TOSHIBA

ADJUSTABLE SPEED DRIVES

AS3P

LOW VOLTAGE

HARNESSING THE POWER OF BUILT-IN COMMUNICATIONS

The durable AS3P adjustable speed drive (ASD) outdoor assembly is a short lead time product available at low costs by utilizing a standardized design with modification options. These include line reactors, surge arrestors, cabinet space heater, and a maximum of four door-mounted control options. All units have a UL Type 3R outdoor rated free standing enclosure.

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 low cost short lead time outdoor rated AS3P can additionally be supplied with standard options including:

- 3% Impedance Input Line Reactor
- 5% Impedance Input Line Reactor
- Standard Surge Arrestor
- Three Raycap Strikesorb Surge Arrestors
- Two or Three Position Selector Switch (e.g. LOCAL/REMOTE, HAND/OFF/AUTO)
- Standard Push Button (e.g. RUN, STOP, RESET)
- Standard Pilot Light (e.g. POWER ON, ASD FAULTED, ASD RUNNING, ASD STOPPED)
- Cabinet Space Heater with Thermostat

OTHER SPECIAL FEATURES

- Broad Range of Compliances
- NEC® 2005 Motor Overload Retention (No External Motor Overloads Required)
- UL Type 3R Outdoor Rated Free Standing Enclosure
- UL Listed & Labeled

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

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

APPLICATIONS

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

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RATINGS

TYPE	VOLTAGE	HP (HD)	AMPS (HD)	HP (ND)	AMPS (ND)	DIMENSIONS (in.)		
						H	W	D
AS3P4055	460	7.5	12.7	10	16.5	72	31	24
AS3P4075	460	10	16.5	15	23.5			
AS3P4110	460	15	23.5	20	31.7	72	34	26
AS3P4150	460	20	31.7	25	39.2			
AS3P4185	460	25	39.2	30	46.3			
AS3P4220	460	30	46.3	40	61.5			
AS3P4300	460	40	61.5	50	74.5			
AS3P4370	460	50	74.5	60	88.0			
AS3P4450	460	60	88.0	75	106			
AS3P4550	460	75	106	100	145			
AS3P4750	460	100	145	125	173			
AS3P4900	460	125	173	150	211	74	48	30
AS3P4110K	460	150	211	200	250			
AS3P4132K	460	200	250	250	302			
AS3P4160K	460	250	314	350	427	86	65	35
AS3P4200K	460	300	387	400	481			
AS3P4220K	460	350	427	450	550			
AS3P4280K	460	450	550	500	616			

FULL OPTIONS LIST	DESCRIPTION
AA*	Includes AS3, Input Circuit Breaker and All Necessary Components for Operation in a UL Type 3R Outdoor Rated Free Standing Enclosure
3% ACL	3% Impedance Input Line Reactor
5% ACL	5% Impedance Input Line Reactor
Standard Surge Arrestor	Standard Surge Arrestor; Make and Model May Vary
Raycap Strikesorb Surge Arrestor	Three (3) Raycap Strikesorb Surge Arrestors on Incoming Side of Unit
2- or 3-Position Selector Switch	Two- or Three-Position Selector Switch (e.g. LOCAL/REMOTE, HAND/OFF/AUTO)
Push Button	Standard Push Button (e.g. RUN, STOP, RESET, E-STOP)
Pilot Light	Standard Pilot Light (e.g. POWER ON, ASD FAULTED, ASD RUNNING, ASD STOPPED)
Cabinet Space Heater	Installed Cabinet Space Heater with Thermostat

