

数码计数/计时器

GF 系列

简易说明书

非常感谢您购买韩荣乐电子(上海)有限公司产品。使用本产品前,请认真阅读产品说明书,并按照规定使用。另外,请将说明书保管与随时方便查看的位置。

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MF0601CE231214

安全注意事项

为正确使用本产品,请务必在使用前认真阅读安全注意事项。安全注意事项区分为危险,警告,注意。

	危险	表示不遵守时,存在紧急危险情况,导致死亡或重伤。
	警告	表示不遵守时,可能会导致死亡或重伤。
	注意	表示不遵守时,可能轻伤或财产损失。

危险

• 输入输出端子可能有触电的危险,请勿接触身体或通导体。

警告

- 使用制造商指定以外的方法,可能导致人身伤害或财产损失。
- 本产品的故障或系统异常,可能会导致重大事故,请在外部安装适当的保护电路。
- 由于本机没有电源开关和保险丝,请将其单独安装在外面。(保险丝额定值:250 VAC, 0.5 A)
- 为防止触电和故障,请勿在所有接线完成之前打开电源。
- 切勿拆卸,修改或维修本机。
- 否则可能导致操作异常,触电或起火。
- 在拆卸或安装本机之前,请务必关闭电源。
- 否则会导致触电、误动作或故障。
- 提供标准规格的电源电压,以防止本机损坏或故障。
- 请勿在易燃或易爆气体的场所使用本产品。
- 防止触电请在安装了面板的情况下使用本机。

注意

- 本说明书手册的内容如有更改,恕不另行通知或事先通知。
- 请确认产品是否与您订购的规格一致。
- 确认运输过程中产品是否有破损及异常。
- 在无腐蚀性气体(特别是有害气体,氨等)和易燃气体的场所使用。
- 请不要在受到直接撞击或震动的场所使用。
- 请在不含水,油,化学品,蒸汽,灰尘,盐和铁的场所使用。

型号构成

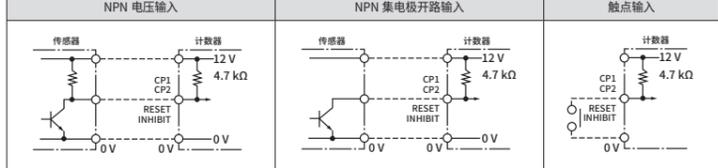
型号	编码	内容
GF	<input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	数码计数/计数器
外型	4A	48(W) X 48(H) mm
	7A	72(W) X 72(H) mm
设定分区	P	预置方式
	T	显示专用
显示位数	4	4位显示 (9999)
	6	6位显示 (999999) ※ 限于GF7A
控制输出	0	无输出 (显示专用)
	1	1段设定
	2	2段设定 ※ 限于GF7A
端子类型	T	端子类型
	S	8针插入型 ※ 限于GF4A

产品构成

端子类型	GF4A 端子类型	GF4A 8针插入型	GF7A 端子类型
品名	GF4A-P41T / T40T	GF4A-P41S / T40S	GF7A-P41T / P42T / P61T / P62T / T60T

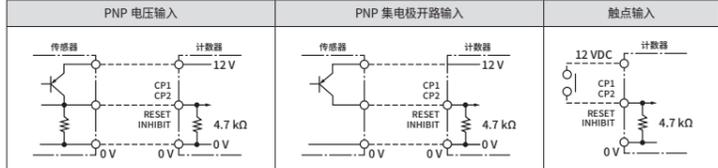
输入接线方法

选择无电压输入(NPN)时



※ 注) 使用接触点时,为防止抖动,请将系数计数度设定为30 cps或1 cps。

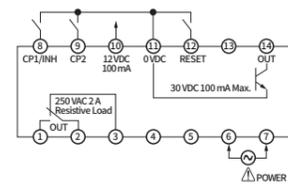
选择电压输入(PNP)时



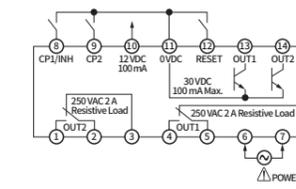
※ 注) 使用接触点时,为防止抖动,请将系数计数度设定为30 cps或1 cps。

接线图

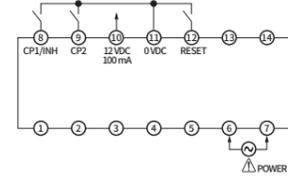
GF7A-P41T/P61T



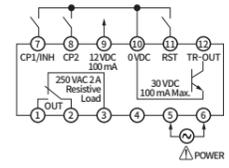
GF7A-P42T/P62T



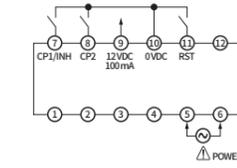
GF7A-T60T



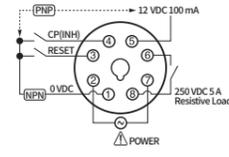
GF4A-P41T



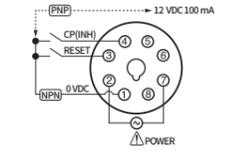
GF4A-T40T



GF4A-P41S



GF4A-T40S

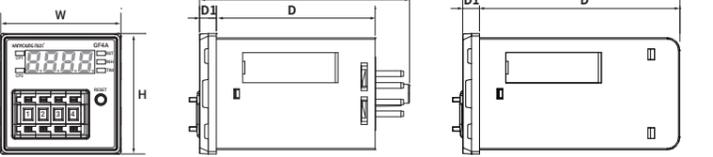


规格

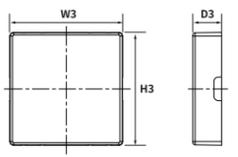
型号	GF7A	GF4A	GF4A-□□□S	
电源电压	100 ~ 240 VAC 50/60 Hz (电压变动率: ± 10%)			
消耗电力	• P41T (6.6 VA), P42T (7.3 VA) • P61T (6.6 VA), P62T (7.6 VA) • T60T (5.6 VA)	• P41T (6.4 VA) • T40T (5.6 VA)	• P41S (5.9 VA) • T40S (5.4 VA)	
显示方式	白色 7 段 LED			
文字大小	• P62T/P61T/T60T (11.5 X 5.2 mm) • P42T/P41T (13.6 X 7.8 mm)	8.5 X 5.0 mm		
最高计数速度	1 / 30 / 1k / 5k cps	30 / 5k cps		
存储器寿命	10 年 (使用非易失性存储器)			
复位时间	500 ms 以下			
计时动作误差	电源驱动: ± 0.01 % ± 0.05 秒以下 (设定值比率)			
输入	<ul style="list-style-type: none"> • 通过外部开关选择输入方式 (电压输入/无电压输入) • 计数器 (CP1, CP2, RESET 为构成), 计时器 (INHIBIT, RESET 为构成) • 电压输入: HIGH 水平 (5 V ~ 30 VDC), LOW 水平 (0 V ~ 2 VDC), 输入电阻 (约 4.7 kΩ) • 无电压输入: 断路时抗阻 (1 kΩ 以下), 断路时残留电压 (2 VDC 以下) 			
最小输入信号时间	20 ms 以上 (RESET, INHIBIT 输入)			
One-shot 输出时间	1段	0.5 秒 固定	-	
	2段	0.05 ~ 5.8 秒		
外部电源	12 VDC 100 mA max.			
控制输出	触点	1段	OUT (SPDT, 1c)	OUT (SPST, 1a)
		2段	OUT1 (SPDT, 1c), OUT2 (SPDT, 1c)	-
	无触点	1段	OUT (NPN 集电极开路)	-
		2段	OUT1, OUT2 (NPN 集电极开路 2 回路)	-
容量	30 VDC 100 mA max.			
继电器寿命	电气 (5 万次以上), 机械 (1,000 万次以上)			
绝缘电阻	100 MΩ 以上 (500 V d.c. 兆为准)			
耐电压	2,000 VAC 60 Hz 1分钟 (导电端子和露出的未填充金属类)			
耐干扰	噪声模拟器产生的方波干扰 ± 2,000 V (脉冲宽度 1 us)			
震动	<ul style="list-style-type: none"> • 耐久: 10 ~ 55 Hz (周期 1 分钟), 复振幅 0.75 mm, X · Y · Z 各方向 2小时 • 误动作: 10 ~ 55 Hz (周期 1 分钟), 复振幅 0.5 mm, X · Y · Z 各方向 10分钟 			
使用周围温度	-10 ~ 55 °C, 35 ~ 85 % R.H.			
保管温度	-20 ~ 65 °C			
认证	CE			
重量 (g)	• P41T: 184 g • P42T: 190 g • P61T: 180 g • P62T: 198 g • T60T: 150 g	• P41T: 108 g • T40T: 100 g	• P41S: 92 g • T40S: 84 g	

