

IMPULSE·G+ *Series 4*

Adjustable Frequency/Vector Crane Controls

Product Features and Specifications



MAGNETEK
MATERIAL HANDLING

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IMPULSE G+ Crane and Hoist Features

Feature	Benefit
Safe Operating Windows	Reduces the possibility of programming unsafe parameters
X-Press Programming™	Allows programming of the initial setup in seconds
Multi-Level Password Protection	Limits unauthorized modification of drive parameters
Quick Stop™	Reduces the possibility of load and crane collision
Reverse Plug Simulation™	Allows the operator to smoothly and quickly stop and change directions without setting parking brake
Micro-Positioning™	Allows the operator to make precise, slow movements to position a load
Load Check II™	Prevents lifting an overload
Swift-Lift™	Allows overspeeding with light loads or empty hook
Inching Control	Allows the ability to control the amount of time the crane will run to position load
Phase Loss Detection	In case of output phase loss, the brake will set immediately, retaining the load
Control Interface	Optically isolated quick disconnect 120 VAC control interface with parameter backup (24 VDC, 24 VAC, and 48 VAC optional)
Automatic Reset	Allows selectable conditions to be automatically reset with a new run command



IMPULSE G+ Standard Features

Feature	Benefit
Over-Torque/Under-Torque Detection	Allows programmable outputs and actions based on torque conditions
Slip Compensation	Automatically compensates for motor slip
Motor Lead Reversal	Electronically swaps motor leads for reverse operation
Keypad Copy	Copy, store and write parameters from keypad
Safe Torque Off	Provides a redundant hardware safety circuit that guarantees motor and brake power are removed when an E-STOP switch or safety controller opens the drive input, eliminating the need for external disconnects. This functionality is provided in a safety category 3 architecture, and designed to PLd and SIL CL2 according to ISO/EN 13849-1 and IEC/EN 62061 respectively, meeting the requirements of IEC/EN 61508.
Ground Fault	Short Circuit Protection reduces damage to motor and drive
Charge Lamp	Charge Indicator indicates when the DC BUS has discharged to a safe level
Communication	Built-in RS-485 communication (Modbus - RTU)
Static Auto Tune	Allows auto tune without mechanical disconnection
Enhanced Keypad Display	Easily navigate and read diagnostics
Stall Prevention	Extends acceleration time and prevents the motor torque limits from being exceeded
Multi-Function Input Terminals Set end of travel/slow down limits or other functions	Flash Memory stores the last ten fault occurrences, even after power-down, for diagnostic purposes
Elapsed Time Counter	Indicates actual time of operation (power on or run time)
Modbus RTU	Network communications

IMPULSE G+ Option Cards

Option Name	Model Number
Ethernet/IP	SI-EN3
Modbus TCP/IP	SI-EM3
Profibus DP	SI-P3
Analog Input	AI-A3
Analog Output	AO-A3
Digital Input	DI-A3
Digital Output	DO-A3
AC Digital Input	S4I-120A60, S4I-48A60, S4I-24A60
AC Digital Input/Output	S4IO-120A60, S4IO-48A60, S4IO-24A60



