



Magnetic Starter with pushbuttons

TYPE

FJ-B09WP, FJ-B12WP, FJ-B18WP
FJ-B25WP, FJ-B32WP

This manual should be given to the person who actually uses the products and is responsible for their maintenance.

For details regarding specifications, see the catalog.

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 Incorrect handling of the device may result in death or serious injury.

CAUTION Incorrect handling of the device may result in minor injury or physical damage.

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

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.
- Turn off the power supply of main and control circuit before opening the cover.

CAUTION

- 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 or burns.
- Do not touch the product immediately after the power is turned off. As it may still be hot, burns may result.
- Treat the product as industrial waste when discarding.

1. Unpacking

- Check that the type, coil voltage, contact arrangement and thermal overload relay ratings and applicable capacity match the requested specifications. The magnetic starter type is indicated on the package. The coil voltage and thermal overload relay ratings are shown on the inner side of the cover.
- 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

- Mount in a dry, clean and stable location.
- Mounting on a vertical surface. The product must not incline more than 15°. (Fig.1)
- Use two (Fig.2) or four (Fig.3) mounting holes.

4. Connection

Connectable wire size and proper tightening torque

Terminal	FJ-B09WP FJ-B12WP FJ-B18WP		FJ-B25WP FJ-B32WP	
	Main circuit / Control circuit		Main circuit / Control circuit	
Direct	Solid / Stranded	[mm ²]	0.75~1.5 / 0.75~1.5	1.0~4.0 / 0.75~1.5
	Flexible	[mm ²]	0.75~1.5 / 0.75~1.5	1.0~4.0 / 0.75~1.5
	Stripped length (Solid/Stranded)	[mm]	10 / 10	11 / 10
Crimp	Stranded	[mm ²]	0.75~2.5 / 0.75~2.5	0.75~6.0 / 0.75~2.5
	Flexible	[mm ²]	0.75~2.5 / 0.75~2.5	0.75~6.0 / 0.75~2.5
	Max. Crimp	[mm]	7.7 / 7.7	9.7 / 7.7
Screw size			M3.5 / M3.5	M4 / M3.5
Torque		[N · m]	0.8~1.0 / 0.8~1.0	1.2~1.5 / 0.8~1.0

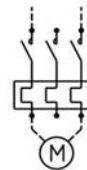
5. Usage

Thermal overload relay

- Push the reset button after unpacking. (Tripping may occur by the impact of transportation.)
- Turn the adjustment dial within the scale so that the full load current of the motor is at the ▼ mark. (Fig.4) Do not use beyond the scale, or the expected performance cannot be obtained.

- By pushing the trip indicator toward the arrow, checking of control circuit wiring can be done. (Fig.4)
- When tripping occurs, the trip indicator disappears. (Fig.4) (But the trip indicator at automatic reset dose not disappears.)
- After tripping occurs, pressing the reset button slightly returns the thermal overload relay to reset. (If the thermal overload relay is not cooled sufficiently, it cannot be reset.)
- To change over from manual reset mode to automatic reset mode, keep the reset button pushed as shown in Fig.5.
- In the case of single phase, please change connection as follows.

- Change the control wiring connected with "3-95" to "5-95".
- Connect a main circuit as shown in the right figure.
- Adjust the dial to 10% higher than its rated motor current.



