

Digital frequency meter

MP3-4□H, MP6-4□H

INSTRUCTION MANUAL

Thank you for purchasing HANYOUNG product.
Please check whether the product is the exactly same as you ordered.
Before using the product, please read this instruction manual carefully.
Please keep this manual where you can view at any time

HEAD OFFICE

HANYOUNGNX CO.,LTD

1381-3, Juan-Dong, Nam-Gu Incheon, Korea.
TEL: (82-32)876-4697 FAX: (82-32)876-4696
http://www.hynux.net

INDONESIA
FACTORY

PT. HANYOUNG ELECTRONIC INDONESIA

JL.CEMPAGA BLOK F 16 NO.02 DELTA SILICON II INDUSTRIAL PARK
LIPPO CIKARANG CICALU, CIKARANG PUSAT BEKASI 17550 INDONESIA
TEL : 62-21-8911-8120~4 FAX : 62-21-8911-8126

HANYOUNG NUX



Safety information

Before using the product, please read the safety information thoroughly and use it properly. Alerts declared in the manual are classified to Danger, Warning and Caution by their criticality

DANGER	DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury

Danger

There is a danger of occurring electric shock in the input/output terminals so please never let your body or conductive substance is touched.

Warning

- This product does not contain an electric switch or fuse, so the user needs to install a separate electric switch or fuse externally. (Fuse rating : 250 V 0.5 A)
- To prevent detection or malfunction of this product, apply a proper power voltage in accordance with the rating.
- To prevent electric shock or malfunction of product, do not supply the power until the wiring is completed.
- Since this product is not designed with explosion-protective structure, do not use it any place with flammable or explosive gas.
- Do not decompose, modify, revise or repair this product. This may be a cause of malfunction, electric shock or fire.
- Reassemble this product while the power is OFF. Otherwise, it may be a cause of malfunction or electric shock.
- If you use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.
- There is a possibility of occurring electric shock so please use this product after installing it onto a panel while it is operating.

Caution

- The contents of this manual may be changed without prior notification.
- Do not use this product at any place with occurring corrosive (especially noxious gas or ammonia) or flammable gas.
- Do not use this product at any place with direct vibration or impact.
- Do not use this product at any place with liquid, oil, medical substances, dust, salt or iron contents. (Use at Pollution level 1 or 2)
- Do not polish this product with substances such as alcohol or benzene. (Use neutral detergent.)
- Do not use this product at any place with a large inductive difficulty or occurring static electricity or magnetic noise.
- Do not use this product at any place with possible thermal accumulation due to direct sunlight or heat radiation.
- Install this product at place under 2,000 m in altitude.
- When the product gets wet, the inspection is essential because there is danger of an electric leakage or fire.
- If there is excessive noise from the power supply, using insulating transformer and noise filter is recommended. The noise filter must be attached to a panel which is already connected to a ground and the wire between the filter output side and power supply terminal must be short as possible.
- If twisting the power cables closely together then it is effective against noise.
- Do not connect anything to the unused terminals.
- After checking the polarity of terminal, connect wires at the correct position.
- When this product is connected onto a panel, use a circuit breaker or switch approved with IEC60947-1 or IEC60947-3.
- Install a circuit breaker or switch at near place for convenient use.
- For the continuous and safe use of this product, the periodical maintenance is recommended.
- Some parts of this product have limited life span, and others are changed by their usage.
- The warranty period for this product including parts is one year if this product is properly used.

Suffix code

Model	Code	Information
MP	□ □ □ □	Digital frequency meter
Dimension	3	Dimension 96 × 48 mm
	6	Dimension 72 × 36 mm
Displayable digit	4	4 digits (9999)
Output (Optional)	N	Only for display
	0	Relay output (HI, LO, GO) + Current output (4 ~ 20 mA)
	1	Relay output (HI, GO, LO)
	2	NPN TR output (HI, GO, LO) + Current output (4 ~ 20 mA)
	3	PNP TR output (HI, GO, LO) + Current output (4 ~ 20 mA)
Measurement input signal	H	AC input frequency measurement

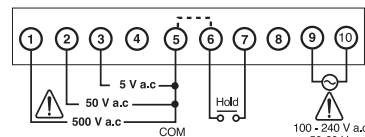
※ Measurement input signal is confined to MP6-4□H and MP3-4□H is under developed