外形及面板加工尺寸

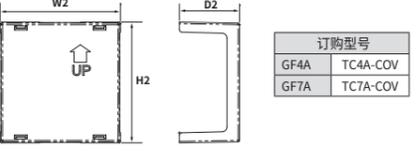
外形尺寸



正面保护盖

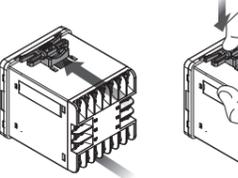


端子保护盖

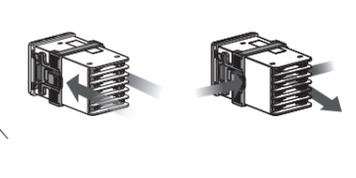


区分	表示	GF4A	GF4A-S	GF7A
产品外形	W	48.0	48.0	72.0
	H	48.0	48.0	72.0
	D	79.8	63.3	75.0
	D1	6.7	6.7	8.2
	L	86.5	83.7	83.2
面板加工	W1	45.0(±0.5)	45.0(±0.5)	68.0(±0.7)
	H1	45.0(±0.5)	45.0(±0.5)	68.0(±0.7)
	A	60.0	60.0	82.0
	B	60.0	60.0	100.0
端子保护盖 (※另售)	W2	48.0	X	71.8
	H2	48.1	X	71.8
	D2	24.0	X	26.9
正面保护盖 (※另售)	W3	50.8	50.8	75.2
	H3	50.8	50.8	75.2
	D3	12.9	12.9	16.7

GF7A 固定架组装·拆卸方式

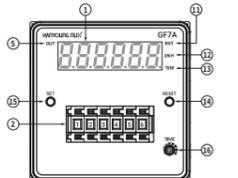


GF4A 固定架组装·拆卸方式

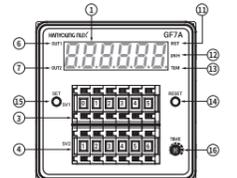


各部分的名称及功能

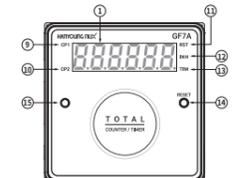
GF7A-P41T / P61T



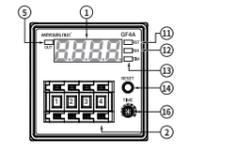
GF7A-P42T / P62T



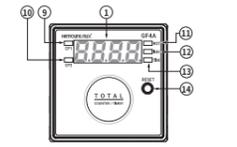
GF7A-T60T



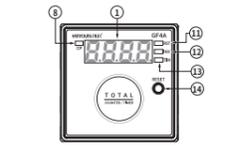
GF4A-P41T / P41S



GF4A-T40T



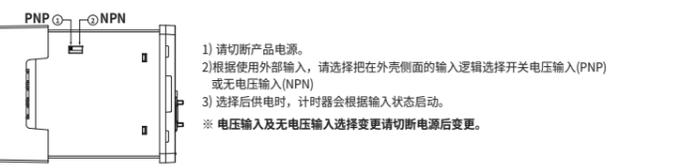
GF4A-T40S



NO.	名称	函数
1	PV 显示部	计时/计数值显示
2	SV 设定开关	计时/计数值设定开关 缩放比例设定开关 (※ GF7A 专用)
3	SV 1段设定开关	P42T / P62T 型号中用于设置1段输出的计时/计数值的开关
4	SV 2段设定开关	P42T / P62T 型号中用于设置2段输出的计时/计数值的开关, P42T / P62T 型号中的缩放比例设置开关 (※ GF7A 专用)
5	输出指示灯	P41T / P61T 型号中OUT 输出动作时亮灯
6	输出1 指示灯	P42T / P62T 型号中OUT1 输出动作时亮灯
7	输出2 指示灯	P42T / P62T 型号中OUT2 输出动作时亮灯
8	CP 输入指示灯	在计数器模式下施加CP信号时亮灯 (※ GF4A-T40S 전용)
9	CP1 输入指示灯	在计数器模式下施加CP1信号时亮灯
10	CP2 输入指示灯	在计数器模式下施加CP2信号时亮灯
11	复位输入指示灯	在计时/计数器模式下施加外部 RESET 信号时亮灯
12	禁止输入指示灯	在计时器模式下施加外部 INHIBIT 信号时亮灯
13	计时指示灯	选择计时器模式时亮灯, 计时器计时启动时闪烁
14	复位键	计时值及计数值初始化, 输出状态初始化, 功能开关设定值变更时使用
15	设定键	在计数器模式下设定缩放比例时使用 (※ GF7A 专用, 功能开关 SW1-8 设置为 "PRE" 时)
16	输出时间设定调节	使用 (+) 字螺丝刀设置输出时间 (设定范围 0.05 秒 ~ 5.8 秒)

功能

输入逻辑选择

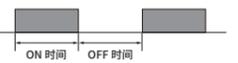


ERROR 显示

显示	说明
Err.0	• P41T / P61T 型号中 SV 设定开关为 '0000' 或者 '000000' 设定时显示 • P42T / P62T 型号中 SV 2段设定开关为 '0000' 或者 '000000' 设定时显示
Err.1	• GF7A 型号中缩放比例设定值为错误时显示

最高计数速度

① 最高计数速度是将计数输入信号的负载比 (ON/OFF比率) 输入为1:1时的最高应答速度。

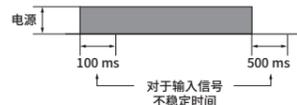


② 输入最高计数速度以下的信号时, 如果 "ON" 时间或 "OFF" 时间低于最低信号时间的规定值, 则可能不计数。
③ 触点输入时, 请使用接触可靠性优秀的触点。

最高计数速度	最小信号时间
1 cps	500 ms 以上
30 cps	16.7 ms 以上
1k cps	0.5 ms 以上
5k cps	0.1 ms 以上

电源投入/切断

- 在电源投入后100ms、电源打开后500ms期间, 内部和外部输出电源的上升或下降时间, 为防止外部附着传感器的不安全输出动作引起故障, 在不稳定时间内不运行。
- 请电源投入后100 ms 之后施加信号。
- 请切断电源后, 在500 ms 之后施加电源。



提供传感器电源

- 内圈可提供给传感器的电源 (12 V d.c. 100 mA Max.) 可在额定电流值范围内使用。
- (接近传感器: 约 10 mA, 旋转编码器: 约 30 mA)

输出时间设定

- 前部 TIME 电位开关使用 (+) 字螺丝刀设置输出时间。(One-shot time)
- 时间设置范围可设置为0.05~5.8秒。

缩放比例设定方法

缩放比例是什么?

- 它的功能是将输入信号的数量计数并换算成任意数值。
- ※ 只在 GF7A 型号支持的功能。

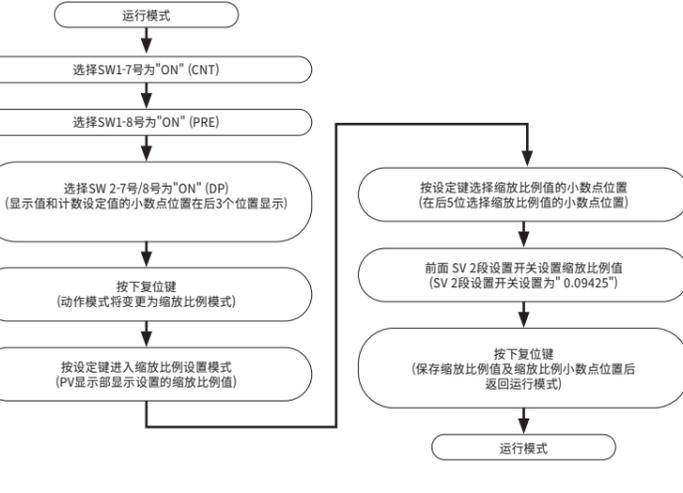
缩放比例使用方法

• 将电线缠绕在大桶上时, 若想显示缠绕的长度或控制实际长度, 请参考以下示例。



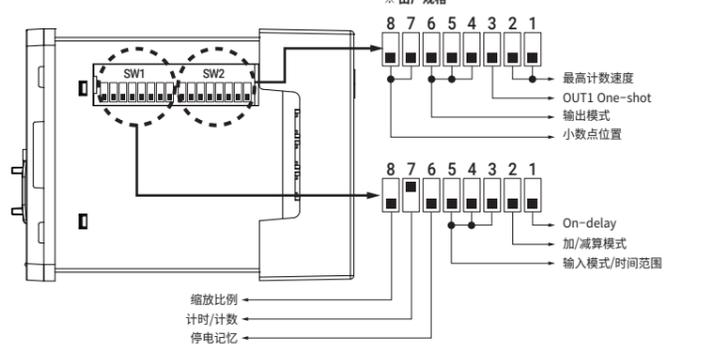
- 以上条件下的圆周 = $D \times \pi = 600 \times 3.1416 = 1884.96$ mm (每旋转一次缠绕的长度)
- 每脉冲缠绕的长度是 $(1884.96 \div 20) = 94.248$ mm
- 单位换算成米 (M) 的话是 "0.094248m" ($94.248 \div 1000$)
- 可设定小数点以下5位数, P61T / P62T型号四舍五入, 以 "0.09425" 为缩放比例值。