6. Maintenance and inspection

6.1 Inspection before operation

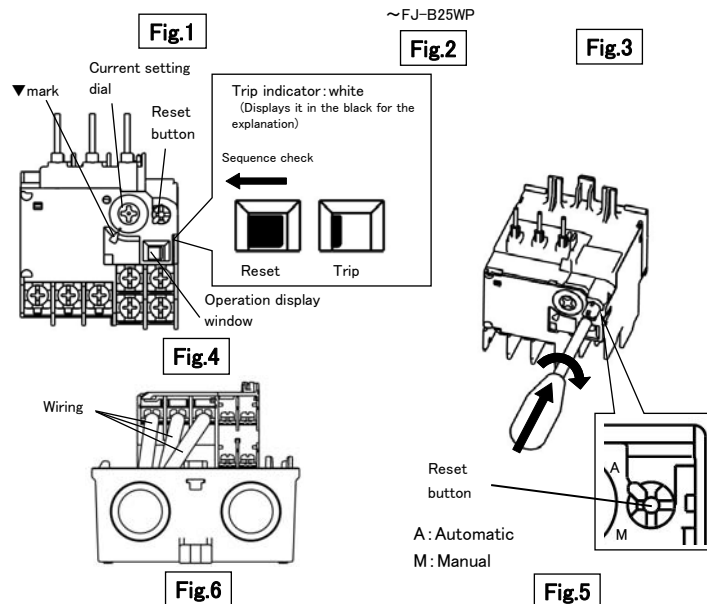
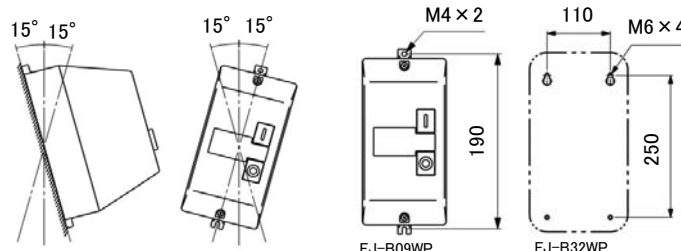
- Check that all screws are tightened.
- Check that there is no foreign matter in the unit, such as wire chips or washers.
- Check that the operating circuit voltage is within the allowable voltage fluctuation range of the coil voltage. The allowable voltage fluctuation range is 85 to 110% of the coil voltage.
- In AC operation, check that operation power supply is sinusoidal waveform (50Hz or 60Hz) without distortion or cave-in etc.

6.2 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.
- The exchange for magnetic starter only in the case is not possible.
- Contacts and operating coil cannot be replaced at site.

6.3 Others

- When tripping occurs, open the cover and press the reset button after removal of the failure cause (ex. overload).
- The proper torque for the screws with the cover is "FJ-B09WP~B25WP:0.8~1.2[N · m], FJ-B32WP:2~2.5[N · m]".
- The cover of FJ-B25WP may become difficult to be closed. If the load side wiring is moved a little more to the left, the cover can be closed easily. (Fig.6)
- The proper torque for the ground screw of FJ-B32WP is 2~2.5[N · m].



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请注意此使用说明书必须送至最终用户和维修责任者。

使用说明书

INA-F0254-EC

按钮式电磁开关

形式

FJ-B09WP, FJ-B12WP, FJ-B18WP
FJ-B25WP, FJ-B32WP

详细规格请参照产品样本。

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“危险”, “注意”两个等级。

⚠危险: 指在由于错误的使用而引发的危险情况下有可能导致死亡或重伤的场合。

⚠注意: 指在由于错误的使用而引发的危险情况下, 有可能导致中等的伤害或轻伤的场合, 以及只会发生物体损坏的场合。

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, 请务必遵守。

⚠危险

- 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。
- 开盖之前必须切断主回路与控制回路电源。

⚠注意

- 请根据施加电压和通电电流选择合适连接线, 按照使用说明书要求紧固力矩紧固螺钉。因有引起火灾的可能。
- 请不要在切断电源后立即触摸产品, 因为余热可能会导致烫伤。
- 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。在包装箱上标识了电磁开关的型号。内部壳体上标识了控制线圈电压及热过载继电器的型号。
- (2) 请检查是否有由于运输过程中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 15° 以内。(图 1)
- (3) 请使用上下 2 个安装孔 (图 2) 或 4 个安装孔 (图 3) 安装。

4. 接线

可以接线的电线尺寸和紧固力矩

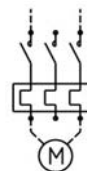
形式			FJ-B09WP FJ-B12WP FJ-B18WP	FJ-B25WP FJ-B32WP
			主回路 / 控制回路	主回路 / 控制回路
直接接线	单线/多股线	[mm ²]	0.75~1.5 / 0.75~1.5	1.0~4.0 / 0.75~1.5
	多股软线 (有压接端子)	[mm ²]	0.75~1.5 / 0.75~1.5	1.0~4.0 / 0.75~1.5
	电线剥皮尺寸 (单线/多股线)	[mm]	10 / 10	11 / 10
压接端子连接	多股线	[mm ²]	0.75~2.5 / 0.75~2.5	0.75~6.0 / 0.75~2.5
	多股软线	[mm ²]	0.75~2.5 / 0.75~2.5	0.75~6.0 / 0.75~2.5
	压接端子最大宽度	[mm]	7.7 / 7.7	9.7 / 7.7
端子螺钉尺寸			M3.5 / M3.5	M4 / M3.5
紧固力矩			[N·m] 0.8~1.0 / 0.8~1.0	1.2~1.5 / 0.8~1.0

