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ADJUSTABLE SPEED DRIVES

AS3

LOW VOLTAGE

HARNESSING THE POWER OF BUILT-IN COMMUNICATIONS

Toshiba's AS3 adjustable speed drive is designed with an emphasis on built-in communications, allowing end-users to access real-time data and refined controls to maximize system performance.

Industry 4.0/IoT (Internet of Things)	Industry 4.0 is the evolution of manufacturing, empowering businesses to learn and adjust from data available through connected manufacturing.
Dual Port Ethernet IP	Enables simple connection of multiple AS3s together on one network while simplifying cable management.
Embedded Web Server	Allows for quick access to Ethernet IP setup, parameters and real-time monitoring for diagnostics. Accessible through standard web browsers on PC, tablets, and smart phones.
Built-in LCD Display & Advanced Keypad	Multi-language LCD display, remote mounting, IP65 rated, transfer/save parameters, real-time clock for fault logging, and calendar functionality.
QR Codes	Displayed when troubleshooting faults or alarms, providing immediate access to a dedicated web link for maintenance and support.
STO Terminal	Detachable terminal strip meets IEC directives for safety with full implementation of Safe Torque Off, which quickly shuts down the system in the event of an emergency stop.
Permanent Magnet Motor Control	For control of permanent magnet (PM) motors with higher torque and efficiency values.
Pump Control	Multi-PID control with sleep function and the ability to autonomously control booster pumps based on system demands or operating a secondary PID control loop.
ASD Pro Software	Toshiba's programming software, which allows the user to utilize logic-type programming without the expense of a micro PLC.

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COMMUNICATION OPTIONS

In addition to the built-in dual port Ethernet, the AS3 can make use of a wide array of easily installed option boards. These boards allow the user to communicate with a wide variety of systems when installed cassette style. Options include:

- Ethernet/IP (Embedded)
- Modbus TCP (Embedded)
- Modbus RTU (Embedded)
- PROFINET
- EtherCAT
- PROFIBUS-DP
- DeviceNET
- CAN open

ADDITIONAL OPTIONS

The AS3 can be supplied with additional options to expand control, allow greater flexibility, and provide better protection for a user's application. Options include:

- AC Line Reactors
- DV/DT Long-Lead Filters
- Extended Terminal Cards
- Encoder Feedback Cards
- Harmonic Filters
- Remote-Mountable Keypads
- Dynamic Braking Resistor
- Flange Kit
- Conduit Boxes
- Safety Module (SS1, SOS, SS1, SBS, SLS, SDI)

OTHER SPECIAL FEATURES

- Broad Range of Compliances
- NEC 2005 Motor Overload Retention (No External Motor Overloads Required)
- NEMA 1 Enclosure
- UL Listed & Labeled
- Optional IP55 Enclosure

1. Dual Port Ethernet IP

2. RS485 Communication Port

3. Up to 3 Embedded Option Card Slots

4. Safe Torque Off Terminals

5. 3 Digital Output Relays

6. 3 Analog Inputs

7. 2 Analog Outputs

8. 8 Digital Inputs

INDUSTRIES SERVED

- Oil & Gas
- Mining & Minerals
- Chemical
- Water & Wastewater

APPLICATIONS

- Pumps
- Fans
- Compressors
- Centrifuges
- Conveyors
- Mixers
- Pump Jacks
- Crushers
- Cranes
- Hoists

