

TOSHIBA

TOSHIBA INTERNATIONAL CORPORATION

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.

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

INDUSTRIES SERVED

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

APPLICATIONS

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



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



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
600 V Class HD	-	-	3.1	4.2	7.2	9.5	13.5	18	24	29	34	5	55	66	83	-	-	-	-	-	-	-	-
600 V Class ND	-	-	4.2	5.4	9.5	13.5	18	24	29	34	45	55	66	83	108	-	-	-	-	-	-	-	-

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%)
600 V Class	Three Phase 575 to 690 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)
600 V Class	Three Phase 575 to 690 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; 600 V Class 2 to 75 Hp (HD) Built-in

ENCLOSURE

200 V Class 0.5 to 50 HP (HD) & 400 V Class 0.5 to 100 HP (HD) NEMA 1/IP20 Built-in; 200 V Class 60 to 75 HP (HD), 400 V Class 125 to 450 HP (HD) NEMA 1/IP20 with Optional Conduit Box & 600 V Class all ratings 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)



■ Standard connection diagram

This diagram shows a standard wiring of the power circuit and control circuit.

[Standard connection diagram – sink logic]

This diagram shows an example of a standard connection.

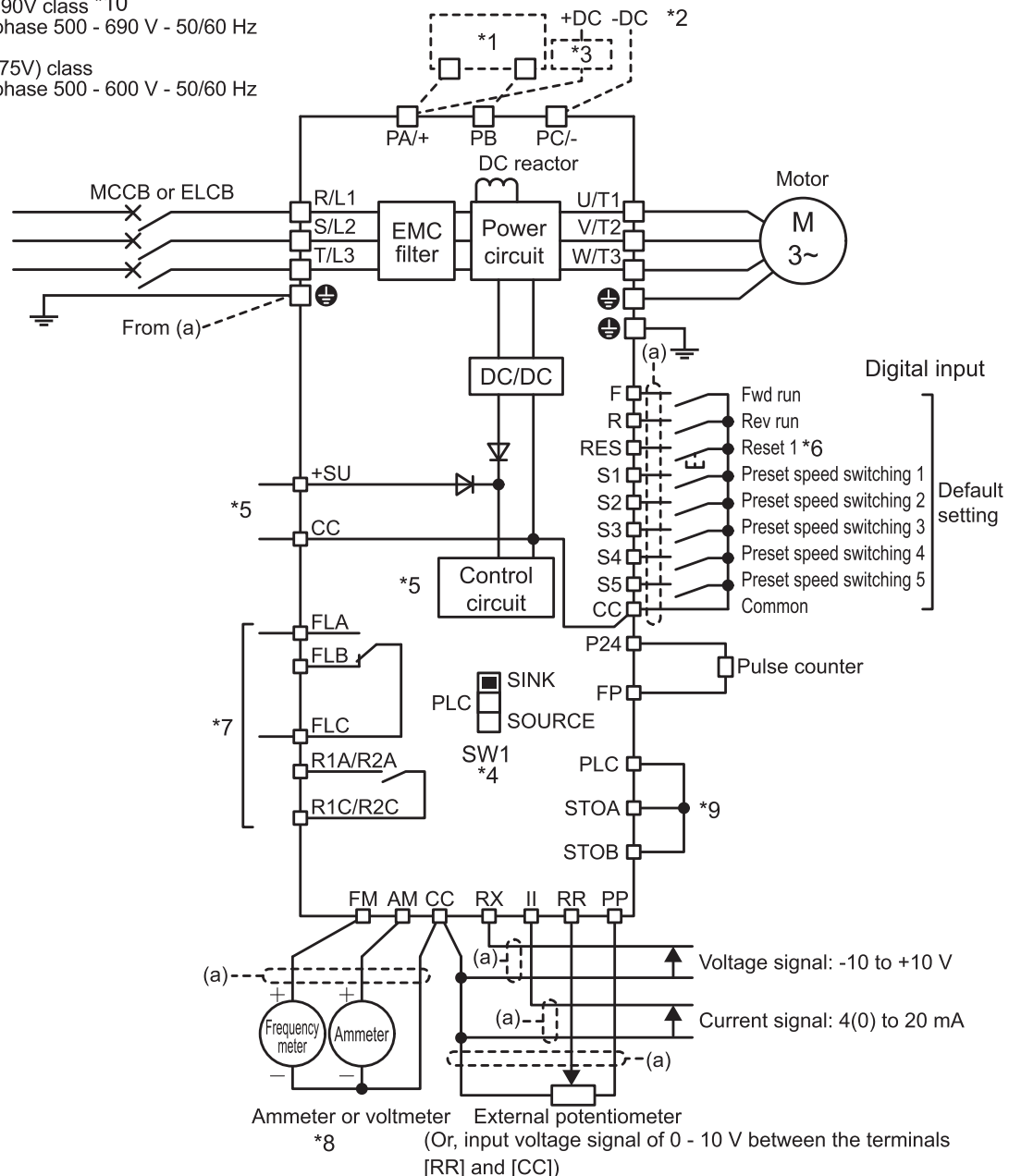
Power supply

500V, 690V class *10

Three-phase 500 - 690 V - 50/60 Hz

600V(575V) class

Three-phase 500 - 600 V - 50/60 Hz



*1 External braking resistor (option).

*2 To supply DC power, connect the inverter between the terminals [PA/+] and [PC/-].

*3 In case of connecting a 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).

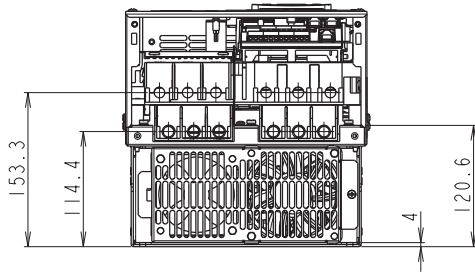
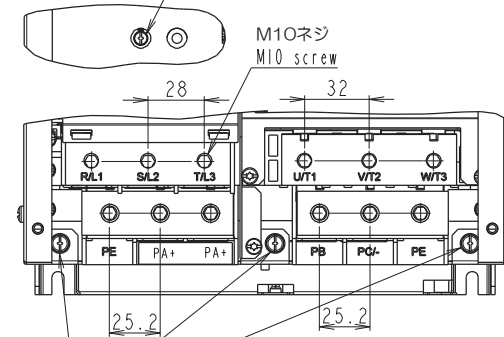
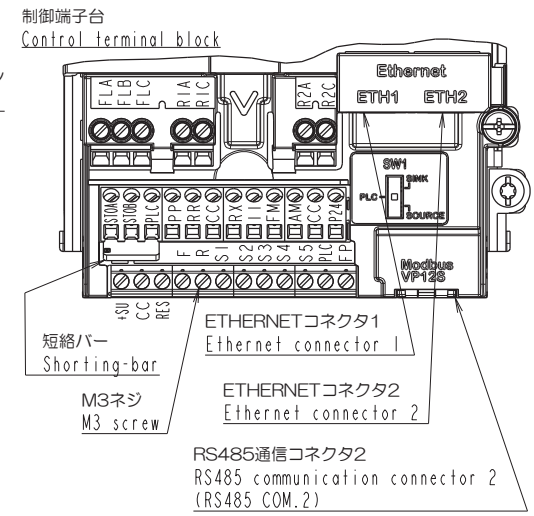
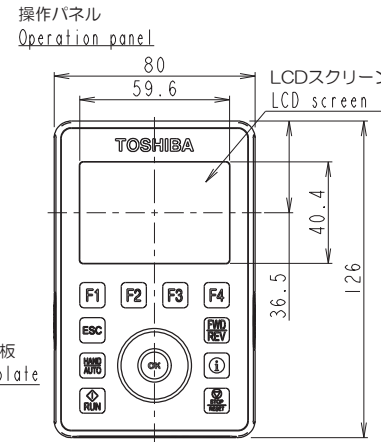
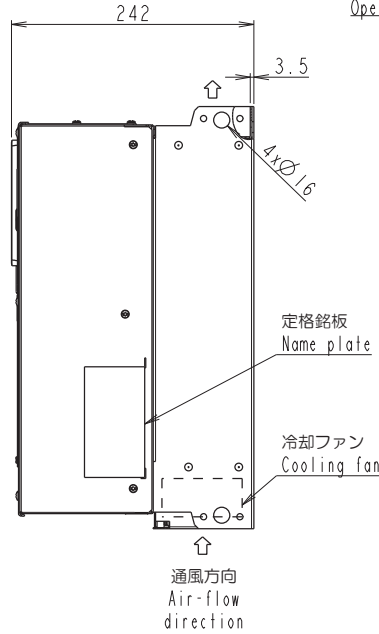
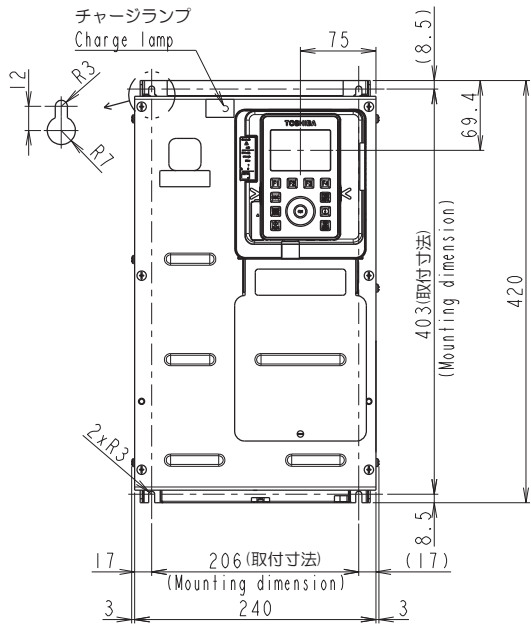
*4 For the switch function, refer to [2. 3. 5] of "VF-AS3 instruction manual" (E6582062) in CD-ROM.

