



MD880-80 Series DCDC brochure

User Guide

1 Summary

Thank you for purchasing MD880-80 series bidirectional DC chopper power supply products of INOVANCE technology!

MD880-80 series DC chopper is a bi-directional DC chopper power supply product launched by INOVANCE technology. It has the characteristics of high power density, compact structure, high reliability, and can meet the requirements of wide voltage regulation, high precision, fast dynamic response and programmable power output. It includes two voltage level systems of 400V and 690V, with single unit power of 50kw-750kw and maximum capacity expansion of 10 parallel units. It is suitable for battery charge and discharge controller, energy storage converter, DC test power supply and other applications.

This manual is the user's Manual of MD880-80 series DC chopper Integration Kit, including safety precautions, product information, mechanical installation, electrical installation, control module instruction, quick debugging, basic parameters, functional modules, fault handling, etc. for users who use this manual for the first time, please read this manual carefully. If you are confused about some functions and performance, please consult our technical support personnel for help.

2 Product Infomation

Nameplate

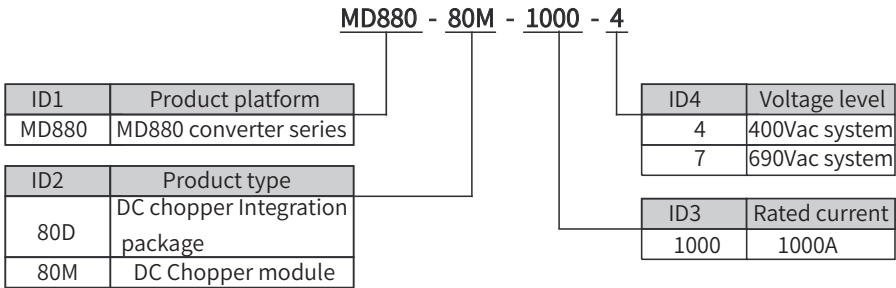


Figure 1 model description of nameplate

Specification

500V	Voltage				Nominal ratings		Light-overload use (200%,10s/60s)			Heavy-duty use (150%,1min/5min)	
	I _I	V _I	V _O	V _{O, nom}	I _N	P _N	I _{fast}	I _{max}	P _{fast}	I _{Hd}	P _{Hd}
	I(DC)	V(DC)	V(DC)	V(DC)	A(DC)	kW	A(DC)	A(DC)	kW	A(DC)	kW
MD880-80D-0100-4	91	540 ~ 720	50 ~ 670	500	100	50	75	150	38	85	43
MD880-80D-0200-4	182	540 ~ 720	50 ~ 670	500	200	100	150	300	75	170	85
MD880-80D-0300-4	273	540 ~ 720	50 ~ 670	500	300	150	225	450	113	255	128
MD880-80D-0400-4	364	540 ~ 720	50 ~ 670	500	400	200	300	600	150	340	170
MD880-80D-0500-4	455	540 ~ 720	50 ~ 670	500	500	250	375	750	188	425	213
MD880-80D-0600-4	545	540 ~ 720	50 ~ 670	500	600	300	450	900	225	510	255
MD880-80D-0800-4	727	540 ~ 720	50 ~ 670	500	800	400	600	1200	300	680	340
MD880-80D-1000-4	909	540 ~ 720	50 ~ 670	500	1000	500	750	1500	375	850	425

1000V	Voltage				Nominal ratings		Light-overload use (200%,10s/60s)			Heavy-duty use (150%,1min/5min)	
	I _I	V _I	V _O	V _{O, nom}	I _N	P _N	I _{fast}	I _{max}	P _{fast}	I _{Hd}	P _{Hd}
	I(DC)	V(DC)	V(DC)	V(DC)	A(DC)	kW	A(DC)	A(DC)	kW	A(DC)	kW
MD880-80D-0100-7	100	740 ~ 1050	50 ~ 1000	1000	100	100	75	150	75	85	85
MD880-80D-0200-7	200	740 ~ 1050	50 ~ 1000	1000	200	200	150	300	150	170	170
MD880-80D-0300-7	301	740 ~ 1050	50 ~ 1000	1000	300	300	225	450	225	255	255
MD880-80D-0400-7	401	740 ~ 1050	50 ~ 1000	1000	400	400	300	600	300	340	340
MD880-80D-0500-7	501	740 ~ 1050	50 ~ 1000	1000	500	500	375	750	375	425	425
MD880-80D-0600-7	601	740 ~ 1050	50 ~ 1000	1000	600	600	450	900	450	510	510

