



## **THERMOPLASTIC PANELBOARDS**



Fuji-Haya Electric Corp. (FHEC) is committed to delivering high-quality and safe equipment that meets International Standards. Our unwavering dedication to safety and customer satisfaction drives us to innovate and provide cutting-edge solutions based on customer requirements.

# OVERVIEW

## THERMOPLASTIC SERIES

### ***Breaker Only Series***

- Purely breaker-focused design.
- Main breakers are available up to 3-pole, with a maximum rating of 125 AF.
- Four box sizes are available, accommodating up to 18 branch breakers.
- Ideal for residential, hotel, and office applications.



### ***With Magnetic Contactor Series***

- Includes branch breakers and magnetic contactors as accessories.
- Main breakers are available up to 2-pole, with a maximum rating of 125 AF.
- One box size is available, housing up to 14 branch breakers.
- Recommended for hotel and residential applications.



### ***With ATS and CCR Series***

- Combines branch breakers, ATS, and Current Controller Relay (CCR).
- Main breakers are available up to 2-pole, with a maximum rating of 125 AF.
- One box size is available, housing up to 16 branch breakers.
- Highly recommended for high-end residential applications.

# MAJOR COMPONENTS

## THERMOPLASTIC SERIES

### ENCLOSURE

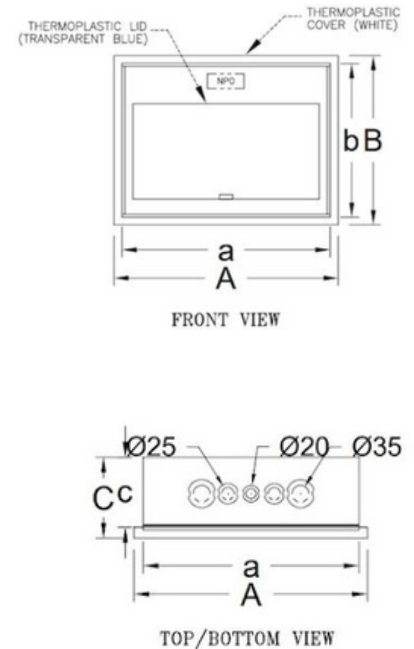
#### Technical Specifications:

- Protection degree: IP30/NEMA1
- Mounting type: Flush mounted
- Enclosure material: Galvanized Steel 1.00 mm thick<sub>1</sub>
- Enclosure Color: White
- Frame & Cover Material: Fire-retardant thermoplastic material<sub>2</sub>
- Cover Color: Transparent blue
- Door Opening: Push-pull mechanism opens up to 135 degrees<sub>3</sub>



#### Dimensions and Knockouts:

| Box Model | No. of Rows | DIMENSION (mm) |     |     |     |     |     | Knockouts Top/Bottom<br>(Qty-diameter in mm) |
|-----------|-------------|----------------|-----|-----|-----|-----|-----|--|
|           |             | A              | B   | C   | a   | b   | c   |  |
| FHE 12    | 1           | 305            | 230 | 105 | 282 | 210 | 90  | 4-35mm 4-25mm 2-20mm                         |
| FHE 15    | 1           | 360            | 250 | 105 | 336 | 230 | 90  | 4-35mm 4-25mm 10-20mm                        |
| FHE 21    | 1           | 467            | 250 | 105 | 444 | 230 | 90  | 4-35mm 4-25mm 10-20mm                        |
| FHE 24    | 1           | 525            | 260 | 105 | 503 | 240 | 90  | 4-35mm 4-25mm 10-20mm                        |
| FHE 63    | 3           | 467            | 750 | 115 | 444 | 732 | 100 | 4-35mm 4-25mm 10-20mm                        |



### BREAKERS



#### Technical Characteristics:

- Breaker Type: MCB and MCCB
- Rated current: Up to 125 Ampere<sub>a</sub>
- Rated Operational Voltage: 230/400 VAC
- System compatibility: 1 Phase + N + G
- MCB kAIC Rating: Up to 10kA
- MCCB kAIC Rating: Up to 25kA
- No. of Poles: 1, 2 & 3

#### Standards:

- <sub>1</sub> IEC 61439-6:2012, sections 9.102 and 10.102 and PEC 2017 Article 4.8.4.1 Panel Fire Resistance.  
<sub>2</sub> DOST tested for Flammability under UL 94 Standard (Refer to the "Certification" Section for a copy of certificate).  
<sub>3</sub> IEC 62208:2011, section 8.4 for access to enclosure interior.

