



请注意此使用说明书必须送至最终用户和维修责任者手中保管。  
This manual should be given to the person who actually uses the products and is responsible for their maintenance.

## 使用说明书 INSTRUCTION MANUAL INA-F05184823a-CE

### 机械锁扣形交流接触器 Mechanical latch Magnetic Contactor

#### Type

CK3-25/VS,  
CK3-50/VS,  
CK3-80/VS

### 安全注意事项

在安装、运行、保养和维修前必须熟读使用说明书，以保证正确使用。

使用说明书中对安全注意事项区分为“警告”、“注意”两个等级。

**警告**：不解除的话，有可能造成死亡或重伤的危险状态。

**注意**：不解除的话，有可能造成中等程度的残疾，轻伤以及发生物质损伤事故。

并且，即使在**注意**中记载的事项根据情况也有可能导致发生重大事故，所以记载内容都很重要，请必须遵守。

#### 警告

- 请不要触摸和靠近通电中的产品，因有触电、灼伤的危险。
- 维修、检验请在切断电源后进行，因有触电的危险。

#### 注意

- 因为有引发灼伤、火灾的可能，所以请确保说明书上规定的安装空间。
- 因为有引发火灾的可能，所以请在接线时按额定电压、通电电流选用符合规范尺寸的电线，紧固螺钉按照使用说明书规定的力矩紧固。
- 请不要在切断电源后立即触摸产品，因为余热可能会导致灼伤。
- 锁扣单元（Fig.1）与交流接触器是在工厂内进行调整后出厂的，所以请不要进行拆卸或者更换。
- 装置有整流器单元（Fig.1）の場合，请不要进行拆卸。
- 产品废弃时需按产业废弃物处理。

