TOSHIBA

Leading Innovation

HEAVY DUTY

H9 ASD

LOW VOLTAGE DRIVE

THE POWERFUL HEAVY DUTY DRIVE SOLUTION

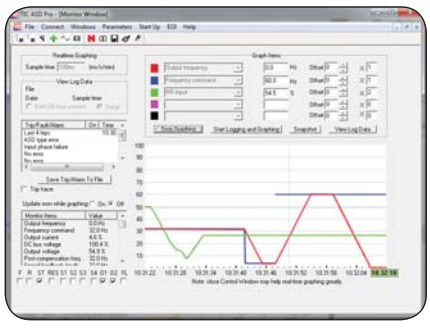
The H9 adjustable speed drive is the most advanced low voltage, heavy duty drive offered by Toshiba. Designed with the end-user in mind, this powerful drive combines a rugged, proven power platform with the latest power devices and an advanced 32-bit micro-processor to provide users with a smarter, stronger, more reliable drive with flexible application control.

- ***Powerful Heavy Duty Performance*** separates the H9 from the competition. The H9 is rated at 100% continuous current and 120% of its full load amps for up to 60 seconds. Toshiba's motor-over-flux braking technology allows the H9 to provide as much as 25% of its rated power for use in stopping a heavy or high inertia load without the use of a dynamic braking resistor.
- ***Superior On-the-Fly Control*** allows the user ultimate flexibility. The H9 can operate using open-loop or closed-loop vector control volts/hertz patterns. Toshiba's advanced vector-control algorithm offers speed regulation of 0.1% sensorless and 0.02% with encoder feedback. While operating in feedback vector control mode, the H9 can generate 100% motor torque at zero-speed to hold the shaft stationary while the motor is stopped. The H9 drive also offers advanced torque control operation with high torque accuracy and the ability to switch on-the-fly between speed and torque modes.

ADVANCED FEATURES FOR MAXIMUM DRIVE PERFORMANCE

- ***A Plain-English LED/LCD Interface Startup Wizard*** allows for quick, user-friendly programming and easy modification of the expanded parameter set. The keypad is able to store parameter sets which permit the user to set up multiple drives using these saved parameters. In addition, a built-in fault-logging chip records faults in the keypad memory. These records contain time and date stamps, as well as detailed information about operating conditions at the time of fault.

- ***My Function,Toshiba's Proprietary Programming Feature***, allows the user to utilize logic-type programming without the expense of a micro PLC. The user is able to read all analog and digital inputs and outputs as well as monitor and compare data. When programmed in a user-defined logic sequence, the use of this data will allow for a higher level of process control not normally seen in an adjustable speed drive. These functions, along with timers, counters, and comparators, allow the H9 to not only meet but exceed performance expectations.
- ***Eight Digital Inputs & Three Digital Outputs*** are an integral part of the H9's versatility. Each of these inputs/outputs can be programmed to any 1 of more than 67 possible functions. When used in conjunction with *My Function* programming, the capabilities of these terminals are virtually limitless. Additionally, the H9 is setting a new industry standard by providing an isolated analog input (4 to 20 mA) on its standard terminal strip.
- ***A Built-In Proportional/Integral/Derivative (PID) Control Algorithm*** provides regulation of critical processes. High and low speed limits, deviation limits, online switching, and a built-in sleep function are included to enhance the flexibility and reliability of PID process control.



- ***Toshiba's Proprietary Windows®-Based ASD Pro Software*** is available at no additional cost. This easy-to-use software is designed to provide a full range of programming and monitoring tools for the H9. ASD Pro offers trending and logging features that allow the user to save and transfer parameters and export data and graphs to an electronic file. Parameter groups and trending data can be easily converted into spreadsheets or graphs for field and validation reports.

COMMUNICATION OPTIONS

The H9 drive offers RS485 full-duplex or half-duplex communication options, as well as a wide array of easily installed option boards. These boards allow the user to communicate with a wide variety of systems. Options include:

- DeviceNet
- Ethernet/IP
- Modbus Plus
- Profibus DP
- Profinet IO
- Modbus TCP/IP

ADDITIONAL OPTIONS

The H9 can be supplied with additional options to expand control, allow greater flexibility, and provide better protection for a user's application. These options include:

- AC Line & Load Reactors
- DV/DT Long-Lead Filters
- Extended Terminal Cards
- Encoder Feedback Cards
- Harmonic Filters
- Remote-Mountable Keypads

OTHER SPECIAL FEATURES

- 100 or 200 KA Short Circuit Current Rating
- NEC 2005 Motor Overload Retention (No External Motor Overloads Required)
- NEMA 1 Enclosure
- UL Listed & Labeled

