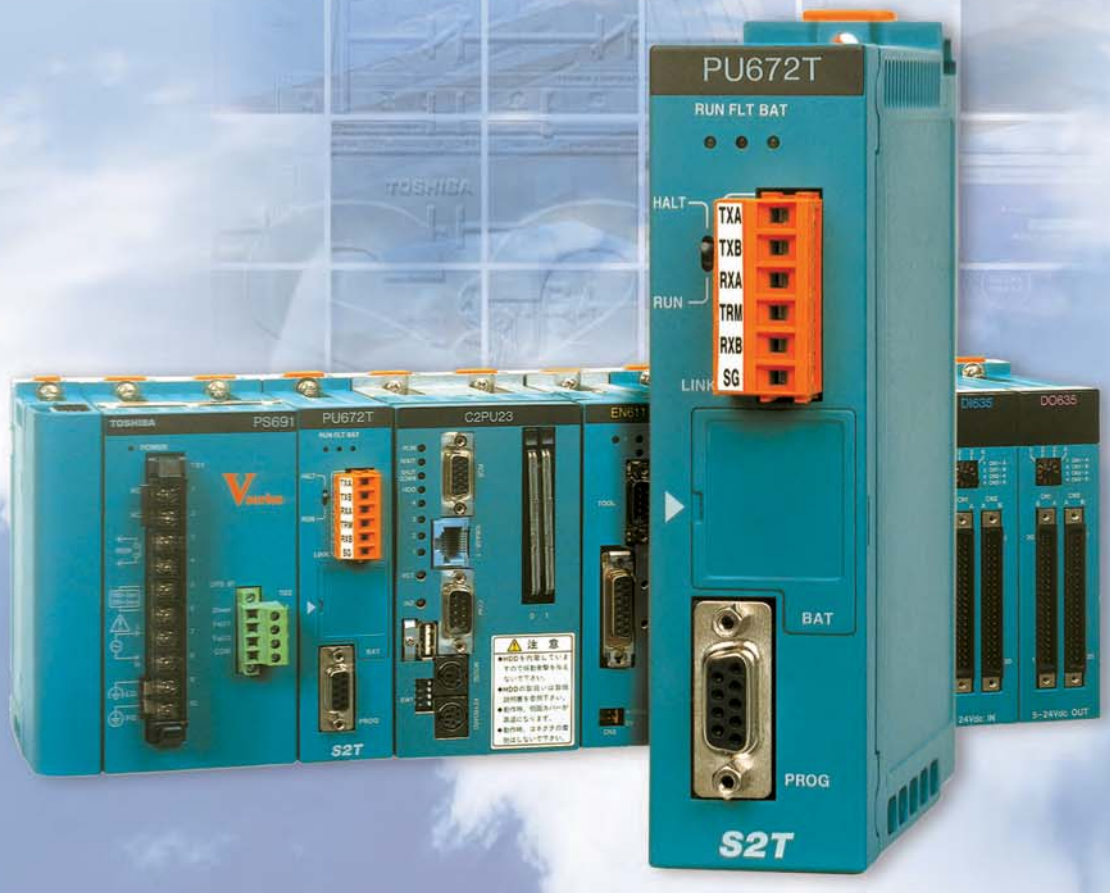
TOSHIBA

Integrated Controller V series
model 2000

Sequence Controller

Highly functional and versatile,
Evolving to accommodate IT systems:
Announcing the birth of a controller totally surpassing PLC.

S2T

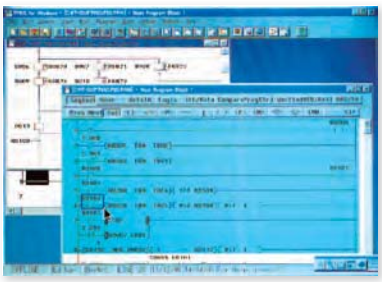


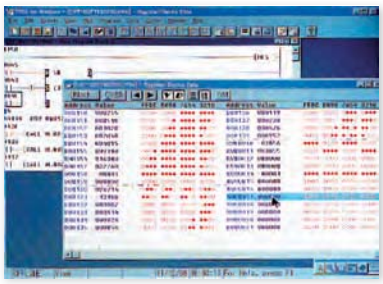
Advanced Features

High functionality, performance, and versatility Integration of PLC control and data processing enables accommodation of IT systems.