### 1. 解开包装

- (1) 请确认产品型号、控制线圈电压及适用容量与要求的规格是否一致。
- (2) 请检查是否有由于运输等原因而引起的零部件松动或破损现象。

### 2. 保管

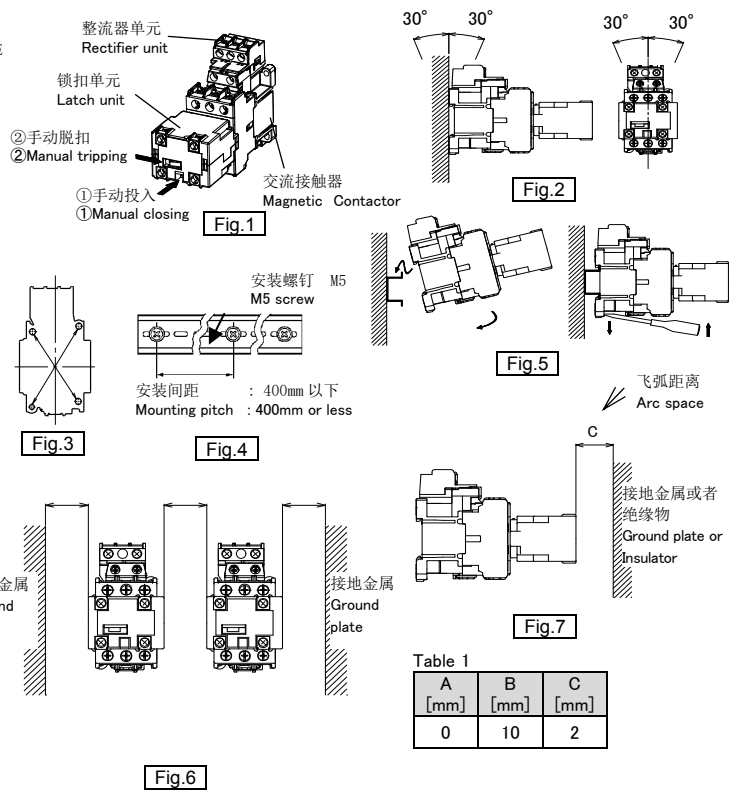
请避免高温多湿、有腐蚀性气体及日光直射的场所，以原包装的状态进行保管。

### 3. 安装

- (1) 请安装于干燥、洁净、牢固的场所。
- (2) 请垂直安装。允许倾斜角度在 30° 以内。（Fig.2）
- (3) 有 4 个安装孔の場合，选取对角线上的两个孔进行安装。（Fig.3）
- (4) 导轨安装型可装于 35mm 安装轨上。（符合 IEC60715）  
安装轨平面布置见（Fig.4），，装、卸方法见（Fig.5）。

### 4. 安装空间（Fig.6, Fig.7）

- (1) 安装间隙需在 Table 1 尺寸以上。
- (2) 紧密安装时（连续通电和高频通断的产品视同紧密安装），根据使用条件有可能因温度上升而造成线圈寿命降低。在此种条件下使用时，推荐使用时产品间的间距大于 5mm。
- (3) C 尺寸是在 IEC 标准及 GB 标准的接通、分断容量试验条件下的值。



### Safety Precautions

To ensure proper use of the product, be sure to read this manual and the other attached documents carefully before starting installation, operation, maintenance and inspection. Within this instruction manual, safety precautions are ranked, in order of importance, as either "Warning" or "Caution".

**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 or moderate injury and/or damage to the equipment.

Under certain conditions, improper operation may result in serious injury and/or damage

#### WARNING

- Do not touch the product or approach it when power connected. Electric shock or burns may result.
- Turn off the power before starting maintenance or inspection. Failure to do so may result in electric shock.

#### CAUTION

- Install the product in space more than being provided by this manual. Failure to do so may result in fire or burns.
- For wiring, select wire size suitable for the applied voltage and current. Burns may result. Tighten wires with the tightening torque specified in the instruction manual. Failure to do so may result in fire.
- Do not touch the product immediately after the power is turned off. As it may still be hot, burns may result.
- Do not detach the mechanical latch unit from the contactor. (Fig. 1)
- Do not use the product with the rectifier unit removed. (Fig. 1)
- Treat the product as industrial waste when discarding.

even if it is labeled only as "Caution". Every item indicated by either "Warning" or "Caution" should be considered significant. Be sure to give particular care to those items.

#### 1. Unpacking

- (1) Check that the type, coil voltage and contact arrangement match the requested specifications.
- (2) Make sure that no parts have been lost or damaged.

#### 2. Storage

Store the unit in the packing box. Do not store the packing box in a location subject to high temperature, high humidity, corrosive gas, or direct sunlight.


#### 3. Mounting

- (1) Mount in a dry, clean and stable location.
- (2) Mounting on a vertical surface. The product must not incline more than 30°. (Fig.2)
- (3) If products are provided with four mounting holes, use any two mounting holes on a diagonal line. (Fig.3)
- (4) The rail mounting type can be attached on a standard 35mm IEC60715 mounting rail. See Fig.4 for mounting of the rail on the panel, see Fig.5 for attachment and removal of products.

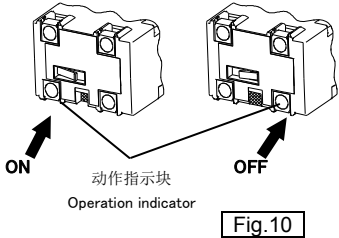
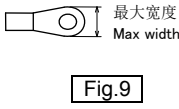
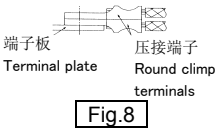
#### 4. Mounting space (Fig.6, Fig.7)

- (1) Mount the products at a distance of at least that shown in the Table 1.
- (2) When units must be installed very closely, the temperature may rise in some conditions (i.e. the power is continuously supplied for a long time or units that frequently do switching are installed very closely), and it may shorten the life of the coil. Thus, when installing units very closely, it is recommended to install the

