

Chapter 3. SPECIFICATIONS

3.1 General Specifications

Table 2.1 shows general specifications of the GLOFA GM/GK series.

No	Items	Specifications					Standard
1	Operating ambient temperature	0 ~ 55℃					
2	Storage ambient temperature	-25 ~ 70℃					
3	Operating ambient humidity	5 ~ 95%RH, non-condensing					
4	Storage ambient humidity	5 ~ 95%RH, non-condensing					
5	Vibration	Occasional vibration					IEC 1131-2
		Frequency	Acceleration	Amplitude	Sweep count		
		10≤f∠57 Hz	-	0.075 mm	10 times in each direction for X, Y, Z		
		57 ≤f≤150 Hz	9.8 m/s² {1G}	-			
		Continuos vibration					
		Frequency	Acceleration	Amplitude			
		10≤f∠57 Hz	-	0.035 mm			
		57≤f≤150 Hz	4.9 m/s² {0.5G}	-			
6	Shocks	*Maximum shock acceleration: 147 m/s² {15G} *Duration time :11 ms *Pulse wave: half sine wave pulse(3 times in each of X, Y and Z directions)					IEC 1131-2
7	Noise immunity	Square wave impulse noise	±1,500 V				
		Electrostatic discharge	Voltage :4 kV(contact discharge)				IEC 1131-2 IEC 801-2
		Radiated electromagnetic field	27 ~ 500 MHz, 10 V/m				IEC 1131-2 IEC 801-3
		Fast transient burst noise	Severity Level	All power modules	Digital I/Os (Ue ≥ 24 V)	Digital I/Os (Ue < 24 V) Analog I/Os communication I/Os	IEC 1131-2 IEC 801-4
			Voltage	2 kV	1 kV	0.25 kV	
8	Operating atmosphere	Free from corrosive gases and excessive dust					
9	Altitude for use	Up to 2,000m					
10	Pollution degree	2 or lower					
11	Cooling method	Self-cooling					

[Table 2.1] General specifications

REMARK

- 1) IEC(International Electrotechnical Commission)
: The international civilian organization which produces standards for electrical and electronics industry.
- 2) Pollution degree
: It indicates a standard of operating ambient pollution level.
The pollution degree 2 means the condition in which normally, only non-conductive pollution occurs.
Occasionally, however, a temporary conductivity caused by condensation shall be expected.

3.2 Performance Specifications

Table 3.2 shows the performance specifications of the A/T module.

