INOMAX

AC DRIVE

CATALOG

SHENZHEN INOMAX TECHNOLOGY CO.LTD

www.inomaxtechnology.com

ABOUT US

Inomax technology Co.Ltd has been concentrating on industry automation and solar energy since its foundation in 2012 and is committed to “build your trust of technology from China and let the world benefit of technology from China”.

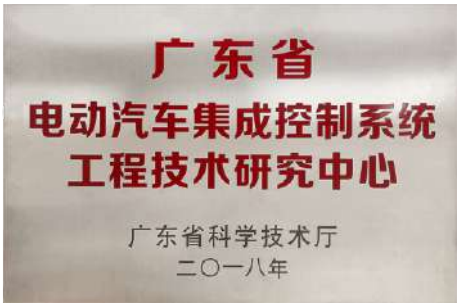
We succeed by creating superior value.
We push the boundaries of technology to drive performance to new levels.
We energize the transformation of society and industry to achieve a more productive, sustainable future.
At Inomax, we are passionate about creating success. This starts with our customers – we enable them to reach new levels of performance. Their success translates into success for all our stakeholders: employees, partners and shareholders.

If there is one thing that inomax is recognized for, it’s leading with technology. Innovation has been in our DNA since we were founded.

Our people make the difference. Their expertise is why customers come to us with their biggest challenges. Together, we push the boundaries of technology to drive performance, shape new business models and find new ways of working that benefit our customers, partners and society.

As leading enterprise in industrial automation and electric vehicle, we help to address the world’s energy challenges. Our solutions make homes, offices, factories and transport more energy efficient and safer, and energy more affordable.

For us, sustainability is both the right thing to do and a business opportunity. We lead by example by embedding sustainability in everything we do. Our solutions reduce harmful emissions and preserve natural resources. We champion ethical and humane behavior to contribute to better lives for people across the globe.



CONTENTS

UNPARALLELED PERFORMANCE

UNCOMPROMISING QUALITY

What is required of inverters in this constantly changing world?

At Inomax technology, we have pursued the answer to this question through constant innovation and evolution.

Introducing our extensive range of high-value,

next-generation inverters delivering outstanding drive performance in any environment,

and a wealth of functionality covering startup to maintenance.

Bulid your trust of technology,let's the world benefit from technology in China!

We are on the way!

ACS Series AC Drives

Best For Your Applications

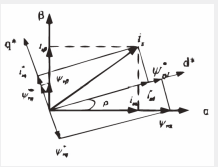
Perfect Drive & High Efficient Energy Saving

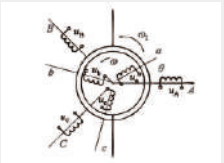
ACS Series Drive Profile			
	High performance DTC drives	Servo and motion control drives	Multidrives/AFE/Regenerative Drives
Photos			
Model Series	ACS580 ACS880	ACSM0ACSM1	ACS880
Power Range	380V-690V1.5KW-450KW	380V1.5KW-450KW	380V-690V4KW-2300KW
Application industires	-Industrial transmission -Lifting/Crane -Curl application -Oil pump out -Precision machine tools -Printing and packaging equipment -Multi-speed feedback control -Permanent magnet synchronous motor application -Alternative places for DC motors -Electromagnetic or mechanical stirring -High-speed centrifuge -Dynamometer test bench -Power generation and supply device -Ship drive/Winch -Woodworking -Food processing -Textile equipment	-Precision machinery -Precision machine tools -Precision winding -Multi-axis coordination -Motion control -Electronic cam -Fixed-length chase -Position control -Textile equipment -Precision printing and packaging equipment	-Industrial transmission -Lifting -Curl application -Oil pump out -Drilling equipment -Plastic machinery and equipment -Multi-speed feedback control -Permanent magnet synchronous motor application -Alternative places for DC motors -High-speed centrifuge -Dynamometer test bench -Power generation and supply device -Ship drive -Steel smelting equipment Need high-power energy free flow Dynamic medium and large transmission
Main features	-Optional standard four-quadrant regeneration -Excellent energy efficiency performance -Excellent open loop control performance -Support all kinds Acmotors -Higher control accuracy and dynamic performance -Advanced permanent magnet synchronous drive -High reliability, multiple protection functions -Support mainstream high-speed fieldbus -Excellent high speed and weak field	-Easy and fast debugging -Can be adapted to third-party servo motors -High control accuracy and high dynamic performance -Multi-machine collaboration -High power density -Support almost all speed and position feedback encoders	-Optional standard four-quadrant operation -High-power multi-transmission flexible configuration -Excellent open loop control performance -Strong short-time overload capacity -Higher control accuracy and dynamic performance -Advanced permanent magnet synchronous drive -High reliability, multiple protection functions -Support mainstream high-speed fieldbus

INOMAX

Direct torque control (DTC) : A motor control technique for all seasons

- Excellent magnetic flux optimization technology is adopted to realize industry leading energy saving effect.





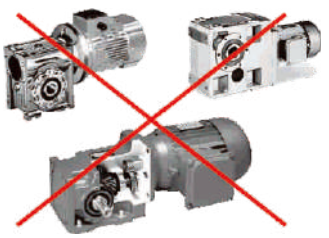
NEW

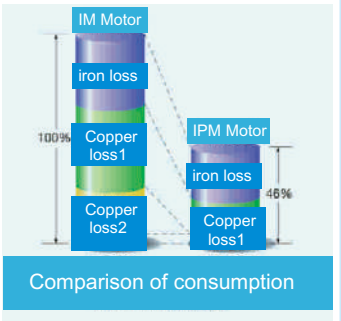
- Magnetic flux optimization technology(induction motor):Always adjust the magnetic flux at its best to minimize motor losses for higher energy savings while reducing motor noise.

For example: 25% motor load can increase 10% of the total efficiency , 50% load can increase 2% for the total efficiency.

- It can be used to realized direct drive control on low-speed industrial equipment with permanent magnet synchronous motor without decelerating device, saving cost and optimizing process control.
- Smooth and efficient drive permanent magnet motor with more energy saving(including permanent magnet motors that are not equipped with speed or rotor position sensors)
  Direct drives are available on low-speed industrial equipment for higher energy efficiency and better control performance.

NEW

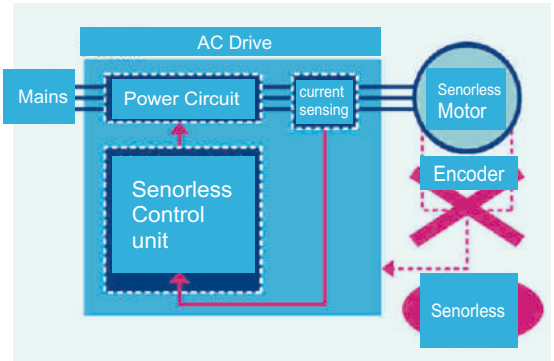




Comparison of consumption

- It doesn't need a sensor to realize excellent driver performance and speed feedback or position feedback in 95% application. It can save the installation of expensive encoders or other feedback devices and improve the reliability of transmission equipment .
- Always maintain stator and rotor magnetic field angle vertical, minimize the useless power loss in motor operation.

NEW



- It has better control performance in driving induction motor, permanent magnet motor, servo motor ,synchronous magnet resistance motor and magnetic levitation motor to realize higher energy efficiency .

Excellent Performance

Better optimize the production process control, improve the production quality, quality consistency and production efficiency of industrial equipment.

Quick torque response, high torque linearity.

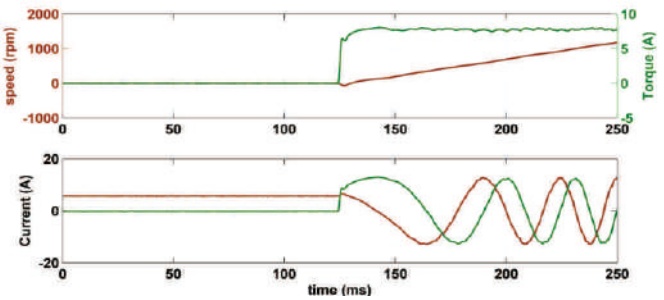
Torque response time lower than 5 ms for sensorless applications (0 step to the rated torque).The torque repeatability is 1% . It is equal to the closed-loop vector or dc device.

It can significantly improve the production process control ,product quality and consistency in the curly application of industrial equipment which reduce the investment on sensor using and increase the reliability of the equipment especially in paper, textile, wire, all kinds of ductility tape products.
It can be used to replace dc motor with permanent magnet synchronous motor and save the workload and cost of equipment maintenance.

Fast Dynamic Response, High Speed Accuracy

The speed loop's dynamic response accuracy is 0.7% s.
The speed accuracy of the sensorless application is less than 0.5%, and the sensor is not needed in 95% fo applications.
The maximum operating frequency can reach 500Hz.

Improve equipment process and products quality, reduce the cost of sensors and enhance system reliability.
It can achieve mirror-like super fine processing in the metal, stone material, glass and ceramics and other solid wear-resisting materials cutting and polishing.



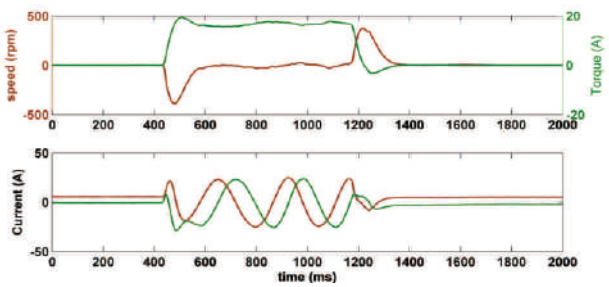
Low Frequency High Torque, Super Smooth Operation

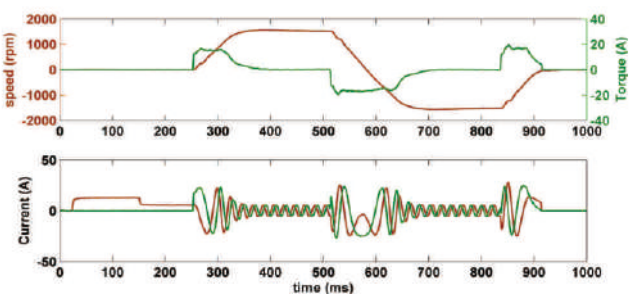
200% torque at 0Hz speed without sensor control, no mechanical lock, smooth switch between driver and brake, to help equipment to realize safer and more convenient operation.

1.No need to amplify the driver power level due to insufficient starting torque. It can achieve 1: 1 selection of driver and motor power and can be used in ball mill, stone cutting, industrial washing machine, centrifuge, mixer and other applications.
2. It can realize the open-loop at zero-speed to take off and contracting brake in lifting application, eradicating the slip hook and pouring, and the 150% load can go upward and downward steady.
3. Can cooperate with permanent magnet synchronous motor to realize the direct drive of low speed control industrial equipment and eliminate the use of deceleration device.

Fast Acceleration and Deceleration

It can realize acceleration, deceleration and switching between forward-rotating and reverse in the shortest time without mechanical restriction, optimize the control of production process and improve production efficiency.





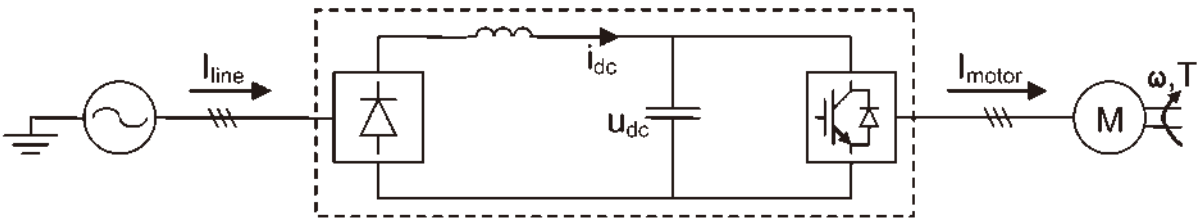
The all-compatible drives

Rich extension function to support almost all ac motor control, can handle harsh application environment easily and improve product suitability.

Flexible connectivity to automation networks.Standard built-in :MODBUS-RTU,CANopen, Optional :PROFIBUS-DP, ProfiNET.

Built-in design of brake chopper, reduce wiring and save space.<=22/30kw standard with built-in brake unit, 30-250KW optional with built-in brake unit,C3 specifications and above models standard with built-in DC reactor and most drive integrated common filter on ouput, effectively suppress harmonics.

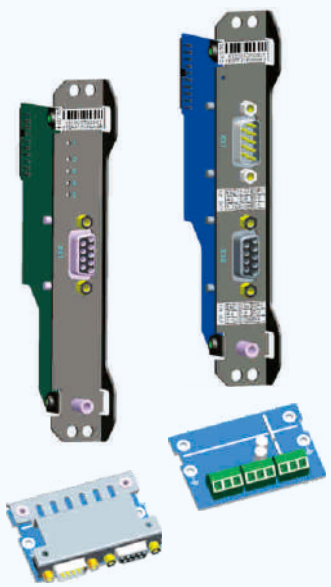
ACS series products all meet the EU directives related to CE requirements



Typical Diagram of Single Drives with Power Flow

Speed feedback interfaces for precise process control

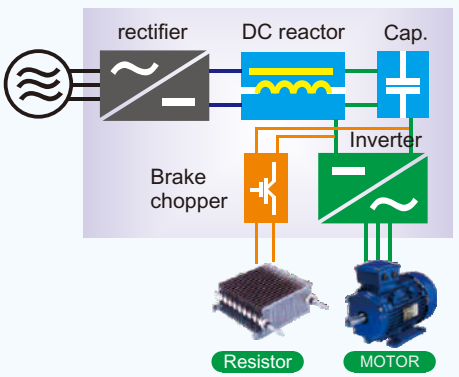
Can be connected to various feedback devices, such as
TTL pulse encoder
SinCos absolute
Resolver, TTL pulse
HTL pulse encoder



Standard built-in C3 (EN 61800-3 2 class environment C3) EMC filter.

C3 and above products built-in DC copper reactor to improve the power factor, reduce harmonic distortion.

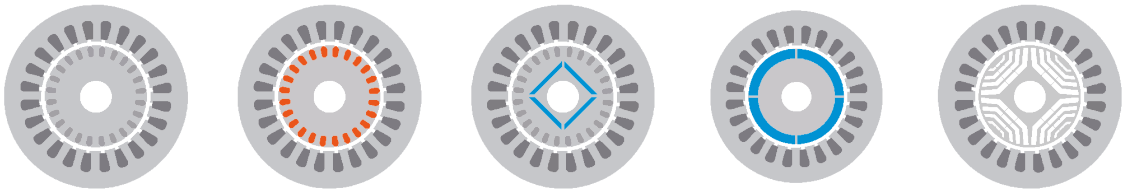
~Ip41 enclosure design effectively reduce the influence of harsh environments, especially applied in cables, machine tools, textiles, ceramics where the site environments is dusty or humid.



Adopt medium and small power for tower type long strip, medium and large power for book blade structure, to save space and reduce the cost of electric cabinet in order to maximize convenient for system electrical design, complete set of cabinet, installation and debugging, equipment maintenance and repair.

Rich Functions & Easy to use

The system is fully functional designed to better meet the different needs of AC drives in various industries. With large-size Chinese / English multi-language LCD interfaces, it helps you to identify transmission information and control drives more intuitively, conveniently, quickly and comprehensively.



The applicationmacros help set parameters for various functions including:
- Basic setup for input/output control and fieldbus control
- Hand/auto control for local and remote operation
- PID control for closed loop processes
- Sequential control for repetitive cycles
- Torque control
- Four user sets, for saving multiple drive configurations

The drives are equipped with direct torque control (DTC), DTC allows high overloadability, gives highstarting torque and reduces stress on mechanics.
The energy optimizer mode ensures the maximum torque per ampere, reducing energy drawn from the supply.

Additional software features include:

- Access levels
- Adaptive programming
- Automatic reset
- Automatic start
- Constant speeds
- Critical speeds and frequencies
- DC hold
- DC magnetizing
- Diagnostics
- Drive-to-drive link for master-follower control
- Flux braking
- Jogging
- Maintenance timer and counters
- Mechanical brake control
- Motor potentiometer
- Output phase order selection, switches rotation direction of the motor
- Oscillation damping
- Power loss ride-through
- Process PID control with trim function
- Programmable and pre-programmed protection functions
- Programmable inputs and outputs
- Scalar control with IR compensation
- Speed controller with auto tuning
- Startup assistants
- User adjustable load supervision/limitation
- User selectable acceleration and deceleration ramps
- Variable slope

Removable memory unit

The removable memory unit stores the software that includes user settings, parameter settings and motor data. Situated on the control unit, the memory unit can easily be removed for maintenance, update or replacement purposes. This common type of memory unit is used throughout the ACS series.

Reliability, performance and safety.

We always put reliability and safety in first in product design and manufacturing.

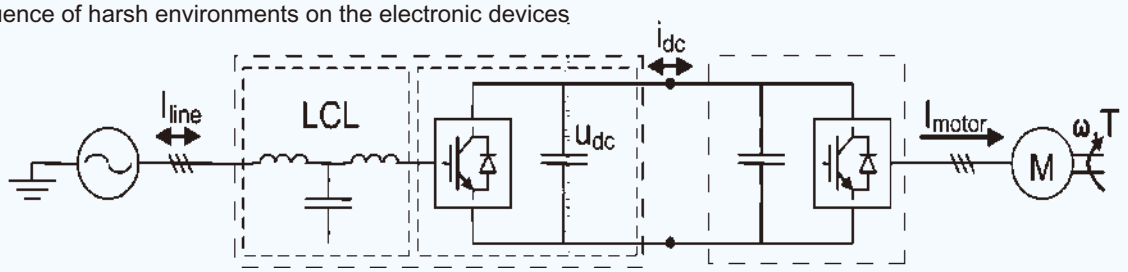
Comprehensive Design of Heat Dissipation

The IGBT junction temperature real-time monitoring technology(which is first in China) is used to accurately measure IGBT junction temperature and more effectively protect IGBT module.