Symbol description: I_I: Rated current (HV side); V_I: Working voltage (high voltage side); V_O: working voltage (low voltage side); V_{O, nom}: rated voltage; I_N: rated current (low voltage side); P_N: rated power; I_{fast}: continuous output current for fast overload applications; I_{max}: maximum output current of fast overload application, lasting for 10s (every 60s); P_{fast}: output power of fast overload application; I_{Hd}: continuous output current for heavy overload applications; P_{Hd}: output power for heavy overload application

Technical Data

Item	Specifications
Basic data	Voltage (high voltage side) 400V: 540 ~ 720Vdc 690V: 740 ~ 1050Vdc
	Voltage (low voltage side) 400V: 50 ~ 600Vdc 690V: 100 ~ 1000Vdc
	Carrier frequency 4KHz
	Overload Capability Light-overload use(200%,10s/60s) Heavy-duty use(150%,1min/5min)
	Work efficiency ≥ 97%
	Response time ≤ 10ms(Rated voltage 10%-90% Sudden load)
	Regenerative power 100%
Mechanical data	Anti vibration performance Conform to vibration level of 3m4 in GB / t4798.3 Steady state sinusoidal vibration: 2-9Hz, 3mm 9 ~ 200Hz,10m/s ² Impact: 100M / s ² , time 11ms
	Safety performance Conform to EN 61800-5-1
	Cooling method Forced air cooling /EN 60146
	Protection Short circuit, overcurrent, overvoltage, undervoltage, overheating, etc
Environment requirements	Place of use Indoor, no direct sunlight, no dust, corrosive gas, combustible gas, oil mist, water vapor, water drop or salt, etc Below 1000m above sea level,
	Altitude and derating operation is required above 1000m. For every 100m increase, derating is 1%, and the highest use altitude is 4000m
	Operating temperature -10 °C ~ + 40 °C , Derating is required when the temperature exceeds 40 °C . Derating is 1% for every 1 °C increase in the ambient temperature, and the maximum operating ambient temperature is 50 °C
	Operating humidity 5% - 95%, no condensation
	Storage temperature -40°C ~ +70°C
	Storage humidity 5% - 95%, no condensation
	Class of pollution PD2
	Overvoltage rating OVCI
	Protection level Frame size H2,H4: IP20
	Frame size H6 ~ H8: IP00

NOTE Due to the basic topological characteristics of DC chopper, the voltage at high voltage side is at least 50V higher than that at low voltage side.