*Standard

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Rev.07ESSENCE1324

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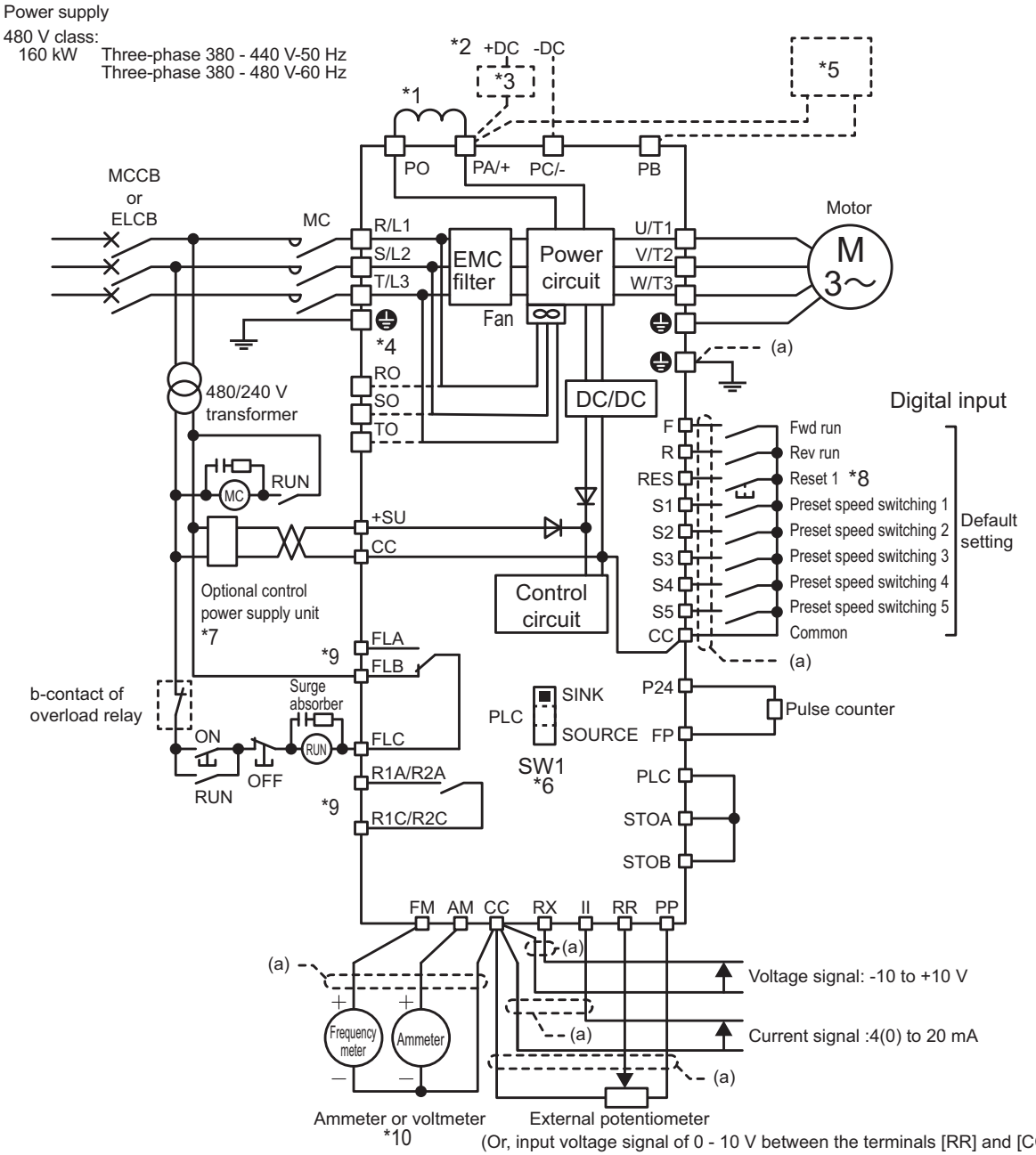
Motors • Adjustable Speed Drives • Controls • Industrial Automation

www.toshiba.com/tic

Scan here to learn more about the AS3

[Standard connection diagram - Sink]

This diagram shows an example of a standard connection for 480 V class, 160 kW (frame size A7).



*1 Be sure to mount the attached DC reactor between the terminals [P0] and [PA/+].

*2 To supply DC power, connect it to the terminals [PA/+] and [PC/-]. In this case, DC reactor is not required.

*3 When the inverter is used with a DC power, a circuit to suppress an inrush current should be required. For detail, refer to application manual "DC power supply connect to inverter" (E6582156).

*4 When the inverter is used with a DC power supply, three-phase power input for cooling fan driving is required separately. For details, refer to application manual "DC power supply connect to inverter" (E6582156).

*5 External braking resistor (option)

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

*7 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].