*5 To supply control power from an external power supply for backing up the control power supplied from the inverter, it needs DC power supply (24V-1A). In this case, it is used in conjunction with the inverter internal power supply.

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

図面番号 DRAWING NO.
M0721165

変更記号
REV. MARK



本体色: RAL7016(グレー)
Box color: RAL7016(Grey)

形式 Inverter model	概略質量(kg) Approx. mass
VFAS3-6022PC	21.6
VFAS3-6030PC	21.6
VFAS3-6040PC	21.6
VFAS3-6055PC	21.6
VFAS3-6075PC	21.6
VFAS3-6110PC	21.6
VFAS3-6150PC	21.6
VFAS3-6185PC	21.6
VFAS3-6220PC	21.6

INVERTER	VFAS3	6022PC, 6030PC, 6040PC, 6055PC, 6075PC, 6110PC, 6150PC, 6185PC, 6220PC
器具名称 APPARATUS	形 TYPE	式 FORM

承認 APPROVED BY I. Ichio 26.Oct.2021	検図 CHECKED BY M. Takeuchi 26.Oct.2021	名称 TITLE
設計 DESIGNED BY T. Iwata 26.Oct.2021	製図 DRAWN BY T. Iwata 26.Oct.2021	

インバータ外形図
OUTLINE OF INVERTER
TOSVERT VF-AS3 SERIES

TOSHIBA 東芝シュネーデル・インバータ株式会社
Toshiba Schneider Inverter Corporation

図面番号 DRAWING NO.
M0721165
変更記号 REV. MARK

記号 MARK
年月日 DATE
承認 APPROVED BY
変更者 REVISED BY
記事 CONTENTS
保管 REGISTERED

重要 REVISIONS

尺度 SCALE
—
単位 UNITS
mm

保管 REGISTERED M

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