



# Delta Products VFD CP2000 Bypass Control Packages

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# Delta Products VFD CP2000 Bypass Control Packages

The Delta Products VFD CP2000 Bypass Control Packages are designed for the Delta Products CP2000 Series Variable Frequency Drive (VFD) to support all commercial HVAC fan and pump applications.

The control system provides simple manual bypass control in an economical design with a NEMA 1 enclosure as a standard feature. NEMA 12, NEMA 3R and NEMA 4R enclosure options are also available.

Leverage the system's integrated BACnet MS/TP and Modbus protocols to interface readily with any building management system. The packages are configurable to allow the bypass control to meet all specified project requirements.

Custom designs are available by consulting the factory.

## Package Features

- 1-60 HP (208/230V), 1-125 HP (460V), 2-75 HP (600V)
- Door mounted VFD keypad for easy system programming and monitoring
- Short Circuit Current Rating (SCCR) to 100 kAIC
- BACnet MS/TP and RS-485 Modbus standard
- UL 508A and cUL approved
- NEMA 1 rated enclosures standard. NEMA 12, 3R, 4X available as options.
- Manual bypass control for simple operation

## Options

- Non-fused disconnect or circuit breaker disconnect
- 2 or 3 contactor bypass
- Input filtering to support harmonic mitigation
- EMI/RFI input filter
- Output filter to support lead length, multi-motor applications

## Package Types

- Delta Products VFD CP2000 Bypass Only (includes input disconnecting and bypass options)
- Delta Products VFD CP2000 Bypass with Options (includes input disconnecting, bypass and input filtering options)
- Delta Products VFD CP2000 Disconnect Only (includes input disconnecting options)



# Part Number Configuration

Each part number has 15 options. See footnote for more details.

Options	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Part Number Example	D	B	P	2	0	0	7	1	1	2	0	0	0	0	0

Option 1	Delta
D	Delta

Option 2	Bypass
B	Bypass

Option 3	VFD Selection
P	CP2000

Option 4	Voltage Rating
2	208/230V
4	460V
6	600V

Option 5-7	HP Rating*
001	1HP
to	
125	125HP

Option 8	Enclosure Style
1	NEMA 1
2	NEMA 12
3	NEMA 3R
4	NEMA 4x

Option 9	Input Disconnecting Options
1	Non-fused disconnect with VFD fusing (5 kAIC SCCR)
2	Circuit breaker (5 kAIC SCCR)
3	Circuit breaker with VFD fusing (50 kAIC SCCR @ 600V)
4	Circuit breaker with VFD fusing (100 kAIC SCCR @ 208/230V, 460V)

Option 10	Bypass Options
0	None
2	2 contactor bypass
3	3 contactor bypass

Option 11	Input Filtering Options
0	None
1	3% Input Reactor
2	5% Input Reactor
3	DC Link Choke
4	EMI Filter
5	3% Input Reactor & EMI Filter
6	5% Input Reactor & EMI Filter
7	DC Link Choke & EMI Filter

Option 12	Communication Options
0	None
1	CANopen
2	DeviceNet
3	Ethernet IP
4	Modbus TCP
5	Profibus DP

Option 13	Other Options
0	None
1	External 24V power supply
2	Digital I/O extension
3	Analog I/O extension
4	Relay extension

Option 14	Output Filter
0	None
1	1.5% Output Reactor
2	3% Output Reactor
3	dv/dt Filter
4	Passive Filter

Option 15	Multiple Motors
0	1 Motor
2	2 Motors
3	3 Motors
4	4 Motors
5	5 Motors

\* If you are ordering a 7.5HP, use the option number 007. Refer to pages 4-6 of this document for available HP ratings.

Options highlighted in green have standard lead times. For all other options, consult Inside Sales at [insidesalesglobal@deltaccontrols.com](mailto:insidesalesglobal@deltaccontrols.com) for pricing and lead times.



# Bypass with Options Package Specifications

This bypass control package includes input disconnecting, bypass and input filtering options.