#### Notes:

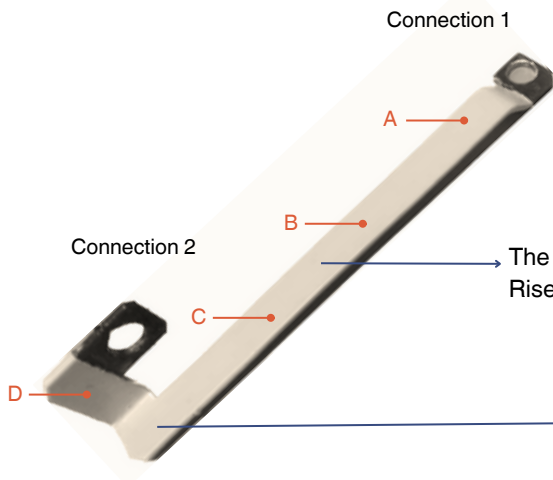
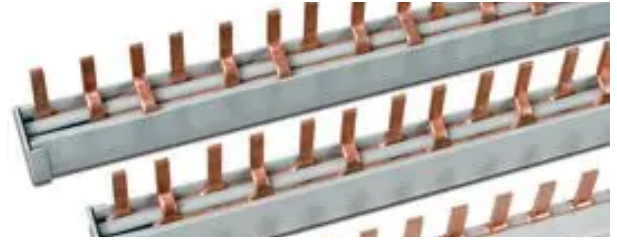
<sub>a</sub> For more than 125 ampere, refer to our contact details at the end of the brochure for more information



## COMB BUS and BUSBAR CONNECTOR

### Technical Specifications:

- Rated Operation Voltage: 400 VAC
- Busbar Rated Current: 125 Amps<sub>a</sub>
- Max. Current Per Feeder: 63 Amps
- System compatibility: 1 Phase + N + G
- Tin-plated copper busbars 99.9%, ampacity tested through temperature rise test.
- Insulation: Pure polyester epoxy coatings with 80 microns coating that offers high resistance against environmental corrosion and abrasion and temperature rise.
- Insulated busbars successfully passed insulation resistance (IR) test.



| Connection | Point A   | Point B   | Point C   | Point D   |
|------------|-----------|-----------|-----------|-----------|
| 1          | > 536 G Ω | > 536 G Ω | > 536 G Ω | > 536 G Ω |
| 2          | > 536 G Ω | > 536 G Ω | > 536 G Ω | > 536 G Ω |

The maximum Temperature Rise recorded is 15.31°C Temperature Rise within the 24-hour exposure under 100A load.

The insulated busbar connector

## EXTRACTABLE DIN-RAIL MOUNTING

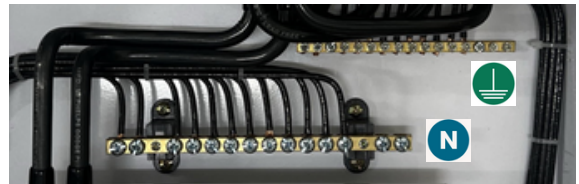


- Made from 35 mm galvanized iron for a sturdy and reliable foundation.
- Components can be removed and installed from the front without dismantling the panel, ensuring a safer, easier, and less error-prone installation process.

## GROUND and NEUTRAL BUS

### Technical Specifications:

- Multi-slot neutral and ground terminals
- Made of Zinc-Copper alloy material
- Neutral bus is rated at 100% of phase conductor<sub>1</sub>
- The ground bus provided is rated up to 50% of the main breaker rating and bonded to the enclosure<sub>2</sub>



### Standards:

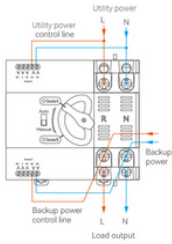
- <sub>1</sub> IEC 61439-1 section 8.6.1 Neutral bus.
- <sub>2</sub> IEC 61439-1 section 8.4.3.2.2 Ground bus.

