## **TECO** Westinghouse

## New E HIGH HP D GA7200 HIII

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JA/2010

## **TECO-Westinghouse is proud to announce the extension of its GA7200** product line to include 250 - 450 HP Constant Torque, AC Drives.

**PROVEN DESIGN** - Robust engineering combined with the latest power electronics • NEMA 1 ENCLOSURE IS STANDARD - Heavy Duty Package is ready to install - no need to buy a separate enclosure • COMPACT SIZE - Small footprint allows the drive to be easily placed into a control panel for a complete systems solution • CLEAN OUTPUT WAVEFORM - Provides smooth, quiet operation of the motor • COMPETITIVE COST - Best value in the Industry

GA7200-4250-N1       250       3400       52.36       28.74       15.04       370         GA7200-4250-N1       300 / 350       600.0       52.36       28.74       15.04       330         Characteristics       GA7200-4450-N1       400 / 450       600.0       52.36       28.74       15.04       435         Output       Characteristics       GA7200 NEMA 1       380 - 460V       250 - 450HP       Constant Torque         Rated Output Frequency       460 Volt       250 - 450HP       3-Phase, 380 - 460V       50/60Hz         Power Supply       Rated fourth Voltage & Frequency       460 Volt       250 - 450HP       3-Phase, 380 - 460V       50/60Hz         Control       Control Mode       VHz       LED Display       +10%, -15%       +15%         Control Mode       VHz       LED Display       -1.400Hz       0.1 + 00Hz       -0.410/Fz         Overload Capacity       Constant Torque 10% Rated Output Current for 60 Seconds       0.1 + 00Hz       -0.140/Fz       -1.400/Fz         Overload Capacity       Constant Torque 10% Rated Output Current for 60 Seconds       0.1 + 00Hz       -0.140/Fz       -1.400/Fz       -0.140/Fz         Overload Capacity       Constant Torque 10% Rated Output Current for 60 Seconds       0.1 + 00Hz       -0.140/Fz       <	Product Details	Model Number HP Constant Torque	Drive Amps Constant Torque	Height	Width	Depth	Weight (lbs.)	
GA7200-4350-N1       300/350       4500       52.36       28/74       15.04       330         Output Characteristics       GA7200-4450-N1       400/450       600.0       52.36       28/74       15.04       435         Output Characteristics       GA7200-4450-N1       400/450       250 - 450HP       Constant Torque         Maximum Voltage Rated Output Frequency       460 Volt       250 - 450HP       3-Phase, 380 - 460V, 50/60Hz         Power Supply Rated Input Voltage & Frequency Voltage Fluctuation       460 Volt       250 - 450HP       3-Phase, 380 - 460V, 50/60Hz         Control Characteristics       Operation Mode Carrier Frequency Control Mode Carrier Frequency Control Mode Carrier Frequency Control Mode Carrier Frequency Setting Resolution       VHz       LED Display Programmable: 0.4 - 20Hz       0.1 - 400Hz         Overoad Capacity       Viriage Reference: 0.01Hz AccelDecel Time       On 10% (F1+4/1+F)       Digital Command: 0.01% (F1+4/1+F)         Protective Functions       Stall Prevention       15 Preset V/F Patterns       15 Preset V/F Patterns       10 + 600 Seconds         Vericad Prevention Instantacous Corcurrent Motor Coasts to a Stop if Approximately 20% of Rated Output Current for 60 Seconds       0.1 + 600 Seconds       0.1 + 600 Seconds         Overoidad Prevention Instantacous Corcurrent Motor Coasts to a Stop if Approximately 20% of Rated Output Current Motor Coasts to a Stop if Approximately 20% of Rated Outpu	Details	GA7200-4250-N1 250	340.0	52.36	28.74	15.04	370	
GA7200-4450-N1     400 / 450     600.0     52.36     28.74     15.04     435       Output Characteristics     GA7200 NEMA 1 Maximum Voltage Rated Output Frequency     380 - 460V     250 - 450HP     Constant Torque       Power Supply     Rated Input Voltage & Frequency Voltage Fluctuation     460 Volt     3-Phase, 380 - 460V     3-Phase, 380 - 460V       Power Supply     Rated Output Frequency Voltage Fluctuation     460 Volt     250 - 450HP     3-Phase, 380 - 460V       Control Characteristics     Control Mode Carrier Frequency Pluctuation     VHz     250 - 450HP     3-Phase, 380 - 460V, 50/60Hz       Control Carrier Frequency Control Range Frequency Setting Resolution Voreload Capacity     Viriz Constant Torque: 105% (FH4 - 104 F) Analog Command: 0.1% (FT F+/-14 F) Digital Operator Reference: 0.016DHz     Digital Command: 0.1% (FT F+/-14 F) Digital Operator Reference: 0.016DHz       Overload Capacity     Constant Torque: 105% Rated Output Current for 60 Seconds Variable Torque: 105% Rated Output Current for 60 Seconds     0 - 100/DC, 4 - 20mA       Occurrent Momber OVF F Patterns Braking Torque     Stall Prevention at Acceleration and Constant Speed Operation Momentary Power Loss     Stall Prevention at Acceleration and Constant Speed Operation Momentary Power Loss       Stall Prevention     Instantaeous Overcurrent Motor Coasts to a Stop fi Inverter Bus Voltage drops to 4200/DC or below Momentary Power Loss     Stall Prevention Circuit Proveer Charge Indication (LED)       Control Control     Control Power     Stall		GA7200-4350-N1 300 / 350	450.0	52.36	28.74	15.04	390	
Output Characteristics         GA7200 NEMA 1 Maximum Voltage Rated Output Frequency Voltage Fuctuation         380 - 460V - 400 Hz         250 - 450 HP 3-Phase, 380 - 460V         Constant Torque           Power Supply Rated Input Voltage & Frequency Voltage Fuctuation         460 Volt         250 - 450 HP         3-Phase, 380 - 460V, 50/60 Hz + 10%, -15%           Control Characteristics         Control Mode Characteristics         Control Mode Characteristics         VHz         250 - 450 HP         3-Phase, 380 - 460V, 50/60 Hz + 10%, -15%           Control Characteristics         Operation Mode Characteristics         VHz         250 - 450 HP         3-Phase, 380 - 460V, 50/60 Hz + 10%, -15%           Control Characteristics         Operation Mode Characteristics         VHz         250 - 450 HP         3-Phase, 380 - 460V, 50/60 Hz + 10%, -15%           Control Characteristics         Operation Reference: 0.01%         -140 Hz         -1600 Hz         -140 Hz           Frequency Setting Resolution Number of V/F Patterns Haking Torque         Digital Operator Reference: 0.01 Hz Accel/Decol Time On 10 VDC, 4 - 20 mA         -10 VDC, 4 - 20 mA         -10 VDC, 4 - 20 mA           Protective Functions         Stal Prevention Instantaneous Overcument Motor Ocasis to a Stop if Inverter Bus Voltage exceeds 200 VDC         -10 VDC, 4 - 20 mA         -10 VDC, 20 mA           Control Control Control Power Ground Foult Power Ocasis to a Stop if Inverter Bus Voltage ecops to 420 VDC or below Momeniary Power Loss Overimet Prote		GA7200-4450-N1 400 / 450	600.0	52.36	28.74	15.04	435	
