

MOLDED CASE CIRCUIT BREAKER CMM-HU DC

OPERATIONAL MANUAL



This document describes the technical specifications, operation, and installation of the product.
The product must be handled and operated by qualified personnel only.

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1. GENERAL

CMM-HU series Photovoltaic special DC molded case circuit breaker is applicable to DC power grid circuits with rated voltage up to DC1500V and rated current 800A. The DC circuit breaker has overload long delay protection and short circuit instantaneous protection functions, which are used to distribute electric energy and protect the line and power supply equipment from overload, short circuit and other faults.

2. STANDARDS

- a) IEC/EN60947-2

3. TECHNICAL DATA

Model CMM-HU		125		250		320	
Shell frame current Inm (A)		125		250		320	
Number of poles of products		2		2	3	2	3
AC working voltage (V)		250	500	500/1000	1500	500 / 1000	1500
Rated insulation voltage Ui(V)		1000DC		1250DC	1500DC	1250DC	1500DC
Rated impulse withstands voltage Uimp (KV)		8		8	12	8	12
Rated current In (A)		50, 63, 80, 100, 125		63, 80, 100, 125, 140, 160, 180, 200, 225, 250		280, 315, 320	
Ultimate short-circuit breaking capacity Icu (kA)	S	40	40 (5ms)	50 / 20	20	50 / 20	20
	N	/		/		/	
Running short-circuit breaking capacity Ics(kA)		Ics=100%Icu					
Wiring method		Up in and down out, down in and up out, Down in and up out, up in and down out(3P)					
Isolation function		Yes					
Tripping type		Thermal-magnetic type					
Electrical life(time)		5000	3000	3000 / 2000	1500	3000 / 2000	1500
Mechanical life(time)		20000		20000		20000	
Attached accessories		Shunt, Alarm, Auxiliary, Manual operation, Electric operation					

Model CMM-HU		400		630		800	
Shell frame current Inm (A)		400		630		800	
Number of poles of products		2	3	2	3	2	3
AC working voltage (V)		500 / 1000 / 1500	1500	500 / 1000 / 1500	1500	500 / 1000 / 1500	1500
Rated insulation voltage Ui(V)		1500DC		1500DC		1500DC	
Rated impulse withstands voltage Uimp (KV)		12		12		12	
Rated current In (A)		225, 250, 315, 350, 400		500, 630		630, 700, 800	
Ultimate short-circuit breaking capacity Icu (kA)	S	65 / 35 / 15	15 ① 20 ②	65 / 35 / 15	15 ① 20 ②	65 / 35 / 15	15 ① 20 ②
	N	70 / 40 / 20	20 ① 25 ②	70 / 40 / 20	20 ① 25 ②	70 / 40 / 20	20 ① 25 ②
Running short-circuit breaking capacity Ics(kA)		Ics=100%Icu					
Wiring method		Up in and down out, down in and up out, Down in and up out, up in and down out(3P)					
Isolation function		Yes					
Tripping type		Thermal-magnetic type					
Electrical life(time)		1000 / 1000 / 700	500	1000 / 1000 / 700	500	1000 / 1000 / 700	500
Mechanical life(time)		10000		5000		10000	
Attached accessories		Shunt, Alarm, Auxiliary, Manual operation, Electric operation					

Note: ① 2P connection in series, ② 3P connection in series

4. USAGE INFORMATION

- The normal operating environment temperature of the products is -5°C~+40°C;
- Pollution level: III;
- Main circuit installation category: III;
- Shell protection level: IP20;
- Terminals screw torque (N) of CMM-HU: 250,320 – M8 / 12N; 400,630,800 – M12 / 40N.

Note: If the operating temperature is -35°C~+70°C, the user should consult the manufacturer;
If the altitude of installation exceeds 4000m, consult the manufacturer.

