Specifications for Drive Controllers

Input voltage	460 V ±10%
Displacement power factor	98% through speed range
Input frequency	50/60 Hz ± 5%
Output voltage	Three-phase output Maximum voltage equal to input voltage
Galvanic isolation	Galvanic isolation between power and control (inputs, outputs, and power supplies)
Frequency range of power converter	0.1 Hz to 500 Hz (factory setting of 60 Hz)
Torque/overtorque	VT: 110% of nominal motor torque for 60 s CT: 150% of nominal motor torque for 60 s
Current (transient)	VT: 110% of controller rated current for 60 s CT: 150% of controller rated current for 60 s
Switching frequency	Selectable from 0.5 kHz to 16 kHz. [1] Factory setting: CT: 2 kHz for 40 HP–450 HP @460 V VT: 2 kHz for 50 HP–500 HP @460 V The drive reduces the switching frequency automatically in the event of excessive heat sink temperature.
Speed reference	AI1: 0 to +10 V, Impedance = 30 kΩ. Can be used for speed potentiometer, 1 to 10 kΩ AI2: Factory setting: 4 mA to 20 mA. Impedance = 242 Ω (reassignable, X–Y range with graphic display terminal) Factory modification J10 allows 0–10 Vdc reference signal to AI2, Z = 30 kW
Frequency resolution in analog reference	0.1 for 100 Hz (11 bits)
Speed regulation	V/f control: equal to the motor's rated slip. SFVC: 10% of the motor's rate slip from 20% to 100% of nominal motor torque
Efficiency	95% at full load typical
Reference sample time	2 ms ±0.5 ms
Acceleration and deceleration ramps	0.1 to 999.9 s (definition in 0.1 s increments)
Drive controller protection	• Thermal protection of power converter • Phase loss of AC mains • Circuit breaker protected
Motor protection	• Class 10 electronic overload protection (power converter) • Class 20 bypass overload protection (with various factory engineered bypass circuits)
Graphic display terminal	Self diagnostics with fault messages in three languages; also refer to the programming manual supplied on CD with the power converter
Temperature	**Storage for all enclosures:** -13 to +149 °F (-25 to +65 °C). **Operation:** +14 to +104 °F (-10 to 40 °C). For 40 HP to 75 HP, CT and 50 HP to 100 HP, VT drives operating between 104 and 122 °F (40 and 50 °C), derate the current 2% per °C above 40 °C. For 100 HP to 450 HP, CT and 125 HP to 500 HP, VT drives operating between 104 and 122 °F (40 and 50 °C), derate the current 3.3% per °C above 40 °C
Humidity	95% with no condensation or dripping water, conforming to IEC 60068-2-3
Altitude	3,300 ft (1000 m) maximum without derating; derating of the current by 1% for each additional 330 ft (100 m)
Enclosure	NEMA Type 1 or Type 1 with fan filters
Pollution degree	Type 1, 1B: Pollution degree 2 per NEMA ICS-1 Annex A and IEC 60664-1
Operational test vibration	Conforms to IEC 60721-3-3-3M3 amplitude • 1.5 mm peak to peak from 3 Hz to 13 Hz • 1 g from 13 Hz to 200 Hz
Transit test to shock	Conforms to National Safe Transit Association and International Safe Transit Association test for packages
Operational shock	15 g, 11 ms
Seismic qualification	2003 IBC, NFPA 5000 and ASCE 7 (optional) ICC ES AC156 acceptance criteria test protocol with an importance factor of 1.5
Codes and standards	UL listed per UL 508C under category NMMS Conforms to applicable NEMA ICS, NFPA and IEC standards Manufactured under ISO 9001 standards Factory modification G10 provides Canadian cUL certification

1. On 40 HP to 75 HP CT and 50 HP to 100 HP VT controllers, above 4 kHz CT/8 kHz VT, select the next largest size drive controller. If the duty cycle does not exceed 60% (36 s maximum for a 60 s cycle), this is not necessary.

