

**Programmable Operator Interface** 

# MONITOUCH

Consolidating Essential Functionality
while Enhancing Operability and Visibility



**TECHNOSHOT** 

**TS1000 Smart Series** 

# TECHNOSHOT TS1000 Smart Series

- Supports remote operation via VNC server
- Complies with several global standards (CE/KC/UL/cUL)
- Expands FROM capacity 220%\*(26 MB) \*Compared to TS1000 series



#### **Specifications**

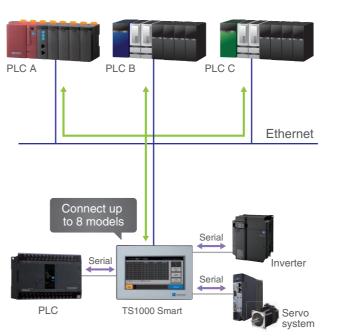
Item	1		TS1070S	TS1070Si	TS1100Si
	Screen size		7.0" widescreen		10.2" widescreen
Main unit	Display device		TFT color		
	Resolution		800 x 480 dots		
	Colors		65,536 colors		
	Backlight		LED		
	Touch screen		Analog resistive		
	Certifications		CE/KC/UL/cUL		
User memory	FROM		26MB		
	SRAM		128KB		
External interface	COM1 D-Sub9 pin (female)		RS-422/RS-485 (4-wire/2-wire)  Data length: 7, 8 bits Parity: Even, odd, none Stop bits: 1, 2 dots  Baud rate: 4,800, 9,600, 19,200, 38,400. 57,600, 76,800, 115,200, 187,500*1bps		
	COM2/COM3 D-Sub9 pin (male)		COM2: RS-232C COM3: RS-422/RS-485 (2-wire) Data length: 7, 8 bits Parity: Even, odd, none Stop bits: 1, 2 bits Baud rate: 4,800. 9,600, 19,200, 38,400. 57,600, 76,800, 115,200 bps		
	Ethernet		- 1 ch		
	USB-A		1 ch		
	USB mini-B		1 ch		
Dawer aventy	Permissible range of voltage		DC24V±10%		
Power supply	Power consumption (max. rating)		11 W o	11 W or less 12 W or less	
	Ambient temperature		0 to 50°C*2		
	Ambient humidity		85% RH or less (without dew condensation)*2		
	Contamination level		2		
Physical environment	Operation altitude		2,000 m or less		
	Atmosphere		No exposure to corrosive gas or conductive dust		
	Ambient storage temperature		-10 to 60°C*2		
	Ambient storage humidity		85% RH or less (without dew condensation)*2		
	Protective	Panel front	IP65 equivalent (when using waterproof gasket*3)/IP40 equivalent (when not using a waterproof gasket*3)		
	structure	Rear case	IP20 equivalent		
Installation conditions	Dimensions W×H×D		198.8 × 141.8	3 × 38.0 mm	266.8 × 206.8 × 38.0 mm
	Panel cutout		189.0 × 134.0	(+0.5/-0) mm	257.0 × 199.0 (+0.5/-0) mm
Case color			Black		

<sup>\*1 187,500</sup> bps is only for Siemens MPI/PPI communications. \*2 Use at a wet-bulb temperature of 39°C or less because higher temperatures may cause failure. \*3 This is an optional accessory.

## Lineup of Usability Enhancing Features

#### **01** 8-Way Communication

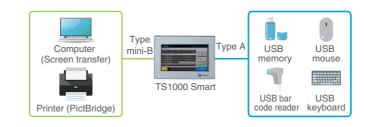
Connect up to eight types of PLC or other devices of various models from multiple manufactures at the same time via both an Ethernet and serial connection.



\* With TS1070S, up to 3 models can be connected.

#### **02** Expanded Connectivity

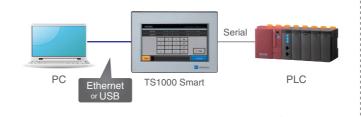
USB port (USB Ver. 2.0 compatible)
 USB port is built-in standard. Use the Type A and Type mini-B to connect to a wide range of devices.



Ladder transfer

Monitor, read and write in the ladder program by computer via TS1000 Smart.

Choose from either Ethernet or USB to connect between the computer and TS1000 Smart.



Monitor, read and write in the ladder program

#### 03 Trend Sampling

TS1000 Smart series chronologically records a broad-range of data that changes over time to display as trend graphs.