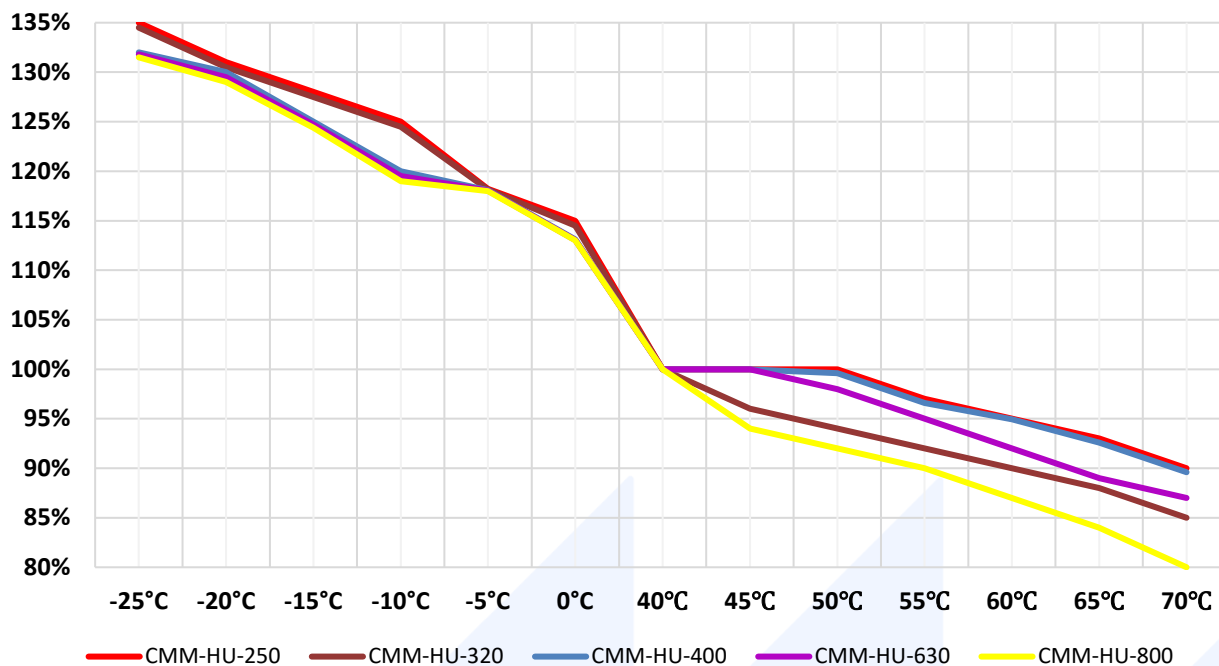
5. TEMPERATURE DERATING COEFFICIENT

Montê MCCBs are subject to current derating based on the ambient temperature at the installation site. The table below indicates the correction factors to be applied to the rated current (In) as a function of ambient temperature.

Products	Temperature derating coefficient (Current xIn)												
	-25°C	-20°C	-15°C	-10°C	-5°C	0°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
CMM-HU-250	1,35	1,3	1,28	1,25	1,18	1,15	1	1	1	0,97	0,95	0,93	0,9
CMM-HU-320	1,35	1,3	1,28	1,25	1,18	1,15	1	0,96	0,94	0,92	0,9	0,88	0,85
CMM-HU-400	1,32	1,3	1,25	1,2	1,18	1,13	1	1	1	0,97	0,95	0,93	0,9
CMM-HU-630	1,32	1,3	1,25	1,2	1,18	1,13	1	1	0,98	0,95	0,92	0,89	0,87
CMM-HU-800	1,32	1,3	1,25	1,2	1,18	1,13	1	0,94	0,92	0,9	0,87	0,84	0,8

5.1. Chart based on circuit breaker frame ratings

Rated current (%) as a function of temperature (°C)

