DARWIN MOTION

ABOUT US

Darwin Motion vector & Torque control frequency converter adopts advanced current vector control technology. It has the functions of full frequency band high torque output and fast response, excellent load adaptability, high speed control accuracy and good reliability. It is an ideal choice for Open Loop & Closed Loop frequency converter to meet high field requirements.

OUR VFD DRIVE APPLICATIONS

- Agriculture
- Cranes & Hoists
- Food & Beverage
- General Automation
- HVAC
- Leisure
- Lifts/elevators
- Marine
- Fan
- Blower
- Conveyors
- Extruders
- Material Handling
- Mining
- Printing
- Refrigeration & Air Conditioning
- Solar Pump
- Pumping
- Textiles & Paper
- Water & Wastewater
- Winder
- Unwinder
- Flying Shear
- Injection Moulding

GET IN TOUCH

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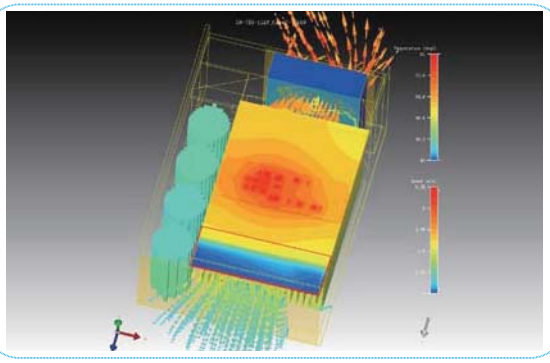
High Reliability/ DR Series Frequency Converter

Innovative Thermal Design Philosophy and Professional Thermal Simulation Analysis

- The innovative thermal design philosophy and first-class efficient thermal simulation software bring about the innovative and unique design, which provides this product with a comprehensive and systematical heat dissipation structure and solution.
- Advanced heat test and verification technologies like thermal imaging efficiently and completely check theoretical results of the thermal design, and further guarantee thermal reliability of the product system.



Rigorous Temperature RiseTest on the Whole Converter

- Rigorous testing procedures for full load and overload verification as well as strict temperature rise acceptance standards for key componentsare adopted to enable the product to operate reliably under extreme overload conditions for a long time.
- High temperature aging testing with 120% load at 50℃
- All products shall pass the loaded high temperature aging test before delivery, which can effectively prevent scattered components from being invalid, and guarantee product quality.

Spraying Process of Conformal Coatings

- Multiple high-quality conformal coatings are sprayed to enhance the product's good applicability to the environment.
- The automatic spraying process of conformal coatings is adopted to effectively ensure uniform coating thickness of the circuit board and consistency of batched products.

Note: The automatic spraying process of conformal coatings

High Protection Grade

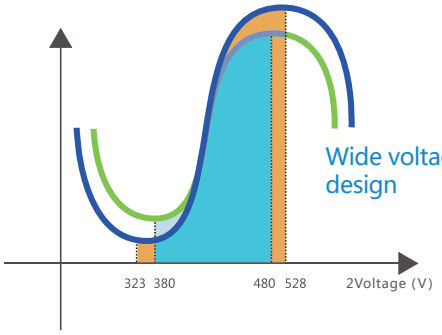
- Especially applied in cables, machine tools, ceramics and textiles industries where the site environments are severe, humid or dusty. The innovative and tightly closed structure design can effectively reduce influence of such environments.
- The protection class can reach IP41(0.4-22KW).

High Anti-interference Capability

- In a standard configuration, the optimally designed built-in DC reactor (15KW and above) can effectively reduce interference from higher harmonic and foreign conduction radiation and strengthen the power grid adaptability.
- In a standard configuration, the built-in input C3 filter is equipped to reduce electromagnetic interference and guarantee steady operation of the device.
- Simple and friendly EMC cut-off point structure designs convenient forgrounding and weakens electromagnetic interference.

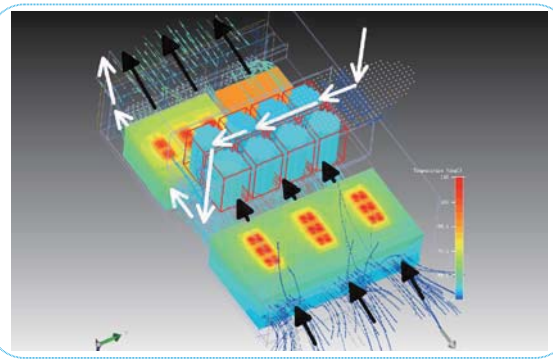
Wide Voltage Range Design

- Rated voltage: single phase220V; three-phase 220V/380V/690V
- Voltage frequency: 50-60Hz±5Hz
- Allowable voltage fluctuation: -30% to +15%



Innovative and Independent Air Duct Design

- The design can effectively prevent dust and other foreign matters from entering the inside of the frequency converter,thereby avoiding faults caused by electric short circuits and damaged components.
- Electronic components are separatedfrom the main cooling system by the poor conductor or wind screen, to avoid component failuresdue to too high temperature caused by heat radiation from the main-power radiator.



Selection and Design of Key Components

- Strict component selection testing procedures are adopted. All power components such as the rectifier bridge, IGBT and electrolytic capacitor use mainstream products of the first-class manufacturers. Performance and reliability of key components are guaranteed from selection to manufacturing
- Large allowance and derating design ensures reliability of key components.

CE Certification Compliance

- The DR series products meet relevant requirements of European CE directives.

Excellent Performance/ DR Series Frequency Converter

Comprehensive Motor Drive Technology

- Support drive control of all motors (three-phase asynchronous, permanent magnet synchronous).
- Support the speed and torque control modes.
- The frequency converter equipped with the synchronous motor delivers good energy-saving effects.

Simply shift via setting parameters

Induction motor

Synchronous motor
SPM motor

Synchronous motor
IPM motor

Accurate and Comprehensive Auto-turning Function

- The frequency converter can accomplish motor parameter auto-turning accurately, it will be more convenient to operate & commissioning and offers higher control precision and response speed.
- The comprehensive and rich Auto-turning functions cover various motor Auto-turning and mechanical Auto-turning functions.

Motor Comprehensive Auto-turning	
Rotary Auto-turning	Mostly suitable in applications of high starting torque, high speed and high control precision.
Stop Auto-turning	Mostly suitable in applications of commissioning when the motor and handling machines are connected.
Auto-turning of inter-line resistance	Change the length of the motor cables, or effectively improve the control precision when the motor capacity is different from the frequency converter capacity.
Energy-saving Auto-turning	Maintainthe optimal efficiency for the motorall the time through self-learning when used in whatever conditions.

