

# TGC1 Series AC Contactor



## 1 Product overview

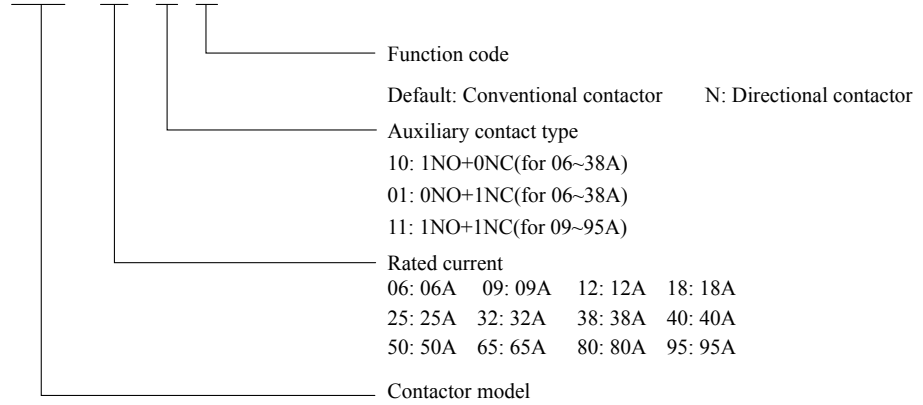
The TGC1 series AC contactor (hereinafter referred to as contactors) feature with exquisite appearance and small shape, mainly used in AC 50Hz (or 60Hz) power system with a rated operating voltage up to 690V, with a rated working voltage of 380V under AC-3 use category, and with a rated current up to 95A for remote power-on and power-off of circuit, and can be combined with the appropriate thermal relay to form an electromagnetic starter for protection of circuit that overload may occur. The contactor is suitable for frequent start and control of AC motor.

This product complies with standard IEC 60947-4-1.

## 2 Type designation

### 2.1 Model description

**TGC1 - 18 10 N**



### 2.2 AC contactor model table

Motor power Pe (kW AC-3,380V)	Rated current Ie (A)	Auxiliary contact		Item description
		Normal open NO	Normal closed NC	
2.2	6	1	-	TGC1-0610*
		-	1	TGC1-0601*
4	9	1	-	TGC1-0910*
		-	1	TGC1-0901*
		1	1	TGC1-0911*
5.5	12	1	-	TGC1-1210*
		-	1	TGC1-1201*
		1	1	TGC1-1211*
7.5	18	1	-	TGC1-1810*
		-	1	TGC1-1801*
		1	1	TGC1-1811*
11	25	1	-	TGC1-2510*
		-	1	TGC1-2501*
		1	1	TGC1-2511*

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**Continued table**

15	32	1	-	TGC1-3210*
		-	1	TGC1-3201*
		1	1	TGC1-3211*
18.5	38	1	-	TGC1-3810*
		-	1	TGC1-3801*
		1	1	TGC1-3811*
18.5	40	1	1	TGC1-4011*
22	50	1	1	TGC1-5011*
30	65	1	1	TGC1-6511*
37	80	1	1	TGC1-8011*
45	95	1	1	TGC1-9511*

**Coil voltage specification table**

Coil voltage	V	24	36	48	110	220	380	400	415
Coil voltage code	50Hz	B5	C5	E5	F5	M5	Q5	V5	N5
	50/60Hz	B7	C7	E7	F7	M7	Q7	V7	N7