Options for input disconnect:

- Non-fused disconnect with VFD fusing (5 kAIC SCCR)
- Circuit breaker (5 kAIC SCCR)
- Circuit breaker with VFD fusing (50 kAIC SCCR @ 600V)
- Circuit breaker with VFD fusing (100 kAIC SCCR @ 230V, 460V)

Options for bypass:

- 2 or 3 contactor bypass

Options for input filtering:

- DC Link Choke or 3% Line Reactor
- EMI/RFI Filter

HP	208/230V			
	Current (Amps Light Duty)	Drive Frame	Inches	Weight (lb)
1	5	A	49x10x12	90
2	7.5	A	49x10x12	90
3	10	A	49x10x12	90
5	15	A	49x10x12	90
7.5	21	A	49x10x12	90
10	31	B	55x11x13	105
15	46	B	55x11x13	105
20	61	B	55x11x13	105
25	75	C	60x13x13	185
30	90	C	60x13x13	185
40	105	C	60x13x13	185
50	146	D	Consult factory	Consult factory
60	180	D	Consult factory	Consult factory

HP	460V				600V			
	Current (Amps Light Duty)	Drive Frame	Inches	Weight (lb)	Current (Amps Light Duty)	Drive Frame	Inches	Weight (lb)
1	3	A	49x10x12	90	--	--	--	--
2	4.2	A	49x10x12	90	3	A	49x10x12	90
3	5.5	A	49x10x12	90	4.3	A	49x10x12	90
5	8.5	A	49x10x12	90	6.7	A	49x10x12	90
7.5	13	A	49x10x12	90	9.9	B	55x11x13	105
10	18	A	49x10x12	90	12.1	B	55x11x13	105
15	24	B	55x11x13	105	18.7	B	55x11x13	105
20	32	B	55x11x13	105	24.2	B	55x11x13	105
25	38	B	55x11x13	105	30	C	60x13x13	185
30	45	C	60x13x13	185	36	C	60x13x13	185
40	60	C	60x13x13	185	45	C	60x13x13	185
50	73	C	60x13x13	185	54	C	60x13x13	185
60	91	D	Consult factory	Consult factory	67	D	Consult factory	Consult factory
75	110	D	Consult factory	Consult factory	86	D	Consult factory	Consult factory
100	150	D	Consult factory	Consult factory	--	--	--	--
125	180	D	Consult factory	Consult factory	--	--	--	--

# Bypass Only Package Specifications

This bypass control package includes input disconnecting and bypass options.

Options for input disconnect:

- Non-fused disconnect with VFD fusing (5 kAIC SCCR)
- Circuit breaker (5 kAIC SCCR)
- Circuit breaker with VFD fusing (50 kAIC SCCR @ 600V)
- Circuit breaker with VFD fusing (100 kAIC SCCR @ 230V, 460V)

Options for bypass:

- 2 or 3 contactor bypass

HP	208/230V			
	Current (Amps Light Duty)	Drive Frame	Inches	Weight (lb)
1	5	A	32x11x13	65
2	7.5	A	32x11x13	65
3	10	A	32x11x13	65
5	15	A	32x11x13	65
7.5	21	A	32x11x13	65
10	31	B	38x12x13	90
15	46	B	38x12x13	90
20	61	B	38x12x13	90
25	75	C	48x13x15	160
30	90	C	48x13x15	160
40	105	C	48x13x15	160
50	146	D	Consult factory	Consult factory
60	180	D	Consult factory	Consult factory

HP	460V				600V			
	Current (Amps Light Duty)	Drive Frame	Inches	Weight (lb)	Current (Amps Light Duty)	Drive Frame	Inches	Weight (lb)
1	3	A	32x11x13	65	--	--	--	--
2	4.2	A	32x11x13	65	3	A	32x11x13	65
3	5.5	A	32x11x13	65	4.3	A	32x11x13	65
5	8.5	A	32x11x13	65	6.7	A	32x11x13	65
7.5	13	A	32x11x13	65	9.9	B	38x12x13	90
10	18	A	32x11x13	65	12.1	B	38x12x13	90
15	24	B	38x12x13	90	18.7	B	38x12x13	90
20	32	B	38x12x13	90	24.2	B	38x12x13	90
25	38	B	38x12x13	90	30	C	48x13x15	160
30	45	C	48x13x15	160	36	C	48x13x15	160
40	60	C	48x13x15	160	45	C	48x13x15	160
50	73	C	48x13x15	160	54	C	48x13x15	160
60	91	D	Consult factory	Consult factory	67	D	Consult factory	Consult factory
75	110	D	Consult factory	Consult factory	86	D	Consult factory	Consult factory
100	150	D	Consult factory	Consult factory	--	--	--	--
125	180	D	Consult factory	Consult factory	--	--	--	--

# Disconnect Only Package Specifications

This bypass control package includes the input disconnecting options.

