Digital Counter / Timer

Model GX4 Free Ticom

INSTRUCTION MANUAL

This manual primarily describes precautions required in installing and wiring the Free Time controller. When using the controller, please refer to the pertinent catalog for detailed information.

HANYOUNG

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■ MAIN PRODUCTS

- DIGITAL : Temperature Controller, Counter/Timer, Tachometer/Panel Meter
- SENSOR : Proximity Switch/Photo Electric Sensor, Rotary Encoder/Optical Fiber Sensor, R.T.D/Thermo Couple
- ANALOG : Timer/Temperature Controller

■ Classification

GX4 Series Classification

5Digit 1Stage Replay output

5Digit Total

■ Suffix code

GX4 — P (5 digit)

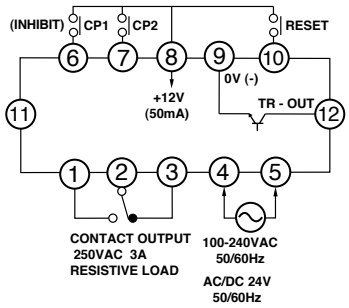
- P : Preset
- T : Total

Free Ticom(Timer/Counter)

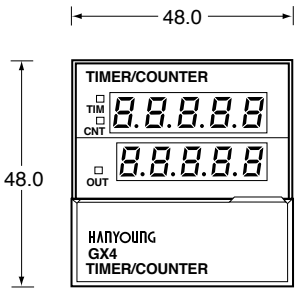
■ Features

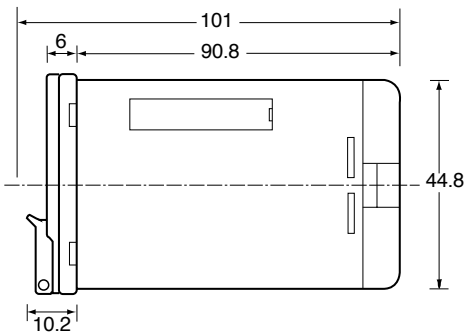
- Operates all funtions by switches at front (Mult-range input/Free scale)
- Counting speed 30 cps/1Kcps/2Kcps/5Kcps selectable
- ON-DELAY/OFF-DELAY selectable
- Position of a decimal point is movable
- Wide range of power supply(AC 100~240V)
- Semi-permanent backup power for memory protection
- 10 input/24 output mode
- Replay output

■ Connections

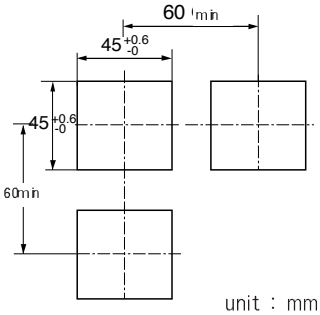


■ Dimensions





● Panel cutout



unit : mm

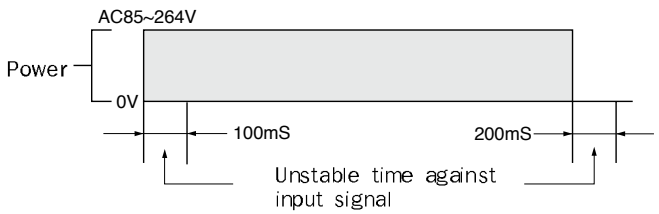
■ Ratings

Item \ Code	GX4
Supply voltage	100~240V AC 50~60 Hz, 0.1A
Power consumption	Approx 5 VA (at 220VAC, 60 Hz)
Reset/Inhibit	Reset by power OFF: Min. power OFF time:0.5 sec. External reset or inhibit: Min. reset input signal width: 0.02 sec.
Control output	SPDT:250VAC 2A cosφ=1(resistive load) Open collector:30VDC max 100 mA max.
Ambient temperature	Operating:-10 ℃ to 55 ℃
Humidity	35 to 85 % RH

■ Characteristics

Item \ Code	GX4
Repeat accuracy	±0.01 %±0.05 % second max. (Power supply start) ±0.005 %±0.03 % second max. (Reset start) (Ratio to set value)
Variation due to voltage change	
Variation due to temperature change	
Insulation resistance	100 MΩ Min.(at 500 VDC) (between current-carrying terminal and exposed noncurrent-carrying metal part, between power supply circuit and control output circuit)
In Pulse voltage	6 KV(between operating power supply terminal)
Dielectric strength	2,000 VAC, 50/60 Hz for 1 minute (between currentcarring terminal and exposed noncurrent-carring metal parts. between power supply circut and control output circuit)
Noise immunity	Square wave noise by simulator AC:±1KV(inbetween power supply terminal board) ±500V(inbetween input terminal)
Vibration	Mechanical durability:10 to 55 Hz;0.75 mm double amplitude Malfunction durability:10 to 55 Hz;0.5 mm double amplitude
Shock	Mechanical durability:300 m/s² (approx.30G) Malfunction durability:100 m/s² (approx.30G)
Life expectancy	Mechanical:10,000,000 operations min. Electrical:100,000 operations min(AC 250V 2A)
Weight	Approx 138 gms(with adaptor)

■ Power supply



Please note that voltage of inside circuit is increasing or decreasing in time between 100 ms after power on and 200 ms after power off.