### Notes:

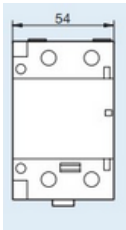
- <sub>a</sub> For more than 125 ampere, refer to our contact details at the end of the brochure for more information

# ACCESSORIES

## THERMOPLASTIC SERIES



**Automatic Transfer Switch (ATS)** – Component used for power management, allowing the automatic transfer and usage of emergency power during power outages without needing manual intervention. Used in residential, hotel and office applications.

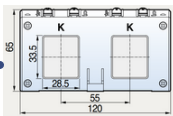
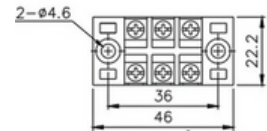


**Magnetic Contactor (MC)** - Component used as a power switch for either part or the whole of the branch breakers, used in remote operations like key cards and motion detectors. Usually used in residential and hotel applications.

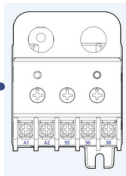
**Auxiliary Relay (AXR)** – For remote operations in combination with Magnetic Contactors.



**Terminal Block (TB)** – For remote signals into the panel controls, in combination with Magnetic Contactors.

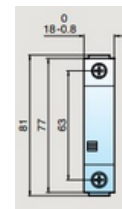


**Current Transformer (CT)** – To provide usable signals for protective or controller relays, like Current Controller Relays.

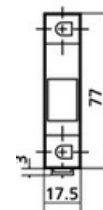


**Current Controller Relay (CCR)** – For power management and to monitor and restrict current consumption. Used in high-end residential applications.

**Shunt Trip (SHT)** – To allow operation of circuit breaker through external signals.



**Current Limiting Fuse (CLF)** – To isolate and protect control circuits.



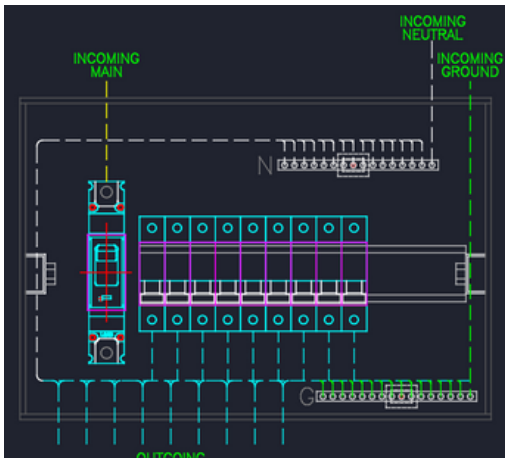
### TECHNICAL DATA

| Specifications                     | Breaker Only                  | W/ Magnetic Contactor | W/ ATS & Current Controller |
|------------------------------------|-------------------------------|-----------------------|-----------------------------|
| <b>Application</b>                 | Residential, Hotel and Office | Hotel and Residential | High-End Residential        |
| <b>Main Breaker Type</b>           | MCB, MCCB                     | MCB, MCCB             | MCB, MCCB                   |
| <b>Rated Operating Current</b>     | Up to 125A                    | Up to 125A            | Up to 125A                  |
| <b>Rated kAIC</b>                  | 10, 25 kAIC                   | 10, 25 kAIC           | 10, 25 kAIC                 |
| <b>Rated Operating Voltage</b>     | up to 600V                    | up to 600V            | up to 600V                  |
| <b>Rated Control Voltage</b>       | 220VAC                        | 220VAC                | 220VAC                      |
| <b>Frequency</b>                   | 60Hz                          | 60Hz                  | 60Hz                        |
| <b>Main Breaker No. of Poles</b>   | 1,2,3                         | 1,2                   | 1,2                         |
| <b>Branch Breaker AF</b>           | Up to 63 AF                   | Up to 63 AF           | Up to 63 AF                 |
| <b>Branch Breaker No. of Poles</b> | 1                             | 1                     | 1                           |
| <b>Accessories</b>                 | None                          | MC, AXR, CLF & TB     | ATS, SHT, CT & CCR          |
| <b>Current setting range</b>       | None                          | None                  | 0.5-6/3-30/5-60A            |