Mechanical Auto-turning	
Inertia Auto-turning	Make the Kinetic Energy Back-up (KEB) function, deceleration time, optimal function, and feed forward function achieve best application performance.
ASF* automatic gain * : Automatic Speed Regulator	Carry out ASR gain Auto-turning according to the preset

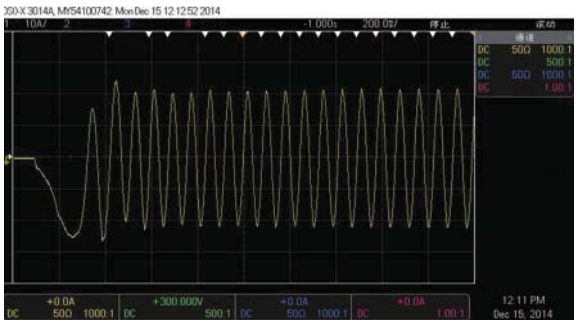
Built-inServo Function

- The built-in servo positioning is adopted for the device. When the PG vector control is available, the device supports control over positions including zero servo, principal axisorientation (4 orientation positions), simple carry control (8 carryovers setting) and pulse train position.
- It can be used in most servo application field.

Large Startup Torque

- Synchronous motor
  Open-loop vector : 0.5Hz/200%
  Close-loop vector : 0Hz/200%

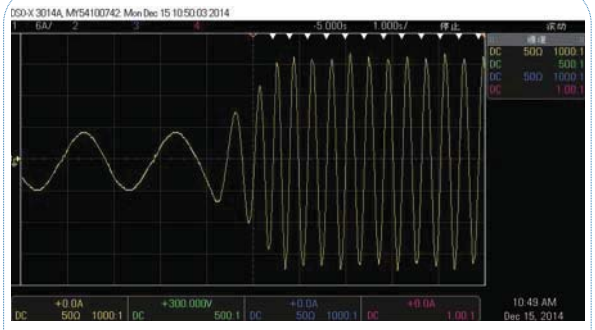
- Asynchronous motor
  Open-loop vector : 0.25Hz/200%
  Close-loop vector : 0Hz/200%



Fast startup current waveforms of 4 kW synchronous motor at 200% load

Fast Torque Response, Low Torque Pulse

- Torque response open-loop vector : <20ms
- Torque response close-loop vector : <5ms
- The device can run steadily with load at a ultra-low speed of 0.01Hz. The low torque pulse ensures stable running.

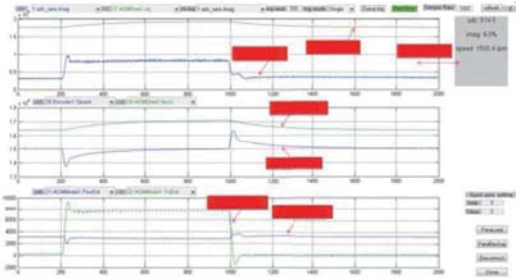


Current waveforms of 4kW asynchronous motor with 0.5HZ at 200% load suddenly

Wide Speed Range, High Steady-speed Precision

- Speed range :
  Open-loop vector : 1 : 200
  Close-loop vector : 1 : 3000

- Steady-speed precision :
  Open-loop vector : 10% rated slip
  Close-loop vector : ± 0.01%



Waveforms of different key signals when the 4kW asynchronous motor is suddenly loaded or unloaded with 150% load at 1500 rpm in the open-loop state (data is collected from the frequency converter and the background tool of the computer only receives data and generates waveforms)

High Overload Capacity

- Run steadily at 120% rated load
- Run for 60s at 150% rated load
- Run for 10 seconds at 180% rated load

Rich and Easy Functions / DR Series Frequency Converter

English LCD Smart Keyboard Adopted in Standard Configuration

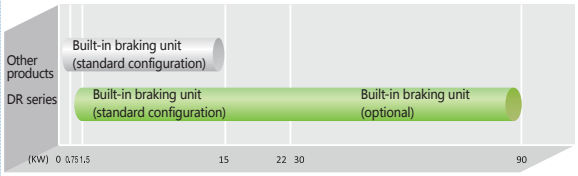
- Large-text and multi-function English LCD display for faster and more accurate parameter settings.
- Detailed status display for monitoring and setting.
- Detailed diagnosis information. Status information and waves of key nodes, fault records, and diagnosis information can be viewed for fault query and maintenance.
- Automatically setting of optimum parameter values. With the usage selection function, users need to only select the mechanical function. Then, the device automatically sets parameters to optimum values, thereby eliminating tedious parameter settingand shortening trial run time.
- Storage of application parameters of up to 4 user groups, which is convenient for fast process switching.
- Reliable built-in parameter backup & duplicating function
- Built-in parameter change logging function

Rich Application Macros

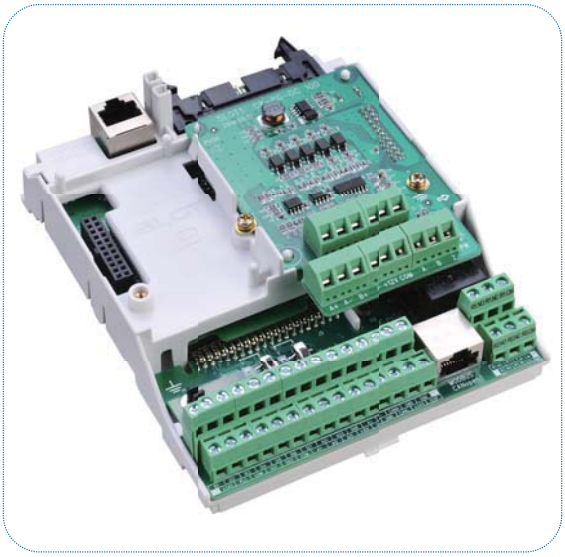
- Various built-in typical mechanical applications such as fans, water pumps, cables and unwinding and rewinding unit.
- Automatic setting of optimum parameter values.
- With the usage selection function, users need to only select the mechanical function. Then, the device automatically sets parameters to optimum values, thereby eliminating tedious parameter setting and shortening trial run time.

Reliable Braking Function

- Over-excitation braking function achieves emergency braking even without brake resistor.
- The built-in braking unit is optional for the device with power of 30-90KW. The built-in braking unit is included in the standard configuration of the device with power of 22 KW and below,
- The use of a brake resistor achieves better braking effects, saves electric installation space, and lowers electric costs for users.



Rich Extension Functions



- Include the RS-422/485CANopen telecommunication function in standard configuration.
- Support 4 kinds of field bus communication protocols
  （Modbus-RTU、PROFIBUS-DP、DeviceNet、CANopen）
- Support various PG cards.
- Support collector open encoder, differential output encoder, rotary-transformer-type encoder,and sin-cos encoder.
- Support I/O extension.
- The LCD keyboard is optional

Rich I/O Interfaces

- Type of Terminals Qty Characteristics

Boolean input	7	Maximum input frequency:1kHz, compatible with NPN and PNP input types
High-speed pulse input	1	Maximum input frequency: 50kHz, compatible with NPN and PNP input types
Analoginput	3	0~10V, 0~20mA, -10V to +10V
Boolean output	2	Maximum output frequency: 1kHz
High-speed pulse output	1	Maximum output frequency: 50kHz
Analog output	2	0~10V, 0~20mA
Relay output	2	3A/250VAC,1A/30VDC, normally open+normally close

Note: the interfaces above are for F1 and later models. For F0 series, the quantity of some function interfaces is lower. See the technical datasheet or standard wiring diagram for details.