Program compatible with T series PLC

For the S2T, the PROSEC T series programming tool T-PDS is used. Programs are compatible with the T series. While maintaining the integration features of the V series, the T series' software resources can be utilized.





High speed, high performance control processing

Parallel operation of a general-purpose 32-bit processor and an exclusively developed language processor attains both high-speed processing of programming instructions and a large reduction of scan overhead.
Also, the 32-bit processor bus (station bus) enables high-speed data exchanging between the S2T and the network module or the computer module. The S2T is ideal for time-critical applications.

Integration of PLC control and data processing functions

Between the computer module (C2) and the S2T, data exchanging can be done simply and speedily. As a highly functional controller with both PLC control and data processing functions, IT-compatible systems can be easily configured.

The multi CPU configuration with the loop control module (L2) or the sequence control module (S2) is not possible.

Built-in communication port

The programmer port (RS-232C) and the link port (RS-485) are provided on the S2T CPU module as a standard feature. Besides connection of the programmer (T-PDS), these ports can be used to connect a HMI or a computer. The HMI/SCADA systems can be configured easily.

1M byte data memory

Two types of the S2T CPU are available, standard type PU662T and enhanced type PU672T. The PU672T is equipped with 1M bytes(512k words) of expanded data memory. User can access this memory by the expanded data transfer (XFER) instruction. Since this memory is backed up by a battery, it can be used for data logging, etc..

Specifications

High-speed calculations, large-scale programs and abundant I/O.
Their reliable performance can be fully realized by the intuitive, easy-to-use programming language.

General specifications

Power supply	
Voltage	85～265V ac (50/60Hz)
	20.4～28.8V dc
Power consumption	60W or less
Waveform distortion	10% or less (AC)
Retentive power interruption	20ms or less (AC)
	1ms or less (DC)

Operating temperature	0～55℃
Storage temperature	−20～70℃
Humidity	5～90%RH
Vibration	9.8m/s^2 in the XYZ directions, for 30 minutes
Shock	98m/s^2 in the XYZ directions, three times
Noise immunity	1500V p-p
Grounding	100Ω or less
Atmosphere	No corrosive gases
Dust density	No more than 10mg/m^3
Withstand voltage	1500V ac for one minute
Cooling	Natural air cooling

S2T functional specifications

Control method	Stored program, cyclic scan method
Processor	Overall control: 32-bit micro-processor
	Program execution: Dedicated language processor (LP)
Input/output method	Batch I/O refresh and direct I/O access
Number of I/O points	1024 points (when using 32 points I/O)
	2048 points (when using 64 points I/O)
	Local I/O max. 512 words/8192 points
Memory	Main memory: SRAM (battery backup)
	Non-volatile: Flash memory (for program backup)
	Optional: SRAM 1MB (battery backup PU672T only)
Programming languages	Ladder diagram and SFC (Sequential Function Chart)
Program capacity	32K steps (PU662T)/64K steps (PU672T)
Programming instructions	Basic instructions: 24 types
	Function instructions: 206 types
Execution speed	0.09 µs/contact, 0.18 µs/coil, 0.54 µs/transfer, 0.90 µs/addition, 12.1 µs/floating-point multiplication
Scan sysytem	Floating scan or constant scan (10-200ms, 10ms increments)
Multitasking	1 main program
	4 sub-programs
	1 timer interrupt program (1-1000ms, 1 ms increments)
	8 I/O interrupt program (interrupt response 500 µs or less)
	256 subroutine
Other built-in functions	Clock-calendar (year, month, day, date of the week, hour, minute, second)
	RS-485 communication port (computer link or free ASCII)
Size	1 slot size

C2 specifications

Operation system	Windows2000 or WindowsXP
Main processor	Mobile Pentium 3, 500MHz
Cache memory	L1: 32KB (in processor) and L2: 256KB (in processor)
Main memory	128MB or 256MB
Built-in disk drive	Hard disk 30GB or Flash disk 2GB
Interface	Keyboard: PS/2
	Mouse: PS/2
	FDD: FDD interface, 1ch
	Serial: RS-232C, 1ch
	USB: Type A USB 1.0, 1ch
	RGB: Analog RGB, 1ch
	LAN: Ethernet 100BASE-TX/10BASE-T, 1ch
PC card interface	CardBus/PCMCIA Type 2, 2 slots
Display function	Video RAM: 2MB
	Display: max. 1024×768, 65535 color
RAS function	Watch dog timer(WDT), temperature check, auto-shutdown at power failure, error logging, etc.
Size	2 slot size