Comprehensive temperature monitoring of application environment to achieve system-level comprehensive thermal management and rapid overheating checking.

High efficiency and accurate thermal simulation software and the most stringent industry limit test standard are adopted to effectively guarantee the thermal reliability of the whole machine.

Complete seal machine design and independent cooling air duct to reduce the influence of harsh environments on the electronic devices.



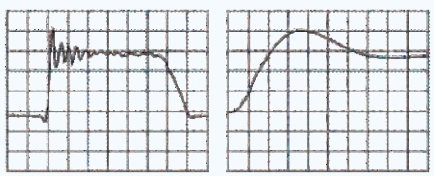
Typical Diagram of AFE and Multi-drives with Power Flow

Rigorous Machine Quality Testing.

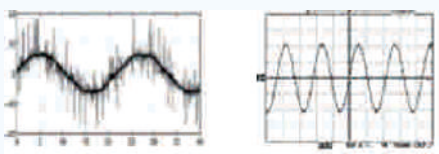
All products under high temperature aging testing with 120% load at 50 ℃ which is first in China and can effectively guarantee the product quality.

Comprehensive Protection of the System.

Driver: short circuit, over current, over voltage, under voltage, input / output phase loss, overload, overheat protection
Motor: overload, motor overheat protection
Brake loop: brake tube overload, brake tube straightway, brake resistance protection, etc.
Output non-stop function when momentary power outage: power loss across,
transmission without tripping,



du/dt Filter Without(Left) With(Right)



In the system design of this series of products, many of the features and functions are built-in standard.
Ease of your design and selection, these extensive options can optimize and enhance your drive to meet different application needs. To choose the right driver for your specific application, please
Referring to the product overview, technical data, model list, optional parts list and other chapters in this catalog, the selected driver has a unique model identification, structural shape, power and voltage range and other information. Or contact our sales office or representative in your location to let them know more about your needs.

Model No.

AXX	XXX–	XXX–	XXAX–	3	B	+	XX
1	2	3	4	5	6		7

1- Product family
2- Product family
3- Model and appearance and structure
4- Rated capacity or current
5- Voltage class
6- Built-in brake
7- Various options and functions

Note: The current product family mainly includes AFE/DCDC/PTi/PTo/AFEL, etc.

Main power connection	
Voltage range	1PH, U_{N2} = AC 1/3P 220V(-15%/+10%),max 260V 3PH, U_{N3} = AC 3P 380V(-15%/+10%),max 490V 3PH, U_{N6} = AC 3P 660V(-15%/+10%),max 750V
Frequency	50～60 Hz ± 5%
Power factor	cos Φ = 0.98 , approx = 1@ when AFE applied
Efficiency	0.98
DC connection	Based on 380/690V hardware, can support DC 760-1100-1350V
Ourput voltage	DC is used for buck regulation, AFE can be used for a certain boost
Product series	**Direct Torque Control Technology Products**
Motor connection	
Motor Type	AC induction motors, permanent magnet motors and synchronous reluctance motors
Output voltage	3phase output voltage,0 to Un2/Un3/Un6
Output frequency	0 ~ 500Hz
Motor control	Direct torque control
Torque control	Torque response time
Open loop	Related torque < 5 ms
Close loop	Related torque < 5 ms
	Nonlinearity
Open loop	Related torque±4%
Close loop	Related torque±3%
Speed Control	Static precision
Open loop	10% of motor slip
Close loop	0.01% of motor related speed
	Dynamic accuracy
Open loop	0.3-0.4% per second at 100% torque step
Close loop	0.1-0.2% per second at 100% torque step
Input/Output	**DCDC / AFE series product**
output	Note: The upper limit of the output voltage depends on the input voltage value
output precision	<=0.1%FS
Source & Load Effects	<=0.1%FS
Ripple(Vrms)	<=0.2%FS
Response time <=5ms (10-100% sudden load, input voltage fluctuation within ±5%)	

Feedback Feature (AFE) Note: The upper limit of the output voltage depends on the input voltage value
Input voltage DC760V, DC1100V, depends on the DC voltage and hardware)
Response characteristics <=within 5ms (-100% to +100% sudden switching)
Feedback power Support full-scale full power feedback (related to the selected hardware power size)
Feedback THD 0-3% (depending on local grid capacity)
Feedback THD <=3% (100% power feedback & suitable grid capacity)

safety features Note: Associated with selected hardware voltage system class
Insulation resistance >=20MΩ (reinforced insulation)
Withstand voltage characteristics 2000VDC test 60S, no arcing, breakdown
Ground resistance <=100mΩ

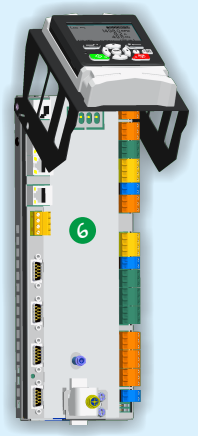
Product Specification

- CE
- Low Voltage Directive 2006/95/EC
- Mechanical Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2004/108/EC

Brake connection	
Braking Unit	RX,X2X,X3X size are as standard,X4X-X8X as optional built-in.
Braking resistor	Externally optional for all power
Optional communication	CANopen、EtherCAT、ProfiNET (optional)
Modbus-RTU (standard)	CANopen EtherCAT PROFINET
Environmental	
Ambien temperature	-40 to +70 ℃
Transportation	-40 to +70 ℃
Storage	-15 to +55 ℃, no frost allowed
Running	+40 to 55℃ with derating of 1%/1℃
Cooling method	
Air-cooled	Dry clean air
Altitude	
0-1000m	Without derating
1000-4000m	With derating of 1%/100m
Relative humidity	5 to 95%,no condensation allowed
Degree of protection	-IP20, UL Type 1 (for room/cabinet use only)
Shell colour	RAL 9017/9002, RAL 9017/7035
Contamination level	No conductive dust allowed
Storage	IEC 60721-3-1, Class 1C2 (chemical gases),Class 1S2 (solid particles)
Transportation	IEC 60721-3-2, Class 2C2 (chemical gases),Class 2S2 (solid particles)
Operation	IEC 60721-3-3, Class 3C2 (chemical gases),Class 3S2 (solid particles)

C = chemically active substance
S = mechanically active substance
1. For higher working output frequency, please contact the sales representative.

B Frame



B2-CON

B2

B8

ACS880 series Wall-mounted single drives [Industrial / Servo Drives]

Un = 400V (340-500V) The rated power is valid at the rated voltage of 400V (1.5-450-1400kW) * According to the rated and peak load current selection

Nominal ratings			Light-overload use		Heavy-duty use		Noise level	Heat diss.	Air flow	Model Number	Resistor	Frame size (mm)
P_N kW	I_N A	I_{max} A	I_{LD} A	P_{LD} kW	I_{HD} A	P_{HD} kW	dBA	W	m^3/h			
1.5	3.3	4.1	3.1	**1.5**	2.4	**0.75**	45	50	25	**ACS880-B22-03A3-3B**	**>=72Ω**	B2 (W110 H410 D280)
2.2	5.6	6.8	5.3	**2.2**	4.0	**1.5**	45	76	30	**ACS880-B23-05A6-3B**	**>=72Ω**	
4.0	9.5	12	8.8	**4.0**	5.6	**2.2**	45	97	40	**ACS880-B24-09A8-3B**	**>=72Ω**	
5.5	12.9	16	12	**5.5**	9.4	**4.0**	45	472	50	**ACS880-B25-12A6-3B**	**>=72Ω**	
7.5	17	21	17	**7.5**	13	**5.5**	45	210	55	**ACS880-B26-017A-3B**	**>=39Ω**	
11	25	30	24	**11**	17	**7.5**	45	325	60	**ACS880-B27-025A-3B**	**>=39Ω**	
15	32	42	32	**15**	25	**11**	57	500	100	**ACS880-B32-032A-3B**	**>=20Ω**	B3 (W145 H400 D270)
18.5	38	54	37	**18.5**	32	**15**	57	550	125	**ACS880-B33-038A-3B**	**>=20Ω**	
22	45	64	45	**22**	38	**18.5**	57	660	145	**ACS880-B34-045A-3B**	**>=20Ω**	
30	61	76	58	**30**	45	**22**	59	890	200	**ACS880-B42-061A-3 /B**[1]	**>=10Ω**	B4 (W145 H400 D270)
37	72	104	71	**37**	61	**30**	59	1114	250	**ACS880-B43-072A-3 /B**[1]	**>=8Ω**	
45	87	122	85	**45**	75	**37**	59	1140	290	**ACS880-B44-087A-3 /B**[1]	**>=8Ω**	
55	115	148	110	**55**	91	**45**	59	1200	320	**ACS880-B52-105A-3 /B**[1]	**>=5.2Ω**	B5 (W290 H680 D350)
75	145	179	143	**75**	112	**55**	59	1440	340	**ACS880-B53-145A-3 /B**[1]	**>=5.2Ω**	
90	182	247	176	**90**	150	**75**	67	1940	400	**ACS880-B54-169A-3 /B**[1]	**>=3.3Ω**	
110	226	287	212	**110**	184	**90**	67	2200	550	**ACS880-B62-206A-3 /B**[1]	**>=2.3Ω**	B6
132	246	350	241	**132**	225	**110**	67	3300	650	**ACS880-B63-246A-3 /B**[1]	**>=2.3Ω**	
160	293	418	283	**160**	266	**132**	68	3850	680	**ACS880-B72-293A-3 /B**[1]	**>=1.7Ω**	B7 (W425 H900 D390)
200	363	498	355	**200**	293	**160**	68	4100	700	**ACS880-B73-363A-3 /B**[1]	**>=1.7Ω**	
250	487	545	450	**250**	387	**200**	68	4600	720	**ACS880-B74-487A-3 /B**[1]	**>=1.7Ω**	
280	546	628	526	**280**	480	**250**	68	5100	950	**ACS880-B83-546A-3 /B**[1]	**>=1.7Ω**	B8 (W380 H1660 D535)
315	624	718	615	**315**	546	**280**	68	5782	1100	**ACS880-B84-624A-3 /B**[1]	**>=1.7Ω**	
400	760	874	727	**355**	568	**315**	68	6252	1200	**ACS880-B85-760A-3 /B**[1]	**>=1.7Ω**	
450	865	1080	865	**450**	675	**355**	68	7860	1350	**ACS880-B86-865A-3 /B**[1]	**>=1.7Ω**	

Note): ASMX series high-performance servo drives and other products have stronger technical and application expertise, their related technologies, models and other information will be explained separately on the basis of this booklet.
1)Optional built-in brake chopper, B=with optional built-in brake chopper function, this model should be marked with a suffix of -3 or -3B when ordering

UN = 690 V (range 525 to 750 V). The power ratings are valid at nominal voltage 690 V

Nominal ratings			Light-overload use		Heavy-duty use		Noise level	Heat diss.	Air flow	Model Number	Frame size (mm)
P_N kW	I_N A	I_{max} A	I_{LD} A	P_{LD} kW	I_{HD} A	P_{HD} kW	dBA	W	m^3/h		
45	49	71	47	**45**	42	**37**	59	1120	290	**ACS880-B50-049A-6 /B**[1]	B5 (W290 H680 D350)
55	61	104	58	**55**	49	**45**	59	1295	320	**ACS880-B51-061A-6 /B**[1]	
75	84	124	80	**75**	61	**55**	59	1440	340	**ACS880-B52-080A-6 /B**[1]	
90	98	168	93	**90**	84	**75**	67	1940	400	**ACS880-B53-098A-6 /B**[1]	
110	119	198	113	**110**	98	**90**	67	2310	550	**ACS880-B54-119A-6 /B**[1]	
132	142	220	135	**132**	119	**110**	67	3300	650	**ACS880-B63-142A-6 /B**[1]	
160	174	274	165	**160**	142	**132**	68	3922	680	**ACS880-B72-175A-6 /B**[1]	B7 (W425 H900 D390)
200	210	384	200	**200**	174	**160**	68	4822	700	**ACS880-B73-210A-6 /B**[1]	
250	271	411	257	**250**	210	**200**	68	6000	720	**ACS880-B74-271A-6 /B**[1]	
280	300	450	290	**280**	265	**250**	68	5800	950	**ACS880-B82-295A-6 /B**[1]	B8 (W380 H1660 D535)
315	330	480	320	**315**	295	**280**	68	6120	1100	**ACS880-B83-325A-6 /B**[1]	
355	370	520	360	**355**	325	**315**	68	6800	1200	**ACS880-B84-360A-6 /B**[1]	
400	430	520	420	**400**	415	**355**	68	7000	1350	**ACS880-B85-420A-6 /B**[1]	
450	470	655	455	**450**	455	**400**	72	7200	1300	**ACS880-B86-450A-6 /B**[1]	
500	522	655	505	**500**	505	**450**	72	8500	1350	**ACS880-B87-505A-6 /B**[1]	
560	590	800	570	**560**	515	**500**[2]	72	9500	1450	**ACS880-B88-571A-6 /B**[1]	

P_N: Typical motor power in Nominal load use. In:Rated current aviailable continuously without overload at 40 ° C.
I_{max}:Max.current , Available for 10 seconds at start,then as long as allowed by drive temperature .
I_{LD}:Continuous current allowing110% I_{LD} for 1 minute every 5 minutes at 40 ° C,for typical motor power in light-overload use.
I_{HD}:Continuous current allowing150% I_{HD} for 1 minute every 5 minutes at 40 ° C,for typical motor power in heavy-duty use.
The ratings apply at 40 ° C ambient temperature.At higher temperatures(Up to 55 ° C) the derating is 1%/1° C. 1).125% overload.

This B series drives is integrated variety of I/O interfaces, high-speed fieldbus, the following figure is an example for application. Please refer to the manual for more information or contact our representative to further clarify your needs.

Frame

B

ACS880
ACSM3
etc.

Main features:

1. Enhanced Direct Torque Control

2.High dynamic response, high position accuracy and precise torque

3.2 / 3/4 encoder interfaces, support absolute value, magnetoresistive resolver, etc.