3 Electrical principle and wiring

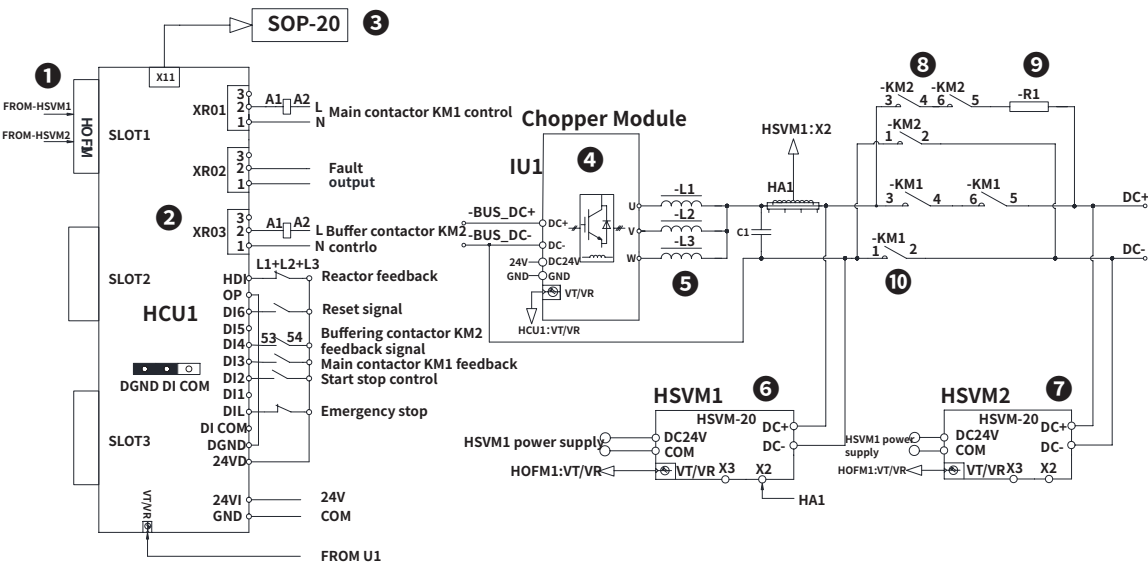


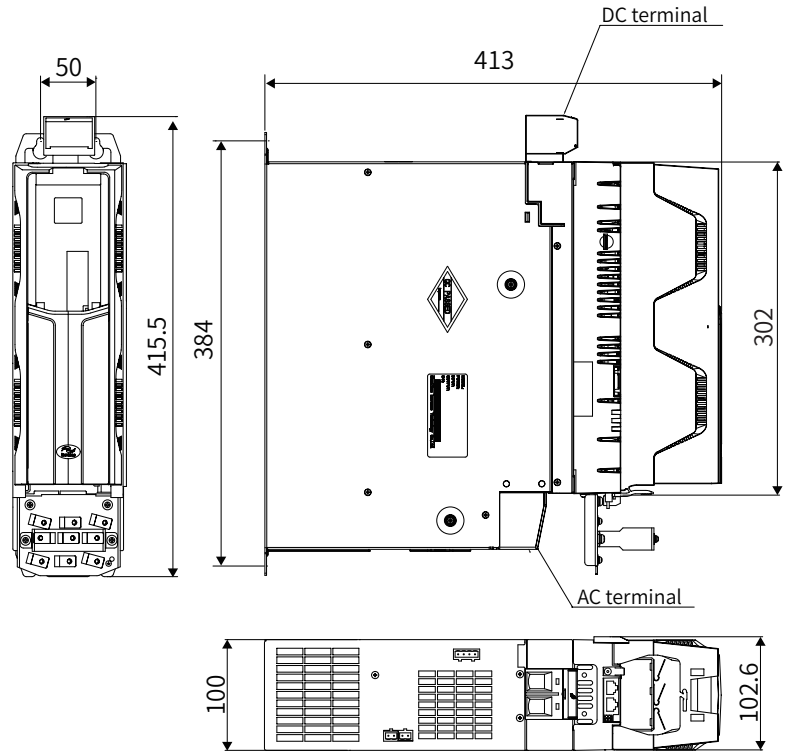
Figure 2 electrical principle and wiring diagram

No.	Name	Description
1	HOFM-30 optical fiber expansion module	Connect to HCU through SLOT slot, expand multi-channel optical fiber interface for HCU
2	HCU Control Unit module	Connect the rectifier module U1 through optical fiber or electric port communication as the controller of md880-80D product
3	SOP-20 smart keyboard	HCU can be connected through network cable to set parameters, burn software, start stop control, communication relay and other operations of DC chopper
4	DC Chopper module	DC Chopper power module
5	Output filter	LC output filter
6	HSVM-10	Synchronous voltage module collects AC voltage for DC chopper module
7	HSVM-20	Synchronous voltage module collects DC voltage for DC chopper module
8	Pre charging contactor	Pre charging contactor for low voltage side
9	Pre charging resistor	Pre charging resistor for low voltage side
10	Main contactor at low voltage side	Control the DC output closing and opening at the low voltage side (this material is not in the scope of supply, which shall be purchased by the customer according to the demand)