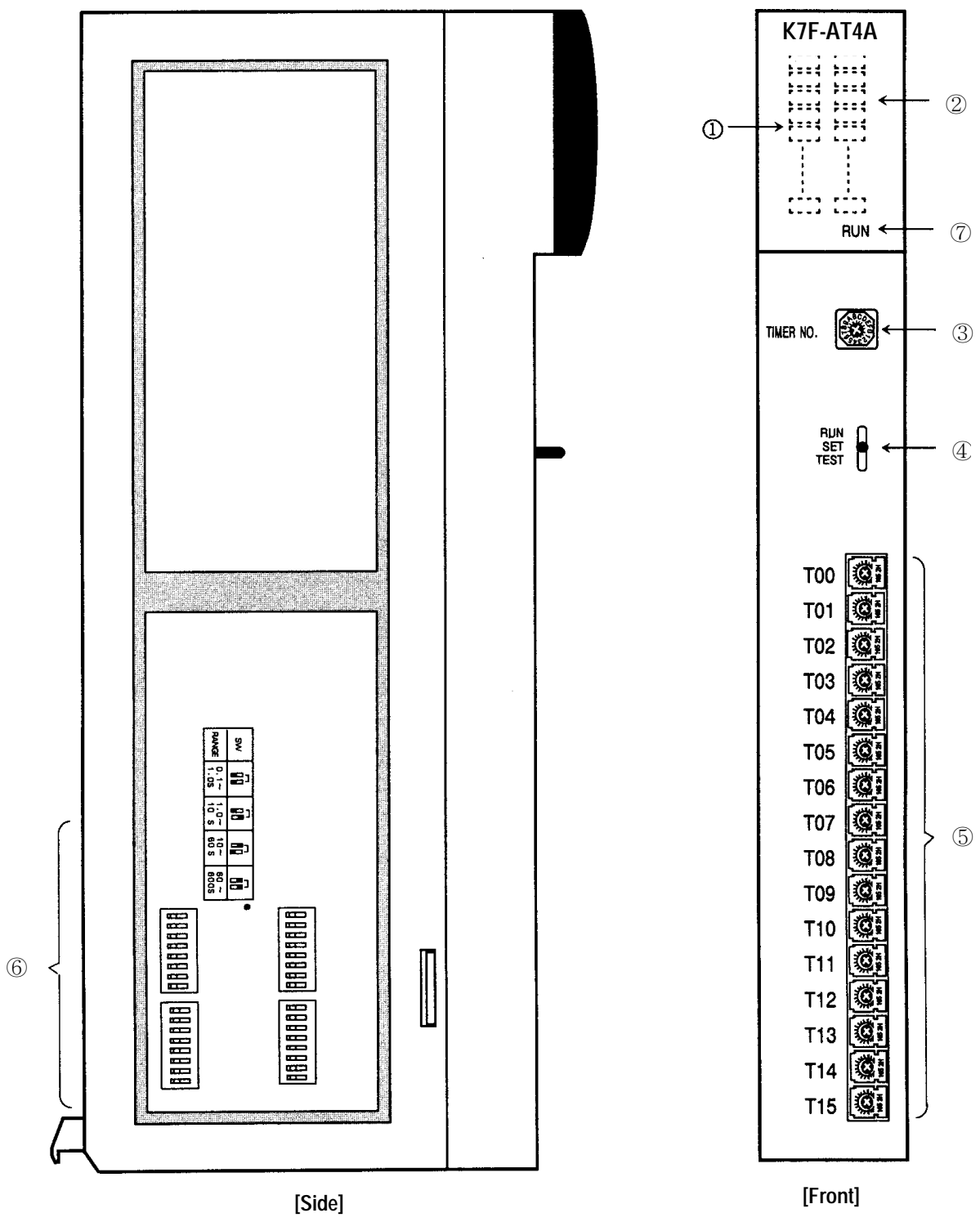
Items	Specifications	
	K7F – AT4A	K4F – AT3A
Timer point	16 points	8 points
Timer setting value range	0.1 to 1.0 sec 1 to 10 sec 10 to 60 sec 60 to 600 sec Setting can be done for each individual point	
Backup Method	For backup, set the operation mode selection switch to the TEST side.	
Setting Method	Setting by the adjustment volume.	
Timer Accuracy	$\pm 2.0\%$ (For maximum value)	
Operating Indicator	Timer Operation indication LED : 16 pts	Timer Operation indication LED : 8 pts
	Timer Contact indication LED : 16 pts	Timer Contact indication LED : 8 pts
Current consumption	0.3 A (5 VDC)	0.2 A (5VDC)
Weight	390 g	200 g

