FI8 Series Frequency, Linespeed, Tacho Digital Meter

Features:

- 6-digit digital tube display, the upper row shows the measured value, and the lower row shows the alarm set value.
- Dimension(mm): 48H*96W
- Two output control are available: upper limit alarm (U), lower limit alarm (d)
- Have a hysteresis setting to improve the stability of the instrument and system work.
- Frequency/linespeed/tacho measuring is selectable.
- Optional 4~20mA analog output and RS485 communication interface.
- High accuracy,the decimal point fixed or floating display can be selected.

Ⅰ、Model Illustration

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- Version:A
- Communication:0:without 8: with RS485 communication
- Display digits: 6:6 digits display
- Alarm output: B: One alarm output C: Two alarm output
- Control output: R:relay S:solid state relay
- Transmission function: I: 4~20mA current transmission output
- Power type: Blank: switching power supply F: 24VDC power supply
- Dimension: 8:48H×96W
- FI8 Series Frequency, Linespeed, Tacho Digital Meter

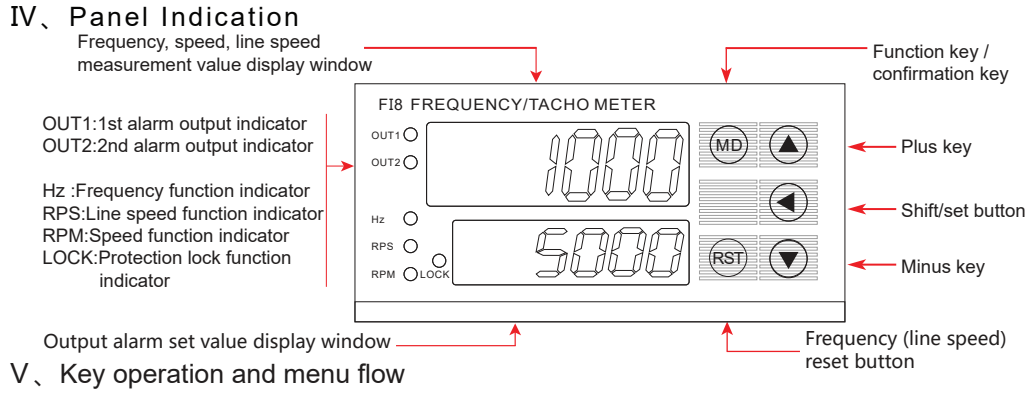
Ⅱ、Ordering Information

Model	Size (mm)	Display	Alarm	Analog	Communication
FI8-RC60	48H*96W	6	2	-	-
FI8-IRC60	48H*96W	6	2	4~20mA	-
FI8-RC68	48H*96W	6	2	-	RS485
FI8-IRC68	48H*96W	6	2	4~20mA	RS485

Ⅲ、Specifications

Power supply	AC/DC 100～240V±15%
Power consumption	＜5W
Output capacity	AC 250V/3A or DC 30V/3A
External power supply	DC 12V±2V 100mA max
Insulation resistance	≥100MΩ
Anti-interference	power supply:4000Vp-p I/0 terminal:2000Vp-p
Vibration test	10～55Hz; 0.75mm
Working environment	-15～50℃ 35～85% RH
input signal	Square wave, sine wave pulse signal: 3V≤high-level≤30V 0≤low-level≤1V
Pulse signal	≥5.4kΩ
Measuring range	0.1～10000Hz
Measuring accuracy	0.1%RD±3Digits
Communication	Communication Interface: RS485
	Protocol: MODBUS-RTU Calibration method: no calibration
	Braud rate：4800bps、9600bps。Frame format: 1 start bit, 8 data bits, 2 stop bits
Analog output	Output range: 4～20mA
	Load Resistance: ≤600Ω

Ⅳ、Panel Indication



Ⅴ、Key operation and menu flow

1、Before the instrument is powered on, please check whether the wiring of the terminal is correct, whether the power supply meets the requirements of the instrument, and the power can be turned on after confirmation.

2、The instrument has 5 operation buttons

MD (Setting Key): Press the MD button for 3 seconds to enter the setting state during the measurement state.

