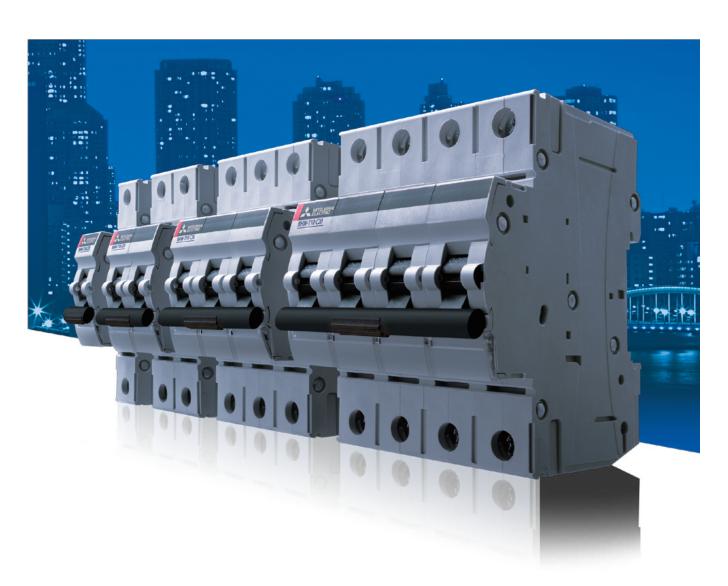




**FACTORY AUTOMATION** 

# Miniature Circuit Breakers Residual Current Circuit Breakers Isolators

# **DIN Series**









# Introducing the DIN Series...

High-quality, high-performance circuit breakers suitable for household electrical distribution panels

# DIN Series



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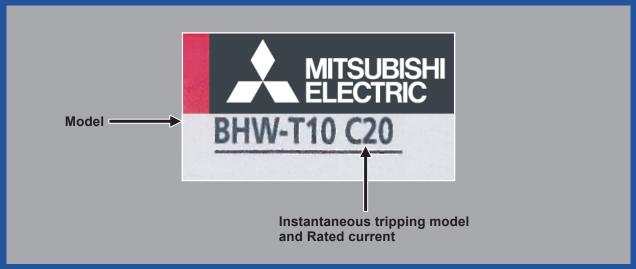
#### **Features**

- (1) All models fully comply with IEC regulations
- (2) Compliance with IP2X protection rating (front surface)
- (3) All models are compatible with reverse connection
- (4) Rated currents up to 100A for MCBs, 100A for RCCBs
- (5) Accessories suitable for field fitted for MCBs (80 to 100A)

#### **Product Line-up**

Model		No of poles (P)	Rating Instantaneous tripping		Voltage (V)	Short-Circuit capacity (kA)	Compliance standard
		1, 2(1+N), 2, 3, 4(3+N), 4	6 to 63A	TYPE B	240/415AC	10	IEC 60898-1
MCBs	BHW-T10	1, 2(1+N), 2, 3, 4(3+N), 4	0.5 to 63A	TYPE C, D	240/415AC	10	IEC 60898-1
MCBS	BHW-110	1, 2, 3, 4	80 to 100A	TYPE B, C	240/415AC	10	IEC 60898-1 IEC 60947-2
RCCBs	BVW-T	2(1+N), 4(3+N)	16 to 100A	_	240/415AC	_	IEC 61008-1
Isolators KBW-T	KDW T	1, 2, 3, 4	25 to 63A	-	240/415AC	_	IEC 60947-3
	KDVV-1	2, 3, 4	80 to 125A	_	240/415AC	_	IEC 60947-3

#### Explanation of Markings (Example Model: BHW-T10)



#### **Technical Specifications**

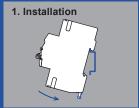
Ambient temperature range	MCBs, Isolators	-10 to +40℃
Ambient temperature range	RCCBs	-25 to +40℃
Frequency		50/60Hz

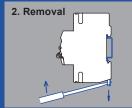
#### **Points to Note**

#### Installation & Removal

Standard IEC 35mm rail installation is possible. Fix by attaching a slip stopper.