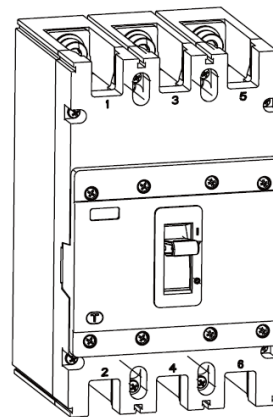


6. INSPETION AND TEST

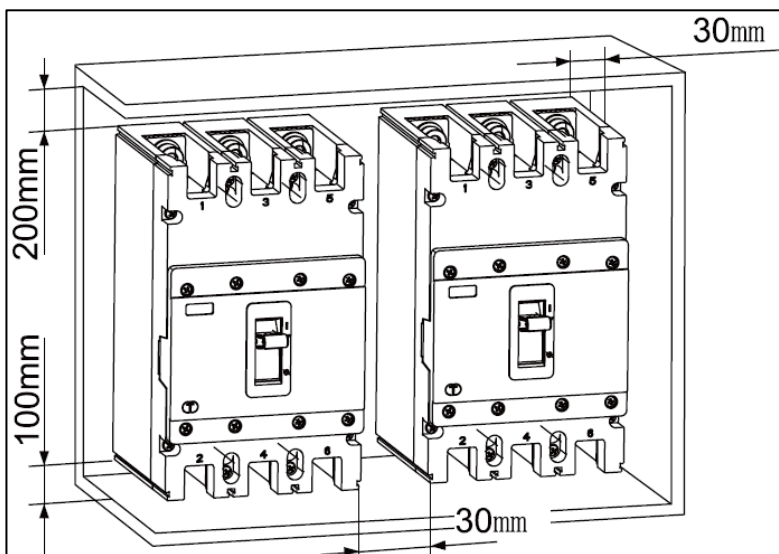
6.1. Inspect

Model	Recommended Installation Screws	Quantity	Torque (N)
CMM-HU-250/320	M4 x 90	4	1,5
CMM-HU-400/630/800	M5 x 85	2	1,5

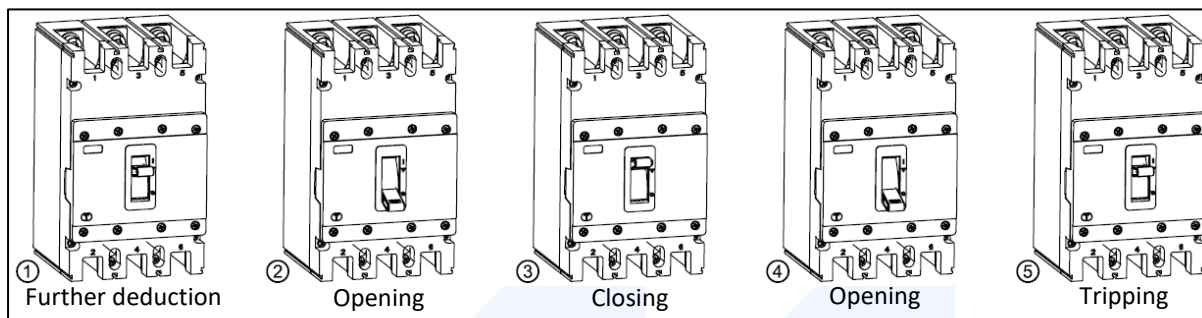
- a) Determine the product technical parameters;
- b) The installation, operation and maintenance work of the product is limited to professionally qualified personnel.



