ENTER key) activated.
The values allowed are the following:

VALUE	KEY ◀	KEY ▲	KEY RESET/ENTER
0	Not open	Not open	Not open
1	Function ABS/REL	Conversion mm/inch	Reset
2	Not open	Display in degrees	Preset
3	Not open	Not open	Fast Preset
4	Not open	Not open	Change of origin1,2,3,4,5

Reset: function of reset of quota, pressing on key RESET/ENTER the quota is zero-set.

Preset: function of preset of quota, pressing on key RESET/ENTER the quota on the display became the same of the one set in parameter Preset. The setting of Preset value appears immediately after parameter MtASt 1 (if chose value 2).

Preset Veloce: the fast setting of the quota on the display, pressing on key RESET/ENTER appears Preset and pressing still 2 times RESET/ENTER is possible to set the value directly (use keys ▲ ◀ and confirm with RESET/ENTER). This function is useful when the quote on the display has often be corrected.

Origin change (quota correction for tool change): with this function 5 different origins (1,2,3,4,5 are programmable and passes from an origin to the other wit key RESET/ENTER. Activating the function of origin change on the display appear two small arrows and the indication of the selected origin happens with the switching on of the origin indicators (see paragraph meaning of symbols). After setting 4 in the first digit on the right of MtASt 1, will appear Pr 5 1 and pressing 2 times RESET/ENTER has to be set the value to be read in this position of sensor for origin 1, confirm with RESET/ENTER. It will appear Pr 52 which is the value to be read for origin 2 in the present position of sensor: set the correct value and confirm with RESET/ENTER.
It will appears Pr 53 which is the value to be read for origin 3 in the present position of sensor: set the correct value and confirm with RESET/ENTER.
For Pr 54 and Pr 55 to proceed as mentioned above.
It means Pr 5 1, Pr 52, Pr 53, Pr 54, Pr 55 are references for the calibration, in a certain position of the sensor, in 5 different origins.

Function ABS/REL: Enables the pass from absolute to relative value, pressing key ◀ zero-set temporary the value to allow a relative shifting. On the display switches on indicator REL to indicate that the current quote is relative to the zero-point just created. Pressing still key ◀ reappears the absolute value and on the display switches on the indicator ABS.

Conversion mm/inch: Pressing key▲ converts the measure from millimetre to inches and back with indication of inch/mm on the display and a decimal number more then for millimetres. By choosing 5 decimals for millimetres the conversion in inches is not allowed.
Visualization in degrees: Pressing on key ▲ on the display appears Deg to indicate the visualization of measure in degrees.

oFFSEt Origin displacement

This parameter is added or subtracted from the current quota to correct the value showed on the display, for example following wear or changing of tool. Setting a positive value on display appears the current quota added to this value.
Set zero to exclude the offset function (manufacturer's value).
The offset is not available if the function of tool-change is selected.

Adjusting of quota

Dopo avere montato il sensore sulla macchina ed avere impostato tutti i parametri dello strumento, per visualizzare sul display la corretta misura occorre effettuare il reset o il preset della quota. Posizionare il sensore in un punto nel quale sia nota con precisione la corretta misura da visualizzare (es. battuta di riscontro) oppure misurare la quota in quel punto dell'asse.

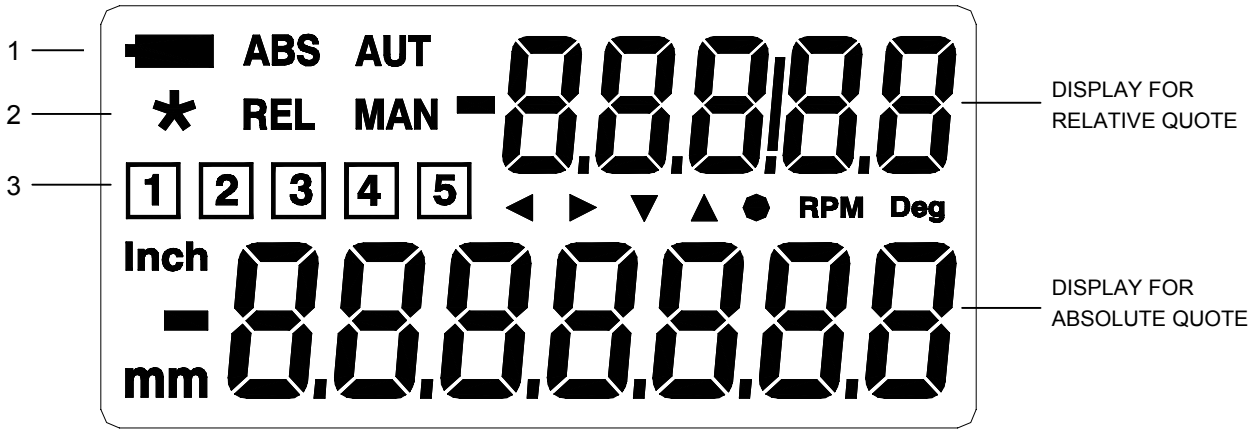
Programme parameter MEASt 1 with value 3 in the first digit on the right and go out of the programming. Now press RESET and it will appear Preset, press again 2 times RESET and set on the display the correct measure to visualize, confirm with RESET and on the display appears the correct measure.
If the adjusting quota is worth to zero instead of the preset is possible use reset, setting value 1 on the first digit on the right of MEASt 1, this way pressing RESET the value on the display will be zeroed.

