

TOSHIBA
Leading Innovation >>>



S11 ASD >>>>
LOW VOLTAGE DRIVE

THE ULTIMATE IP54-RATED MICRO-DRIVE

The S11 adjustable speed drive provides maximum torque with precise speed control. It features an easy-to-use, quiet, and compact design. In addition, the S11's advanced technology allows for versatile communication. No other micro-drive delivers such reliable performance and extensive capabilities at such a competitive price.

- ▶ **IP54-Rated Enclosure** protects the S11 against dust and harsh water environments, including an operation pane, operation switch, frequency-setting potentiometer, two additional slots for switches, and an operator circuit breaker.
- ▶ **Powerful True-Torque Control** separates the S11 from the competition by offering 250% torque at 1.0 Hz, including one-step motor auto-tuning and 0.1% speed regulation on a 60:1 speed range.
- ▶ **High Initial Torque** surpasses 1 Hz through 200% instantly at startup from low speeds. Smooth operation in the regeneration area and in the motoring area is possible through proprietary power vector control. Equipped with an energy savings mode, applications reach a higher level of efficiency. In addition, you can activate auto-tuning and automatic torque-boost in a single step.



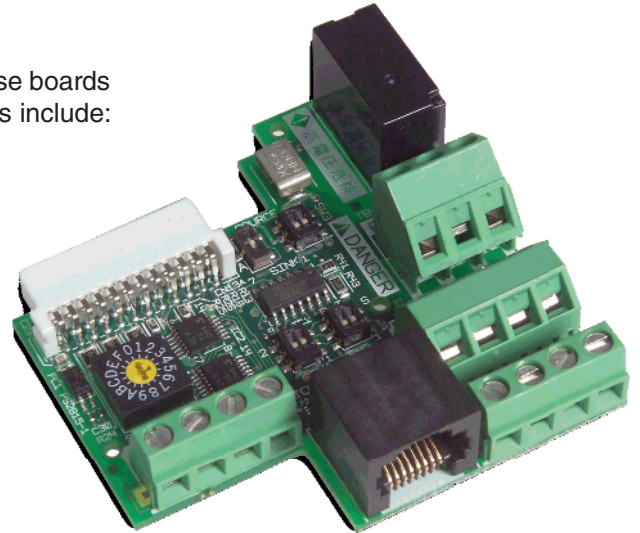
» ADVANCED FEATURES FOR MAXIMUM DRIVE PERFORMANCE

- ▶ **Easy Maintenance** provides the S11 with up to a 10-year lifespan. A warning signal is sent to the display panel when the electrolytic capacitors on the main circuit, cooling fan, or control board reach their respective replacement periods, which serves as a valuable maintenance indicator. The cooling fan can be easily replaced, and the automatic On/Off function provides extended product life. The S11 is a long-life drive, and its main circuit capacitors are designed to last up to 10 years.
- ▶ **A User-Friendly Design** allows the user to connect a motor, apply power, and run the drive right out of the box. It has an easy-to-use customer terminal strip for integration into complicated applications, and its small footprint and side-by-side mounting capabilities make the S11 an excellent OEM product.
- ▶ **A Built-In EMI Noise Filter** makes the S11 the best in its class when it comes to environmental considerations. All S11 units are equipped with a high attenuation RF/EMI noise filter. Single-phase and 500-class devices include filters that bring the drive into compliance with Class A, Group 1 to satisfy the CE EMC directive.
- ▶ **A Compact Design** saves space with its reduced dimension design, allowing for multiple units to be mounted side-by-side for high-density applications. The compact design does not hinder its capabilities, as the S11's high functionality and user-friendly features make it a top-class drive.

> COMMUNICATION OPTIONS

The S11 drive offers a wide array of easily installed option boards. These boards allow the user to communicate with a wide variety of systems. Options include:

- Ethernet TCP/IP
- Ethernet/IP
- DeviceNet
- Modbus Plus
- Modbus RTU
- Metasys
- Landis and Staefa
- Profinet IO



> OTHER SPECIAL FEATURES

- Drooping: Configurable Bipolar Drooping with Adjustable Bandwidth
- Volts/Hz: Constant Torque, Variable Torque, Automatic Torque-Boost, Sensorless Vector Control, Automatic Energy Savings, & Permanent Magnet Motor Control
- Start/Stop: Three-Wire Control, Digital Input, Local Panel, & Communications
- Frequency Setting: Built-In Potentiometer, 4 to 20 mA, 0 to 10 V, Motor-Operated Potentiometer, Serial Communication, & Jog Mode
- Bidirectional Speed Searchable to Detect a Spinning Motor & Start at that Speed Regardless of Direction
- PID Control with Built-In 24 VDC Power Supply for Process Transducer
- Dynamic Brake-Chopper Transistor Standard on All Models