Characteristics       GA7200 NEMA 1 Maximum Voltage Rated Output Frequency       380 - 460V       250 - 450HP       Constant Torque         Power Supply       Rated Input Voltage & Frequency Voltage Fluctuation       460 Volt       250 - 450HP       3-Phase, 380 - 460V, 50/60Hz +15%         Power Supply       Rated Input Voltage & Frequency Voltage Fluctuation       460 Volt       250 - 450HP       3-Phase, 380 - 460V, 50/60Hz +15%         Control Characteristics       Control Mode Carrier Frequency Control Range Frequency Control Range Frequency Setting Resolution       ViHz LED Display Frequency Control Range Dial Cormand: 0.01% (+14 F - 104 F) Analog Command: 0.01% (F Pattern Frequency Setting Resolution Braking Torque       Approximately 200%         Protective       Stall Prevention Braking Torque       Approximately 20%       Frequency Carcent Motor Coasts to a Stop if Inverter Bus Voltage drops to 420VDC or below Motor Coasts to a Stop if Inverter Bus Voltage drops to 420VDC or below Motor Coasts to a Stop if Inverter Bus Voltage drops to 420	Output	107			1000			
Maximum Voltage Rated Output Frequency       460 Volt       3-Phase, 380 - 460V         Power Supply       Rated Output Frequency Voltage Fluctuation       460 Volt       250 - 450HP       3-Phase, 380 - 460V, 50/60Hz         Control       Control Mode       250 - 450HP       3-Phase, 380 - 460V, 50/60Hz       +10%, -15%         Control       Control Mode       VHz       LED Display       +10%, -15%         Carrier Frequency Fluctuation       Programmable: 04 - 2kHz       01 - 400Hz       Display         Frequency Control Range       01 - 400Hz       Display       Programmable: 04 - 2kHz       Display         Variance Control       Control Range       01 - 400Hz       Constant Control       Programmable: 04 - 2kHz         Variance Control       Constant Control       Constant Control       Constant Control       Constant Control         Overload Capacity       Constant Torque: 150% Rated Output Current for 60 Seconds       0 - 10VDC, 4 - 20mA       0 - 10VDC, 4 - 20mA         Protective       Stall Prevention       15 Preset U/F Patterns       15 Preset U/F Patterns, 10 - 400 - 400/C or 040 Potocion       Protective         Functions       Stall Prevention       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation         Notr Coasts to a Stop if Inverter Bus Voltage drops to 240XDC or below       Motor Coasts to a Stop if Inverter Bu	<b>Characteristics</b>	GA7200 NEMA 1	380 - 460V	250 - 450HP		Constant	Torque	
Rated Output Frequency     0 - 400Hz       Power Supply     Rated Input Voltage & Frequency Voltage Fucubation     460 Volt     250 - 450HP     3-Phase, 380 - 460V, 50/60Hz       Control Control Carrier Frequency Fluctuation     VHz     250 - 420HP     3-Phase, 380 - 460V, 50/60Hz       Control Carrier Frequency Control Range Frequency Control Range Frequency Accuracy     VHz     LED Display       Frequency Setting Resolution     Digital Cormand: 0.01% (+14'F - 104'F) Analog Command: 0.11% (/T'F+14'F)       Overload Capacity     Constant Torque: 150% Rated Output Current for 60 Seconds Variable Torque: 110% Rated Output Current for 60 Seconds       Overload Capacity     Constant Torque: 150% Rated Output Current for 60 Seconds       Number of VF Patterns     10 - 100DC + 2 0mA       Accel/Decel Time Braking Torque     Stall Prevention Instantaneous Overcurrent Motor Coasts to a Stop at Approximately 20%       Protective Functions     Stall Prevention Instantaneous Overcurrent Motor Coasts to a Stop at Mapproximately 20%       Stall Prevention Instantaneous Overcurrent Motor Coasts to a Stop aff Momentary Power Loss Overheat Protection Provided by Electronic Circuit Provided by Electronic Circuit Programmable, 0 - 10VDC, 420 mA (Option Card)       Cont		Maximum Voltage	460 Volt	3-Phase, 380	- 460V			
Power Supply Voltage Fluctuation Frequency Fluctuation         460 Volt         250 - 450HP         3-Phase, 380 - 460V, 50/60Hz +10%, -15%           Control Characteristics         Control Mode         VHz		Rated Output Frequency	0 - 400Hz					
Votage Fluctuation Frequency Fluctuation       +10%, -15% +/-5%         Control Characteristics Operation Mode Characteristics Operation Mode Characteristics Operation Number Of VF Patterns Braking Torque       V/Hz LED Display Programmable: 0.4 - 2kHz Oil - 400Hz Digital Operator Reference: 0.06HDz Constant Torque: 150% Rated Output Current for 60 Seconds 0 - 10VDC, 4 - 20mA Oil - 6000 Seconds (Independent Accel/Decel Time Settings) Distal Prevention Instantaneous Overcurrent Motor Coasts to a Stop if Inverter Bus Votage drops to 420VDC or below Momentary Power Loss Overheat Protection Ground Fault Dewer Charge Indication (LED)       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop if Inverter Bus Votage drops to 420VDC or below Motor Coasts to a Stop if Inverter Bus Votage drops to 420VDC or below Motor Coasts to a Stop if Inverter Bus Votage drops below 50VDC         Control	Power Supply	Rated Input Voltage & Frequency	460 Volt	250 - 450HP	3-P	hase, 380	- 460V. 50/60Hz	
Frequency Fluctuation     +/-5%       Control Characteristics     Control Mode Carrier Frequency Frequency Accuracy     V/Hz LED Display Programmable: 0.4 - 2kHz       Carrier Frequency Accuracy     Digital Command: 0.01% (+14 F - 104 F) Analog Command: 0.1% (77 F+/-14 F)       Frequency Setting Resolution     Digital Command: 0.1% (77 F+/-14 F)       Digital Command: 0.01% (+14 F - 104 F) Analog Command: 0.1% (77 F+/-14 F)       Overload Capacity     Constant Torque: 150% Rated Output Current for 60 Seconds Variable Torque: 110% Rated Output Current for 60 Seconds       Variable Torque: 150% Rated Output Current for 60 Seconds     0 - 10VDC, 4 - 20mA       Accel/Decel Time     0.1 - 6000 Seconds (Independent Accel/Decel Time Settings)       Number of V/F Patterns Braking Torque     Stall Prevention       Instantaneous Overcurrent Motor Overload Protection Overvoltage     Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasis to a Stop at Approximately 20% of Rated Output Current Electronic Themal Overload Relay Wotor Coasis to a Stop at Moverta Casis to a Stop of Inverter Bus Voltage exceeds 800/DC Undervoltage       Motor Coasis to a Stop at Movertary Power Loss lasting over 15ms Overheat Protection Ground Fault     Provided by Thermistor       Proveer Charge Indication (LED)     Charge Lamp stays ON until Bus Voltage drops below 50/DC       Control Connections     Control Rower Speed References 200 Optics     24/DC 15/DC, 20mA       Control Doug     Control Nower Serial Communications     Revel Potentinicat, Form C Relay, 250/AC, 1 Amp o		Voltage Fluctuation			+10	0%15%	,	
