

HHP Solution – Technical Specification

Item	Specification
Product / Solution	HHP Modular AC drives
Control Method	V/F Control, V/F Control with PG Open Loop Vector Control Closed Loop Vector Control with PG Advanced Closed Loop Vector Control
Frequency Control Range	0.01 Hz to 150 Hz
Frequency Accuracy (temperature fluctuation)	Digital Reference Input: +/- 0.01% of the max. output frequency (-10 to +40 degrees C) Analog reference Input: +/- 0.1% of the max. output frequency (-10 to +40 degrees C)
Frequency Setting Resolution	Digital Reference Input: 0.01 Hz Analog Reference Input: 0.03 Hz at 60 Hz (1/2048 of max. output frequency setting, 11 bit plus sign)
Output Frequency Resolution	0.001 Hz
Frequency Reference Setting Signal	-10 to +10 Volts, 0 to +10 Volts, 4 to 20 mAmps, pulse train
Starting Torque	V/F, V/F with PG: 150% at 3 Hz Open Loop Vector, Advanced Open Loop Vector: 200% at 0.3 Hz Closed Loop Vector: 200% at 0 RPM
Speed Control Range	V/F, V/F with PG: (1:40) Open Loop Vector, Advanced Open Loop Vector: (1:200) Closed Loop Vector: (1:1500)
Speed Control Accuracy	Open Loop Vector: +/- 0.2% (25 degrees C +/- 10 degrees C) Closed Loop Vector: +/- 0.02% (25 degrees C +/- 10 degrees C)
Speed Response	Open Loop Vector: 10 Hz (25 degrees C +/- 10 degrees C) Closed Loop Vector: 50 Hz (25 degrees C +/- 10 degrees C)
Torque Limit	Separate limit settings in four quadrants for OLC, CLV, Advanced CLV
Accel / Decel Time	0.00 to 6000.0 seconds (4 selectable combinations of independent accel and decel settings)
Braking Torque	Based on external braking or regenerative system
V / F Characteristics	User selected programs and pre set V / F patterns are available

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Main Control Functions		Torque Control, Droop Control, Speed/torque Control Switching, Feed Forward Control, Zero ServoFunction, Momentary Power Loss Ride-Thru, Speed Search, Overtorque/Undertorque Detection, Torque Limit, 17 Step Speed (max), Accel/decel Switch, S-curve Accel/decel, 3-wire Sequence, Auto-tuning (rotational, stationary tuning), Dwell, Cooling Fan on/off Switch, Slip Compensation, Torque Compensation, Frequency Jump, Upper/lower Limits for Frequency Reference, DC Injection Braking at Start and Stop, Overexcitation Braking, High Slip Braking, PID Control (with sleep function), Energy Saving Control, MEMOBUS/Modbus Comm. (RS-422/485 max, 115.2 kbps), Fault Restart, Application Presets, DriveWorksEZ (customized function), Overexcitation Deceleration, Inertia (ASR) Tuning, Overvoltage Suppression, High Frequency Injection
Motor Protection		Motor overheat protection based on output current
Instantaneous Overcurrent Protection		Drive stops when output current exceeds 200% of rated output current (heavy duty rating)
Overload Protection		Drive stops after 60 seconds at 150% of rated output current (heavy duty rating)
DC Bus Overvoltage Protection	460V input	Stops when the DC bus is higher than approximately 820 Vdc
	575V input	Stops when the DC bus is higher than approximately 1040 Vdc
	690V input	Stops when the DC bus is higher than approximately 1196 Vdc
DC Bus Under Voltage Protection	460V input	Stops when the DC bus is lower than approximately 380 Vdc
	575V input	Stops when the DC bus is lower than approximately 475 Vdc
	690V input	Stops when the DC bus is lower than approximately 570 Vdc
Momentary Power Loss Ride Through		Immediately stops after a 15 mSecs or longer power loss (default). Continuous operation during a power loss shorter than 2 seconds (standard)
Heatsink Overheat Protection		Thermistor
Stall Prevention		Stall prevention is available during acceleration/deceleration and during constant speed operation
Ground Fault Protection		Protection by electronic circuit
Charge LED Indicator		Charge LED remains on until DC bus voltage becomes 50 V or less
Discharging Time		Approximately 10 minutes or until DC bus voltage becomes 50 V or less

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Environment	Area of Use	Indoors, Inside a cabinet or panel
	Ambient Operating Temperature	-10~45° c
	Humidity	95% or less (non condensing)
	Storage Temperature	-20~60°
	Altitude	Up to 1000 meters
	Vibration	10 Hz~55 Hz, 2.0m/s ²
Protection Design		IP00
Safety Standard		UL 508C