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APPLICABLE MOTOR (HP)																								
Heavy Duty (HD)	0.5	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	200	250	300	350	450	
Normal Duty (ND)	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	200	250	350	400	450	500	
RATED OUTPUT CURRENT (A)																								
200 V Class HD	3.3	4.6	8	11.2	18.7	25.4	32.7	46.8	63.4	78.4	92.6	123	149	176	211	-	-	-	-	-	-	-	-	
200 V Class ND	4.6	8	11.2	18.7	25.4	32.7	46.8	63.4	78.4	92.6	123	149	176	211	282	-	-	-	-	-	-	-	-	
400 V Class HD	1.5	2.2	4	5.6	9.3	12.7	16.5	23.5	31.7	39.2	46.3	61.5	74.5	88	106	145	173	211	250	314	387	427	550	
400 V Class ND	2.2	4	5.6	9.3	12.7	16.5	23.5	31.7	39.2	46.3	61.5	74.5	88	106	145	173	211	250	302	427	481	550	616	
VOLTAGE/FREQUENCY																								
200 V Class	Three-Phase 200 to 240 V, 50/60 Hz (Voltage +10%, -15%, Frequency ±5%)																							
400 V Class	Three-Phase 380 to 480 V, 50/60 Hz (Voltage +10%, -15%, Frequency ±5%)																							
OUTPUT VOLTAGE																								
200 V Class	Three-Phase 200 to 240 V (Maximum Output Voltage is Equal to the Input Supply Voltage)																							
400 V Class	Three-Phase 380 to 480 V (Maximum Output Voltage is Equal to the Input Supply Voltage)																							
OVERLOAD CURRENT RATING																								
HD	150% for One Minute, 180% for Two Seconds																							
ND	120% for One Minute, 135% for Two Seconds																							
OUTPUT FREQUENCY RANGE																								
	Setting Between 0.01 to 590 Hz; Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustment (30 to 590 Hz)																							
DC REACTOR																								
	200/400 V Class 0.5 to 200 HP (HD) Built-in; 400 V Class 250 to 450 HP (HD) Attached																							
ENCLOSURE																								
	200 V Class 0.5 to 50 HP (HD) and 400 V Class 0.5 to 100 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 60 to 75 HP (HD) and 400 V Class 125 to 450 HP (HD) NEMA 1/IP20 with Optional Conduit Box																							
AMBIENT TEMPERATURE																								
	-10˚ to +60˚C (Remove the Upper Cover if 50˚C or More; Max 60˚C)																							
TERMINAL STRIP I/O																								
	Eight DI, Three DO (One Form C, Two Form A Relays), Three AI (0 to 10 VDC, -10 to +10 VDC, 0 to 20 mADC), Two AO (0 to 10 VDC or 0 to 20 mADC), STO (Safe Torque Off)																							

200V CLASS WEIGHTS & DIMENSIONS															
HD	0.5	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75
ND	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100
Frame Size	A1				A2	A3		A4			A5			A6	
Dims. (in) WxHxD	5.7 x 13.8 x 8.0				6.7 x 16.2 x 9.2	8.3 x 21.8 x 9.2		8.9 x 27.3 x 10.7			11.5 x 36.8 x 12.7			12.7 x 33.5 x 15.4	
Approx Weight (lbs)	9.5		9.9	10.1	16.9	30.4		60.1			127			180	

400V CLASS WEIGHTS & DIMENSIONS																							
HD	0.5	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	200	250	300	350	450
ND	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	200	250	300	400	450	500
Frame Size	A1					A2		A3			A4			A5			A6			A7	A8		
Dims. (in) WxHxD	5.7 x 13.8 x 8.0					6.7 x 16.2 x 9.2		8.3 x 21.8 x 9.2			8.9 x 27.3 x 10.7			11.5 x 36.8 x 12.7			12.7 x 33.5 x 15.4			17.3 x 47.0 x 14.8	23.5 x 47.0 x 14.8	
Approx Weight (lbs)	9.9		10.1	10.3		16.9		29.9	31.2	31.5	61.6	62.0	63.1	127	130	131	180				366	428	450

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TOSHIBA MOTORS & DRIVES DIVISION
Adjustable Speed Drives • Motors • Motor Controls