Table 2

Type		Main terminals			Control terminals
		CK3-25/VS	CK3-50/VS	CK3-80/VS	
直接连接 / Direct connection					
单芯线 / 多股线 Solid / Stranded	【Note 1】 [mm <sup>2</sup> ]	1×(0.75~6) 2×(1~4) 2×(1.5~6)	1×(0.75~6) 2×(0.75~1.5) 2×(1.5~4) 2×(4~6)	-	1×(0.75~2.5) 2×(0.75~1.5) 2×(1.5~2.5)
	AWG	1×(18~8) 2×(18~12) 2×(16~10)	1×(18~8) 2×(18~16) 2×(16~14) 2×(14~12) 2×(12~10)	-	1×(18~14) 2×(18~16) 2×(16~14)
多股软线 (有压接端子) Flexible stranded with end sleeve	【Note 1】 [mm <sup>2</sup> ]	1×(0.75~4) 2×(1~4)	1×(0.75~4) 2×(0.75~1.5) 2×(1.5~4)	-	1×(0.75~2.5) 2×(0.75~1.5) 2×(1.5~2.5)
	AWG	2×(18~12)	1×(18~10) 2×(18~16) 2×(16~14) 2×(14~12) 2×(12~10)	-	1×(18~14) 2×(18~16) 2×(16~14)
电线剥皮尺寸 Stripped length	 [mm]	11	15	—	10
压接端子连接 / Connection with crimp terminal					
多股线 / 多股软线 Stranded / Flexible stranded	[mm <sup>2</sup> ]	0.75~10	0.75~25	0.75~50	0.75~2.5
	AWG	18~8	18~4	18~1/0	18~14
端子最大宽度 Max. Width	【Note 2】 [mm]	9.7	12.4	16.7	7.7
端子螺钉尺寸 Terminal screw size		M4	M 5	M6	M3.5
紧固工具 / Tool	【Note 3】	⌀2 ♂	⌀2 ♂	○ ⌀3	⌀2 ♂
紧固力矩 Tightening torque	[N·m]	1.2~1.5	2~2.5	4~5	0.8~1

units 5 mm or more apart.  
(3) Dimension C is based on breaking test in close circuit of IEC and GB standard.



5. 接线

可以连接的电线尺寸及紧固力矩  
请参照 Table 2。

6. 操作

6.1 电气性

- 请给与闭合指令及脱扣（释放）指令 0.3 秒以上。
- 闭合线圈及脱扣线圈，为短时工作制 15 秒。请串联连接闭合线圈及线圈消磁触头（端子）。请不要拆下连接线。脱扣线圈利用内置触头消磁。
- 闭合指令 (ON) 与脱扣指令 (OFF) 的执行时间不允许重叠。如重叠会造成触头颤振、线圈烧损等状况发生。

6.2 顺序检查

在动作指示块的位置能够确认动作状态。（Fig. 10）  
手动闭合、手动脱扣请按照 Fig. 1 的方法进行。手动操作只能在顺序检查的时候进行。不能在带载的情况下（负载被连接的状态）进行。

7. 维修、保养

7.1 运转前的检查

- 请确认螺钉没有松动。
- 请确认是否有电线碎屑、垫片等嵌在产品中。
- 请确认控制回路电压在控制线圈电压的允许变动范围内。控制线圈电压的允许变动范围为线圈电压的 85~110%。
- AC 操作时，请确认电压波形是否无畸变，频率为 50Hz 或 60Hz。
- 在使用可逆型产品的场合，请务必安装电气连锁单元。
- 在通电之前，请确认锁扣单元处于释放状态。在闭合的时候，请进行脱扣操作。