5. 使用方法

热过载继电器

- (1) 打开包装后, 请按一次复位棒。(有可能受运输途中的冲击而脱扣。)
- (2) 旋转调整刻度盘, 在刻度的范围内, 请将电机的全负载电流对准 ▼ 记号。(图 4)
在刻度的范围外使用时, 将不能满足性能要求。
- (3) 将脱扣指示块向箭头方向按下, 能进行顺序检查。(图 4)
- (4) 热过载继电器在动作的时候, 动作指示窗的白色脱扣指示块隐藏。(图 4) (在自动复位状态脱扣的时候, 即使动作, 白色脱扣指示块也不隐藏)
- (5) 热过载继电器在动作的时候, 轻轻按下复位棒使之复位。(此时, 热过载继电器不处于冷态时将不能复位。)

- (6) 从手动复位切换到自动复位时, 如图 5 那样, 请按下复位棒进行旋转, 直至复位棒处于压入状态并维持。
- (7) 单相负荷的场合, 按如下方式更改接线。
 1. 连接线从 “3-95” 变换到 “5-95”。
 2. 主回路接线方式如右图。
 3. 调整刻度盘设定比电机额定电流高 10%。



6. 维修·保养

6.1 运转前的检查

- (1) 请确认螺钉没有松动。
- (2) 请确认是否有电线碎屑, 垫片等嵌在产品中。
- (3) 请确认控制回路电压在控制线圈电压的允许变动范围内。允许变动范围为线圈电压的 $85\sim 110\%$ 。
- (4) AC 控制时, 电源应为无畸变的正弦波, 频率为 50Hz 或 60Hz。

6.2 定期检查

- (1) 初始检查尽早进行, 运行中的点检请定期进行。
- (2) 端子的紧固螺钉请定期重新紧固。
- (3) 不能仅仅更换盒子里的交流接触器。
- (4) 不能更换触头以及线圈。

6.3 其他

- (1) 热过载继电器脱扣时, 在去除过载等异常原因之后, 请打开盖子, 按下热过载继电器的复位棒。
- (2) 盖子上紧固螺钉的推荐力矩, FJ-B09WP~B25WP: $0.8\sim 1.2$ [N·m], FJ-B32WP: $2\sim 2.5$ [N·m]。
- (3) FJ-B25WP 可能盖子不易盖上, 接线时将负载侧的连接线向左靠, 这样盖子就容易盖上。(图 6)
- (4) FJ-B32WP 接地螺钉的推荐力矩为 $2\sim 2.5$ [N·m]。

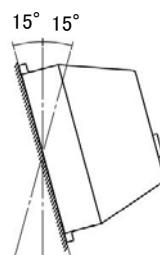


图 1

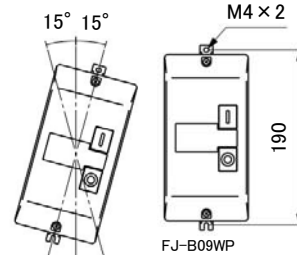


图 2

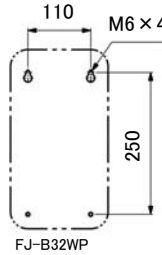


图 3

▼ 标志 电流整定刻度盘

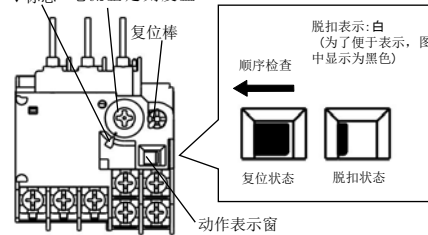


图 4

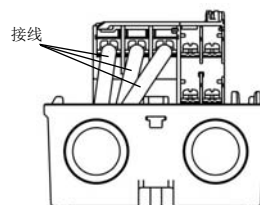


图 6

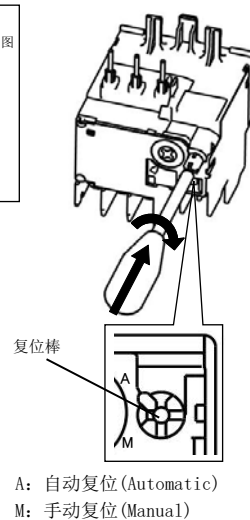


图 5

富士电机机器制御株式会社

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