4 Installation technical data

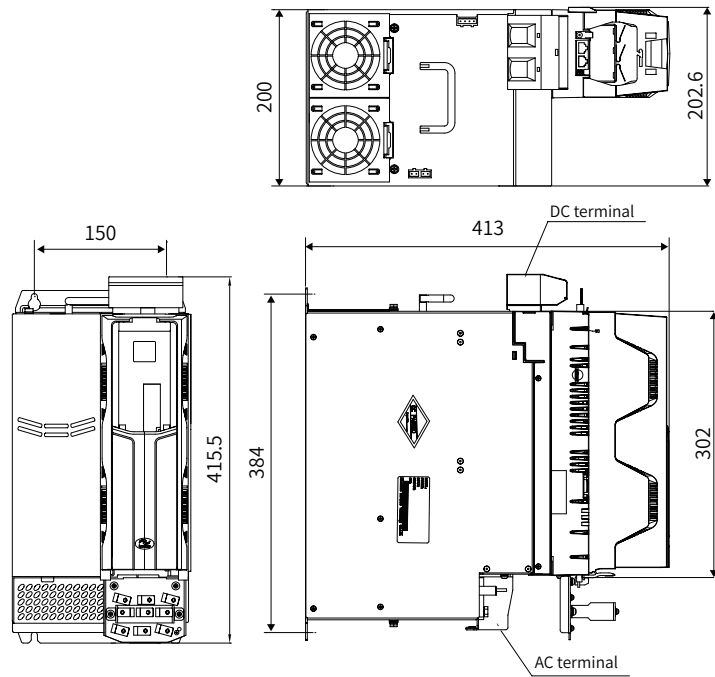
DC chopper module size

1) H3



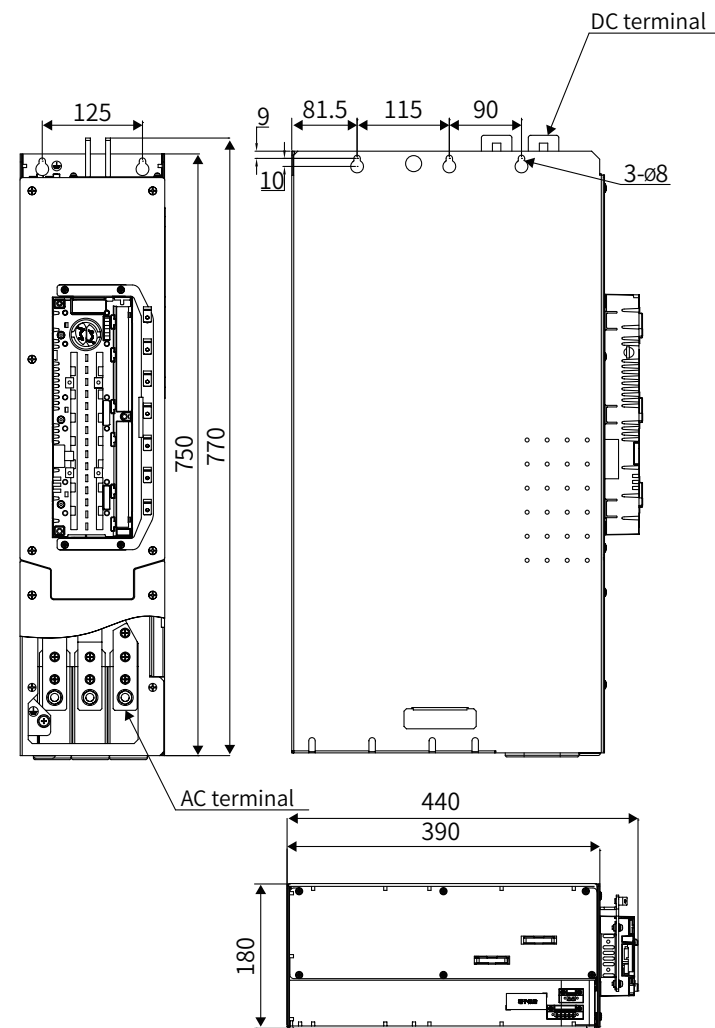
Frame size	DCDC Order No.	Connection aperture
H3	MD880-80D-0100-4	M6

