

TOSHIBA

Integrated Controller V series

model 2000

Base	BU648E/668/666/664
Expansion Interface	IF661

■ USER'S GUIDE ■

Main Base	:	BU648E	(GBU648E*S)
Main/Expansion Base	:	BU688	(GBU668**S)
	:	BU666	(GBU666**S)
	:	BU664	(GBU664**S)
Expansion Interface	:	IF661	(GIF661**S)

Thank you for purchasing the TOSHIBA product. Check the package contents, and use this product according to the instructions described in this guide.

- Before using this product, carefully read "Safety Precautions" included in the package.
- This guide describes the minimum information and instructions required to use the Base, Expansion Interface. For the system design for the Base, Expansion Interface, refer to the following related manuals.

Integrated Controller Vseries User's Manual : 6F8C0905

S2 User's Manual -Basic Hardware- : 6F8C0836

model 2000 User's Manual -Functions- : 6F8C0835

- The contents of this guide are subject to change without prior notice.

6F8C0864

2000-7(0)

[BU648E/668/666/664]

- Because the S2 is not of dust-proof construction, install it in a dust-proof control panel.
- Do not install the bases directly above equipment which generates a large amount of heat, such as a heater, transformer, or large capacity resistor.
- For safety during operation and maintenance, install the base as far as is possible from high-voltage or power equipment.
Alternatively, isolate the base using a steel plate or similar separator.
- Do not install the bases within 200mm (8in) of a high-voltage or power cable.
- Allow at least 60mm on all sides of the base for ventilation.
- In the vicinity of high-voltage and power equipment, it is necessary to give consideration to grounding.
- Install the bases where the power modules are always mounted on the left hand side, vertically on the mounting frame.
- Turn power OFF before installing and removing modules.
- When IF661 is used, mount the module after removing the unit cover (SP601).
- Use a space module (GSP600*AS) to prevent debris from collecting in the base where no direct I/O modules and station modules are mounted.
- When BU668 is used as an expansion unit, the S0 slot can't be used and a space module SP600 should be mounted on S0.

[IF661]

- IF661 is the module for Integrated Controller V Series model 2000. Be sure to mount IF661 to the base dedicated to model 2000.
- Be careful not to duplicate unit address on units.
- Do not use setting 4 - 9, as these are not for use.
- To connect an expansion unit, be sure to use the expansion cable.
- Isolate the expansion cable from other cables. In particular, place the expansion cable at 200 mm or longer distance from a power line.

[Grounding]

Operation without grounding may cause electrical shock or malfunction. Connect the ground terminal on the S2 to the system ground.

It is advisable, for the grounding of electronic devices to carry out dedicated grounding which is isolated from that of power systems, and to carry out single-point grounding between 2 or more electronic devices. The S2 is designed to apply to EMC which takes the actual application into account, and it has a satisfactory noise-immunity without carrying out grounding of the device itself. However, as a precaution, correct grounding is recommended from the viewpoint of reliability.

Check the grounding against the following criteria :

- The S2 must not become a path for a ground current. High-frequency currents are particularly harmful.
- Equalize the ground potentials when 2 or more units of electronic equipment are to be connected. Ground them at single-point.
- Do not connect the ground of the S2 to that of high-power system.
- Do not use a ground that has unstable impedance, such as painted screws, or grounds subject to vibration.

■ Lineup

Base

Type	Use		Max. number of mountable modules		Current consumption	Remarks
	For Base Unit	For Expansion Unit	Station Module	Direct I/O Module	[mA]	
BU648 E	○	×	M = 5	9 - M	100	
BU668	○	○	1[0] (*1)(*2)	8	0	
BU666	○	○	1[0] (*1)(*2)	5[6](*1)	0	
BU664	○	○	1[0] (*1)(*2)	3[4](*1)	0	

(*1) The numbers in brackets are intended for use as an expansion unit.

(*2) Only S2PU32/22 (S2 CPU without station bus) can be mounted.