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

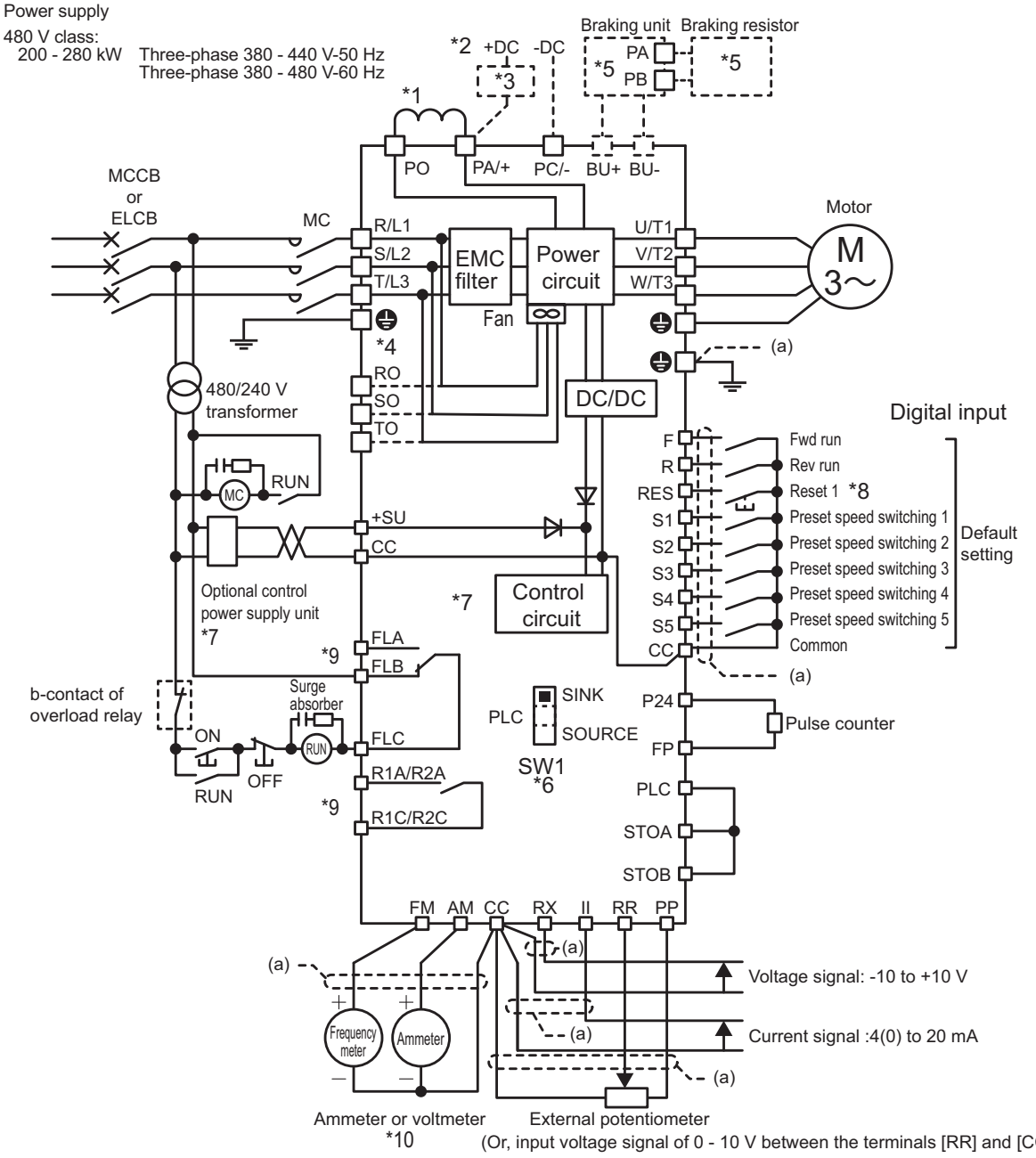
*9 Connect to power to comply with OVC2 (Over Voltage Category 2). Isolation transformer is necessary when connecting to power supply (OVC3).

*10 Calibration is required when connecting a meter. Refer to [5. 2. 6]

2

[Standard connection diagram - Sink]

This diagram shows an example of a standard connection for 480 V class, 200 to 280 kW (frame size A8).