4.Various high-speed fieldbus communications

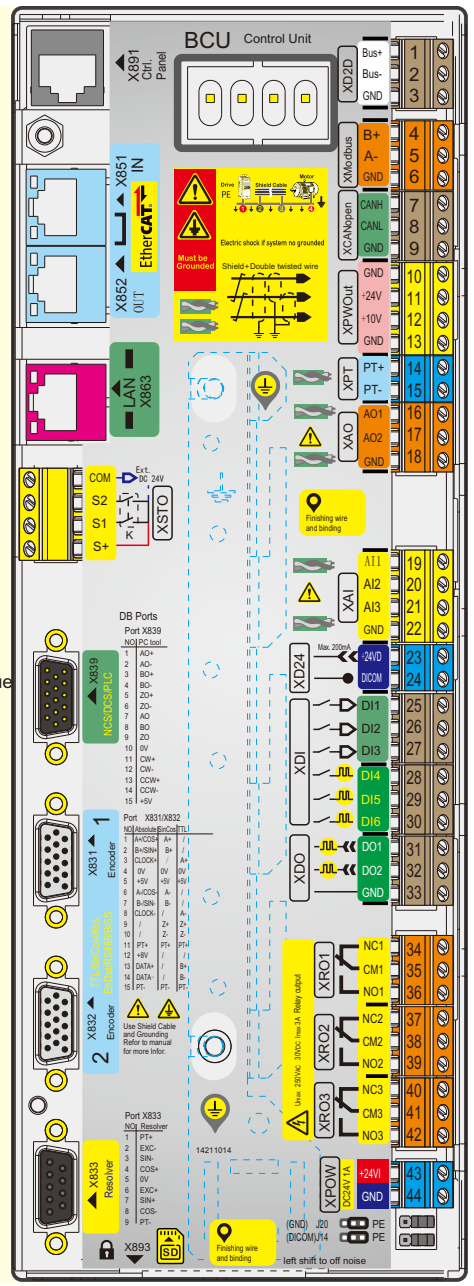
5.STO Safe Torque Interrupt Function

6.3 analog inputs, 3 relay outputs

7.External 24V power supply

8. Electronic function switching, parameterized control

9. Professional application macros such as motion control and electronic cam



1	BUS+	XD2D:Drive to Drive link to communication or linkage control Logic and protection controls
2	BUS-	
3	GND	
Xmodbus Ports		
4	B+	Modbus ports :EIA-485 High speed fieldbus,Protocol configuration reference manual The wiring should with GND wire, A / B twisted pair, and shielded to enhance electromagnetic anti-interference
5	A-	
6	GND	
XCANopen Ports		
7	CANH	CANopen portsEIA-CAN Terminal R ON/OFF by parameter Protocol configuration refer to manual The wiring should with GND wire, A / B twisted pair, and shielded to enhance electromagnetic anti-interference
8	CANL	
9	GND	
XPWOut port as power output from Drive		
10	GND	Signal ground
11	+24V	Only external low-power sensors，+24V DC Max.400mA
12	+10V	Analog reference power supply，R=1k~10kohm
13	GND	Signal ground
XPT Ports for temperature sensor in from motor / choke or others		
14	PT+	Sensor as KTY84、PT100、PT1000、PTC etc, configuration parameter and cable with twisted&Shield&Strong insulation
15	PT-	
XAO Ports Analog outputs		
16	AO1	Type with 0-20mA RL<500 ohm,Voltage:0-10V DC It is used to configure the speed, torque, current and other . Easily interfered ,be with twisted pair, shielding, grounding, etc.
17	AO2	
18	GND	
XAI Ports Analog inputs		
19	AI1	AI1/2: Current: -20~+20mA ,0~20mA, Rin=100kohm AI1/2: Voltage: 0~+10V，-10~+10V，Rin=500ohm AI13: Only Voltage:0-10V Rin=100ohm。all by parameter. Easily interfered ,be with twisted pair, shielding, grounding, etc.
20	AI2	
21	AI3	
22	GND	
XD24V Ports Auxiliary voltage output, digital input interlock		
23	+24VD	DI reference supply ,+24V DC 0-200mA,or for external sensors
24	DICOM	Digital signal input/output ground
XDI Digital and high-speed pulse input , with rich and flexible functions		
25	DI1	(As default) = DI1:Stop (0)/Start (1), DI2 : Forward (0)/Reverse (1)or for other function by parameters.
26	DI2	
27	DI3	DI3/4/5/6，Define its functions by parameters and pointers DI1/2/3:ON/OFF input only. DI4/5/6:ON/OFF or Plus input,f<=100kHz,or HTL encoder A、B、Z signal input，by paramete to NPN/PNP、encoder、etc.
28	DI4	
29	DI5	
30	DI6	
XDO Digital and high-speed pulse output , with rich and flexible functions		
31	DO1	ON/OFF output(I<0.5A) or Pulse output(f<=120kHz) by paramete to switch NPN/PNP、pluse output、etc.
32	DO2	
33	GND	
XRO Ports of Relay output		
34	NC1	RO1 Running，or others by parameters 250V AC / 30V DC 3A
35	CM1	
36	NO1	
37	NC2	RO2 Faulted，or others by parameters 250V AC / 30V DC 3A
38	CM2	
39	NO2	
40	NC3	RO3 Ready，or others by parameters 250V AC / 30V DC 3A
41	CM3	
42	NO3	
XD24V External power supply input		
43	+24VI	External input: DC24V 1A-2A Can parameterize and debug Drives in mains power missing
44	GND	
Xjamper Jamper for function switch		
45	J20	ON/OFF for GND to Pe，by EMC EMC interference level
46	J14	ON/OFF for DICOM to PE，by EMC EMC interference level
XSTO Safe torque off		
51	COM	Safe torque off. Both circuits must be closed for the drive to start. Corresponding more hardware and power configuration forms, instructions for use, ON/OFF safe torque function and more details Please refer to manual for interrupt function
52	S2	
53	S1	
54	S+	
Fieldbus communication、Encoder Feedback		
61	X891	Panel port，Max.30m extension by cable and External EMC
62	X893	SD storage card，parameter，firmware upgrade, etc.
63	X863	Ethernet for remote monitoring, computer online, etc.
64	X851	Rj45*2 to in&out port,EtherCAT、ProfiNET
65	X852	EhterNET/IP，etc. shall be optional
66	X839	Three-row DB15 pin male seat, to PLC / CNC for speed or pulses
67	X831	Three rows of DB15 sockets, 1st&2nd encoder signal and motor
68	X832	temperature input，TTL, SINCOS, Various absolute encoders
69	X833	Db9 hole female, rotary transformer / multi-pole magnetoresistive

C

Frame

R1

C2

C3

C4

C5/6/7

ACS580 series Wall-mounted single drives [General Drives/Servo]

U_N = 3phase- 220 V (range 200 to 240 V). The power ratings are valid at nominal voltage 220 V

Nominal ratings			Noise level	Heat diss.	Air flow	Type designation * Selection according to rated and peak load current	Frame Size (mm)
Pn	In	Imax	dBA	W	m^3/h		
KW	A	A					
0.75	4	5.6	40	40	25	ACS580-R13-04A0-2B	R1 (W78 H210 D145)
1.5	5.6	6.8	40	65	25	ACS580-R16-05A6-2B	
2.2	8	10	40	80	25	ACS580-R17-08A0-2B	
4.0	12.9	17	45	172	53	ACS580-C25-12A9-2B	C2 (W100 H290 D200)
5.5	25	29	45	325	55	ACS580-C27-025A-2B	
7.5	32	42	57	500	145	ACS580-C32-032A-2B	C3 (W145 H400 D230)
11	45	64	57	660	145	ACS580-C34-045A-2B	
15	61	70	57	890	145	ACS580-C35-061A-2B	
18.5	72	104	60	1114	290	ACS580-C43-072A-2 /B	C4 (W250 H400 D270)
22	87	122	60	1140	290	ACS580-C44-087A-2 /B	
30	105	132	60	1200	290	ACS580-C45-105A-2 /B	
37	145	178	60	1440	350	ACS580-C53-145A-2 /B	C5/C6 (W290 H680 D305)
45	169	247	60	1940	350	ACS580-C54-169A-2 /B	
55	206	255	67	2100	550	ACS580-C55-206A-2 /B	
75	246	350	68	3300	685	ACS580-C63-246A-2 /B	

Un = 380V(range 340V to 500V).The power ratings are valid at nominal voltage 400V

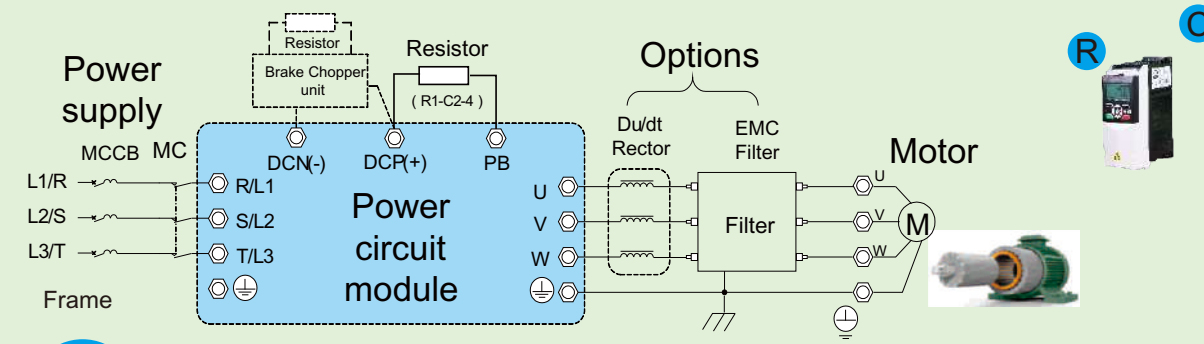
Nominal ratings			Noise level	Heat diss.	Air flow	Type designation * Selection according to rated and peak load current	Frame Size (mm)
Pn	In	Imax	dBA	W	m^3/h		
KW	A	A					
1.5	4	5.6	40	40	25	ACS580-R15- 04A0-3B	R1 (W78 H210 D145)
2.2	5.6	6.8	40	76	25	ACS580-R16- 05A6-3B	
4.0 [1)]	8	10	40	97	25	ACS580-R17- 08A0-3B	
4.0	10.5	15	45	97	53	ACS580-C24-09A8-3B	C2 (W100 H290 D200)
5.5	12.9	17	45	172	53	ACS580-C25- 12A9-3B	
7.5	17	21	45	210	53	ACS580-C26- 17A0-3B	
11	25	29	45	325	55	ACS580-C27- 025A-3B	
15	32	42	57	500	145	ACS580-C32- 032A-3B	C3 (W145 H400 D230)
18.5	38	54	57	550	145	ACS580-C33- 038A-3B	
22	45	64	57	660	145	ACS580-C34- 045A-3B	
30	61	70	57	890	145	ACS580-C35- 061A-3B	
37	72	104	60	1114	290	ACS580-C43- 072A-3 /B	C4 (W250 H400 D270)
45	87	122	60	1140	290	ACS580-C44- 087A-3 /B	
55	105	132	60	1200	290	ACS580-C45-105A-3 /B	
75	145	178	60	1440	350	ACS580-C53-145A-3 /B	C5/C6 (W290 H680 D305)
90	169	247	60	1940	350	ACS580-C54-169A-3 /B	
110	206	255	67	2100	550	ACS580-C55-206A-3 /B	
132	246	350	68	3300	685	ACS580-C63-246A-3 /B	
160	293	418	68	3850	720	ACS580-C72-293A-3 /B	C7 (W425 H900 D350)
200	363	498	68	4100	720	ACS580-C73-363A-3 /B	
220	430	545	68	4600	720	ACS580-C74-430A-3 /B	
250	487	584	68	5100	720	ACS580-C75-487A-3 /B	

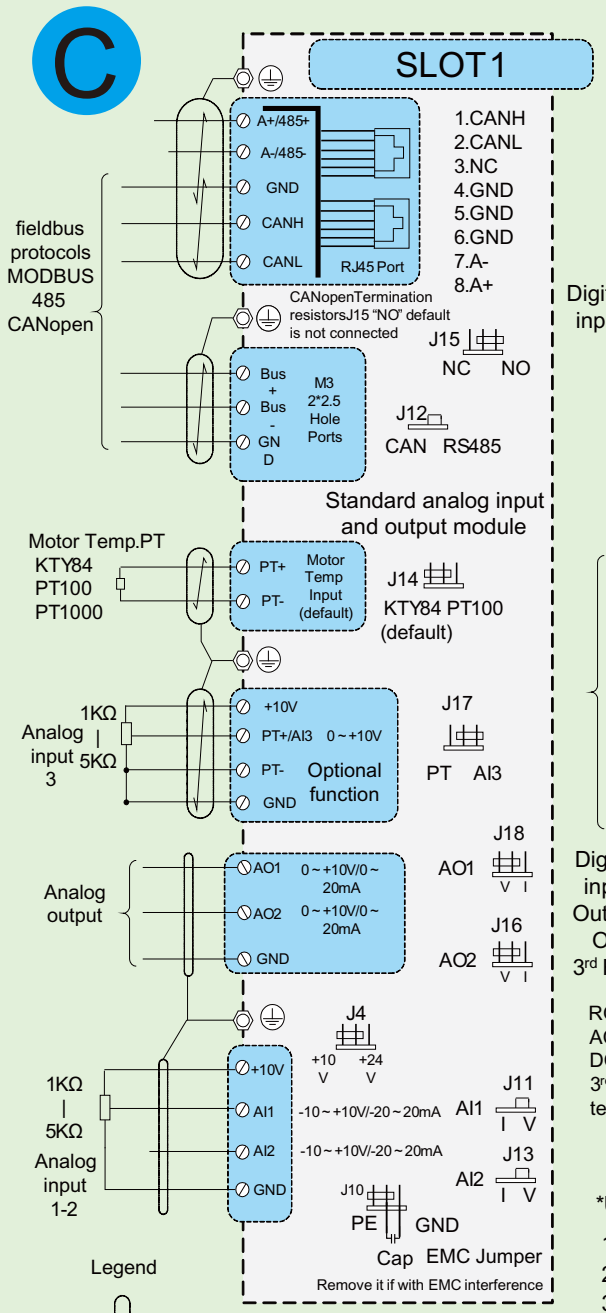
[1)] 101-105% Overload,The target is non-long-term, but intermittently work above >80% load and no more than 101-105%.

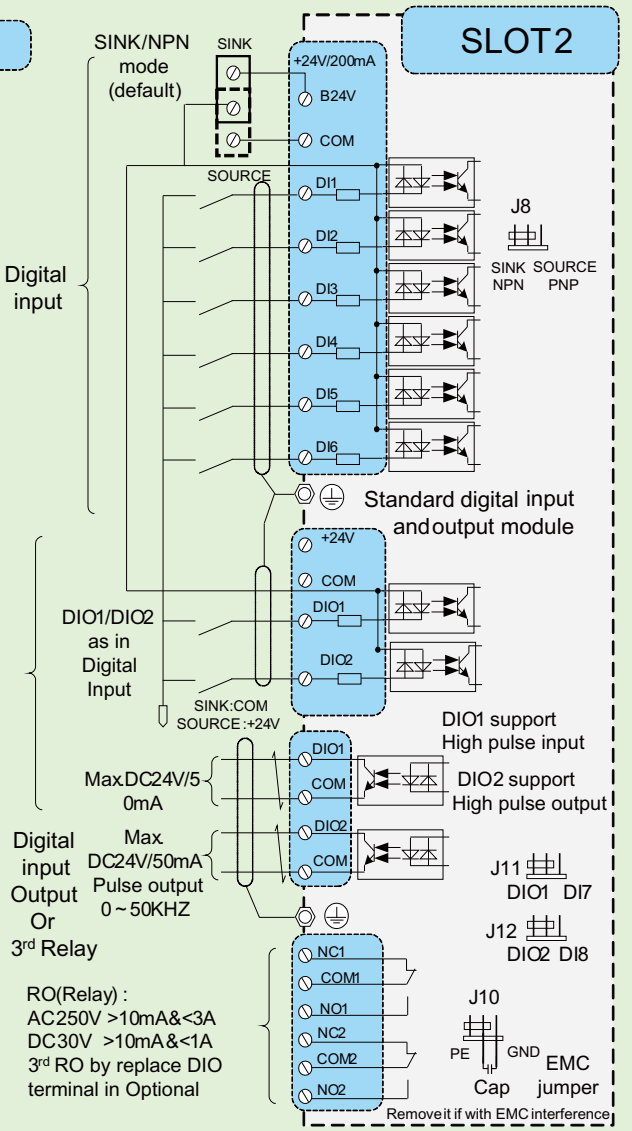
Ratings	
Pn	Typical motor power in Nominal load use.
In	Nominal continuous current at 40 ° C, At higher temperatures (up to 55 ° C)the derating is 1%/1 ° C..
Max.current	
Imax	Max.current, the length of time depends on the Heatsink temperature of Drives.

ACS580 series are equipped with a series of analog and digital interfaces, a variety of encoder card slots and communication slots. Please refer to the notes below for function details.

Note:>=2 Drives common DC- bus,It is necessary to consider the soft start between units and the current sharing capacity at the rectifier side







*Updated AIO/DIO design support I/O features

1.+10V and+24V can be switched

2.PT port use to AI3with voltage input

3.CAN and RS485 mode change by switch

4.AI1&AI2 with negative V/A input switch by parameter

5.DIO1/DIO2 support input by SINK and SOURCE mode

*R type drives I /O 2x analog(only positive) input、1x output , Digital (only SINK) output x(5+1)、output xl RO relay x1, no PT/RJ45 port

6.3xRelay replace the DIO terminal of DI module in Optional

Slot3 (>=C2X) | Slot4 (>=C2X)

Slot5 (R1X) encoder card port | Slot6 (R1X) communication card port

Instructions and Notes

1. Please pay attention to using the power within the allowable specifications of the driver (voltage level, single or three phase, voltage fluctuation, voltage imbalance, etc.)

2. Due to the driver input and the high-speed switch electronic inversion characteristics, please choose a circuit breaker or Fuse or leakage protection switch that complies with the electrical specifications.

3. Appropriate AC reactor on the output side can effectively suppress the higher-order harmonics on the input side and improve the power factor (types with DC reactors can reduce this requirement, depending on use or industry experience)

4. Noise filters and common mode inductors (magnetic loops) on the input and output sides can effectively reduce the influence of conducted radiation between the drive system and external electrical components. It can be designed to improve the stability and reliability of the system in different application scenarios and so on.

5. AC output reactor (Du / Dt) measures, etc., are used to suppress the resonance peak voltage generated on the motor side when the motor cable is too long (such as more than 100 meters) to protect the motor coils and drive the old and other coil windings It is especially necessary to evaluate this carefully when the insulation performance is degraded or poor. This measure can also help reduce the leakage from the motor wire to ground due to the distributed induction capacitance.

6. The standard strong and weak current separation wiring, good standard grounding, weak control signal line GND follow and twisted pair, power contactor coil installation of arc extinguishing components and other measures will effectively improve the electrical reliability of the drive system.

7.Good grounding at the site, and standardized electrical layout, wiring, and design for cooling air inlet and outlet will greatly improve the stability and life of the driver.

INOMAX

Big-power single/multi-motor drive module kit, ACS880-(04), power module type [industrial drive / common DC bus]

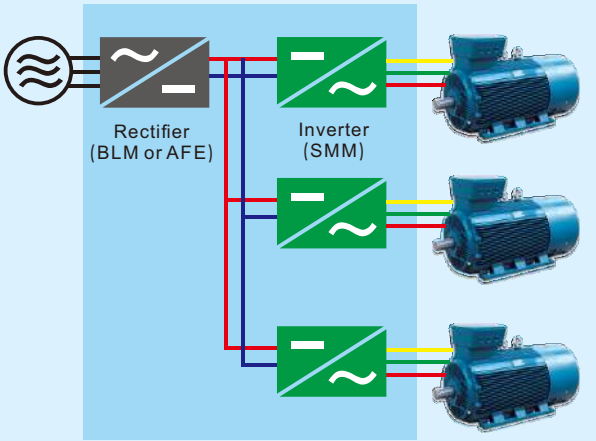
Inomax drive modules make cabinet assembly easy and economical. Based on the compact and tight cabinet design, it can save a lot of floor space and is easy to maintain. It has a flat structure similar to a bookshelf, and has a wheeled base, which can be equipped with output or parallel power reactors. The common DC bus terminals are all located on the top of the module, and the three-phase incoming and outgoing wires of the basic rectifier and motor drive modules are located at the bottom of the module. The central layout greatly facilitates the formation of cabinets and the connection with power distribution components.