Expansion Interface

	Use		Number of expansion channels	Current consumption [mA]	Remarks
	For Base Unit	For Expansion Unit			
IF661 Type	○	○	1ch	Basic : 150 Expansion : 500	

Expansion Cable

Type	Length [m]	Remarks
CS6R3	0.3	
CS6R5	0.5	
CS6R7	0.7	
CS6 *1	1.2	Order production

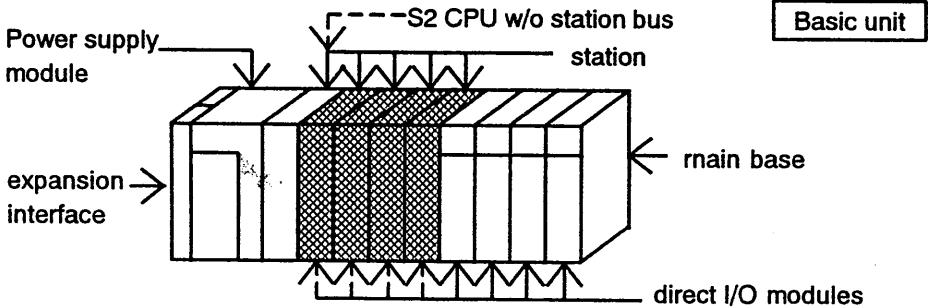
Module Mounting Position

Expansion interface
Power supply module
Station modules

:at the extreme left of the base
:at the right of the expansion interface
:between the power supply module and I/O modules
(in the slots that have two connectors)
:at the right of the power supply module
:at the left of the station modules (on main base) or the power supply module (on expansion base)
:in the slots that have no modules
:at the extreme left of the base using as a basic unit without expansion

S2 CPU without station bus
I/O modules

Space modules
Unit cover



Combination of Slots and Mountable Modules

Base Type	Type of module	Slot No.									
		S0	S1	S2	S3	S4	S5	S6	S7	S8	
BU648E	Station Module	○(*1)	○	○	○	○	○	×	×	×	×
	I/O Module-1(*1)	×	○	○	○	○	○	○	○	○	
	I/O Module-2(*1)	×	×	×	×	×	○	○	○	○	
BU668	S2PU32/22	○	×	×	×	×	×	×	×	×	
	I/O Module-1,2(*1)	×	○	○	○	○	○	○	○	○	
BU666	S2PU32/22	○	×	×	×	×	×	-	-	-	
	I/O Module-1,2(*1)	○	○	○	○	○	○	-	-	-	
BU664	S2PU32/22	○	×	×	×	-	-	-	-	-	
	I/O Module-1,2(*1)	○	○	○	○	-	-	-	-	-	

(*1) I/O module classification (-1 and -2) is as follows :

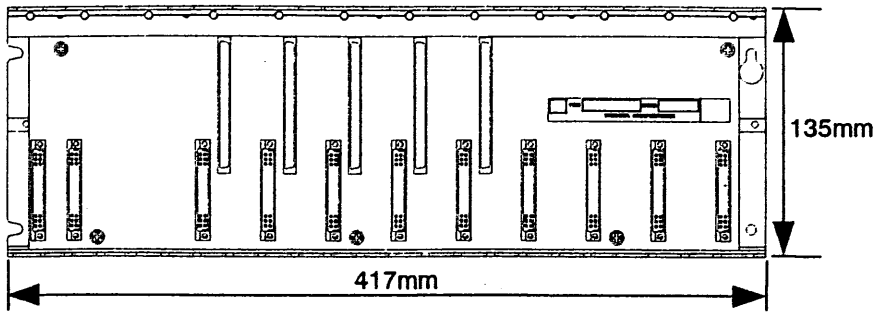
I/O Module-1 : Digital I/O module, Analog I/O Module

I/O Module-2 : Serial Interface, Network Module, Intelligent I/O Module

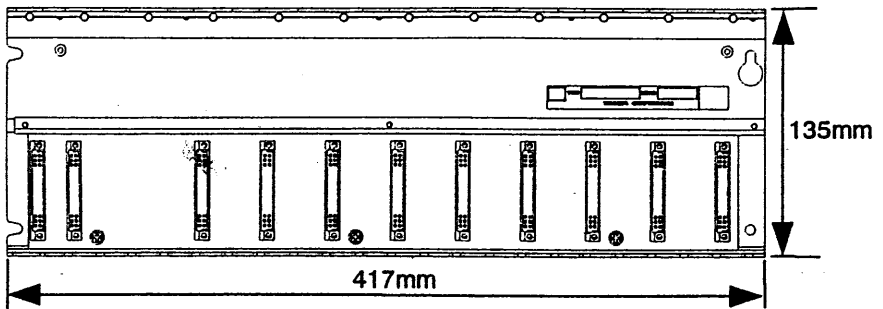
(*2) Only the control module (S2PU72, or CPU module for L2/C2) can be mounted. Only the control module mounted to S0 can control the I/O modules.