*1 Be sure to mount the attached DC reactor between the terminals [P0] and [PA/+].

*2 To supply DC power, connect it to the terminals [PA/+] and [PC/-]. In this case, DC reactor is not required.

*3 When the inverter is used with 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 When the inverter is used with a DC power supply, three-phase power input for cooling fan driving is required separately. For details, refer to application manual "DC power supply connect to inverter" (E6582156).

*5 When a braking resistor (optional) is mounted, a braking unit (optional) is also required.

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

*7 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].

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

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

*10 Calibration is required when connecting a meter. Refer to [5. 2. 6]

ENCLOSURE NOTES:
- ENVIRONMENTAL RATING: UL TYPE 3R
- PAINT COLOR: WHITE

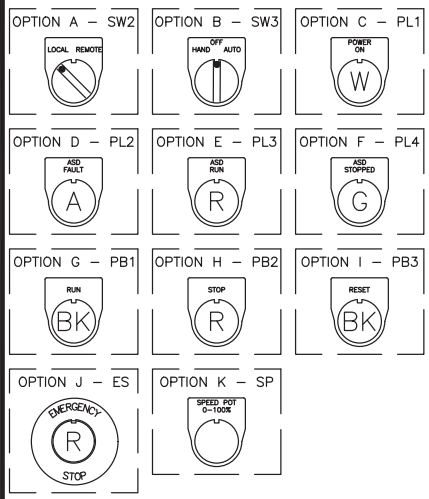
DIMENSIONS ARE FOR REFERENCE ONLY. IN[mm]

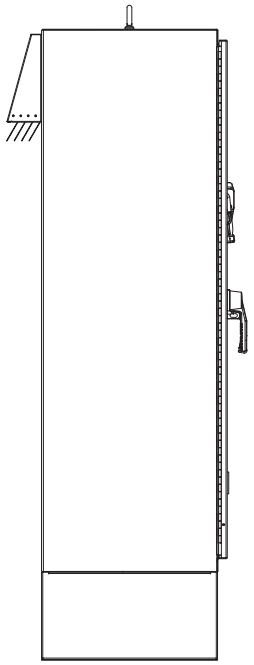
CONTROL OPTION NOTE:
DEVICE PLACEMENT IS DETERMINED BY THESE DIGITS OF UNIT PART NUMBER

AS3P4_____AA___ [_ _ _ _] _

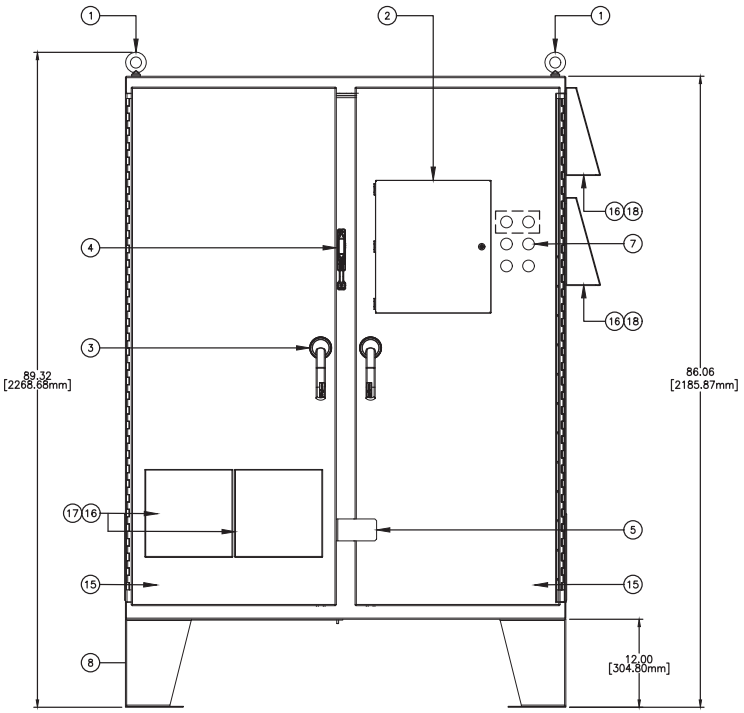
SLOT 1 (TOP LEFT)
SLOT 2 (TOP RIGHT)
SLOT 3 (BOTTOM LEFT)
SLOT 4 (BOTTOM RIGHT)

