TOSHIBA

Leading Innovation

HEAVY DUTY

S15 ASD

LOW VOLTAGE DRIVE

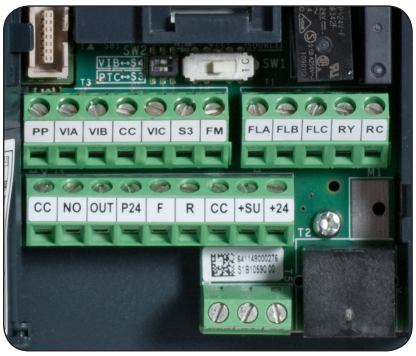
EXTREME PERFORMANCE MICRO-DRIVE

Toshiba's heavy duty S15 adjustable speed drive is a compact and high performance drive designed for controlling a wide range of variable and constant torque applications for multiple industries. This micro-drive is capable of working with permanent magnet (PM) motors, which allows a much greater flexibility in selecting a motor for an application. In addition, expanded PID control allows a greater level of precise control and operation of difficult level control applications. No other micro-drive delivers such reliable performance and extensive capabilities at such a competitive cost.

- ***Compact Design*** separates the S15 from the competition, as one of the smallest drives offered in the industry. The compact design allows the unit to be installed in areas with limited space, allowing users more real estate when running applications.
- ***Easy Installation and Programming*** allows the user to install and program the S15 drive with minimal downtime. Din Rail kits allow users the option of easily mounting the drive onto a pre-existing DIN inside of a cabinet or on a panel. The addition of the +SU terminal to the S15 allows for the end user to power the drive control section using a simple 24 VDC power supply. This allows startup technicians to program the drive without having to have 230 V or 460 V three-phase power available.
- ***Tough Environment*** conditions are no problem for the S15. Designed to withstand extreme temperatures, the S15 can operate in temperatures up to 122°F (50°C) without derating and can also be configured for use in temperatures above 122°F (50°C) with a de-rate.
- ***Superior Control*** allows the user ultimate application flexibility. Toshiba's advanced vector-control algorithm offers speed regulation of 0.1% sensor-less. Energy saving, user selectable V/Hz patterns make the S15 a smart choice for any application.
- ***Heavy Duty Performance*** separates the S15 from the competition. Offering one of the toughest micro-drive overload ratings in the industry, the S15 is rated for 110% of its full-load amp rating for continuous operation and 150% for up to one minute.

ADVANCED FEATURES FOR MAXIMUM DRIVE PERFORMANCE

- ***Built-In LED Interface*** allows for quick, user-friendly programming and easy modification of the S15's expanded parameter set. Additional remote-mount keypads are also available. The parameter write and simple fault tracking functionality of these optional keypads make setup and troubleshooting quick and simple.



- ***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 S15 to not only meet but exceed performance expectations. (Premium Model Only)
- ***S15's Easy Key*** is a configurable key that simplifies startup and operation. The easy key quickly accesses commonly changed parameters. In addition, the easy key can also function as a simple local/remote key for easy operation switching.

- ***Improved 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. Improved control is possible with the S15's enhanced PID algorithm, making it easier than ever to dial in your process control application.
- ***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 all Toshiba low voltage drives, including the S15. ASD Pro offers parameter reading, 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 S15 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:

- CANopen
- DeviceNet
- EtherCAT
- Ethernet/IP
- Modbus TCP
- Profibus DP

OTHER SPECIAL FEATURES

- Safe Torque Off (STO) Compliant (Premium Model)
- Ten Year Long-Life Design
- Rotary Encoder
- Reduced Energy Consumption
- UL Listed & Labeled

ADDITIONAL OPTIONS

The S15 can be supplied with additional options to expand control, allow greater flexibility, and provide better protection for a user's application. These options include:

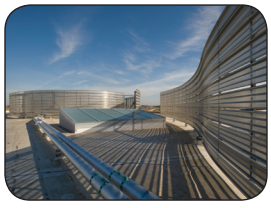
- Parameter Writer
- IP54 Packaged Unit (Consult Factory)
- Input Reactor
- DV/dt Long Lead Filter
- NetPac™ Wireless Connection
- Remote-Mountable Keypads

APPLICABLE APPLICATIONS:

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

APPLICABLE INDUSTRIES:

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



S15 ASD

MODEL RANGE	1/4 HP to 3 HP	1/2 HP to 20 HP	1/2 HP to 20 HP
Voltage Rating	Single-Phase 230 VAC	Three-Phase 230 VAC	Three-Phase 460 VAC
POWER REQUIREMENTS			
Input Tolerance	Voltage: ±10%; Frequency: ±5%		
Output Frequency	0.1 to 500 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	V/f Constant, Variable Torque, Automatic Torque Boost, Vector Control, PM Motor Control, 5-point V/F Custom Setting, & Auto-Tuning		
PWM Carrier Frequency	Adjustable 2 to 16 kHz (For Drive Specific Information Consult Factory)		
Frequency Setting	Rotary Encoder Integrated into EOI, 0 to 10 VDC, ±10VDC, 4 to 20 mA, Digital Input, Binary Input, & Motorized Potentiometer Input		
Frequency Precision	Analog Input ±0.5% 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		
Main Protective Functions	Stall Prevention, Current Limit, Over-Current, Output Short Circuit, Over-Voltage, Over-Voltage Limit, Undervoltage, Ground Fault Detection, Input Phase Failure, Output Phase Failure, Overload Protection by Electronic Thermal Function, Armature Over-Current at Start-Up, Load Side Over-Current at Start-Up, Over-Torque, Undercurrent, Overheating, Cumulative Operation Time, Life Alarm, Emergency Stop, & Various Pre-alarms		
Retry	User-Set Number of Retries for Automatic System Restart After Trip		
Restart	Able to Smoothly Catch Freewheeling Motor (Bidirectional)		
Overload Current Rating	110% Continuous; 150% for 1 Minute		
CONTROL INTERFACE			
Digital Input	6 Discrete Input Terminals Programmable to 110 Functions (May Be Increased Using Optional Hardware)		
Digital Output	3 Discrete Output Terminals Programmable to 150 Functions; 1 Form-A Contact, 1 Form-C Contact, & 1 Open Collector Output		
Analog Input	3 Programmable: One 4 to 20 mA Input, One 0 to 10 VDC Input, & One ±10 VDC Input		
Analog Output	1 Programmable: 4 to 20 mA or 0 to 10 VDC		
Communication Ports	RS485 Port (TSB or MODBUS RTU Protocol)		
ELECTRONIC OPERATOR INTERFACE (EOI)			
Display	4x20 Graphical Full-English LCD Back-Lit Display for Programming, Monitoring, & Diagnostics		
LED Indicators	Run (Red)/Stop (Green), Hand (Green), & DC Bus Charge Indicator (Red)		
Keys	Run, Prg, Mon, Status, %, Hz, Stop, Mode, & Easy Key; Rotary Encoder for Parameter Navigation, Settings, & Control		
Monitoring	Frequency Command Screen; Multiple Parameters Displayed: Output Frequency, Forward/Reverse Run, Output Current, Input Voltage (DC Detection), Output Voltage, Torque, Inverter Load Factor, Motor Load Factor, Braking Resistor Load Factor, Input Power, Output Power, Input Terminal status, Output Terminal Status, Overload/Regional Setting, PID Feedback Value, Stator Frequency, Parts Replacement Alarm, Cumulative Operation Time, & Past Trips		
CONSTRUCTION			
Enclosure	RAL 7016 (Anthracite Gray); IP20; Wall-Mount; Front-Access Only		
Power Cables	Bottom Access for Input/Motor Cables		
Cooling	Self-Cooling/ Forced Air-Cooled		
Standards & Compliances	UL Listed in US & Canada, CSA, & CE		
AMBIENT CONDITIONS			
Ambient Temperature	0 to 60°C (Note: See Manual for Details, Ambient Temperatures Above 50°C May Require a De-Rate)		
Altitude	3300 ft. Above Sea Level (Up to 10,000 ft. with Derate)		
Humidity	95% Maximum (Non-Condensing)		
Installation	Indoors; No Direct Sunlight; Protects from Corrosive Gas/Explosive Gas/Flammable Gas/Oil Mist/Dust; Vibration of Less Than 5.9 m/s^2 (10 to 55 Hz)		

TOSHIBA INDUSTRIAL PRODUCTS:

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

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