Control Characteristics       Control Mode Carrier Frequency Frequency Control Range Frequency Control Range Frequency Control Range Frequency Setting Resolution       VHz LED Display Programmable: 0.4 - 2kHz Digital Command: 0.1% (+14*F - 104*F) Analog Command: 0.1% (+14*F - 104*F) Digital Operator Reference: 0.0fb/dt Constant Torque: 150% Rated Output Current for 60 Seconds Variable Torque: 110% Rated Output Current for 60 Seconds 0 - 10VDC / + 2.0mA 0.1 - 6000 Seconds (Independent Accel/Decel Time Settings) 15 Preset V/F Patterns Braking Torque         Protective Functions       Stall Prevention Instantaneous Overcurrent Instantaneous Overcurent Motor Overload Protection Overroltage Undervoltage Momentary Power Loss Overheat Protection Ground Fault Power Charge Indication (LED)       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop if Inverter Bus Voltage drops below 50VDC Whote Coasts to a Stop affer Momentary Power Loss Overheat Protection Ground Fault Power Charge Indication (LED)       Stall Prevention circuit Provided by Electronic Circuit Programmable, 0 - 10VDC, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 20k Ohms 5 - 420mA (Input Impedance 20k Ohms 5 - 420mA (Digital Inputs Digital Inputs Digital Outputs Digital Outputs Digi		Frequency Fluctuation			+/-5	5%		
Control         Control         Control         Control           Characteristics         Operation Mode         LED Display           Programmable: 0.4 - 2kHz         Programmable: 0.4 - 2kHz           Carrier Frequency Control Range         Digital Command: 0.1% (77 F+/-14/F)           Prequency Setting Resolution         Digital Operator Reference: 0.01Hz           Analog Reference:         0.01+2           Overtoad Capacity         Constant Torque: 150% Rated Output Current for 60 Seconds           Variable Torque:         10/L - 2.20mA           Accel/Decel Time         0.1 + 000L × - 20mA           Number of V/F Pattems         15 Preset V/F Pattems, 15 Preset V/F Pattem           Braking Torque         Approximately 20%           Protective         Stall Prevention           Functions         Stall Prevention           Instantaneous Overcurrent         Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800/DC           Voerload Protection         Overhead Protection           Overthead Protection         Prover Charge Indication (LED)           Overthead Protection         Protected by Thermistor           Overthead Protection         Protected by Thermistor           Overthead Protection         Provee Charge Indication (LED)           Control         Control Power         24/DC </td <td></td> <td></td> <td>N /// 1</td> <td></td> <td> 10</td> <td>181</td> <td></td>			N /// 1		10	181		
Characteristics       Operation models       LED Display         Carrier Frequency       Control Range       0.1 - 400Hz         Programmable: 0.4 - 2kHz       0.1 - 400Hz         Frequency Accuracy       Digital Command: 0.01% (7TF+/14*F)         Prequency Setting Resolution       Digital Command: 0.01% (7TF+/14*F)         Digital Command: 0.1% (7TF+/14*F)       Digital Command: 0.00%0Hz         Overload Capacity       Constant Torque: 150% Rated Output Current for 60 Seconds         Variable Torque: 10% Rated Output Current for 60 Seconds       0 - 10VDC, 4 - 20mA         Acce/Decel Time       0.1 - 6000 Seconds (Independent Accel/Decel Time Settings)         Number of V/F Patterns       15 Preset V/F Patterns, 1 Custom V/F Pattern         Braking Torque       Approximately 20%         Protective       Stall Prevention         Host or Coasts to a Stop at Approximately 20% of Rated Output Current         Motor Coasts to a Stop at Approximately 20% of Rated Output Current         Prover Large       Motor Coasts to a Stop at Approximately 20% of Rated Output Current         Prodective       Stall Prevention         Noter Coasts to a Stop atter Momentary Power Loss       Motor Coasts to a Stop atter Momentary Power Loss         Overhoat Raut       Prodectorins Circuit         Power Charge Indication (LED)       Charge Lamp stays ON until Bus Voltage drops	Control Characteristics	Control Mode	V/HZ					
Control Frequency Control Range       Producting         Frequency Control Range       0.1 - 400Hz         Frequency Accuracy       Digital Command: 0.01% (+14'F - 104'F)         Analog Command: 0.01% (7'F+/14'F)         Digital Command: 0.01% (*14'F - 104'F)         Overload Capacity       Constant Torque: 150% Rated Output Current for 60 Seconds         Variable Torque: 110% Rated Output Current for 60 Seconds         Variable Torque: 100% Rated Output Current for 60 Seconds         Variable Torque: 100% Rated Output Current for 60 Seconds         Variable Torque: 100% Rated Output Current for 60 Seconds         Variable Torque: 100% Rated Output Current for 60 Seconds         Variable Torque: 100% Rated Output Current for 60 Seconds         Number of V/F Patterns       15 Preset VF Patterns, 1 Custom V/F Pattern         Braking Torque       Approximately 20%         Protective       Stall Prevention         Hastantaneous Overcurrent       Motor Coasts to a Stop if Inverter Bus Voltage drops to 420/DC or below         Motor Coasts to a Stop if Inverter Bus Voltage drops to 420/DC or below         Motor Coasts to a Stop if Inverter Bus Voltage drops below 50/DC         Control       Control Power         Speed Reference Supply       15/DC, 20mA         Output       Programmable, 0 - 10/DC, 1put Impedance 200 Ohms         A-20mA, Input Impedance 20	Characteristics		vioce LED Display					
Frequency Accuracy       Digital Command: 0.01% (+14'F - 104'F) Analog Command: 0.1% (77'F+/14'F)         Frequency Setting Resolution       Digital Command: 0.1% (77'F+/14'F)         Overload Capacity       Constant Torque: 150% Rated Output Current for 60 Seconds Variable Torque: 110% Rated Output Current for 60 Seconds         Frequency Setting Signal Accel/Decel Time       0.1 - 6000 Seconds (Independent Accel/Decel Time Settings)         Number of VIF Patterns Braking Torque       15 Preset VIF Patterns         Braking Torque       Stall Prevention Instantaneous Overcurrent Instantaneous Overcurrent Motor Coveroid Protection Overvoltage       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop at Approximately 20%         Protective Functions       Stall Prevention Instantaneous Overcurrent Instantaneous Overcurrent Motor Coasts to a Stop if Inverter Bus Voltage drops to 420/DC or below Momentary Power Loss Overheat Protection Ground Fault       Stall Prevention Circuit Provided by Electronic Circuit         Control Control Control Control Control Power Speed Reference Supply Digital Outputs       Control Power 24VDC       24VDC         Auxiliary Analog Input Analog Outputs       1 Programmable, 0 - 10VDC, 20 Mns 4 - 20mA, Input Impedance 20 KOhms 4 - 20mA, Input Impedance 20 KOhms 4 - 20mA, Option Card)       20 Watts 1 Programmable, 0 - 10VDC, 20 Mns 6 Digital Outputs         Environmental Conditions       Location       Indoor (Protected from Dust and Corosive Gases) +14 to 104'F (Not Frozen)         Serial Communications       Pro		Carrier Frequency		· - ZKHZ				
