LINE SEIKI

G48 Series

PRESET COUNTER

- DIN 48 x 48 PRESET COUNTER
- EASY EDITING (INDIVIDUAL DIGIT KEYS)
- LCD DISPLAY WITH BACKLIGHT
- PRESCALE
- KEY LOCK
- FREE WRITE

■ MODELS

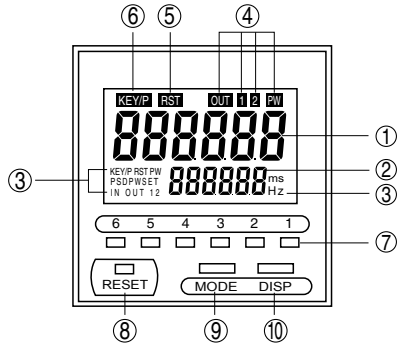
Model	Digit	Preset	Power source	Input	Body length
G48-305	6	1 level preset	AC100~240V	Contact / Open collector Voltage input (SELECTABLE)	100 mm
G48-306			DC12~24V		64 mm
G48-315		2 level preset	AC100~240V		100 mm
G48-325		1 level preset + prewarn			

■ FRONT PANEL FEATURES

① Count display
② Preset/Programming Setting display
③ Program item display

IN Hz	count speed
IN	input mode / count mode
OUT	output mode
OUT ms	output time
PS	prescale
DP	decimal point position
W	freewrite
RST ms	reset time
KEY/P	key lock protection
SET	preset value setting
PW	prewarn value setting

④ Output indicator
⑤ External reset input indicator
⑥ External key lock indicator
⑦ Individual digit setting keys (Key 1 ….Key 6)
⑧ Reset key
⑨ Mode key
⑩ Display key

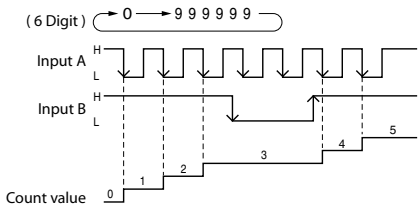


■ PROGRAMMING

● Count Speed — 30Hz, 1000Hz, or 5000Hz can be selected. Default setting is 30Hz.
● Input Mode — Contact / Open collector or Voltage input modes can be selected. Default setting is Contact/Open Collector.
● Count Mode — One of the following 5 count modes can be selected. Default setting is UP :

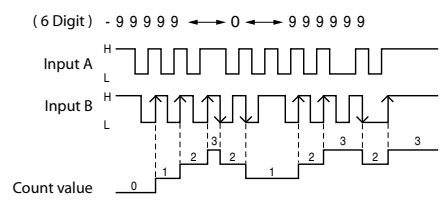
ADD INPUT (UP)

Input A: count input
Input B: count prohibit
Freewrite value: 0



※ The example shown is open collector input mode.

QUADRATURE INPUT (9uAd)

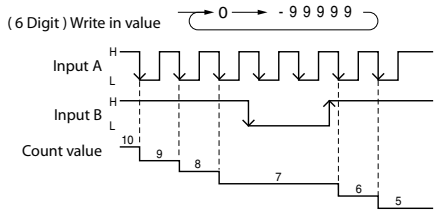


※ The example shown is open collector input mode.

SUBTRACT INPUT (do)

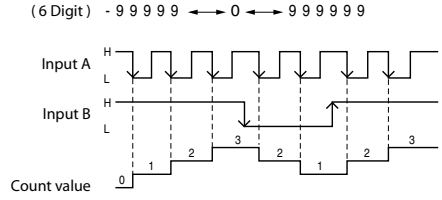
Input A: count input
Input B: count prohibit
Freewrite value: 0

Subtracts from freewrite value and outputs at preset value.



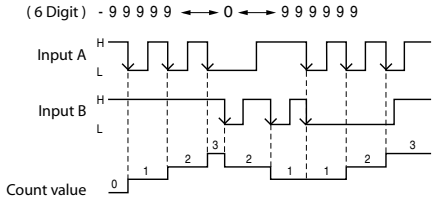
※ The example shown is open collector input mode.

DIRECTION INPUT (dir)



※ The example shown is open collector input mode.