#### Fig-1





#### Connection

At the time of wire connection, fasten the terminal screws with the torque stated in the table below.

#### Fastening torque

. dotoming to quo									
Screw diameter	Fastening torque (N·m)	Model							
М3	0.5	AL-1BHW, AX-05BHW, AX-1BHW							
M5	2.0	BHW-T10(0.5 to 63A), BVW-T, KBW-T(25 to 63A),SHT (0.5 to 63A)							
M6	2.5	KBW-T(80 to 125A)							
M8	3.5	BHW-T10(80 to 100A)							

#### **?** Opening, Closing and Tripping Operations

Move the handle up/down to turn power On/Off. Tripping operation refers to automatic opening (breaking) of circuits.

#### ▲ Earth-leakage Test

#### Earth-leakage test steps:

- (1) Move the handle to the On position under rated voltage.
- (2) Push the yellow test button.
- \* Please conduct the above test regularly.
- \* Do not use the test button to switch off the RCCBs.
- (3) At this time, the RCCBs must be tripped within the specified time.
- (4) The handle will move to the Off position.

#### 5 Cleaning

Never use thinner, detergent, and other chemicals for cleaning. It is likely to make letters on the plate illegible or to lower insulation performance. Clean the breaker using air cleaner or by brushing.

#### Selection

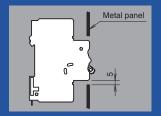
In case of installing MCBs side by side, reduce the passing current to under 80% of the rated current. Set current rating with enough allowance while taking fluctuation of power voltage and load current into consideration.

#### 7 Connection with solderless terminal

Crimp after loosening strand of the connection wire and putting the core wires together. Regular inspection and retightening are necessary as the wires come loose as time goes.

#### 8 Installation

When a metal panel comes close to MCBs (80 to 100A), be sure to secure a distance of more than 5mm in between.



#### **Specifications**

-		ſ												
								МС	Bs					
Mode	el		BHW-T10											
lmag														
No. of poles [P]			1	2(1+N)*1	2	3	4(3+N)*1	4	1	2(1+N)*1	2	3	4(3+N)*1	4
Instantaneous tripping	+2				Тур	e B					Туре	C, D		
Rated insulation voltage	$ge U_i[V]$				66	60					66			
Rated current In [A] at ambient temperature	e 30℃				6, 10, 16 32, 40,	5, 20, 25, 50, 63					0.5, 1, 2 6, 10, 16 32, 40,	, 20, 25,		
Rated short- IEC/EN	AC	240V			1	0					1	0		
circuit 60898-1		240/415V	10	0 – 10				10	-		1	0		
capacity (Icn)		415V	_	- 10					-	-		1	0	
Energy limiting class*3		`	Class 3											
Number of	Without	current	4,000											
operating cycles	With cur	rent		4,000										
Dimensions [mm] a	ca	а	18	3	6	54	72		18	3	6	54	72	2
a a	- <u>C</u> -	b						92	2.6					
	٦ ٢	С						4	4					
ا الكاا		ca						Max.	73.5					
Type of overcurrent re	lease	1	Thermal-magnetic											
Mounting								IEC 35ı	mm rail					
Applicable wire size [n							1 to	25						
Mass [kg]		0.13	0.25	0.26	0.39	0.51	0.52	0.13	0.25	0.26	0.39	0.51	0.52	
Accessories (optional)	Auxiliary sv													
	Shunt trip (SHT)													
Terminal connection								Solderless						
Based on standard								IEC/EN						
CE marking							E. Footo	<u> </u>	)					

- \*1: N pole is a switched neutral pole (without overcurrent release device). \*2: Type B (3  $I_n$  <,  $\le$  5  $I_n$ ), Type C (5  $I_n$  <,  $\le$  10  $I_n$ ), Type D (10  $I_n$  <,  $\le$  20  $I_n$ ) \*3: Except for Type D \*4: Field fitted

- \*5: Factory fitted
  \*6: In case of installing breakers side by side, reduce the passing current to under 80% of the rated current.