■ Range of Timer mode

Range Signal	Range	
	Decimal system	Sexagesimal system
U.15	9999.9 s	59 m 59.9 s
U.015	999.99 s	9 m 59.99 s
U15	99999 s	9 h 59 m 59 s
U1h	99999 m	999 h 59 m

* " U "is up count mode and " d " is down count mode

■ Key functions

RST RESET KEY

MODE MODE PROGRAM KEY(Push 2.5 sec)

SHIFT KEY of digit

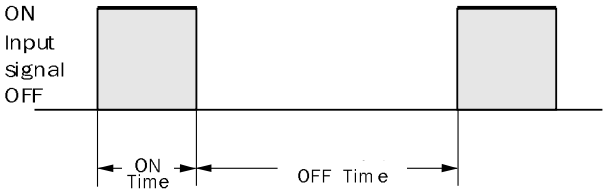
INCREASEMENT KEY of set value
(MODE shift key in MODE PROGRAM)

* Initial setting

Function		Mode
Timer	Progressing	Sexgesimal
	Time mode	Up count 0.1 S
	Output mode	N
	Output method	ON DELAY
Counter	Input mode	U-A
	Output mode	F
	Output time	500 mS
	Max.count speed	30 CPS
	Memory protection	Built-in
	Scale	1:1

■ Maximum counting speed

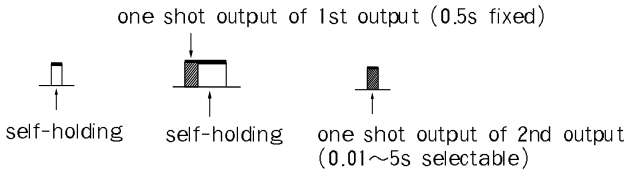
- Rating of maximum counting speed (MCS)is response speed in case of input for 1:1 duty ratio.
- Though input signal is in the MCS, if ON/OFF time is lower than the rating of minimum input signal width, counting is not operated.
- Minimum signal time
  30 CPS mode: 16 ms min.
  1 KCPS mode: 0.5 ms min.
  2 KCPS mode: 0.25 ms min.
  5 KCPS mode: 0.1 ms min.

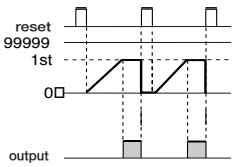
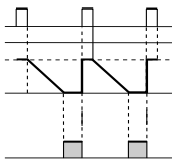
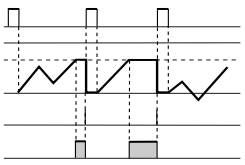
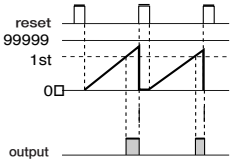
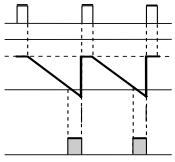
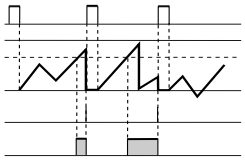
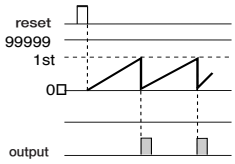
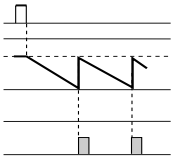
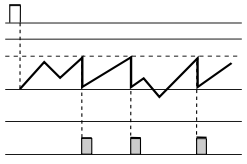
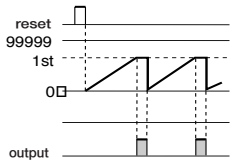
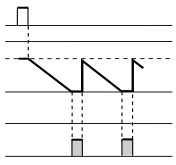
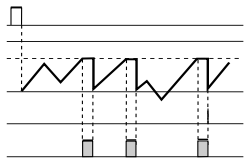
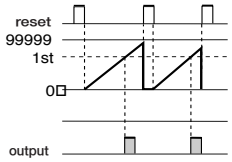
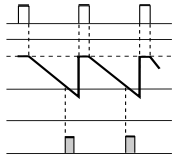
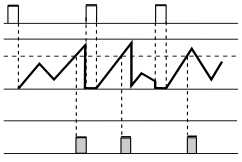
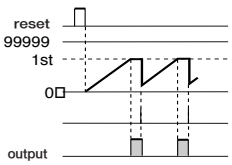
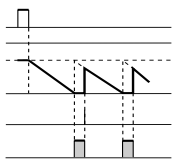
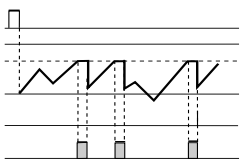
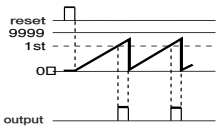
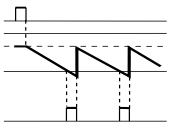
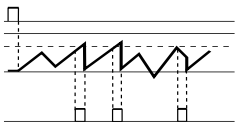
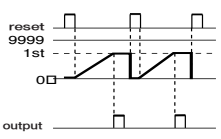
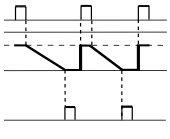
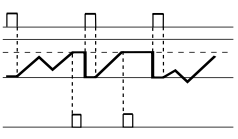


* Minimum signal time means ON time.