Systematic and Comprehensive Protection Functions

- Frequency converter protection function: short circuit protection, overcurrent protection, overvoltage protection, under-voltage protection, input & output phase loss protection, overload protection and overheat protection.
- Motor protection function: overload protection and motor temperature protection.
- Brake circuit protection function: brake transistor overload protection, brake transistor straight-through protection, and brake resistor protection

Compact Modular Design/ DR Series Frequency Converter

Compact Structure Design

- The smaller size helps save installation space, facilitate electric layout, and is more suitable to be used in combination with the synchronous motor.
- The standard configurations uses a built-in DC reactor (15 KW and above), which helps reduce electrical installation space eliminates potential safety risks in using anexternal DC reactor.
- For low-power models, the rear metal plate design can effectively prevent the installation environment like oily environment from influencing the frequency converter, and guarantee secure installation.
- For medium-/high-power models, the window/cover of the rear radiator can be periodically cleaned, which is convenient for routine maintenance and cleaning of the frequency converter and saves maintenance time and costs.
- Some medium-/high-power models can be installed laterally as a blade, greatly facilitating suite design and manufacturing of professional systems.
- Minimum dimensions : 122mmx276mmxl72mm (high performance) 82mm x l76mm x l31 mm (micro transmission)

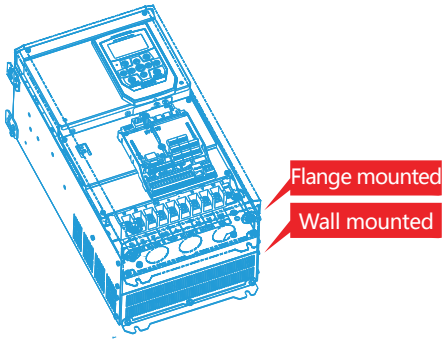
DR Series VS General model

The area is reduced by about 30 %

The volume is reduced by about 45 %

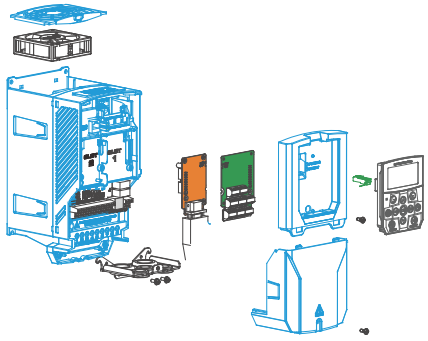
Various MountingModes

- 1.5-90 kW: wall-mounted, flange (run-through wall) mounted
- 110-400kW: wall-mounted, floor-mounted
- 450-560kW: floor-mounted



Modular Design

- Detachable terminal block, easy for maintenance.
- The main control unit, various PG cards and communication cards adopt the modular structure design. The joints of function modules are carefully designed and easy for universal application.
- Detachable fans, easy for cleaning and replacement.
- Hot pluggable LCD keyboard.



Smart Drive / DR Series Frequency Converter

Unique Smart Drive

- Intelligent LCD control keyboard: The friendly human-machine interface displays key parameters relevant to running of the frequency converter and motor in real time.
- Intelligent fault diagnosis: It records extreme operation conditions of the frequency converter, including the maximum current, voltage and maximum temperature, which are easy for fault locating and exception analysis. It also records device load conditions for customers, which are convenient for customers to optimize electric drive schemes.
- Intelligent temperature monitoring: It detects the temperature at key points inside the machine and intelligently controls the temperature of the whole machine by using adaptive algorithms.
- Intelligent V/F curve setting: It automatically matchthe most excellent performance parameters based on motor parameters, requiring no manual setting.
- Intelligent parameter setting for industry applications: Users only need to select an industry application, and the device automatically matches optimum parameters, eliminating tedious parameter setting.

Naming Rules

DR XXX - XX - XXXG/XXXP - 3B - XXXX

Drive product series

Produce series
680 high performance vector type
500 drive controller of permanent-magnet synchronous motor universal type
350P compact and simple type

Dimensions:
01 : first dimension and structure
02 : second dimension and structure... and so on

Rated power in heavy load applications

0K4	···	5K5	···	018	···
0.4kW	···	5.5kW	···	18.5kW	···

Rated power in general applications

0K4	···	5K5	···	018	···
0.4kW	···	5.5kW	···	18.5kW	···

B : built-in brake chopper
/B : optional built-in brake chopper
None : without built-in brake chopper

Voltage class :
0 : single phase 110V
1 : single phase 220 V
2 : three phase 220V
3 : three phase 380V
5 : three phase 480 V
6 : three phase 690 V