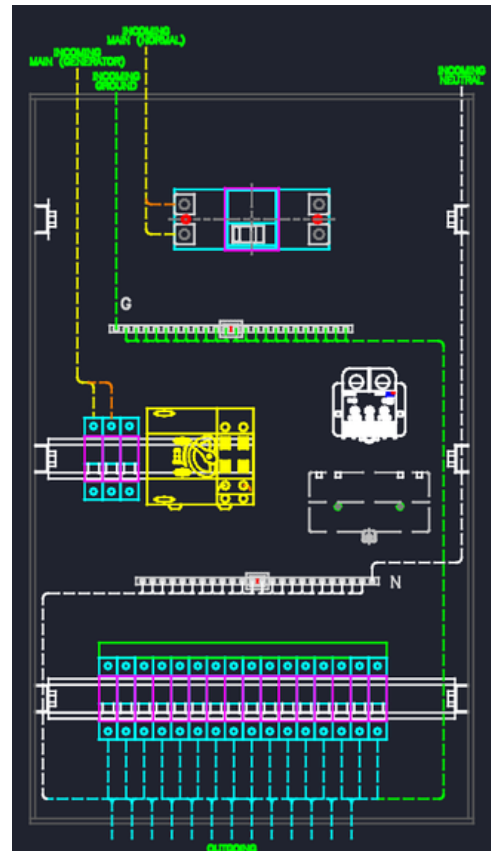
### WIRING & CABLE CONNECTION

**Recommended Cable Entry: Top Entry / Bottom Exit**

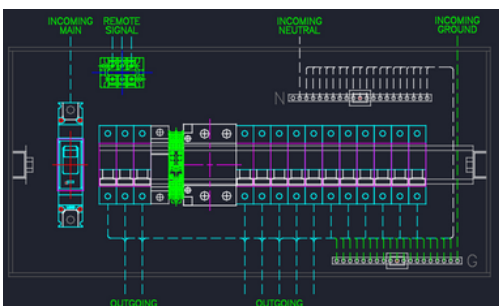
**Breaker Only**



**With ATS & Current Controller**



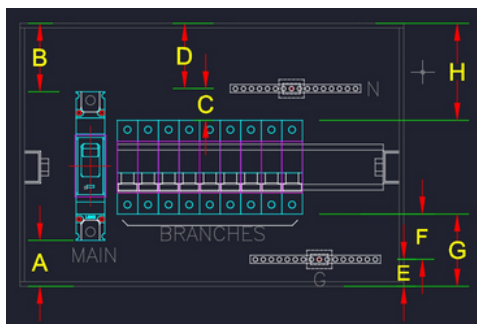
**With Magnetic Contactor**





**WIRE BENDING, CLEARANCE and SPACES**

| Main Breaker |               |                         |            |              | Number of Branches (Max) <sup>1</sup> | Box Model <sup>2</sup> | Wire Bending Space / Clearances <sup>3</sup> (in mm) |    |    |    |    |    |    |    |
|--------------|---------------|-------------------------|------------|--------------|---------------------------------------|------------------------|--|----|----|----|----|----|----|----|
| Series       | Ampere Frame  | Rated Operating Current | Rated kAIC | No. of Poles |                                       |                        | A  | B  | C  | D  | E  | F  | G  | H  |
| Breaker Only | 63 AF (BKN-b) | Up to 63A               | 10         | 1            | 8                                     | FHE 12                 | 55   | 73 | 23 | 50 | 27 | 26 | 53 | 73 |
|              |               |                         |            | 2            | 7                                     |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 3            | 6                                     |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 1            | 11                                    | FHE 15                 | 65   | 85 | 41 | 44 | 22 | 40 | 62 | 85 |
|              |               |                         |            | 2            | 10                                    |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 3            | 9                                     |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 1            | 15                                    | FHE 21                 | 65   | 85 | 41 | 44 | 22 | 40 | 62 | 85 |
|              |               |                         |            | 2            | 14                                    |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 3            | 13                                    |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 1            | 18                                    | FHE 24                 | 68   | 90 | 36 | 54 | 26 | 44 | 70 | 90 |
|              |               |                         |            | 2            | 17                                    |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 3            | 16                                    |                        |  |    |    |    |    |    |    |    |
|              | 1             | 11                      | FHE 15     | 40**         | 60                                    | 38                     | 44   | 24 | 42 | 66 | 82 |    |    |    |
|              | 1             | 15                      | FHE 21     | 40**         | 60                                    | 38                     | 44   | 24 | 42 | 66 | 82 |    |    |    |
|              | 1             | 18                      | FHE 24     | 45**         | 63                                    | 32                     | 56   | 32 | 34 | 66 | 88 |    |    |    |
|              | 125AF (BKH)   | Up to 125A              | 10         | 1            | 8                                     | FHE 12                 | 55   | 73 | 23 | 50 | 27 | 26 | 53 | 73 |
|              |               |                         |            | 2            | 7                                     |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 3            | 6                                     |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 1            | 11                                    | FHE 15                 | 65   | 85 | 41 | 44 | 22 | 40 | 62 | 85 |
|              |               |                         |            | 2            | 10                                    |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 3            | 9                                     |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 1            | 15                                    | FHE 21                 | 65   | 85 | 41 | 44 | 22 | 40 | 62 | 85 |
|              |               |                         |            | 2            | 14                                    |                        |  |    |    |    |    |    |    |    |
|              |               |                         |            | 3            | 13                                    |                        |  |    |    |    |    |    |    |    |
| 1            |               |                         |            | 18           | FHE 24                                | 68                     | 90   | 36 | 54 | 26 | 44 | 70 | 90 |    |
| 2            |               |                         |            | 17           |                                       |                        |  |    |    |    |    |    |    |    |
| 3            |               |                         |            | 16           |                                       |                        |  |    |    |    |    |    |    |    |