2) H4



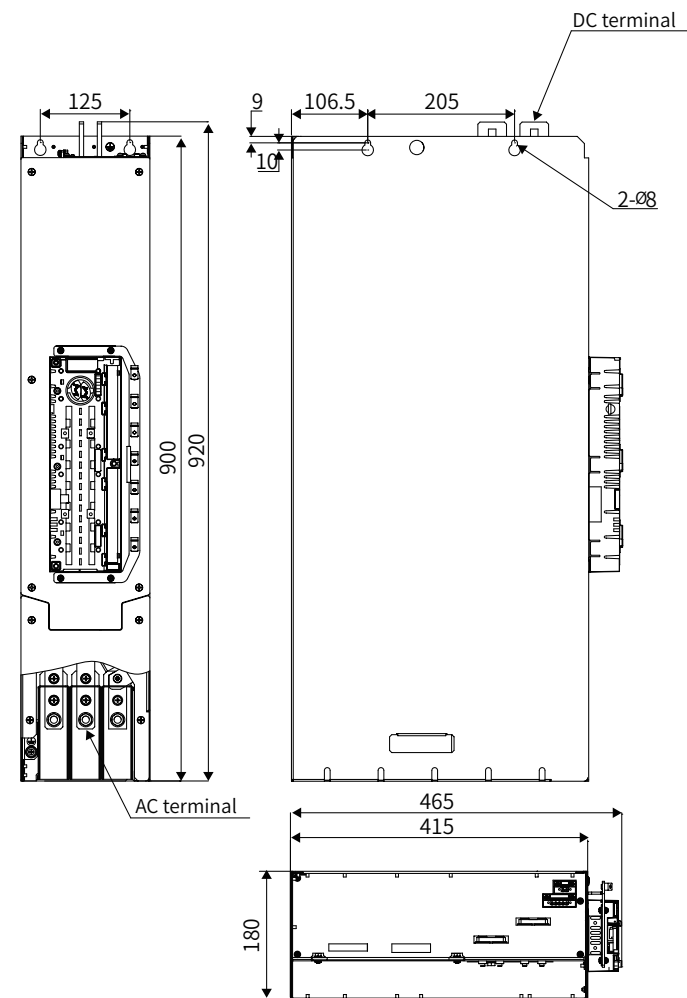
Frame size	DCDC Order No.	Connection aperture
H4	MD880-80D-0200-4	M10

3) H6



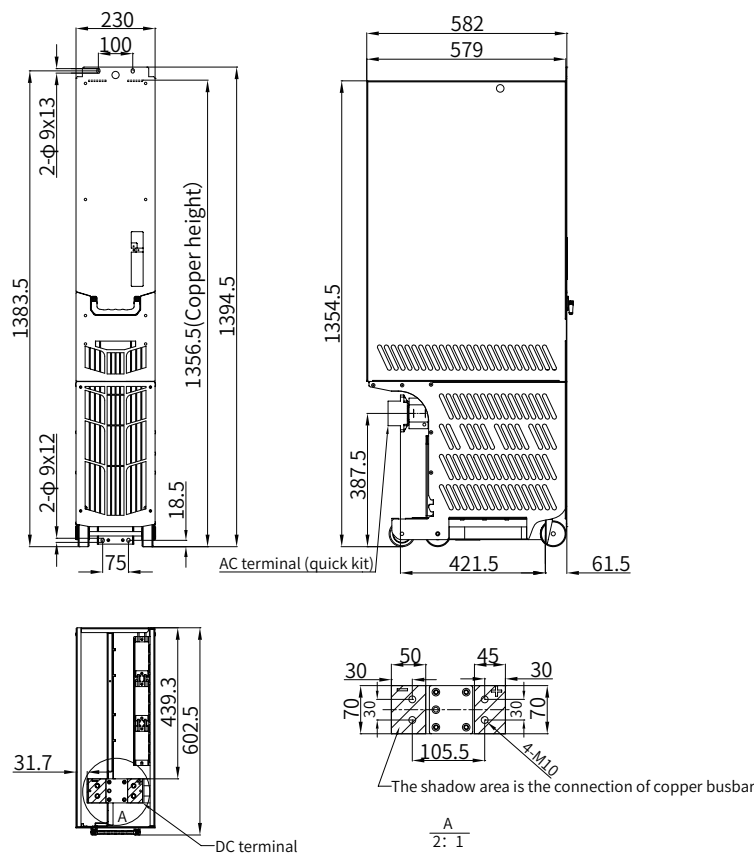
Frame size	DCDC Order No.	Connection aperture
H6	MD880-80D-0300-4	M10
	MD880-80D-0400-4	
	MD880-80D-0100-7	
	MD880-80D-0200-7	

