

# TOSHIBA

Leading Innovation >>>



## T300BMV2™ Drive

[700 to 2000 HP]

4160 V MEDIUM VOLTAGE DRIVE



## SMALL FOOTPRINT – LARGE SAVINGS

Toshiba's T300BMV2 4160 V medium voltage adjustable speed drive employs the latest MV2 digital control platform. The T300BMV2 is the perfect cost effective solution for applications with basic control operations while utilizing one of the fastest industrial processors available. Aluminum magnetics are paired with the reliable multi-level Pulse Width Modulation (PWM) using Neutral-Point Clamping (NPC) technology. This advanced technology allows for a smaller footprint, a reduced component count, making the T300BMV2 an overall cost effective solution.



- 24-Pulse, Aluminum-wound Harmonic Cancellation Complies with IEEE-519-2014
- Higher True Power Factor (>0.96) than Running Motors Across-the-Line
- Smaller Footprint Through Compact Power Modules, Lower Component Count, Standard Aluminum-Wound Isolation Transformer, & Air-Cooling System
- Robust, High-Quality Medium Voltage IGBT Technology, & Control Components
- Advanced Electronics to Reduce Component Count
- Additive Five-Level PWM Output Voltage with No Neutral Shift

### ➤ ADVANCED FEATURES FOR MAXIMUM DRIVE PERFORMANCE

- ▶ **A Small Footprint** attributed to innovative design decreases component count and reduces overall cost for an economic solution in many applications.
- ▶ **A 24-Pulse Aluminum wound Isolation Transformer** provides phase-shift cancellation capabilities, eliminating issues concerning harmonic injections into bus-fed equipment. As a result, the T300BMV2 resembles a linear load on the incoming AC line.
- ▶ **Five-Level PWM Output** closely simulates a true sine wave by employing several layers of switching devices to provide a smooth output waveform to the motor, virtually eliminating motor failures caused by insulation stress and long lead-length issues. These output waveforms are friendly to existing non-inverter duty motors without a need to upgrade.
- ▶ **Medium Voltage IGBT Technology** has continually proved to be the most reliable and best performing means of speed control in Toshiba adjustable speed drives. Toshiba has successfully developed, utilized, and mastered this technology. The T300BMV2 pairs the most advanced transistor technology with the most robust multi-level topology and controls it with one of the fastest industrial processors in the world.
- ▶ **Control Interface offers 4 digital inputs, 4 digital outputs, one analog input, and one analog output as standard.** Each of these input/outputs can be programmed to a variety of different functions for ultimate flexibility.
- ▶ **A Plain-English LCD Electronic Operator Interface (EOI)** allows for quick, user-friendly programming. Faults are logged containing date and time stamps.
- ▶ **Toshiba's Tracesave Software** is designed to extract and compress full operating data at the time of fault. This trace-back data file allows users to perform detailed fault analysis which can also be submitted for remote diagnostics and support.

## > COMMUNICATION OPTIONS

The T300BMV2 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:

- DeviceNet
- EtherNet/IP
- Modbus RTU
- Modbus TCP
- Profibus
- TOSLINE-S20
- TCNet
- Ethernet Global Data (EGD)



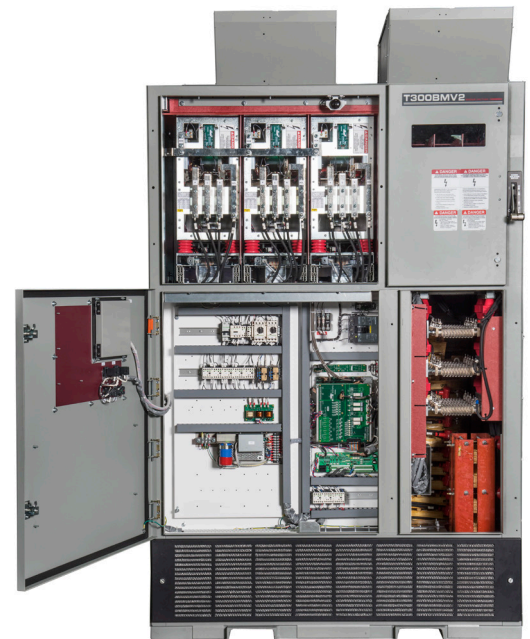
## > ADDITIONAL T300BMV2 OPTIONS

The BMV2 can be supplied with additional options. These options include:

- Integrated Padlockable Input Fused Disconnect Switch with Vacuum Contactor, Interlocked Door and Viewing Window
- dV/dT Output Filters
- Drive & Motor Space Heater (External Power)
- Motor Protection Relays
- Door-Mounted Equipment: Pilot Lights and Switches

## > OTHER SPECIAL FEATURES

- Voltage Source Inverter (VSI) with Simple & Reliable V/f Control and PID Control
- Induction Motor Sensorless Vector Control, Closed Loop Vector Control (Using Pulse Generator Encoder or Resolver)
- Air-Cooled Solutions from 700 to 2,000 HP

