CONTROL TECHNIQUES

NE200 & NE300

HIGH PERFORMANCE VECTOR CONTROL DRIVE

Outstanding control performance

- Outstanding software control platform with unique vector control algorithm
- Authentic current vector control: torque current and field current decoupling control
- Advanced vector control algorithm: induction motor and PM motor control
- Three control modes: Vector control without PG,
  Vector control with PG and V/F control
- Dynamic current torque control, quickly response to load variation
- Superior torque performance at low frequency, open loop vector control 150% torque output at 0.5Hz, satisfied low frequency high torque applications such as machine tool, crane and hoist industry.
- Superior overload performance: 180% current for 20s
- High precision speed control, enable high accurate synchronous control

Powerful function

- Open-loop / close-loop torque control function, torque control mode/ speed control mode online switching
- PID function provide two groups PI parameters, PID output range is settable, supporting sleep mode
- V/F seperate control function in V/F control mode
- Tension control drive enable automatic rolling diameter calculation pre-setup function
- Automatic load balance droop control function
- RS-485 communication port supporting MODBUS-RTU communication protocol for multi drive synchronization.
- Automatic energy saving function, power off automatically restart function, and parameter cloning through keypad.
- Parameter backup function and recovery through terminals.
- Comprehensive protection and supervision functions.

Environment	
Application environment	Vertical installation in well ventilated cabinet. Horizontal or other installation are forbidden. The cooling medium is air. Free from direct sunlight, dust, corrosive gas, combustible gas, oil mist, steam, and water drop.
Ambient temperature	-10~+40°C, deration is required from 40 to 50°C, rated output current decreasing 1% per 1°C temperature higher
Humidity	5~95% without condensation
Altitude	0~2000m, deration is required for more than 1000 meters, at rated output current decreasing 1% per 1 00m higher
Vibration	3.5mm, 2~9Hz; 10 m/s^2, 9~200Hz; 15 m/s^2, 200~500Hz
Storage temperature	-40~+70°C
Structure	
Protection level	IP20
Cooling	Fan force cooling

Superior adaptability

- Unique IGBT drive circuit, more reliable operation for power components
- Phase-to-phase Short-circuit protection for all product, grounding protection for >18.5KW products, adaptable for harsh environment
- German conformal coating material
- Optimize EMC design, immunity for high interference environment
- 100% incoming inspection

How to select a drive

(Consult online catalog for complete drive information)

1. Electrical Considerations

- What is the supply voltage?
- Single or 3Ø input power?
- What is the motor rating?
- Continuous current – FLA (Full Load Amps)
- Select the drive based on motor Amps rather than horsepower

2. Load Type (choose one)

- Normal Duty: Peak current is 110% of drive rating (fans, pumps, etc.)
- Heavy Duty: Peak current is 180% (mixers, conveyors, etc.)

3. Drive Mechanical Mounting

- Panel mounting – as standard

TECHNICAL DATA

NE200 Series Drive

Input	
Rated power/ frequency	NE200-2Sxxxx: 1-phase 200V ~ 240V; 50Hz/60Hz
	NE200-4Txxxx: 3-phase 380V ~ 440V; 50Hz/60Hz
Output	
Voltage range	NE200-2Sxxxx: 0~200V/440V; NE200-4Txxxx: 0~380V/440V
Overload capacity	Type G: 150% rated current 1min, 180% rated current 20s
	Type P: 120% rated current 1min, 150% rated current 1s

Control features		
Control mode	Vector control without PG(SVC)	V/F control
Startup torque	0.5Hz 150%	1.5Hz 150%
Speed adjustable range	1:100	1:50
Speed stabilization precision	± 0.2%	± 0.5%
Torque control	Yes	N/A
Torque precision	± 10%	----
Torque response time	<20ms	----

Control features	
Key functions	Torque/speed control mode switching, Multi-function input/ output terminals, under voltage regulation, AC operation grounding switching, torque limit, multi step operation, slip compensation, PID regulation, simple PLC, current control, manual/ automatic torque boost, current limit, AVR function
Output frequency	0.00~550.0Hz

Unique functions	
Parameter cloning	Parameter upload, download. User can forbid the overwriting of the uploaded parameters.