4) H7



Frame size	DCDC Order No.	Connection aperture
H7	MD880-80D-0500-4	M10
	MD880-80D-0300-7	

5) H8



Frame size	DCDC Order No.	Connection aperture
H8	MD880-80D-0600-4	M10
	MD880-80D-0800-4	
	MD880-80D-1000-4	
	MD880-80D-0400-7	
	MD880-80D-0500-7	
	MD880-80D-0600-7	

■ Reactor size

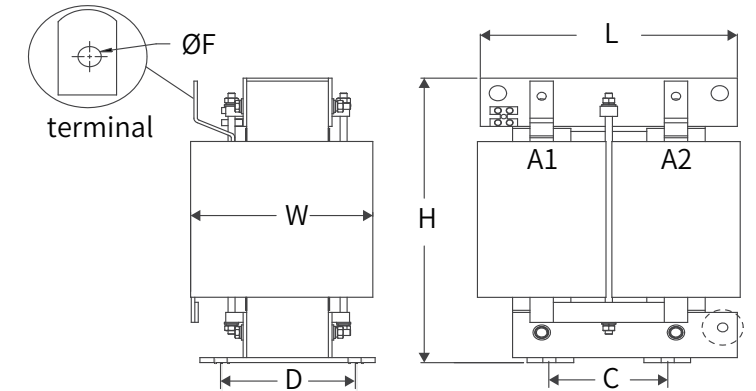


Figure3 reactor dimensional drawing

DC Chopper Order No.	LC reactor Maximum dimension (mm) L x W x H	LC reactor Installation dimension (mm) aperture -C x D	Grid side reactor L1 Terminal hole diameter F
MD880-80D-0100-4	160 x 160 x 228	4-Ø7-140 x 105	Ø 6.4
MD880-80D-0200-4	225 x 160 x 283	4-Ø10-100 x 120	Ø8
MD880-80D-0300-4	225 x 170 x 304	4-Ø12-100 x 130	Ø8
MD880-80D-0400-4	300 x 190 x 315	4-Ø10-100 x 120	Ø8
MD880-80D-0500-4	300 x 200 x 320	4-Ø12-100 x 130	Ø9
MD880-80D-0600-4	300 x 200 x 355	4-Ø12-100 x 130	Ø11
MD880-80D-0800-4	285 x 200 x 355	4-Ø12-100 x 130	Ø11
MD880-80D-1000-4	300 x 200 x 375	4-Ø12-100 x 130	Ø11
MD880-80D-0100-7	160 x 160 x 228	4-Ø7-140 x 105	Ø 6.4
MD880-80D-0200-7	225 x 160 x 283	4-Ø10-100 x 120	Ø8
MD880-80D-0300-7	225 x 170 x 304	4-Ø12-100 x 130	Ø8
MD880-80D-0400-7	300 x 190 x 315	4-Ø10-100 x 120	Ø8
MD880-80D-0500-7	300 x 200 x 320	4-Ø12-100 x 130	Ø9
MD880-80D-0600-7	300 x 200 x 355	4-Ø12-100 x 130	Ø11



NOTE

◆ There is ± 5mm difference in reactor size.

INOVANCE Warranty Agreement

- Inovance provides an 18-month free warranty to the equipment itself from the date of manufacturing for the failure or damage under normal use conditions.
- Within the warranty period, maintenance will be charged for the damage caused by the following reasons:
 - Improper use or repair/modification without prior permission
 - Fire, flood, abnormal voltage, natural disasters and secondary disasters
 - Hardware damage caused by dropping or transportation after procurement
 - Operations not following the user instructions
 - Damage out of the equipment (for example, external device factors)
- The maintenance fee is charged according to the latest Maintenance Price List of Inovance.
- If there is any problem during the service, contact Inovance' s agent or Inovance directly.
- Inovance reserves the rights for explanation of this agreement.

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