				MCBs								
	Mode	əl		BHW-T10								
Image												
No. of pole	s [P]			1	1 2 3 4							
Instantane	ous tripping	•1			Тур	e B, C						
Rated insu	lation voltag	je <i>U</i> i [V]			6	690						
Rated	Amb.	IEC/EN 60898-1	30℃		90	, 100						
[A] temp. IEC/EN 60947-2			40°C		00	, 100						
	IEC/EN		240V			10						
Rated short-	60898-1	AC	240/415V			10						
short- circuit (Icn) 415V				_	- 10							
capacity [kA]	IEC/EN 60947-2	AC	240V	10/7.5								
	(Icu/Ics)		415V	- 10/7.5								
	ulse withstan	d voltage l	U <sub>imp</sub> [kV]	6								
Utilization (				A								
Pollution d				3								
Number of operating of		Without		10,000								
	-	With curr		4,000								
Dimension (mm)	s a [	ca	а	27	54	81	108					
ľ			b			94						
		<b>1</b>	С			44						
L	٠ الـ		ca	74.5								
Type of ove	ercurrent rel	ease			Therma	I-magnetic						
Mounting					IEC 3	5mm rail						
Applicable wire size [mm²]						to 35						
Mass [kg]				0.21	0.42	0.63	0.84					
Accessories	s (optional) °2	Alarm swi				0						
Terminal co	onnection	, animaly of				ss terminal						
Based on s				·		I, IEC/EN 60947-2						
CE markin					00000	0						
	1: Type B (3 $I_0 < \le 5 I_0$ ), Type C (5 $I_0 < \le 10 I_0$ )											

- \*1: Type B (3  $I_n <$ ,  $\le 5 I_n$ ), Type C (5  $I_n <$ ,  $\le 10 I_n$ )
  \*2: Field fitted
  \*3: In case of installing breakers side by side, reduce the passing current to under 80% of the rated current.

#### **Specifications**

-		RCC	CBs					
Model		BV\	N-T					
Image								
No. of poles [P]		2 (1+N)*1	4(3+N) *1					
Rated voltage [VAC]		240	415					
Rated current In [A] at ambient temperature 30°C		16, 25, 32, 40	0, 63, 80, 100					
Rated current sensitivity $I_{\Delta n}$ [	mA]	30, 10	0, 300					
Max. operating time at 5 $I_{\Delta n}$ [	s]	0.0	04					
Pulsating current sensitivity		Туре	AC					
Residual operation		Independent of line voltage						
Rated making and breaking capa	city $I_m$ [A]	500( <i>I</i> <sub>n</sub> 16, 25, 32, 40A), 630( <i>I</i> <sub>n</sub> 63A), 800( <i>I</i> <sub>n</sub> 80A), 1000( <i>I</i> <sub>n</sub> 100A)						
Rated conditional short-circuit curre	nt $I_{nc}$ [kA]	1	10					
Rated residual making and breaking cap	oacity $I_{\Delta m}$ [A]	500(I <sub>n</sub> 16, 25, 32, 40A), 630(I <sub>n</sub> 6	500(I <sub>n</sub> 16, 25, 32, 40A), 630(I <sub>n</sub> 63A), 800(I <sub>n</sub> 80A), 1000(I <sub>n</sub> 100A)					
Rated conditional residual short-circuit cu	rrent I <sub>AC</sub> [kA]	10						
Nullibel of	t current	4,000° <sup>2</sup>						
operating cycles With cu	urrent	2,0	00					
Dimensions [mm] a ca	а	36	72					
	b	9	0					
	С	4						
	ca	7.						
Mounting		IEC 35r						
Applicable wire size [mm²]		1 to	35					
Mass [kg]		0.22	0.44					
Accessories		Not av						
Terminal connection		Solderless terminal						
Based on standard		IEC/EN (						
CE marking								

<sup>\*1:</sup> N pole is a switched neutral pole.
\*2: In case of ampere rating 32, 40, 63, 80 and 100A, the number of operating cycles is 3,000.