### 3 Main technical parameters

#### 3.1 Parameters and technical performance

Model		TGC1 -06	TGC1 -09	TGC1 -12	TGC1 -18	TGC1 -25	TGC1 -32	TGC1 -38	TGC1 -40	TGC1 -50	TGC1 -65	TGC1 -80	TGC1 -95	
Main circuit characteristics														
Number of poles		3 Poles												
Rated insulation voltage $U_i$ V		690												
Rated withstand impulse voltage $U_{imp}$ kV		6										8		
Rated operating voltage $U_e$ V		220/230, 380/400, 660/690												
Rated making capacity		Power-on current: $10 \times I_e(AC-3)$ or $12 \times I_e(AC-4)$												
Rated breaking capacity		Making and breaking current: $8 \times I_e(AC-3)$ or $10 \times I_e(AC-4)$												
Rated operating current $I_e$	380V 400V	AC-3 A	6	9	12	18	25	32	38	40	50	65	80	95
		AC-4 A	2.6	3.5	5	7.7	8.5	12	14	18.5	24	28	37	44
	660V 690V	AC-3 A	3.8	6.6	8.9	12	18	22	22	34	39	42	49	49
		AC-4 A	1	1.5	2	3.8	4.4	7.5	8.9	9	12	14	17.3	21.3
Free air resistive current $I_{th}$ A		16	20	20	25	32	40	50	50	60	80	110	110	
Rated work power $P_e$	380V 400V	AC-3 kW	2.2	4	5.5	7.5	11	15	18.5	18.5	22	30	37	45
		AC-4 kW	1.1	1.5	2.2	3.3	4	5.4	5.5	7.5	11	15	18.5	22
	660V 690V	AC-3 kW	3	5.5	7.5	10	15	18.5	18.5	30	33	37	45	45
		AC-4 kW	0.75	1.1	1.5	3	3.7	5.5	6	7.5	10	11	15	18.5
Electrical life	AC-3	10,000 times	120					100					80	
	AC-4	10,000 times	25					20					13	
Mechanical life	10,000 times	1600					1000			900		650		
Operating frequency	Electrical life	AC-3 times/h	1200					600						
		AC-4 times/h	300										120	
	Mechanical life	times/h	3600											

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Continued table

Fuse used in SCPD														
Model of fuse used		RT16-00 20	RT16-00 20	RT16-00 20	RT16-00 25	RT16-00 40	RT16-00 50	RT16-00 63	RT16-00 50	RT16-00 63	RT16-00 80	RT16-00 100	RT16-00 125	
Matched thermal relay		TGR1-18				TGR1-38			TGR1-95					
Main circuit terminal wiring capacity														
Main circuit terminal wiring capacity	Flexible wire	1 wire mm <sup>2</sup>	1/4	1/4	1/4	1/4	1.5/6	1.5/6	1.5/6	2.5/25	2.5/25	2.5/25	4/50	4/50
	Without wiring terminal	2 wires mm <sup>2</sup>	1/4	1/4	1/4	1/4	1.5/6	1.5/6	1.5/6	2.5/16	2.5/16	2.5/16	4/25	4/25
	Flexible wire	1 wire mm <sup>2</sup>	1/4	1/4	1/4	1/4	1/6	1/6	1/6	2.5/25	2.5/25	2.5/25	4/50	4/50
	With wiring terminal	2 wires mm <sup>2</sup>	1/2.5	1/2.5	1/2.5	1/2.5	1/4	1/4	1/4	2.5/10	2.5/10	2.5/10	4/16	4/16
	Hard wire	1 wire mm <sup>2</sup>	1/4	1/4	1/4	1.5/6	1.5/6	1.5/10	1.5/10	2.5/25	2.5/25	2.5/25	4/50	4/50
	Without wiring terminal	2 wires mm <sup>2</sup>	1/4	1/4	1/4	1.5/6	1.5/6	1.5/6	1.5/6	2.5/10	2.5/10	2.5/10	4/25	4/25
	Tightening torque	N·M	0.8				1.2			3.5			4	
Coils														
Coil power	50Hz	Pull-in VA	70				70 (100)			200			200	
		Holding VA	7				7 (9)			20			26	
		Power W	2~3 (1.8~2.7)				2~3 (3~4)			6~10			6~10	
Allowable control loop voltage Us	Pull-in	V	Pull-in voltage: 85%Us~110%Us											
	Release	V	Release voltage: 20%Us~75%Us											
Auxiliary contact														
Basic parameters of auxiliary contact	Ith	A	10											
	Rated control capacity	AC-15 VA	360											
		DC-13 W	33											
Certification														
CE														

Note: 1NO+1NC value is in the TGC1-09~38 specifications ().