7.2 定期检查

- 运转后尽早进行初始检查，之后请进行定期检查。
- 端子的紧固螺钉请定期重新紧固。

- \* 各端子分别能连接 2 个压接端子。（Fig. 8）
- \* 不接线的端子螺钉，也应全部紧固后使用。

【Note 1】用 2 根单芯线进行接线的时候请使用相同尺寸的电线。

- 多股软线若无压接端子就不能使用。
- 使用多股软线时必须选用压接端子。
- 使用压接端子时电线的剥皮尺寸请按照压接端子厂家的指示。
  - 多股线 0.75~6mm<sup>2</sup> (18~10AWG) 的场合：多股线单丝根数不大于 7
  - 多股软线：多于上述单丝根数多股线

【Note 2】使用端子最大宽度以下的压接端子，圆形压接端子的最大宽度请参照 Fig. 9。

【Note 3】⊙2: 菲利普 H 型 2 号 ⊙3: 菲利普 H 型 3 号 ⊙: 套筒扳手  
⊙: I 型螺丝刀 I-1×5.5×L 式 B

【Note 4】接线后，对连接电线进行整理时，若发生折弯现象，请再次确认紧固力矩。

【Note 5】在插入电线时需要松开紧固螺钉，当螺钉下面附带的压紧块（防脱落功能）接近接线端子上端时就不要再拧松了。请务必注意，在这种状态下如果松开力矩超过表中所示数值，压紧块就会脱落或者造成端子破裂。

- \* When connecting two round crimp terminals, set them as shown in Fig.8.
- \* Tighten all terminal screws, even if not use.

【Note 1】When connecting two solid wires, use the same size wire.  
Finely stranded wire without end sleeve is not applicable. Use finely stranded wire with end sleeve. Follow the ferrule manufacturer's instructions to determine the stripping length of the wire when using the ferrule.

- Stranded wire (0.75 to 6 [mm<sup>2</sup>]): Number of solids ≤ 7
- Flexible stranded wire: Number of solids is more than the above-mentioned value.

【Note 2】Use round crimp terminal which width is the size specified at the maximum terminal width or less. (Fig.9)

【Note 3】⊙2: Philips PH2 ⌀6 ⊙3: Philips PH3 ⌀8 ⊙: Socket wrench  
⊙: Slotted-head screw I-1×5.5×L Type B

【Note 4】After alignment or bending back of connected wires, check the tightening torque again.

【Note 5】When an electrical wire is inserted, a tightening bolt is loosened. In that case, don't loosen it any further if the metal fittings attached under the tightening bolts is raised to the top end of the terminal. Be careful that material fitting may come off when the power is added beyond the torque mentioned in the table. Do not tighten screws counterclockwise strongly further the loosening torque in above table, or terminals may be broken.

5. Connection

Connectable wire size and proper tightening torque  
See Table 2.

6. Operating notes

6.1 Electrical

- The electrical signal time for closing and tripping should be 0.3sec. or more.
- Tripping coil is short time rating (15-seconds rating). Be sure to use a tripping coil through a contact (terminal No.55-56). (Do not use without the wire between terminals No.56 to A2.)
- Please give as a circuit, which does not make directions of closing and tripping simultaneous.

6.2 Sequence operating check

Operation indicator shows contactor operates or not. (Fig. 10)  
The manual operation method is shown in Fig. 1. When carrying out a sequence operating check makes sure that the load circuit is open.

7. Maintenance and inspection

7.1 Inspection before operation

- Check that all screws are tightened.
- Check that there is no foreign matter in the unit, such as wire chips or washers.
- Check that the operating circuit voltage is within the allowable voltage fluctuation range of the coil voltage. The allowable voltage fluctuation range is 85 to 110% of the coil voltage.
- In AC operation, check that operation power supply is sinusoidal waveform (50Hz or 60Hz) without distortion or cave-in etc.
- Be sure to apply an electric interlock when using a reversing type.
- Make sure that the latch is released before energizing. If the latch is operated, release it.

7.2 Periodic inspection

- Perform initial inspection early, and perform subsequent inspections on a regular basis.
- Check that all terminals are tightened with the proper torque periodically.

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