ADD SUBTRACT INPUT (AdSu)



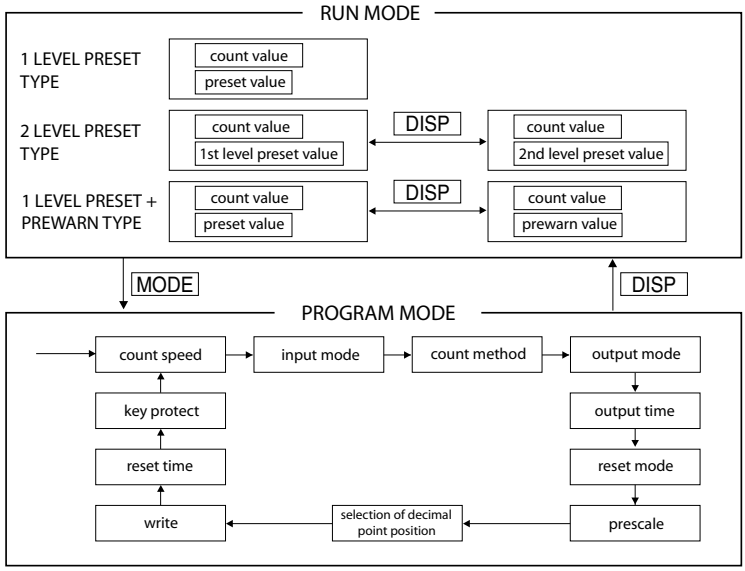
※ The example shown is open collector input mode.

● OUTPUT MODE — One of the following 6 output modes can be selected. Default setting is Std .

Output Type	Display	Description	Applicable Models
Standard Output	Std	Output occurs when count value reaches preset value. Different output conditions can be set. (One-Shot (10~9990ms), Hold, Hold1, Hold2)	1 Level Preset 2 Level Preset Prewarn + 1 Level Preset
Equal Output	EQuAL	Output occurs only when and continues as long as count value is equal to preset value.	1 Level Preset 2 Level Preset Prewarn + 1 Level Preset
Lower Limit Output	LL	Output occurs when count value reaches below the set value.	1 Level Preset
Upper Limit Output	UL	Output occurs when count value reaches above the set value.	1 Level Preset
Upper - Lower Limit Output	LL-UL	Output occurs when count value reaches below (Lower) or above (Upper) the set value.	2 Level Preset
Upper 1 - Upper 2 Limit Output	UL-HUL	Output occurs when count value reaches above the set value.	2 Level Preset

■ BASIC OPERATION

The G48 has 2 operation modes. Settings such as selection of input modes and count modes are done in the Program Mode. Counting and Preset Values setting are done in the Run Mode.
Use the [MODE] key to enter the Program Mode and the [DISP] key to return to the Run Mode.



■ PROGRAM MODE SETTINGS

● Output Mode

Output Type	Display	Description	Applicable Models
Hold	HoLd	Output is Latched until a Reset signal is sent.	1 Level Preset, OUT2 of 2 Level Preset OUT2 of Prewarn + 1 Level Preset
Hold 1	HoLd-1	Output is Latched until Output 2 goes away.	OUT1 of 2 Level Preset PW of Prewarn + 1 Level Preset
Hold 2	HoLd-2	Output is Latched until a Reset signal is sent, independent from Output 2.	
One Shot	10~9990ms	Output time can be set from 10 ~ 9990ms (at 10ms steps).	All Models

● Reset Mode The output below refers to the 1 Level Preset model, OUT2 of 2 Level Preset Model and to the OUT2 in the Prewarn + 1 Level Preset Model. Default setting is Mode A.

Mode A	A	Unit counts during output signal duration.	Overrun (Without Auto-Reset)
Mode B	b	Unit does not count during output signal duration.	
Mode C	C	Unit does not count during and after output signal duration.	
Mode D	d	Unit resets at rising edge of output signal.	Auto-Reset
Mode E	E	Unit resets at falling edge of output signal. (For One-Shot Output time only)	
Mode F	F	Unit resets at falling edge of output signal, unit display frozen during output signal duration. (For One-Shot Output time only)	
Mode G	G	Unit resets at falling edge of output signal, unit display frozen during output signal duration. (For One-Shot Output time only)	

● Prescale

Incoming pulses can be prescaled to display the desired measuring unit. The prescale can be set at any value within the range of 0.001 ~ 99.999. Default setting is 1.000.