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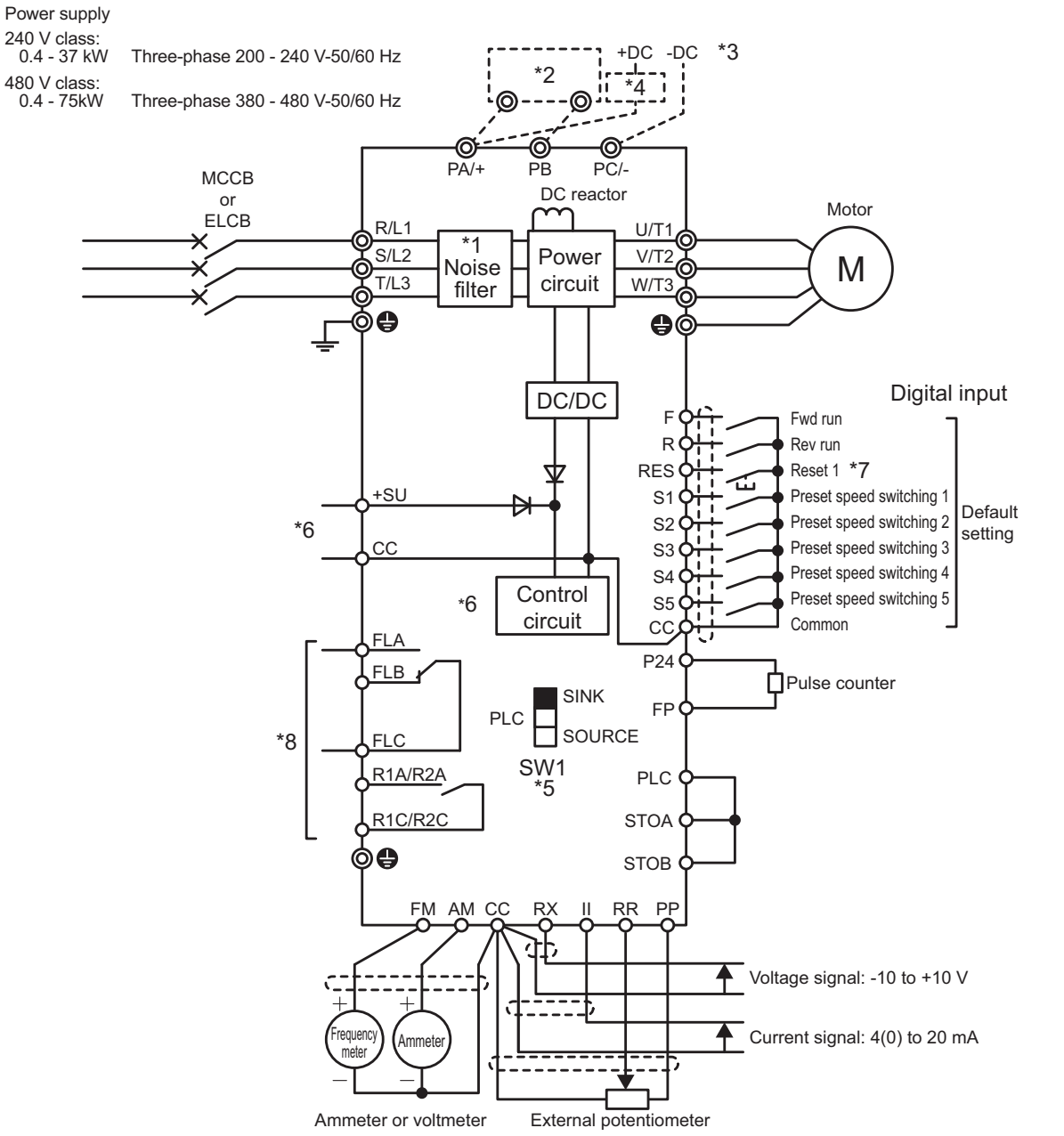
Scan here to learn more about the AS3

[Standard connection diagram - Sink]

This diagram shows an example of a standard connection for 240 V class, 0.4 to 37kW and 480 V class, 0.4 to 75kW (frame size A1 to A5).



*1 EMC filter is built in 480 V class.

*2 External braking resistor (option).

*3 To supply DC power, connect it to the terminals [PA/+] and [PC/-].

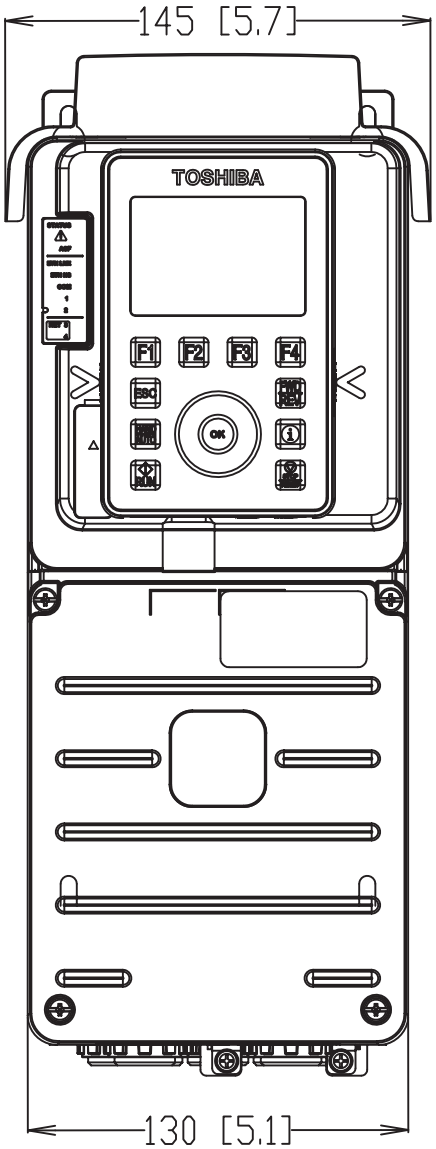
*4 When your inverter is VFAS3-2110P to VFAS3-2370P or VFAS3-4220PC to VFAS3-4750PC with DC power supply, a circuit to suppress an inrush current is required. For detail, refer to application manual "DC power supply connect to inverter" (E6582156).