Non-standard customized model

DARWIN MOTION

DR Series Frequency Converter

Technical Data

Item		Specification and Technical Data
Main power connection	Input voltage U1	220...240V; 380...500V; 660V...690V; 220V/380V/660V±20% ;signal/three-phase power
	Input frequency f1	50...60Hz ±5Hz
	Output voltage U2	0...U1 (V)(The maximum output voltage equals the input power voltage.)
	Output frequency f2	0-1000Hz (V/Fcontrol); 0-500Hz(vector control)
	Carrier frequency	2-12 KHz (The device can intelligently and automatically make optimal adjustment according to load characteristics and drive temperature.)
	Input voltage unbalance degree	Maximum: ±3% of rated inter-phase input voltage
	Efficiency	≈ 98% (when operating at rated power)
Basic functions	Maximum frequency	0-500Hz(vector control) 0-1000Hz (V/Fcontrol)
	Input frequency resolution	Digital setting: 1RPM Analog setting: 0.025% of maximum RPM
	Control mode	Open-loop V/F control Open-loop vector control (SVC)/close-loop vector control (FOC)
	Startup torque	200% @ 0.25Hz@ OpenLoop(open-loop control) 200% @0Hz@ CloseLoop(close-loop control)
	Speed range	1 : 200 @ OpenLoop(open-loop control) 1 : 3000 @ CloseLoop(close-loop control)
	Steady-speed precision	±0.5% @ OpenLoop(open-loop control) ±0.01% @ CloseLoop(close-loop control)
	Overload capacity	Heavy load application: 60sat 150% rated current @40°C. The time depends on the drive temperature under other conditions. Light load application:60sat 110% rated current @40°C. The time depends on the drivetemperature under other conditions.
	Torque boost	Automatic torque boost. Manual torque boost 0.1%-30%
	V/Fcurve	Intelligent adaptive
	V/Fseparation	Two methods : full separation, half separation
	Acceleration and deceleration curves	Straight-line or S-curve acceleration and deceleration mode Two acceleration time values. The acceleration and deceleration time range : 0.0s-650.00s
	Simple PLCfunction	Achieve operationof up-to-16-stages speed(via built-in PLC or control terminals)
	Built-in PID	Conveniently achieve the process control close-loop control system
	Automatic voltage regulation (AVR)	When the grid voltage changes, the device automatically maintainsconstant output voltage.
	Overvoltage and overcurrent stall control	The current and voltage are automatically limited during running to avoid jump faults due to frequent overcurrent and overvoltage
	Fast current limiting	Overcurrent faults are minimized to guarantee normal operation of the frequency converter.
Enhancements	Torque limiting and control	The torque is automatically limited operating (to avoid frequent overcurrent jumping fault due to too large torque).
	Protection function	Output shortcircuit protection, input & output phase loss protection, overcurrent protection, overvoltage protection,undervoltage protection, overheat protection, overload protection, brake chopper overload protection, brake chopper shortcircuit protection, brake resistor overload protection
	Non-stop during transient interruption	Keep the frequency converteroperating in a short time (by reducing feedback energy compensation voltageat the moment of power outage). The duration depends on the mechanical inertia of the load at that time.
	Timing control	Timing control function. The time range and precision is 0.0-6500.0(min).
	Switching multiple motors	Support switching among four groups of motor parameters.
	Bus communication	The standard configuration uses the built-in Modbus/CANopen communication, which can be extended to Profibus-DP bus communication.
	Intelligent temperature control	Full cover system temperature testing, intelligent real-time IGBT chip temperature monitoring, and intelligent and optimized adjustment of the carrier and current based on drive temperature changes
	Type of encoders supported	Support differential encoders, collector open encoders, UVW encoders, rotary transformer encoders and Sin-Cos Encoders

Technical Data

Item		Specification and Technical Data
I/O Input Output Interface	Command input mode	Control keyboard input, control terminal input, bus communication input, which can be switched mutually.
	Speed refference mode	Digital giving, analog voltage (current) giving, pulse giving, bus communication giving and PID giving, which are mutually switched.
	Input terminal (input)	The followings are included in standard configuration : 6 (F0) / 7 (F1 and above) digital input terminals, where, DI6 (FO) DI7 (F1 and above)supports the maximum of 50 kHz high-speed pulse input. 2 (F0) /3 (F1 and above) analog input terminals (where, at least 2 supports 0-10Vvoltage input or 0-20 mAvoltage input) The followings are extended as cards : 5 digital input terminals 2 analog input terminals, supporting input of -10V to+10V voltage
	Output terminal (output)	The followings are included in standard configuration: 1 high-speed pulse output terminal (supporting 0-50 kHZ square signal output) 1 (F0) /2 (F1 and above) digital output terminals 1 (F0) /2 (F1 and above) relay output terminals 1 (F0) /2 (F1 and above) analog output terminals (supporting0-10V voltage output or 0- 20mA voltage output) The followings are extended as cards: 3 digital output terminals 3 relay output terminals 3 analog output terminals, supporting 0-10V voltage output or 0-20mA voltage output
Display and control	Man-machine interface	5-bit 8-shape digital tube (F0) , intelligent sealed LCD control keyboard (F1 and above)
	Parameters duplicating	Rapidly duplicating parameters via the LCD control keyboard
Application environment	Application site	Indoor, free of direct sunshine, dusts, corrosive gases, flammable gases, oil mist, water vapor, drip or salts
	Altitude	At 0-1000m ; When the altitude is 1000-4000m, the capacity is reduced by 1% as the altitude rises by 100m. (consult professionals for more accurate values)
	Operation ambient temperature	-10℃ to+40℃ (when the ambient temperature is 40℃-55℃, the driveis automatically derated to achieve self-protection)
	Relative humidity	Less than 95%RH. No droplets condensed (condensation)
	Sinusoidal vibration	(IEC 60068- 2/ - 6.TestFc) Max.0.1mm (5 to 13.2Hz) ; max.7m/S^2 (13.2 to 100 Hz) sinusoidal vibration (F0-F7) Max.0.1mm (10 to 57Hz) ; max.l0m/S^2 (57 to 150 Hz) sinusoidal vibration (F8-F9)
	Impact	Not allowed (during operation); maximum 100m/S^2 , 11ms (during storage and transportation with packing)
	Free fall (Max.)	Not allowed (during operation); with packing : 100cm @F0-2,76cm @F0-4,46cm @F5-7,15cm @F8-9
	Storage & transportation temperature	-40℃ to+70℃ (-40 to+158°F)
Protection grade		IP20 (ULopen type), full closed design for small- and medium-power models. Top/Left and right sides can reach IP41 (the medium cavity with air vents on two sides for some F0** models)
Cooling mode		Forced air cooling of the interior fan. The air flows from bottom to top. Air-cooled radiator.
Application standard		IEC 61800-3 (2004), IEC 61800-5-1 (2007) (see the nameplate for details).

Selection of DR680 Products

220V rated voltage

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)		W	m³/h	
DR680-01-0K4G/0K7P-1B[1)]	4. 8	6	4.5	0.75	2.5	0.37	45	40	53	F1
DR680-01-0K7G/1K5P-1B[1)]	7. 5	10	7	1.5	4.5	0.75	45	94	53	
DR680-01-1K5G/2K2P-1B[1)]	11	15	10	2.2	7	1.5	45	172	53	
DR680-01-2K2G-1B[1)]	15	20	-	-	10	2.2	45	232	53	