Specification

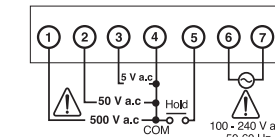
Power supply voltage	100 ~ 240 V a.c. 50 ~ 60 Hz allowable voltage fluctuation : 85 ~ 110 %
Power consumption	5 VA
Display method	7 Segment LED Display
Insulation resistance	100 min MΩ (500 V d.c. mega standard) between the external terminal and case
Dielectric strength	2000 V a.c. for 1 min (between the external terminal and case)
Noise immunity	Square wave noise by the noise simulator pulse width 1 μs, ±1000 V
Vibration resistance	Malfunction 10 ~55 Hz peak amplitude 0.5mm X/Y/Z each direction for 1 hour Resistance 10 ~55 Hz peak amplitude 0.5mm X/Y/Z each direction for 2 hours
Shock resistance	Malfunction 100 % X · Y · Z each direction for 3 times Resistance 300 % X · Y · Z each direction for 3 times
Ambient temperature	-10 ~ 55 °C (icing or dew condensation not allowed)
Ambient humidity	35 ~ 85 % RH (without dew condensation)
Storage temperature	-20 ~ 65 °C (icing or dew condensation not allowed)
Relay Life span	Physical : 20,000,000 ps Min , Electrical : 100,000 ps Min
Measurement method	Coefficient Measuring method
Display cycle	When the input period is less than 0.1 second, it displays every 0.1 second. When the input period exceeds 0.1 second, it displays every 0.1 second.
Displayable digit	-1999 ~ 9999 (4 digits)
Measurable range	0.1 Hz ~ 9999 Hz
Measuring items	Frequency (Hz)
Decimal function	Selection by internal parameter
Scaling function	Displaying function of converting measured maximum value and minimum value into random figure
Hold function	External hold automatic hold of peak detection for maximum value and minimum value
Control	Hold of Displaying value
Other functions	- Comparative output - Protect the set value from changing - Average the value and delay the display cycle - Max value / min value indication by the front key
Output (Optional)	- Relay output of contact point (3 output) - Current output (4 ~ 20 mA) - Transistor output (NPN, PNP)
Weight	Approx. 180 g

Connection diagram

● MP3-4-NH

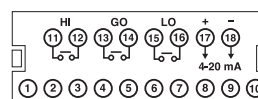


● MP6-4-NH

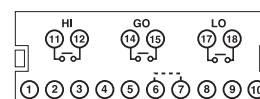


■ MP3-4-OH

(Relay output, 4 ~ 20 mA Current output)

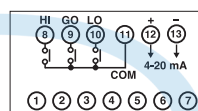


■ MP3-4-1H (Relay output)

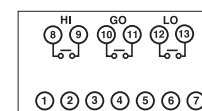


■ MP6-4-OH

(Relay output, 4 ~ 20 mA Current output)

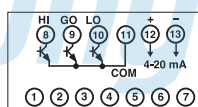


■ MP6-4-1H (Relay output)



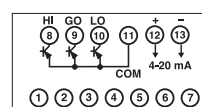
■ MP6-4-2H

(NPN TR, 4 ~ 20 mA Current output)



■ MP6-4-3H

(PNP TR, 4 ~ 20 mA Current output)



Parameter 1

Display	Mode name	Default value	Set range	Remark
11r5	Input range	9999	0	Select the measuring range of input frequency.
			1	
			2	
			3	
2HdP	Factor	1000	Max : 1800 Min : 0.500	Use this to get the x(involution) of input reading.
3LdP	Input compensation	0	Max : 99 Min : -99	Correct the error by adding(+) or reducing(-) to the input reading.
4Rdt	Updating cycle	0.2	Max : 5.0 Min : 0.1	Set up the time for measure the mean value of input.
55CH	High scale	0	Max : 9999 Min : -1999	Set up the maximum value of display when you need to convert into random value.
65CL	Low scale	0	Max : 9999 Min : -1999	Set up the minimum value of display when you need to convert into random value.
7dPP	Position of decimal point	0000		Set up the location of a decimal point
8PdH	Hold function	OFF	OFF	Set up the autonomic holding when detecting PEAK value. Use external hold (E-Ha)
			H-Hd	
			L-Hd	
9LoC	Lock function	OFF	ON	Set up the locking on function of panel meters
			OFF	

Parameter 2

Display	Mode name	Default value	Set range	Remark
HHPe	High Peak Display	-	-	Display the max value among the measured values.
LLPe	Low Peak Display	-	-	Display the min value among the measured values.
HSEt	Output High Set	5000	Max : +9999 Min : -1999	Set up the high set value.
LSEt	Output Low Set	2000	Max : +9999 Min : -1999	Set up the low set value.
PSoE	Output Type Select	OFF	LL(LL.o)	Set the comparative output mode.
			HH(HH.o)	
			LH(LH.o)	
			HL(HL.o)	
HYSt	HYS teris	0.1	Max : 99 Min : 0.0	Set up the hysteresis.