BLM, ALM, and SMM modules can be equipped with a built-in brake chopper, which greatly facilitates the design of dynamic braking and cabinet formation in multi-machine transmission, which can shorten the engineering design time and the cost of cabinet assembly.

-04, -X04 (Note: 04 represents the general name of the component, subject to the actual detailed model) High-power transmission module kit includes parallel R series inverter module (SMM) and R series semi-controlled diode rectifier with thyristor charging function Module, or through the combination of AIM+ALM=AFE module to form IGBT very low harmonic rectifier, its power range can be up to 2300kW, and the voltage range is 380-690V.

The multi-drive module is suitable for building multi-drive devices, which can be used in metallurgy, oil and gas, mining, ships, offshore operations, material handling, pulp and paper, automobiles, food and beverage, cement, electricity, clean water and sewage treatment industries.
They can control many applications, including cranes, profile and flat tying, conveyor belts, winches, dynamometer test stands, production lines, paper machines, pumps and fans.

Multi-drive modules can meet all the needs of a complete set of transmission equipment, including rectifiers, inverters, filters, brake choppers (built-in optional), various communication options, and various speed feedback interface options. With the highly accurate motor control platform-direct torque control technology, the drive can control the motor either in an open loop or in a closed loop.

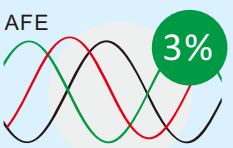


>>>>>>>>>>>>>>>> Hardware and Functional brief of Multi-Drive Moudules >>>>>>>>>>>>>>>>

*1. The power module type multi-motor drive is an AC-DC-AC multi-motor drive based on the public DC bus system. First, determine the rectification method according to the load demand. The judgment basis is derived from the configuration of the user side, such as the grid capacity/ Phase-shifting transformer/power transformer/quick braking/dragging, etc. If the overall energy of the drive needs to be fed back to the grid side, use basic rectification plus braking resistor, AFE active rectification or feedback rectification. If there is no energy feedback, Then choose the basic rectification method, and then choose the rectification and inverter motor modules of different power levels according to the number and performance level of the required drive motors. Due to the adjustment of the English abbreviation, the ALM in this article has the same function as the SLM in the manual before this edition.
*2. The system-level logic control of soft start, thermal and electric energy limit protection linkage between functional modules is realized through terminal wiring or communication connection. Please refer to the manual or consult.
*3. It is also possible to achieve 12-pulse or higher multi-pulse rectification to reduce harmonics through single or multi-transmission models with different forms and front-end phase-shifting transformers. SIM&AIM rectifier front-end interface module is not recommended and supports parallel use due to principle restrictions, SMM motor inverter module can realize power increase and turn through paralleling.
The following figure shows the main electrical topology diagram of each functional module and the basic introduction of each functional module. The main components of the power module include:

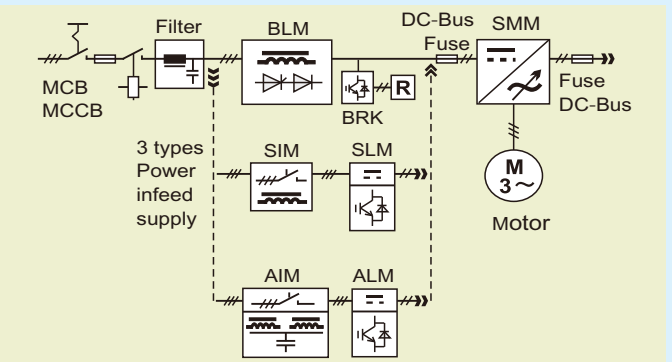
Size	Wide W (mm)	Hight H (mm)	Depth D (mm)	Hole width W2 (mm)	Hole depth H2 (mm)	diameter d2 (mm)	screw size	Weight M (kg)
R8	240 240	977-[1] 1395[1]	577- 600[3]	150	900	12	M12	80 63

Harmonic distortion typically



Harmonic reduce 97%

ALM rectifier feedback
SMM motor drive
DCDC power
BLM Basic Rectification
Pti/Pto supply/take power



L8 L9【液冷型】 R7 R8B/R8M

1. Basic Line Modules (Basic Line Modules):
It is only designed for pure rectification, and the interior is composed of thyristor diodes and DC incoming line reactors.
Electricity needs to be equipped with a brake module.
2. Feedback rectifier SLM module (Smart Line Module): [Not recommended]
Composed of IGBT and DC smoothing capacitor, it can rectify power supply and feed energy back to the grid. There must be a suitable front-end interface reactor SIM(L) for feedback. The DC bus voltage cannot be constant and adjustable. Usually under rated load, the typical value of grid-side current harmonic THDi<30-35%
3. Active rectifier ALM module (Active Line Module): [Recommended and preferred use]
Composed of IGBT and DC smoothing capacitor, it has the function of feedback and rectification, and can also be controlled intelligently.
Control and maintain the bus voltage. The actual current effect produced on the power supply side is close to a sine wave, thereby suppressing harmful harmonics. This rectifier module must use a matching AIM incoming module.
At this time, the typical grid-side current and voltage harmonics under rated load THDi/u<3-5%.
4. Front-end interface AIM module (Active Interface Module):
AIM is installed between the power grid and ALM, and it integrates a filter, a pre-charging circuit, a smooth wave absorption LCL circuit, etc., compared to its SIM, it may only reduce the inductance of the reactor.
5. Motor inverter (SMM) module (Single Motor Module):
It is a self-commutated inverter with IGBTs, which drives the motor with controlled energy through a common DC bus, or transfers the energy generated by the motor to the bus. High-power transmission and machine need to be equipped with special control components.

ACS860/880 Wall-mounted Integrated AFE Active Rectifier and Feedback Front-End Module Combination [Power Supply Module]

AFE

Three-phase input Un= 400V(380-415V) The rated power is valid when the rated voltage is 400V (5.5-132kW)
* According to the rated and peak load current selection

related value			Light Duty		Heavy Duty		noise level	Heat output	cool down Air volume	Series No. 1.XXXXX-X=ACS880-B or ACS860-C 2. Specific applications support built-in brake +[-3B]	size (mm)
P_N kW	I_N A	I_{max} A	I_{LD} A	P_{LD} kW	I_{HD} A	P_{HD} kW	dBA	W	m^3/h		
5.5	12.9	16	12	**5.5**	9.4	**4.0**	45	472	50	**XXXXX-X25-12A6-3+AIM+ALM**	L2+C2 (W110 H610 D200)
7.5	17	21	17	**7.5**	13	**5.5**	45	210	55	**XXXXX-X26-017A-3+AIM+ALM**	
11	25	30	24	**11**	17	**7.5**	45	325	60	**XXXXX-X27-025A-3+AIM+ALM**	
15	32	42	32	**15**	25	**11**	57	500	100	**XXXXX-X32-032A-3+AIM+ALM**	L3+C/B3 (W145 H725 D270)
18.5	38	54	37	**18.5**	32	**15**	57	550	125	**XXXXX-X33-038A-3+AIM+ALM**	
22	45	64	45	**22**	38	**18.5**	57	660	145	**XXXXX-X34-045A-3+AIM+ALM**	
30	61	76	58	**30**	45	**22**	59	890	200	**XXXXX-X42-061A-3+AIM+ALM**	L4+C/B4 (W250 H700 D300)
37	72	104	71	**37**	61	**30**	59	1114	250	**XXXXX-X43-072A-3+AIM+ALM**	
45	87	122	85	**45**	75	**37**	59	1140	290	**XXXXX-X44-087A-3+AIM+ALM**	
55	115	148	110	**55**	91	**45**	59	1200	320	**XXXXX-X52-105A-3+AIM+ALM**	L5+C/B5 L6+C/B6 (W290 H1000 D350)
75	145	179	143	**75**	112	**55**	59	1440	340	**XXXXX-X53-145A-3+AIM+ALM**	
90	182	247	176	**90**	150	**75**	67	1940	400	**XXXXX-X54-169A-3+AIM+ALM**	
110	226	287	212	**110**	184	**90**	67	2200	550	**XXXXX-X62-206A-3+AIM+ALM**	
132	246	350	241	**132**	225	**110**	67	3300	650	**XXXXX-X63-246A-3+AIM+ALM**	

Note) : Bigger power models are multi-module drive,for more details please check the related person

DCC880 Integrated DC/DC Bidirectional DC Power Module Combination [DC Conversion Module]

DC/DC

(400Vac system) DC<=DC400/800V Comprehensive selection according to power & maximum current, protection class: IP20; BLM input voltage: three-phase AC380-415V

related value			Input	Output	noise level	Heat output	cool down Air volume	Series No. 1. The maximum voltage of DC output: -3=DC380V -4=DC780V. 2. Special applications support built-in braking unit +-3B, built-in basic thyristor AC input rectifier AC-DC power loop +BLM.	size (mm)
P_N kW	I_N A	U_N Vdc	U_{out} Vdc	U_{DC-bus} Vdc	dBA	W	m^3/h		
55	100	550	24-380/780	450-800	58	1200	320	**DCC880-D52-105A-3/4+DCDC+LC-100A /+BLM**	D5D (W290 H1120 D400)
55	200	275	24-380/780	450-800	58	1300	330	**DCC880-D52-105A-3/4+DCDC+LC-200A /+BLM**	
75	200	375	24-380/780	450-800	58	1440	340	**DCC880-D53-145A-3/4+DCDC+LC-200A /+BLM**	
90	300	300	24-380/780	450-800	58	1940	400	**DCC880-D54-169A-3/4+DCDC+LC-300A /+BLM**	
100	400	275	24-380/780	450-800	58	2200	550	**DCC880-D55-206A-3/4+DCDC+LC-400A /+BLM**	
132	500	264	24-380/780	450-800	58	3300	650	**DCC880-D56-246A-3/4+DCDC+LC-500A /+BLM**	
160	600	267	24-380/780	450-800	67	3850	680	**DCC880-R80-293A-3/4+DCDC+DCLC-600A**	R8D + R8M (W500* H1000* D630)
200	700	286	24-380/780	450-800	67	4100	700	**DCC880-R81-363A-3/4+DCDC+DCLC-700A**	
250	800	313	24-380/780	450-800	67	4600	720	**DCC880-R82-487A-3/4+DCDC+DCLC-800A**	
280	900	311	24-380/780	450-800	67	5100	950	**DCC880-R83-546A-3/4+DCDC+DCLC-900A**	
315	1000	315	24-380/780	450-800	67	5782	1100	**DCC880-R84-624A-3/4+DCDC+DCLC-1000A**	
400	1100	364	24-380/780	450-800	67	6252	1200	**DCC880-R85-760A-3/4+DCDC+DCLC-1100A**	
450	1200	375	24-380/780	450-800	67	7860	1350	**DCC880-R86-865A-3/4+DCDC+DCLC-1200A**	
(690Vac system) DC<=DC1200V Comprehensive selection according to power & maximum current, protection class: IP20; BLM input voltage: three-phase AC660-690V									
55	100	550	24-1150	450-1200	58	1200	320	**DCC880-D51-061A-6+DCDC+LC-100A /+BLM**	D5D (W290 H1120 D400)
75	200	375	24-1150	450-1200	58	1440	340	**DCC880-D52-080A-6+DCDC+LC-200A /+BLM**	
90	300	300	24-1150	450-1200	58	1940	400	**DCC880-D53-098A-6+DCDC+LC-300A /+BLM**	
100	400	275	24-1150	450-1200	58	2200	550	**DCC880-D54-119A-6+DCDC+LC-400A /+BLM**	
132	500	264	24-1150	450-1200	58	3300	650	**DCC880-D55-142A-6+DCDC+LC-500A /+BLM**	
200	600	333	24-1150	450-1200	67	3850	680	**DCC880-R81-271A-6+DCDC+DCLC-600A**	R8D + R8M (W500* H1000* D630)
280	600	467	24-1150	450-1200	67	4100	700	**DCC880-R82-295A-6+DCDC+DCLC-600A**	
355	700	450	24-1150	450-1200	67	4600	720	**DCC880-R83-325A-6+DCDC+DCLC-700A**	
315	800	444	24-1150	450-1200	67	5100	950	**DCC880-R84-360A-6+DCDC+DCLC-800A**	
400	900	444	24-1150	450-1200	67	5782	1100	**DCC880-R85-420A-6+DCDC+DCLC-900A**	
450	1000	450	24-1150	450-1200	67	6252	1200	**DCC880-R86-450A-6+DCDC+DCLC-1000A**	
500	1100	455	24-1150	450-1200	67	7860	1350	**DCC880-R87-505A-6+DCDC+DCLC-1100A**	

Note): Bigger power are multi-module drive,for more details ,please check with related person.
PN: Typical motor power with no overload application. In: Rated current available continuously without overload at ambient 40 °C.
Imax: Maximum output current. It can last up to 10 seconds at startup, otherwise it depends on the temperature of the drive.
In: Continuous current, 120% In overload allowed for 1 min/5 min at 40 °C.
These ratings correspond to an ambient temperature of 40 °C, if the ambient temperature is higher (up to 55 °C) a derating of 1%/1°C is required.

ACS880 multi drive power module series [Industrial drive / Common DC bus]

Un = 400V (340-500V) The rated power is valid at 400V (55-132-560-1400kW) * According to the rated and peak load current selection

Nominal ratings			Light-overload use		Heavy-duty use		Noise level	Heat diss.	Air flow	Model Number	Frame size (mm)
P_N kW	I_N A	I_{max} A	I_{LD} A	P_{LD} kW	I_{HD} A	P_{HD} kW	dBA	W	m^3/h		
55	115	148	110	**55**	91	**45**	59	1200	320	**ACS880-R52-105A-3+XXX**	R5X
75	145	179	143	**75**	112	**55**	59	1440	340	**ACS880-R53-145A-3+XXX**	
90	182	247	176	**90**	150	**75**	67	1940	400	**ACS880-R54-169A-3+XXX**	
110	226	287	212	**110**	184	**90**	67	2200	550	**ACS880-R55-206A-3+XXX**	
132	246	350	241	**132**	225	**110**	67	3300	650	**ACS880-R56-246A-3+XXX**	
160	293	418	283	**160**	266	**132**	68	3850	680	**ACS880-R[ ]2-293A-3+XXX**	R7X R8X [ ]=7/8
200	363	498	355	**200**	293	**160**	68	4100	700	**ACS880-R[ ]3-363A-3+XXX**	
250	487	545	450	**250**	387	**200**	68	4600	720	**ACS880-R[ ]4-487A-3+XXX**	
280	546	628	526	**280**	480	**250**	68	5100	950	**ACS880-R83-546A-3+XXX**	R8 (W245* H1000 -1400* D600 -650)
315	624	718	615	**315**	546	**280**	68	5782	1100	**ACS880-R84-624A-3+XXX**	
400	760	874	727	**355**	568	**315**	68	6252	1200	**ACS880-R85-760A-3+XXX**	
450	865	1080	865	**450**	675	**355**	68	7860	1350	**ACS880-R86-865A-3+XXX**	
560	1050	1265	1000	**560**	874	**450**	68	8625	1580	**ACS880-R87-950A-3+XXX**	
800	1480	1930	1421	**800**	1107	**630**	72	10600	3000	**ACS880-[ ]-1480A-3+XXXX**	(2+2)xR8
1000	1760	2120	1690	**900**	1316	**710**	74	17500	4200	**ACS880-[ ]-1760A-3+XXXX**	(2+2)xR8
1400	2610	3140	2506	**1400**	1952	**1000**	76	33700	5200	**ACS880-[ ]-2610A-3+XXXX**	(3+3)xR8

Three-phase input Un = 660V (525-750V) The rated power is valid at voltage 690V (45-132-630-2300kW)
* According to the rated and peak load current selection

Nominal ratings			Light-overload use		Heavy-duty use		Noise level	Heat diss.	Air flow	Model Number	Frame size (mm)
P_N kW	I_N A	I_{max} A	I_{LD} A	P_{LD} kW	I_{HD} A	P_{HD} kW	dBA	W	m^3/h		
160	174	274	165	**160**	142	**132**	68	3922	680	**ACS880-R[ ]2-175A-6+XXX**	R7X R8X [ ]=7/8
200	210	384	200	**200**	174	**160**	68	4822	700	**ACS880-R[ ]3-210A-6+XXX**	
250	271	411	257	**250**	210	**200**	68	6000	720	**ACS880-R[ ]4-271A-6+XXX**	
280	300	450	290	**280**	265	**250**	68	5800	950	**ACS880-R[ ]5-295A-6+XXX**	
315	330	480	320	**315**	295	**280**	68	6120	1100	**ACS880-R83-325A-6+XXX**	R8 (W245* H1000 -1400* D600 -650)
355	370	520	360	**355**	325	**315**	68	6800	1200	**ACS880-R84-360A-6+XXX**	
400	430	520	420	**400**	415	**355**	68	7000	1350	**ACS880-R85-420A-6+XXX**	
450	470	655	455	**450**	455	**400**	72	7200	1300	**ACS880-R86-450A-6+XXX**	
500	522	655	505	**500**	505	**450**	72	8500	1350	**ACS880-R87-505A-6+XXX**	
560	590	800	570	**560**	515	**500**	72	9500	1450	**ACS880-R88-571A-6+XXX**	
630	650	820	630	**630**	565	**560**	72	10500	1650	**ACS880-R89-630A-6+XXX**	
800	800	1200	768	**710**	598	**560**	73	14200	3100	**ACS880-[ ]-800A-6+XXXX**	(1+2)xR8
1100	1160	1740	1114	**1100**	868	**800**	74	30500	4800	**ACS880-[ ]-1160A-6+XXXX**	(2+2)xR8
1600	1650	2475	1584	**1500**	1234	**1200**	75	34600	5120	**ACS880-[ ]-1650A-6+XXXX**	(2+3)xR8
2300	2300	3450	2208	**2000**	1720	**1600**	76	51750	8750	**ACS880-[ ]-2300A-6+XXXX**	(3+4)xR8

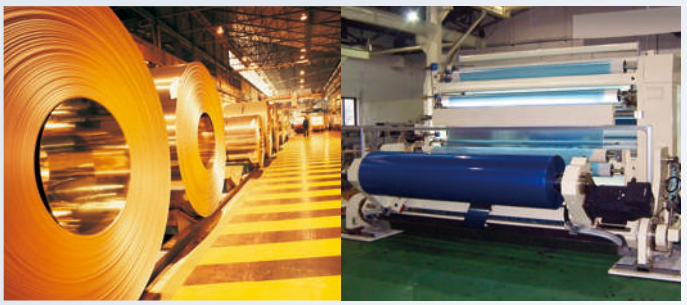
Note): For medium and high power models with extended or professional applications, such as low-harmonic 12-pulse rectifiers or four-quadrant models with feedback function, please consult our relevant personnel.

