



VISUALIZED FREQUENCIMETER WITH ANALOG OUTPUT

Type:
LFM40AN

PROGRAMMABLE DIGITAL VISUALIZATOR OF ROTATIONS WITH 4 DIGITS, INPUT SUITABLE FOR MONO DIRCTIONAL COUNTING AND ANALOG OUTPUT

The period counter model **LFM40AN** is a frequencymeter that calculate and displays continually the impulses frequency of the input and give to the output a direct current referred to the frequency showed. For its characteristics and versatility this instrument can be used as tools counter, speed survey and where is necessary to control linear speed or rotation speed of motor trees with an external system.



GENERAL CHARACTERISTICS

- Frontal keyboard in polycarbonate (antiscratch, antioil, antacid).
- IP65 protection degree
- Accessible parameters with key software
- Removable terminals connection.
- Execution DIN 48 x 96.
- Recessed assembly.
- Special retaining brackets.

PROGRAMMABLE PARAMETERS

- Multiplier Factor
- Divisor Factor
- Time Base
- Display Reset Time
- Display Adjournment Time
- Analog Output Adjournment Time
- Input for Electromechanical or Logic Contacts
- Reset Key
- Decimal Point
- Initial Scale of the Analog Output
- Full Scale of the Analog Output

TECHNICAL CHARACTERISTICS

• POWER SUPPLY IN ALTERNATE CURRENT	: single power 24 - 110 - 230 Vac (50 / 60 Hz).
• POWER SUPPLY IN DIRECT CURRENT	: single power 24 Vdc
• POWER SUPPLY TOLERANCE	: +10% - 15%.
• ABSORPTION	: 2 W - 3 VA.
• OPERATING TEMPERATURE	: -5 °C + 55 °C.
• CLIMATIC CONDITIONS	: U.R. 95 % a 40 °C (without condensate).
• COUNTER AND TOTALIZER VISUALIZATION	: 4 digits, display high 14mm.
• MULTIPLICATION FACTOR OF THE INPULSES IN INPUT	: programmable from 1 to 10000.
• DIVISOR FACTOR OF THE INPULSES IN INPUT	: programmable from 1 to 10000.
• TIME BASE	: Programmable between 1 / 60 / 3600.
• INPUT TYPE	: suitable for electromechanical contacts, amplified proximity and encoder, NPN and PNP
• MAXIMUM COUNT FREQUENCY	: up to 25 KHz with Duty Cycle=50%.
• MINIMUM TIME FOR INPULSES COUNT	: 0,25 mSec.
• CUT OFF FREQUENCY FOR ELECTROMECHANICAL INPUTS	: about 30 Hz.
• ANALOG OUTPUT	: 0 – 20mA or 4 – 20mA or 10VDC
• RESOLUTION OF THE ANALOG OUTPUT	: 16 bit analog conversion (65536 levels)
• MAXIMUM LOAD RESISTENCE	: lower than 600 Ohm
• AUXILIARY INPUT SUPPLY	: 24 Vdc - 80 mA available on terminals.
• PROGRAMMED DATA MEMORY	: Static (no battery)

FRONTAL KEYBOARD DESCRIPTION

 **YELLOW**

The key '**LEFT ARROW**' in normal operating phase visualizes, blinking, all the programming executed without the limitation of the insertion code. The time of scansion of the programming is given from the pressure of the same key. It exits automatically from this phase after 5 sec of the last pressure of the same key.
In programming phase it moves the cursor of the figure towards left of a step, than at the beginning it is on the right side first one on the. At the end it resumes from the first one to right.

 **YELLOW**

The key '**UP ARROW**' in normal operating phase visualizes the totalizer of impulses.
In programming phase it increases the value of the blinking figure.

 **BLUE**

The key '**PRG**' pressed for 2 sec. allows to enter in the programming phase, visualizing on display C.0000.
In the programming phase, pressing key 'PRG' impulsively, it exits from the programming phase. The instrument exits automatically from the programming phase, 60 sec. after the pressure of the last key.

 **RED**

The key '**ENT/RES**' in normal phase of counting has the 'RESET' function, with the modalities to it attributed in the programming phase.
In programming phase it confirms and memorizes the visualized data and passes to the successive function. If it has arrived to list end it resumes from the beginning.

INPUTS / OUTPUTS DESCRIPTION

DC POWER
(input 1-2)

24V DC Power Supply of the instrument.

AC POWER
(input 3-4)

AC Power Supply of the instrument; it can be to 24 - 110 - 230 VAC according to demand.

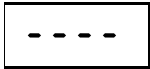
12 (24) VDC - 80mA
(input 5 - 6)

12 VDC - 80 mA auxiliary Power Supply that the instrument supply to feed the Encoder and amplified proximity.


INPUT
(input 7)

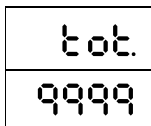
Input of count adapted for electromechanical and logical contacts, encoder and 3 wires proximity amplified, configurable in Positive (PNP) and Negative (NPN) logic by the dip switches on the rear.