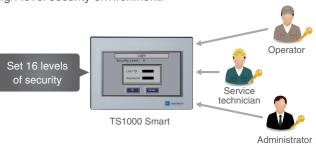
Enlarged Display Support

Enlarge the display for a particular area of the screen to verify changing waveforms of trend graphs in even more detail.



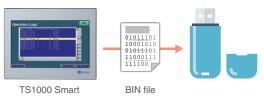
#### **04** Security Features

Restrict functions according to the user to configure a high-level security environment.



#### **05** Operation Log

Record chronological on-screen input, from switch operations to numerical inputs. Combine the operation log with security features and review attribution information to assist in identifying the cause of errors as well as aid in other diagnostics.



Save history logs as binary files to eliminate any concerns about data manipulation.

#### **06** Multilanguage

Easily toggle between up to 16 on-screen languages from a single screen to eliminate the need to sort and manage files for each language.



Compatible fonts

Japanese, English/Western Europe, Chinese (Traditional), Chinese (Simplified), Korean, central European alphabets, Cyrillic alphabets, Greek, Turkish, and Baltic alphabets

02 03

#### 01 VNC Server

Easily setup the VNC viewer tool on a computer to monitor and operate TS1000 Smart screens on the factory floor via the same computer over Ethernet connection.

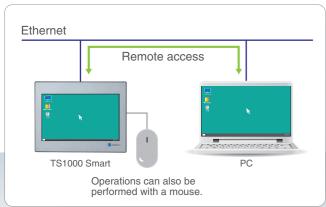
In addition, monitoring and operations can be easily

In addition, monitoring and operations can be easily conducted from a tablet device over wireless router.



#### 02 Remote Desktop\*

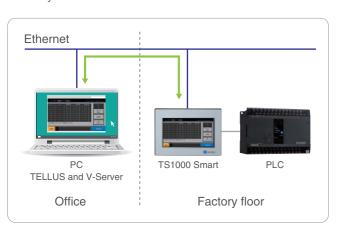
Connect via Ethernet to display and operate the server directly using TS1000 Smart.



<sup>\*</sup>A license for V-RemoteDT (usage license) is required.

#### **03** Remote Maintenance

Use the TELLUS application software to easily monitor and operate TS1000 Smart screen and PLC information remotely at low cost.



### A Wealth of Network Features to Connect via Ethernet

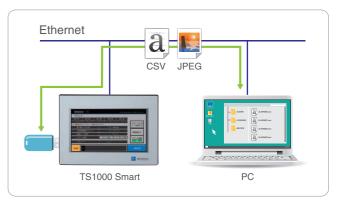
\*None of the features on this page are included with TS1070S.

TS1100Si



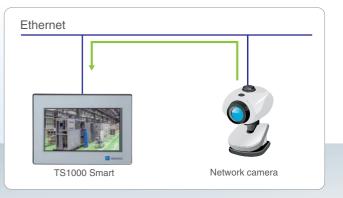
## 04 FTP Server

Use FTP client tools on a computer to read and write to USB memory mounted on TS1000 Smart.



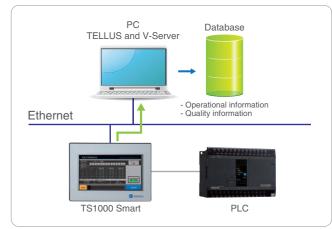
#### 05 Network Camera

Display video from a network camera connected via Ethernet with TS1000 Smart. TS1000 Smart can also monitor factory floors.



#### 06 MES (Manufacturing Execution System)

Collect broad information to store in the server database from production performance to defects and the causes of stoppages with TS1000 Smart through the V-Server.



## Application software to connect offices and factory floors at minimal cost TELLUS and V-Server

The VNC server feature is a remote monitoring and management system able to collect real-time information about factory floors, including data aggregation and data management, via the Internet whether at the office or from overseas.



Catalog No. 9022NE2

04 05

#### Achieve Sleeker Screens with Easy-to-Understand Operations



Computer	PC/AT compatible computer running Windows		
Operating system*	Windows XP/XP 64Edition/Windows Vista (32bit, 64bit)/Windows 7 (32bit, 64bit)/Windows 8 (32bit, 64bit)/Windows 8.1 (32bit, 64bit)/Windows 10 (32bit, 64bit)		
CPU	Pentium 4 2.0 GHz or higher is recommended		
Memory	2.0 GB or higher		
Hard disc	When installed: 2.0 GB or higher		
Disc device	DVD-ROM drive		
Display	1,024 × 768 (XGA) resolution or higher		
Display colors	High color (16 bits) or higher		
Other	Microsoft .NET Framework 4.0 or 4.5 (Microsoft .NET Framework 4.0 is installed automatically on computers that do not have either Microsoft .NET Framework 4.0 or 4.5 installed.)		