6.2. Minimum Installation Distance

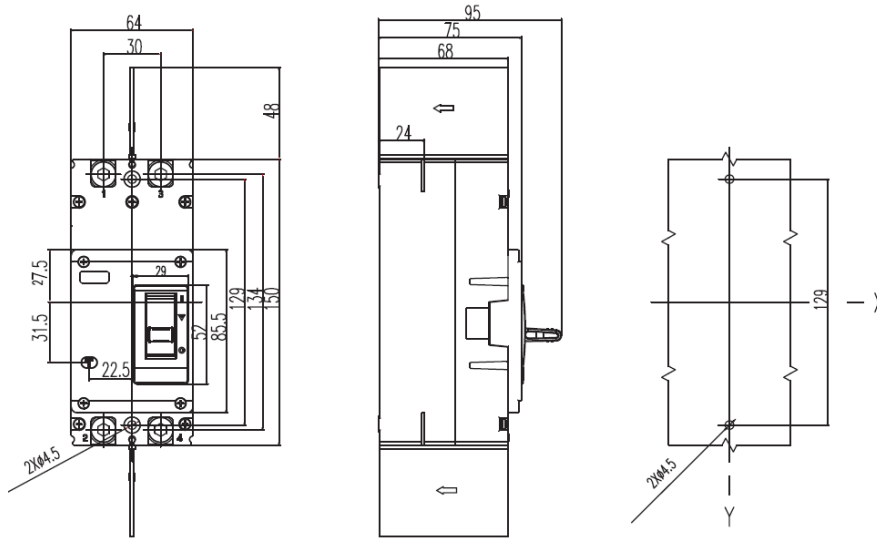


6.3. Pre-test

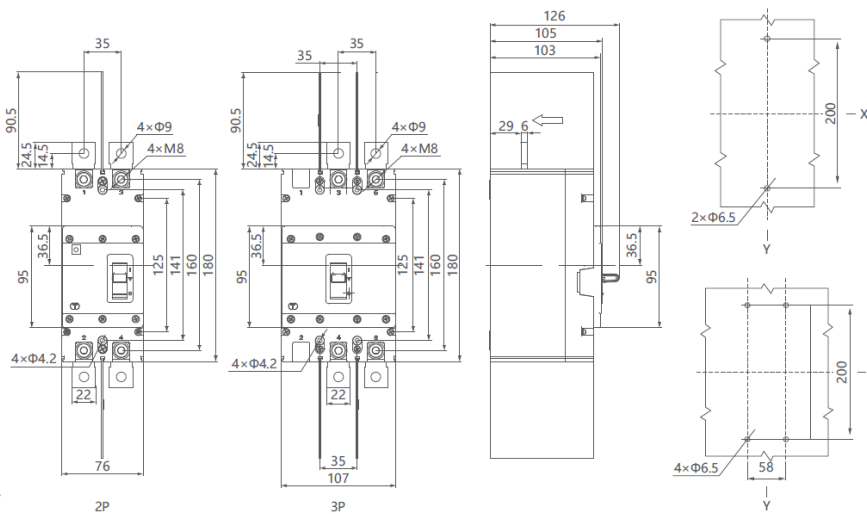


7. APPEARANCE AND INSTALLATION DIMENSIONS

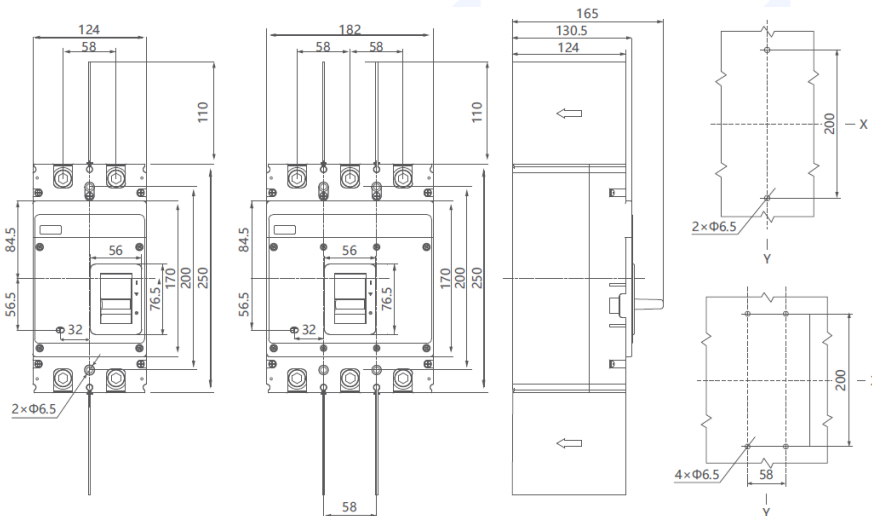
7.1. CMM-HU-125



7.2. CMM-HU-250/320

