TOSHIBA

Leading Innovation

AS1 ASD

LOW VOLTAGE DRIVE

DRIVEN BY POWERFUL SIMPLICITY

Designed with the end-user in mind, the AS1 drive combines a rugged, proven power platform with the latest technologies to provide users with a smarter, stronger, more reliable drive with flexible application control.

DESIGNED FOR ENHANCED RELIABILITY

- ***Advanced Design*** separates the AS1 from the competition. The modular construction of the AS1 allows the unit to be installed into nearly any application quickly and easily. The laminated bus-plane technology used in the AS1 allows for a reduced component count, enhanced reliability, and easier service.
- ***Simple Programming*** allows the user to operate the AS1 drive with little or no programming. At the same time, the AS1 maintains one of the most expansive parameter sets in the industry, allowing you to tailor the drive to your specific application.
- ***Tough Environmental Conditions*** are no problem for the AS1 drive. Designed to operate in extreme environments, the AS1 can operate in temperatures up to 122°F without derating and can also be configured for use in temperatures of up to 140°F. Designed to be used in a sealed cabinet, the AS1 allows integrators to mount the heat-sink externally to the drive cabinet for simple and efficient cooling of the unit.
- ***Improved Control*** is possible with the AS1's improved PID algorithm, making it easier than ever to dial in your process control application. New parameters such as a delay filter and a process control lower limit, and new functions such as the AS1's new speed PID and easy positioning algorithms, give the drive expanded capabilities to take on difficult applications.
- ***Powerful Performance*** is key to the AS1's success. The AS1 offers both sensorless and feedback vector control providing heavy duty performance. Toshiba's motor over flux braking technology allows the AS1 to provide as much as 30% of its rated power for use in stopping a heavy or high inertia load without the use of a dynamic braking resistor.

ADVANCED FEATURES FOR MAXIMUM DRIVE PERFORMANCE

- ***Built-In LED Interface*** allows for quick, user-friendly programming and easy modification of the expanded parameter set. The optional LCD keypad is able to store parameter sets which permit the user to set up multiple drives using these saved parameters.
- ***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 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.

- ***Eight Digital Inputs & Three Digital Outputs*** are an integral part of the AS1'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.

- ***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 provides a full range of programming and monitoring tools for the AS1. Trending and logging features allow the user to save and transfer parameters and export data and graphs to electronic files that easily convert into spreadsheets or graphs for field and validation reports.

COMMUNICATION OPTIONS

The AS1 drive offers two RS485 ports with one full-duplex and one half-duplex, 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 AS1 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

- Broad Range of Compliances
- NEC 2005 Motor Overload Retention (No External Motor Overloads Required)
- NEMA 1 Enclosure
- UL Listed & Labeled

APPLICABLE INDUSTRIES

- Manufacturing
- Metal & Mineral
- Mining
- Oil & Gas
- Quarry
- Service & Repair
- Timber

APPLICABLE APPLICATIONS

- Cupping Presses
- Crushers
- Looms
- Mixers
- Shakers
- Pump Jacks
- Punch Presses





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MODEL RANGE	0.5 to 100 HP	1 to 700 HP	2 to 700 HP
Voltage Rating	200 to 240 V	380 to 460 V	500 to 690 V
POWER REQUIREMENTS			
Input Tolerance	Voltage: ±10%; Frequency ±5%		
Output Frequency	0 to 500 Hz		
CONTROL SPECIFICATIONS			
Control Method	Sinusodial Pulse Width Modulation (PWM); Flux-Field Current Vector Control; Set Point Control (PID)		
V/Hz Control	Constant Torque, Voltage Decrease Curve, Automatic Torque Boost, Sensorless Vector Control, Five-Point V/Hz Custom Curve, PM Drive, & PG Feedback Vector Control		
PWM Carrier Frequency	Adjustable 1.0 to 16 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		
Main Protective Functions	Overcurrent, Overvoltage, Inverter Overheat, Load-Side Short Circuit, Ground Fault, ASD Overload, Communications Error, Auto-Tuning Error, Emergency Stop, Undervoltage, Overtorque, Open-Output Phase, Motor Overload, Low Operating Current, Option PCB Error, & Gate Array Error		
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; 150% 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 65 Functions; One Form-C Contact & Two Open Collector Outputs		
Analog Input	Three Programmable: One 4 to 20 mA, One 0 to 10 VDC Input, & One ±10 VDC Input		
Analog Output	Two Programmable: One 4 to 20 mA or 0 to 10 VDC & One 0 to 1 mA Output or 0 to 7.5 VDC		
Communication Ports	Two-Wire RS485 & Four-Wire RS485		
ELECTRONIC OPERATOR INTERFACE (EOI)			
Display	Integral 7 Segment LED Keypad for Programming, Monitoring, & Diagnostics		
LED Indicators	Run, Prg, Mon, %, Hz, & DC Bus Charge Indicator (Red)		
Keys	Run, Stop, Mode, Ent, Up, Down, & Easy		
Monitoring	Output Current, DC Voltage, Output Voltage, Run Time, Motor Load, Motor Overload, ASD Load, Output Power, RR Input, V/I Input, RX Input, RX2 Input, & AM/FM Output		
CONSTRUCTION			
Enclosure	ANSI-RAL7016 Charcoal Gray; NEMA; IP20; Wall Mount; Front-Access Only		
Power Cables	Top/Bottom Access for Input/Motor Cables		
Cooling	Forced-Air Cooled; Heat-Sink Out the Back (Option)		
Standards & Compliances	IEEE, UL, ULC, CSA, NEMA, NEC, CE, NOM-117, C-TICK, & GOST		
AMBIENT CONDITIONS			
Ambient Temperature	-10 to 50°C (60°C with Derate)		
Altitude	3300 ft. Above Sea Level		
Humidity	95% Maximum (Non-Condensing)		
Installation	Indoor; No Direct Sunlight; Protect from Corrosive Gases		

TOSHIBA INDUSTRIAL PRODUCTS:

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

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