External dimensions (1)

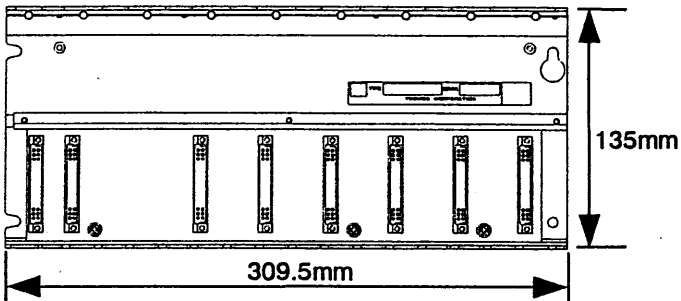
[BU648E]



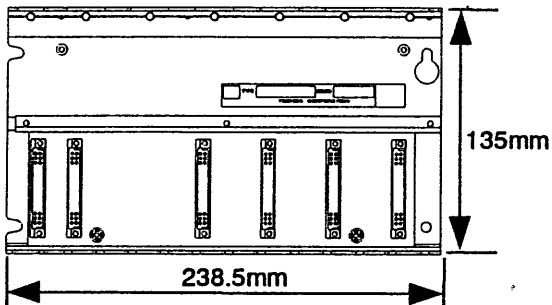
[BU668]



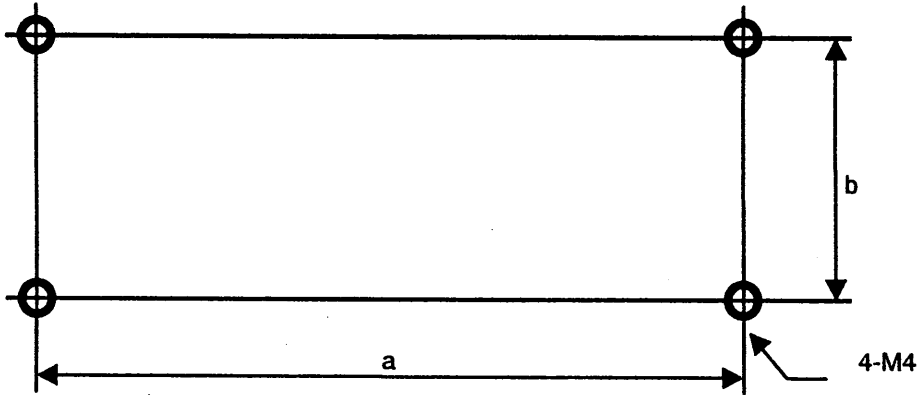
[BU666]



[BU664]



■ Installation dimension



Type	a[mm]	b[mm]	weight[g]	Remarks
BU648 E	402.5	95	900	
BU668	402.5	95	900	
BU666	295.5	95	850	
BU664	224.5	95	800	

■ Base Unit Mounting Screw

Base Unit Mounting Screw/Tightening Torque Standard

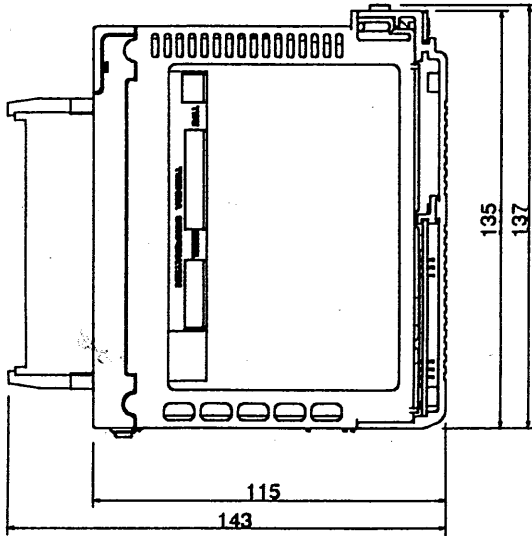
Screw size	M 4
Tightening torque	1.47 N · m (=15kgf · cm)