380V rated voltage

Model Code	Rated Value		General Load Application		Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
DR680-01-0K7G/1K5P-3B	5.2	7	5	1. 5	2. 5	0. 75	45	40	53	F1
DR680-01-1K5G/2K2P-3B	6.3	9	6	2. 2	4. 2	1. 5	45	76	53	
DR680-01-2K2G/4K0P-3B	10.5	15	9.8	4	5. 6	2. 2	45	97	53	
DR680-01-4K0G/5K5P-3B	14	20	13.5	5. 5	10.5	4	45	172	53	
DR680-01-5K5G/7K5P-3B	18.2	25	17.5	7. 5	14.5	5. 5	45	210	53	
DR680-02-7K5G/011P-3B	26	36	25	11	17.6	7. 5	45	325	55	F2
DR680-02-011G-3B	28	35	26	15	25	11	45	420	55	
DR680-2A-011G/015P-3B	37	50	35	15	25	11	52	470	175	F2A
DR680-2A-015G/018P-3B	41	57	38.6	18. 5	35	15	52	550	175	
DR680-03-015G/018P-3B	41	57	38.6	18. 5	35	15	57	550	145	F3
DR680-03-018G/022P-3B	48	67	46	22	41	18. 5	57	660	145	
DR680-03-022G/030P-3B	63.5	89	61	30	48	22	57	890	145	
DR680-04-030G/037P-3/B	78	109	75	37	66	30	60	1114	290	F4
DR680-04-037G/045P-3/B	95	133	91	45	79	37	60	1140	290	
DR680-04-045G/055P-3/B	120	168	115	55	94	45	60	1200	290	
DR680-05-055G/075P-3/B	162	227	155	75	116	55	60	1440	350	F5
DR680-05-075G/090P-3/B	185	222	178	90	160	75	60	1940	350	
DR680-05-090G/110P-3/B	225	270	215	110	179	90	67	2200	570	
DR680-06-110G/132P-3	272	326	261	132	215	110	68	3300	685	F6
DR680-06-132G/160P-3	320	384	310	160	259	132	68	3850	685	
DR680-07-160G/200P-3	375	450	360	200	314	160	68	4100	720	F7
DR680-07-200G/220P-3	450	540	430	220	387	200	68	4600	720	
DR680-07-220G/250P-3	487	584	470	250	427	220	68	5100	720	
DR680-08-250G/280P-3	546	628	525	280	481	250	68	5782	1200	F8
DR680-08-280G/315P-3	624	718	600	315	550	280	68	6252	1200	
DR680-08-315G/355P-3	686	789	660	355	616	315	68	7866	1200	
DR680-09-355G/400P-3	760	874	730	400	671	355	68	9100	1300	F9
DR680-09-400G/450P-3	865	995	830	450	759	400	68	9900	1300	
DR680-09-450G/500P-3	950	1093	920	500	850	450	68	10500	1680	
DR680-09-500G/560P-3	1100	1265	1080	560	950	500	68	11500	1680	
DR680-09-560G/630P-3	1200	1380	1150	630	1060	560	68	12600	1680	

660V/690V rated voltage

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
DR680-04-015G/018P-6	22	44	21	18.5	18	15	57	550	290	F4
DR680-04-018G/022P-6	26	54	25	22	22	18.5	57	660	290	
DR680-04-022G/030P-6	35	64	33	30	27	22	57	890	290	
DR680-04-030G/037P-6	44	70	41	37	35	30	60	1114	290	
DR680-04-037G/045P-6	49	71	48	45	45	37	60	1140	290	
DR680-04-045G/055P-6	61	104	58	55	52	45	60	1200	290	
DR680-04-055G/075P-6	80	124	80	75	65	55	60	1440	290	
DR680-05-075G/090P-6	98	168	93	90	86	75	60	1940	350	F5
DR680-05-090G/110P-6	119	198	113	110	100	90	67	2200	350	
DR680-05-110G/132P-6	142	200	142	132	121	110	68	3300	350	
DR680-05-132G/160P-6	175	220	165	160	150	132	68	3850	350	
DR680-06-160G/200P-6	220	240	215	200	175	160	68	4100	720	F6
DR680-06-200G/220P-6	271	320	245	220	220	200	68	4600	720	
DR680-06-220G/250P-6	290	350	265	250	250	220	68	5100	720	
DR680-07-250G/280P-6	300	360	295	280	270	250	68	5782	1000	F7
DR680-07-280G/315P-6	330	360	325	315	300	280	68	6252	1000	
DR680-07-315G/355P-6	370	480	360	355	330	315	68	7866	1000	

Selection of DR500 Products

220V rated voltage

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)		W	m³/h	
DR500-01-0K4G/0K7P-1B[1)]	4. 8	6	4.5	0.75	2.5	0.37	45	40	53	F1
DR500-01-0K7G/1K5P-1B[1)]	7. 5	10	7	1.5	4.5	0.75	45	94	53	
DR500-01-1K5G/2K2P-1B[1)]	11	15	10	2.2	7	1.5	45	172	53	
DR500-01-2K2G-1B[1)]	15	20	-	-	10	2.2	45	232	53	

380V rated voltage

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
DR500-01-0K7G/1K5P-3B	5.2	7	5	1. 5	2. 5	0. 75	45	40	53	F1
DR500-01-1K5G/2K2P-3B	6.3	9	6	2. 2	4. 2	1. 5	45	76	53	
DR500-01-2K2G/4K0P-3B	10.5	15	9.8	4	5. 6	2. 2	45	97	53	
DR500-01-4K0G/5K5P-3B	14	20	13.5	5. 5	10.5	4	45	172	53	
DR500-01-5K5G/7K5P-3B	18.2	25	17.5	7. 5	14.5	5. 5	45	210	53	
DR500-02-7K5G/011P-3B	26	36	25	11	17.6	7. 5	45	325	55	F2
DR500-02-011G-3B	28	35	26	15	25	11	45	420	55	
DR500-2A-011G/015P-3B	37	50	35	15	25	11	52	470	175	F2A
DR500-2A-015G/018P-3B	41	57	38.6	18. 5	35	15	52	550	175	
DR500-03-015G/018P-3B	41	57	38.6	18. 5	35	15	57	550	145	F3
DR500-03-018G/022P-3B	48	67	46	22	41	18. 5	57	660	145	
DR500-03-022G/030P-3B	63.5	89	61	30	48	22	57	890	145	
DR500-04-030G/037P-3/B	78	109	75	37	66	30	60	1114	290	F4
DR500-04-037G/045P-3/B	95	133	91	45	79	37	60	1140	290	
DR500-04-045G/055P-3/B	120	168	115	55	94	45	60	1200	290	
DR500-05-055G/075P-3/B	162	227	155	75	116	55	60	1440	350	F5
DR500-05-075G/090P-3/B	185	222	178	90	160	75	60	1940	350	
DR500-05-090G/110P-3/B	225	270	215	110	179	90	67	2200	570	
DR500-06-110G/132P-3	272	326	261	132	215	110	68	3300	685	F6
DR500-06-132G/160P-3	320	384	310	160	259	132	68	3850	685	
DR500-07-160G/200P-3	375	450	360	200	314	160	68	4100	720	F7
DR500-07-200G/220P-3	450	540	430	220	387	200	68	4600	720	
DR500-07-220G/250P-3	487	584	470	250	427	220	68	5100	720	
DR500-08-250G/280P-3	546	628	525	280	481	250	68	5782	1200	F8
DR500-08-280G/315P-3	624	718	600	315	550	280	68	6252	1200	
DR500-08-315G/355P-3	686	789	660	355	616	315	68	7866	1200	
DR500-09-355G/400P-3	760	874	730	400	671	355	68	9100	1300	F9
DR500-09-400G/450P-3	865	995	830	450	759	400	68	9900	1300	
DR500-09-450G/500P-3	950	1093	920	500	850	450	68	10500	1680	
DR500-09-500G/560P-3	1100	1265	1080	560	950	500	68	11500	1680	
DR500-09-560G/630P-3	1200	1380	1150	630	1060	560	68	12600	1680	