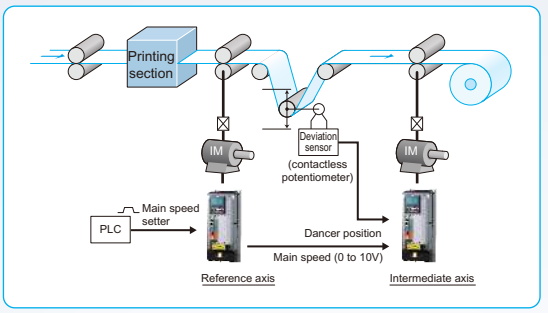
PN: Typical motor power in no-overload applications.
In: The rated current that is continuously available when there is no overload at an ambient of 40 °C.
Imax: Maximum output current. It can last for 10 seconds at startup. In other cases, the length of time depends on the temperature of the drive.
ILD: Continuous current, 110% ILD overload is allowed for 1 minute/5 minutes at 40 °C.
IHD: Continuous current, 150% IHD overload is allowed for 1 minute/5 minutes at 40 °C.
These ratings correspond to an ambient temperature of 40 °C, if the ambient temperature is higher (maximum 55 °C), the capacity needs to be derated by 1%/1°C.

The above model is a power modular split structure, XXX- represents the code of each functional module, actually can be BLM, AIM, ALM, SMM, etc., -04 represents the kit, the traditional form of drive composition is: rectifier + motor inverter Module structure (BLM+SMM), users of this series of models can flexibly choose and configure according to their needs. The typical four-quadrant drive selection is AIM+ALM+SMM. Example: 200kW heavy-duty four-quadrant drive Model: ACC880-R74-487A-3+AIM+ALM+SMM, the shape X is actually A, B, M-XXXX is a high-power transmission kit, usually contains multiple RX modules, to Composed of complete machine rectification (BLM), or AFE low harmonic rectification (AIM+ALM), and inverter mode
Block (SMM) and its necessary components (+PCLC) for parallel power.

Advantageous applications include multi-machine common DC bus, rectifier and multi-inverter, energy feedback (four-quadrant), motor dynamometer, etc. It is easy to design into a cabinet. For more small and medium power models not listed, please consult and confirm before ordering.

Line Control (winding and unwinding)





Material tension is kept constant by employing speed control and torque control to eliminate slack and uneven winding. By using a motor with the speed ratio most appropriate for the machine, the inverter capacity can be downsized.

Typical industries

- Textile industry
- Steel industry
- Pulp, paper, paper products manufacturing industries

Dancer control

The dancer control detects the dancer roll positions and performs PID operation to keep the sheet tension constant.

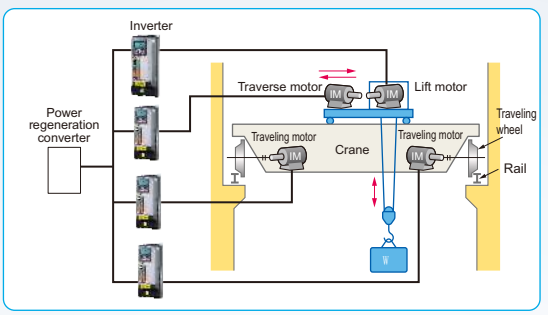
Traverse function

The traverse function, used for the traverse axis of spinning machine, prevents uneven winding or collapsing.

Torque accuracy

	Real sensorless vector control	Vector control
Torque control range	1 : 20	1 : 50
Absolute torque accuracy	±20%	±10%
Repetitive torque accuracy	±10%	±5%

Cranes



Relentless operation is possible with HD rating when lifting. And when traveling, vibrations applied to objects being conveyed are suppressed with anti-sway control, facilitating efficient operation.

Typical industries

- Lumber, wood product manufacturing industries
- Steel industry
- Warehousing
- Water transportation
- Textile industry
- Metal products manufacturing

High torque at low speed

[Starting torque]
- ■ Real sensorless vector control 200% (ND rating)
- ■ Vector control 200% (ND rating)
  (150% of initial setting for the 5.5K and higher)

[Zero-speed torque]
- ■ Vector control: 200% (Select HD rating.)

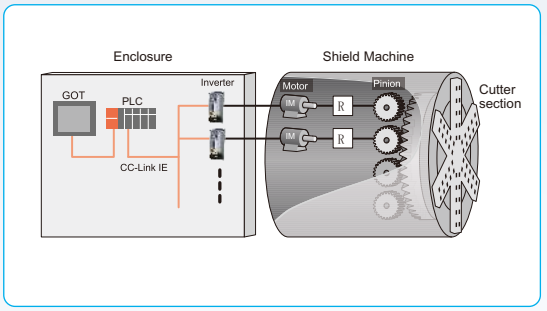
PLC function

By employing synchronous operation for gate-type cranes, positional displacement of both axes is corrected during travel, achieving highly accurate control without using an external controller.

Anti-sway control

When an object is moved by a crane, swinging at the time of stopping is suppressed on the crane's transverse axis or traveling axis.
This control cuts down the tact time and facilitates efficient operation.

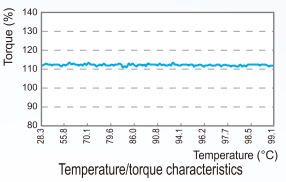
Shield Machines



Inverters can be used to provide high starting torque for digging, and for transferring earth and sand after digging. A lineup of products compatible with the IP55 protective structure is available as a separate series.

Real sensorless vector control

Motors are controlled without encoders, which are susceptible to hazardous environment. Use of such motors naturally provides higher reliability. Torque accuracy has also improved because the temperature is better controlled.



Temperature/torque characteristics

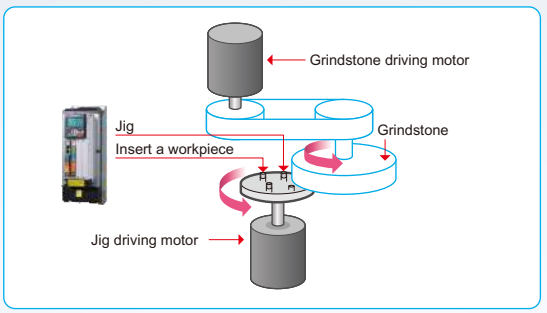
Droop control

This function balances the load between motors when using multiple inverters.

Typical industries

Construction industry

Machine Tools



The rotation speed can be set according to the material being processed. Stable high-speed rotation is also possible.

High-speed operation

[Operating frequency] ■V/F control 590 Hz
■Vector control 400 Hz
■Real sensorless vector control 400 Hz

Torque limit function

This is effective in preventing machine damage (tool damage prevention, etc.) due to sudden disturbance torque.

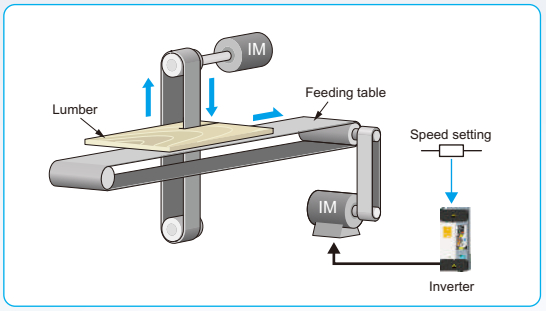
Orientation control

The inverter can adjust the stop position (Orientation control) using an encoder attached to a place such as the main shaft of the machine.

Typical industries

Metal products manufacturing

Wood Processing Machines



Even when processing areas of varying hardness such as lumber knots, processing time delays are suppressed by minimizing reductions in motor speed.

Typical industries

- Lumber, wood product manufacturing industries
- Forestry

Real sensorless vector control, vector control

Improved speed response to sudden load fluctuations when compared with the previous model (ACS550).

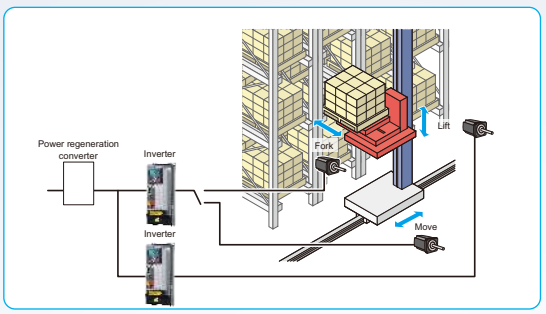
[Response speed]

- Real sensorless vector control 50 Hz
- Vector control 130 Hz

Torque limiting function

This function is effective in preventing machine damage (tool damage, etc.) due to sudden disturbance torque

Conveyance



The new series offers a wealth of functionality suited to applications such as high-accuracy conveyance and target position stoppage, which contributes to reduction in tact time.

Typical industries

- Steel industry
- Metal products manufacturing
- Lumber, wood product manufacturing industries
- Textile industry
- Water transportation, fishing industry
- Warehousing

PM sensorless vector control

Multiple axes are strictly controlled to run at the same speed without using a driving belt. This control method provides driving accurate enough for transporting glass substrates without damaging them. Simple positioning control is also available.

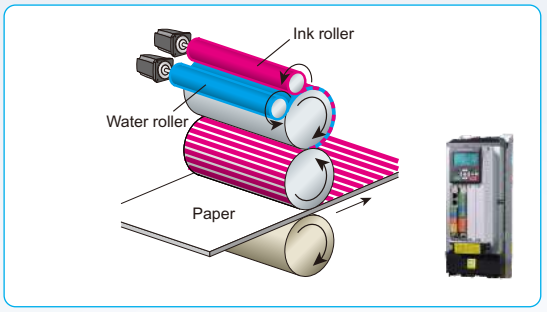
Increased magnetic excitation deceleration

Deceleration time can be reduced without a brake resistor.
Tact time can be eliminated at conveyor lines, etc.

PLC function

When a few sensors are used to check the presence of goods on a conveyor and the arrival of such goods, the inverter can directly receive such signals from the sensors for the PLC control.

Printing Machines



The highly-accurate speed control minimizes color unevenness and displaced prints.

Typical industries

Printing and related industries

Speed control

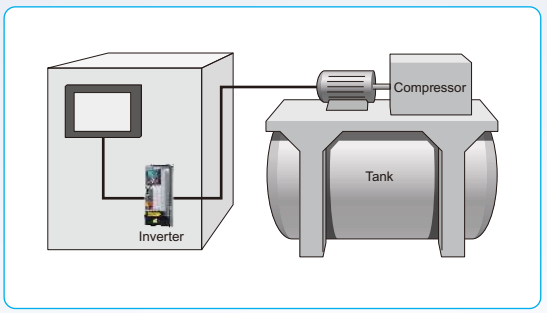
	Real sensorless vector control	Vector control	PM sensorless vector control
Speed response	50 Hz	130 Hz	50 Hz
Speed control range	1:200 (when power drive at 0.3 Hz to 60 Hz)	1:1500 (both driving/ regeneration)	1:1000 (when HD rating selected)

PM sensorless vector control

The speed fluctuations of the ink roller axis and water roller axis are minimized to eliminate print unevenness.

[Speed fluctuation ratio] ±0.05% (Digital input)
"No encoder" means less trouble and higher reliability.

Compressors



The PM sensorless vector control is useful in generating high starting torque. By using this control method with an IPM motor, much power can be saved. This small motor also makes the machine small.

Typical industries

Steel industry
Metal products manufacturing
Lumber, wood product manufacturing industries
Textile industry
Water transportation, fishing industry
Warehousing

PM sensorless vector control

Smooth operation is possible even at start-up under high load.

[Starting torque] 1.5 kW or lower: 200%, 2.0 kW or higher: 150%

PID control

Pressure can be automatically adjusted by converting signals from the encoder to inverter input signals and feeding them back.

ACS regen drive special for dynamometer application

Best For Your Dynamometer

Based on the ACS series of high-performance drives and dynamometer motors, Inomax has developed a full range of dynamometer test bench systems.

Application fields cover: rail transit (motor train, subway), automobile (fuel engine, new energy vehicle motor, gearbox, chassis dynamometer, axle, test bench system and vehicle energy flow test, etc.), wind power equipment (wind power complete machine, gear box), motor (motor, generator), industrial equipment (drilling machinery, pump, gear box). Provide a complete solution for your product from R&D, certification to factory testing. Unique optimized power feedback technology, greatly reducing
Low energy consumption of the dynamometer bench; at the same time, the unique integrated safety technology provides a stable and quiet test platform for product type testing and factory testing. During the whole life cycle of the test bench, based on the localized engineering service team and industrial system after-sales service system, we provide technical upgrading and maintenance services, so that your test bench system can always maintain the most advanced performance and industry advantages.

All electrical dynamometers typically have speed and power feedback for performance testing and monitoring. Typical features include encoders or other speed or position sensors, torque arms and various types of sensors. Power dynamometer interfaces include integrated consoles, stand-alone consoles, computers, and more.

The special type of multi-transmission module kit with common DC bus energy can flow in both directions can be widely used in high-power multi-machine transmission, gas turbine and other generators to take power from inverter power supply, build dynamometer test platform, and DC power conversion and output.

Optoelectronic applications

Mechanical equipment

Car

Generator/Motor

Rail

A complete loading solution for motor dynamometer test control with high dynamic response and rich functions of up to 4MW class

The motor test bench can be used in various high-speed motor applications such as new energy vehicle drive motors, high-speed air compressor motors, and high-speed magnetic levitation motors.

Typical test items are: motor with controller power, torque characteristic test, motor with controller temperature rise test, motor with controller locked-rotor test, motor controller control strategy development verification test, motor driven controller maximum speed test, motor Brake regeneration energy feedback test with controller, external characteristic test of motor, development and matching optimization test of motor and controller powertrain, performance test and calibration test of motor and controller powertrain, efficiency map measurement test, acceleration Response test, torque response test, steady-state cyclic loading endurance test, back EMF constant and waveform, electromechanical time constant, motor response characteristic test (Note: The time resolution here is required to reach microsecond level, which is generally used for high-speed small motor test).

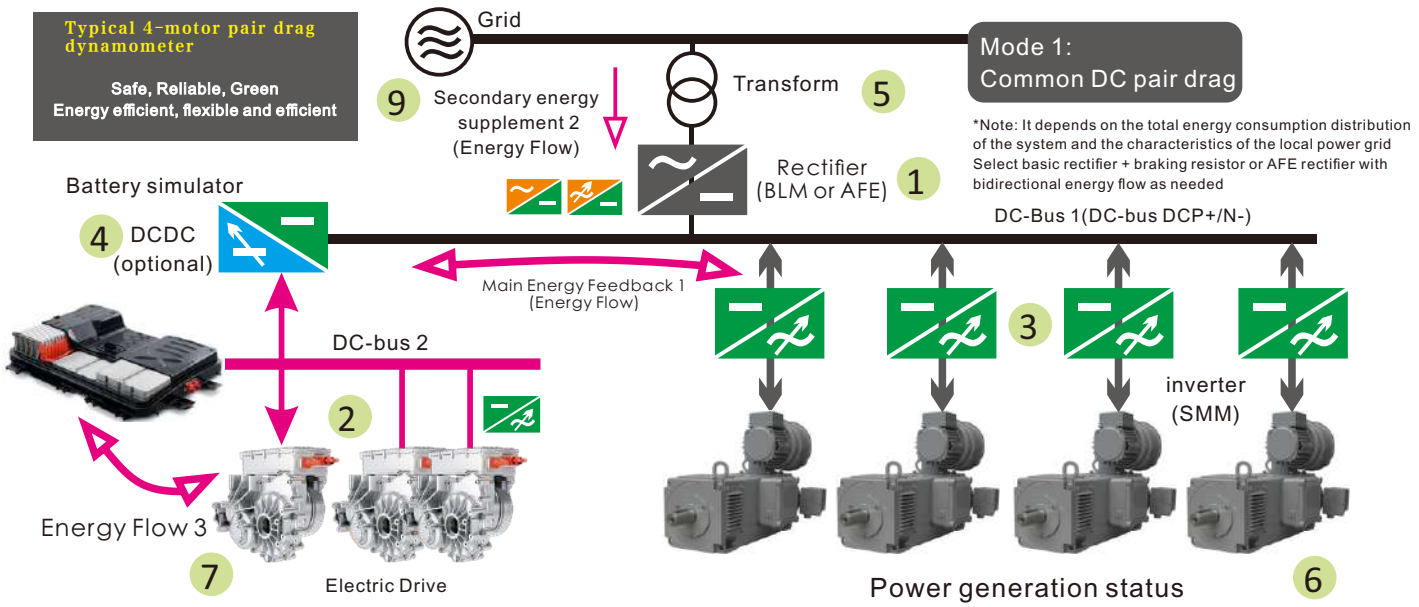
Meet the performance test of pure electric passenger car and commercial vehicle motors and their controller systems. The test bench can perform automatic or manual tests on the conventional performance, external characteristics and efficiency characteristics of the motor, and can measure parameters such as power, torque, speed, temperature, etc., so that the performance parameters of the motor can be calculated and the relevant curves can be drawn.