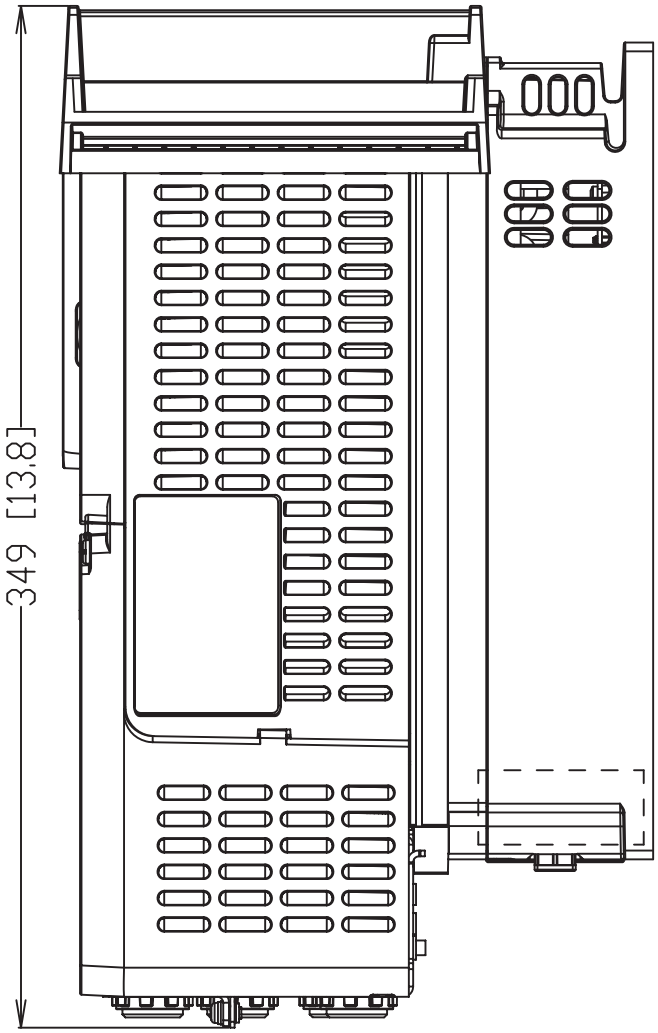
*5 For the switch function, refer to [2. 3. 5].

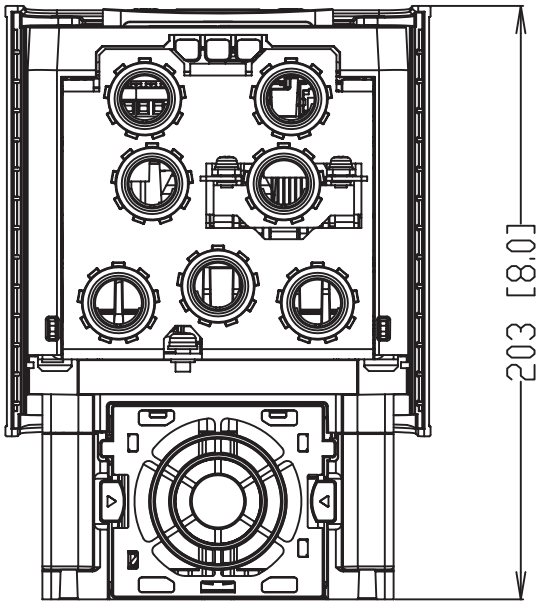
*6 To supply control power from an external power supply for backing up the control power supplied from the inverter, an optional control power supply unit (CPS002Z) is required. In this case, it is used in conjunction with the inverter internal power supply.
Set <F647: Control power option failure detection> to back up the control power supply.
For details, refer to [6. 30. 20].

*7 The reset signal is activated by ON→OFF trigger input.

*8 Connect to power to comply with OVC2 (Over Voltage Category 2). Isolation transformer is necessary when connecting to power supply (OVC3).







AS3 Frame A1			
Model Number	HP Rating HD	HP Rating ND	Estimated Weight (lbs.)
VFAS3-2004P	0.5	1	9.5
VFAS3-2007P	1	2	9.5
VFAS3-2015P	2	3	9.9
VFAS3-2022P	3	5	10.1
VFAS3-4004PC	0.5	1	9.9
VFAS3-4007PC	1	2	9.9
VFAS3-4015PC	2	3	9.9
VFAS3-4022PC	3	5	10.1
VFAS3-4037PC	5	7.5	10.1