660V/690V rated voltage

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
DR500-04-015G/018P-6	22	44	21	18.5	18	15	57	550	290	F4
DR500-04-018G/022P-6	26	54	25	22	22	18.5	57	660	290	
DR500-04-022G/030P-6	35	64	33	30	27	22	57	890	290	
DR500-04-030G/037P-6	44	70	41	37	35	30	60	1114	290	
DR500-04-037G/045P-6	49	71	48	45	45	37	60	1140	290	
DR500-04-045G/055P-6	61	104	58	55	52	45	60	1200	290	
DR500-04-055G/075P-6	80	124	80	75	65	55	60	1440	290	
DR500-05-075G/090P-6	98	168	93	90	86	75	60	1940	350	F5
DR500-05-090G/110P-6	119	198	113	110	100	90	67	2200	350	
DR500-05-110G/132P-6	142	200	142	132	121	110	68	3300	350	
DR500-05-132G/160P-6	175	220	165	160	150	132	68	3850	350	
DR500-06-160G/200P-6	220	240	215	200	175	160	68	4100	720	F6
DR500-06-200G/220P-6	271	320	245	220	220	200	68	4600	720	
DR500-06-220G/250P-6	290	350	265	250	250	220	68	5100	720	
DR500-07-250G/280P-6	300	360	295	280	270	250	68	5782	1000	F7
DR500-07-280G/315P-6	330	360	325	315	300	280	68	6252	1000	
DR500-07-315G/355P-6	370	480	360	355	330	315	68	7866	1000	

DR Series Frequency Converter

660V/690V rated voltage

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
DR500-08-355G/400P-6	430	520	420	400	385	355	68	9100	1300	F8[2]
DR500-08-400G/450P-6	470	655	455	450	430	400	68	9900	1300	
DR500-08-450G/500P-6	522	700	505	500	470	450	68	10500	1300	
DR500-08-500G/560P-6	590	800	571	560	555	500	68	11500	1300	
DR500-08-560G/630P-6	721	820	710	630	600	560	68	12600	1300	
DR500-09-630G/800P-6	900	1350	880	800	680	630	68	16000	1680	F9[2]
DR500-09-800G/1100P-6	1160	1750	1115	1100	900	800	68	20000	1680	F10[4]
DR500-09-1100G/1250P-6	1250	2000	1250	1250	1114	1100	68	26000	1680	
DR500-09-1250G/1400P-6	1350	2200	1400	1400	1250	1250	68	32000	1680	

Selection of DR350 Products

220V rated voltage

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
DR350P-F0-0K4G/0K7P-1B	4. 8	6	4.5	0.75	2.5	0.37	40	40	25	F0*[3]
DR350P-F0-0K7G/1K5P-1B	7. 5	10	7	1.5	4.5	0.75	40	65	25	
DR350P-F0-1K5G/2K2P-1B	9	11.5	8.5	2.2	7	1.5	40	80	25	
DR350P-F0-2K2G-1B	10	12	-	-	9	2.2	40	92	25	

380V rated voltage

Model Code	Rated Value		General Load Application		Heavy Load Application		Noise Level	Heat Radiation	Air Volume	Dimension
	I_N(A)	I_{max}(A)	I_{Ld}(A)	P_{Ld}(kW)	I_{Hd}(A)	P_{Hd}(kW)	dBA	W	m³/h	
DR350P-F0-0K7G/1K5P-3B	5.2	6	5	1.5	2.5	0.75	40	40	25	F0*[3]
DR350P-F0-1K5G/2K2P-3B	6.3	7.5	6	2.2	4	1.5	40	76	25	
DR350P-F0-2K2G/4K0P-3B	9.5	11	9	4	5	2.2	40	97	25	
DR350P-F0-4K0G-3B	10	12	-	-	8	4	40	125	25	F0**[3]

G- constant torque load application, P-square torque load application, - indicate that the item is not supported.Rated value

IN Continuous and available rated current without load at 40℃

IMAX Maximum output current..Ten seconds are allowable at startup. Under other circumstances, the time depends on temperature

General load application:

ILD Continuous rated output current of P converter s at ≤ 40℃. The overload current value is allowed to reach 120% of ILDin 1 minute out of every five minutes. The time depends on the drive temperature under other circumstances.

PLD Typical motor power in the light load application.

Heavy load application:

IHd Continuous rated output current of G converters at ≤ 40℃. The overload current value is allowed to reach 150% of IHDin 1 minute out of every five minutes. The time depends on the drive temperature under other circumstances.

PHd Typical motor power in the heavy load application.

1)=The 220V series models need to be consulted to confirm inventory and supply cycle

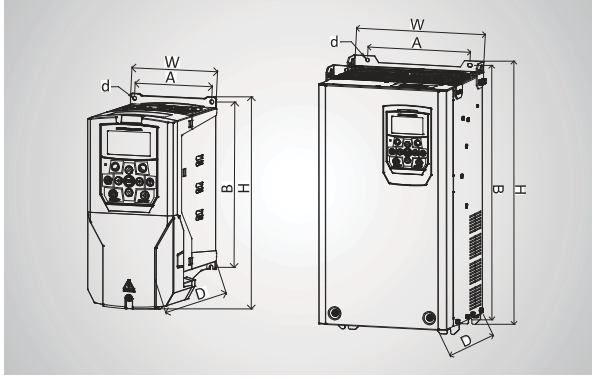
2)=Contains 6 vein or 12 pulse rectifier power circuit, the specific order before please consult our company representative.

3)=* represent independent closed air duct structure, * * represent independent closed air duct with cooling hole structure, - represent this item not supported.

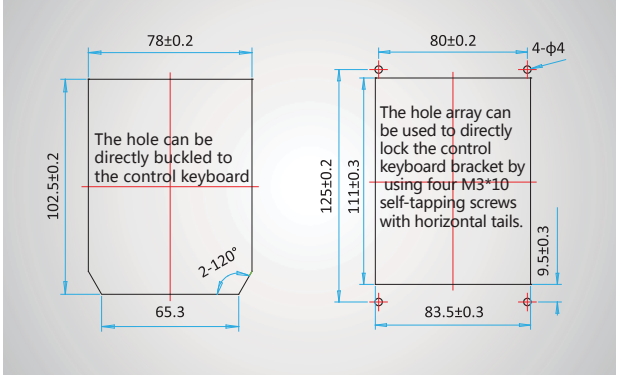
4)=Manufacturers need to consult before ordering

Installation Dimensions

Dimensions and installation schematic diagram of DR series plastics/sheet metal structure



Shape and dimensions of the opening for directly mounting the control keyboard/bracket to the door