Prescale Formula: $PS = \frac{\text{Desired Display Value (per unit)}}{\text{Pulse Number (per unit)}}$

<Examples>
1. To display 1 count per 10 pulses : PS value = 0.1
2. To display 1 count per 5 pulses : PS value = 0.2
3. To display 2 counts per 1 pulse : PS value = 2

● Decimal Point Position — Decimal point position can be selected from the following settings: 0, 0.0, 0.00, 0.000. Default setting is 0.

● Free Write — Any desired value can be set on the unit as the starting count value of the counter. The counter will add to or subtract from the set value. Upon reset, the set value will be displayed. Default setting is 0.

● Reset Time — Reset time sets minimum pulse time of remote reset signal. Reset time can be set to 2ms or 20ms. Default setting is 20ms.

● Key Protect — There are 4 protection levels. Default setting is Level 1.

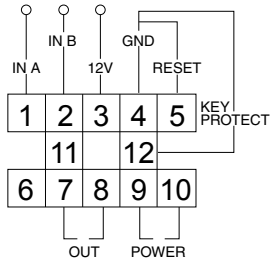
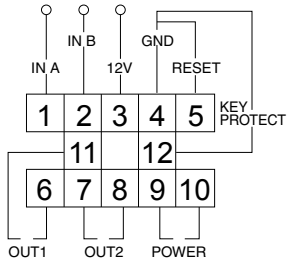
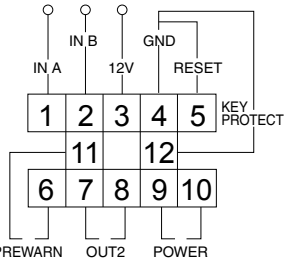
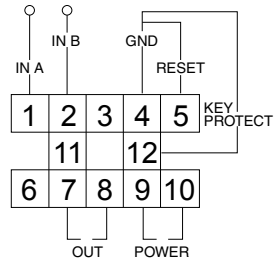
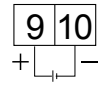
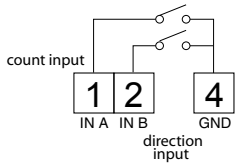
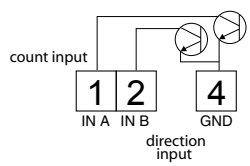
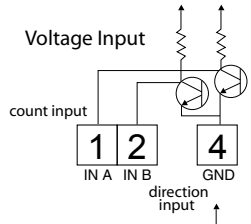
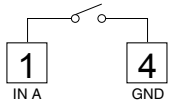
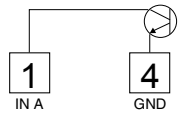
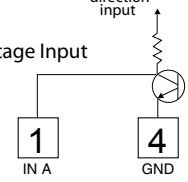
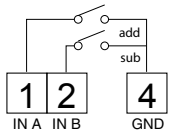
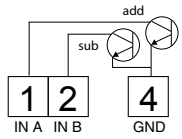
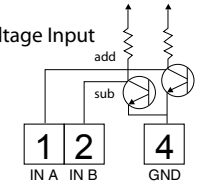
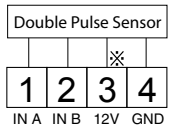
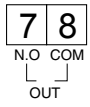
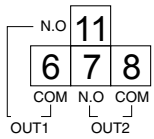
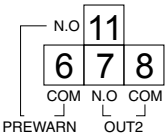
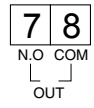
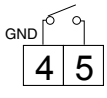
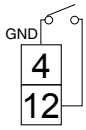
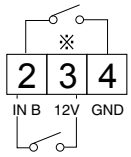
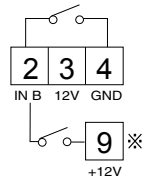
Level 1	L1	Lock program	Protection level can be selected in the Program Mode.
Level 2	L2	Lock program & front key reset	
Level 3	L3	Lock program & preset	
Level 4	L4	Lock program, front key reset & preset	

■ PROGRAM MODE OPERATION

Press MODE to select program menu items. Press individual digit setting keys to change setting values.