- ① 为了选择计数器, 将侧面的 "SW1-7" 开关设置为 "ON" 方向。
- ② 为了选择缩放比例模式, 将侧面的 "SW1-8" 开关设置为 "ON" 方向。
- ③ 为了将显示值的小数点和计数设定值的小数点设为下3位, 将 "SW2-7号" 和 "SW2-8号" 开关设置为 "ON" 方向, 然后按下复位键
- ④ 每次按下设定键时, 小数点都会移动, 因此使用设定键将缩放比例值的小数点位置设置为后5位。
- ⑤ 前部的SV设置开关 (P42T / P62T型号为SV 2段, 设置开关) 设置为 "0.09425", 按下复位键即可完成缩放比例的设置。
- ※ 如果缩放比例值超过设定范围, PV显示部会显示 "Err.1", 请将自缩放比例值重新设定在设定范围以内。



功能设置方法

GF7A功能开关构成



GF7A-SW1 功能构成表

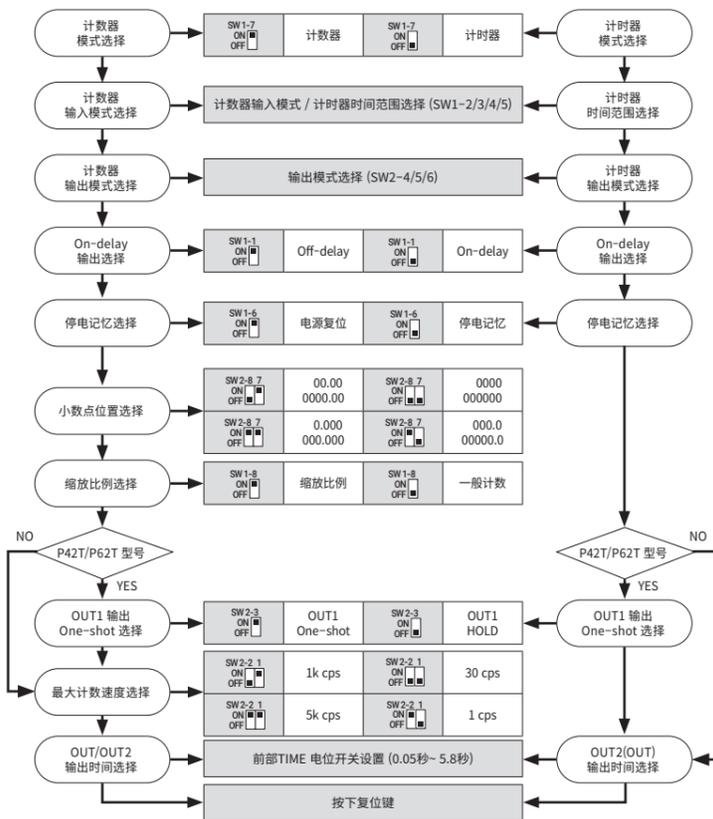
功能	On-delay		加/减算模式		停电记忆		电源复位		计时/计数		缩放比例	
	On-delay	Off-delay	加算模式	减算模式	停电记忆	电源复位	计时	计数	一般计数	缩放比例	缩放比例	
时间范围 P62/P61/T6	99999.9s	999999s	99m59.99s	99m59.9s	99999.9m	99h59m59s	9999h59m	99999.9h	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1
时间范围 P42/P41	99.99s	999.9s	9999s	99m59s	999.9m	99h59m	999.9h	9999h	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1
计数器 (输入模式)	U-A	U-B	UD-A	UD-B	UD-C				5 4 3 2 1	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1

GF7A-SW2 功能构成表

CPS	30		1k		5k		OUT1 输出模式	OUT1 HOLD		OUT1 One-shot	
	2 1	1	2 1	1k	2 1	5k		3	3	3	
计时器 (输出模式)	F	N	C	R	K	P	Q	A			
计数器 (输出模式)	F	N	C	R	K	P	Q	S			
小数点位置	4段显示	6段显示	4段显示	6段显示	4段显示	6段显示	4段显示	6段显示	0.000	0.0000	0.00000

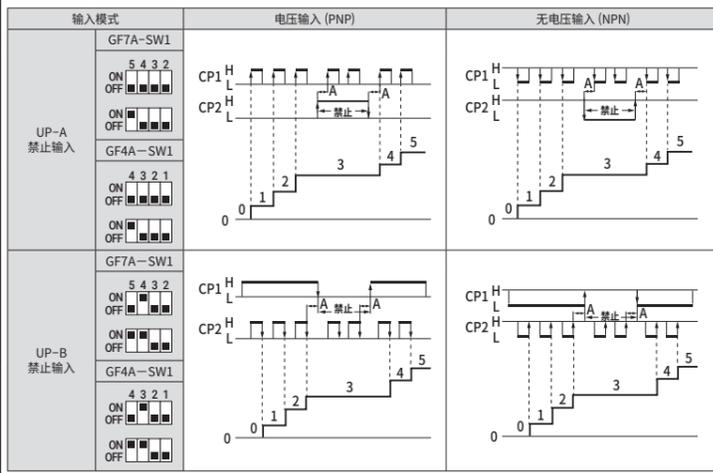
※ 注) 选择小数点位置时, 选择的小数点位置同样适用于 SV 设置值。
 ※ 注) 选择 OUT1 输出为 One-shot 时, OUT1 输出时间固定 0.5 秒。

GF7A 设置方法

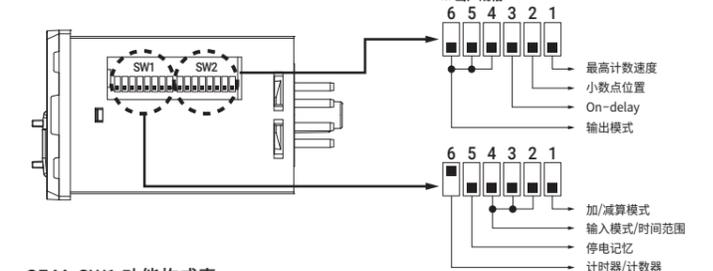


计数器输入模式

加算输入



GF4A 功能开关构成



GF4A-SW1 功能构成表

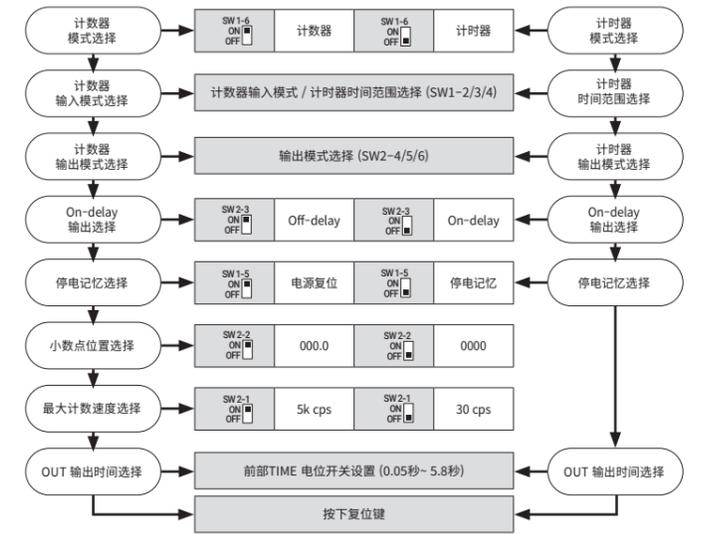
功能	加/减算模式		停电记忆		计时器/计数器			
	加算模式	减算模式	停电记忆	电源复位	计时器	计数器		
时间范围	99.99s	999.9s	9999s	99m59s	999.9m	99h59m	999.9h	9999h
计数器 (输入模式)	U-A	U-B	UD-A	UD-B	UD-C			