Prequency Accuracy       Digital Command: 0.01% (+1 + - 104 F) Analog Command: 0.01% (+1 + - 104 F) Digital Operator Reference: 0.0660Hz         Overload Capacity       Constant Torque: 150% Rated Output Current for 60 Seconds Variable Torque: 110% Rated Output Current for 60 Seconds 0 - 10VDC, 4 - 20mA         Accel/Decol Time Accel/Decol Time Number of V/F Pattems Braking Torque       0.1 - 6000 Seconds (Independent Accel/Decol Time Settings)         Number of V/F Pattems Braking Torque       0.1 - 6000 Seconds (Independent Accel/Decol Time Settings)         Number of V/F Pattems       15 Preset V/F Patterns, 1 Custom V/F Pattern Motor Overload Protection         Functions       Stall Prevention Instantaneous Overcurrent Motor Overload Protection Overvoltage       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop af Approximately 200% of Rated Output Current Electronic Thermal Overload Relay         Wotor Coasts to a Stop af Inverter Bus Voltage exceeds 800VDC Undervoltage       Wotor Coasts to a Stop af Inverter Bus Voltage exceeds 800VDC below Motor Coasts to a Stop affer Momentary Power Loss Overheat Protection Ground Fault       Provided by Electronic Circuit         Power Charge Indication (LED)       Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control Connections       Control Power Speed Reference Supply       24VDC 15/DC, 20mA         Auxiliary Analog Input Analog Outputs       1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms 4 - 20mA, Input Impedance 20K Ohms 4 - 20mA, RS+485 MODBUS Protocol (SC-M Option Card)         Bigital Inp		Frequency Control Range	U.I - 400HZ		104°E)			
Frequency Setting Resolution       Digital Operator Reference: 0.01/1z         Analog Geference: 0.06/60Hz       Constraint Torque: 150% Rated Output Current for 60 Seconds         Variable Torque: 100% Rated Output Current for 60 Seconds       Variable Torque: 10% Rated Output Current for 60 Seconds         Number of V/F Patterns Braking Torque       0.1-6000 Seconds (Independent Accel/Decel Time Settings)         Number of V/F Patterns Braking Torque       0.1-6000 Seconds (Independent Accel/Decel Time Settings)         Protective Functions       Stall Prevention Instantaneous Overcurrent Motor Overtoad Protection Overvoltage       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop at Approximately 20%         Overtolage Current Motor Overtoad Protection Ground Fault       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop at Approximately 20% of Rated Output Current Electronic Thermal Overload Relay         Notor Coasts to a Stop of Inverter Bus Voltage drops to 420VDC or below Motor Coasts to a Stop at Momentary Power Loss Overheat Protection Ground Fault       Stall Prevention at Acceleration Circuit Provided by Electronic Circuit         Prower Charge Indication (LED)       Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control Control       Control Power Speed Reference Supply       24VDC         Auxiliary Analog Input Analog Outputs       1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms 4 - 20mA, Input Impedance 20B Ohms 4 - 20mA, Input Impedance 20B Ohms 4 - 20mA, Chorgur Cardue)		Frequency Accuracy	Digital Command: $0.01\%$ (+14 <sup>°</sup> F - 104 <sup>°</sup> F)					
Overload Capacity       Analog Reference: 0.06/60Hz         Overload Capacity       Constant Torque: 150% Rated Output Current for 60 Seconds         Variable Torque: 150% Rated Output Current for 60 Seconds         Accel/Decel Time       0.1 - 6000 Seconds (Independent Accel/Decel Time Settings)         Number of V/F Pattems       15 Preset V/F Pattems, 1 Custom V/F Pattern         Braking Torque       Stall Prevention         Instantaneous Overcurent       Motor Overload Protection         Motor Overload Protection       Stall Prevention and Constant Speed Operation         Overheat Protection       Stall Prevention and Constant Speed Operation         Motor Overload Protection       Overheat Protection         Overheat Protection       Stall Prevention and Constant Speed Operation         Overheat Protection       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC         Motor Overload Protection       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC         Overheat Protection       Provided by Electronic Circuit         Power Charge Indication (LED)       Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control       Speed Reference Supply         External Speed Potentiometer, 0 - 10VDC, 1put Impedance 20K Ohms       4 - 20mA, Input Impedance 20K Ohms         Auxiliary Analog Input       1 Programmable, 0 - 10VDC, 1 Armp or 30VDC, 1 Amp or 30VDC, 1 Amp		Frequency Setting Resolution	Analog Command: 0.1% (77 F+/-14 F) Digital Operator Reference: 0.01Hz					
Overload Capacity         Constant Torque: 150% Rated Output Current for 60 Seconds Variable Torque: 110% Rated Output Current for 60 Seconds           Frequency Setting Signal Accel/Decel Time Number of V/F Pattems         0.1 0/DC, 4 - 20mA           Accel/Decel Time Number of V/F Pattems         15 Preset V/F Pattems, 1 Custom V/F Pattem           Braking Torque         Approximately 20%           Protective Functions         Stall Prevention Instantaneous Overcurrent Motor Overolage         Stall Prevention Instantaneous Overcurrent Motor Overolage           Whomentary Power Loss Overheat Protection Overvoltage         Stall Prevention Motor Coasts to a Stop at Approximately 200% of Rated Output Current Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800/DC           More Charge Indication (LED)         Protected by Thermistor Provided by Electronic Circuit Power Charge Indication (LED)           Control Control         Speed Reference Supply External Frequency Command         24VDC (ShyDC, 20mA           Auxiliary Analog Input Analog Outputs         1 Programmable, 0 - 10VDC, Aro Ohms 4 - 20mA, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 20k Ohms 5 Programmable, 0 - 10VDC, C, 420 mA (Option Card)           Bigital Inputs         1 Programmable, 0 - 10VDC, 2K Ohms Minimum, 2 Watts 1 Programmable, O - 10VDC, C, 420 mA (Option Card)           Bigital Inputs         1 Programmable, 0 - 10VDC, 420 mA (Option Card)           Bigital Inputs         1 Programmable, Open Collector, 48VDC, 50mA           Serial Communications         RS-485		Trequency Cetting Resolution	Analog Reference: 0.06/60Hz					
Variable Torque: 110% Rated Output Current for 60 Seconds         Accel/Decel Time         Number of V/F Patterns         Braking Torque         Protective         Stall Prevention         Instantaneous Overcurrent         Motor Overolage         Undervoltage         Undervoltage         Momentary Power Loss         Overolage         Motor Coasts to a Stop at Approximately 200% of Rated Output Current         Motor Coasts to a Stop at Approximately 200% of Rated Output Current         Electronic Thermal Overload Protection         Ground Fault         Power Charge Indication (LED)         Control         Control Opigital Inputs         Auxiliary Analog Input         Analog Outputs         Digital Inputs         Digital Outputs         Digital Outputs         Digital Outputs         Digital Outputs         Serial Communications         Environmental         Conditions         Conditions         Antiger Temperature         Stall Prevention         Digital Inputs         Digital Norus         Digital Norus         Digital Norus         Nore Cation		Overload Capacity	Constant Torque: 150% Rated Output Current for 60 Seconds					