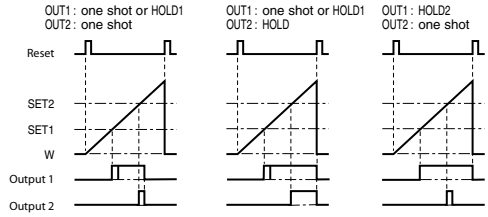
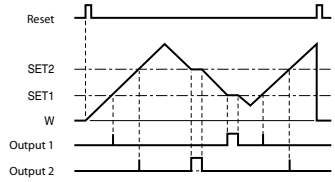
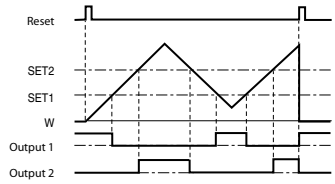
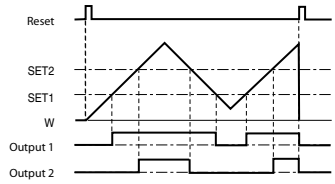
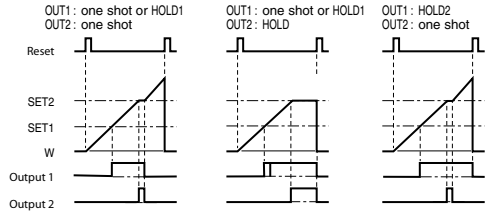
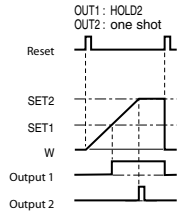
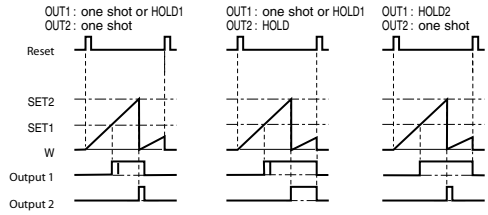
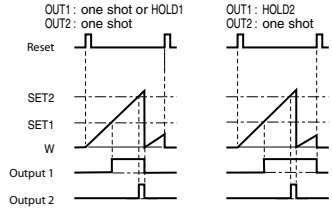
Program Item	Program Item Display	Setting Values	Setting Key	Default Value
Count Speed	IN Hz	30 → 1000 → 5000	Key 1 will select the desired value	30 (Hz)
MODE				
Input Mode	IN	n → P n is contact/open collector input mode. P is voltage input mode.	Key 1 will select the desired value	n (contact / open collector)
MODE				
Count Mode	IN	UP → do → AdSu → 9uAd → di r	Key 1 will select the desired value	UP (Add)
MODE				
Output Mode	OUT (1 level preset)	Std → E9uAL → LL → UL	Key 1 will select the desired value	Std
	(2 level preset)	Std → E9uAL → LL-UL → UL-HUL	Key 1 will select the desired value	
MODE	(1 level preset + prewarn)	Std → E9uAL	Key 1 will select the desired value	Std
Output Time	OUT ms (1 level preset output)	0 → 1 → 2 ---------- 8 → 9 1230 → HoLd The output time will automatically become Std if the output mode is different than HoLd	Keys 2 ~ 4 will change digits Key 1 will select the desired value	HoLd
	OUT1 ms (1st preset of 2 level preset model) (prewarn output)	0 → 1 → 2 ---------- 8 → 9 1230 → HoLd-1 → HoLd-2 The output time will automatically become Std if the output mode is different than HoLd	Keys 2 ~ 4 will change digits Key 1 will select the desired value	HoLd-1
MODE	MODE			
	OUT2 ms (2nd preset of 2 level preset model) (main output of 1P+1PW model)	0 → 1 → 2 ---------- 8 → 9 1230 → HoLd The output time will automatically become Std if the output mode is different than HoLd	Keys 2 ~ 4 will change digits Key 1 will select the desired value	HoLd
Reset Mode	tP	A → b → C → d → (E) → (F) → (G) Only mode A can be set if the output mode is different than Std Mode E, F, G, can only be set if OUT or OUT 2 is programmed to one shot output.	Key 1 will select the desired value	tP_A (Mode A)
MODE				
Prescale	PS	0 → 1 → 2 ---------- 8 → 9 Prescaler setting range : 0.001 ~ 99.999	Keys 1 ~ 5 will change the corresponding digits	1.000
MODE				
Decimal Point Position	DP	0 → 0.0 → 0.00 → 0.000	Key 1 will select decimal point position	0
MODE				
Write	W	0 → 1 → 2 ---------- 8 → 9	Press corresponding numeric keys	0
MODE				
Reset	RST ms	2 → 20	Key 1 will select the desired value	20 (ms)
MODE				
Key Lock	KEY/P	L1 → L2 → L3 → L4	Key 1 will select the desired protection level	L1 (Level 1)