<sup>\*</sup>Administrator privileges are required for installation.

#### **01** Sophisticated Line-up of Icons

V-SFT Ver. 6 offers a combination of real sign and plain icons that allow users to easily create more sophisticated screens than ever before.



A wide range of icon designs have been newly added with a design that closely resembles smartphones and other familiar devices



#### Real Icons

V-SFT expands conventional real



#### **02** Expands Interlock Settings

Set the interlock via the ladder diagram display. The condition settings are easy to understand and convenient even when setting multiple conditions



#### **03** Supports Configuration with **Tool Hints**

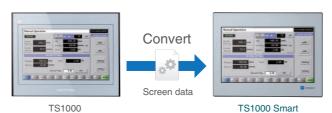
Comprehensive tool hints throughout the software support the programming of applications.

Easily configure settings without a manual by simply moving the mouse close to a setting to automatically display a supplementary description.



#### **04** Supports Conversion from **TS1000 Series**

Screen data from previous models created in older versions of V-SFT can be converted in its present form to data for the current model. This allows users to leverage their screen data assets from previous models.



**05** Intuitively Capture the **Connection Device Configuration** 

The visual representation of the hardware settings make clear which devices are connected to TS1000 Smart.



### Motion System Driving the Best Performance Together with TS1000 Smart Series

Programmable Controller MICREX-SX Series

#### **Achieves excellent cost performance** Flexibly supports machine based systems

- ♦ High-speed, high-functioning computing performance
- ♦ Variety of options for flexible applications
- ◆ 200kHz, compatible with up to 4-axis servo systems

MICREX-SX SPF Plus provides advanced motion control. such as synchronous and circular interpolation controls.



Catalog No. 22B1-E-0019





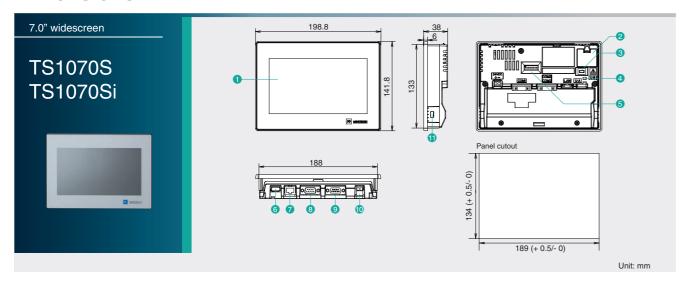


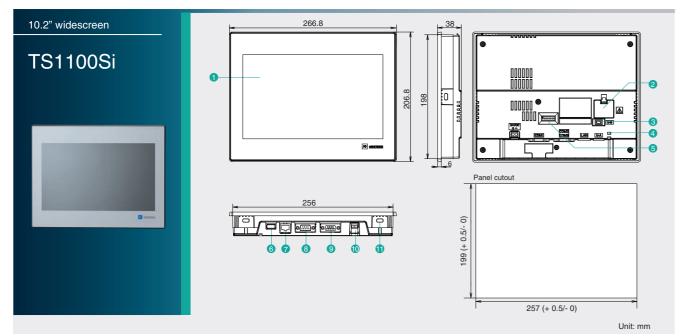
#### Servo System with Enhanced Ease-of-Use

- High-speed, high precision positioning
- Frequency response 1500Hz
- Max motor speed 6000r/min
- High resolation encoder 18bit ABS/INC 262.144 pulse 20bit INC 1,048,576 pulse
- ♦ Higher cost performance with original main feature
- New servo operator offers improved usability