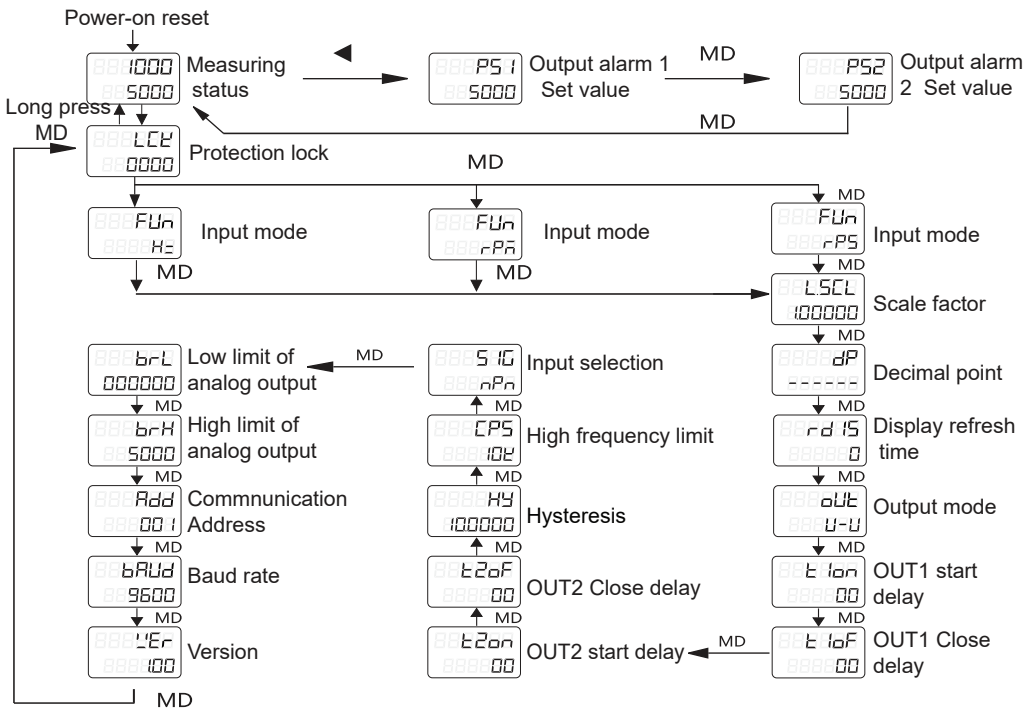
▲ (plus key): In the setting state, press the set number of digits plus 1;

▼ (minus key): In the setting state, press the set number of digits minus 1;

◀ (Shift key): In the measurement state, press to enter the output alarm setting value to modify the state; in the setting state, press the flash bit to the left to shift one bit.

RST (Reset button): In the measurement state, press the measured value to reset; in the parameter setting state, press the decimal point to shift one bit to the left.

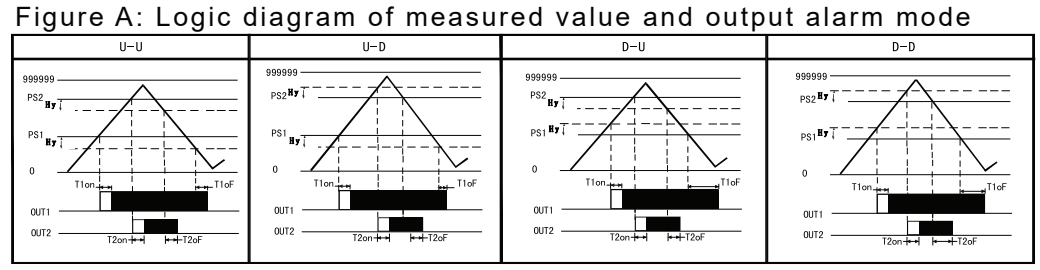
3. In the setting state, press the MD button for 3 seconds to exit the setting state and enter the measurement state; if the button is not operated for a long time in the setting state, the meter will automatically return to the measurement state (the previously modified parameters will not be saved).



