

TOSHIBA

ADJUSTABLE SPEED DRIVES



AS1 Drive

Reliability in motion®



Toshiba's New ASD Product Line



AS1 Product Family

The AS1 drive builds on Toshiba's history of supplying powerful, reliable, and versatile drives. We have combined our best drive features with the latest technologies, making the AS1 the new contender in the PWM control drive market.

Advanced Design

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 means a reduced component count, better reliability, and easier service.

Simple Programming

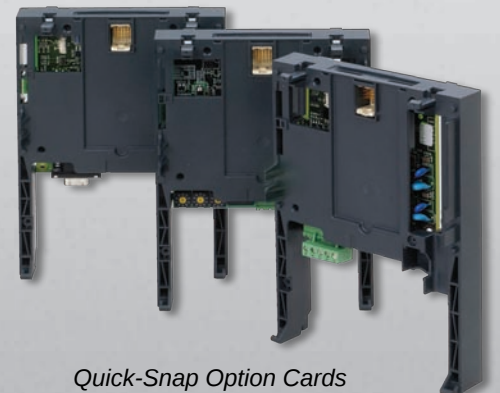
Toshiba's unified programming philosophy means that you can operate the AS1 drive with little or no programming. At the same time, the AS1 maintains one of the most expansive parameter sets in the industry, allowing you to fine-tune the drive for your specific application.

Tough Environment

The AS1 drive is designed to operate in extreme environments. It can operate in temperatures up to 122°F without derating and can also be configured for use in temperatures of up to 140°F. The AS1 is also designed to be used in a sealed cabinet design. This allows integrators to mount the AS1 heat-sink external to the drive cabinet for simple and efficient cooling of the unit.

Improved Control

The AS1's new PID algorithm makes 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.



Quick-Snap Option Cards

Rugged Design, Advanced Operations

Powerful Performance

The AS1 offers both sensorless and feedback vector control providing heavy duty performance. Using its new Motor-Over-Flux Braking Technology, the AS1 can 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 brake resistor.

Smart Operation

Toshiba's "My Function" programming set allows the AS1 to operate as a simple PLC. Basic logic function programming can now be done directly on the ASD.

Fault-Tracing

Issues with your application will no longer be a mystery with AS1's fault-tracing algorithm. By accessing the fault-tracing parameters, you can isolate exactly where the trouble is located.

Easy Communications

The AS1 is designed to accommodate multiple stackable option cards that mount underneath the unit's keypad quickly and easily. In addition, the drive can accept two inputs from external communication units via the two onboard RS485 communication ports.

Broad Compliance

The AS1 is certified by a broad range of governing and regulatory bodies making it a truly global product.