Protection function

Power undervoltage/overvoltage protection, overcurrent protection, IGBT protection, heatsink overheat protection, drive overload protection, motor overload protection, External devices faults protection, output phase-to-phase short-circuit protection, Abnormal power failure in running, power supply trip, output phase loss, EEPROM trip, Analog input trip, communication trip, version compatibility trip, cloning trip, hardware overload protection

NE300 Series Drive

Input	
Rated power/ frequency	3-phase 380V ~ 440V; 50Hz/60Hz
Voltage range	304V ~ 456V; Voltage unbalance degree: ≤ 3% ; Permissable frequency fluctuation: ±5%
Output	
Voltage range	0~380V/440V
Overload capacity	Type G: 150% rated current 1min, 180% rated current 20s
	Type P: 120% rated current for 1min, 150% rated current for 1s

Control features			
Control mode	Vector control with PG(VC)	Vector control without PG(SVC)	V/F control
Startup torque	0.00Hz 180%	0.5Hz 150%	1.5Hz 150%
Speed adjustable range	1:1000	1:100	1:50
Speed stabilization precision	± 0.02%	± 0.2%	± 0.5%
Torque control	Yes	Yes	N/A
Torque precision	± 5%	± 10%	----
Torque response time	<10ms	<20ms	----

Product functions	
Key functions	Torque/speed control switching, Multi-function input/ output terminals, under voltage regulation, AC operation grounding switching, flying start, torque limit, multi speed operation, autotune, S curve Acc/Dec, slip compensation, PID regulation, simple PLC, fix length control, droop control, current control, manual/ automatic torque increase, current limit, AVR function
Frequency setup	Keypad, terminal Up/Down, communication, Analog input AI1/AI2, Terminal pulse input X4,X5
Output frequency	0.00~550.0Hz
Startup frequency	0.00~60.00Hz
Acc/Dec time	0.1~3600s
Dynamic braking	400V drive: braking unit voltage: 650 ~ 750V;
	200V drive: braking unit voltage: 360 ~ 390V;
DC injection braking	DC braking activation: 0.00 ~ 550.0Hz
	DC braking current: G type 0.0 ~ 100.0%; P type 0.0 ~ 80.0%
	DC braking time: 0.0 ~ 30.0s; Quick DC brake activation without lag time
Magnetic flux braking	Fast deceleration through adding motor magnetic flux

Unique functions	
Parameter cloning	Parameter upload, download. User can forbid the overwriting of the uploaded parameters.
Keypad	LED keypad as standard.
Common DC bus	Common DC bus for multiple drives power supply
Independent air duct	Independent air duct design for whole series product
Extension card	IO extension card, injection molding machine connecting card etc.
Power-up detection	Automatic detection of internal and external circuits when power-up

Protection function

Power undervoltage/overvoltage protection, overcurrent protection, autotune trip, IGBT protection, heatsink overheat protection, drive overload protection, motor overload protection, external device false protection, output to ground short-circuit protection, abnormal power failure in running, power supply abnormal, output phase loss, EEPROM trip, relay contact error, temperature sampling abnormal, encoder off-line, analog input trip, communication trip, version compatibility trip, cloning trip, extension card connection trip, hardware overload protection

Efficiency

Operation at rated power: 7.5kW or below≥ 93%; 11kW~45kW≥ 95%; 55kW or above≥ 98%

Environment	
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Humidity	5~95% without condensation
Altitude	0~2000m, deration is required for more than 1000 meters, at rated output current decreasing 1% per 100m higher
Vibration	3.5mm, 2~9Hz; 10 m/s^2, 9~200Hz; 15 m/s^2, 200~500Hz
Storage temperature	-40~+70°C

Structure	
Protection level	IP20
Cooling	Fan force cooling

ORDER CODE AND DIMENSIONS

NE200 Series Drive

Drive model G: Heavy Duty P: Normal Duty	Order code	Rated output current (A)	Motor power (KW)
NE200-2S0004GB	01189010_E	2.5	0.4
NE200-2S0007GB	01189011_E	4.5	0.75
NE200-2S0015GB	01189012_E	7	1.5
NE200-4T0007G/015PB	01189013_E	2.5/4.0	0.75/1.5
NE200-4T0015G/0022PB	01189014_E	4.0/6.0	1.5/2.2
NE200-4T0022GB-M	01189015_E	6.0	2.2
NE200-2S0022GB	01189016_E	10	2.2
NE200-4T0022G/0040PB	01189018_E	6.0/9.0	2.2/4.0
NE200-4T0040G/0055PB	01189019_E	9.0/13	4.0/5.5