Frequency Setting Signal Accel/Decel Time       0 - 10VDC, 4 - 20mA         Number of V/F Patterns Braking Torque       0.1 - 6000 Seconds (Independent Accel/Decel Time Settings)         Protective Functions       Stall Prevention Instantaneous Overcurrent Motor Overload Protection Overvoltage       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop at Approximately 200% of Rated Output Current Electronic Thermal Overload Relay         Whoter Overload Protection Overvoltage       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC         Momentary Power Loss Overheat Protection Ground Fault Power Charge Indication (LED)       Provided by Electronic Circuit Provided by Electronic Circuit Provided by Electronic Circuit Power Charge Indication (LED)         Control Control Control Digital Inputs       Control Power Analog Outputs Digital Inputs       24VDC 15VDC, 20mA         Auxiliary Analog Input Analog Outputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 20k Ohms External Speed Potentiometer, 0 - 10VDC, 24: Ohms Minimum, 2 Watts 1 Programmable, 0 - 10VDC, 24: Ohms Minimum, 2 Watts 1 Programmable, 0 - 10VDC, 24: Ohms Minimum, 2 Watts 1 Programmable, 0 - 10VDC, 1 Amp or 30VDC, 1 Amp or 16s 2 Programmable, Open Collector, 48VDC, 50mA         Environmental Conditions       Location Ambient Temperature Storage Temperature 4 to 140 <sup>+</sup> F (Not Frozen)         Auxiliary Analog Input Analog Outputs       Indoor (Protected from Dust and Corrosive Gases) +14 to 104 <sup>+</sup> F (Not Frozen)         Serial Communications			Variable Torque: 110% Rated Output Current for 60 Seconds					
Accel/Decel Time       0.1 - 6000 Seconds (Independent Accel/Decel Time Settings)         Number of V/F Pattems       15 Preset V/F Pattems         Braking Torque       Approximately 20%         Protective       Instantaneous Overcurrent         Functions       Instantaneous Overcurent         Motor Overload Protection       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation         Motor Overload Protection       Motor Coasts to a Stop at Approximately 20% of Rated Output Current         Undervoltage       Motor Coasts to a Stop at Approximately 200% of Rated Output Current         Undervoltage       Motor Coasts to a Stop at Approximately 200% of Rated Output Current         Voervoltage       Motor Coasts to a Stop at Approximately 200% of Rated Output Current         Overvoltage       Motor Coasts to a Stop at Approximately 200% of Rated Output Current         Provided by Electronic Circuit       Proverdad Relay         Overvoltage       Motor Coasts to a Stop after Momentary Power Loss lasting over 15ms         Overtheat Protection       Provided by Electronic Circuit         Power Charge Indication (LED)       Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control       Control Power       24VDC         Connections       Speed Reference Supply       15 VDC, 20mA         External Speed Potentometer, 0 - 10VDC, 2K Ohms Minimun, 2 Watts		Frequency Setting Signal	0 - 10VDC, 4 - 20mA					
Number of V/F Patterns Braking Torque       15 Preset V/F Patterns, 1 Custom V/F Pattern Approximately 20%         Protective Functions       Stall Prevention Instantaneous Overcurrent Motor Overload Protection Overvoltage       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop at Approximately 20% of Rated Output Current Electronic Thermal Overload Relay         Overvoltage       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC Undervoltage       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC Momentary Power Loss Overheat Protection Ground Fault       Provided by Electronic Circuit         Power Charge Indication (LED)       Provided by Electronic Circuit       Provided by Electronic Circuit         Power Charge Indication (LED)       Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control Control Domections       Control Power Speed Reference Supply External Frequency Command       24VDC 15VDC, 20mA         Auxiliary Analog Input Analog Outputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 20k Ohms 5 - 10VDC, Input Impedance 20k Ohms 6 - 10VDC, Input Impedance 20k Ohms 6 - 10VDC, Input Impedance 20k Ohms 7 - 10VDC, Input Impedance 20k Ohms 7 - 20mA, Input Impedance 20k Ohms 8 Digital Inputs 7 Programmable, 0 - 10VDC, 4-20 mA (Option Card) 8 Digital Inputs 7 Programmable, 0 - 10VDC, 1Amp or 30VDC, 1Amp or less 7 Programmable, Form A Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less 7 Programmable, Form A Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less 7 Programmable, Open Collector, 48VDC, 50mA 8 - 485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions		Accel/Decel Time	0.1 - 6000 Seconds (Independent Accel/Decel Time Settings)					
Braking Torque         Approximately 20%           Protective Functions         Stall Prevention Instantaneous Overcurrent Motor Overload Protection Overvoltage         Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop at Approximately 200% of Rated Output Current Electronic Thermal Overload Relay           Overvoltage         Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC Undervoltage         Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC or below Momentary Power Loss Overheat Protection Ground Fault         Motor Coasts to a Stop after Momentary Power Loss lasting over 15ms Protected by Thermistor           Provided by Electronic Circuit Power Charge Indication (LED)         Provided by Electronic Circuit Power Charge Indication (LED)         Charge Lamp stays ON until Bus Voltage drops below 50VDC           Connections         Control Power Speed Reference Supply External Speed Potentiometer, 0 - 10VDC, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 20k Ohms 5 a Digital Inputs         1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms 1 Programmable, 0 - 10VDC, Aramp or 30VDC, I Amp or 30VDC, I Amp or 30VDC, I Amp or 1 Bus 2 Programmable, Open Collector, 48VDC, 50mA Serial Communications           Environmental Conditions         Location         Indoor (Protected from Dust and Corrosive Gases) +14 to 104'F (Not Frozen) - 4 to 140'F           Humidity Witration         Condensing)         (Sat 104'C 20Hz un to 0.26 at 20 - 50Hz		Number of V/F Patterns	15 Preset V/F Patterns. 1 Custom V/F Pattern					