GF4A-SW2 功能构成表

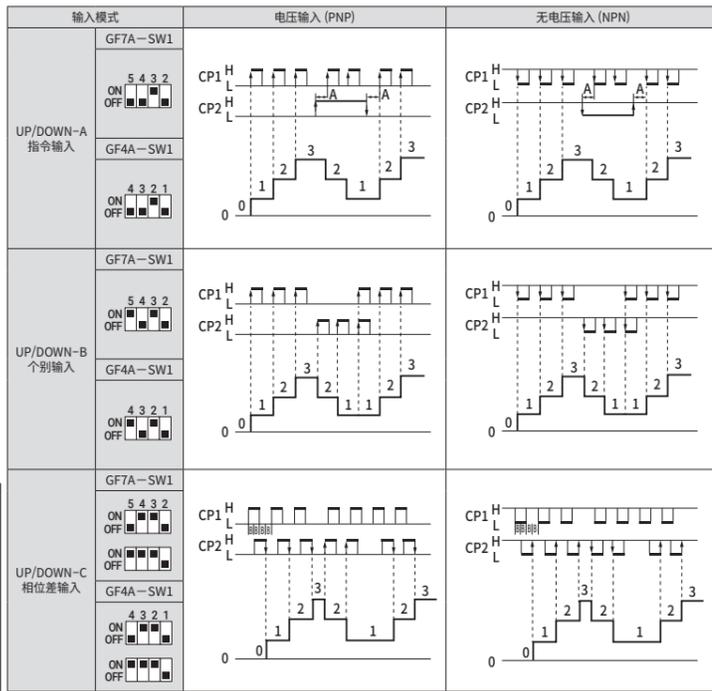
CPS	30		5k		0000		000.0		On-delay		Off-delay	
	1	1	2	2	3	3	3	3	3	3		
计时器 (输出模式)	F	N	C	R	K	P	Q	A				
计数器 (输出模式)	F	N	C	R	K	P	Q	S				

※ 注) 选择小数点位置时, 选择的小数点位置同样适用于 SV 设置值。

GF4A 设置方法

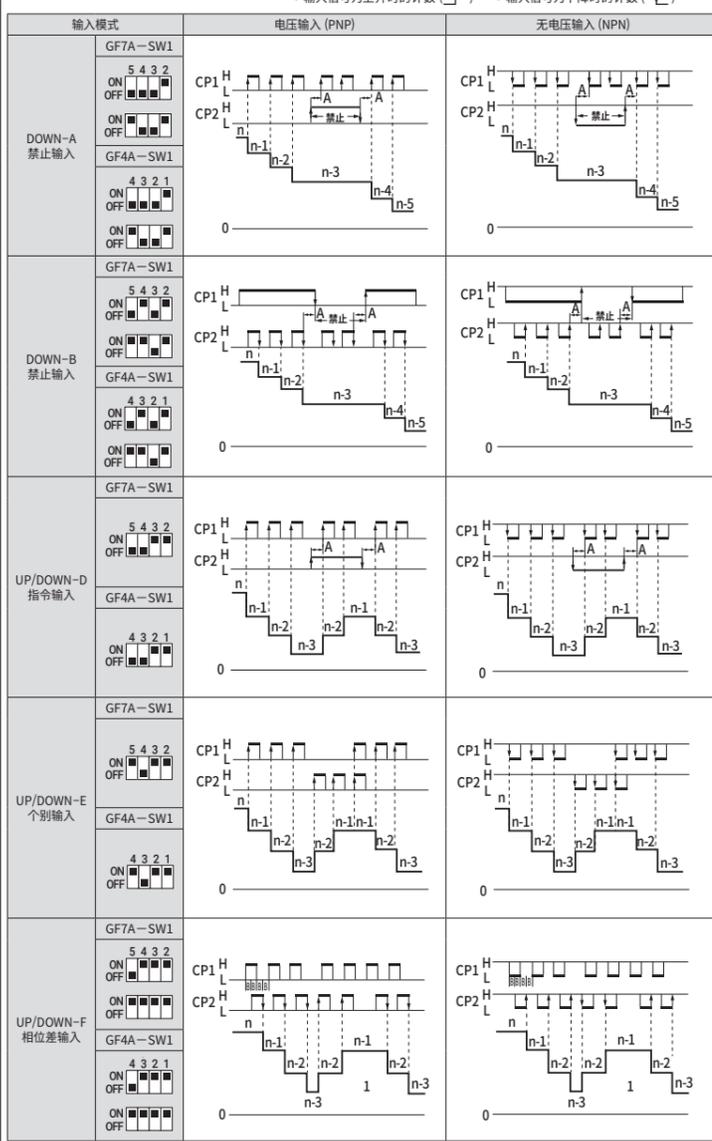


加算输入



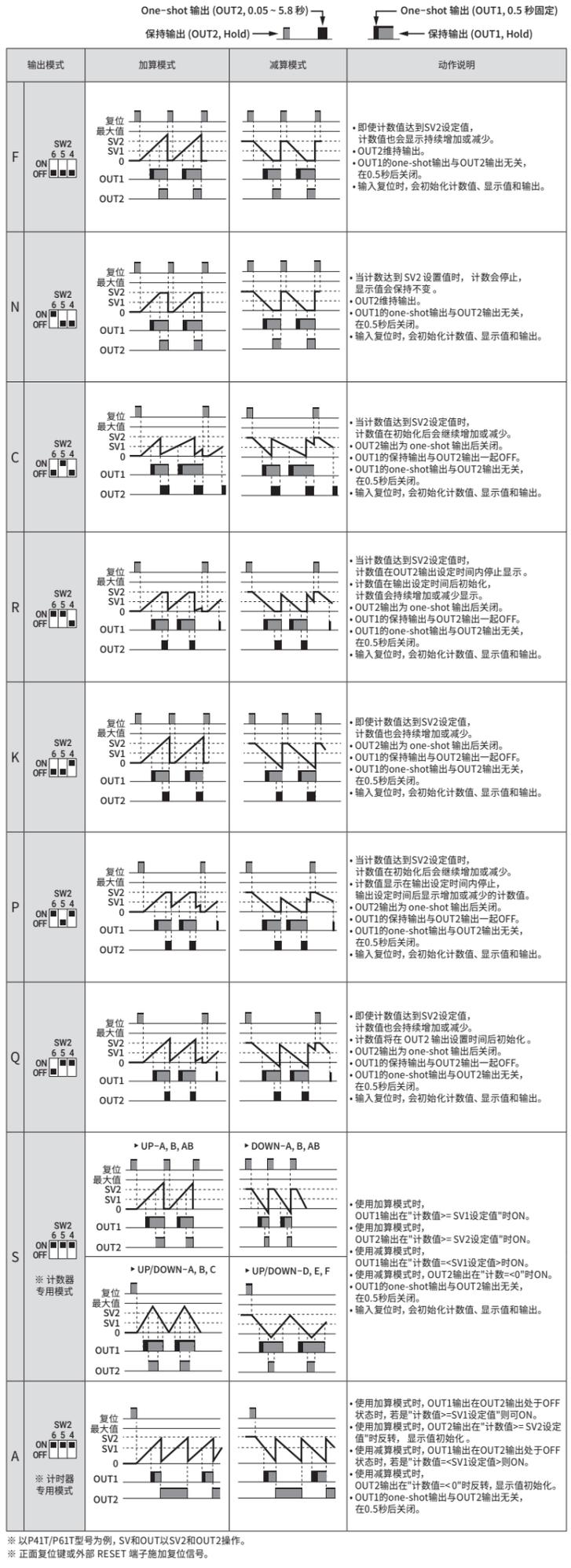
※ 注) 'A' 需要最小信号宽度以上, 'B' 需要最小信号宽度 1/2 以上。

减算输入



※ 注) 'A' 需要最小信号宽度以上, 'B' 需要最小信号宽度 1/2 以上。

输出模式



GF series

INSTRUCTION MANUAL

Thank you for purchasing Hanyoung Nux products. Please read the instruction manual carefully before using this product, and use the product correctly. Also, please keep this manual where you can view it any time.

HANYOUNG NUX

HANYOUNGNUX CO., LTD
 28, Gilpa-ro 71beon-gil, Michuhol-gu, Incheon, Korea TEL : +82-32-876-4697
 http://www.hanyoungnux.com

MF0601CE220502

Safety information

Please read the safety information carefully before the use, and use the product correctly. The alerts declared in the manual are classified into **Danger** and **Warning** according to their importance.

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

- DANGER**
- The electric shock may occur in the input/output terminal so please never let your body and/or conductive substance to be contacted by the input/output terminal.

- WARNING**
- Use other than the method specified by the manufacturer may result in personal injury or property damage.
- If there is a risk that a breakdown or abnormality of this product may lead to a serious accident in the system, install an appropriate external protection circuit.
- Since the power switch and fuse are not attached to this unit, install them separately outside. (Fuse rating: 250 V 0.5 A)
- To prevent electric shock and malfunction of the device, do not supply power until all wiring is completed.
- Never disassemble, process, improve or repair this device. There is a risk of abnormal operation or electric shock.
- Turn off the power before attaching or detaching this device. It may cause electric shock, malfunction or failure.
- To prevent damage and breakdown of this device, supply the power voltage appropriate to the rating.
- Since it is not of explosion-proof structure, do not use it in a place with flammable or explosive gas.
- There is a risk of electric shock, so please use this product while it is installed on a panel.