DISPLAY DESCRIPTION



When the device is switched on and when there are no impulses in its input, the device visualize 4 horizontal bars.

Pressing the key  the totalizer of impulses will be visualized for 5 sec.



The totalizer visualizes all the impulses that the instrument counts from its input IN1.
It can be resetted through frontal key RES only or from RESET input when it is visualized on the display.

PROGRAMMING OF THE OPERATION PARAMETERS

The programmable parameters are divided in two groups and protect with a 4 figures code.

In order to approach the programming, proceed in the following way:

- Press key **PRG** for about 2 sec. On the display appears:

Cod
000

GROUP 1 : in order to approach the parameters of group 1, insert code **101** and press **ENT**

F.M
0001

F.M. = 4 digits multiplier, programmable from 1 to 10000. This parameter allows to multiply the number of the input impulses, showing them on the display in an other format. If it programmed = 0 it means programmed 10000.

Attention: the variation of the value of the multiplying modifies automatically the value of the count and the totalizer.

F.d
0001

F.d. = 4 digits divisor, programmable from 1 to 10000. This parameter allows to divide the number of the input impulses, showing them on the display in an other format. If it programmed = 0 it means programmed 10000.

Attention: the variation of the value of the multiplying modifies automatically the value of the count and the totalizer.

b.t.
60

b.t. = Time Base.

This programming allows to select in which time base shows on the display the measure in input. There are three scales:

1 = Time Base: seconds, measure visualization in seconds (ex. Meters/seconds)

60 = Time Base: minutes, measure visualization in minutes (ex. Liters/minutes)

3600 = Time Base: hours, measure visualization in hours (ex. Bottles/hour)

PROGRAMMING OF THE OPERATION PARAMETERS

The programmable parameters are divided in two groups and protect with a 4 figures code.

In order to approach the programming, proceed in the following way:

- Press key **PRG** for about 2 sec. On the display appears:

Cod
000

GROUP 2 : in order to approach the parameters of GROUP 3, insert code **020** and press **ENT**

t.r. 01

t.r. = Reset time of the display.

This parameter allows to program the maximum time from the last impulse after that the instrument reset the display, showing the four horizontal bars. If programmed = 0, with no impulses in input the instrument shows the last calculated value. If the programmed time is lower than the time between the impulses, the instrument shows the four horizontal bars.

This parameter is useful to indicate when a plant is in stop or when there are no impulses in input or when the impulses source is damaged. It's programmable between 1 (instantaneous) and 99 seconds.

t.a. 01

Updating time of the analog output.

This parameter allows to program the delay time of the data adjournment on the analog output. It's programmable between 0 (instantaneous) and 9,9 sec

d.d. 01

d.d. = Updating time of the display.

This parameter allows to program the delay time of the data adjournment on the display. It's programmable between 0 (instantaneous) and 99 sec

In F
In S

Input Fast - Slow.

This programming allows to set the count input to read signals coming from electromechanical contacts (relays, switches etc.) or from logical signals like proximity switches transistor and encoder.

In = F. sets the input to read digital signals up to 28 KHz.

In = S. sets the input to read electromechanical signals up to 25 Hz.

rSon

Operation of the RESET Key; this programming enable and disable the RESET working of the frontal RES key during the operation, as in the following modes:

RS.on. = executes the RESET of the visualized parameter

RS.oF. = RESET working of the RES key excluded.

I.S.
0001

I.S. = Initial Scale of the Analog Output

This programming selects the value corresponding to the Initial Scale of the Analog Output. It's programmable between 0 and 9999.

F.S.
9999

F.S. = Full Scale of the Analog Output

This programming selects the value corresponding to the Full Scale of the Analog Output. It's programmable between 0 and 10000. If it set to 00000 the value is 10000.

d.P. 0
d.P. 4

d.P. = Programming of the Decimal Point

This programming allows to add a decimal point to the visualization on the 4 digits, in order to obtain counts with various resolutions.

d.p. = 0 Decimal Point excluded; visualization 9999

d.p. = 1 Decimal Point on the second display from right; visualization 999,9

d.p. = 2 Decimal Point on the third party display from right; visualization 99,99

d.p. = 3 Decimal Point on the fourth display from right; visualization 9,999

d.p. = 4 Floating Point.