Now that the instrument is adjusted its necessary re-establish to the wanted value parameter MEASt 1 to avoid

Battery change

The instrument is supplied with 4 batteries type AA of 1,5V (alkaline type) which assures a functioning of about 2 years. When the loading level goes under a certain value, the indicator of low-battery begins to blink in occasional way and when it keeps switched on its necessary to change the batteries within a month: it is recommended to change the batteries before it discharges into the instrument (this can cause malfunctions).
To enter into the battery holder its necessary to take off the rear cover unscrewing the 4 external screws.
Then remove the cover, remove the old batteries and insert the new batteries paying attention to the polarity indicated. Without batteries the instrument switches off: in this phase do not move the sensor to avoid loosing of the correct measure. As soon as the batteries are fitted inside, the instrument switches on with the same value on the display as at the moment of the switching off and if the sensor has not be moved the measure will be correct. In case the sensor is moved during the switching off, to re-establish the correct measure its necessary to repeat the quota adjustment procedure.

Meaning of the symbols on the display



1. Indicator of flat battery: begins to blink when the level of loading goes under a certain value and when it keeps switched on its necessary to change the batteries within 1 month.
2. Indicator of values changing: it blinks during the programming phase.
3. Indicators for the 5 origins.
ABS Indicator of absolute quota.
REL Indicator of relative quota.
mm indicator of mm.
Inch indicator of inchesi.
Deg Indicator of degrees.
▲ Indicator of positive Offset: indicates that the measure is corrected by a positive offset.
▼ Indicator of negative Offset: indicates that the measure is corrected by a negative offset.
◀ ▶ Indicator of changing origins activated.

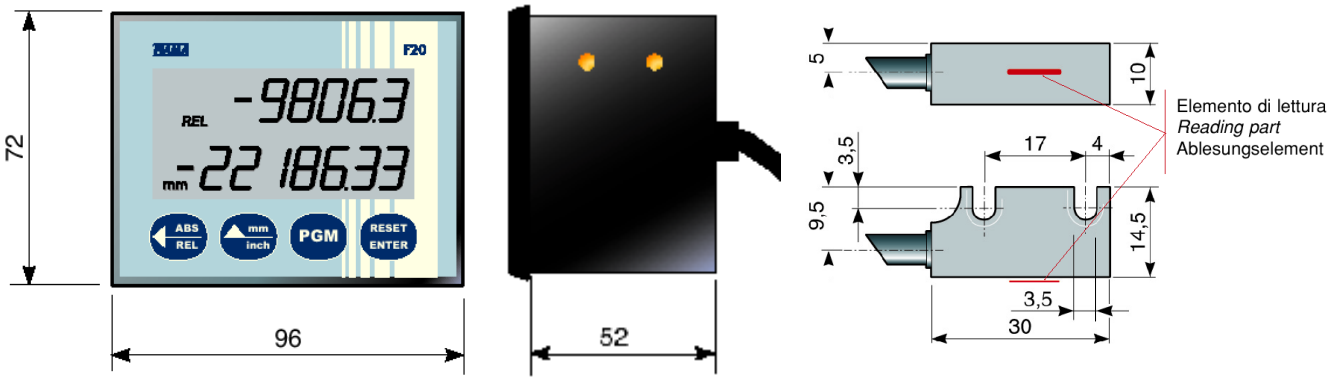
Errors messages

ouErFL: the current quota passed the maximum value that can be visualized (from –9999999 to 9999999);

Error 1: it's necessary to adjust again the quota;

noLAPE: sensor too far from the magnetic band: move the sensor closer to the band and do again the adjusting proceeding of the value.

Overall Dimensions



Dima of perforation of the panel 92x66.

Technical features

Power supply	4 alkaline batteries 1,5V type AA (LR6)
Resolution	0,1mm
Max speed	2,5 m/s
Range display	-9999999; 9999999
Display	LCD high readability with 13mm-high-digits
Keyboard	4 digits for programming and functions activation
Available functions	reset/preset, absolute/incremental quota, conversion mm/inches, visualization in degrees, 5 distinct origins for tool changing, tool wear adjustment
Protection degree	IP54 display, IP67 sensor
Sensor cable	length: 0,5 – 1 – 3 – 5 meters; Material: PUR Ø5,5mm suitable for movable wiring cable
Sensor house	alluminium black
Maximum Gap sensor – magnetic strip	1mm max
Working temperature	0-50°C
Relative humidity	30-90%
Electromagnetic compatibility	2014/30/EU
RoHS	2011/65/EU

Manufacturer
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