■ External dimensions (2)

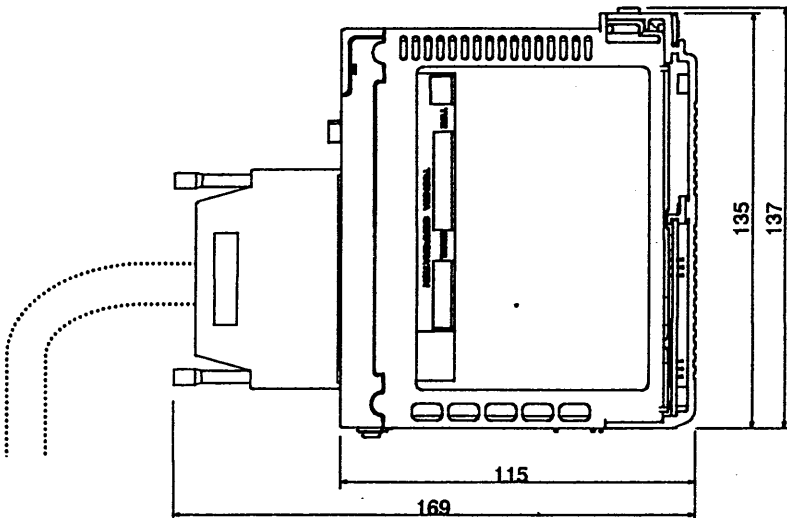
The model 2000 has various types of direct I/O modules suitable to variety of industrial applications. Several types of connector are provided on them, terminal block or cable connectors. Some dimension examples are shown as follow.

Check the dimensions before installing the model 2000 in control panel.

(When the terminal block type module is mounted)



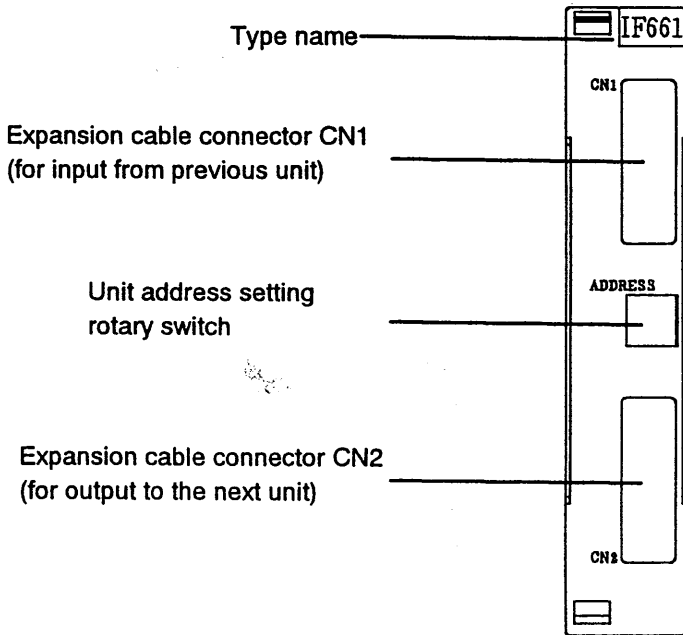
(When the connector type module is mounted)



■ Expansion Interface

Up to a maximum expansion units can be connected by using the expansion interface.

Front View (without the module cover)



[Setting Unit address]

Before using the expansion interface, set a unit address.

To set a unit address, use the rotary switch at the front of the module.

Base Unit	Unit address setting
Basic Unit	0
Expansion Unit	1 to 3 (Set in order to 1 → 2 → 3, starting from the unit closest to the basic unit.)

(NOTE 1) Do not assign the same unit address to different units.

(NOTE 2) Do not use numbers 4 to 9 for a unit address.