Catalog Number Explanation

Class **8839** Type **CPD T G 4 V W** Forms **A07, etc.** Series **C**

Combination Device
8839 = Circuit breaker disconnect

Design
CPD = PowerGard 18-Pulse controller

Horsepower Rating

N = 40 HP	W= 200 HP
P = 50 HP	X = 250 HP
Q = 60 HP	Y = 300 HP
R = 75 HP	Z = 350 HP
S = 100 HP	4 = 400 HP
T = 125 HP	5 = 450 HP
U = 150 HP	6 = 500 HP

Enclosure Environmental Rating
G = Type 1 general purpose
B = Type 1 with fan filters

Series Designation
C = Altivar 61/71 Power converter platform

Modifications (120+ options are available)
A07 = Hand-Off-Auto selector switch with manual speed potentiometer

Power Circuit Type
R = Barriered bypass – RVAT
S = Barriered bypass – soft start
T = Isolation and transfer
W = Combination device (drive only)
Y = Integrated bypass (IEC)
Z = Barriered bypass – full voltage

Application Type
C = Constant torque (150% current limit)
V = Variable torque (110% current limit)

Voltage Code
4 = 460/480 V, 60 Hz

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Product Information

Typical dimensions

All enclosures are configured in 94.65" height and 24.5" depth standard switchboard style construction

HP @ 480 V	PowerGard Series C Enclosure Width Dimensions								
	Combination Drive Only W	Integrated Bypass Full Voltage Y		Barriered Bypass Full Voltage/ Separate Starter Z or T		Barriered Bypass Soft Start S		Barriered Bypass RVAT R	
	Total	Extender	Total	Extender	Total	Extender	Total	Extender	Total
50 to 75	36"	-	36"	20"	56"	20"	56"	42"	78"
100	36"	-	36"	20"	56"	36"	72"	42"	78"
125	36"	20"	56"	20"	56"	36"	72"	42"	78"
150	42"	20"	62"	20"	62"	36"	78"	48"	90"
200	42"	20"	62"	20"	62"	36"	78"	48"	90"
250	42"	20"	62"	20"	62"	42"	84"	54"	90"
300	48"	25"	73"	25"	73"	42"	90"	54"	102"
350	48"	25"	73"	25"	73"	42"	90"	54"	102"
400	48"	25"	73"	25"	73"	42"	90"	54"	102"
450	48" or 54"	36"	84"	36"	84"	48"	96"	54"	102"
500	48" or 54"	36"	84"	36"	84"	48"	96"	54"	102"

Power circuit description:
R – Barriered bypass with autotransformer reduced voltage starter
S – Barriered bypass with soft start
T – Isolation and transfer (separate starter)
W – Combination: Drive with disconnect means only
Y – Integrated bypass: Drive with full voltage starter in same enclosure compartment
Z – Barriered bypass: Drive with full voltage starter in separate enclosure compartment

Typical weights and estimated heat loss

PowerGard Series C – Power Circuit W							
HP @ CT rating	Weight lbs.	Estimated Heat Loss		HP @ VT rating	Weight lbs.	Estimated Heat Loss	
		Watts Loss	BTU/Hour			Watts Loss	BTU/Hour
40	1603	2478	8457	-	-	-	-
50	1603	2674	9126	50	1603	2674	9126
60	1603	2838	9686	60	1603	2838	9686
75	1603	3027	10331	75	1603	3027	10331
100	1703	4776	16301	100	1703	3756	12819
125	2070	6333	21615	125	1703	4843	16529
150	2070	6637	22652	150	2070	6637	22652
200	2086	7074	24144	200	2086	7074	24144
250	2682	9582	32703	250	2086	9582	32703
300	2682	11216	38280	300	1682	11216	38280
350	2682	11684	39878	350	2682	11684	39878
400	2682	12894	44007	400	2682	12894	44007
450	3148	13793	47076	450	3148	13793	47076
-	-	-	-	500	3148	14691	50140

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