						Isolators											
Model			KBW-T														
Image																	
No. of poles [P]			1	2	3	4	2	3	4								
Utilization category				AC-	22A			AC-22A									
Rated current In [A] at ambient temperatu	re 30°C			25, 4	0, 63			80, 100, 125									
Rated voltage [VAC]			240		240/415			240/415									
Short time withstand	current I	w [A]		12×lı	n, 1s			12×In, 1s									
Short-circuit making of	capacity I	I <sub>cm</sub> [A]		12:	<li>In</li>	12×ln											
Rated impulse withstand	d voltage (	Jimp [kV]		6	6	6											
Pollution degree				2	2	2											
Dimensions [mm] a [	ca a		18	36	54	72	36	72									
		<u> </u>		<u></u>	<u></u>	<u></u>	<u></u>	<u> </u>	<u></u>	b	92.6				92.6		
		С		44				44									
		ca		Max.	73.5		Max. 73.5										
Number of	Without	current		10,0	000		10,000 8,000(125A)										
operating cycles	With cur	rent		1,5	00	1,500 1,000(125A)											
Mounting				IEC 351	mm rail			IEC 35mm rail									
Applicable wire size [mm²]				1 to	25			10 to 50									
Mass [kg]			0.12	0.22	0.33	0.47	0.20	0.30	0.40								
Accessories				Not av	ailable		Not available										
Terminal connection				Solderles	s terminal	Solderless terminal											
Based on standard				IEC/EN	60947-3		IEC/EN 60947-3										
CE marking				C	)			0									

Miniature Circuit Breakers (MCBs)

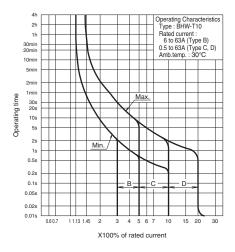
#### BHW-T10 (0.5 to 63A)



	Model		BHW-T10												
No. of po	No. of poles [P]				2(1+N)*1	2	3	4(3+N)*1	4	1	2(1+N)*1	2	3	4(3+N)*1	4
Instantan	eous trippir	ng				Тур	е В			Type C,D					
Rated ins	sulation volt	age	U <sub>i</sub> [V]			66	60				660				
	Rated current In [A] at ambient temperature 30°C				6,10,16,20,25, 32,40,50,63					0.5,1,2,3,4,5, 6,10,16,20,25, 32,40,50,63					
Rated short-					10				10						
		240/415V	10	-			10		10	-			10		
		cn)			-			10			-			10	

<sup>\*1:</sup> N pole is a switched neutral pole (without overcurrent release device).

#### **■**Operating Characteristics

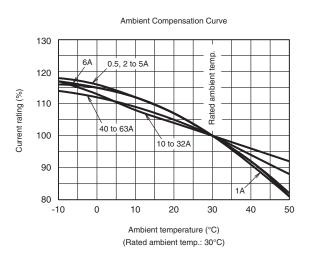


#### **■**Outer Dimensions

# MS screw Neutral pole (3P+N only) Neutral pole (3P+N only) Neutral pole (3P+N only) MS screw Neutral pole (3P+N only) Neutral pole (3P+N only)

1P+N.2P

#### ■ Ambient Compensation Curve =



<sup>\*</sup> In case of installing breakers side by side, reduce the passing current to under 80% of the rated current.

#### **Accessories**

#### **Functions of Accessories**

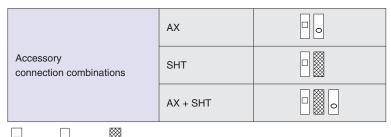
Accessory	Function
AX Auxiliary switch	Electrically indicates the On/Off status of the circuit breaker.
SHT Shunt trip	Electrically trips the circuit breaker from a remote location.  Permissible working voltage is 100% of the rated voltage.