IMPULSE G+ Specifications

Certification	UL, cUL, CSA (CE available upon request)
Rated input power supply volts	3-phase 200–240 VAC, 380–480 VAC or 500-600 VAC; 50 or 60 Hz and frequency
Allowable input voltage fluctuation	+10% or -15% of nominal, 3-phase
Allowable input frequency fluctuation	±5% of nominal
Control method	Fully digital; sine-wave, V/F control, open loop vector control, flux vector control
Maximum output voltage (VAC)	Max output voltage 3-phase, 200/208/230/240/380/400/415/440/460/480 500/575/600V (proportional to input voltage)
Rated output frequency (Hz)	0 to 150 Hz (consult factory for applications above 150 Hz)
Output frequency accuracy	0.01% — with digital reference command, -10° to 40°C; 0.1% — with analog reference command; 10 bits/10V; 25°C, ±10°C
Frequency reference resolution	Digital: 0.01 Hz; analog: 0.03 Hz (at 60 Hz)
Output frequency resolution	0.01 Hz
Overload capacity	150% of rated load for 1 minute
Remote frequency reference sources	0–10 VDC (20W); 4–20 mA (250W); ±10 VDC; serial(RS-485)
Acceleration/deceleration times	0.1 to 25.5 sec — 4 sets; 8 parameters are independently adjustable
Braking torque	150% or more with dynamic braking (optional)
Motor overload protection	Electronic thermal overload relay; UL recognized (I2T)
Overcurrent protection level (OC)	200% of drive rated current
Circuit protection	Ground fault and blown-fuse protection
Overvoltage protection level	410 VDC (200V), 820 VDC (400V), 1040 VDC (600V)
Undervoltage protection level	190 VDC (200V), 380 VDC (400V), 475 VDC (600V)
Heatsink over temperature	Thermostat trips at 105°C
Four quadrant torque limit selection	Separate functions for FORWARD, REVERSE, REGEN; all selectable from 0–300%
Stall prevention	Separate functions for acceleration, at-speed and constant horsepower region
Other protection features	Speed deviation, overspeed, mechanical brake failure, lost output phase, lost input phase, failed-oscillator, PG-disconnect, mechanical overload, roll-back detection, internal braking transistor failure, and built in watchdog
DC bus voltage indication	Charge LED is on until DC bus voltage drops below 50 VDC
Environment	Indoors; requires protection from moisture, corrosive gases and liquids
Ambient operating temperature	14° to 140°F (-10° to 60°C). Consult factory for high ambient applications
Storage temperature	-4° to 158°F (-20° to 70°C)
Humidity	95% relative; non-condensing
Vibration	1 G for 10-20 Hz 0.6 G for 20-55 Hz (2003-2180, 4001-4150, 5001-5077) 0.2 G for 20-55 Hz (2215-2415, 4180-41090. 5099-5200)
Elevation	3300 ft. (1000m) or less 9900 ft. (3000m) or less with current derating
Safety Standard	UL 508C