Protective Functions       Stall Prevention Instantaneous Overcurrent Motor Overload Protection Overvoltage       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop at Approximately 200% of Rated Output Current Electronic Thermal Overload Relay         Overvoltage       Womentary Power Loss Overheat Protection Ground Fault Power Charge Indication (LED)       Stall Prevention at Acceleration/Deceleration and Constant Speed Operation Motor Coasts to a Stop at Approximately 200% of Rated Output Current Electronic Thermal Overload Relay         Control Connections       Control Power Speed Reference Supply External Frequency Command       Provided by Electronic Circuit Charge Lamp stays ON until Bus Voltage drops below 50VDC         Connections       Control Power Speed Reference Supply External Frequency Command       24VDC 15VDC, 20mA 0 - 10VDC, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 20k Ohms External Speed Potentiometer, 0 - 10VDC, 24C Ohms Minimum, 2 Watts 1 Programmable, 0 - 10VDC, A+20 mA (Option Card)         Digital Inputs       B bigital Inputs Digital Outputs       8 bigital Inputs 8 bigital Inputs Digital Outputs         Serial Communications       Icocation Ambient Temperature Storage Temperature Humidity       Indoor (Protected from Dust and Corrosive Gases) +14 to 104'F (Not Frozen) - 4 to 140'F		Braking Torque	Approximately 20%					
Functions       Instantaneous Overcurrent Motor Overload Protection Overvoltage       Motor Coasts to a Stop at Approximately 200% of Rated Output Current Electronic Thermal Overload Relay         Overvoltage       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC Undervoltage       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC or below Momentary Power Loss Overheat Protection Ground Fault         Control       Control Power       Provided by Electronic Circuit Power Charge Indication (LED)       Provided by Electronic Circuit Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control       Control Power       24VDC         Control Connections       Control Power       24VDC         Auxiliary Analog Input Analog Outputs       15VDC, 20mA         Auxiliary Analog Input Analog Outputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms External Speed Potentiometer, 0 - 10VDC, 2K Ohms Minimum, 2 Watts         Digital Inputs       B Digital Inputs       8 Digital Inputs (4 Programmable)       1 Programmable, 0 - 10VDC, 1Amp or 30VDC, 1Amp or less 1 Programmable, Form C Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less 2 Programmable, Open Collector, 48VDC, 50mA         Environmental Conditions       Location       Indoor (Protected from Dust and Corrosive Gases)         +14 to 104'F (Not Frozen)       -4 to 140'F         +14 to 104'F (Not Prozen)       -4 to 140'F	Protective	Stall Prevention	Stall Prevention at A	cceleration/Dece	eleration ar	nd Constant	Speed Operation	
Motor Overload Protection Overvoltage       Electronic Thermal Overload Relay         Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC         Undervoltage       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC or below         Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC         Vervoltage       Motor Coasts to a Stop if Inverter Bus Voltage drops to 420VDC or below         Motor Coasts to a Stop after Momentary Power Loss       Provided by Electronic Circuit         Power Charge Indication (LED)       Control         Control       Control Power         Speed Reference Supply       24VDC         External Frequency Command       24VDC, 10put Impedance 20k Ohms         Auxiliary Analog Input       1 Programmable, 0 - 10VDC, 20 mA         Auxiliary Analog Unput       1 Programmable, 0 - 10VDC, 1put Impedance 20k Ohms         Analog Outputs       1 Programmable, 0 - 10VDC, 10put Impedance 20k Ohms         Digital Inputs       1 Programmable, 0 - 10VDC, 10put Impedance 20k Ohms         Digital Outputs       1 Programmable, 0 - 10VDC, 10put Impedance 20k Ohms         Serial Communications       1 Programmable, 0 - 10VDC, 10put Impedance 20k Ohms         Serial Communications       RS-485 MODBUS Protocol (SC-M Option Card)         Indoor (Protected from Dust and Corrosive Gases)       14 to 104	Functions	Instantaneous Overcurrent	Motor Coasts to a S	top at Approxima	ately 200%	of Rated C	Output Current	
Overvoltage       Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC         Undervoltage       Motor Coasts to a Stop if Inverter Bus Voltage drops to 420VDC or below         Morentary Power Loss       Overheat Protection         Ground Fault       Power Charge Indication (LED)         Power Charge Indication (LED)       Control Control         Control       Control Power         Speed Reference Supply       External Frequency Command         Auxiliary Analog Input       15VDC, 20mA         Auxiliary Analog Input       0 - 10VDC, Input Impedance 20k Ohms         Auxiliary Analog Uuputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms         Digital Inputs       9 Digital Inputs         Digital Outputs       8 Digital Inputs         Digital Outputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Serial Communications       RS-485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions       Ambient Temperature         Yuhation       4 to 140°F         Yuhation       4 to 140°F         Yuhation       4 to 140°F         Yuhation       14 to 120°F         Yuhation       14 to 120°F         Yuhation       16 at 10 to 20°F7 up to 20°C at 20 = 50°F7 <td></td> <td>Motor Overload Protection</td> <td colspan="5">Electronic Thermal Overload Relay</td>		Motor Overload Protection	Electronic Thermal Overload Relay					
Undervoltage Momentary Power Loss Overheat Protection Ground Fault Power Charge Indication (LED)       Motor Coasts to a Stop if Inverter Bus Voltage drops to 420VDC or below Motor Coasts to a Stop after Momentary Power Loss lasting over 15ms Protected by Thermistor Provided by Electronic Circuit Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control Connections       Control Power Speed Reference Supply External Frequency Command       24VDC 15VDC, 20mA 0 - 10VDC, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 20b Ohms External Speed Potentiometer, 0 - 10VDC, QK Ohms Minimum, 2 Watts 1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 20k Ohms Motor Coasts to a Stop after Momentary Power Loss lasting over 15ms Protected by Electronic Circuit Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control Connections       Control Power Speed Reference Supply External Speed Potentiometer, 0 - 10VDC, A-20 mA (O - 10VDC, Input Impedance 20k Ohms 1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Inputs Digital Outputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         B Digital Inputs Digital Outputs       8 Digital Inputs (4 Programmable) 1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less 2 Programmable, Open Collector, 48VDC, 50mA RS-485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions       Location Ambient Temperature Humidity       Indoor (Protected from Dust and Corrosive Gases) +14 to 104 'F (Not-Condensing) Vibration         Vibration With top       10 to 20Hz up to 02G at 20 - 50Hz		Overvoltage	Motor Coasts to a Stop if Inverter Bus Voltage exceeds 800VDC					