### 3.2 Coil voltage specification table

Coil voltage	V	24	36	48	110	220	380	400	415
Coil voltage code	50Hz	B5	C5	E5	F5	M5	Q5	V5	N5
	50/60Hz	B7	C7	E7	F7	M7	Q7	V7	N7

## 4 Normal operation and installation conditions

4.1 Ambient temperature (around the equipment): Allowable working temperature: -35°C~+70°C; normal working temperature: -5°C~+40°C; when the working environment temperature is higher than +40°C, by considering that the allowable limit temperature rise of the product will be reduced, the rated working current must be reduced (the derating coefficient sees Table below), and the quantity of the contactors mounted in the standard assembly shall be decreased, otherwise the product may be damaged, the service life may be shortened, and the working reliability may be reduced, and furthermore the product action range may be affected; when the working environment temperature is lower than

Ambient temperature °C	40	50	55	60	65	70
Correction factor	1	0.98	0.95	0.93	0.875	0.75

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-5°, considering that the insulation and lubrication grease may be congealed at too low ambient temperature resulting in product action failure, please contact the manufacturer and user for design or use.

4.2 Installation conditions: The inclination between the mounting surface and the vertical surface is not more than  $\pm 22.5^\circ\text{C}$ , and the installation category is Class III;

4.3 Pollution level: 3

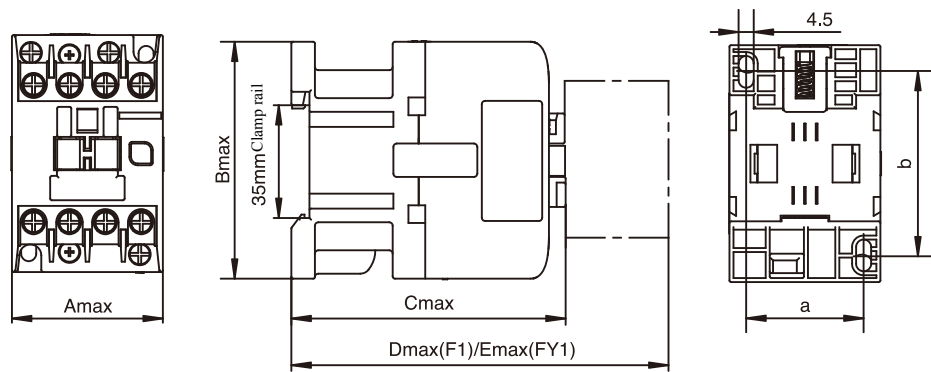
4.4 Altitude: Not more than 2000m

4.5 Atmospheric conditions: When the maximum temperature is  $+70^\circ\text{C}$ , the relative humidity of the air does not exceed 50%. Higher relative humidity is allowed at lower temperatures, for example, up to 90% at  $20^\circ\text{C}$ . Special measures should be taken for condensation occurred occasionally due to temperature changes;

4.6 The product should be installed and used in a place where there is no obvious shaking, impact and vibration.

### 5 Outline and installation dimensions

#### 5.1 TGC1-06~38

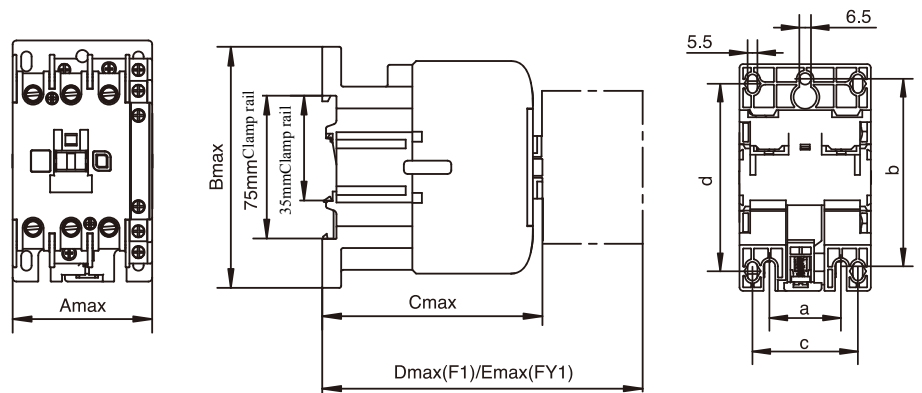


Unit: mm

Spec. & Model	Amax	Bmax	Cmax	Dmax	Emax	a	b	c	d
TGC1-06	45	74	73	111	131	35	50/60	-	-
TGC1-09~18	45	71 (73)	82 (87)	120 (120.5)	140	35	50/60	-	-
TGC1-25~38	56	82.5	96 (98)	134	154	40	50/60	-	-

Note: 1NO+1NC value is in the TGC1-09~38 specifications ().