[Table 3.3] Performance specifications

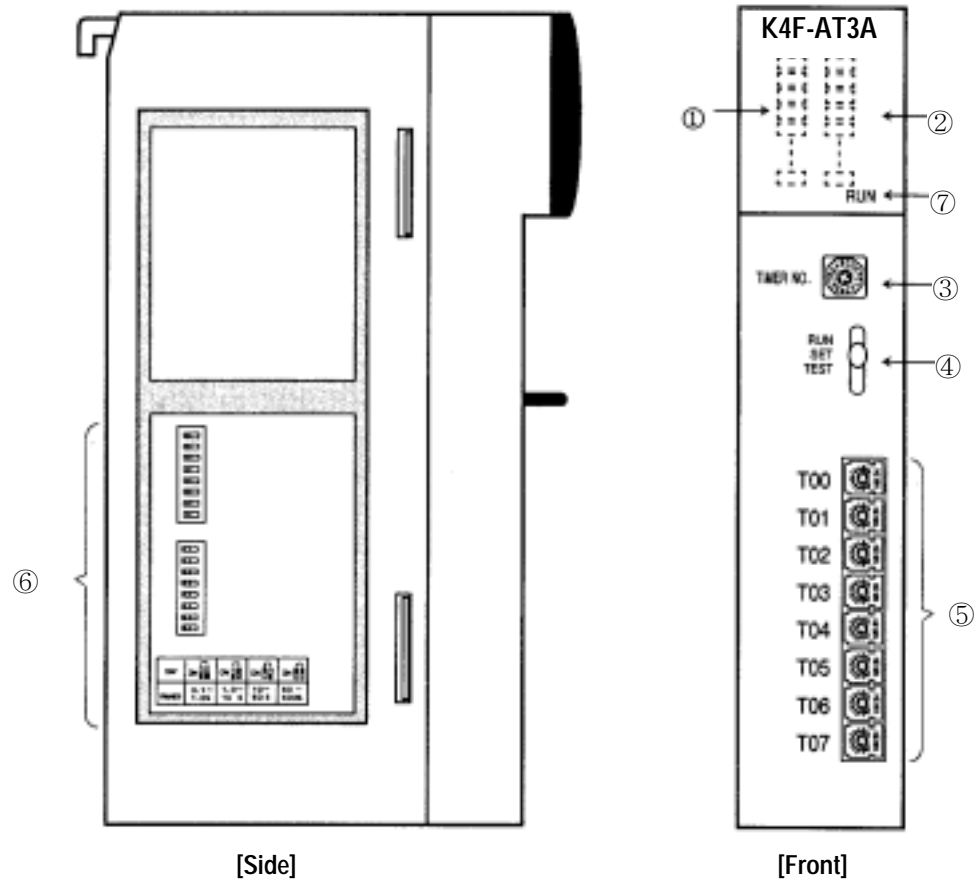
3.3 Names of Parts and Functions

The following gives the names of parts of the A/T module.

3.3.1 K7F – AT4A



3.3.2 K4F – AT3A



3.3.3 Names of Parts and Functions

The following gives names and function of parts of the A/T module.

No.	Name	Descriptions			
①	Timer contact indication LED	Indicates the On/Off state of the contact of Analog timers (T00 to T15) (On state : turn on, Off state : turn off)			
		LED	Contents	LED	Contents
		00	Contact of the Analog Timer T00	08	Contact of the Analog Timer T08
		01	Contact of the Analog Timer T01	09	Contact of the Analog Timer T09
		02	Contact of the Analog Timer T02	10	Contact of the Analog Timer T10
		03	Contact of the Analog Timer T03	11	Contact of the Analog Timer T11
		04	Contact of the Analog Timer T04	12	Contact of the Analog Timer T12
		05	Contact of the Analog Timer T05	13	Contact of the Analog Timer T13
		06	Contact of the Analog Timer T06	14	Contact of the Analog Timer T14
		07	Contact of the Analog Timer T07	15	Contact of the Analog Timer T15
②	Timer operation indication LED	Indicates the On/Off state of the contact of Analog timers (T00 to T15) (On state : turn on, Off state : turn off)			
		LED	Contents	LED	Contents
		16	Coil of the Analog Timer T00	24	Coil of the Analog Timer T08
		17	Coil of the Analog Timer T01	25	Coil of the Analog Timer T09
		18	Coil of the Analog Timer T02	26	Coil of the Analog Timer T10
		19	Coil of the Analog Timer T03	27	Coil of the Analog Timer T11
		20	Coil of the Analog Timer T04	28	Coil of the Analog Timer T12
		21	Coil of the Analog Timer T05	29	Coil of the Analog Timer T13
		22	Coil of the Analog Timer T06	30	Coil of the Analog Timer T14
		23	Coil of the Analog Timer T07	31	Coil of the Analog Timer T15