The test bench can complete the stall torque and stall current test, temperature rise test, continuous electric working characteristic test, motor maximum speed test, motor overspeed test and feeder working characteristic test, etc. At the same time, the test bench can feed back the power generated during the test to the grid through the variable frequency AFE system.

According to the characteristic curve of the motor to be tested, the dynamometer is selected. The dynamometer is generally controlled by a four-quadrant driver, and can work as electric or power generation. The system can be equipped with battery simulator or DC bidirectional power supply, power analyzer, cooling system and other accessories

Motor test bench, motor test bench real-time dynamic control system can realize speed and torque control through real-time controller to simulate actual load. The main control system can communicate with environmental chamber, power analyzer, cooling system, EUT, etc., and realize control. The data acquisition system collects the signals of torque sensors, vibration sensors, temperature sensors, pressure sensors, and other sensors, and transmits them to the main control system at high speed through the field bus.

Vehicle energy management and testing is to analyze and optimize the energy flow of the vehicle under steady-state and dynamic conditions, to find out the factors that affect the performance of the vehicle, such as fuel consumption, emissions, power, thermal comfort and drivability. Contributions, with a quick and concise energy map, identify where action is most potential.



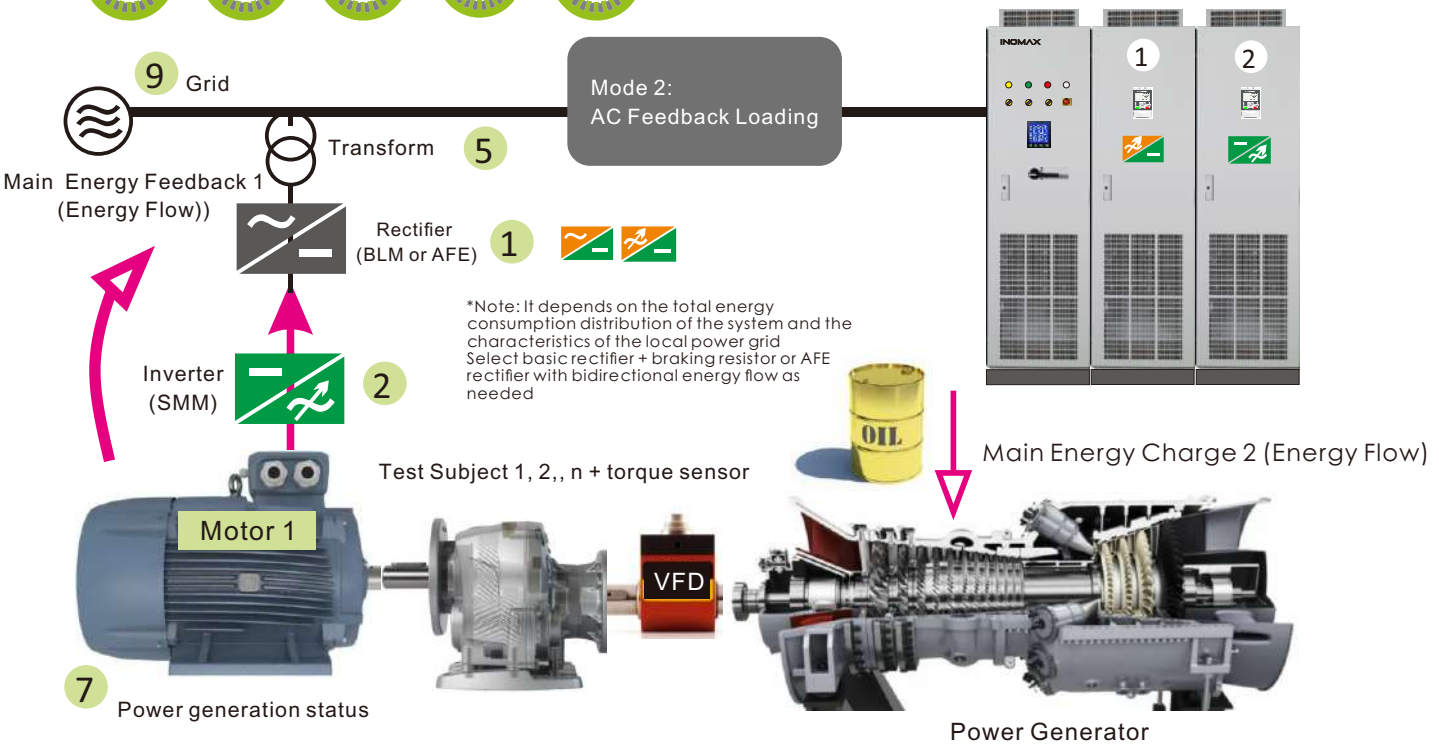
Widely applicable loading scheme for mechanical transmission components with high dynamic response, high torque accuracy and linearity and rich functions

The power test bench can be used in the manufacturing and verification of the following types of mechanical equipment. Dynamometers typically have speed and power feedback for performance testing and monitoring. Typical features include encoders or other speed or position sensors, torque arms and various types of sensors, and interfaces include integrated consoles, stand-alone consoles, computers, etc.

Typical test items are:
【Gearbox】Type test, factory test, no-load cleaning, loading, fatigue, damage test.
【Generator】Emission and fuel consumption test, reliability test, performance test, factory test.
【Transmission system】Fatigue test, vibration and noise test, efficiency test, fatigue test, Temperature rise test, vibration and noise test.
【Reducer, drive shaft, bearing, transfer pump, oil drilling rig, centrifuge】 Large machinery and equipment (complete machine, components) type test and factory inspection, customized test process + modular hardware configuration, accurately simulate various complex operating conditions, dynamic loading, high torque overload test, fatigue/damage test, high-speed dynamic balance, low-speed high-torque test, torque/speed transient test, comprehensive performance evaluation test, voltage, current, Power, vibration, torque, speed, noise, temperature, stress, pressure, deformation, etc., comprehensively replace mechanical closed-loop, hydraulic, eddy current dynamometer systems.

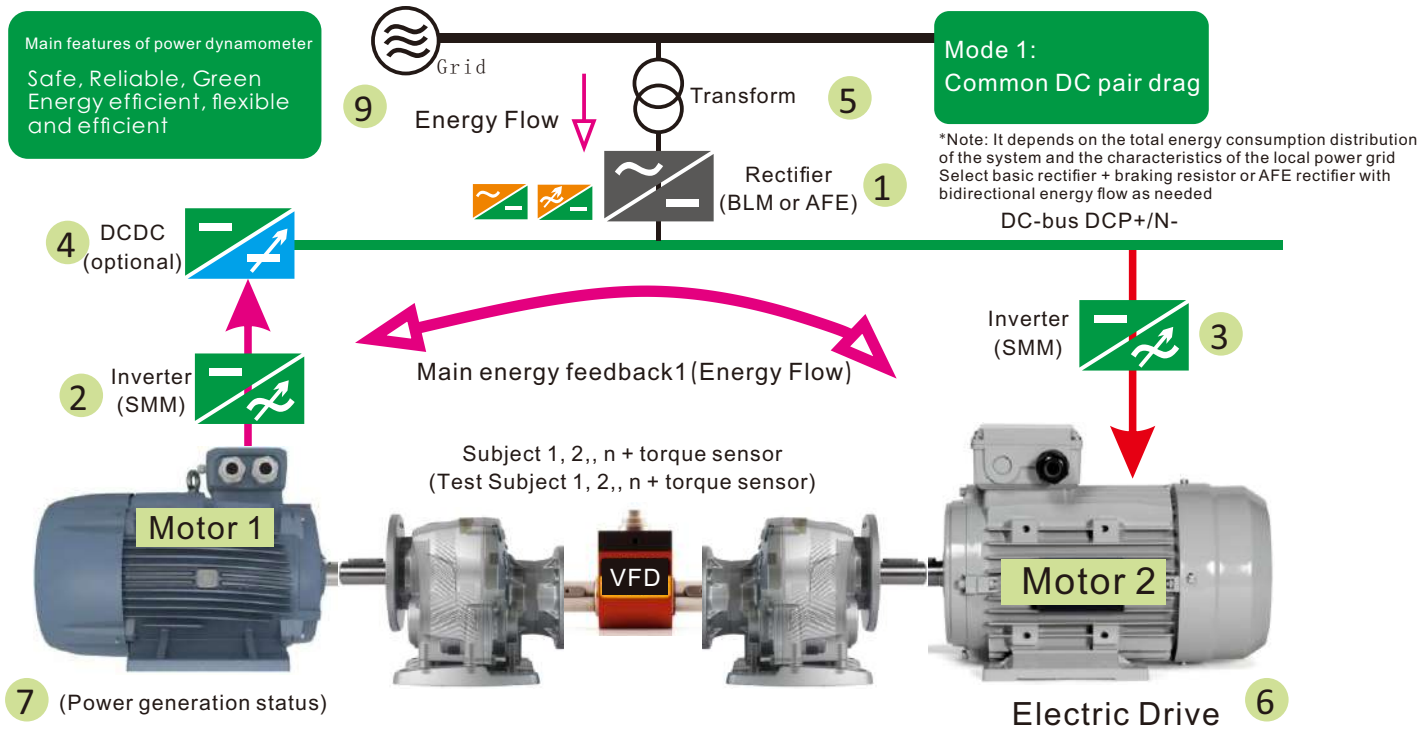
Main application advantages and features:
It has excellent torque characteristics, small steady-state torque fluctuation, and high torque linearity. The multi-machine transmission power structure has simple wiring and high energy efficiency. Solution, friendly third-party compatibility, high cost performance for complete sets of mid-to-high-end equipment, core technology and self-controllable, extremely low grid side and system and harmonic and EMC electromagnetic interference, the impact on the sensor instrument is minimized , The debugging is simple and the operation is extremely friendly and user-friendly. When the tested item fails, the system is always under scientific and safe control, and the accompanying test machine has no risk of flying.

Note: The left is the cross-sectional schematic diagram of various types of motors supported including asynchronous and synchronous



Main features of power dynamometer

Safe, Reliable, Green Energy efficient, flexible and efficient



The electric dynamometer can operate in four quadrants, either as a generator or as a motor; it can be loaded forward or reversely, which can quickly change the direction of operation and free flow of energy in both directions.

The dynamometer test system adopts AC variable frequency feedback loading, and the loading energy is fed back to the power grid through the AC load generator;

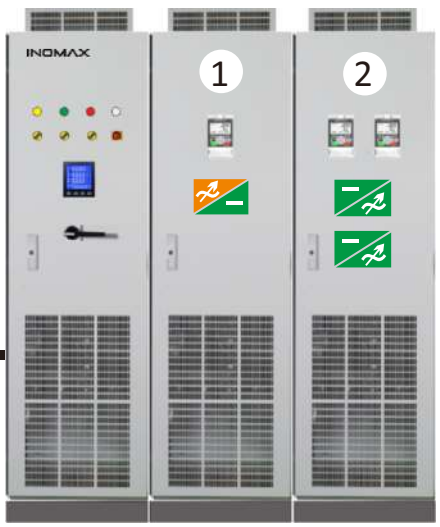
The loading characteristics of the dynamometer are very good: stable constant torque loading can be maintained below the rated speed (even stalled or even reversed) (this is especially suitable for minimum torque testing), and stable constant power loading can be maintained above the rated speed.

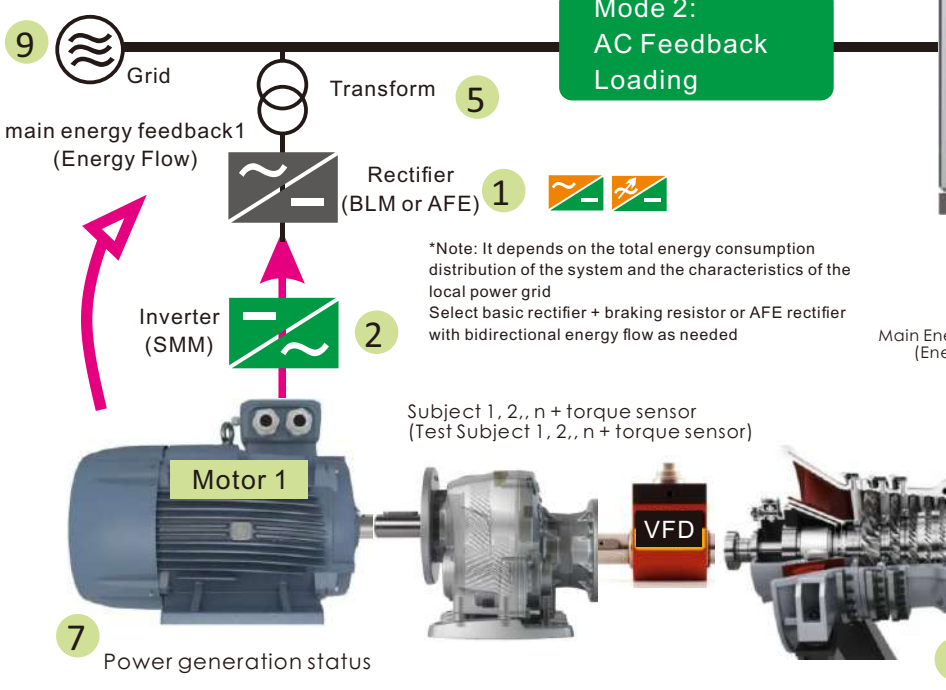
It can work in two modes of constant torque (loading) or constant speed (reverse dragging) to meet different test needs.

The stability of constant torque and constant speed loading control is unmatched by other loaders. It can maintain extremely high stability in the full speed (even at zero speed) and torque range, and linearity in the full torque range.

The dynamometer has various diagnostic and alarm protections such as overload, overspeed, overvoltage, overcurrent, overheating, phase loss, and fluctuation.

Reduced test system maintenance and therefore increased test bench availability, due to the compact design of the dynamometer requiring less space, the integrated precision torque measurement flange enables steady-state and dynamic test conditions up to 25,000 rpm, low vibration and low noise for highly dynamic testing based on low moment of inertia rotors.



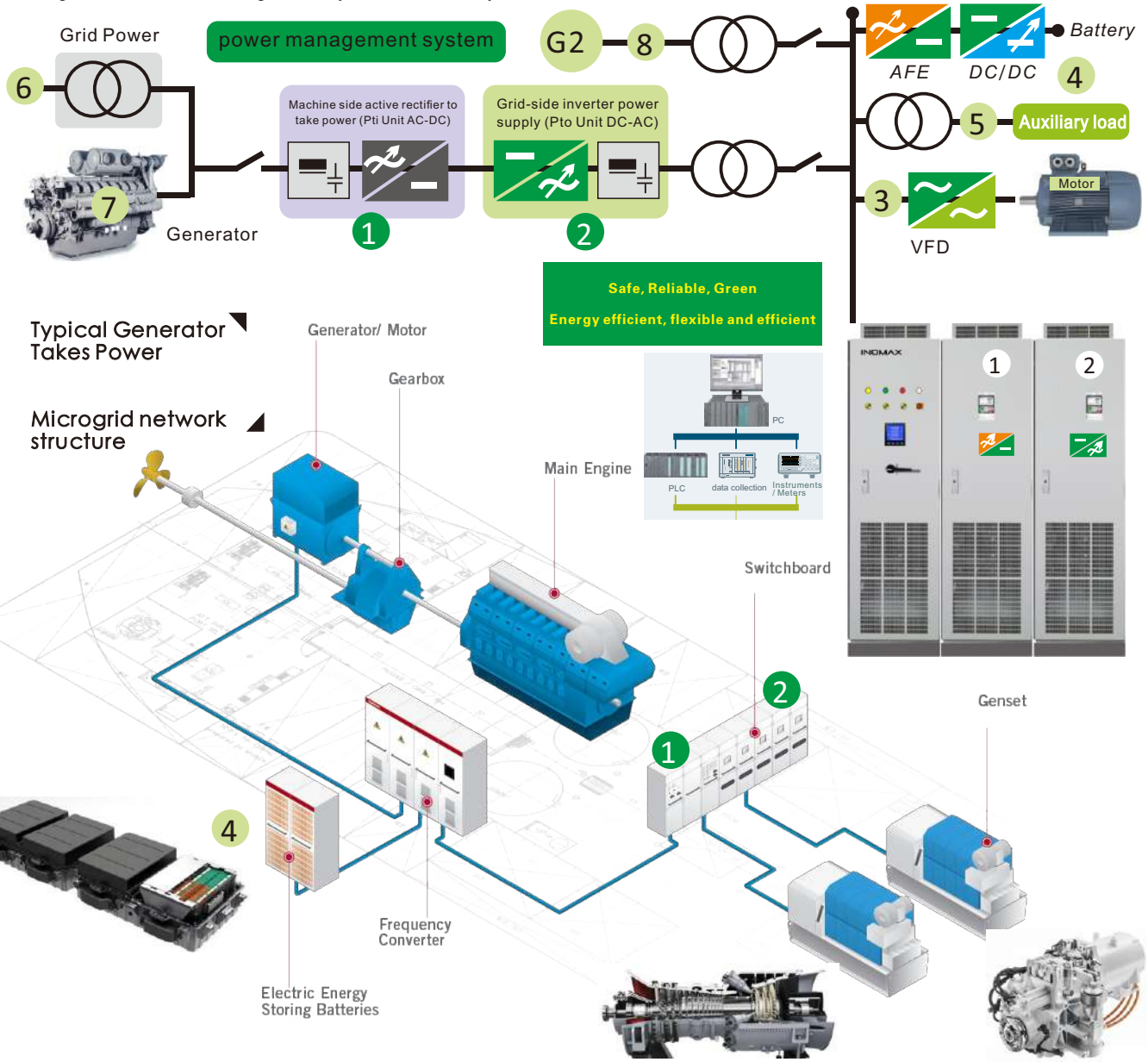


High dynamic response, green and high-efficiency medium-high-speed high-efficiency generator set and system solution for microgrid power conversion

In order to improve and optimize energy efficiency in small and medium-sized island power generation industries such as ships and gas turbines, with the support of corresponding converter technology, high-speed generator power generation, The technical form of the combination of shaft power generation and co-shore power supply reduces fuel consumption, improves efficiency, reduces the size of the generator set and improves its power density. In a typical PTi/PTo power generation and power configuration, there are the expected number of generators, filters, active rectifiers, isolation transformers, inverters and intermediate DC circuits connected, and some systems have heuristic integrated drive configurations. The typical configuration is as follows Show.