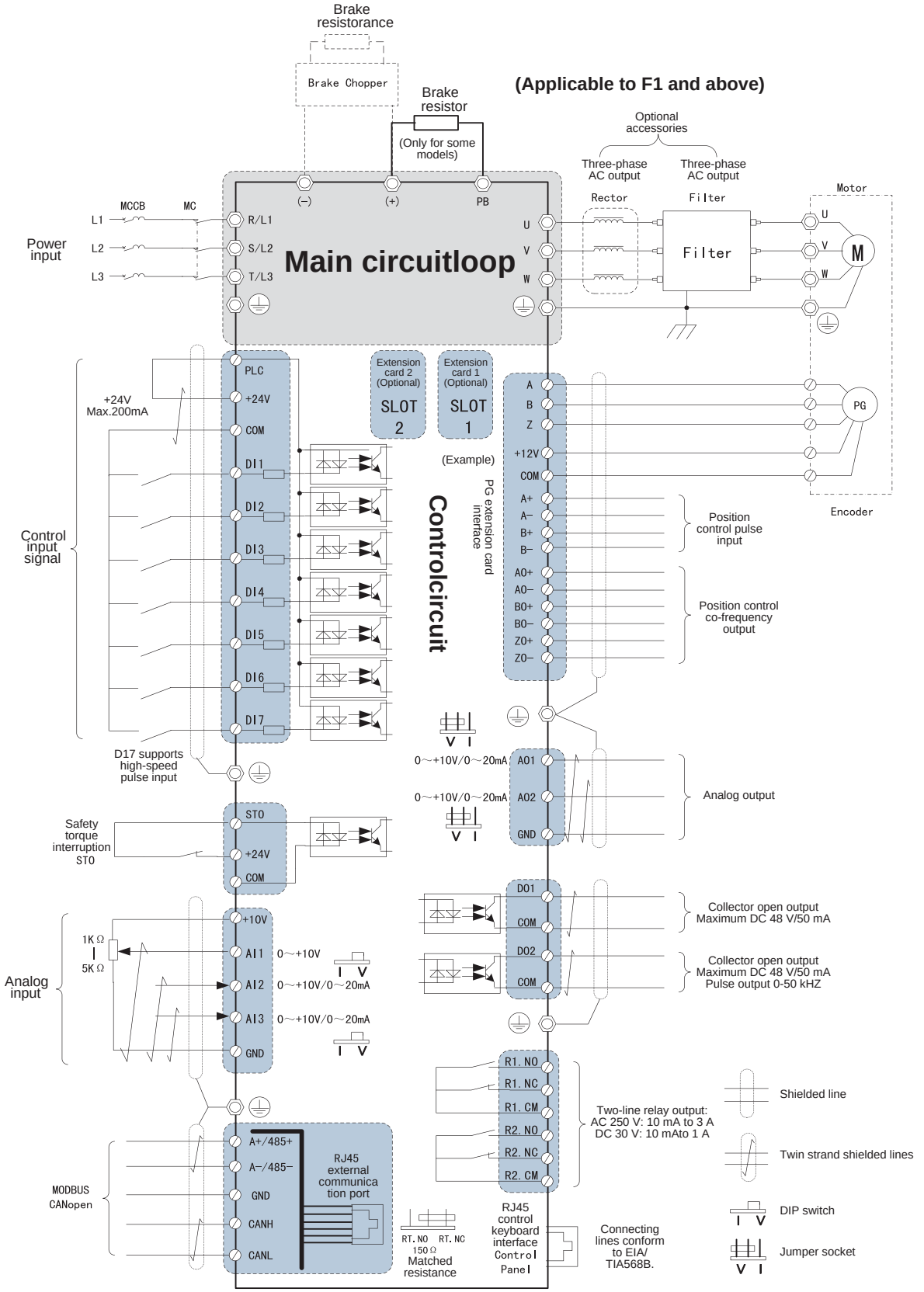
Dimension	Installation Hole Width SpacingA (mm)	Installation Hole Height SpacingB (mm)	Installation Hole Sized (mm)	Appearance Width W (mm)	Appearance HeightH (mm)	Appearance ThicknessD (mm)	Weight (Kg)
F0	65	168	5.0	82	176	131	1.3
F1	110	222	5.5	122	276	172	2.9
F2	140	238	6.0	155	292	172	3.7
F2A	160	296	6.0	175	336	192	5.1
F3	150	368	7.0	180	420	216	10.7
F4	200	479	6.5	255	495	221	21
F5	250	650	12.0	355	670	260	61
F6	357/75 1)	761	11.0	390	790	278	90
F7	357/115 1)	937	11.0	390	1001	295	≈110 2)
F8	490/200 1)	1280	13.0	537	1305	340	≈190 2)
F9	490/240 1)	1420	13.0	537	1455	380	≈220 2)

Note: 1) indicates hole spacing for forwarding installation /hole spacing for blade-type lateral installation hole (preferred design scheme);
2) indicates estimate values or more accurate values, which are to be updated.