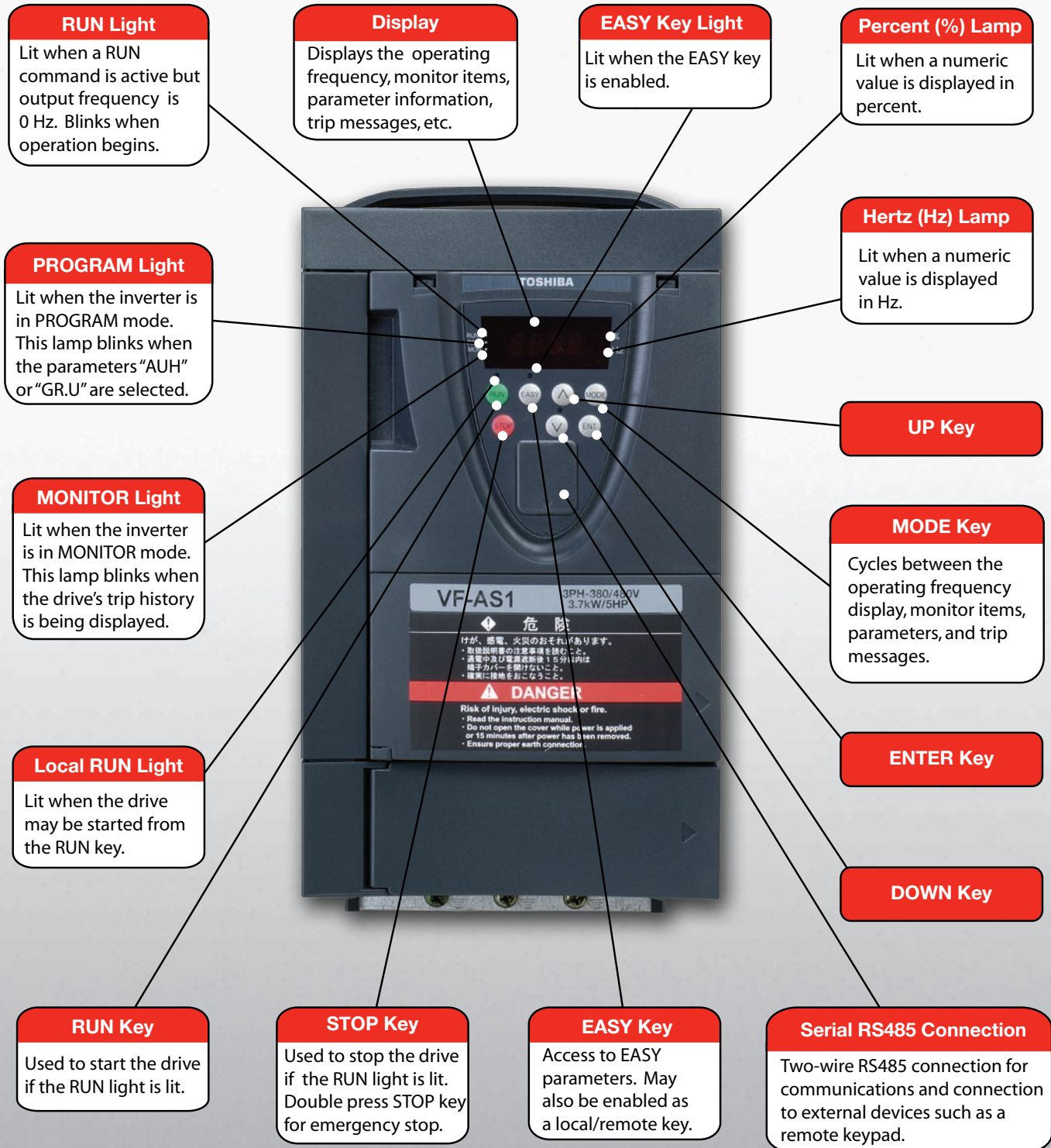


Large Horsepower AS1



Easy-to-Use Operation Panel

Names and Functions



AS1 Drive

Standard Specifications																				
Model Range		0.5 to 100 HP				1 to 800 HP				2 to 10 HP				2 to 700 HP						
Voltage Rating		200 to 240 V				380 to 460 V				500 to 600 V				500 to 690 V						
Input Tolerance		Voltage: ±10%, Frequency: ±5%																		
Current Overload		100% Continuous, 150% for 60 Seconds, 165% for 2 Seconds																		
DC Reactor		200 V Input Class, 15 to 60 HP and 400 V Input Class, 25 to 100 HP: Built-In DC Link Reactor; Reactors Required on Larger Units, Optional on Smaller Units (HP)																		
Dynamic Braking		Dynamic Braking Resistor Included on Units < 300 HP; Transistor for Larger Units/Resistor Sold Separately																		
Control System		Sinusoidal Pulse Width Modulation (PWM) Control																		
Output Frequency Range		0 to 500 Hz																		
Frequency Accuracy		Analog Input: ±0.2% of Maximum Output Frequency (at 25 ±10°C); Digital Input: ±0.01% (±0.022 Hz) of Output Frequency																		
Voltage/Frequency Characteristics		Constant Torque, Square Reduction Torque, Auto-Torque Boost, Sensorless and PG Feedback Vector Control, etc.																		
Jump frequencies		Voltage: ±10%, Frequency: ±5%																		
PID Control		Adjustment of Proportional Gain, Integral Time, Differential Time, and Delay Filter																		
Torque Control		Control of Output Motor Torque via Set Point from 0 to 10 V Analog Input																		
PWM Carrier Frequency Adjustment		200 V, 45 kW or 400 V, 75 kW or less, Adjustable Between 1.0 to 16 kHz; 200 V, 55 kW or 400 V, 90 kW or more, Adjustable Between 2.5 to 8 kHz																		
Analog Inputs		0 to 10 Vdc (Input Impedance Zin: 30 kΩ), 0 to ±10 Vdc (Zin: 22 kΩ), 4 to 20 mAdc (Zin: 242 Ω)																		
Analog Outputs		FM Terminal: 0 to 1 mA, 0 to 20 mA, 0 to 10 V: AM Terminal: 0 to 1 mA, Each Programmable to Any of 65 Functions																		
Digital Inputs		Up to 8 Digital Inputs, Each Programmable to 67 Functions, Normally Open or Normally Closed																		
Digital Outputs		One Form-C Relay (FM) Output (250 Vac, 2 A or 30 Vdc,1 A); Two Open Collector Outputs (24 Vdc, 5 mA)																		
Acceleration/Deceleration Time		0.01 to 6000 Seconds; Four Selectable or Automatic Acceleration/Deceleration Times; Two Adjustable S-Pattern Acceleration/Decelerations																		
DC Braking		Adjustment of DC Braking Start Frequency (0 to 120 Hz), Braking (0 to 100%), and Braking Time (0 to 20 Seconds); Includes Emergency Stop Braking and Motor Shaft Fix Control Functions																		
Forward Run/Reverse Run		F-CC Closed will Forward Run, R-CC Closed will Reverse Run, F-CC and R-CC Closed will Reverse Run; ST-CC Opened will Coast Stop; Emergency Stop Using Panel Operation or Terminal Board																		
Jog Run		Jog Mode Allows Jog Operation from Operation Panel; Jog Run Operation by Terminal Board Possible by Setting Parameters																		
Preset Speed Operation		15 Preset Speeds Available by Switch Input; Programmable Accel/Decel Time; Torque Limit and V/F																		
Retry		Capable of Restarting After Checking Main Circuit Elements in the Event of a Fault; Up to 10 Retries with Adjustable Delay (of up to 10 Seconds) Between Each Retry																		
Soft Stall		Automatic Load Reduction Control in the Event of Overload Condition (Default: OFF)																		
Cooling Fan ON/OFF		Cooling Fan Stops Automatically When Not Needed																		