Options for input disconnect:


- Non-fused disconnect with VFD fusing (5 kAIC SCCR)
- Circuit breaker (5 kAIC SCCR)
- Circuit breaker with VFD fusing (50 kAIC SCCR @ 600V)
- Circuit breaker with VFD fusing (100 kAIC SCCR @ 230V, 460V)

HP	208/230V			
	Current (Amps Light Duty)	Drive Frame	Inches	Weight (lb)
1	5	A	23x8x10	35
2	7.5	A	23x8x10	35
3	10	A	23x8x10	35
5	15	A	23x8x10	35
7.5	21	A	23x8x10	35
10	31	B	26x10x10	50
15	46	B	26x10x10	50
20	61	B	26x10x10	50
25	75	C	36x12x11	100
30	90	C	36x12x11	100
40	105	C	36x12x11	100
50	146	D	Consult factory	Consult factory
60	180	D	Consult factory	Consult factory

HP	460V				600V			
	Current (Amps Light Duty)	Drive Frame	Inches	Weight (lb)	Current (Amps Light Duty)	Drive Frame	Inches	Weight (lb)
1	3	A	23x8x10	35	--	--	--	--
2	4.2	A	23x8x10	35	3	A	23x8x10	35
3	5.5	A	23x8x10	35	4.3	A	23x8x10	35
5	8.5	A	23x8x10	35	6.7	A	23x8x10	35
7.5	13	A	23x8x10	35	9.9	B	26x10x10	50
10	18	A	23x8x10	35	12.1	B	26x10x10	50
15	24	B	26x10x10	50	18.7	B	26x10x10	50
20	32	B	26x10x10	50	24.2	B	26x10x10	50
25	38	B	26x10x10	50	30	C	36x12x11	100
30	45	C	36x12x11	100	36	C	36x12x11	100
40	60	C	36x12x11	100	45	C	36x12x11	100
50	73	C	36x12x11	100	54	C	36x12x11	100
60	91	D	Consult factory	Consult factory	67	D	Consult factory	Consult factory
75	110	D	Consult factory	Consult factory	86	D	Consult factory	Consult factory
100	150	D	Consult factory	Consult factory	--	--	--	--
125	180	D	Consult factory	Consult factory	--	--	--	--

# CP2000 Series VFD Specifications

## Environment for Operation, Storage and Transportation

<b>Installation Location</b>	IEC60364-1/ IEC60664-1 Pollution degree 2, indoor use only
<b>Surrounding Temperature</b>	Store and transport at -25°C to 70°C Only allowed at non-condensation, non-frost, non-conductive environment
<b>Rated Humidity</b>	Operate at max. 95% Store and transport at max. 95% Only allowed at non-condensation, non-frost, non-conductive environment
<b>Air Pressure</b>	Operate and store at 86 to 106 kPa Transport at 70 to 106 kPa
<b>Altitude</b>	<ul style="list-style-type: none"> <li>If the AC motor drive is installed at an altitude of 0 to 1000m, follow normal operation restrictions.</li> <li>If it is installed at 1000 to 3000m, decrease 1% of rated current or lower 0.5°C of temperature for every 100m increase in altitude.</li> <li>Maximum altitude for Corner Grounded TN system is 2000m. For applications over 2000m, contact Delta Electronics for more details.</li> </ul>
<b>Pollution Level</b>	IEC60721-3-3 Operate at Class 3C2; Class 3S2 Storage: Class 1C2; Class 1S2 Transportation: Class 2C2; Class 2S2 Only allowed at non-condensation, non-frost, non-conductive environment
<b>Package Drop</b>	ISTA procedure 1A (according to weight) IEC60068-2-31
<b>Vibration</b>	1.0mm, peak to peak value range from 2 Hz to 13.2 Hz; 0.7 G to 1.0 G range from 13.2 Hz to 55 Hz; 1.0 G range from 55 Hz to 512 Hz. Comply with IEC 60068-2-6
<b>Impact</b>	IEC/ EN 60068-2-27
<b>Operation Position</b>	Max. allowed offset angle $\pm 10^\circ$ (under normal installation position) 

## Operation Temperature and Protection Level

Drive Model	Frame	Top Cover	Conduit Box	Protection Level	Operation Temp
VFDxxxxCPxxx-21	Frame A-C 208/230V: 0.75 to 30 kW 460V: 0.75 to 37 kW 575V: 1.5 to 15 kW 690V: 18.5 to 37 kW	Remove top cover	Standard conduit plate	IP20/UL Open Type	208/230V and 460V: ND: -10°C to 50°C LD: -10°C to 40°C 575C and 690V: -10°C to 50°C (ND = Normal duty, LD = Light duty)
	Same as above	With top cover	Same as above	IP20/UL Type 1/ NEMA1	-10°C to 40°C
	Frame D-H 208/230V: > 37 kW 460V: > 45 kW 690V: > 45 kW	N/A	Conduit box	IP20/UL Type1/ NEMA1	-10°C to 40°C
VFDxxxxCPxxx-00	Frame D-H 208/230V: > 37 kW 460V: > 45 kW 690V: > 45 kW	N/A	No conduit box	IP00 IP20/UL Open Type	208/230V and 460V: ND: -10°C to 50°C LD: -10°C to 40°C 690V: -10°C to 50°C