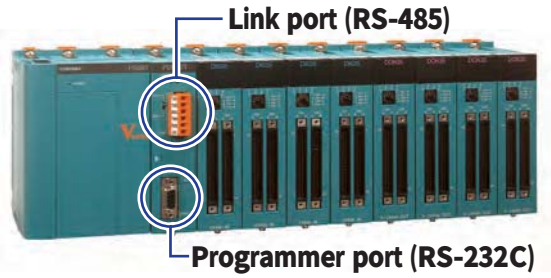
System configuration

From small- to large-scale systems and even high functionality network systems, all sorts of systems can be realized in a compact package.

Basic system

Basic system (S2T, power supply, I/O module configuration)

Main base	BU643D／BU648E
Power supply module	PS691／PS693／PS632／PS694／PS652
Sequence control	PU662T／PU672T



Integration system

Integration system configuration
(S2T, power supply, C2, Ethernet, TOSLINE-S20, I/O module)

It means the example of system configuration integrate S2T, computer processing and the net-work.

Main base	BU643D／BU648E
Power supply module	PS691／PS693／PS632／PS694／PS652
Sequence control	PU662T／PU672T
Computer	C2PU37
Ethernet	EN611／EN631／EN651A
TOSLINE-S20	SN625／SN626／SN627

Expansion system

Expansion system configuration

Up to three expansion I/O units can be connected to the main unit.

In the expansion configuration, the expansion interface IF661 and the power supply module are required in each unit. Three types of the expansion base are available depending on the I/O slot number.

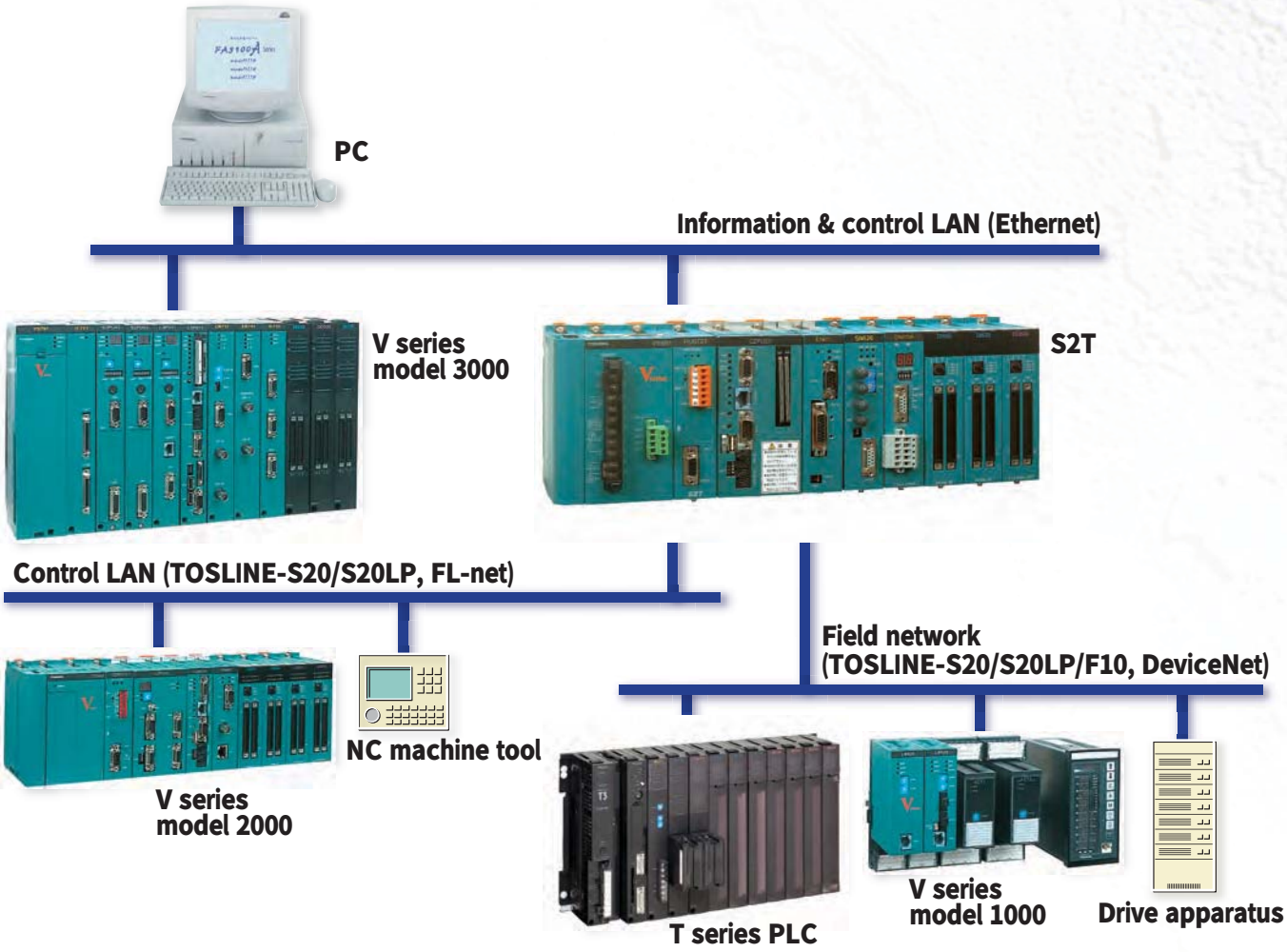
Main base	BU643D／BU648E
Power supply module	PS691／PS693／PS632／PS694／PS652
Sequence control	PU662T／PU672T
Expansion interface	IF661