Main features of power generation and power supply device:
Through a specific IGBT control strategy, the grid can be adapted to meet the requirements of complex controlled conditions such as constant speed, variable speed, sudden speed change, sudden load change (50-80%) cut-in or disconnection of normal-speed or extremely high-speed generators. For the stable control of voltage and current, the main features brought by the key technologies of related products are as follows: 1. There is no need for a specific grid (or motor side) voltage real-time detection and monitoring module, and the reliability is higher. 2. The specific drive control method improves the energy efficiency conversion rate of the system to a higher state. 3. PTi has strong adaptability to the generator, PTo to the load end and the ability to adjust and respond very quickly, and the permanent magnet generator/motor is driven/controlled at a high level.

Main application advantages and features:
It has excellent torque characteristics, multi-machine transmission power structure, simple wiring, high energy conversion efficiency, transmission is a complete solution, and has friendly third-party compatibility. The technology is independent and controllable, and the harmonics and EMC electromagnetic interference of the grid side/system are extremely low,



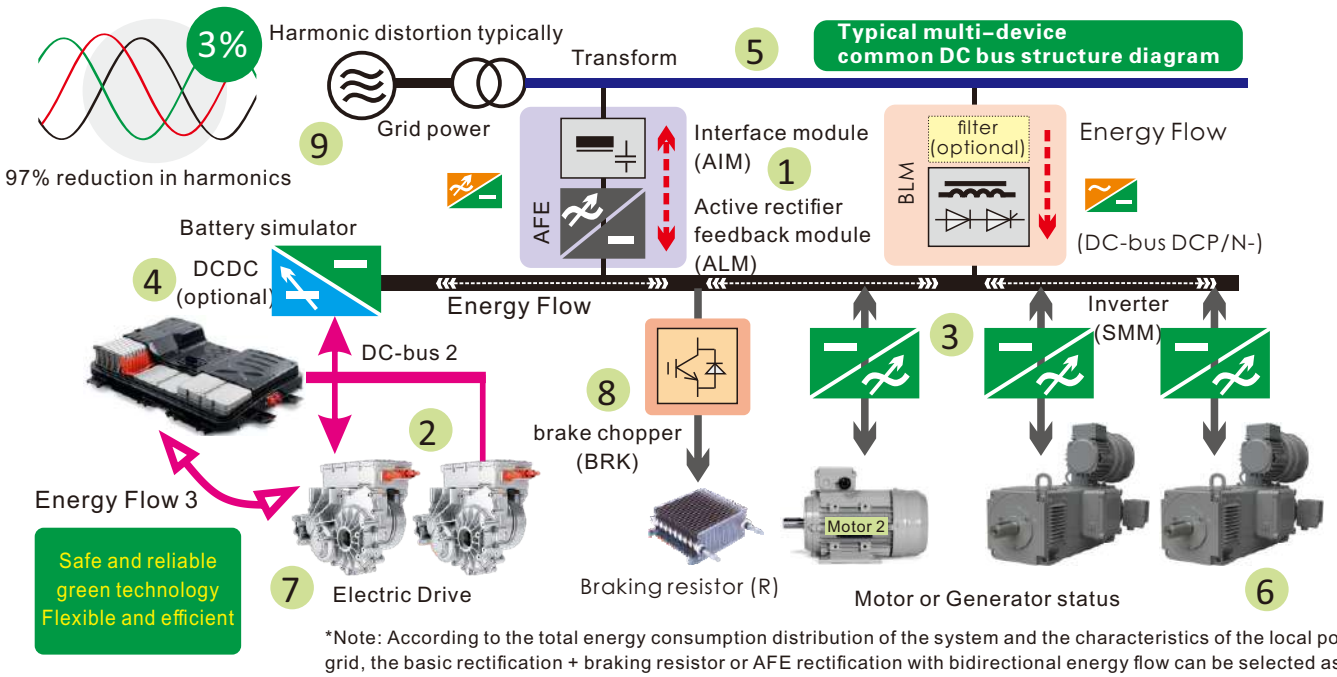
Provide a complete set of common DC bus drive products with excellent control performance, reliable and robust structure, flexible architecture, composed of a variety of active front ends, non-regenerative front ends, inverters and brake choppers, covering the entire power range, with a voltage of 380 V / 690 V, can meet your various power/power or drive requirements, enabling efficient use and redistribution of energy, system-level easy commissioning, rich functions and a variety of options, modular features for a variety of power systems Provide the ideal energy sharing solution

Function of AFE (Active Front End) active rectifier/feedback unit

Active Front End is translated from English Active Front End. The hardware structure of AFE/NFE is usually composed of two functional modules, AIM (LC/LCL) + ALM. From the structural point of view, due to the use of IGBT power components, it is equivalent to an inverter. The difference is that its input is The AC output is DC and is called the front end because it is on the incoming side of the power supply. The active meaning is that, compared with the traditional diode or controllable silicon rectification technology, the active front end is no longer passively converting AC to DC, but has many active control functions. It can not only eliminate high-order harmonics and improve power factor, but also is not affected by grid fluctuations, and has excellent dynamic characteristics. The NFE mode is realized through a specific torque direction limit, that is, the front-end unit only works in the rectification mode to realize one-way flow of energy, which is suitable for low-harmonic rectification applications and applications where energy feedback is not required or impossible.

Main features of AFE and multi-machine common DC bus topology configuration:

The goal is to ensure that all drives share energy within the system and that all energy is used and redistributed efficiently. Our common DC busbar assemblies are used in a wide variety of combinations in a wide range of high power process applications including pulp and paper, metallurgy and mining, and marine cranes, as well as in small machinery requiring cost-effective solutions with the production line. There are two main types of DC bus systems: regenerative and non-regenerative. In a regenerative DC bus system, front-end equipment can feed back power to the mains network. This system is suitable for processes where braking is often required and the braking power is relatively high. In non-regenerative systems, the braking power is redistributed to the other drives in the system through the common DC bus, and the excess power is dissipated as heat using the optional braking chopper and braking resistor. A non-regenerative common DC bus system is a cost-effective solution for small production lines or small drive systems where braking is infrequent. In high-power applications, multiple front-end devices can be used in parallel. In addition to the attractive cost-saving features, this solution reduces power cords and installation time, and reduces the overall size of the drive system. Your drive system will be improved against the negative effects of voltage sags/sags and will minimize system harmonic distortion, benefiting from good electromagnetic compatibility and green low harmonics. In addition, we will continue to develop innovative solutions using renewable energy and smart grid technologies to help customers effectively monitor energy usage and costs.



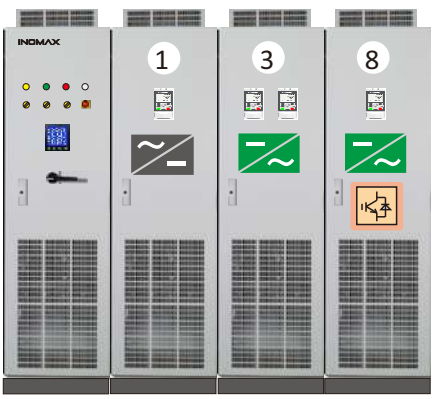
*Note: According to the total energy consumption distribution of the system and the characteristics of the local power grid, the basic rectification + braking resistor or AFE rectification with bidirectional energy flow can be selected as


R8-AFE
【AIM+ALM】


L8 L9【liquid cooling type】


R7M


R8B/R8M



Drive Cabinet

Benefiting from the unique hardware and control strategy, this DCDC has extremely fast voltage response characteristics, extremely low output ripple, and will have excellent performance in specific applications such as load changes. The output accuracy reaches 0.1%FS, and the normal voltage range is DC24–1100V, current output 1–500A–1000A, etc.

Function of AFE (Active Front End) active rectifier/feedback unit

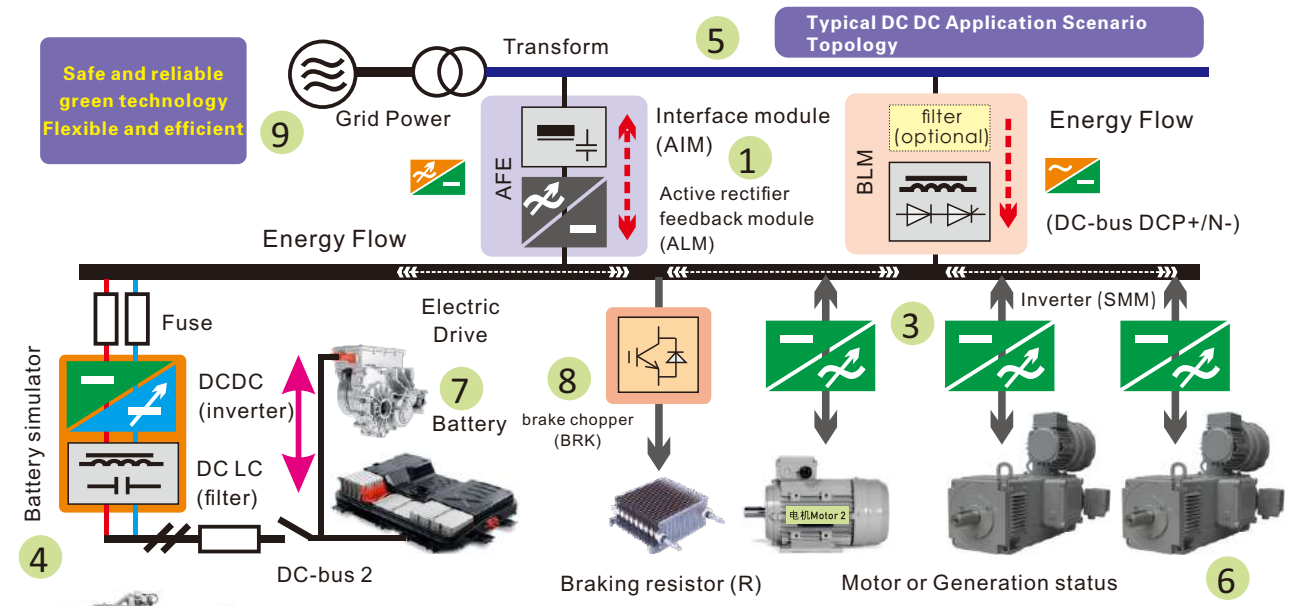
The DC/DC converter is a powerful tool for industrial DC backup power, supporting DC grids and providing AC or DC energy storage systems with a wider power range for distributed grids, stand-alone grids or industry. Using a DC/DC converter, a common DC bus system or individual inverters can connect their DC bus to an alternative DC power source (such as a battery or supercapacitor) to form a hybrid system. Power can flow in both directions, from the DC source to the DC link or from the DC link to the source. In this way, the DC power supply can be used as a backup power supply for the system.

DCDC. Transfers energy from the drive's common DC bus to an external energy store and releases energy back to the DC bus.

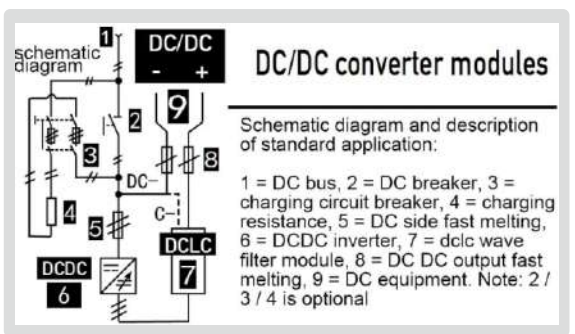
For example, the energy storage can be a battery or a supercapacitor. The energy storage medium is not part of the DC/DC module product supply. Parallel DC/DC converter modules must have common energy storage. Each parallel module must have its own output cable. We also recommend that you use the same cable (cable type, cross-section and length) and use the same load for each module. For other solutions, please contact us. Typically, DC/DC converters are used for heave compensation in marine applications, peak load compensation, propulsion supply in ports, energy storage instead of additional generators, etc. DC/DC converters can also be used in automotive applications such as electric vehicle charging systems and other applications that require energy storage and reuse.

DC/DC includes special firmware software to provide DC power conversion based on air-cooled or liquid-cooled inverter modules (DCDC) and filters (DCLC). It has two-way flow of energy in the full power range, energy saving and high efficiency. There are multiple output modes of constant voltage, constant current and constant power, and the transient response is fast. The specially designed hardware topology and control and filtering system will prevent external common mode voltage and electromagnetic interference. The coupling effect is reduced to a very low level, making it greener, more efficient, safer and more reliable.

With automatic line voltage compensation function, various diagnosis and protection, self-discharge function, etc., optional mainstream high-speed field communication (Modbus/CAN/PN/EtherCAT)



*Note: According to the total energy consumption distribution of the system and the characteristics of the local power grid, the basic rectification + braking resistor or AFE rectification with bidirectional energy flow can be selected as needed.



R8-DCDC
【DC/DC+DCLC】
DC500-1000A

D5-DCDC
【DC/DC+DCLC】
DC100-500A

Integrated DCDC power cabinet
【DC/DC Cabinet】

AFEL energy feedback electronic load, grid–connected electronic load, and battery energy recovery device benefit from unique hardware and control strategies, with extremely fast voltage response characteristics, low noise, bidirectional power supply, energy saving and environmental protection, and various application modes. Excellent performance in demanding applications

Introduction of typical application

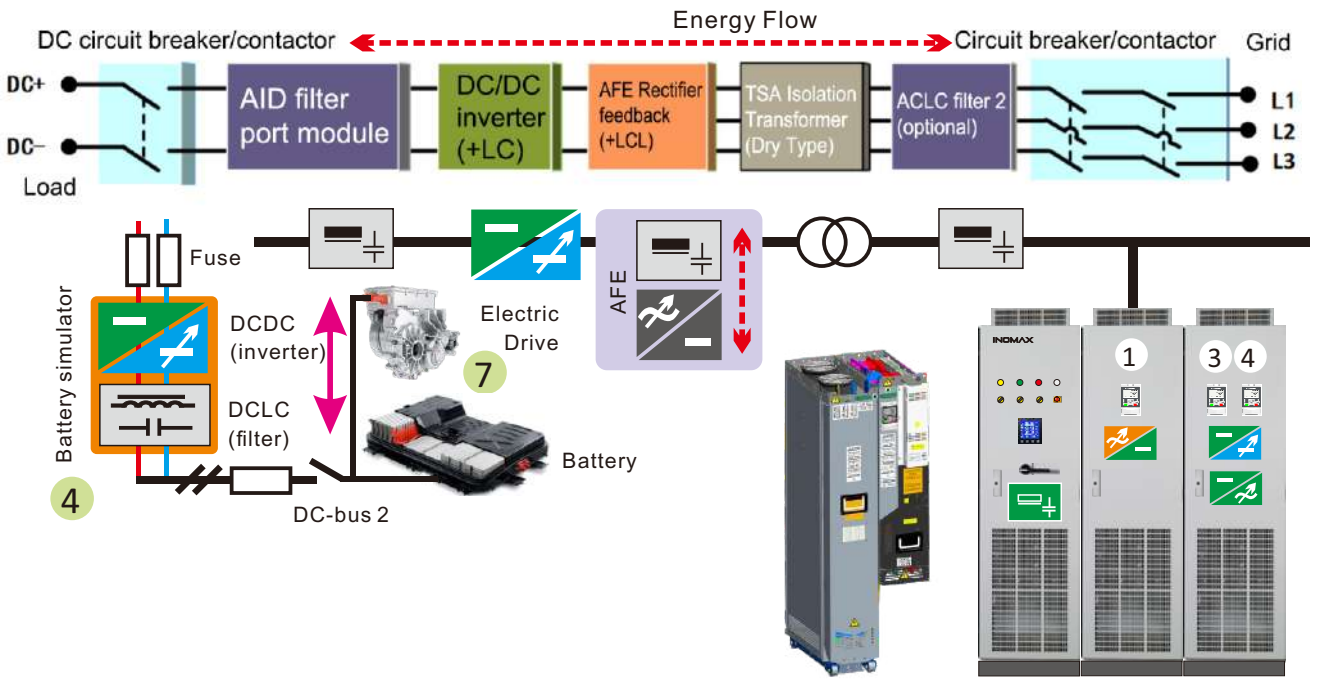
AFEL (Active Front Electronic Load) series of energy feedback electronic loads can not only simulate various load characteristics, but also feed back electric energy to the grid without pollution, which is the inevitable trend of the current electronic load development. Compared with ordinary resistive loads, its working method is to use power electronic conversion technology to recycle and regenerate the output energy of the tested power supply under the premise of completing the test power experiment, which not only saves energy but also does not generate a lot of heat, avoiding the need for The problem of elevated ambient temperature in the test site. The electronic load does not convert the test power into thermal energy, so there is no need to use a bulky resistance box and cooling equipment, saving installation space.