■ Output mode

※ In case of single [1 stage] counter, operating mode is same as 2nd. output



		Setting of input mode			Operation after COUNT UP
		UP	DOWN	UP/DOWN A.B.C	
Setting of output mode	N				Maintain output and current value display until RESET input.
	F				Progress current value display on. Maintain output until RESET input.
	C				Current value display to be reset at the same time of output ON and to be returned to START. Value of COUNT UP will not show. Output to be operated repeatedly as ONE SHOT.
	R				Current value display to be rest after ONE SHOT time and to be returned to START. Output to be operated repeatedly as ONE SHOT.
	K				Progress current value display on. Output to be operated as ONE SHOT.
	P				Current value display to be maintained during ONE SHOT time. Preservation to be returned to RESET condition at the same time of output ON. Output to be returned to START. Output to be operated repeatedly as ONE SHOT.
	Q				Progress current value display on during ONE SHOT time, afterwards to be returned to RESET and START condition. OUTPUT to be operated repeatedly as ONE SHOT.
	A				Maintain current value display. Output to be operated as ONE SHOT.

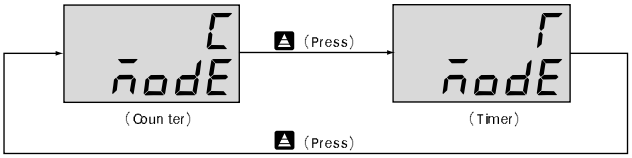
■ Input mode

※「A」requires over minimum signal width and 「B」requires over half of minimum signal width.

U-A	UP A Inhibit input	d-A	DOWN A Inhibit input
U-b	UP B Inhibit input	d-b	DOWN B Inhibit input
Ud-A	UP/DOWN A Command input	Ud-d	UP/DOWN D Command input
Ud-b	UP/DOWN B Individual input	Ud-E	UP/DOWN E Individual input
Ud-C	UP/DOWN C Phase difference input	Ud-F	UP/DOWN F Phase difference input

■ Selection of Counter/Timer

① Apply power supply to GX4
② Press MODE key over 2.5sec., then display will be as example
③ After setting, press RESET key



■ What is Free Scale Function?

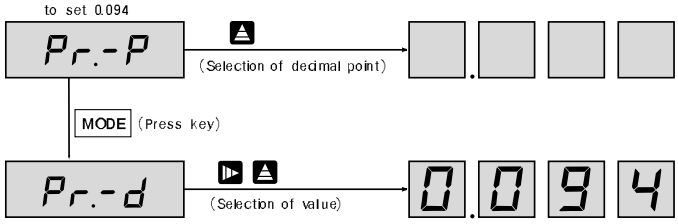
It means signal function to substitute actual scale for count value.

■ Illustration of Free Scale Figure

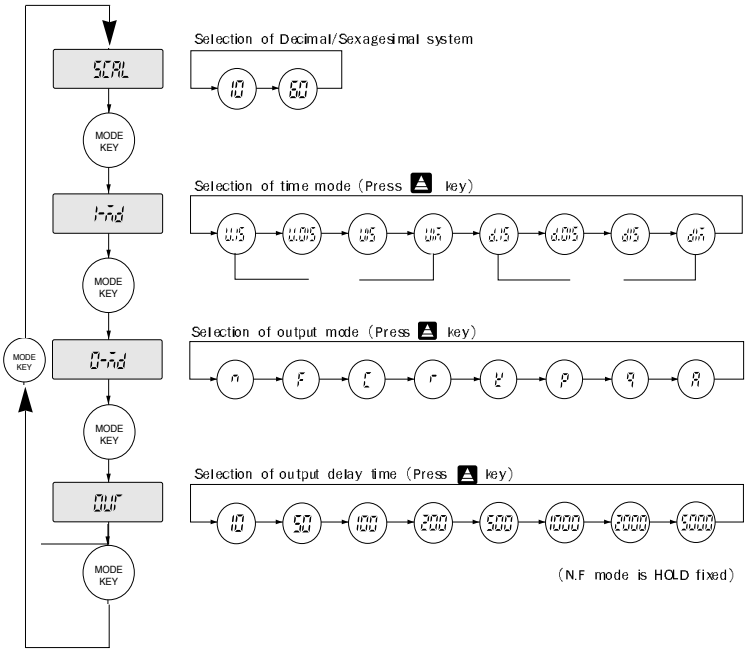
Winding rope in a roller, it is possible to show length of winding or to show output at the setting length.

Diameter of roller (D): 600㎜
Encoder: 20P/R
Unit: m

→ Circumference = $D \cdot \pi$
$600 \times 3.1416 = 1884.96$ ㎜
$1884.96 \times \frac{1}{20} = 94.248$ ㎜
convert unit into meter(m) : 0.09424m



■ Routine of mode selection in timer



■ Routine of mode selection in counter