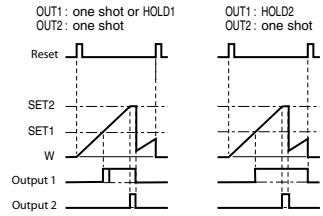
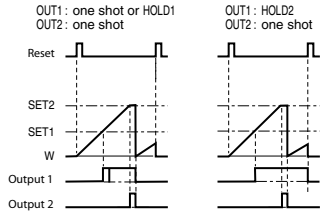
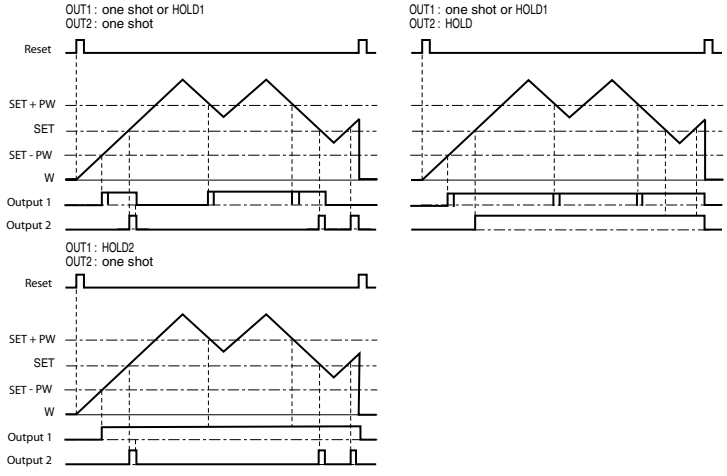
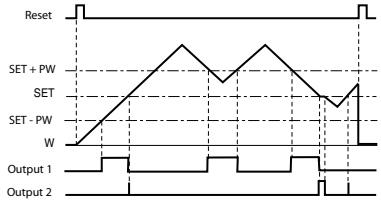
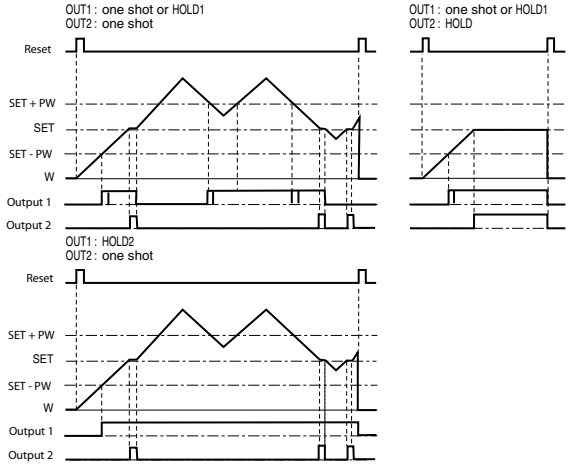
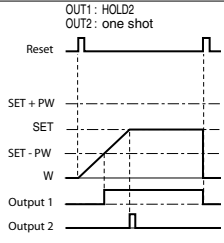
■ WIRING AND REAR TERMINALS