Expansion base	BU668／BU666／BU664
Power supply module	PS693／PS632
Expansion interface	IF661

Network

Besides connectivity with Ethernet, FL-net, DeviceNet and other open networks, combination with Toshiba's high-speed, high-reliability networks (TOSLINE) enables configuration of the ideal network environment for your needs.

Network configuration



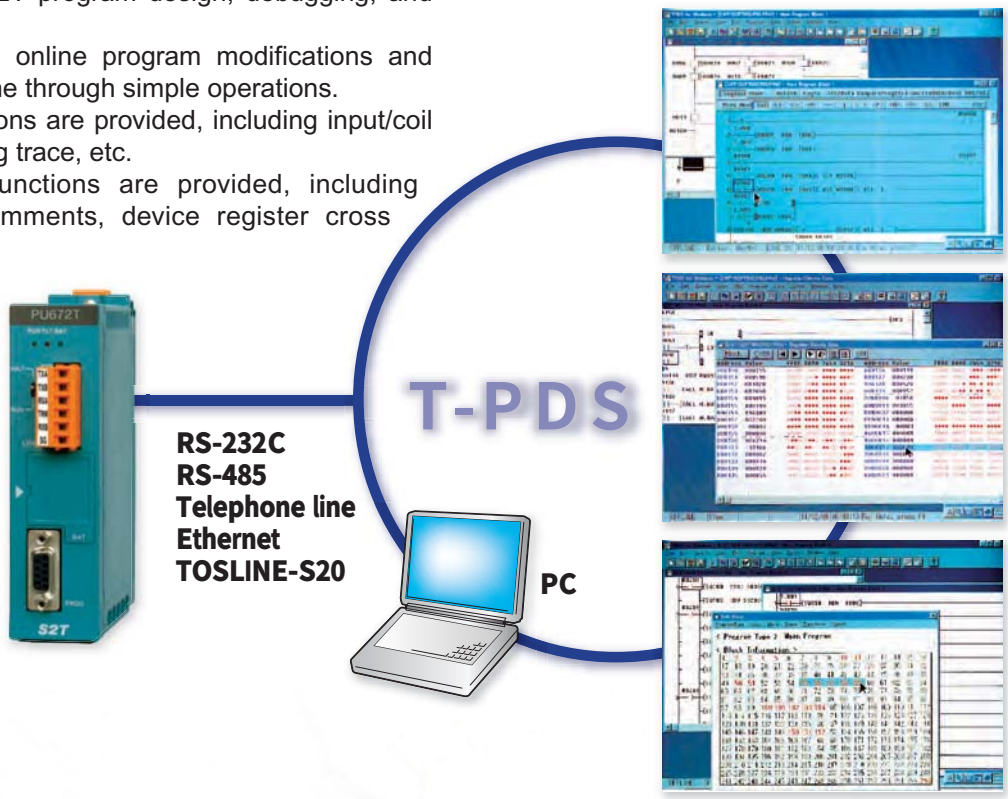
Ethernet **EN611／EN631／EN651A**	Ethernet is used for communicating with information systems and other control apparatus. Data transmission rate is 10Mbps (10BASE2 or 10BASE5) or 100Mbps (100 BASE-TX).
FL-net **FL612／FL654**	FL-net achieves a multivendor network, including PLC, display, NC machine tool, robot controller, etc., conforming to FL-net specifications. Both message transmissions and cyclic transmissions are possible and data can be transferred at high speed between control devices. Remote I/O station (FL654) is also available.
TOSLINE-S20/S20LP **SN625／SN626／SN627**	This control LAN is used for exchanging data with T series PLC, V series, Inventers, plant drives and various instrumentation devices. It enables the use of coaxial and optical fiber (S20) cables as well as optical double loop (S20LP) connections, enabling flexible configuration of system environments long network distances and excellent noise resistance. Both message transmissions and scan transmissions are possible and data can be transferred at high speed between control devices.
DeviceNet **DN611A**	DeviceNet enables a multivendor network, including remote I/O, sensors, drive apparatus and various field devices conforming to DeviceNet specifications. The use of twisted pair connections facilitates flexible network configuration, with multidrop and branch lines.
TOSLINE-F10 **UN611／UN612**	The TOSLINE-F10 is a field network for connecting with T series PLC, remote I/O, Inverter, etc. The network setting is made by simple switch settings. By using the TOSLINE-F10, high speed remote I/O netowork can be established easily.