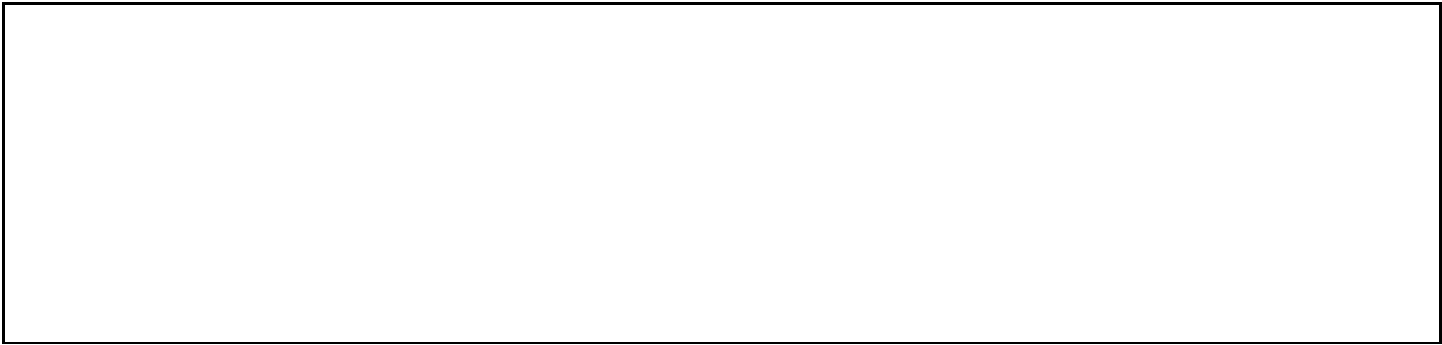
A.P. P.
A.P. r.

A.P. = Activation mode of the programmed parameters.

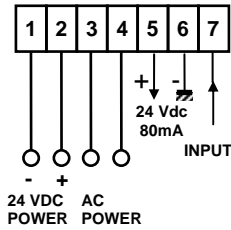
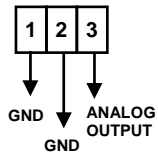
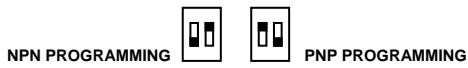
With this programming is possible to activate the executed programming directly to the exit of the programming or, when exited of the programming, after a RESET (with frontal key or from rear input).

A.P. = P. Activation of the parameters to the exit of the programming.

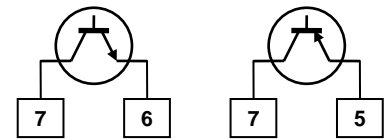
A.P. = r. Activation of the parameters to the exit of the programming after a RESET.



CONNECTIONS



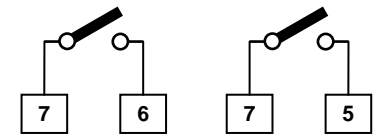
INPUT SIGNALS



TTL LOGIC
NPN

TTL LOGIC
PNP

AMPLIFIED PROXIMITY AND
ENCODER – 24 Vdc

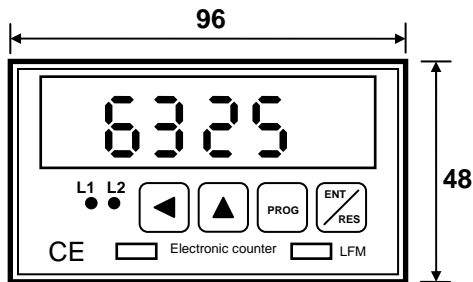


NPN
CONTACT

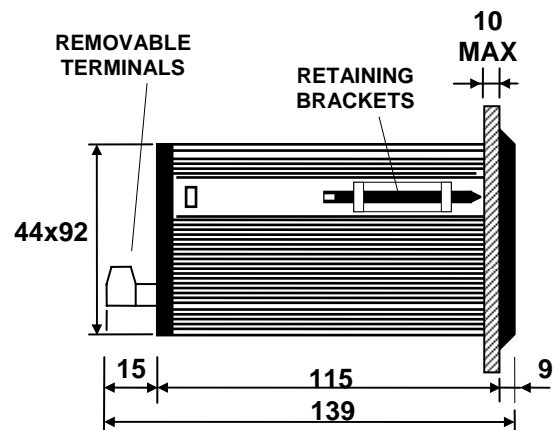
PNP
CONTACT

OVERALL DIMENSIONS (mm)

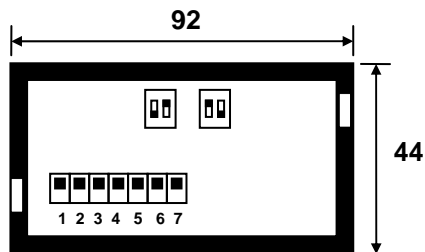
FRONT



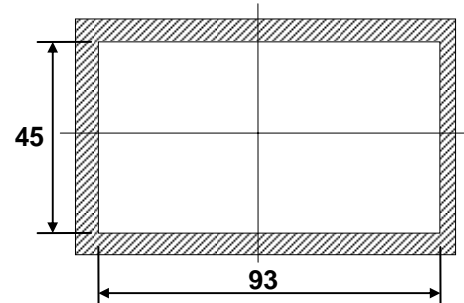
SIDE



REAR



DRILL TEMPLATE



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