MODELS	G48-305	G48-315	G48-325	G48-306
PRESET LEVELS	1 level	2 levels	1 level + prewarn	1 level
REAR TERMINALS				
POWER SOURCE	 Supply AC100~240V to terminals 9 & 10.			 Supply DC12~24V to terminals 9 & 10.
INPUT	Add/Sub Direction Input (1 input)	Depending on the status of input B (ON/OFF), pulses at input A will be added to or subtracted from pulse register. Counter will add pulses while terminals 2 and 4 are disconnected, and subtract pulses while shorted.		
		Contact Input 	Open collector Input 	Voltage Input 
	Add or Subtract Input (1 input)	Contact Input 	Open collector Input 	Voltage Input 
	Individual Add and Subtract Input (2 inputs)	Contact Input 	Open collector Input 	Voltage Input 
	90°Quadrature Input (2 inputs)	Double Pulse Sensor 	※ For DC Powered model, use terminal 9 instead of terminal 3	
OUTPUT				
RESET	 To reset remotely, short terminals 4 and 5 with a relay, microswitch, etc. (The unit does not count while shorted)			
KEY PROTECT	 To disable keys at any of the 4 protection levels short terminals 4 and 12. (See Program Mode).			
COUNT DISABLED	In case of Add or Subtract input (1 input), Terminal 1 is a count input terminal and terminal 2 is a count disable terminal. To disable counting, short the indicated terminals in the wiring diagrams below. Pulses will be ignored while these terminals remain shorted.			
	 For Contact/Open Collector input mode 2 and 4 . ※ For Voltage input mode, 2 and 3 .			 For Contact/ Open Collector, 2 and 4 . ※For Voltage input mode, 2 and 9 .

■ OPERATION MODE AND OUTPUT MODE

One of the following Operation mode tP and output mode OUT can be selected.

Type	Operation Mode	Output Mode	Operation Example
2 level (or 1 level) preset	Mode A tP_A [counts during output in overrun]	Standard Output Std	 [In case of 1 level preset models operation is the same as OUT 2 operation.]
		Equal Output EquAL	 [In case of 1 level preset models operation is the same as OUT 2 operation.]
		Upper and lower limit outputs LL-UL (LL)	 [In case of 1 level preset models operation is the same as OUT 1 operation.]
		Upper limit outputs 1 & 2 UL-HUL (UL)	 [In case of 1 level preset models operation is the same as OUT 1 operation.]
	Mode B tP_b [does not count during output in overrun]	Standard Output Std	 [In case of 1 level preset models operation is the same as OUT 2 operation.]
	Mode C tP_C [does not count during and after output in overrun]	Standard Output Std	 [In case of 1 level preset models operation is the same as OUT 2 operation.]
	Mode D tP_d [auto-reset at rising edge of output]	Standard Output Std	 [In case of 1 level preset models operation is the same as OUT 2 operation.]
	Mode E tP_E [auto-reset at falling edge of output]	Standard Output Std	 [In case of 1 level preset models operation is the same as OUT 2 operation.]

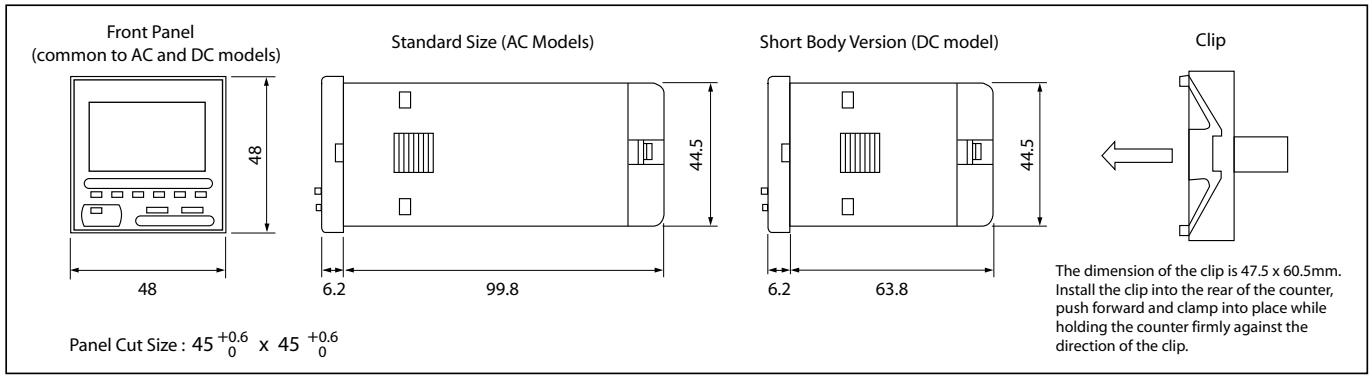
Type	Operation Mode	Output Mode	Operation Example
2 level (or 1 level) preset	Mode F tP_F auto-reset at falling edge of output, display "frozen" during output	Standard Output Std	 In case of 1 level preset models operation is the same as OUT 2 operation.
	Mode G tP_G auto-reset at falling edge of output, display "frozen" during ouput	Standard Output Std	 In case of 1 level preset models operation is the same as OUT 2 operation.
1 level preset + prewarn	Mode A tP_A counts during output in overrun	Standard Output Std	
		Equal Output EquAL	
	Mode B tP_b does not count during output in overrun	Standard Output Std	
	Mode C tP_C does not count during and after output in overrun	Standard Output Std	