Support software

A personal computer can be used for simple, efficient support from program design to data monitoring.

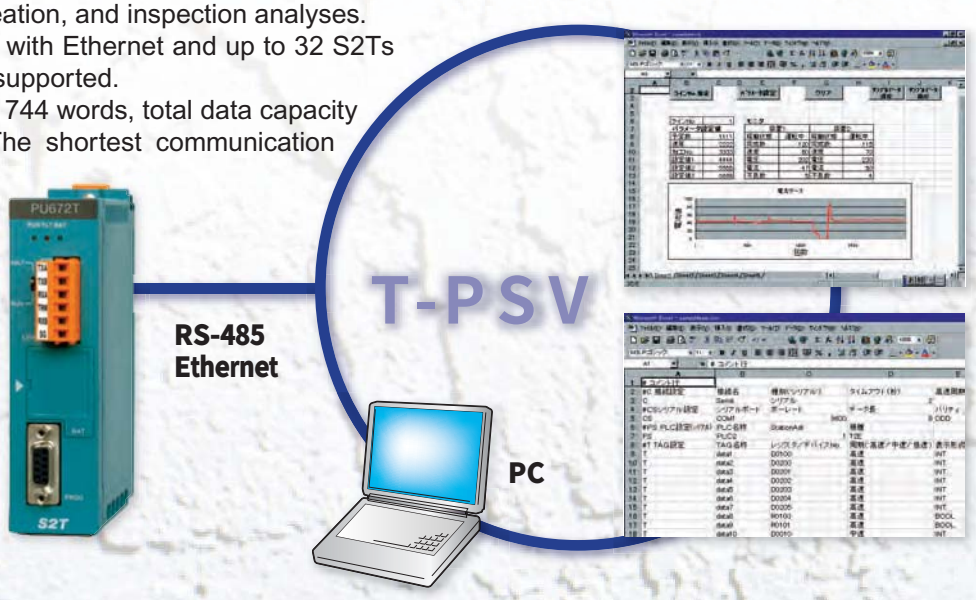
Programming tool T-PDS

Conducts all aspects of S2T program design, debugging, and maintenance.
Program creation, editing, online program modifications and data monitoring can be done through simple operations.
Excellent debugging functions are provided, including input/coil force, status latch, sampling trace, etc.
Diverse documentation functions are provided, including program printout with comments, device register cross reference, usage map, etc.
Remote maintenance is possible through the Internet or phone lines.



DDE server T-PSV

Acquires S2T data according to the set cycle, and transfers to DDE client applications, sach as Excel.
Simple real-time monitoring using Excel. Powerful data gathering, daily report automated creation, and inspection analyses.
Connections of up to 64 S2Ts with Ethernet and up to 32 S2Ts via RS-485 computer link are supported.
Maximum data per one S2T is 744 words, total data capacity with T-PSV is 4096 words. The shortest communication cycle is 0.2 seconds.



List of models

A broad selection of modules, from CPU modules to I/O modules, ideal for your system requirements.