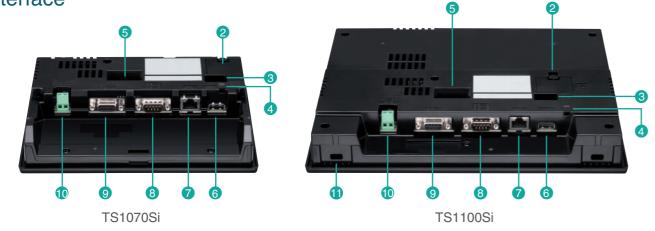


#### **Dimensions**



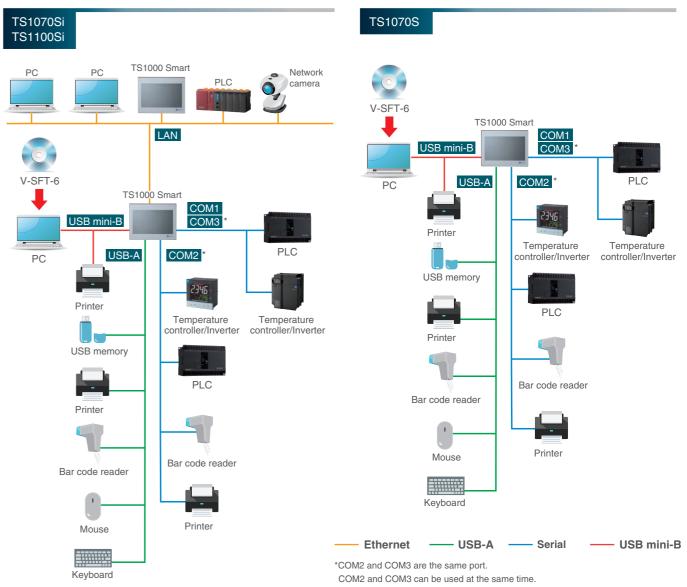


#### Interface



- 1 Display
- Display
- 2 Battery compartment
- 3 USB mini-B (U-B)4 USB cable retention
- 5 DIP switch
- 6 USB-A (U-A)
- 7 100BASE-TX/10BASE-T connector (LAN)
  \*Only TS1070Si/TS1100Si
- 8 RS-232C/RS-422/RS-485 connector (COM2/COM3)
- 9 RS-422/RS-485 connector (COM1)
- 10 Power input terminal block
- Mounting point

#### **System Configuration**



### **Optional Accessories**

## Terminal Converter TC-D9

Use the terminal converter if the communication device is connected with TS1000 Smart series via the RS-422/485 block. (COM1)



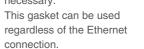
## Cable for USB-A Port UA-FR

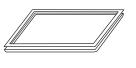
The cable is used when connecting the USB-A (sleeve) port via the board. (Cable length: 1 m)



## Waterproof Gasket TS1070S-WP/TS1100S-WP

Use the waterproof gasket if an IP65 protective structure is necessary.