Momentary Power Loss Overheat Protection Ground Fault Power Charge Indication (LED)       Motor Coasts to a Stop after Momentary Power Loss lasting over 15ms Protected by Thermistor Provided by Electronic Circuit Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control Connections       Control Power Speed Reference Supply External Frequency Command       24VDC 15VDC, 20mA         Auxiliary Analog Input Analog Outputs Digital Inputs       24VDC 15VDC, 20mA       24VDC 15VDC, 20mA         Bigital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 206 Ohms External Speed Potentiometer, 0 - 10VDC, 4-20 mA (Option Card)         Digital Inputs       8 Digital Inputs       8 Digital Inputs (4 Programmable, Open Collector, 48VDC, 50mA         Serial Communications       RS-485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions       Location Ambient Temperature Humidity       Indoor (Protected from Dust and Corrosive Gases) +14 to 104°F (Not Frozen) - 4 to 140°F		Undervoltage	Motor Coasts to a Stop if Inverter Bus Voltage drops to 420VDC or below					
Overheat Protection Ground Fault Power Charge Indication (LED)       Protected by Thermistor Protected by Thermistor Provided by Electronic Circuit Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control Connections       Control Power Speed Reference Supply External Frequency Command       24VDC         Auxiliary Analog Input Analog Outputs       15VDC, 20mA         Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 250 Ohms External Speed Potentiometer, 0 - 10VDC, 2K Ohms Minimum, 2 Watts         Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms External Speed Potentiometer, 0 - 10VDC, Input Impedance 20K Ohms I Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Bigital Inputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Outputs       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less 1 Programmable, Open Collector, 48VDC, 50mA RS-485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions       Location Ambient Temperature Storage Temperature Humidity       Indoor (Protected from Dust and Corrosive Gases) +14 to 104°F (Not Frozen) -4 to 140°F 90% RH (Non-Condensing) (bration		Momentary Power Loss	Motor Coasts to a Stop after Momentary Power Loss lasting over 15ms					
Ground Fault       Provided by Electronic Circuit         Power Charge Indication (LED)       Provided by Electronic Circuit         Control       Control Power         Speed Reference Supply       24VDC         External Frequency Command       15VDC, 20mA         Auxiliary Analog Input       10VDC, Input Impedance 20k Ohms         Analog Outputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms         Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms         Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms         Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms         Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms         Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms         Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 20k Ohms         Digital Inputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Bigital Inputs       8 Digital Inputs (4 Programmable)         Digital Contract, Form C Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less         1 Programmable, Open Collector, 48VDC, 50mA         Serial Communications       RS-485 MODBUS Protocol (SC-M Option Card)         Environmental       Location       Indoor (Protected from Dust and Corrosive Gases)         Storage Temperatu		Overheat Protection	Protected by Thermistor					
Power Charge Indication (LED)       Charge Lamp stays ON until Bus Voltage drops below 50VDC         Control Connections       Control Power Speed Reference Supply External Frequency Command       24VDC         Auxiliary Analog Input Analog Outputs       15VDC, 20mA       0 - 10VDC, Input Impedance 20k Ohms 4 - 20mA, Input Impedance 250 Ohms External Speed Potentiometer, 0 - 10VDC, 2K Ohms Minimum, 2 Watts         Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms         Digital Inputs       9 Digital Inputs         Digital Outputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Inputs       8 Digital Inputs (4 Programmable)         Digital Outputs       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1Amp or less 1 Programmable, Open Collector, 48VDC, 50mA         Serial Communications       RS-485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions       Location Ambient Temperature Storage Temperature Humidity       Indoor (Protected from Dust and Corrosive Gases)         +14 to 104°F (Work Finding       +14 to 104°F (Not Frozen)       +14 to 104°F (Not Frozen)		Ground Fault	Provided by Electronic Circuit					
Control Connections       Control Power Speed Reference Supply External Frequency Command       24VDC 15VDC, 20mA         Auxiliary Analog Input Analog Outputs Digital Inputs       0 - 10VDC, Input Impedance 20k Ohms External Speed Potentiometer, 0 - 10VDC, 2K Ohms Minimum, 2 Watts 1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms External Speed Potentiometer, 0 - 10VDC, 2K Ohms Minimum, 2 Watts 1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms 5 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Inputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Outputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Communications       8 Digital Inputs (4 Programmable)         Serial Communications       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less 2 Programmable, Open Collector, 48VDC, 50mA         Environmental Conditions       Location Ambient Temperature Storage Temperature Humidity       Indoor (Protected from Dust and Corrosive Gases) +14 to 104°F (Not Frozen) -4 to 140°F         Vibration       1G at 10 to 20Hz up to 0.2G at 20 - 50Hz		Power Charge Indication (LED)	Charge Lamp stays ON until Bus Voltage drops below 50VDC					
Control       Control Power       24VDC         Connections       Speed Reference Supply       15VDC, 20mA         External Frequency Command       0 - 10VDC, Input Impedance 20k Ohms         Auxiliary Analog Input       1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms         Analog Outputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Inputs       8 Digital Inputs (4 Programmable)         Digital Outputs       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less         Serial Communications       RS-485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions       Location         Mambient Temperature       +14 to 104°F (Not Frozen)         +14 to 104°F (Not Frozen)       -4 to 140°F         Yibration       90% RH (Non-Condensing)         Vibration       1G at 10 to 20Hz up to 0.2G at 20 - 50Hz	O	Orighted Design		3 \24		1		