Measurement input and range

Input signal	Mode	Input range	Display range	Input impedance	Accuracy
AC voltage	5 V (<i>5H</i>)	0.1 ~ 9999 Hz	0.1 ~ 9999	100 kΩ	±5 Digit max.
	50 V (<i>50H</i>)			1 MΩ	
	500 V (<i>500H</i>)			5 MΩ	

* Maximum range of display scale

-1.999 ~ 1.999 / -19.99 ~ 19.99 / -199.9 ~ 199.9 / -1999 ~ 9999

the displaying range of expression changes depending of the set-up location of a decimal point

Comparative output action (P50t)

Operation mode	Output operation	Explanation
		H : Hysteresis
OFF		No output operation
LLot		Current indication value ≤ LSEt value, LO output becomes ON. Current indication value ≥ LSEt value, GO output becomes ON.
HHot		Current indication value ≥ HSEt value, HI output becomes ON. Current indication value ≤ LSEt value, GO output becomes ON.
LHot		Current indication value ≤ LSEt value, LO output becomes ON. Current indication value ≥ HSEt value, HI output becomes ON. Current indication value < LSEt, HSEt, GO output becomes ON.
HLot		Current indication value ≤ LSEt value, LO output becomes ON. Current indication value ≥ HSEt value, HI output becomes ON. Current indication value < LSEt and HSEt, GO output becomes ON.
ILot		Same as the LLOt operation but LO output will not operate under the initial setup value of LSEt. It starts to operate from the next value of LSEt.

→ It does not operate under the initial LSEt

Initializing set value

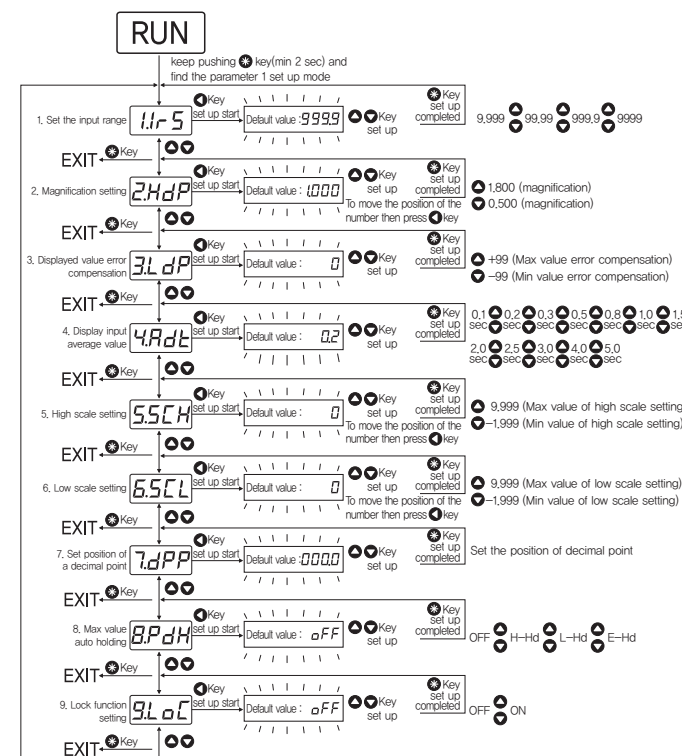
Push the button → → → sequentially with pushing the . And then LSEt is displayed. When displaying LSEt, push again the button and the all default value is initialized.
(* Initializing set value is not available when Lact on.)