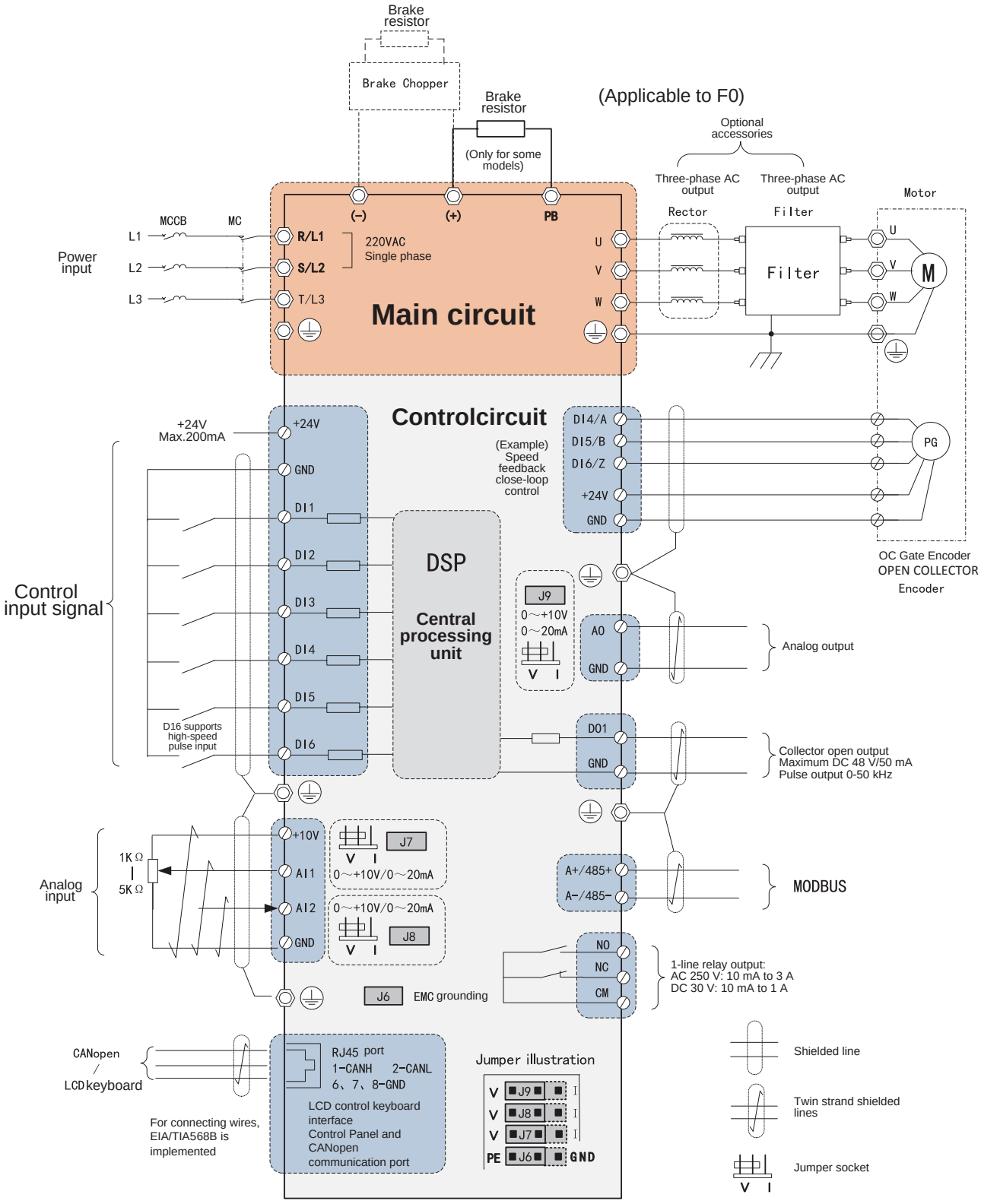
Optional Accessories

Legend	Model	Accessory and Main Function
	DRX-04-X/X-3B	The built-in braking unit function is optional forF4 series products and is represented with [B] at the end of model.
	DRX-05-X/X-3B	The built-in braking unit function is optional forF5 series products and is represented with [B] at the end of model.
	DR-CM-PD	Profibus-DP communication card, applicable to DB 9-pin interface
	DR-PG-OC	Collector open encoder interface card, adapting to 12V power, with position control pulse input/output
	DR-PG-DF	Differential encoder interface card, adapting to 5V power, with position control pulse input/output
	DR-PG-RT	Rotary transformer encoder interface card, with position control pulse input/output
	DR-PG-SN	Sin-Cos encoder interface card, adapting to 5V power, with position control pulse input/output
	DR-RU-DTC	The voltage capture card of the power grid is connected to the power grid and is used to detect real-time phase voltage and phase of the power grid, so as to achieve VF and WF switching or energy feedback.
	DR-CP-MU	LCD control keyboard, which is included in the standard configuration. It may be omitted in the case of remote control.
	DR-CP-SU	Extended bracket of the control keyboard, which is applicable to installation of the LCD keyboard cabinet door
	DR-SU-F6	Applicable to the floor-mounted installation base for F6 and F7 models
	DR-SU-F8	Applicable to the floor-mounted installation base for F8 and F9 models
	DR-RP-01	Universal high-performance rotarysingle-turn 5K potentiometer with the rotary knob (universal model: RV24YN 20SB502)
	DR-CB-F0	Incoming box, which is applicable to F0 models, in order to raise the closed protective capability to IP40.

Standard Wiring Diagram 1



Standard Wiring Diagram 2



Advantageous Industry Applications

Lifting Machinery

- Fast response speed and large startup torque properly alleviate vibrations at startup.
- Zero-speed clasp brake and zero-speed open brake completely eliminate hook sliding and back flush.
- Low torque pulse ensures more reliable operation of the device; especially in construction elevators, the device makes taking the elevators more conformable.
- All-round protection functions (frequency converter, motor, brake unit) and overload torque detection function prevent operations beyond the specification or on a mechanical failure.
- Compact structure design is adopted and the built-in brake unit (for below 90KW) is optional.
- The Smart drive function facilitates operations (easy for commissioning and maintenance), and helps save labor costs and time.
- Intelligent LCD keyboard, real-time monitoring of key information, convenient man-machine interactions are provided.
- Thevoltage operation range is wide (-20% to +20%).

Typical Applications

Bridge crane

Tower crane

Hoist

Metal and Stone Processing

- Low frequency and strong torque, steady speed and high precision.
- The device can decelerate quickly to stop during a power failure to prevent long-time mechanical inertia rotation, which is safer.
- High overload capacity (3S seconds at 200% rated load), good overvoltage suppression (especially in punching).
- High protection grade (IP40), closed circuit structure design, thickening process of multiple conformal coatings, good physical environmental adaptability
- Smartdrive function, which can be used in most servo applications.
- Smart drive function, which facilitates operations (easy for commissioning and maintenance), and save labor costs and time.
- Intelligent LCD keyboard, real-time monitoring of key information, convenient man-machine interactions
- Thefluctuationof speed is small when the converter is loaded suddenly.
- Capable of receiving various signal sources

Typical Applications

Machine tools

Rotary cutter for the wood processing equipment

Punch of the metal processing equipment

Cables, Winding

- Low frequency and strong torque, supporting low-speed startup with empty reel or full reels
- Fast response speed, steady and fast during startup/stop and acceleration and deceleration
- High stead-speed precision, constant tension control, steadier pendulum during the whole process
- High protection grade (IP40), closed circuit structure design, and thickening process of multiple conformal coatings, effectively preventing metal dusts
- Built-in DC reactor for 15 kW and higher models, which can effectively reduce power higher harmonic and conduction radiation.Other optional accessories are not required to save space and reduce wiring
- Smartdrive function, avoiding complex commissioning, facilitating maintenance; saving labor costs and time
- Intelligent LCD keyboard, real-time monitoring of key information, convenient man-machine interactions

Typical Applications

Coating machine

Straight wiredrawing machine

Fluid Machinery

- Intelligent commissioning: Intelligent setting of industry application parameters, intelligent V/F curve setting. Complex commissioning by professionals is not required to save labor and time.
- Compatible with synchronous motors

  Used with synchronous motor, which can save energy greatly

  Used with synchronous motor, down sizing and light weight, saving equipment room
- Built-in reactor for 15 kW and higher models

  Other optional accessories are not required to save space and reduce wiring; The power higher harmonic and conduction and radiation can be effectively reduced.
- Good human-machine interface

  Real-time monitoring of key parameters; real-time and multi-line LCD display
- Speed search function: Rotations in the free running mode can be searched after power failure and startup, implementing easy start up.
- Greater energy saving effects, minimum unit power consumption in the case of equivalent torques

Typical Applications

Air compressor

Fans & pumps