08

### **Connection Device List (PLC)**

Manufacturer	Models
	MICREX-F series
	MICREX-F series V4-compatible SPB (N mode) & FLEX-PC series
Fuji Electric	SPB (N mode) & FLEX-PC CPU
	MICREX-SX SPH/SPB/SPM/SPE/SPF series MICREX-SX SPH/SPB/SPM/SPE/SPF CPU
	MICREX-SX (Ethernet)
	PLC-5
	PLC-5 (Ethernet)
	SLC500 SLC500 (Ethernet TCP/IP)
	NET-ENI (SLC500 Ethernet TCP/IP)
Allen-Bradley	NET-ENI (MicroLogix Ethernet TCP/IP)
Autor bradies	MicroLogix
	MicroLogix (Ethernet TCP/IP) ControlLogix / CompactLogix
	ControlLogix (Ethernet)
	Micro800 Controllers
	Micro800 Controllers (Ethernet TCP/IP)  Direct LOGIC (K-Sequence)
Automationdirect	Direct LOGIC (K-Sequence)
	Direct LOGIC (MODBUS RTU)
Azbil	MX series
Baumuller BECKHOFF	BMx-x-PLC ADS protocol (Ethernet)
BECKHOFF	BP series
CIMON	CP series
CIMON	S series
	S series (Ethernet)
DELTA	DVP series DVP series (MODBUS ASCII)
DELTA	DVP series (MODBUS ASCII)  DVP series (MODBUS TCP/IP)
EATON Cutler-Hammer	ELC
EMERSON	EC10/20/20H (MODBUS RTU)
FANUC Fatal Automation	Power Mate
Fatek Automation FESTO	FACON FB series FEC
FUFENG	APC series Controller
	90 series
	90 series (SNP-X)
GE Fanuc	90 series (SNP) 90 series (Ethernet TCP/IP)
	RX3i (Ethernet TCP/IP)
	HIDIC-S10/2a,S10mini
	HIDIC-S10/2a,S10mini (Ethernet)
Hitachi	HIDIC-S10/4a HIDIC-S10V
	HIDIC-S10V HIDIC-S10V (Ethernet)
	HIDIC-H
Hitachi Industrial	HIDIC-H (Ethernet)
Equipment Systems	HIDIC-EHV
	HIDIC-EHV (Ethernet) Hi5 Robot (MODBUS RTU)
HYUNDAI	Hi4 Robot (MODBUS RTU)
	MICRO 3
IDEC	MICRO Smart
Jetter	MICRO Smart pentra  JetControl series2/3 (Ethernet UDP/IP)
jettei	TOYOPUC
	TOYOPUC (Ethernet)
JTEKT	TOYOPUC (Ethernet PC10 mode)
, . =	TOYOPUC-Plus TOYOPUC-Plus (Ethernet)
	TOYOPUC-Nano (Ethernet)
	KZ series Link
	KZ-A500 CPU
	KZ/KV series CPU KZ24/300 CPU
	KV10/24 CPU
KEYENCE	KV-700
	KV-700 (Ethernet TCP/IP)
	KV-1000 KV-1000 (Ethernet TCP/IP)
	KV-1000 (Ethernet TCP/TP) KV-3000/5000
	KV-3000/5000 (Ethernet TCP/IP)
	KV-7000 (Ethernet TCP/IP)
	SU/SG SR-T (K protocol)
KOYO ELECTRONICS	SU/SG (K-Sequence)
	SU/SG (MODBUS RTU)
	MASTER-KxxxS
	MASTER-KxxxS CNET MASTER-K series (Ethernet)
	GLOFA CNET
	GLOFA GM7 CNET
	GLOFA GM series CPU
1.0	GLOFA GM series (Ethernet UDP/IP) XGT/XGK series CNET
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Manufacturer	As of A <sub>l</sub> Models
Mandidetarer	FX-3U/3UC/3G series CPU
	FX-3U/3GE series (Ethernet)
	FX-3U/3UC/3UG series link (A protocol)
	FX-5U/5UC series
MITSUBISHI ELECTRIC	FX-5U/5UC series (Ethernet) A-link + Net10
	Q170MCPU (multi CPU)
	Q170 series (multi CPU) (Ethernet)
	iQ-R series (Built-in Ethernet)
	iQ-R series link iQ-R series (Ethernet)
MODICON	MODBUS RTU
MOELLER	PS4
	SYSMAC C
	SYSMAC CV SYSMAC CS1/CJ1
	SYSMAC CS1/CJ1 DNA
OMRON	SYSMAC CS1/CJ1 (Ethernet)
	SYSMAC CS1/CJ1 (Ethernet Auto)
	SYSMAC CS1/CJ1 DNA (Ethernet)  NJ Series (EtherNet/IP)
	FP series (RS232C/422)
	FP series (TCP/IP)
anasonic	FP series (UDP/IP)
	FP-X (TCP/IP) FP7 series (RS232C/422)
	FP7 series (RS232C/422) FP7 series (Ethernet)
	NX7/NX Plus series (70P/700P/CCU+)
	N7/NX series (70/700/750/CCU)
S Automation	NX700 series (Ethernet)
	X8 series X8 series (Ethernet)
	PCD
AIA	PCD S-BUS (Ethernet)
AMCUNG	SPC series
AMSUNG	N_plus SECNET
	JW series
	JW100/70H COM port
LIADD	JW20 COM port
HARP	JW series (Ethernet)
	JW300 series JW311/312/321/322 series (Ethernet)
	JW331/332/341/342/352/362 series (Ethernet)
	S5 PG port
	\$7 \$7,200 pp.
	S7-200 PPI S7-200 (Ethernet ISOTCP)
i	S7-300/400 MPI
emens	S7-300/400 (Ethernet ISOTCP)
	S7-300/400 (Ethernet TCP/IP protocol)
	S7-1200/1500 (Ethernet ISOTCP)
	TI500/505 TI500/505 V4 Compatible
INFONIA TECHNOLOGY	SELMART
ECO	TP-03 (MODBUS RTU)
elemecanique	TSX Micro
	T series /V series (T compatible) T series /V series (T compatible) (Ethernet UDP/IP)
OSHIBA	EX series
	nv series (Ethernet UDP/IP)
OSHIBA MACHINE	TC200
OYO DENKI	μ GPCsx series μ GPCsx CPU
JIO DEINKI	μ GPCsx CPU μ GPCsx series (Ethernet)
urck	BL series Distributed I/O (MODBUS TCP/IP)
ltra Instruments	UIC CPU (MODBUS ASCII)
NITRONICS	M90/M91/Vision series (ASCII)
'IGOR	Vision series (ASCII Ethernet TCP/IP)  M series
	750 series (MODBUS RTU)
AGO	750 series (MODBUS Ethernet)
NJE	XC series (MODBUS RTU)
	Memobus
	CP9200SH/MP900 MP2300 (MODBUS TCP/IP)
	CP/MP expansion memobus (UDP/IP)
askawa Electric	MP2000 series
	MP2000 series (UDP/IP)
	MP3000 series MP3000 series (Ethernet UDP/IP)
	MP3000 series (Ethernet ODP/IP) MP3000 series expansion memobus (Ethernet)
	FA-M3
	FA-M3R
	FA-M3/FA-M3R (Ethernet UDP/IP)
okogawa Electric	FA-M3/FA-M3R (Ethernet UDP/IP ASCII) FA-M3/FA-M3R (Ethernet TCP/IP)
SWODOWG EICCUIC	FA-M3/FA-M3R (Ethernet TCP/IP)
	FA-M3V
	FA-M3V (Ethernet)
	FA-M3V (Ethernet ASCII)
	Universal serial Without PLC Connection
	MODBUS RTU
one	MODBUS RTU EXT Format
one	MODBUS TCP/IP (Ethernet)
	MODBUS TCP/IP (Ethernet) Sub Station
	MODBUS TCP/IP (Ethernet) EXT Format