Modes D, E, F, & G in 1 level preset + prewarn models are similar to those in 2 preset level ones: the main output in these models corresponds to SET 2 and the prewarn corresponds to SET 1.
Latched (HOLD) output returns to the initial status of power interruption when the power is recovered after power interruption.

■ SPECIFICATIONS

MODEL	G48-305	G48-315	G48-325	G48-306
DISPLAY	LCD display with backlight ; Digit Size : 10mm x 5mm			
NO. OF DIGITS	6			
NO. OF DIGIT SETTING KEYS	6			
PRESET LEVEL	1	2	1 level preset + prewarn	1
SETTING RANGE	-99999 - +999999			
PREWARN FEATURE	—		0 - 999999	—
INPUT MODE	Contact / Open Collector / Voltage (selectable)			
INPUT SIGNAL	Open Collector (Sink current 10mA, DC power model: power supply volt / 1.2KΩ) L : 0 - 4V Voltage (Input impedance 7KW) L : 0 - 4V H: 6 - 30V (Available to duplex wire DC sensor.)			
COUNT SPEED	30Hz, 1kHz, 5kHz (selectable)			
COUNT MODE	Add, Subtract, Add/Subtract (Add/Subtract individual input, Add/Subtract direction, 90° quadrature input)			
COUNT RANGE	-99999 - +999999			
INPUT INHIBITION	Incoming pulses in either add or subtract mode can be inhibited at input B only.			
PRESCALE	0.001 - 99.999 (0 setting is not available)			
DECIMAL POINT POSITION	0.0, 0.00, 0.000, No decimal point			
WRITE	-99999 - +999999			
RESET	Front panel reset, Remote reset, Auto-reset			
REMOTE RESET TIME	2msec or 20msec (selectable)			
RESET MODE	Modes A, B, C, D, E, F, G can be selected. Except for standard output, Mode A only is available for other output modes.			
MEMORY	E^2PROM (10 years, can be used 100000 times)			
OUTPUT	Relay output (1a) : load of AC250V 5A / DC30V 5A maximum * for each output			
OUTPUT DELAY	30Hz : 20msec, 1kHz & 5kHz : 7msec.			
TYPE OF OUTPUT	1 Level Preset: Standard, Equal, Lower Limit, Upper Limit 2 Level Preset: Standard, Equal, Upper-Lower Limit, Upper-Upper Limit 1 Level Preset + Prewarn: Standard, Equal			
OUTPUT TIME	Standard output : one shot (10 - 9990msec) or HOLD or HOLD 1 or HOLD 2 Equal, Upper, Lower output : Latched only when requirements are full			
KEY LOCK	Key operation can be disabled at 4 protection levels (L1, L2, L3, L4) by selecting in Program Mode and shorting key lock terminals.			
ERROR DISPLAY	In Add/subtract mode, error message will be displayed on the LCD if the count range is exceeded (overflow error : o-Er underflow error : u-Er)			
POWER SUPPLY	AC100 - 240V -15%, +10%			DC12 - 24V -15%, +10%
SENSOR POWER SOURCE	DC12V 100mA			—
POWER CONSUMPTION	Approx. 7VA for AC240V			Approx. 1.2W for DC24V
OPERATING TEMPERATURE	-10°C - 50°C (non-freezing, non-condensing) 45 - 85%RH (non-freezing, non-condensing)			
FRONT PANEL	IP54 (panel surface)			
WEIGHT	Approx. 170g			Approx. 110g

■ DIMENSIONS



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