- CAUTION**
- The contents of this manual are subject to change without prior notice or notice.
- Please check if it matches the specifications you ordered.
- Check whether there is any damage or abnormality in the product during transportation.
- Use in a place where corrosive gas (especially harmful gas, ammonia, etc.) and combustible gas are not generated.
- Use in a place where vibration or impact is not applied directly to the body.
- Use in a place free from water, oil, chemicals, steam, dust, salt, iron, etc.
- Do not use outdoors
- Do not wipe this unit with organic solvents such as alcohol or benzene. (Wipe with a neutral detergent.)
- Avoid places where inductive obstacles are large and static electricity and magnetic noise are generated.
- Avoid places where heat accumulation occurs due to direct sunlight or radiant heat.
- Use it at an altitude of 2,000 m or less.
- When water enters, there is a risk of a short circuit or fire, so be sure to inspect it.
- If there is a lot of noise from the power supply, it is recommended to use an insulation transformer and a noise filter. The noise filter must be attached to a panel that is grounded, and the wiring between the noise filter output side and the power supply terminal of the instrument must be short.
- If the instrument power cable is twisted closely, it is effective against noise.
- Do not wire any part to unused terminals.
- Connect the wiring correctly after checking the polarity of the terminal.
- Install a switch or circuit breaker so that the operator can turn off the power immediately and mark it appropriately.
- Install a switch or circuit breaker at a close distance for easy operator operation.
- Since a switch or breaker is installed, please state on the panel that the power will be cut off when the switch or breaker is operated.
- Regular maintenance is recommended in order to continue to use this device safely.
- Some mounting parts of this instrument have a life span and some that change over time.
- The warranty period of this device including accessories is 1 year under normal use.
- When the power is turned on, a preparation period for contact output is required. When used as a signal for an external interlock circuit, etc., use a delay relay together.
- Power input and relay output wires are at least 75 °C of heat resistance and, use copper wires from 18 AWG to 24 AWG.
- Product usage: This device is a timer/counter that is installed and used in industrial equipment for time control and counting.
- ★ Overvoltage category II (OV C II)

Suffix code

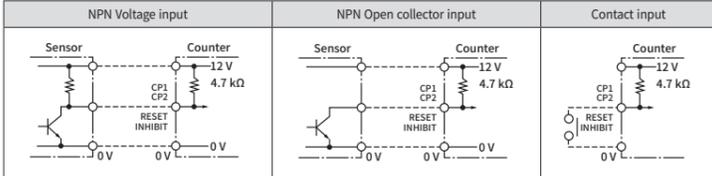
Model	Code	Description
GF	GF	Digital counter/timer
Appearance	4A	48(W) X 48(H) mm
	7A	72(W) X 72(H) mm
Model	P	Preset counter/timer
	T	Total counter/timer
Display digits	4	4 Digit-display (9999)
	6	6 Digit-display (999999) ※ GF7A model only
Control output	0	No output (Display only)
	1	1-Stage output
	2	2-Stage output ※ GF7A model only
Terminal structure	T	Terminal
	S	8 Pin plug ※ GF4A model only

Product composition

Terminal structure	GF4A Terminal	GF4A 8 Pin plug	GF7A Terminal
Model	GF4A- P41T / T40T	GF4A- P41S / T40S	GF7A- P41T / P42T / P61T / P62T / T60T

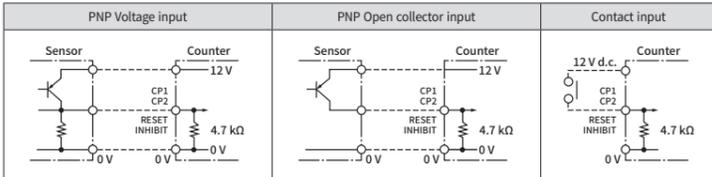
Input wiring method

When selected as non-voltage input (NPN)



※ Note) When using a contact point, set the counting speed to 30 cps or 1 cps to prevent chattering.

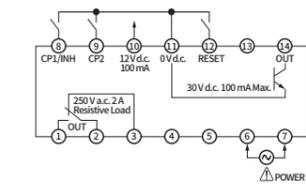
When selected by voltage input (PNP)



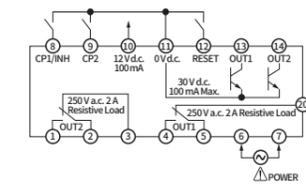
※ Note) When using a contact point, set the counting speed to 30 cps or 1 cps to prevent chattering.

Connection diagram

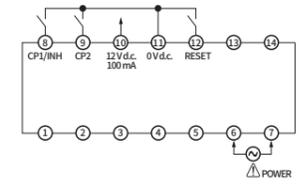
GF7A-P41T / P61T



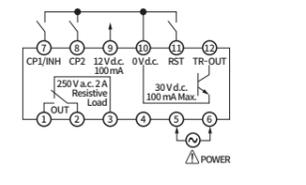
GF7A-P42T / P62T



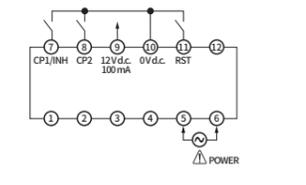
GF7A-T60T



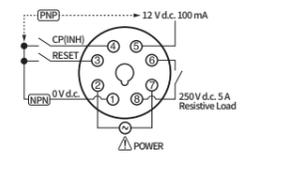
GF4A-P41T



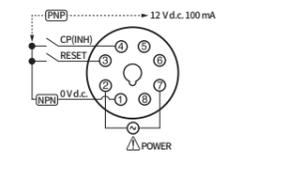
GF4A-T40T



GF4A-P41S



GF4A-T40S

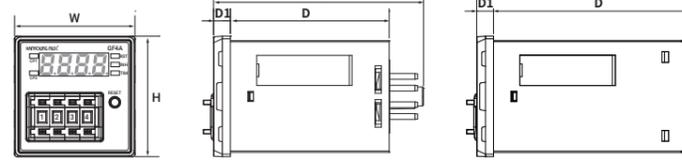


Specification

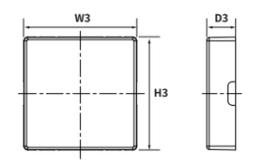
Model	GF7A	GF4A	GF4A-□□□S	
Power supply voltage	100 - 240 V a.c. 50/60 Hz (Voltage fluctuation rate : ± 10 %)			
Power Consumption	• P41T (6.6 VA), P42T (7.3 VA) • P61T (6.6 VA), P62T (7.6 VA) • T60T (5.6 VA)	• P41T (6.4 VA) • T40T (5.6 VA)	• P41S (5.9 VA) • T40S (5.4 VA)	
Display method	White 7 segment LED			
Character size	• P62T/P61T/T60T (11.5 X 5.2 mm) • P42T/P41T (13.6 X 7.8 mm)	8.5 X 5.0 mm		
Counting speed	1 / 30 / 1k / 5k cps	30 / 5k cps		
Blackout compensation	10 Years (nonvolatile memory used)			
Return time	500 ms or less			
Timer operation error	Power start : ± 0.01 % ± 0.05 seconds or less (ratio to setting value)			
Input	<ul style="list-style-type: none"> • Input method selection by external switch (voltage input / no-voltage input) • Counter (composed of CP1, CP2, RESET), timer (composed of INHIBIT, RESET) • Voltage input : HIGH level (5V - 30V d.c.), LOW level (0V - 2V d.c.), input resistance (about 4.7 kΩ) • No-voltage input : Impedance in case of short circuit (1 kΩ or less), residual voltage in case of short-circuit (2V d.c. or less) 			
Min. input signal time	20 ms or more (RESET, INHIBIT input)			
One-shot output time	1st stage	0.5 seconds fixed	-	
	2st stage	0.05 to 5.8 seconds		
External power supply	12 V d.c. 100 mA max.			
Control output	Contact	1st stage	OUT (SPDT, 1c)	OUT (SPST, 1a)
		2st stage	OUT1 (SPDT, 1c), OUT2 (SPDT, 1c)	-
	Non-contact	1st stage	OUT (NPN Open collector)	-
Capacity	30 V d.c. 100 mA max.			
Relay life	Electrical (more than 50,000 times), Mechanical (more than 10 million times)			
Insulation Resistance	100 MΩ or more (based on 500 V d.c. mega)			
Dielectric strength	2,000 V a.c. 60 Hz 1 minute (between the conductive part terminal and the case)			
Noise resistance	Square wave noise by noise simulator ±2,000 V (Pulse width 1 μs)			
Vibration	<ul style="list-style-type: none"> • Durability : 10 - 55 Hz (1 minute cycle), Double amplitude 0.75 mm, X · Y · Z 2 hours each direction • Malfunction : 10 - 55 Hz (1 minute cycle), Double amplitude 0.5 mm, X · Y · Z 10 minutes each direction 			
Ambient temperature & humidity	-10 - 55 °C, 35 - 85 % R.H.			
Storage temperature	-20 - 65 °C			
Approval	CE			
Weight (g)	• P41T : 184 g • P61T : 180 g • T60T : 150 g	• P42T : 190 g • P62T : 198 g	• P41S : 92 g • T40S : 84 g	