Dimensions and Drive Ratings

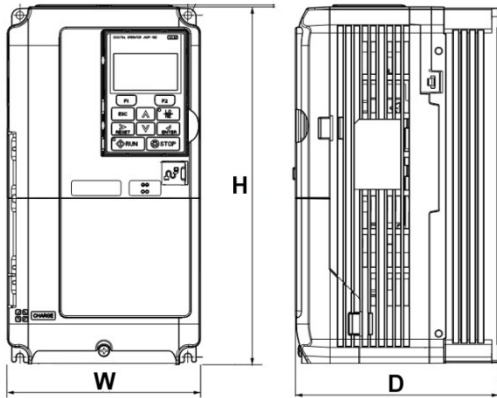


Figure 1

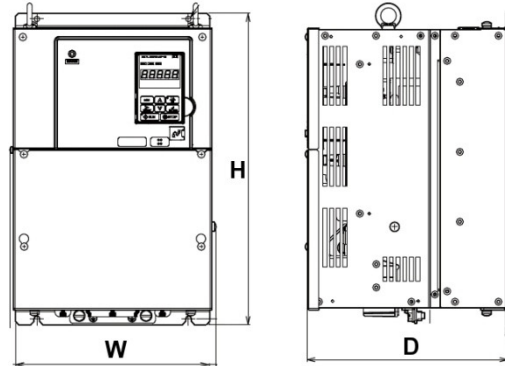


Figure 2

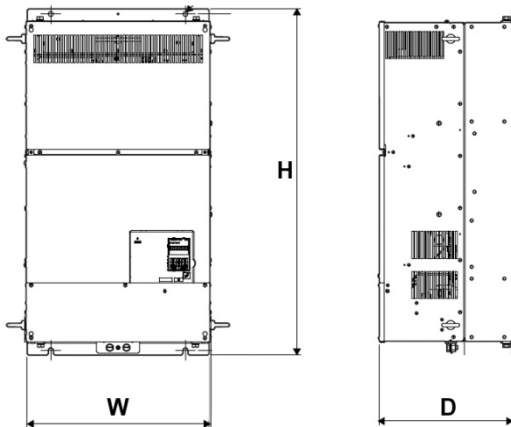


Figure 3

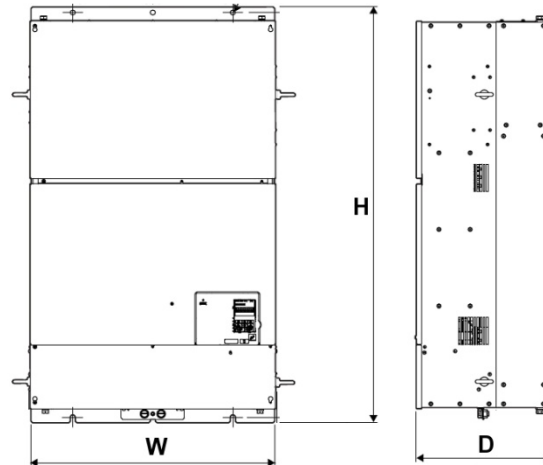


Figure 4



230V Drive Class

NEC HD HP	Model xxxx-G+S4	Figure	H (in)	W (in)	D (in)	Wt (lbs)	Rated Amps (A)	Heat Loss (W)			
0.75	2003	1	10.24	5.51	5.79	7.3	3.2	59			
1	2005						5.0	72			
1	2007					6.9	84				
2	2008					7.5	8.0	95			
2	2011					11.0	122				
3	2014					14.0	137				
3	2017				6.46	8.2	17.5	168			
5	2025					25	287				
7.5	2033				6.57	9.3	33	319			
10	2047				11.81	7.09	7.36	13.0	47	410	
15	2060					20.1	60	558			
20	2075				13.78	8.66	7.76	22.0	75	681	
30	2085				2	21.02	10.00	10.16	50.7	85	721
40	2115								61.7	115	912
50	2145		90.4	145				1122			
60	2180	28.74	12.95	11.14				92.6	180	1354	
75	2215		167.6	215				1980			
100	2283	27.76	17.72	12.99				176.4	283	2524	
125	2346		216.1	346				3347			
150	2415	31.50	19.69	13.78				218.3	415	3626	



460V Drive Class

NEC HD HP	Model xxxx-G+S4	Figure	H (in)	W (in)	D (in)	Wt (lbs)	Rated Amps (A)	Heat Loss (W)		
0.75	4001	1	10.24	5.51	5.79	7.5	1.8	61		
1	4003						3.4	70		
2	4004						4.8	87		
3	4005				6.46	5.51	6.46	7.9	5.5	101
5	4007								7.2	108
5	4009				6.57	5.51	6.57	9.0	9.2	130
10	4014								14.8	221
10	4018				11.81	7.09	7.36	13.2	18.0	247
15	4024								12.6	24
20	4031				13.78	8.66	7.76	19.2	31	403
30	4039	7.36	13.2	31					403	
30	4045	2	18.31	10.00	10.16	50.7	39	509		
40	4060						59.5	60	701	
60	4075						86.0	75	817	
75	4091				12.95	12.95	11.14	99.2	91	1022
75	4112								112	1325
125	4150				28.74	12.95	11.14	101.4	150	1920
150	4180								174.2	180
150	4216				27.76	17.72	12.99	174.2	216	3075
200	4260								211.6	216
250	4304				31.50	19.69	13.78	224.9	260	3178
300	4370	235.9	304	4060						
350	4450	3	37.40	14.57	275.6	370	4742			
500	4605	4	44.88			26.38	476.2	450	5358	
						487.2	605	5875		



575V Drive Class

NEC HD HP	Model xxxx-G+S4	Figure	H (in)	W (in)	D (in)	Wt (lbs)	Rated Amps (A)	Heat Loss (W)	
1	5001	1	10.24	5.51	5.79	7.5	1.7	48.7	
2	5003				3.5		81.9		
3	5004				6.46	8.2	4.1	80.0	
5	5006						6.3	115.1	
7.5	5009						6.57	9.0	9.8
10	5012		11.81	7.09	7.36	13.2	12.5	212.2	
15	5017						17	284.8	
20	5022		2	13.78	8.66	7.76	19.2	22	381.1
25	5027							27	465.1
30	5032			20.28	10.98	10.16	59.5	32	533.5
40	5041	41						688.5	
50	5052	28.74		12.95	11.14	99.2	52	1606.5	
60	5062						62	1836.5	
75	5077						77	1619.0	
100	5099	27.76		17.72	12.99	174.2	99	1750	
125	5130	27.76		17.72	12.99		130	2146	
150	5172	31.50		19.69	13.78	235.9	172	2762	
200	5200		31.50				19.69	13.78	200