#### **Specifications**

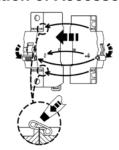
Acce	ssory	AX
Mo	odel	AX-05BHW
Contact	Configuration	1C
Contact	Contact capacity	230VAC 5A
Conn	ection	Solderless terminal
Fitn	nent	Field fitted

Accessory	SHT						
Cut-off switch	Equipped						
Voltage	12VDC	24VDC	48VDC	220VAC			
Input power requirement [VA]	40	110	300	250			
Operating time [ms]		<2	20				
Connection	Solderless terminal						
Fitment		Factory fitted					

#### **Combinations of Accessories**

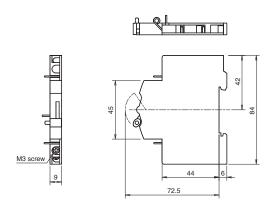


#### **Installation of Accessories**



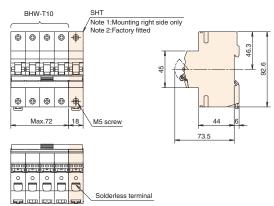
#### **Outer Dimensions**

AX



#### SHT

AX



<sup>\*</sup>Secure a sufficient input power supply so that the voltage will not drop below the permissible working voltage (100% of the rated voltage).
\*The operating time denotes the time from when the rated voltage is applied to SHT until the time the main contact of the breaker starts to open.

Miniature Circuit Breakers (MCBs)

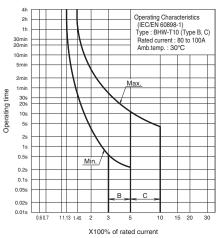
#### BHW-T10 (80 to 100A)



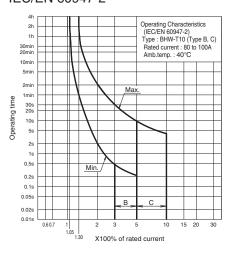
	Model BHW-T10								
No. of poles [P]				1	2	3	4		
Instantaneous tripping				Type B, C					
Rated insulation voltage U <sub>i</sub> [V]			$U_{\rm i}\left[{\sf V}\right]$	690					
Rated	current temp.	IEC/EN 60898-1	30℃	20.400					
		IEC/EN 60947-2	40°C		80, 100				
	IEC/EN		240V		1	0			
Rated short-	60898-1 (Icn)		240/415V	10					
circuit			415V	-		10			
capacity [kA]	IEC/EN 60947-2 (Icu/Ics)	-2 AC	240V	10/7.5					
			415V	_		10/7.5			

#### **■**Operating Characteristics

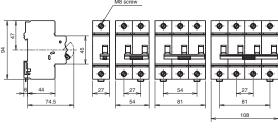
#### IEC/EN 60898-1



#### IEC/EN 60947-2

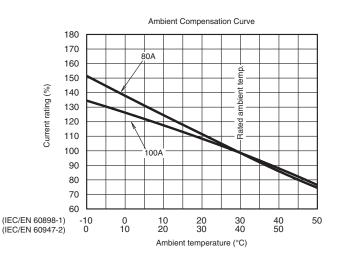


#### **■**Outer Dimensions





#### **■**Ambient Compensation Curve



<sup>\*</sup> In case of installing breakers side by side, reduce the passing current to under 80% of the rated current.

#### **Accessories**

#### **Functions of Accessories**

Accessory	Function
<b>AL</b> Alarm switch	Electrically indicates the trip status of the circuit breaker.
AX Auxiliary switch	Electrically indicates the On/Off status of the circuit breaker.