Appearance and panel processing dimensions

Appearance

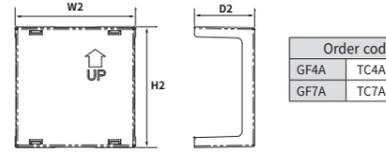


Front Protective Cover



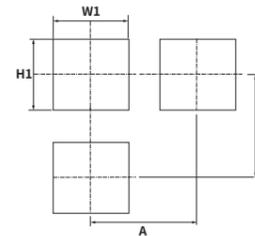
Order code	Product
GF4A	W-SAFETY COVER 48
GF4A-S	W-SAFETY COVER 48
GF7A	W-SAFETY COVER 72

Terminal Protective cover

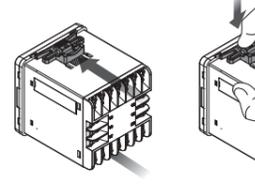


Order code	Product
GF4A	TC4A-COV
GF7A	TCTA-COV

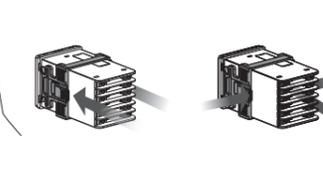
Panel cutout



GF7A Bracket assembling · disassembling

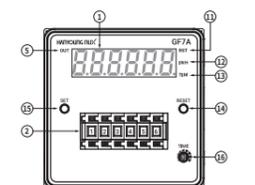


GF4A Bracket assembling · disassembling

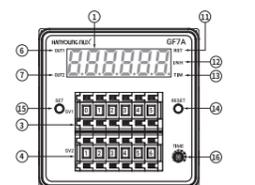


Function and name of each part

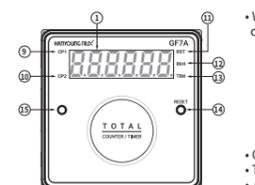
GF7A-P41T / P61T



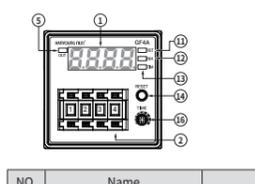
GF7A-P42T / P62T



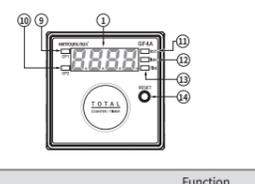
GF7A-T60T



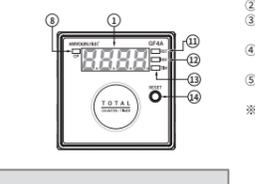
GF4A-P41T / P41S



GF4A-T40T



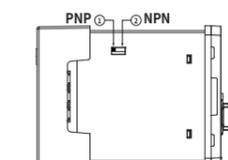
GF4A-T40S



NO.	Name	Function
1	PV display	Time value and counting value display
2	SV setting switch	Time value and counting value setting switch, prescale value setting switch (※ GF7A only)
3	SV 1-stage setting switch	P42T / P62T Switch for setting time value and counting value of 1st output in the model
4	SV 2-stage setting switch	P42T / P62T Switch for setting time value and counting value of 2-stage output in the model, P42T / P62T Switch for setting prescale value in model (※ GF7A only)
5	Output indicator	Light on when output operates in P41T / P61T model
6	Output 1 indicator	Light on when output 1 operates in P42T / P62T model
7	Output 2 indicator	Light on when output 2 operates in P42T / P62T model
8	CP Input indicator	Lights up when CP signal is applied in counter mode (※ GF4A-T40S only)
9	CP1 Input indicator	Lights up when CP1 signal is applied in counter mode
10	CP2 Input indicator	Light on when CP 2 signal is applied in counter mode
11	Reset input indicator	Light on when external RESET signal is applied in timer/counter mode
12	Prohibited input indicator	Light on when external INHIBIT signal is applied in timer mode
13	Timekeeping indicator	Light on when selecting the timer mode, blinks when timer timing is running
14	Reset-key	Used for time value and count value initialization, output state initialization, and function switch setting value change
15	Set-key	Used when setting prescale in counter mode (※ GF7A only, when function switch SW1-8 is set to 'PRE')
16	Volume for setting output time	Set the output time using a (+)-shaped screwdriver (setting range 0.05 seconds to 5.8 seconds)

Function

Input logic selection



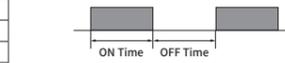
- 1) Turn off the product.
 - 2) Select the input switch attached to the side of the case according to the input logic voltage (PNP) or non voltage (NPN) you want to use.
 - 3) If power is supplied after selection, timer/counter operates according to input status.
- ※ After turning off the power, change the voltage input and no-voltage input selection.

ERROR indication

indication	Explanation
Err.0	<ul style="list-style-type: none"> • When the SV setting switch is set to '0000' or '000000' in the P41T / P61T models. • When the SV 2-stage setting switch is set to '0000' or '000000' in the P42T / P62T models.
Err.1	• When the prescale setting value is in error in the GF7A model

Counting speed

- 1) The maximum counting speed is the maximum response speed when the duty ratio (ON/OFF ratio) of the counting input signal is input as 1:1.

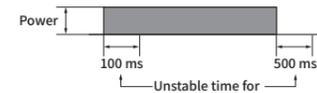


- 2) If the ON time or OFF time is less than the specified value of the minimum signal time, the counter may not be performed.
- 3) For contact input, use a contact with excellent contact reliability.

Counting speed	Minimum signal time
1 cps	500 ms or more
30 cps	16.7 ms or more
1k cps	0.5 ms or more
5k cps	0.1 ms or more

Power on/off

- During 100ms after power-on or 500ms after power-off, the internal power, and external output power rise and fall. To prevent malfunction due to the unsafe output operation of the external sensor, please do not operate it during unstable times.
- Apply the signal 100 ms after turning on the power.
- Apply the signal 500 ms after turning on the power.



Sensor power supply

- Since it has a built-in power supply (12 V d.c. 100 mA Max.) that can be supplied to the sensor, it can be used within the rated current value. (Proximity switch : about 10 mA, Rotary encoder : about 30 mA)

Output time setting

- Set the output time (One-shot time) using the (+) driver on the front TIME volume.
- The time setting range can be set from 0.05 seconds to 5.8 seconds.

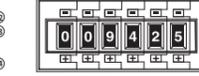
How to set the prescale

What is prescale?

- This function counts the number of input signals and converts them into arbitrary values.
- ※ This function is only supported on the GF7A model.

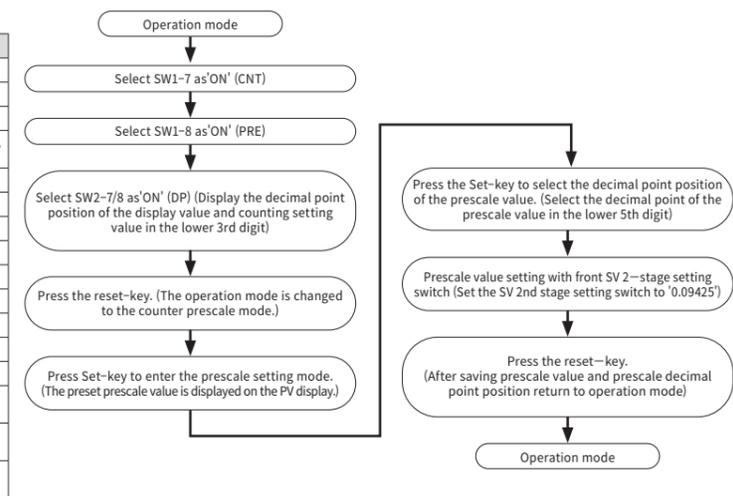
How to use prescale

- When winding the wire around the drum, refer to the example below to display the winding length or to control the actual length.