Wiring Diagram

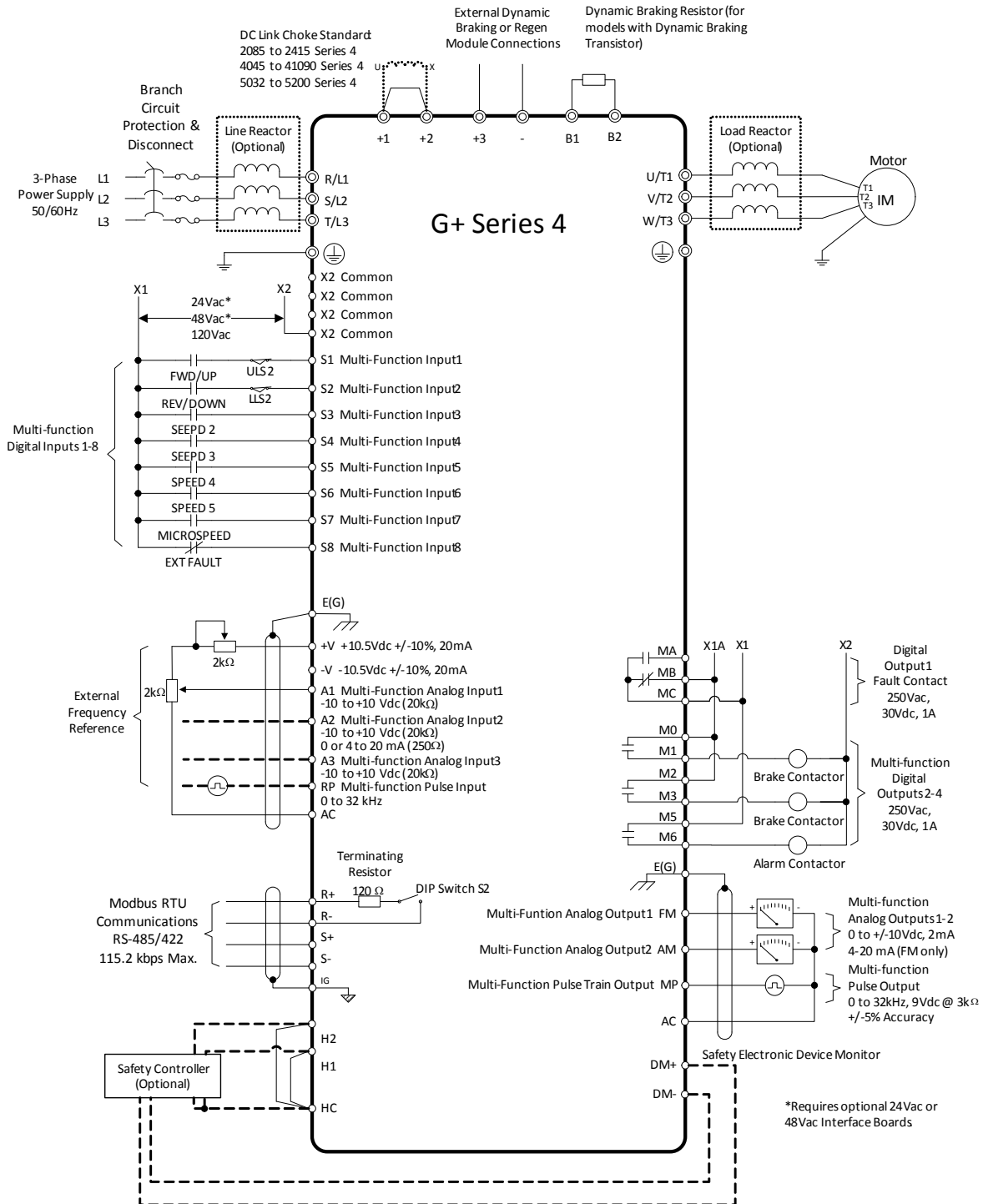


Figure 5

*Requires optional 24Vac or 48Vac Interface Boards