#### 5.2 TGC1-40~95

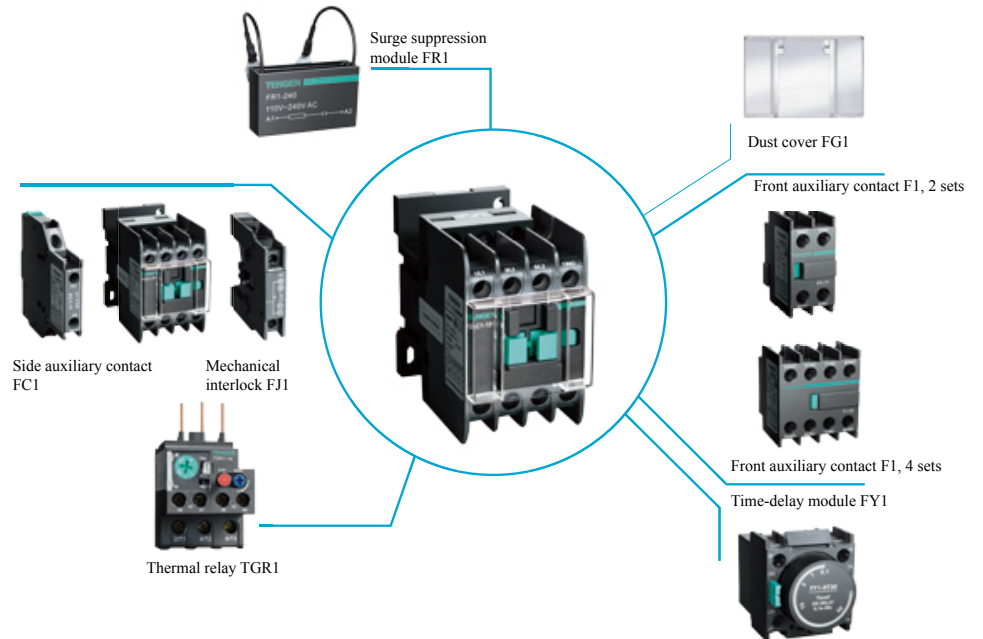


Unit: mm

Spec. & Model	Amax	Bmax	Cmax	Dmax	Emax	a	b	c	d
TGC1-40~65	73.5	127	116	154	174	40	100/100	59	100/110
TGC1-80~95	84.5	126.5	123	161	181	40	100/100	64	102/111

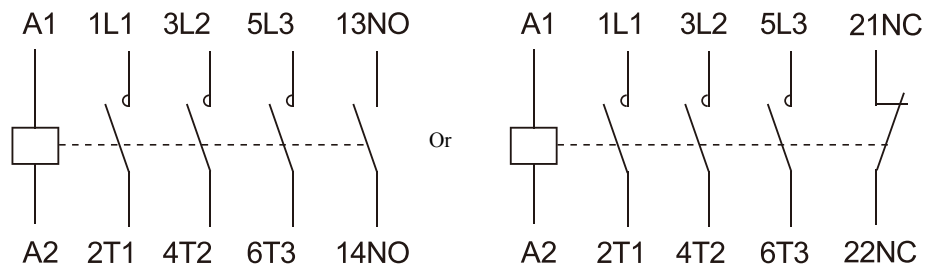
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### 6 Accessory installation diagram

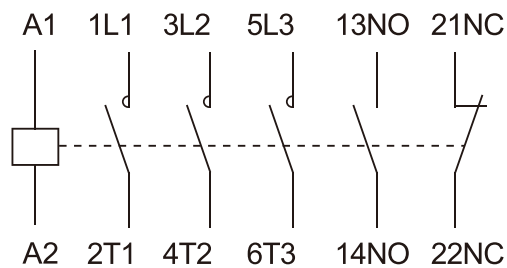


Note: Only one type of top mounting accessory can be required.  
One set can be installed on the left and right side auxiliary sides, respectively; when a mechanical interlock is provided, only one set is installed.