Error display code

"OHEr" : This will be displayed when a measured input value exceeded max display range (9999 4digits) or when negative value is indicated with in normal mode : SCH 0 or SCL 0
 "HLEr" : Error message will be displayed when a setting value of High Comparative Output is less than that of Low Comparative Output
 "----" : When input is less than min measurement range 0.1 Hz

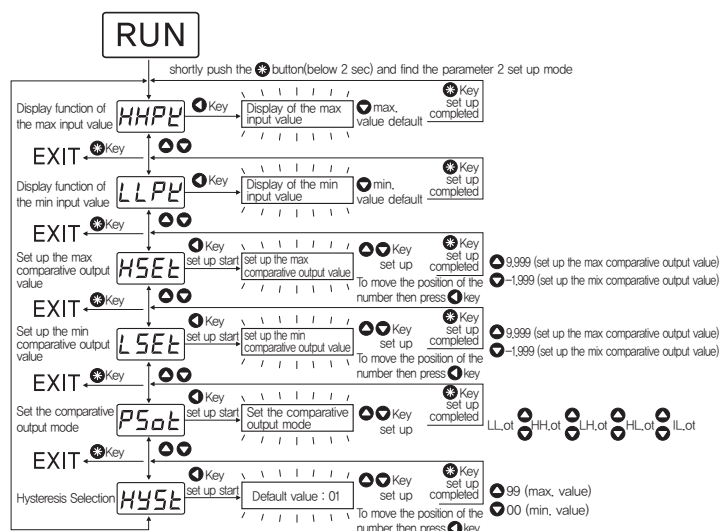
Parameter composition and setting method

■ Parameter 1 (Key – keep pushing the button(min 2 sec))

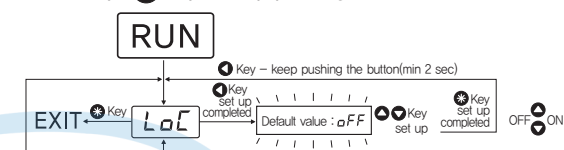


* RdE : This is the set-up value when input pulse frequency is within 0.1 second and this value can change if the input impulse frequency exceeds 0.1 second.

■ Parameter2 (Key –shortly push the button (below 2 sec))



■ Lock key (Key – keep pushing the button(min 2 sec))



* every parameter set up is not available when the Lact on.

How to change the parameter set value

- Pressing more than 2 sec within the RUN MODE will enter into the Parameter 1 and pressing less than 2 sec will enter into the parameter 2.
- Able to select the parameter by pressing and within the selected parameter, parameter and set value repeatedly flickers in the display unit.
- Able to change the set value by pressing the and at this moment, set value flickers in the display unit(when set value is 0, only the 0 th digit of constant value flickers and displayed). When changing the setting of constant value, able to perform the position shifting by using .

When set value is constant, only 0 th digit of the constant value will flicker in the display unit. In order to change the value on 100 th digit, press the 3 times. Each time when users press the , position of the digit will shift to the left and selected digit will flicker in the display unit. When setting is completed, return to the parameter mode by pressing the . At this moment, flickers the parameter and set value repeatedly. Able to return to the RUN mode by pressing the again.

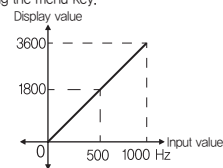
Slope setting method

When users want to display 3600 (min ~1999 ~ 9999) within the 1000 Hz input, setting the parameter is as follows.

- Enter into the parameter 1 by pressing the for 2 sec
- Set SCH in the 3600 (slope high value) parameter by using shift, up and down key
- Set 0 in the 5CL (slope low value) parameter by using shift, up and down key.

Finish the setting just like above and return to the RUN mode by pressing the menu key.

Parameter 1	
Parameter	SCH
Set value	3600



Input of peak value and hold by external input

BPdH Detect the input peak value through the set-up of parameter or detect the displayed value by external pressure, or hold the displayed value by external pressure.

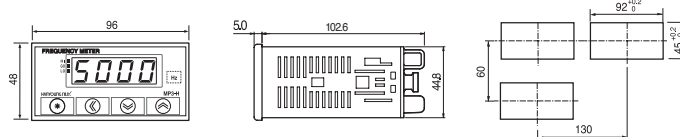
0FF	H-Hd	L-Hd	E-Hd
: Disuse	: Hold the maximum value	: Hold the minimum value	: Hold by external pressure

Transmission function (Auxiliary output)

- All electrical current : Show the output 4 ~ 20 mA d.c of current displayed value. (Resolution 12000)
- PNP output (Output of open collector being below 12 ~ 24 V d.c 50 mA)
- NPN output (Output of open collector being below 12 ~ 24 V d.c 50 mA)
- RELAY output (250 V a.c 5 A below) 1a × 3

Dimension and Panel cutout

MP3-H



MP6-H