Connections       Speed Reference Supply       15/05/2, 20mA         External Frequency Command       0 - 10/DC, Input Impedance 20k Ohms         Auxiliary Analog Input       4 - 20mA, Input Impedance 250 Ohms         Auxiliary Analog Input       1 Programmable, 0 - 10/DC, Input Impedance 20K Ohms         Analog Outputs       1 Programmable, 0 - 10/DC, 4-20 mA (Option Card)         Digital Inputs       8 Digital Inputs (4 Programmable)         Digital Outputs       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less         Serial Communications       1 Programmable, Open Collector, 48VDC, 50mA         RS-485 MODBUS Protocol (SC-M Option Card)       Indoor (Protected from Dust and Corrosive Gases)         Ambient Temperature       +14 to 104°F (Not Frozen)         -4 to 140°F       -90% RH (Non-Condensing)         Vibration       16 at 10 to 20Hz up to 0.2G at 20 - 50Hz	Control Connections	Control Power Speed Reference Supply	24VDC 15VDC 20mA					
Environmental       Location         Conditions       Location         Ambient Temperature       Ambient Temperature         Conditions       Location         Indoor (Protected from Dust and Corrosive Gases)         +14 to 104°F         Yor 2042         Yor 2042         Conditions		External Frequency Command	0 - 10\/DC Input Impedance 20k Ohms					
Auxiliary Analog Input       Auxiliary Analog Input       External Speed Potentiometer, 0 - 10VDC, 2K Ohms Minimum, 2 Watts         Auxiliary Analog Input       1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms         Analog Outputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Inputs       8 Digital Inputs (4 Programmable)         Digital Outputs       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1Amp or less         Serial Communications       2 Programmable, Open Collector, 48VDC, 50mA         RS-485 MODBUS Protocol (SC-M Option Card)       Indoor (Protected from Dust and Corrosive Gases)         +14 to 104°F (Not Frozen)       +14 to 104°F (Not Frozen)         -4 to 140°F       -4 to 140°F         Yibration       16 at 10 to 20Hz up to 0.2G at 20 - 50Hz		External Frequency Command	4 20mA Input Impedance 20k Ohma					
Auxiliary Analog Input Analog Outputs Digital Inputs       1 Programmable, 0 - 10VDC, Input Impedance 20K Ohms         Digital Inputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Inputs       8 Digital Inputs (4 Programmable)         Digital Outputs       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1Amp or less         Serial Communications       1 Programmable, Open Collector, 48VDC, 50mA         Environmental Conditions       Location         Ambient Temperature Humidity       Indoor (Protected from Dust and Corrosive Gases)         +14 to 104°F (Not Frozen)       -4 to 140°F         Vibration       -4 to 140°F			4 - ZUMA, Input Imp	ontiomotor 0 1		Ohmo Mir	ainaum 2 Motto	
Auxiliary Analog input       1 Programmable, 0 - 10VDC, 10VD		Auvilian (Apolog Input	1 Programmable 0	10\/DC_lpout	Impodopo			
Analog Outputs       1 Programmable, 0 - 10VDC, 4-20 mA (Option Card)         Digital Inputs       8 Digital Inputs (4 Programmable)         Digital Outputs       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less         Digital Outputs       1 Programmable, Form A Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less         Serial Communications       2 Programmable, Open Collector, 48VDC, 50mA         RS-485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions       Indoor (Protected from Dust and Corrosive Gases)         +14 to 104°F       +14 to 104°F         Humidity       <90% RH (Non-Condensing)			1 Programmable 0			e ZUR UNN n Card	10	
Digital inputs       a Digital inputs (4 Programmable)         Digital Outputs       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1Amp or less         1 Programmable, Form A Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less         2 Programmable, Open Collector, 48VDC, 50mA         Serial Communications       RS-485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions       Location         Ambient Temperature       +14 to 104°F (Not Frozen)         Storage Temperature       -4 to 140°F         Humidity       <90% RH (Non-Condensing)		Analog Oulpuls	Digital Institute (4.5	- 10VDC, 4-201		n Caru)		
Digital Outputs       1 Fault Contact, Form C Relay, 250VAC, 1 Amp or 30VDC, 1Amp or less 1 Programmable, Form A Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or less 2 Programmable, Open Collector, 48VDC, 50mA RS-485 MODBUS Protocol (SC-M Option Card)         Environmental Conditions       Location         Ambient Temperature Storage Temperature Humidity       Indoor (Protected from Dust and Corrosive Gases) +14 to 104°F (Not Frozen) - 4 to 140°F         Vibration       16 at 10 to 20Hz up to 0.2G at 20 - 50Hz		Digital Inputs		rogrammable)		nn er 00\/F		
Image: Programmable, Form A Relay, 250VAC, 1 Amp or 30VDC, 1 Amp or les         2 Programmable, Open Collector, 48VDC, 50mA         Serial Communications       RS-485 MODBUS Protocol (SC-M Option Card)         Indoor (Protected from Dust and Corrosive Gases)         Ambient Temperature       +14 to 104°F (Not Frozen)         Storage Temperature       -4 to 140°F         Humidity       <90% RH (Non-Condensing)		Digital Outputs		m C Relay, 250	VAC, 1 An	np or 30VL	DO, I Amp or less	
Environmental Conditions       Location       Indoor (Protected from Dust and Corrosive Gases)         Mbient Temperature Storage Temperature Humidity       -4 to 140°F         Solution       16 at 10 to 20Hz up to 0.2G at 20 - 50Hz			1 Programmable, F	orm A Relay, 25	UVAC, 1 A	mp or 30V	DC, 1 Amp or les	
Environmental Conditions       Location       Indoor (Protected from Dust and Corrosive Gases)         Mobilitions       Ambient Temperature       +14 to 104°F (Not Frozen)         Storage Temperature       -4 to 140°F         Humidity       <90% RH (Non-Condensing)		Sorial Communications	2 Programmable, C	pen Collector, 4	8VDC, 50	mA rd)		
Environmental       Location       Indoor (Protected from Dust and Corrosive Gases)         Conditions       Ambient Temperature       +14 to 104°F (Not Frozen)         Storage Temperature       -4 to 140°F         Humidity       <90% RH (Non-Condensing)		Serial Communications	KS-485 MODBUS	Protocol (SC-M	Option Ca	ra)		
Conditions       Ambient Temperature       +14 to 104°F (Not Frozen)         Storage Temperature       -4 to 140°F         Humidity       <90% RH (Non-Condensing)	Environmental	Location	Indoor (Protected fr	om Dust and Co	orrosive Ga	ases)		
Storage Temperature     - 4 to 140°F       Humidity     <90% RH (Non-Condensing)	Conditions	Ambient Temperature	+14 to 104°F (Not F	rozen)		/		
Humidity     <90% RH (Non-Condensing)		Storage Temperature	- 4 to 140°F					
Vibration $1G$ at 10 to 20Hz up to 0.2G at 20 - 50Hz		Humidity	<90% RH (Non-Co	ndensing)				
		Vibration	1G at 10 to 20Hz I	ip to 0.2G at 20	- 50Hz			

Certifications& UL Standard: 1 - 200HP, UL Pending: 250 - 450HP CE: 1 - 450HP

## **TECO Westinghouse**