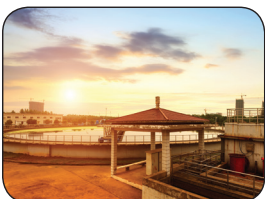


### APPLICABLE INDUSTRIES

- Aggregate
- Chemical
- Mining & Minerals
- Pulp & Paper
- Power Plant/Utility
- Water/Wastewater
- HVAC
- Refinery
- Oil & Gas

### APPLICABLE APPLICATIONS

- Conveyors
- Extruders
- Blowers
- Starting Duty
- Mixers
- Test Stands
- Crushers
- Sync-Transfer
- Compressors
- Mills
- Fans
- Chillers
- Pumps



MODEL RANGE	700 - 1000 HP				1250 - 2000 HP			
Voltage Rating	4160 V							
Dimensions (H x W x D) - BMV2	103.7 x 60 x 49.5 in.				103.7 x 90 x 49.5 in.			
Weight	7,600 lbs.				12,500 lbs.			
Current Rating (A):	87	99	112	124*	155	186	217	248*
Nominal HP** (4160 V)	700	800	900	1000	1250	1500	1750	2000

## POWER REQUIREMENTS

Input Tolerance	Voltage: ±10%; Frequency: ±5%
Main Circuit	Three-Phase 4160 V; Integrated 24-Pulse Aluminum-Wound Isolation Transformer; Five-Level NPC Medium Voltage IGBT Output
Control Circuit	External 120V Control ; 460V Integral to Main Transformer for Cooling Fans

## CONTROL SPECIFICATIONS INPUT

Control Method	Five-Level Pulse-Width Modulation (PWM) Output Control with Neutral-Point Clamping (NPC)
V/Hz Control	V/Hz, Sensorless Vector Control, Variable Torque, Closed-Loop Vector Control, & Constant Torque
Output Frequency	0 to 120 Hz
PWM Carrier Frequency	Fixed at 2 kHz
Frequency Setting	4 to 20 mA, 0 to 10 VDC Serial Communication Input, & Rotary Encoder Integrated into EOI
Speed Regulation	Open Loop: Up to 0.5%; Closed Loop: Up to 0.1%
Main Protective Functions	Current Limit, Overcurrent, Overload, Undervoltage, Overvoltage, Ground Fault, CPU Error, & Soft Stall
Overload Current Rating	100% Continuous; 115% for One Minute Every 20 Minutes (1000, 2000 HP at 110%)

## CONTROL INTERFACE

Digital Input	Four Discrete Inputs with Programmable Functions
Digital Output	Four Available Digital Programmable Outputs
Analog Input	One Selectable Current (0/4 to 20 mA) or Voltage (0 to 10 VDC) Input Signal
Analog Output	One Selectable Current (0/4 to 20 mA) or Voltage (0 to 10 VDC) Output Signal with Programmable Function
Communication Ports	Profibus, Modbus RTU & TCP, TOSLINE-S20, TCNet, Ethernet Global Data (EGD), DeviceNet & EtherNet/IP

## SAFETY FEATURES

Optional Pad-Lockable Input Fused Disconnect Switch with Vacuum Contactor, Interlocked Doors, & Viewing Window for BMV2 models

## ELECTRONIC OPERATOR INTERFACE (EOI)

Display	4x20 Character Graphical Plain English Back-Lit LCD Display for Programming, Monitoring & Diagnostics
LED Indicators	Run (Red)/Stop (Green) & Local (Green)
Keys	Local/Remote, Enter, Mon/Prg, Esc, Run, & Stop/Reset
Monitoring	Frequency Command Screen; Multiple Parameters Displayed: Motor Current, Motor Speed, DC Voltage, Input Voltage, Output Voltage, Run Time, Output Power, Motor kW, Motor kWh, Motor kVAH, Motor kVAR

## CONSTRUCTION

Enclosure	ANSI-61 Gray; NEMA 1 Ventilated, & IP20 per IEC-60529; Gasket & Filter; Free-Standing; Front-Access only
Power Cables	Top/Bottom Access for Input/Motor Cables
Cooling	Forced-Air Cooled
Standards & Compliances	NEC, NEMA, UL, cUL, ANSI, & American Recovery & Reinvestment Act Compliant

## ENVIRONMENTAL CONDITIONS

Ambient Temperature	0 to 40°C
Altitude	3,281 ft. Above Sea Level
Humidity	95% Maximum (Non-Condensing)
Installation	Indoor; No Direct Sunlight; Protect from Corrosive Gases

\*110% Overload for One Minute Every 20 Minutes

\*\*Typical HP Rating of a 4-Pole Motor; Contact Factory for Applications on Constant Torque Load

## TOSHIBA MOTORS & DRIVES DIVISION

- Adjustable Speed Drives
- Motors
- Motor Controls



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