Main compornents

Item	Description	Type	Part No.
S2T CPU	32K steps	PU662T	GPU662T*S
	64K steps, 1MB memory	PU672T	GPU672T*S
C2 CPU	Windows2000, HDD 30GB, 128MB Main Memory	C2PU37	GC2PU37ES
	Windows2000, HDD 30GB, 256MB Main Memory	C2PU37	GC2PU37GS
	WindowsXP, HDD 30GB, 256MB Main Memory	C2PU37	GC2PU37HS
	No OS, Flash Disk 2GB, 256MB Main Memory	C2PU37	GC2PU377S
Ethernet	10BASE5	EN611	GEN611**S
	10BASE2	EN631	GEN631**S
	100BASE-TX	EN651A	GEN651A*S
TOSLINE-S20	Coaxial bus, 2Mbps	SN625	GSN625**S
	Optical bus, 2Mbps	SN626	GSN626**S
	Optical loop, 2Mbps	SN627	GSN627**S

Item	Description	Type	Part No.
Main base	Station bus 5 slot + I/O 4 slot	BU648E	GBU648E*S
	Station bus 4 slot	BU643D	GBU643D*S
Expansion base	I/O slots 8 slot	BU668	GBU668**S
	I/O slots 6 slot	BU666	GBU666**S
	I/O slots 4 slot	BU664	GBU664**S
Power supply	100-240Vac, w/ shutdown I/O	PS691	GPS691**S
	100-240Vac	PS693	GPS693**S
	24Vdc	PS632	GPS632**S
	100-110Vdc	PS652	GPS652**S
	100-240Vac, w/ battery for C2 shutdown	PS694	GPS694**S
Expansion I/F	For main and expansion units	IF661	GIF661**S

Input/output modules

Item	Description	Type	Part No.
DC input	8 points(isolated), 12/24Vdc, 12/24Vac	DI632D	GDI632D*S
	16 points, 12/24Vdc	DI633	GDI633**S
	32 points, 24Vdc	DI634	GDI634**S
	64 points, 24Vdc	DI635	GDI635**S
	64 points, 24Vdc (high speed)	DI635H	GDI635H*S
	16 points, 100/110Vdc	DI653	GDI653**S
AC input	16 points, 120Vac	IN653	GIN653**S
	16 points, 240Vac	IN663	GIN663**S
DC output	16 points, 24Vdc, 1A/point	DO633	GDO633**S
	16 points, 24Vdc, 1A (source)	DO633P	GDO633P*S
	32 points, 24Vdc, 0.1A/point	DO634	GDO634**S
	64 points, 24Vdc, 0.1A/point	DO635	GDO635**S
AC output	12 points, 120V/240Vac, 0.5A	AC663	GAC663**S
Relay output	16 points, 250Vac/30Vdc, 2A	RO663	GRO663**S
	8 points(isolated), 250Vac/30Vdc, 2A/point	RO662S	GRO662S*S

Item	Description	Type	Part No.
Analog input	4ch, 1-5V, 4-20mA, 8-bit	AD624L	GAD624L*S
	4ch, 0-10V, 8-bit	AD634L	GAD634L*S
	4ch, 1-5V/4-20mA, 12-bit	AD624	GAD624**S
	4ch, ±10V, 12-bit	AD674	GAD674**S
	8ch, 1-5V/±10V/4-20mA, 16-bit	AD668	GAD668**S
	8ch(isolated), 0-5V/0-20mA, 12-bit	AD628S	GAD628S*S
	8ch(isolated), ±10V, 12-bit	AD638S	GAD638S*S
RTD input	4ch, Pt100, 12-bit	RT614	GRT614**S
Thermocouple	8ch, type K/J/E/±100mV, 16-bit	TC618	GTC618**S
Analog output	2ch, 1-5V/4-20mA, 8-bit	DA622L	GDA622L*S
	2ch, 1-5V/4-20mA, 12-bit	DA622	GDA622**S
	2ch, ±10V, 12-bit	DA672	GDA672**S
	4ch, 1-5V/±10V/4-20mA, 16-bit	DA664	GDA664**S
	4ch(isolated), 0-20mA, 16-bit	DA624S	GDA624S*S
Pulse input	2ch, 100kpps, DC5/12/24V	PI632	GPI632**S
	2ch, 100kpps, RS-422	PI672	GPI672**S
Change detect DC input	16 points, 12/24Vdc	CD633	GCD633**S
Positioning	2-axis, pulse output, 200kpps	MC612	GMC612**S
	4-axis, pulse output, 1.3Mpps	MC614	GMC614**S
Communication	1ch, RS-232C, ASCII	CF611	GCF611**S