## Connection Device List (Temperature Controller/Servo/Inverter)

Connection D	evice List (Temp
Manufacturer	Models
	PYX (MODBUS RTU)
	PXR (MODBUS RTU) PXF (MODBUS RTU)
	PXG (MODBUS RTU)
	PXH (MODBUS RTU)
	PUM (MODBUS RTU) F-MPC04P (loader)
	F-MPC series/FePSU
	FVR-E11S
	FVR-E11S (MODBUS RTU) FVR-C11S (MODBUS RTU)
	FRENIC5000 G11S/P11S
	FRENICEOOD VC75 (MODBUS RTU)
	FRENIC5000 VG7S (MODBUS RTU) FRENIC-Ace (MODBUS RTU)
	FRENIC-Eco (MODBUS RTU)
	FRENIC-HVAC/AQUA (MODBUS RTU) FRENIC-MEGA (MODBUS RTU)
	FRENIC-MEGA SERVO (MODBUS RTU)
Fuji Electric	FRENIC-Mini (MODBUS RTU)
	FRENIC-Multi (MODBUS RTU) FRENIC-VG1 (MODBUS RTU)
	FRENIC series (loader)
	HFR-C9K
	HFR-C11K HFR-K1K
	PPMC (MODBUS RTU)
	FALDIC- α series
	PH series
	PHR (MODBUS RTU)
	APR-N (MODBUS RTU)
	ALPHA5 (MODBUS RTU)
	ALPHA5 Smart (MODBUS RTU)
	WE1MA (Ver. A) (MODBUS RTU) WE1MA (Ver. B) (MODBUS RTU)
	WSZ series
A =11 == 4	WSZ series (Ethernet)
ASAHI ENGINEERING	4263 series Stepping Motor
7.57.11 ENGINEERING	SDC10
	SDC15
	SDC20 SDC21
	SDC25/26
	SDC30/31 SDC35/36
	SDC45/46
Azbil	SDC40A
	SDC40G DMC10
	DMC50 (COM)
	AHC2001
	DCP31/32
	NX (CPL)
	NX (MODBUS RTU)
	NX (MODBUS TCP/IP) AD4402 (MODBUS RTU)
A&D	AD4404 (MODBUS RTU)
Banner Bosh Rexroth	Presence PLUS (Ethernet/IP (TCP/IP)) Indra Drive
BOSII REXIOTII	LT400 series (MODBUS RTU)
	DP1000
CHINO	DB1000B (MODBUS RTU) KR2000 (MODBUS RTU)
CHINO	LT230 (MODBUS RTU)
	LT300 (MODBUS RTU)
	LT830 (MODBUS RTU) PMAC
DELTA TAU DATA SYSTEMS	PMAC (Ethernet TCP/IP)
Gammaflux	TTC2100
High-Pressure Gas Industry	R-BLT SJ300 series
Hitachi Industrial Equipment Systems	SJ700 series
	X-SEL controller ROBO CYLINDER (RCP2/ERC)
IAI	ROBO CYLINDER (RCPZ/ERC) ROBO CYLINDER (RCS/E-CON)
	PCON/ACON/SCON (MODBUS RTU)
KOGANEI Lenze	Servo Drive 9400 (Ethernet TCP/IP)
	FR-*500
	FR-V500
	MR-J2S-*A MR-J2S-*CL
MITSUBISHI ELECTRIC	MR-J3-*A
	MR-J3-*T MR-J4-*A
	FR-E700
MOOG	J124-04x series
M-SYSTEM	R1M series (MODBUS RTU) E5AK
	E5AK-T
	E5AN/E5EN/E5CN/E5GN
	E5AR/E5ER E5CK
	E5CK-T
OMBON	ESCN-HT
OMRON	E5EK E5ZD
	E5ZE
	V600/620/680
	KM20
	KM100
	V680S (Ethernet TCP/IP) High-efficiency AR series (MODBUS RTU)
Oriental Motor	CRK series (MODBUS RTU)
Panasonic	LP-400 KW series
	IVAN PELIEP