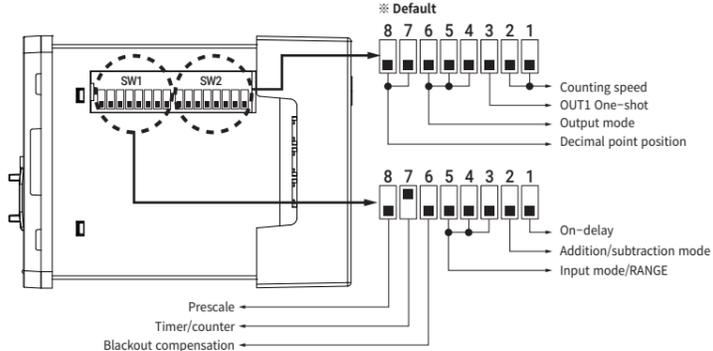
- Diameter of the roller through which the electric wire is drawn (D) : 60 mm
- Encoder used: 1 rotation / 20 pulses
- Unit of display value: meter (m)

- Circumference = D x π = 600 x 3.1416 = 1884.96 mm under the above conditions (1 Length of winding per turn)
- The winding length per pulse is (1884.96 ÷ 20) = 94.248 mm
- Converting the unit to meters (M) is '0.094248 m'. (94.248 ÷ 1000)
- Since it is possible to set up to 5 digits after the decimal point, in the case of the P61T / P62T model, it is rounded and '0.09425' is the prescale value.
- 1) To select as a counter, set the side 'SW1-7' switch to 'ON'.
- 2) To select the prescale mode, set the 'SW1-8' switch on the side to 'ON'.
- 3) To make the decimal point of the displayed value and the decimal point of the count setting value into the lower 3 digits, set the 'SW2-7' and 'SW2-8' switches to the 'ON' direction and press the reset-key.
- 4) Since the decimal point moves each time the set-key is pressed, the decimal point position of the prescale value is set to the 5th lower digit using the set-key.
- 5) After setting the front SV setting switch (SV 2-stage setting switch in the case of P42T / P62T models) to '0.09425', press the reset key to complete the prescale value setting.
- ※ If the prescale value exceeds the setting range, 'Err.1' is displayed on the PV display, so please reset the prescale value to within the setting range.



Function setting method

GF7A Function switch configuration



GF7A-SW1 Function chart

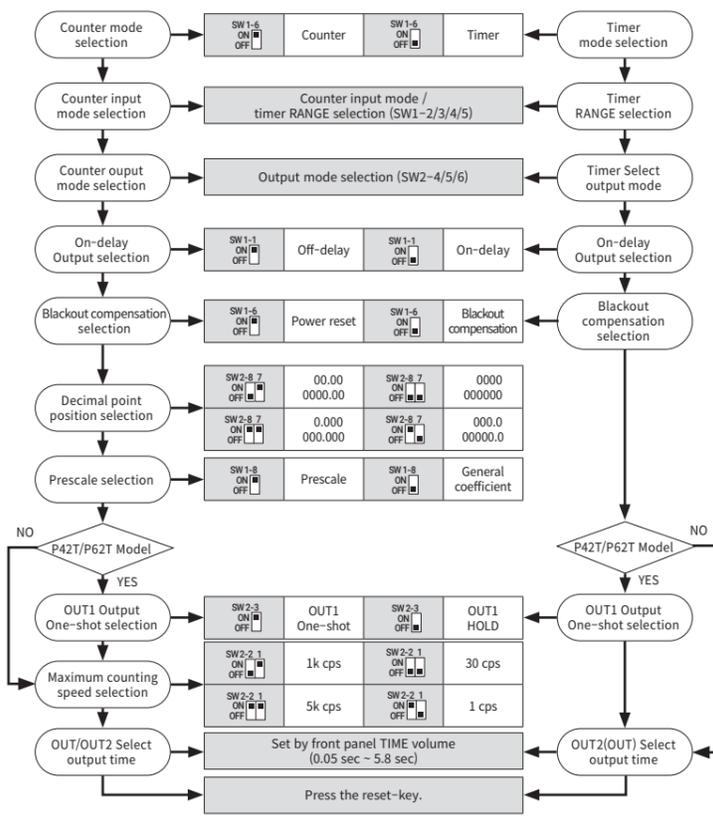
Function	On-delay		Addition / Subtraction mode		Blackout compensation		Timer / Counter		Prescale	
	On-delay	Off-delay	Addition mode	Subtraction mode	Blackout compensation	Power reset	Timer	Counter	General coefficient	Prescale
TIME RANGE P62/P61/T6	9999.9s	99999.9s	99m59.99s	99m59.99s	9999.9m	99h59m59s	9999.9m	99h59m	9999.9h	9999.9h
TIME RANGE P42/P41	99.99s	999.9s	9999s	99m59s	999.9m	99h59m	999.9h	999.9h	9999h	9999h
COUNTER (Input)	U-A	U-B	UD-A	UD-B	UD-C					

GF7A-SW2 Function chart

CPS	30	1	1k	5k	Function	OUT1 HOLD	OUT1 One-shot
TIMER (Output)	F	N	C	R		K	P
COUNTER (Output)	F	N	C	R	K	P	Q
Decimal point position	4 digit	6 digit	4 digit	6 digit	4 digit	6 digit	4 digit

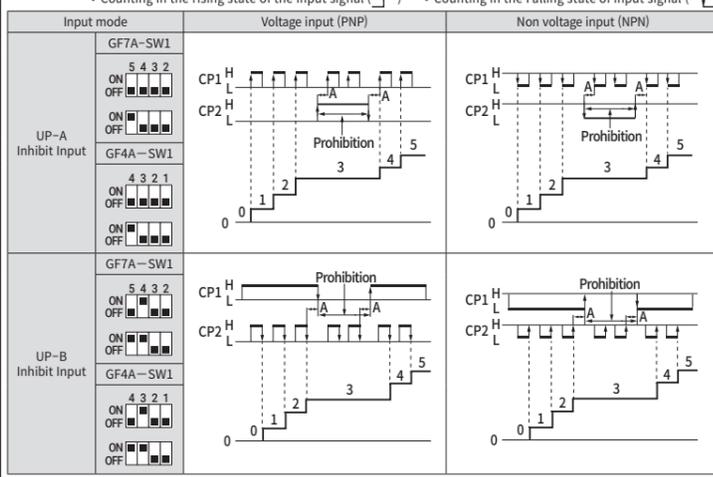
※ Note) When selecting the decimal point position, the selected decimal point position is equally applied to the SV setting value.
 ※ Note) When OUT1 output is selected as One-shot, OUT1 output time is fixed for 0.5 seconds.

GF7A How to set

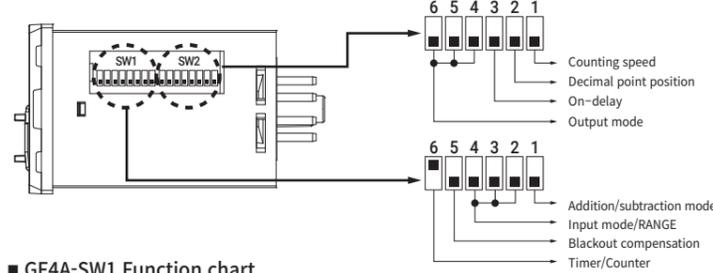


Counter input mode

Addition input



GF4A Function switch configuration



GF4A-SW1 Function chart

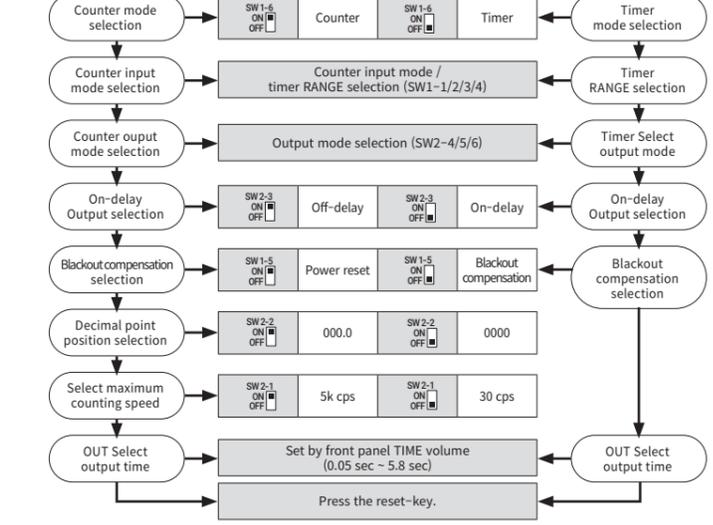
Function	Addition / Subtraction mode		Blackout compensation		Timer / Counter	
	Addition mode	Subtraction mode	Blackout compensation	Power reset	Timer	Counter
TIME RANGE	99.99s	999.9s	9999s	99m59s	999.9m	99h59m
COUNTER (Input)	U-A	U-B	UD-A	UD-B	UD-C	