Network Modules (I/O slot type)

Item	Description	Type	Part No.
FL-net	Controller network, 10Mbps	FL612	GFL612**S
	Remote I/O station	FL654	GFL654**S
DeviceNet	Scanner module	DN611A	GDN611A*S

Item	Description	Type	Part No.
TOSLINE-F10	Master station	UN611	GUN611**S
	Remote station	UN612	GUN612**S

Support software

Item	Description	Type	Part No.
T-PDS	Programming tool for Windows95/98/NT/Me/2000/XP	TPDS32	TMW3CE2SS
T-PSV	DDE server software	T-PSV	TPV33E2SS

Item	Description	Type	Part No.
S-LS	TOSLINE-S20 support tool, for Windows95/98/NT/Me/2000/XP	S-LS	SMW23E*SS
DeviceNet	DeviceNet Wizard for Toshiba	–	TDW33E2SS

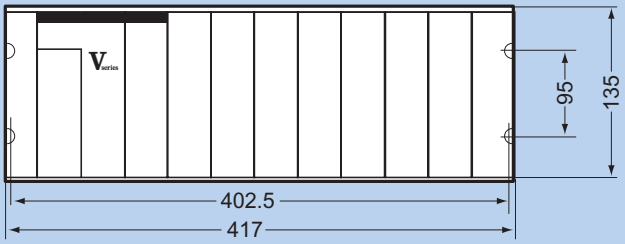
Cable and accessories

Item	Description	Type	Part No.
I/O expansion cable	0.3m	CS6R3	GCS6R3*CS
	0.5m	CS5R5	GCS6R5*CS
	0.7m	CS6R7	GCS6R7*CS
	1.2m	CS6*1	GCS6*1*CS
T-PDS cable	5 m	CJ905	TCJ905*CS

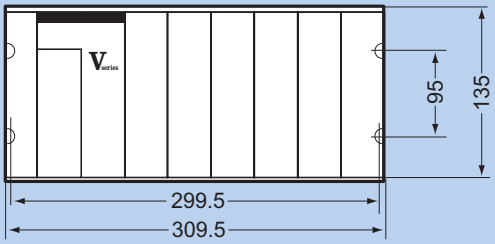
Item	Description	Type	Part No.
Battery	S2T spare battery	BT611	GBT611*AS
	Spare battery for PS694	BT662	GBT662*AS
Cover	Empty module	SP600	GSP600*AS

Dimensional diagram

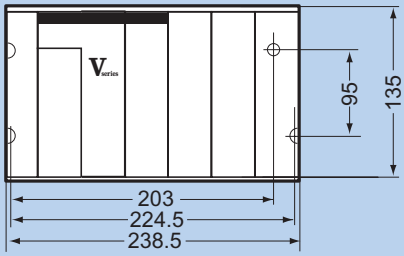
BU648E / BU668



BU666

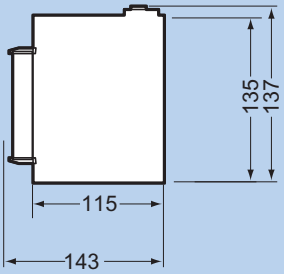


BU643D

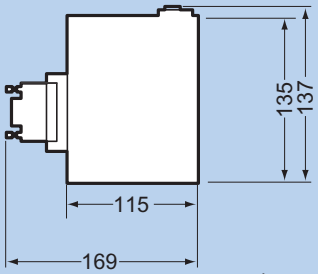


I/O module

Connection terminal type I/O module

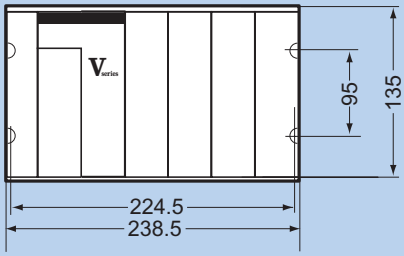


Connector type I/O module



Unit : mm

BU664



Safety Precaution

This product is intended to be used for the control of Industrial machines and processes.
Misuse of this product can result in property damage or human injury.
Read related manuals carefully before using this product.

For further information, please contact your nearest Toshiba Representative or International Operations-Producer Goods.
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