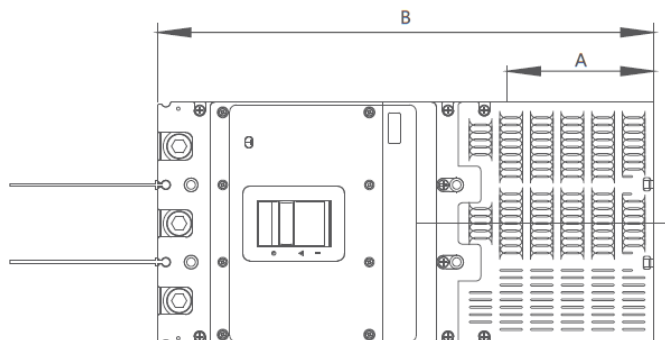


7.3. CMM-HU-400/630/800

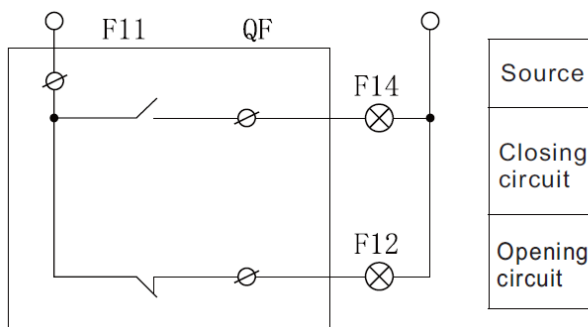


7.4. Installation Drawing of CMM-HU with arcing cover

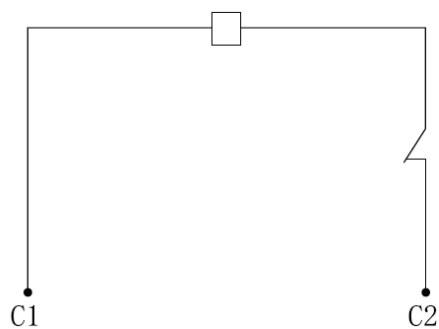
Model	Arcing cover length A	Total length B
CMM-HU-250/320	64	245
CMM-HU-400/630/800	64	314