### TGC1-06~38 Wiring Diagram



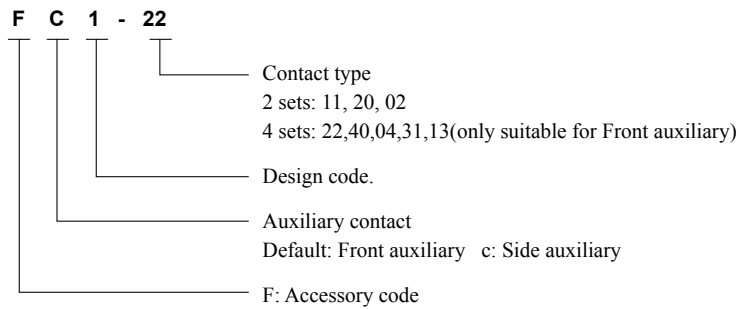
### TGC1-09~95 Wiring Diagram



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### 7 Accessories model

#### 7.1 Auxiliary contact F1/FC1



#### 7.1.1 Used in normal environment

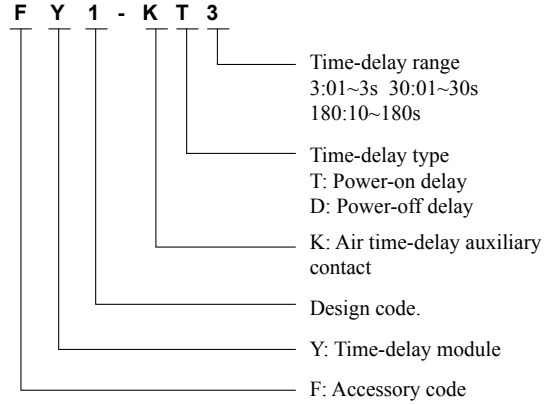
Mounting location	Number of poles	Contact layout	Contact type	Available product	Item description
Front	2	51 NC, 61 NC, 53 NO, 61 NC, 53 NO, 63 NO 52, 62, 54, 62, 54, 64	1NO+1NC	TGC1-06-95	F1-11
			2NO+0NC		F1-20
			0NO+2NC		F1-02
	4	51 NC, 61 NC, 71 NC, 81 NC, 51 NC, 63 NO, 71 NC, 81 NC, 53 NO, 61 NC, 71 NC, 83 NO 52, 62, 72, 82, 52, 64, 72, 82, 54, 62, 72, 84	2NO+2NC		F1-22
			4NO+0NC		F1-40
			0NO+4NC		F1-04
			3NO+1NC		F1-31
			1NO+3NC		F1-13
Side	2	161/172 NC, 151/182 NC, 161/172 NC, 153/184 NO, 163/174 NO, 153/184 NO 162/171, 152/181, 162/171, 154/183, 164/173, 154/183	1NO+1NC	TGC1-09-95	FC1-11
			2NO+0NC		FC1-20
			0NO+2NC		FC1-02

#### 7.1.2 The maximum number of auxiliary contacts that can be matched

Contactor	Momentary auxiliary contact module		
	Front installed		Side installed
	2 poles	4 poles	2 poles
TGC1-06	1	Or 1	/
TGC1-09-95	1	Or 1	2

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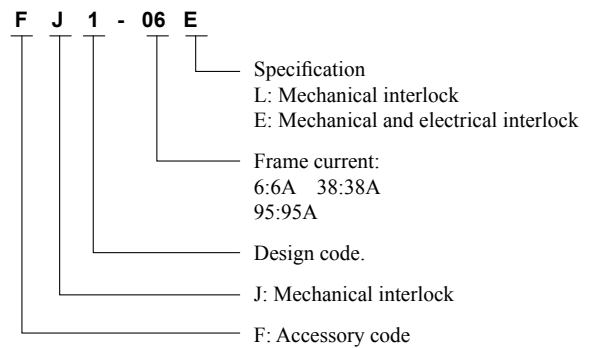
### 7.2 Air time-delay auxiliary contact FY1



Installation location	Delay type	Number of contacts	Wiring diagram	Delay range	Available product	Item description
Front	Power-on delay	1NO+1NC		0.1~3s	TGC1-06~95	FY1-KT3
				0.1~30s		FY1-KT30
				10~180s		FY1-KT180
	Power-off delay	1NO+1NC		0.1~3s		FY1-KD3
				0.1~30s		FY1-KD30
				10~180s		FY1-KD180

The waiting time between the opening of the N/C contact and the closing of the N/O contact is 40ms±15ms.