# CP2000 Series VFD General Specifications

Control Characteristics	
Control Method	Pulse Width Modulation (PWM)
Control Mode	208/230V / 460V models 1: V/F (V/F control), 2: SVC (Sensorless Vector Control), 3: PM (Permanent Magnet Motor) 575V/ 690V models 1: V/F, 2: SVC
Starting Torque	Reach up to 150% or above at 0.5 Hz
V/F Curve	4 point adjustable V/F curve and square curve
Speed Response Ability	5 Hz
Torque Limit	Light Duty: Max. 130% torque current Normal Duty: Max. 160% torque current
Max. Output Frequency (Hz)	208/230V models: 599.00 Hz (55 kW and above: 400.00 Hz) 460V models: 599.00 Hz (90 kW and above: 400.00 Hz) 575V / 690V models: 599.00 Hz
Frequency Output Accuracy	Digital command: $\pm 0.01\%$ , $-10\text{ }^{\circ}\text{C} \sim +40\text{ }^{\circ}\text{C}$ Analog command: $\pm 0.1\%$ , $25 \pm 10\text{ }^{\circ}\text{C}$
Output Frequency Resolution	Digital command: 0.01 Hz Analog command: Max. output frequency x 0.03 / 60 Hz ( $\pm 11$ bit)
Overload Tolerance	Light duty: 120% of rated current for 1 minute Normal duty: 120% of rated current for 1 minute; 160% of rated current for 3 seconds
Frequency Setting Signal	0-10V, 4-20 mA, 0-20 mA, pulse input
Accel. / Decel. Time	0.00-600.00 / 0.0-6000.0 seconds
Main Control Function	Fault restart, Torque limit, Smart stall, Dwell, 3-wire sequence, Speed search, Parameter copy, JOG frequency, Slip compensation, Torque compensation, S-curve accel/decel, Energy saving control, Accel/ Decel Time switch, Frequency/ lower limit settings, Momentary power loss ride thru, PID control (with sleep function), Auto-tuning (rotational, stationary), DC injection braking at start/ stop, BACnet communication, 16-step speed (max.), Over-torque detection, Modbus communication (RS-485 RJ45, Max. 115.2 kbps)
Fan Control	208/230V models: <ul style="list-style-type: none"> <li>Models with spec higher than VFD185CP23 (included) are PWM control;</li> <li>Models with spec lower than VFD150CP23 (not included) are on / off switch control.</li> </ul> 460V models: <ul style="list-style-type: none"> <li>Models with spec higher than VFD220CP43 (included) are PWM control;</li> <li>Models with spec lower than VFD185CP43 (not included) are on / off switch control.</li> </ul> 575V / 690V models: <ul style="list-style-type: none"> <li>PWM control</li> </ul>



# CP2000 Series VFD General Specifications (continued)

Protection Characteristics	
Motor Protection	Electronic thermal relay protection
Over-Current Protection	208/230V / 460V models: <ul style="list-style-type: none"> <li>• Light duty: Over-current protection for 200% rated current,</li> <li>• Normal duty: Over-current protection for 240% rated current,</li> <li>• Current clamp (Light duty: 130 ~ 135%); (Normal duty: 170 ~ 175%)</li> </ul> 575V / 690V models: <ul style="list-style-type: none"> <li>• Over-current protection for 225% rated current</li> <li>• Current clamp (Light duty: around 128 ~ 141%); (Normal duty: around 170 ~ 175%)</li> </ul>
Over-Voltage Protection	208/230V models: drive will stop when DC-BUS voltage exceeds 410V 460V models: drive will stop when DC-BUS voltage exceeds 820V 575V / 690V models: drive will stop when DC-BUS voltage exceeds 1189V
Over-Temperature Protection	Built-in temperature sensor
Stall Prevention	Stall prevention during acceleration, deceleration and running independently
Restart After Instantaneous Power Failure	Parameter setting up to 20 seconds
Grounding Leakage Current Protection	Leakage current is higher than 50% of rated current of the AC motor drive
International Certifications	CE, UL, GB 12668.3, EAC (for 208/230V and 460V models only)



# Ordering

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