NE300 Options

Optional card	Order code	Terminal	Description	Drive model
I/O extension card	NE30-I/O Lite	X6	Multi-function input 6 (to PLC)	NE300 whole series
		X7	Multi-function input 7 (to PLC)	
		X8	Multi-function input 8 (to PLC)	
		Y2	Multi-function output Y2 (to COM)	
		BRA/BRB/BRC	Relay output 2	
		PLC	PLC common end (to PLC)	
		AO2	Analog output 2 (0 ~ 10V, 0/4 ~ 20mA selectable)	
		GND	Analog output common end	
	NE30-I/O Relay	BRA/BRB/BRC	Relay output 2	NE300 whole series
		AO2	Analog output 2 (0 ~ 10V, 0/4 ~ 20mA selectable)	
		GND	Analog output common	
+/- 10V extension card	NE30-AN01	485+	485 differential signal positive	NE300 whole series
		485-	485 differential signal negative	
		-10V	Provide -10V to external (to GND)	
		AI3	+/- 10V analog input (to GND)	
		GND	Analog output common	

*-F freestanding drive with DC reactor inbuilt;
*-U upside input downside output type wall mounting structure;
*-D downside input upside output type wall mounting structure.

* Specialized drive and Vector control with PG card model selection, please consult our company for detail.

NE300 Series Drive

Drive model G: Heavy Duty P: Normal Duty	Rated output current (A)	Motor power (KW)
NE300-4T0015G/0022PB	4.0/6.0	1.5/2.2
NE300-4T0022G/0040PB	6.0/9.0	2.2/4.0
NE300-4T0040G/0055PB	9.0/13	4.0/5.5
NE300-4T0055G/0075PB	13/17	5.5/7.5
NE300-4T0075G/0110PB	17/25	7.5/11
NE300-4T0110G/0150PB	25/32	11/15
NE300-4T0150G/0185PB	32/37	15/18.5
NE300-4T0185G/0220PB	37/45	18.5/22
NE300-4T0220G/0300PB	45/60	22/30
NE300-4T0300G/0370P	60/75	30/37
NE300-4T0370G/0450P	75/90	37/45
NE300-4T0450G/0550P	90/110	45/55
NE300-4T0550G/0750P	110/150	55/75
NE300-4T0750G/0900P	150/176	75/90
NE300-4T0900G/1100P	176/210	90/110
NE300-4T1100G/1320P	210/250	110/132
NE300-4T1320G/1600P-U	250/300	132/160
NE300-4T1320G/1600P-D	250/300	132/160
NE300-4T1600G/1850P-U	300/340	160/185
NE300-4T1600G/1850P-D	300/340	160/185
NE300-4T1850G/2000P-U	340/380	185/200
NE300-4T1850G/2000P-D	340/380	185/200
NE300-4T2000G/2200P-U	380/420	200/220
NE300-4T2000G/2200P-D	380/420	200/220
NE300-4T2200G/2500P-U	420/470	220/250
NE300-4T2200G/2500P-D	420/470	220/250
NE300-4T2500G/2800P-U	470/540	250/280
NE300-4T2500G/2800P-D	470/540	250/280
NE300-4T3550G/4000P-F	660/730	355/400
NE300-4T4000G/4500P-F	730/840	400/450
NE300-4T4500G/5000P-F	840/900	450/500
NE300-4T5000G/5600P-F	900/950	500/560
NE300-4T5600G/6300P-F	950/1160	560/630
NE300-4T6300G/7100P-F	1160/1300	630/710
NE300-4T7100G/8000P-F	1300/1460	710/800
NE300-4T8000G/9000P-F	1460/1640	800/900
NE300-4T9000G-F	1640	900

CONTROL TECHNIQUES IS YOUR GLOBAL DRIVES SPECIALIST.

For more information, or to find your local drive centre representatives, visit:

www.controltechniques.com

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