#### **Specifications**

Acce	essory	AL	AX
Model		AL-1BHW	AX-1BHW
Contact	Configuration	1C	1C
Contact	Contact capacity	230VAC 5A	230VAC 5A
Connection		Solderless terminal	Solderless terminal
Fitment		Field fitted	Field fitted

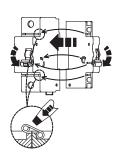
#### **Combinations of Accessories**

Accessory	AL	
connection combinations	AX	0



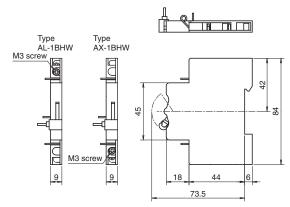
#### **Installation of Accessories**

AL, AX



#### **Outer Dimensions**

AL, AX



Residual Current Circuit Breakers (RCCBs)

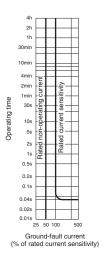
#### **BVW-T**



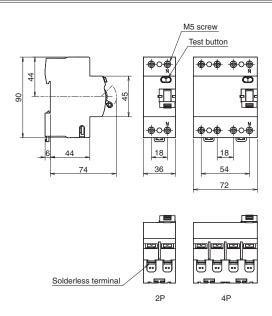
Model	BVW-T			
No. of poles [P]	2(1+N)*1	4(3+N)*1		
Rated voltage [VAC]	240	415		
Rated current $I_n$ [A] at ambient temperature 30°C	16, 25, 32, 40	0, 63, 80, 100		
Rated current sensitivity $I_{\Delta n}$ [mA]	30, 10	0, 300		
Max. operating time at 5 $I_{\Delta n}$ [s]	0.	04		
Pulsating current sensitivity	Туре	e AC		
Residual operation	Independent	of line voltage		
Rated making and breaking capacity $I_m$ [A]	500(ln 16, 25, 32, 800(ln 80A),			
Rated conditional short-circuit current Inc [kA]	1	0		
Rated residual making and breaking capacity $I_{\Delta m}$ [A]	500(ln 16, 25, 32, 800(ln 80A),			
Rated conditional residual short-circuit current $I_{\Delta c}$ [kA]	1	0		

<sup>\*1:</sup> N pole is a switched neutral pole.

#### **■**Earth-Leakage Tripping Characteristics



#### **■**Outer Dimensions



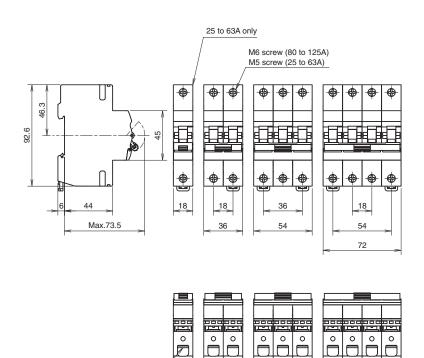
#### Isolators

#### **KBW-T**



Model	квw-т							
No. of poles [P]	1	2	3	4	2	2 3 4		
Utilization category	AC-22A			AC-22A				
Rated insulation voltage U <sub>i</sub> [V]		6	60		660			
Rated voltage Ue [VAC]	240		240/415		240/415			
Rated current $I_n$ [A] at ambient temperature 30°C	25, 40, 63			80, 100, 125				
Short-time withstand current $I_{cw}$ [A]	12×In, 1s			12×In, 1s				
Short-circuit making capacity Icm [A]		12	×In			12×ln		