GF4A-SW2 Function chart

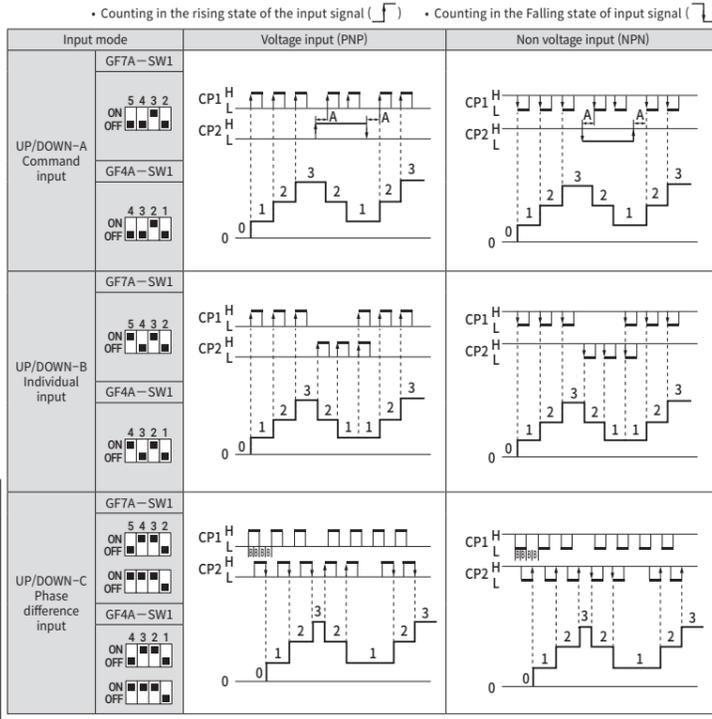
CPS	30	5k	Decimal point position	0000	000.0	Function	On-delay	Off-delay
TIMER (Output)	F	N	C	R	K		P	Q
COUNTER (Output)	F	N	C	R	K	P	Q	S

※ Note) When selecting the decimal point position, the selected decimal point position is applied equally to the SV setting value.

GF4A How to set

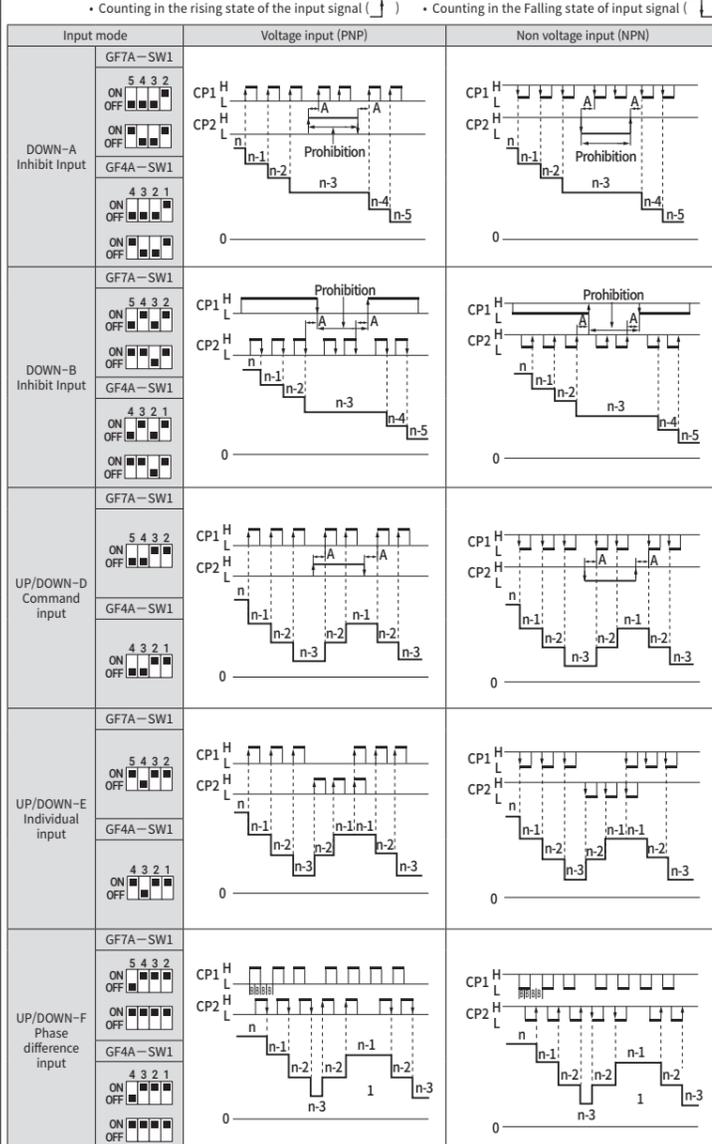


Addition input



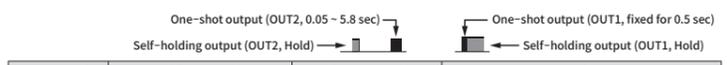
※ Note) 'A' needs more than the minimum signal width, and 'B' needs more than 1/2 of the minimum signal width.

Subtraction input



※ Note) 'A' needs more than the minimum signal width, and 'B' needs more than 1/2 of the minimum signal width.

Output mode



Output mode	Addition mode	Subtraction mode	Operation description
F	RESET MAX SV2 SV1 0 OUT1 OUT2		• Even if the counting value reaches the SV2 setting value, the counting value is displayed continuously increasing or decreasing. • OUT2 output is maintained. • One-shot output of OUT1 turns off after 0.5 seconds regardless of OUT2 output. • Count value, display value, and output are initialized upon reset input.
N	RESET MAX SV2 SV1 0 OUT1 OUT2		• When the counting value reaches the SV2 set value, counting stops and the display value is maintained. • OUT2 output is maintained. • One-shot output of OUT1 turns off after 0.5 seconds regardless of OUT2 output. • Count value, display value, and output are initialized upon reset input.
C	RESET MAX SV2 SV1 0 OUT1 OUT2		• When the counting value reaches the SV2 setting value, the counting value is displayed continuously increasing or decreasing after being initialized. • OUT2 output turns off after one-shot output. • One-shot output of OUT1 turns off after 0.5 seconds regardless of OUT2 output. • Count value, display value, and output are initialized upon reset input.
R	RESET MAX SV2 SV1 0 OUT1 OUT2		• When the counting value reaches the SV2 setting value, the counting value is stopped and displayed during the OUT2 output setting time. • The counting value is initialized after the output setting time, and the counting value is displayed continuously increasing or decreasing. • OUT2 output turns off after one-shot output. • The self-holding output of OUT1 turns OFF together with the OUT2 output. • One-shot output of OUT1 turns off after 0.5 seconds regardless of OUT2 output. • Count value, display value, and output are initialized upon reset input.
K	RESET MAX SV2 SV1 0 OUT1 OUT2		• Even if the counting value reaches the SV2 setting value, the counting value is continuously increased or decreased and displayed. • OUT2 output turns off after one-shot output. • The self-holding output of OUT1 turns OFF together with the OUT2 output. • One-shot output of OUT1 turns off after 0.5 seconds regardless of OUT2 output. • Count value, display value, and output are initialized upon reset input.
P	RESET MAX SV2 SV1 0 OUT1 OUT2		• When the counting value reaches the SV2 setting value, the counting value continues to increase or decrease after being initialized. • Count value displays stops during the output set time, and increases or decreases count value is displayed after the output set time. • OUT2 output turns off after one-shot output. • The self-holding output of OUT1 turns OFF together with the OUT2 output. • One-shot output of OUT1 turns off after 0.5 seconds regardless of OUT2 output. • Count value, display value, and output are initialized upon reset input.
Q	RESET MAX SV2 SV1 0 OUT1 OUT2		• Even when the counting value reaches the SV2 set value, the counting value is displayed continuously increasing or decreasing. • Count value is initialized after OUT2 output setting time. • OUT2 output turns off after one-shot output. • The self-holding output of OUT1 turns OFF together with the OUT2 output. • One-shot output of OUT1 turns off after 0.5 seconds regardless of OUT2 output. • Count value, display value, and output are initialized upon reset input.
S	RESET MAX SV2 SV1 0 OUT1 OUT2		• In addition mode, OUT1 output is ON when 'counter value >= SV1 set value'. • In addition mode, OUT2 output is ON when 'counter value >= SV2 set value'. • When using subtraction mode, OUT1 output is ON when 'counter value <= SV1 set value'. • When using subtraction mode, OUT2 output is ON when 'counter value <= 0'. • One-shot output of OUT1 turns off after 0.5 seconds regardless of OUT2 output. • Count value, display value, and output are initialized upon reset input.
A	RESET MAX SV2 SV1 0 OUT1 OUT2		• In addition mode, OUT1 output is ON when OUT2 output is OFF and 'counter value >= SV1 set value'. • In addition mode, OUT2 output is inverted when 'counter value >= SV2 set value', and the display value is initialized. • When using subtraction mode, OUT1 output is ON when OUT2 output is OFF and 'counter value <= SV1 set value'. • When using subtraction mode, OUT2 output is inverted when 'counter value <= 0' and the display value is initialized. • One-shot output of OUT1 turns off after 0.5 seconds regardless of OUT2 output.

※ For P41T/P61T models, SV and OUT operate as SV2 and OUT2.
 ※ Apply reset signal to the front reset key or external RESET terminal.