No.	Name	Descriptions			
③	Timer number selection switch	Used to select an analog timer (T00 to T15) whose time will be adjusted.			
		Timer No.	Selected Timer	Timer No.	Selected Timer
		0	T00	8	T08
		1	T01	9	T09
		2	T02	A	T10
		3	T03	B	T11
		4	T04	C	T12
		5	T05	D	T13
		6	T06	E	T14
		7	T07	F	T15
④	Operation mode selection switch	Used to adjust and backup the timer value, check the adjusted value and select the operation mode for each timer. . RUN :Position for normal operation . SET :Position for adjustment of the timer value of the timer selected by③. . TEST : Position for manual check and backup of the adjusted timer value.			
⑤	Adjustment Volume	Used to adjust the timer value of an analog timer.			
⑥	Setting range selection switch	Used to select the setting range for each analog timer.			
⑦	RUN LED	Indicates the operation status of the A/T module. • On : Normal operation • Off : 5 VDC line disconnection or A/T module defect.			

REMARK

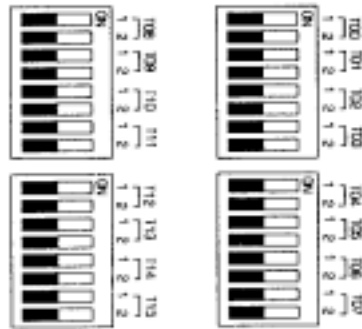
Only T00 to T07 are available in the K4F – AT3A. T08 to T15 are not processed.

3.4 Setting Procedure for Each Function

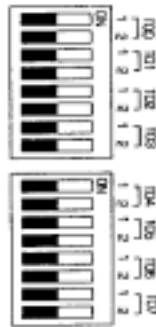
3.4.1 Setting the Setting Range Selection Switch

1) Setting Range Selection Switch

(1) K7F – AT4A



(2) K4F – AT3A



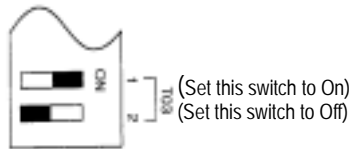
2) Setting Range Selection

Set the time range for each analog timer (T00 to T15) by the setting range selection switch

Time range Switch name	Time range			
	0.1 to 1.0 sec	1 to 10 sec	10 to 60 sec	60 to 600 sec
Txx 1	Off	On	Off	On
Txx 2	Off	Off	On	On

xx : Means the number of an analog timer (00 to 15)

[Example] When setting the time range of the analog timer T03 to “1 to 10 sec”

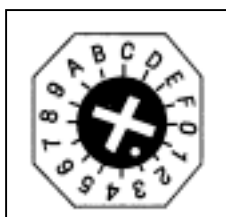


3) Factory Setting is “0.1 to 1.0 sec” for All Analog Timers.

3.4.2 Adjusting the Volume

- 1) Apply the power after the CPU module and the A/T module are set to the following conditions.
 - . Set the key switch of the CPU module to 'STOP'.
 - . Set the operation mode selection switch of the A/T module to 'SET'.
- 2) Select the numbers of the analog timers (T00 to T15) whose timer time will be adjusted by the timer number selection switch.

[Example] When selecting the analog timer T03

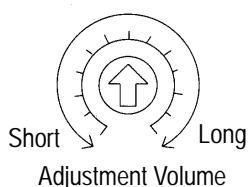


Set the timer number selection switch to 3

REMARK

If set the timer number selection switch of the K4F – AT3A to '8 to F', nothing will be processed.

- 3) Set the adjustment volume to the timer time, which will be used as a goal, within the timer time range set in the selection 3.4.1.



- 4) Set the operation mode selection switch to "TEST" and check the time from turning-on of the timer operation indication LED to turn-on of the timer contact indication LED.
- 5) After checking the on time of the timer contact indication LED, set the operation mode selection switch to 'SET'.
- 6) To micro-adjust the timer time to the goal time, repeat 3) to 5).
- 7) Set the timer time for each analog timer as the procedure shown by 2) to 6).
- 8) After every timer time for every analog timer has been set, Set the operation mode selection switch to 'RUN' and execute the user program.
- 9) To backup the timer time set, set the operation mode selection switch to 'TEST'. Then, the setting time will be stored to the memory.

REMARK

If an analog timer has been adjusted during the RUN state of the CPU module, the analog timer starts its operation by the prior one of the start signals by the operation mode selection switch of the A/T module and by the user program.