Operation Panel Key Operation On/Off Control		Keypad Lockout Selectable Between STOP Key Only, MODE Key Only, etc.; All Key Operations can be Prohibited																		
Regen Power Ride Through		In case of a momentary power failure, the VFD can use regen energy to stay powered. (Default: OFF)																		
Auto-Restart Operation		AS1 can catch a spinning motor and safely bring it to speed without faulting. (Default: OFF)																		
Simplified Pattern Operation		Selectabe: Eight Patterns in Two Groups from 15 Speed Operations; Maximum 16 Types of Operations Possible; Terminal Board Operation/Repeat Operation Possible																		
Commercial Inverter Switching		Possible to Switch Operation Using Commercial Power Source or Inverter																		
Light Load, High-Speed Operation		Increases Efficiency of Certain Machines by Increasing Rotational Speed of Motor when Operated with Light Load																		
Drooping Function		When Two or More Inverters Operate a Single Load, Drooping Function Helps Evenly Share Load																		
Override Function		Allows User to Add to the Primary Frequency Command. (E.G. Trim input)																		
My Function Operation		My Function provides digital logic and comparator operations as well as timers, counters, and other control functions to provide advanced control operations directly on the VFD (similar to a micro PLC).																		
Color		RAL7016 (Charcoal Gray)																		
Environment		Indoor Use, Non-Corrosive/Non-Combustible Environment; Altitude: 3000 Meters or Less (Derating Necessary for Elevations Over 1000 Meters); Keep Out of Direct Sunlight																		
Ambient Temperature		-10 to +60°C; Remove Upper Cover if 40°C or Higher, Maximim 60°C with De-Rate)																		
Storage Temperature		-25 to +70°C																		
Relative Humidity		20 to 93% (Free from Condensation)																		
Vibration		5.9 m/s²{0.6 G} or Less (10 to 55 Hz)																		
AS1			Frame Size																	
				2	3	4	5A	5B	6	7A	7B	8	9	10	11	12	13	14	15	
			H"	9.1	10.2	11.6	11.6	15.7	16.5	21.7	21.7	24.8	26.8	30.8	37.4	37.4	37.4	45.3	45.3	H"
			W"	5.1	6.1	6.9	8.3	9.1	9.4	9.4	12.6	12.6	12.2	13.8	13.0	16.9	23.0	34.6	43.6	W"
			D"	6.0	6.5	6.5	7.5	7.5	8.3	9.5	9.5	11.4	14.6	14.6	14.6	14.6	14.6	14.6	D"	
Voltage	200-240 V	0.5-2	3-5	7.5	10	15-20	25-30	-	40-60	75	100	-	-	-	-	-	-	-	HP	
	380-460 V	1-3	5	7.5-10	15	20-25	30	40-50	-	60-100	125	150	200	250	300-450	550-600	700			
	500-600 V	-	-	-	2-10	-	-	-	-	-	-	-	-	-	-	-	-			
	500-690 V	-	-	-	-	-	-	3-30	-	-	40-100	-	-	125-200	-	250-450	-	500-800		
Enclosure Rating			IP20*					IP00*												

*IP20 Approximately Equal to NEMA 1: IP00 Provides No Protection. Chassis Unit

Unit's Horsepower

Unit's Dimensions

TOSHIBA INTERNATIONAL CORPORATION



North American Headquarters & Manufacturing Facility (Houston, TX)

TOSHIBA — Quality by Design

Toshiba's culture and history are strongly rooted in quality. Our designs are technologically innovative, and our products are manufactured from start to end using only the highest quality domestic and foreign parts.

Product Warranty

Toshiba offers a comprehensive warranty program on its full line of industrial products. Consult your salesperson or the factory for specific information.

Need to Know More?

Be sure to visit our website located at www.toshiba.com/ind for the latest information on Toshiba products and services.

Customer Support Services

Toshiba offers 24-hour service nationwide. For assistance of any type call: 1-800-231-1412.



ADJUSTABLE SPEED DRIVES MOTORS CONTROLS UPS INSTRUMENTATION PLC

TOSHIBA

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