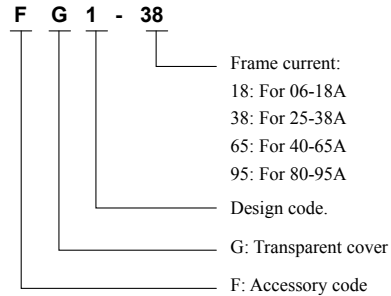
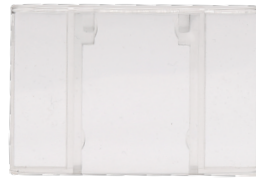
### 7.3 Mechanical and electrical interlock FJ1



Installation location	Interlocking method	Applicable Products	Item Description	Aux. specification of applicable product
Side	Mechanical interlock	TGC1-06	FJ1-06L	
		TGC1-09 ~ 38	FJ1-38L	1NO+1NC
		TGC1-40 ~ 95	FJ1-95L	
	Mechanical + electrical interlock	TGC1-09 ~ 38	FJ1-38E	1NO 或 1NC
		TGC1-40 ~ 95	FJ1-95E	

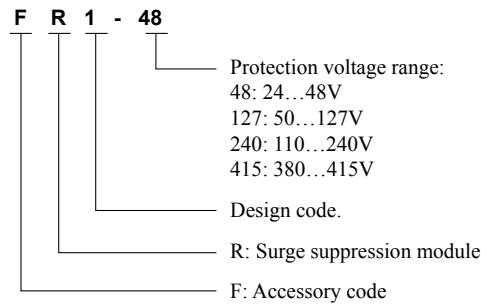
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### 7.4 Dust cover FG1



Installation location	Applicable Products	Item Description
Front	TGC1-06~18A	FG1-18
	TGC1-25~38A	FG1-38
	TGC1-40~65A	FG1-65
	TGC1-80~95A	FG1-95

### 7.5 Surge suppression module (resistance-capacitive type) FR1



#### Product Features:

7.5.1 Effectively protect circuits that are more sensitive to "high-frequency" interference. Used for sinusoidal voltage waveforms, that is, when the total harmonic distortion is less than 5%.

7.5.2 The maximum voltage is limited to 3U<sub>c</sub>, and the maximum oscillation frequency is limited to 400Hz.

7.5.3 The breaking time is slightly increased (1.2 to 2 times the normal time).

Installation location	Voltage protection range		Applicable Products	Item Description
	AC symbol	DC symbol		
Front	~	—	TGC1-06-95	FR1-48
	~	—		FR1-127
	~	—		FR1-240
	~	—		FR1-415



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### 8 Main parameters and technical performance indicators of accessories

Item		Main technical parameters		
Rated working voltage V		Up to 380		
Rated insulation voltage V		690		
Free air resistive current A		10		
Rated making capacity		Making current 10Ie (AC-15) or (DC-13)		
Short circuit protection		gG wire: 10A		
Control capacity	Auxiliary contact	AC-15	380V	0.95A
		DC-13	220V	0.15A
	FY1 air time-delay auxiliary contact	AC-15	380V	0.95A
		DC-13	220V	0.15A
Standards		GB/T 14048.5; IEC 60947-5-1		
Product certification		CCC		
Housing protection grade		IP20		
Cable connection mm <sup>2</sup>	Flexible cable without cold-pressed terminal	1~4		
		1~4		
	Flexible cable with cold-pressed terminal	1~4		
		1~2.5		
	Hard wire	1~4		
		1~4		
Screw size		M3.5		
Tightening torque N·M		0.8		