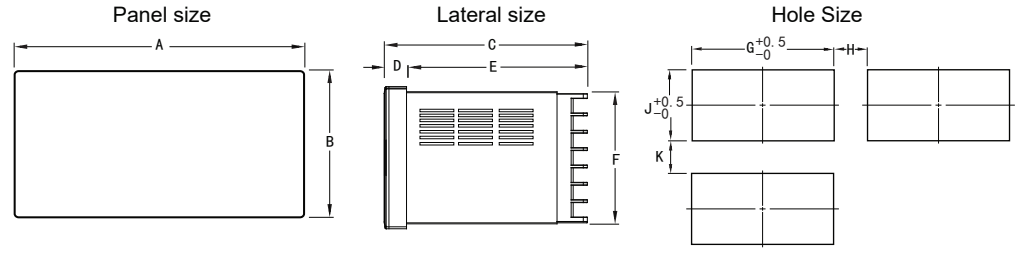
Ⅵ、Instrument menu

NO.	Code	Meaning	Description	Factory default
1	FUn	Function selection	Measurement function selection, setting range: Hz (frequency meter), RPS (line speed meter), RPM (tachometer)	Hz
2	LSCL	Scale factor (linespeed meter)	Display value = measurement frequency * scale factor, Setting range 0.00001 -99999.9	1.00000
3	dP	Decimal point	Display the decimal point selection, set the range 999999: No decimal point, 99999.9: 1 decimal place, 9999.99: 2 decimal places, 9999.9.9: floating decimal point.	999999
4	rd IS	Refresh time display	Display refresh time, setting range 0.5: refresh per 0.5 seconds, 1: refresh per 1 second, 2: refresh per 2 seconds, 5: refresh per 5 seconds, 10: refresh per 10 seconds, 20: Refresh per 20 seconds (the larger the value,the slower the update and the more stable it is).	1
5	oUt	Output method	Output control mode setting U-U: OUT1 upper limit, OUT2 upper limit U-D: upper limit of OUT1, lower limit of OUT2 D-U: lower limit of OUT1, upper limit of OUT2 D-D: lower limit of OUT1, lower limit of OUT2 (refer to Figure A for specific logic)	U-U
6	t 1on	OUT1 start delay	Delay time from OUT1 reach the output setting value to relay action (unit: s)	0
7	t 1oF	OUT1 Close delay	Delay time from OUT1 reach output closing value to relay closing (unit: s)	0
8	t2on	OUT2 start delay	Delay time from OUT2 reach the output setting value to relay action (unit: s)	0
9	t2oF	OUT2 Close delay	Delay time from OUT1 reach output closing value to relay closing (unit: s)	0
10	HY	Hysteresis	Output alarm hysteresis setting, setting range 1-999999 Upper limit alarm: after the alarm is output,When the value < alarm value - hysteresis is displayed, the alarm is released.Lower limit alarm: after the alarm is output,When the value > alarm value + hysteresis is displayed, the alarm is released.	10.0000
11	CPS	Upper frequency limit	Enter the selection menu for the upper limit of the measurement frequency, setting the range 1, 30, 1K, 10K (unit: Hz)	10K
12	SIG	Input selection	Sensor output type selection, setting range NPN, PNP	NPN
13	brL	Transmission lower limit	The display value corresponding to the transmission output is 4 mA, the setting range is 0~999999.	0
14	brH	Transmission upper limit	The display value corresponding to the transmission output is 20mA, and the setting range is 0~999999.	5000
15	Add	Address	Communication address,measuring range:1-255	1
16	bAUd	Braud rate	Measuring range:4800bps、9600bps	9600
17	VEr	Version	The product software version is continuously updated based on product upgrades.	x.xx
18	LCK	Protection lock	The system locks or turns on four different functions based on the four values entered by the user: 1: Lock or enable the SV value. Only when LCK=0001, the SV value cannot be changed, otherwise the SV value can be changed. 2: Lock or turn on the RST button. Only when LCK=1000, the RST button is locked. Pressing the RST button does not return to zero. Otherwise, the RST reset function is enabled, (the RST external control terminal is not locked). 3: Lock or open the function of writing the factory value. Only when LCK=0100, you can press the MD+▲ button for 3 seconds in the measurement state and then flash the “INIT” to restore the factory value after 1 second. 4: Lock or open the menu; only when LCK=0010, the menu can be locked, the user can't modify the menu value; otherwise, if it is not 1, the menu value can be set.	0000

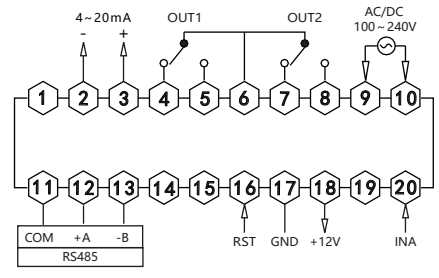
Figure A: Logic diagram of measured value and output alarm mode



Ⅶ、Meter size and wiring



Size	A	B	C	D	E	F	G	H(Min)	J	K(Min)
48*96	96	48	97.5	3	94.5	44.5	90	25	45	25



Note: If there are new changes to the instrument wiring, no further notice will be given. Please wire according to the actual instrument wiring diagram.

Ⅷ、Protocol

1、For the communication protocol, please refer to the “General MODBUS-RTU Communication Protocol for Counting, Timing and Frequency Products”. The communication protocol can be obtained by contacting the sales personnel or by going to our official website www.toky.com.cn.

Ⅸ, Special instructions and simple troubleshooting

1、The input wire of the meter should not be too long. It is recommended to use the shielded wire for the input wire to improve the anti-interference performance of the instrument. The meter should not be used in an environment with a humidity >90RH% or an acid-alkaline environment.

2、The meter displays “UUUUUU” to indicate overrange.

3、If the meter value is used for single display, it is recommended to set the measurement range (DP) to the floating decimal point (9999.9.9) and the refresh display time to 0 (auto refresh).

If the meter uses the alarm output, it must be set to a fixed decimal point. Cannot be set to a floating decimal point, and set two relays to work normally open or normally closed.

4, fault handling:

A: The meter display is unstable, the code skipping is serious, and the relay is ringing.

* Use shielded wires for input lines and take anti-interference measures for input signals.
* The decimal point menu (DP) is displayed correctly.
* Use a clean power supply.
* Adjust the backlash properly.

B: There is a signal input, and the single display is 0.

* Check that the meter wiring is correct.
*The terminal is in good contact.
* The display refresh time setting does not match the measurement frequency (refer to the table below).

Refresh time (s)	Measuring range	Remarks
0	0.1Hz ~ 10KHz	Auto refresh
0.5	2Hz ~ 10KHz	Refresh per 0.5s
1	1Hz ~ 10KHz	Refresh per 1s
2	0.5Hz ~ 10KHz	Refresh per 2s
5	0.5Hz ~ 10KHz	Refresh per 5s
10	0.2Hz ~ 10KHz	Refresh per 10s
20	0.1Hz ~ 10KHz	Refresh per 20s