Since the energy feedback method is adopted, the test site does not need to be equipped with a large power supply capacity, which reduces the cost of the power supply capacity. The power supply can be developed for the test and development of fuel cell stack, fuel cell engine system, the test of large DC power ground power supply, and the discharge test of various batteries. It can simulate various load characteristics, and can feed back electric energy to the grid without pollution. Its unique capability recovery function can recover electric energy and then use it directly in the factory, which not only saves electricity and heat dissipation costs for users, but also meets the needs of energy conservation and environmental protection. Multiple built-in communication interfaces are convenient for customers to carry out comprehensive and accurate measurements. At the same time, the battery voltage, discharge time and battery discharge capacity can be observed during the test. The specially designed hardware control and filtering system reduces the influence of external common mode voltage and electromagnetic interference to a very low level, which is more green, efficient, safe and reliable.

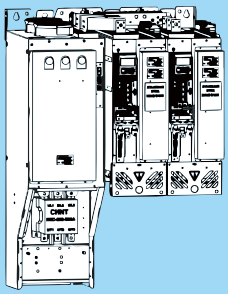
Main technical characteristics

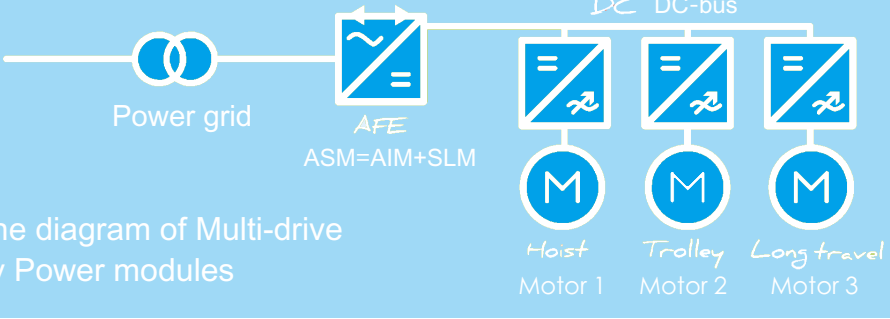
1. The electronic load absorbs energy and recycles the inverter feeder network, saving energy and environmental protection, low noise, electronic load function, bidirectional power supply function
2. Wide range of input DC voltage, suitable for different occasions; with pre-charging function to prevent overshoot of DC loading current
3. Four discharge modes: constant voltage current limiting, constant current, constant power and constant resistance. With constant current, constant voltage and constant power modes
4. Using SVPWM pulse width modulation technology, pure sine wave output, automatic synchronous tracking with the power grid, power factor close to 1, low current harmonic content, no pollution to the public power grid, no impact;
5. The DC voltage undervoltage value can be set and saved, the output power can be set and saved, and a variety of operating modes can be selected to meet the customer's various on-site operations;
6. Using high-speed digital control technology, the output precision reaches 0.1%FS. Inverter grid-connected current closed-loop control, controllable and adjustable;
7. It has a comprehensive power protection scheme and perfect self-testing and protection functions. In the event of a system failure, the grid-connected inverter will be stopped;
8. The circuit structure is compact, and the maximum efficiency is >90%; it has a variety of operation interfaces, which can realize remote operation, unattended operation and embedded test system.
9. Adopting modular design, the equipment is easy to maintain later. With RS485 communication, upper computer monitoring, to achieve remote data acquisition and monitoring. Independent heat dissipation channel design, small size, fast heat dissipation, low temperature rise, and high operational reliability.

Electronic load basic principle and main topology introduction



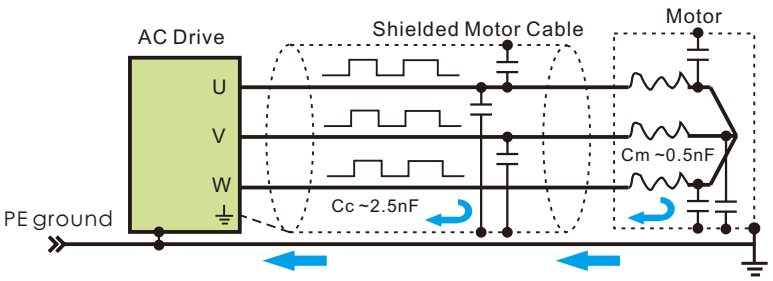
Integrated DCDC electronic load cabinet
【DC/DC+AFEL Cabinet】





The diagram of Multi-drive by Power modules

Introduction to the basic and typical principles of interference, anti-interference shielding, and grounding in electromechanical drive speed control systems



The above figure is a typical topology diagram of a variable frequency speed regulation electromechanical system. From left to right, it is the power supply, driver (inverter), shielded power (or signal cable), and motor. This figure mainly illustrates the distributed capacitance for long lines. The formation of noise, the flow and processing of noise, etc. The core points of understanding and knowing this section are:

- 1. Find out where the source of interference comes from? This is usually from the motor winding itself, and the motor cable.
- 2. Find out which objects are easily disturbed? Here is usually a weak current control analog signal less than 36V, such as AI, AO, encoder feedback signal, etc.
- 3. How to standardize and efficiently deal with interference and interference?

Understand the relevant knowledge in principle, and standardize the electrical wiring according to the general electrical specifications and manual instructions. The specific points are:

- a. Use shielded cable for the motor cable and connect the motor casing to the ground wire from the power grid transformer.
- b. Use shielded wires for weak signal wires and cables that may be disturbed, and try to separate them from the motor wires and power wires of each strong current side and keep a certain distance for wiring, and connect the shielding layers of these weak wires to the power grid transformer. come on the ground. In order to obtain the shielding effect of the shielding layer, it has a passage path for discharging the interference charges.
- c. Connect the motor casing, encoder casing (or signal line shielding layer), driver casing, etc. to the same ground wire for common potential processing. This is the processing method in special environments with poor grounding conditions. At this time, make sure that the absolute connection of the connected ground wire is firm and reliable, and keep confirming that the ground stake is in a low ground impedance state and is well grounded, otherwise the motor induced electricity will cause the risk of injury to personnel and equipment.

- Note: Do not directly connect both ends of the shielding layer of the cable connecting the motor temperature sensor to the driver to the ground wire. If one end cannot add a 3.3nF capacitor between the shielding layer and the ground, only one end should be grounded.

+CPSP

R1

C2

C3

C5/6/7

C4

D5D

B8

Dimensions of keypad bracket

The keyboard cabinet door is directly installed, after opening 4 screw holes and 1 RJ45 seat avoidance hole, it can be locked from the back of the door panel with PT2.6*8

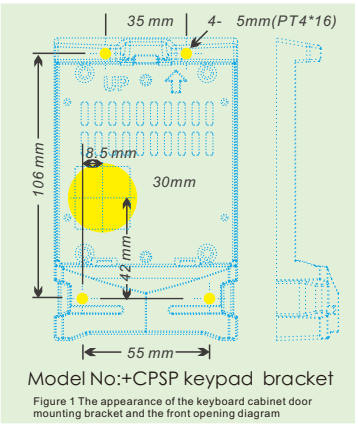


Figure 1 The appearance of the keyboard cabinet door mounting bracket and the front opening diagram

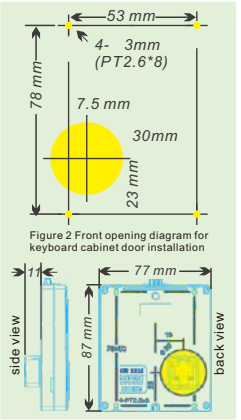


Figure 2 Front opening diagram for keyboard cabinet door installation

The 5 yellow holes in the picture above are the installation and fixing holes that need to be opened for the door panel

Mechanical Dimensions

Frame Szie	Frame dim. W (mm)	H (mm)	D (mm)	Mounting holes W2 (mm)	H2 (mm)	d2 (mm)	Screw	Weight (kg)
R1	78	210	145	40	199	5.0	Spring terminal	1.2
B2	110	410	280	80	393	5.0	M5	8.5
C2	100	290	200	55	275	5.5	M5	3.5
C3/B3	145	400	230[2]	120	385	7	M6	8
C4/B4	250	400	270[2]	200	372	9	M6	15
C5/B5	290	680	305[2]	245	655	11	M10	30
C6/B6	290	680	305[2]	245	655	11	M10	38
C7/B7	425	900	350[2]	95/370	878	11	M10	50
C8/B8	380	1660	535	155(W) 445(D)	1588	11	M10	140
R7	190 190	900 900	535	100	770	11	M10	55 43
R8B R8M	240 240	977-[1] 1395[1]	577-600[3]	150	900	12	M12	80 63
R8A/D	240	1395	577	150	1302	12	M12	210
R9M	570	1000	535	3*100	770	11	M10	140

Note: The weight is an approximate value, please refer to the mechanical dimension drawing or consult our representative for more dimensions and mechanical structure drawings.
About the way of power in and out: R1, C2, C3 size models are bottom in and bottom out, C4, C5, C6, C7, C8 are top in and bottom out, multi-module drives are top in and bottom out, there are design versions and model differences , please consult to confirm.

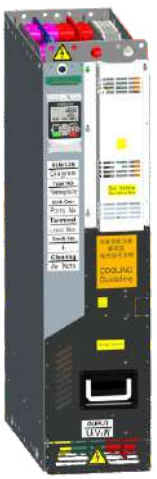
1) Including the height of the whole machine after the detachable base with rollers can accommodate the input/output reactor (optional).
2) Due to the difference of the control unit, the depth of the B size needs to be increased by about 40mm based on this value C size).
3) Contains the local depth after operating the keyboard

R8-AFE
【AIM+ALM】

R9M

L8 L9【liquid cooling type】

R7M

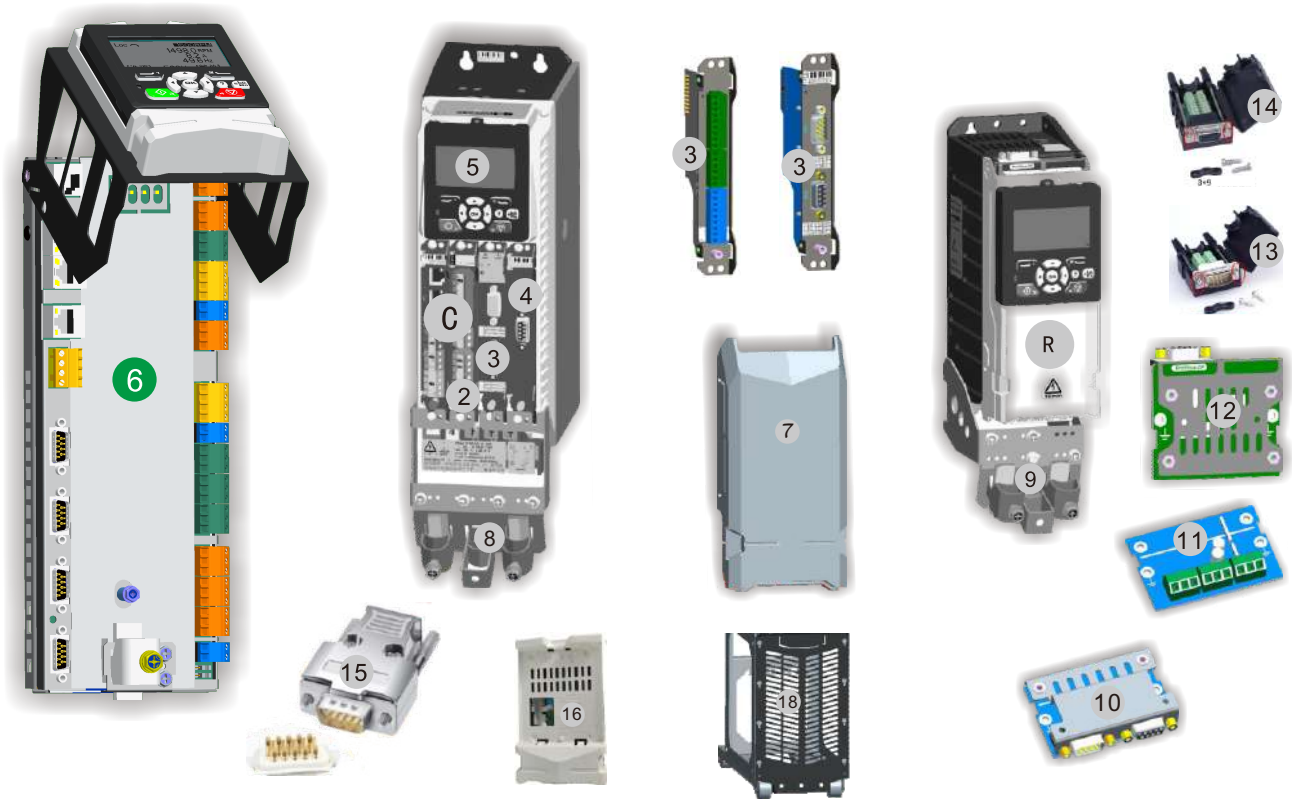


ALM rectifier feedback
SMM motor drive
DCDC power
BLM Basic Rectification
Pti/Pto power supply

R8B/R8M

【Drive Cabinet】

NO	Optional parts name	Model No.	function description	Photo
1	Digital I/O board with 3xRelay	+DIR3	C type,6xDI,+24V,3xRO(Relay with 1NC+1NO) for Slot2	flag 2
2	LCD keypad	+CP66	128x64 dots, assistant panel support Chinese and English language	flag 5
3	High-speed differential encoder	+CTTL33	9+15Pin+C type, Non-isolated,high-speed differential encoder	flag 3
4	Resolver encoder	+RT35	9+15Pin+C type, for resolver type encoder	flag 3
5	SinCos encoder	+SN34	(9+15Pin)DB head interface, high-precision sine cosine or high-speed differential non isolated encoder, with frequency division	flag 3
6	HTL Multi-function frequency division encoder	+HTL39T	Pluggable screw terminal, push-pull, open collector signal input (DC12V power supply) with frequency division	flag 3
7	TTL Multi-function frequency division encoder	+TTL39T	Pluggable screw terminal ,supports differential encoder signal input (DC 5V power supply) with frequency division	flag 3
8	TTL Multi-function heavy load encoder	+CTL39T	Pluggable screw terminal, differential signal input (DC12 power supply), with frequency division and disconnection detection	flag 3
9	HTL standard encoder	+HTL52	9Pin Screw+R type,Screw terminal, supporting open collector encoder signal input (DC12V power supply)	flag 11
10	HTL Multi-function frequency division encoder	+HTL59	9+15Pin+R type, Pluggable screw terminal, push-pull, open collector signal input (DC12V power supply) with frequency division	flag 10
11	TTL pulse encoder module	+TTL59	9+15Pin+R type,supports differential encoder signal input (DC 5V power supply) with frequency division	flag 10
12	DB series plug wiring by screw port type	+DB15F	(3-row female socket),+DB9M (2-row male Plug), wiring by screw ports.	flag 13/14
13	DB series plug wiring by soldering type	+SDF15F	(3-row female socket),+SDB15M (3-row male Plug),+SDB9M (2-row male Plug)	flag 15
14	Profibus-DP communication card	+DP41	Profibus-DP fieldbus protocols,suitable for C type only	flag 4
15	ProfiNET communication card	+B2PN	For B type frame ,ProfiNET fieldbus protocols	flag 6
16	EtherCAT communication card	+B2EC	For B type frame ,EtherCAT fieldbus protocols with standard RJ45 port	flag 6
17	MECHATROLINK-II communication card	+B2M2	For B type frame,MECHATROLINK -II fieldbus protocols	flag 6
18	Cable fixed frame (R type)	+CL1PR1	Assembling to R type drive	flag 9
19	Cable fixed frame (C type)	+CLIPC2	Assembling to C type drive	flag 8
20	Control terminals cover (C type)	+C2CV	Assembling to C type drive	flag 7
21	Control panel surface mounting platform	+CPSP	For LCD panel,fixed by 4-PT4x16 screw	flag16
22	IT/TT/TN power supply Insulation strengthening for vessel or island	+MYC	Realize the factory default settings for the leakage current of the driver and the specific requirements of ships for power electronic products.	flag17
23	Bottom wheel fram for R8 power module	+BTR8	support and quickly move the power module, can prevent dumping, and can carry suitable output reactor	flag18



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