APPLICABLE APPLICATIONS

- Conveyors
- Fans
- Food Processors
- Lifts
- Machine Tools
- Mixers
- Pumps

APPLICABLE INDUSTRIES

- Food Processing
- HVAC
- Mining & Mineral
- Oil & Gas



MODEL RANGE	Single-Phase 240 V	Three-Phase 240 V	Three-Phase 460 V	Three-Phase 575 V
KW/HP	0.4 to 2.2 KW 0.5 to 3 HP	0.4 to 15 KW 0.5 to 20 HP	0.75 to 15 KW 1 to 20 HP	1.5 to 15 KW 2 to 20 HP
Voltage Rating	200 - 240 V	200 - 240 V	380 - 500 V	525 - 600 V

POWER REQUIREMENTS

Input Voltage Tolerance	-10/+10%
Output Frequency	0.5 to 500 Hz (Default 0.5 to 80 Hz, Maximum Frequency 3 to 500 Hz)

CONTROL SPECIFICATIONS

Control Method	Sine-Wave PWM System
Voltage Regulation	Adjustable Between 50 to 600 V by Correcting Supply Voltage (Not Adjustable Above Input Voltage)
V/Hz Control	Open-Loop Vector, Constant Torque, Variable Torque, Auto-Torque Boost, Manual Torque Boost, Auto-Energy-Saving, Dynamic Auto-Energy-Saving, PM Motor Control, Auto-Tuning, Base Frequency 25 to 500 Hz, Torque Boost 0 to 30%, Start Frequency 0.5 to 10 Hz
PWM Carrier Frequency	Adjustable 0.5 to 15 kHz (For Drive Specific Information Consult Factory)
Frequency Setting	Potentiometer and Digital Input on Front Panel, Remote Potentiometer (1 to 10 K Ω), 0 to 10 VDC (Input Impedance VIA/VIB=30 K Ω), 4 to 20 mA Δ c (Input Impedance 250 Ω , 15 Preset Speeds by Contact Closure)
Frequency Precision	Analog Input \pm 0.5% of Maximum Output Frequency, Digital Input \pm 0.01% of Maximum Output Frequency
Frequency Command Resolution	0.01 Hz Operation Panel, 0.1 Hz Analog Input
Frequency Jump	Three Frequencies with Adjustable Range
PWM Carrier Frequency	Adjustable Between 2.0 to 16 KHz (Default 12 KHz/Current Derate Applies Above 4 KHz)
Upper and Lower Limit Frequencies	Upper Limit Frequency: 0 to Maximum Frequency; Lower Limit Frequency: 0 to Upper Limit Frequency
PID Control	Proportional Gain, Integral Gain, and Differential Gain Settings and Control Wait Time
Main Protective Functions	Stall Prevention, Current Limitation, Output Short Circuit, Overvoltage, Overvoltage Limitation, Undervoltage, Ground Fault, Power Supply Phase Failure, Output Phase Failure, Overload Protection, Overcurrent at Startup, Overtorque, Undercurrent, Overheat, Cumulative Operation Time, Life Alarm, Emergency Stop, Braking Resistor Overload, Various Pre-Alarms
Retry	ASD Can Automatically Clear Fault Upon Trip; Programmable to 10 Tries with Up to 10 Seconds Between Retry
Restart	ASD Will Smoothly Catch Spinning Motor
Overload Current Rating	150% for 60 seconds, 200% for .5 second

CONTROL INTERFACE

Analog Input	One 4 to 20 mA, One 0 to 10 V or 1 to 10 K Ω Potentiometer Connections
Analog Output	1 mA/7.5 VDC or Switch Selectable to 0 to 20 mA (4 to 20 mA), Programmable to 19 Functions
Input Terminals	Eight Input Terminals Programmable to 65 Functions, Logic Selectable Between Sink and Source
Output Contacts	One Open-Collector and One Relay Contact Programmable to 58 Functions
Power Terminals	Input (L1, L2, L3), Output (T1, T2, T3), DCL (PO, PA), DBR (PA, PB), DC BUS (PA, PC)

ELECTRONIC OPERATOR INTERFACE (EOI)

LED Indications	Run, Monitor Mode, Program Mode, % and Hz Indication, Frequency Setting Mode by Potentiometer or Up/Down Keys, DC Bus Capacitors Charged
Selectable Display Units	Current and Voltage Display Selectable Between Amps/Volts or % Along with Scaling Factor Multiplier
Monitoring	Operation Frequency, Operation Frequency Command, Forward/Reverse Run, Output Current, Voltage in DC Section, Output Voltage, Torque, Torque Current, Drive Load, DBR Load, Input Power, Output Power, Monitor of Input and Output Terminals, CPU and Memory Versions, PID Feedback and Frequency Command, Rated Current, Past Trips 1-4, Parts Replacement Alarm, Cumulative Run Time

CONSTRUCTION

Installation	NEMA 1/IP20 (Enclosed Type)
--------------	-----------------------------

AMBIENT CONDITIONS

Ambient Temperature	Temperature: -10 to 50°C (14 to 122°F); Humidity 93% Non-Condensing
---------------------	---

TOSHIBA INDUSTRIAL PRODUCTS:

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



TOSHIBA
Leading Innovation >>>
www.toshiba.com/ind