**STANDARDS:**

- <sup>1</sup> In compliance with PEC 2017 Articles 3.12.2.2 Panel Spacing and 3.14.2.2 Box Fill, FHE thermoplastic panels are designed with a maximum fill rate of 80% of the enclosure.
- <sup>3</sup> In compliance with PEC 2017 Articles 3.12.1.6 and 4.8.4.6. Wire Bending Space/Clearances.

**Notes:**

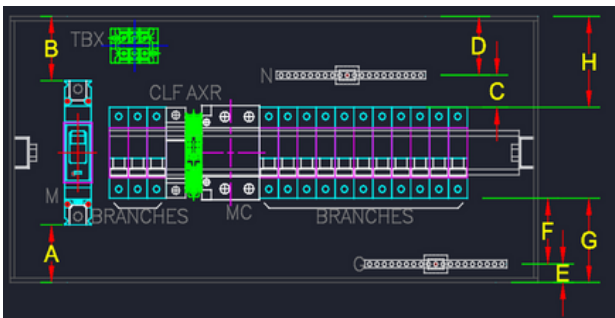
- <sup>2</sup> For box dimensions per model, refer to "Enclosure" section.
- \*\* For ABN101 main breaker, there is a MCCB adaptor attached with the din-rail and busbar connector in lieu of wire.