#### **■**Outer Dimensions =



Solderless terminal

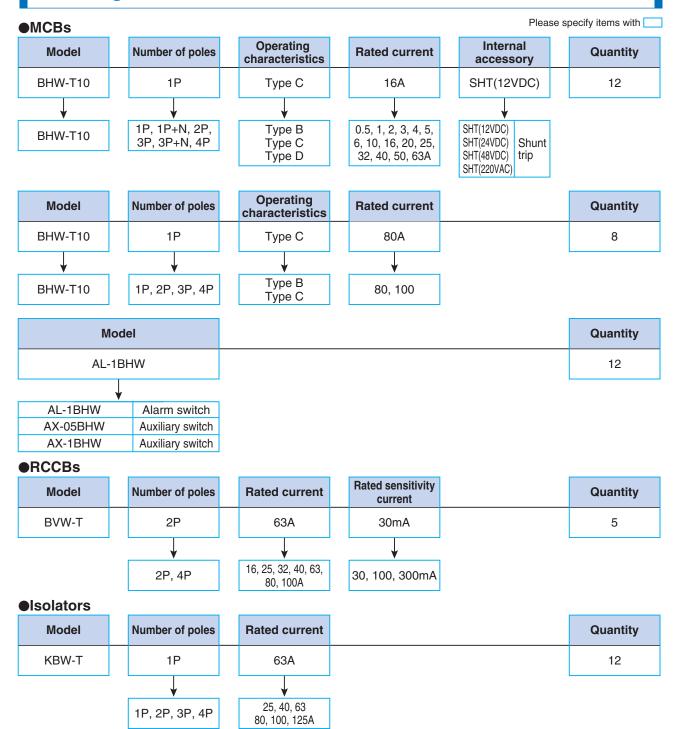
1P

2P

3P

4P

#### **Ordering Information**



#### **Information from Fukuyama Works**

#### **FA Global Site**

http://www.mitsubishielectric.com/fa/products/lvd/lvcb/index.html



#### **Four Key Features**

- Product Information
- 2 Downloads
- News
- Support

#### **MEMO**

#### MINIATURE CIRCUIT BREAKERS, RESIDUAL CURRENT CIRCUIT BREAKERS & ISOLATORS

#### Sales Network

Country / Region	Corporation Name	Address	Telephone
Australia	Mitsubishi Electric Australia Pty. Ltd.	348 Victoria Road, Rydalmere, N.S.W. 2116, Australia	+61-2-9684-7777
Bangladesh	PROGRESSIVE TRADING CORPORATION	Haque Tower, 2nd floor, 610/11, Jubilee Road, Chittagong, Bangladesh	+880-31-624-307
	ELECTRO MECH AUTOMATION& ENGINEERING LTD.	Purana Paltan Lane, (VIP Road), Rokeya Mansion(6th floor), Room#702, Dhaka-1000, Bangladesh	+880-28-321-791
Belarus	Tehnikon	Oktyabrskaya 19, Off. 705, BY-220030 Minsk, Belarus	+375(0)17/210 46 26
Belgium	Koning & Hartman B.V.	Woluwelaan 31, BE-1800 Vilvoorde, Belgium	+32(0)2/2570240
Cambodia	DHINIMEX CO.,LTD	#245, St. Tep Phan, Phnom Penh, Cambodia	+855-23-997-725
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	Mitsubishi Electric Automation (China) Ltd.	Mitsubishi Electric Automation Building, No.1386 Honggiao Road, Shanghai, 200336	+86-21-2322-3030
	Mitsubishi Electric Automation (China) Ltd.	9/F, Office Tower1 Henderson Centre 18 Jianguomennei	
	BeiJing Branch	Dajie DongCheng district BeiJing 100005	+86-10-6518-8830
	Mitsubishi Electric Automation (China) Ltd.	Room 25122516, Great China International Exchange Square,	
	ShenZhen Branch	Jintian Rd.S., Futian District, Shenzhen, 518034	+86-755-2399-8272
China	Mitsubishi Electric Automation (China) Ltd.	Room 1609, North Tower, The Hub Center, No.1068, Xing Gang	
	GuangZhou Branch		+86-20-8923-6730
		East Road, Haizhu District, Guang Zhou, China 510335	
	Mitsubishi Electric Automation (China) Ltd.	Block B, Room 407-408, Shangri-La Center Offeice Builliding,	+86-28-8446-8030
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For Safety: Please read the instruction manual carefully before using the products in this catalog.

Wiring and connection must be done by the person have a specialized knowledge of electric construction and wiring.



for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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