8. ATTACHMENT INFORMATION



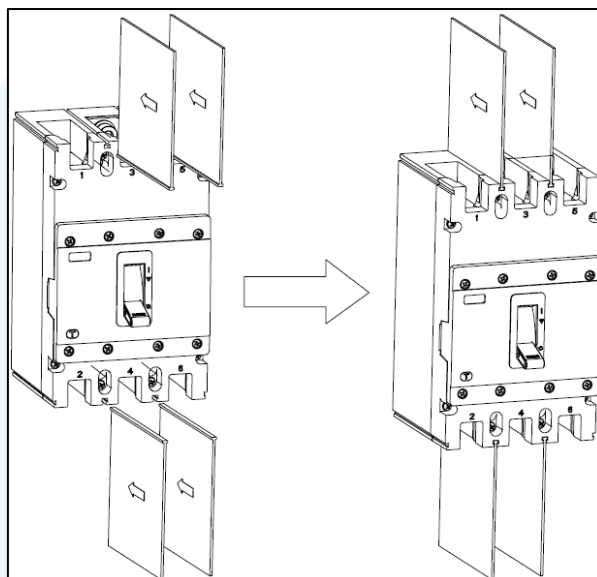
Auxiliary contact wiring diagram



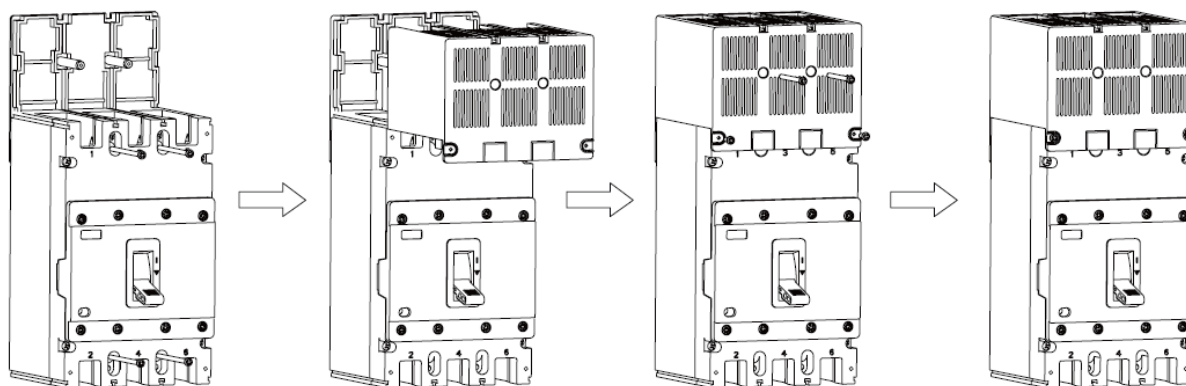
Wiring diagram of shunt release

8.1. Installation of interphase arc separation plate

- Be sure to install it before running the product "Protective Cover";
- Check if the product wiring is correct;
- Insulation resistance to ground after installation. The inspection should not be less than 10MΩ.



8.2. Installation of Partitions and Shields



9. SAFETY TIPS

- a) The product is strictly prohibited from being installed in environments containing flammable and explosive gases or damp condensation, and it is strictly prohibited to operate the product with wet hands;
- b) During product operation, it is strictly prohibited to touch conductive parts of the product;
- c) When installing, maintaining, and maintaining products, it is necessary to ensure that the circuit is powered off;
- d) Do not install in areas where gas media can corrode metals and damage insulation;
- e) To avoid dangerous accidents, the installation and fixation of the product must strictly follow the requirements of the manual.

10. WARRANTY TERMS

- I) Upon receiving the product, the customer must verify that it is intact and free of visible damage. If any component appears to be damaged, Montê must be contacted immediately.
- II) Montê warrants all of its products against manufacturing defects, provided that, after analysis by Montê's authorized technical department, the defect is confirmed under normal operating/installation conditions.
- III) All costs related to installation, removal, transportation, freight, and insurance are the responsibility of the customer.
- IV) Products must be returned with a copy of the invoice, identifying the customer and the date of issue, in order to validate the product's warranty period.
- V) The warranty period is one (1) year from the date of issuance of the purchase invoice.
- VI) Transferring the product to third parties does not void the validity of this warranty.
- VII) The limitations of these warranty terms include:
 - Expiration of the warranty period as specified above;
 - Connecting the controller to a power supply subject to excessive voltage variations or outside the specified standards;
 - Use contrary to the operation manual and regulatory standards;
 - Damage caused by natural agents (lightning, flooding, salt spray, among others) or excessive heat exposure;
 - Use of the product in environments with corrosive gases, excessive humidity, dust, acidity, high or low temperatures, etc.;
 - Damage caused by accidents;
 - Damage resulting from transport or inadequate packaging provided by the customer;
 - Evidence of the product having been opened, adjusted, repaired, altered, or modified by unauthorized persons not approved by Montê;

- Damage or malfunction caused by software or hardware incompatible with Montê specifications;
 - Natural wear of parts (product lifespan).
- VIII)** Replacement of defective parts and warranty-related services will only be provided within Brazilian territory and by a professional authorized by Montê.
- IX)** This warranty is valid only within the national territory of Brazil.
- X)** In case of loss of warranty due to any of the reasons listed in this document, repair or replacement of the equipment will be subject to a prior quotation.
- XI)** Limitations of liability:
- Under no circumstances shall Montê be held liable for any direct or indirect damages, including but not limited to lost profits, special, incidental, or consequential damages, whether based on contract, tort, negligence, or any other legal theory;
 - Equipment sent for technical assistance or replacement may have its configuration settings and stored data restored to factory defaults (due to repair, updates, or adjustments). Therefore, the user must ensure data and configuration backup prior to sending the product;
 - Montê shall not be held responsible for any loss or theft of equipment during transit.

11. SUPPORT

- **Support by e-mail:** suporte1@monte.rs
- **Technical Support Montê:** (51) 3062-0809
- **Technical Support (Whatsapp):** (51) 98019-7809 or (51) 99461-6186

12. DOCUMENT CONTROL

REVIEW	DATA	AUTHOR	DESCRIPTION	APPROVAL
REV_0	06/08/2025	Guilherme Bassani	Elaboração do Manual	Giuli Tavares