APPLICABLE INDUSTRIES

- Agriculture
- Manufacturing
- Metal
- Mining
- Oilfield
- Quarry
- Service/Repair
- Timber

APPLICABLE APPLICATIONS

- Centrifuges
- Conveyors
- Crushers
- Extruders
- Looms
- Mixers
- Shakers
- Slurry Pumps

H9 ASD

MODEL RANGE	0.75 to 125 HP	1 to 400 HP
Voltage Rating	200 to 240 V	380 to 480 V
POWER REQUIREMENTS		
Input Tolerance	Voltage: ±10%; Frequency ±2%	
Output Frequency	0 to 299 Hz	
CONTROL SPECIFICATIONS		
Control Method	Sinusodial Pulse-Width Modulation (PWM); Flux-Field Current Vector Control; Set Point Control (PID)	
Voltage Regulation	Main Circuit Voltage Feedback Control: Automatic, Fixed, & Off	
V/Hz Control	Constant Torque, Voltage Decrease Curve, Automatic Torque Boost, Sensorless Vector Control, 5-Point V/Hz Custom Curve, PM Drive, & PG Feedback Vector Control	
PWM Carrier Frequency	Adjustable 0.5 to 15 kHz (For Drive Specific Information Consult Factory)	
Frequency Setting	Rotary Encoder Integrated into EOI, 0 to 10 VDC, ±10 VDC, 4 to 20 mA, Digital Input, Binary Input, & Motorized Potentiometer Input	
Frequency Precision	Analog Input 0.2% of Maximum Output Frequency; Discrete/Communications Input 0.01% of Maximum Output Frequency	
Speed Regulation	Open Loop: Up to 0.1%, 60:1 Speed Range; Closed Loop: Up to 0.01%, 1000:1 Speed Range	
Main Protective Functions	Analog Input Loss, Overcurrent, Overvoltage, Inverter Overheat, Load-Side Short Circuit, Ground Fault, ASD Overload, Communications Error, Auto-Tuning Error, Emergency Stop, Undervoltage, Overtorque, Input/Output Phase Failure, Encoder Signal-Loss Error, Motor Overload, & Low Operating Current	
Retry	User-Set Number of Retries for Automatic System Restart After Trip	
Restart	Able to Smoothly Catch Freewheeling Motor (Bidirectional)	
Overload Current Rating	100% Continuous; 120% for One Minute	
CONTROL INTERFACE		
Digital Input	Eight Discrete Input Terminals Programmable to 67 Functions (May Be Increased Using Optional Hardware)	
Digital Output	Three Discrete Output Terminals Programmable to 84 Functions; Two Form-A Contacts & One Form-C Contact	
Analog Input	Three Programmable: One 4 to 20 mA or 0 to 10 VDC Isolated Input, One 0 to 10 VDC Input, & One ±10 VDC Input	
Analog Output	Two Programmable: One Programmable 4 to 20 mA or 0 to 10 VDC & One 4 to 20 mA Output	
Communication Ports	Two-Wire/Four-Wire RS485	
ELECTRONIC OPERATOR INTERFACE (EOI)		
Display	4x20 Graphical Plain-English Back-Lit LCD Display for Programming, Monitoring, & Diagnostics	
LED Indicators	Run (Red)/Stop (Green), Hand (Green), & DC Bus Charge Indicator (Red)	
Keys	Hand/Auto, ESC, Run, Mode, & Stop/Reset	
Monitoring	Frequency Command Screen; Multiple Parameters Displayed: Feedback, Torque, Torque Reference, Torque Current, Excitation Current, Digital Input Terminal Status, Digital Output Terminal Status, Analog Input Values, Analog Output Values, Output Current, DC Bus Voltage, Output Voltage, Run Time, Motor Load, Motor Overload, ASD Load, ASD Overload, DBR Load, DBR Overload, Input Power, Output Power, & Past Trips	
CONSTRUCTION		
Enclosure	RAL 7016 (Anthracite Grey); NEMA 1; Wall-Mount; Front Access Only	
Power Cables	Bottom Access for Input/Motor Cables	
Cooling	Forced-Air Cooled	
Standards & Compliances	IEEE, UL, ULC, NEMA, NEC, & American Recovery & Reinvestment Act Compliant (ARRA)	
AMBIENT CONDITIONS		
Ambient Temperature	-10 to 40°C	
Altitude	3300 ft. (1000 m) Above Sea Level (Up to 9900 ft. with Derating)	
Humidity	95% Maximum (Non-Condensing)	
Installation	Indoor; No Direct Sunlight; Protect from Explosive Gases	

TOSHIBA INDUSTRIAL PRODUCTS:

- Adjustable Speed Drives
- Motors
- Motor Controls
- Instrumentation & PLCs
- Uninterruptible Power Systems

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