Manufacturer	Models
Panasonic	MINAS A4 series
	SR-Mini (MODBUS RTU)
	CB100/CB400/CB500/CB700/CB900 (MODBUS RT
	SR-Mini (Standard Protocol)
	REX-F400/F700/F900 (Standard Protocol)
RKC	REX-F9000 (Standard Protocol)
	SRV (MODBUS RTU)
	MA900/MA901 (MODBUS RTU)
	SRZ (MODBUS RTU)
	FB100/FB400/FB900 (MODBUS RTU)
RS Automation	CSD5 (MODBUS RTU)
	Moscon-F50 (MODBUS RTU)
SANMEI	Cuty Axis
SanRex	DC AUTO (HKD type)
SHARP	DS-30D
SHARP	DS-32D
SHIMADEN	SHIMADEN standard protocol
	C series
	FC series
	GC series
	DCL-33A
SHINKO TECHNOS	JCx-300 series
51111110 120111105	PC-900
	PCD-33A
	ACS-13A
	ACD/ACR series
	WCL-13A
Siemens	S120 (Ethernet ISOTCP)
SUS	XA-A*
	TTM-000
ТОНО	TTM-00BT
	TTM-200 (MODBUS RTU)
Tokyo Chokoku Marking Products	MB3315/1010
	VF-S7
	VF-S9
	VF-S11
	VF-S15
	VF-A7
TOSHIBA	VF-AS1
TOSHIBA	VF-P7
	VF-PS1
	VF-FS1
	VF-MB1
	VF-nC1
	VF-nC3
TOSHIBA MACHINE	VELCONIC series
ULVAC	G-TRAN series
	F340A
	F371
UNIPULSE	F800
	F720A
	F805A
V	
YAMAHA	RCX142
Yaskawa Electric	DX200 (High-Speed Ethernet)
	UT100
	UT750
	UT550
	UT520
	UT350
	UT320
Yokogawa Electric	
	UT2400/2800
	UT450
	UT32A/35A (MODBUS RTU)
	UT52A/55A (MODBUS RTU)
	UT75A (MODBUS RTU)
	μR10000/20000 (Ethernet TCP/IP)
	MODBUS RTU
None	MODBUS RTU MODBUS TCP/IP (Ethernet)
Notic	

<sup>\*</sup>The names of the companies and products included in this document are the trademarks or registered trademarks of their respective companies.
\*TS1070S does not support an Ethernet connection.

<sup>11</sup> 



#### Safety Considerations

- For safe operation, read the instruction manual or user manual that comes with the product carefully or consult the distributor from which you purchased the product, before using the product.
- Products introduced in this catalog have not been designed or manufactured for such applications in a system or equipment that will affect human bodies or lives.
- Customers, who want to use the products introduced in this catalog for special systems or devices such as for atomic-energy control, aerospace use, medical use, passenger vehicle, and traffic control, are requested to consult the Hakko Overseas Sales Section.
- Customers are requested to prepare safety measures when they apply the products introduced in this catalog to such systems or facilities that will affect human lives or cause severe damage to property if the products become faulty.
- For safe operation, wiring should be conducted only by qualified engineers who have sufficient technical knowledge about electrical work or wiring.

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