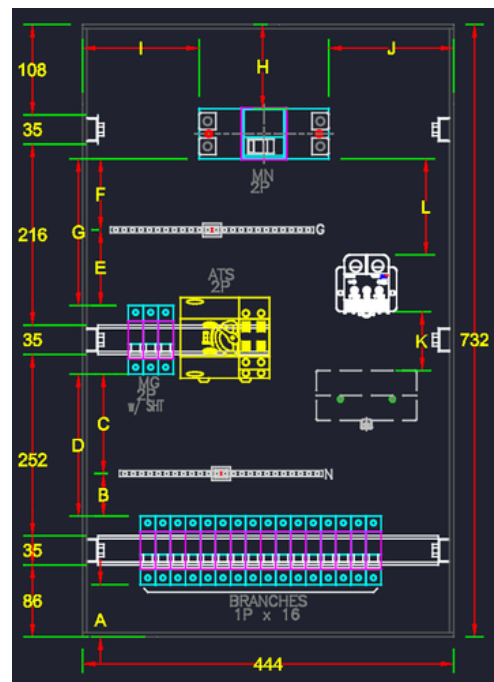
**WIRE BENDING, CLEARANCE and SPACES**

| Main Breaker            |              |              |                         |            |           |              | Branch Breaker |                                       |        | Box Model <sub>2</sub> | Wire Bending Space / Clearances <sub>3</sub> (in mm) |     |     |    |     |    |     |     |    |     |    |      |        |     |     |     |     |     |    |     |    |     |     |    |     |
|-------------------------|--------------|--------------|-------------------------|------------|-----------|--------------|----------------|---------------------------------------|--------|------------------------|--|-----|-----|----|-----|----|-----|-----|----|-----|----|------|--------|-----|-----|-----|-----|-----|----|-----|----|-----|-----|----|-----|
| Series                  | Ampere Frame | Type         | Rated Operating Current | Rated kAIC | Main Type | No. of Poles | No. of Poles   | Number of branches (Max) <sub>1</sub> | A      |                        | B  | C   | D   | E  | F   | G  | H   | I   | J  | K   | L  |      |        |     |     |     |     |     |    |     |    |     |     |    |     |
| With Magnetic Contactor | 63AF         | BKN-b (V)    | Up to 63A               | 10         | Common    | 1            | 1              | 14                                    | FHE 24 | 69                     | 90   | 34  | 56  | 27 | 39  | 66 | 90  | -   | -  | -   | -  |      |        |     |     |     |     |     |    |     |    |     |     |    |     |
|                         |              |              |                         |            |           | 2            |                | 13                                    |        |                        |  |     |     |    |     |    |     |     |    |     |    |      |        |     |     |     |     |     |    |     |    |     |     |    |     |
|                         | 100 AF       | ABN 101c (V) | Up to 100A              | 25         |           | 1            |                | 14                                    |        |                        |  |     |     |    |     |    |     |     |    |     |    | 41** | 65     | 38  | 51  | 30  | 38  | 65  | 90 | -   | -  | -   | -   |    |     |
|                         |              |              |                         |            |           | 2            |                | 13                                    |        |                        |  |     |     |    |     |    |     |     |    |     |    | 69   | 90     | 34  | 56  | 27  | 39  | 66  | 90 | -   | -  | -   | -   |    |     |
| 125AF                   | BKH (V)      | Up to 125A   | 10                      | MN+MG      | 1         | 2            | 14             | FHE 63                                | 64     | 55                     | 117  | 173 | 102 | 87 | 191 | 92 | 156 | 156 | 77 | 140 |    |      |        |     |     |     |     |     |    |     |    |     |     |    |     |
|                         |              |              |                         |            | 2         |              | 13             |                                       |        |                        |  |     |     |    |     |    |     |     |    |     | 82 | 186  | 87     | 144 | 143 | 77  | 135 |     |    |     |    |     |     |    |     |
| With ATS & EMPR         | 100 AF       | ABN 102c (H) | Up to 100A              |            | 25        |              | 2              |                                       |        |                        |  |     |     |    |     |    |     |     |    |     | 1  | 16   | FHE 63 | 64  | 55  | 117 | 173 | 102 | 87 | 191 | 92 | 156 | 156 | 77 | 140 |
|                         |              |              |                         |            |           |              |                |                                       |        |                        |  |     |     |    |     |    |     |     |    |     |    |      |        |     |     |     |     |     |    |     |    |     |     |    |     |

**With Magnetic Contactor**



**With ATS & Current Controller**



**STANDARDS:**

- <sub>1</sub> In compliance with PEC 2017 Articles 3.12.2.2 Panel Spacing and 3.14.2.2 Box Fill, FHE thermoplastic panels are designed with a maximum fill rate of 80% of the enclosure.
- <sub>3</sub> In compliance with PEC 2017 Articles 3.12.1.6 and 4.8.4.6. Wire Bending Space/Clearances.

**Notes:**

- <sub>2</sub> For box dimensions per model, refer to "Enclosure" section.
- \*\* For ABN101 main breaker, there is a mccb adaptor attached with the din-rail and busbar connector in lieu of wire.





## CONTACT

### US NOW



(02) 8892 8886



[fujihayaelectric.com](mailto:fujihayaelectric.com)



Plant and Head Office  
Silangan Industrial Park Canlubang,  
Calamba City, Laguna, Philippines 4028

Tel. No.: +63 (2) 994-2058  
Fax No.: +63 (0) 844-0903



Makati Liaison Office (Sales Office)  
2nd Flr. Matrince Building, 2178 Pasong Tamo Street  
Makati City, Philippines 1201

Tel. No.: +63 (2) 892-8886  
Fax No.: +63 (0) 893-5645



Cebu Sales Office  
24A, Latitude Corporate Center, Mindanao Ave, Ayala Cebu  
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