OPTIONAL 30mm CONTROL DEVICE DETAILS

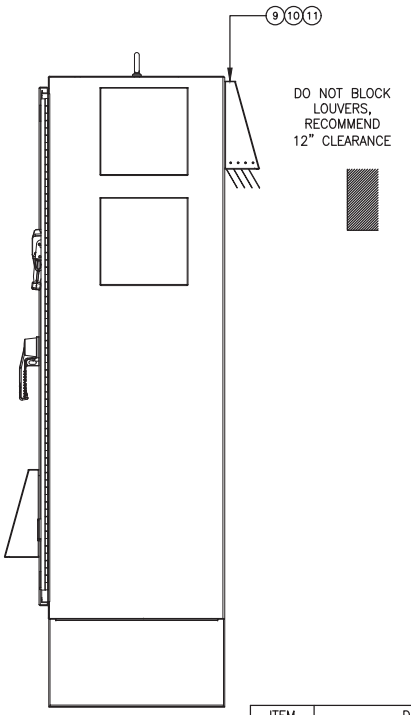




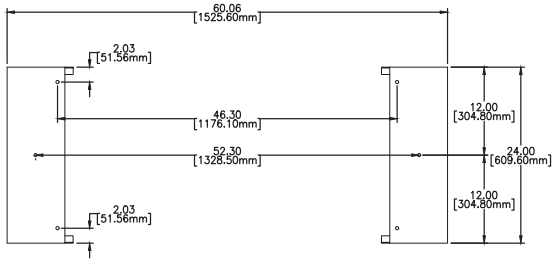
LEFT SIDE VIEW



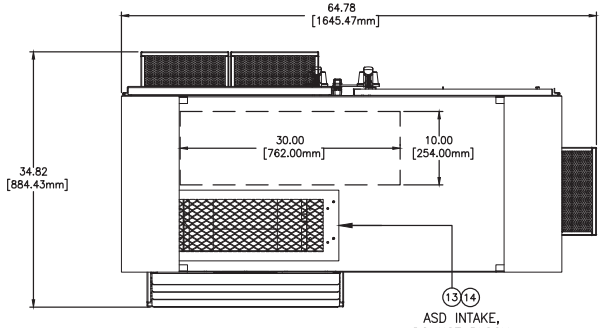
FRONT VIEW



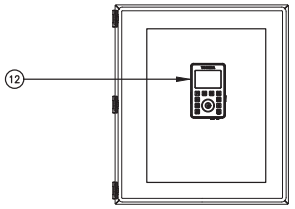
RIGHT SIDE VIEW



LEG STAND KIT MOUNTING



BOTTOM VIEW



CONTROLLER VIEW (NTS)

ITEM	DESCRIPTION
1	LIFTING EAR
2	HINGED CONTROL DOOR
3	HANDLE
4	CIRCUIT DISCONNECT SWITCH
5	INTERLOCK PLATE
6	N/A
7	HOLE PLUGS/PILOT DEVICE HOLE
8	LEG STAND
9	ASD EXHAUST SHROUD
10	AIR DIVERTER
11	MESH FILTER
12	OPERATOR KEYPAD (EOI)
13	EXPENDED METAL/ASD HEATSINK INTAKE
14	MESH FILTER
15	DOOR STOP (INTERNAL)
16	FAN SHROUD
17	FILTERED INTAKE FAN
18	FILTERED EXHAUST FAN
19	N/A
20	N/A

REV	DATE	DESCRIPTION	BY	CHK	APPR
4					
3					
2					
1					
0	09/03/21	FIRST ISSUE	E.YANG	S.EARY	J.ONG

TOSHIBA
TOSHIBA INTERNATIONAL CORPORATION
MADE IN HOUSTON, TEXAS U.S.A.

TITLE:
ENCLOSURE OUTLINE
AS3P4(160~280)KAA

REVISION: 0
SCALE: 1.0=18.0

DRAWING NUMBER:
I808WG23