

Programmable Operator Interface

TECHNOSHOT

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- 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.
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- For safe operation, wiring should be conducted only by qualified engineers who have sufficient technical knowledge about electrical work or wiring.

Notes to consider before purchasing

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- Consult your distributor or us for further information about products in this catalog.

www.monitouch.com

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Quick and accurate machine data at your fingertips



Hakko Electronics Co., Ltd.

The functions that meet the needs of production sites



TS2060

5.7Inches

QVGA

64KColors

TFT

LEDBacklight

2chSerial

USBminiB

CE

K

UL

TS2060i

5.7Inches

QVGA

64KColors

TFT

LEDBacklight

2chSerial

USBminiB

USB A

SDcard

Built-in Ethernet

Comm unit*

CE

K

UL

* DUR-00 and CUR-xx can be attached.

		TS2060	TS2060i
Screen memory (FROM)		2.5M bytes	10.5M bytes
Backup memory (SRAM)		128K bytes	512K bytes
Stroke font		—	Compatible
Screen specifications	Display device	TFT color	
	Resolution	320 × 240 dots	
	Display size	5.7 inches (QVGA)	
	Colors	65,536 colors(The software is compatible with displays in 32K colors, 256 colors, 128 colors and monochrome.)	
	Backlight	LED	
Touch switch	Backlight life	50,000 hrs	
	Type	Analog resistive film	
Function switch	Number of switches	6	
External interface	D-Sub 9-pin ^{*1}	—	RS-232C/RS-422/RS-485, asynchronous type, Data length: 7, 8 bits, Parity: odd, even, none, Stop bit: 1, 2 bits, Baud rate: 4800, 9600, 19200, 38400, 57600, 76800, 115200 bps
	Modular 8-pin (MJ1/2)	RS-232C/RS-422(4-wire type) ^{*2} /RS-485 (2-wire type), asynchronous type, Data length: 7, 8 bits, Parity: odd, even, none, Stop bit: 1, 2 bits, Baud rate: 4800, 9600, 19200, 38400, 57600, 76800, 115200, 187500 bps ^{*3}	
	SD card	—	1 card slot(SD/SDHC card)
	Ethernet	—	1CH, Baud rate: 100Mbps, 10Mbps
	USB	Type mini-B (Ver. 2.0)	Type A, Type mini-B (Ver. 2.0)
Power supply	Communication unit	—	CUR-xx compatible
	Permissible range of voltage	DC24 V ± 10%	
Physical environment	Demand (maximum rating)	13W or lower	
	Ambient temperature	0°C ~ +50°C ^{*4}	
	Ambient storage temperature	-10°C ~ +60°C ^{*4}	
	Ambient humidity	85% RH or less (without dew condensation)	
	Storage humidity	85% RH or less (without dew condensation)	
	Operation altitude	2,000 meters or less	
	Operation atmosphere	Not exposed to corrosive gas or excessive dust (free of conductive dust)	
	Contamination level	Level 2	
	Grounding resistance	Less than 100 Ω, FG/SG separation	
Installation conditions	Protect structure	Front panel: Compatible with IP65 (when gasket is used), Rear cover: Compatible with IP20	
	Cooling system	Natural air cooling	
	Dimensions W×H×D	182.5 × 138.8 × 45.8 mm	
	Panel cutout	174.0 ^{+0.5} × 131.0 ^{+0.5} mm(Same as for V806/V606e/S806)	
Compatible standards		CE/KC/UL61010-1, UL61010-2-201	
Case color		Black	
Battery		Built-in button battery / Battery life: 5 years (ambient temperature 25°C)	

*1 Only when an optional unit DUR-00 is attached to TS2060i. *2 Only MJ2 is compatible with 4-wire system.
*3 SIEMENS MPI / PPI at 187500 bps is available only with MJ2. *4 Keep wet bulb temperature under 39°C to avoid malfunction.

support the development of speedy production systems.

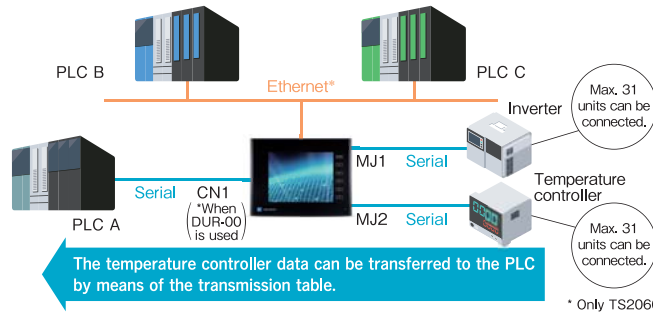
Connection and data transmission with multiple devices are possible.

8-way Communication

One TS unit can connect up to eight types of PLC and peripherals via Ethernet (8 protocols) and serial connection (3 protocols).

Gateway Function (Transmission Table)

Data of multiple units can be read and written by means of the Transmission Table.



Use of SD Cards for Greater Convenience (TS2060i only)

Sampling Function

Sampling data of the PLC and temperature controller are shown on trend graphs, and saved as CSV files in the SD card.

Recipe Function

Production conditions and parameters are saved as CSV files in the SD card, and read into the PLC when necessary.



Screen Data Transmission

Screen data is saved in the SD card and transferred without using a PC.

Functions that Improve Convenience and Safety

Multilanguage

You can change the language displayed on the screen to one of 16 languages. You do not need to manage files for each language.

Compatible language fonts	Japanese, English/ Western European, Chinese (traditional and simplified), Korean, Central European, Cyrillic, Greek, Turkish and Baltic (Other languages can be displayed by using Windows fonts.)
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Security Function

By setting a function limit according to the user level, a high-security environment can be established.



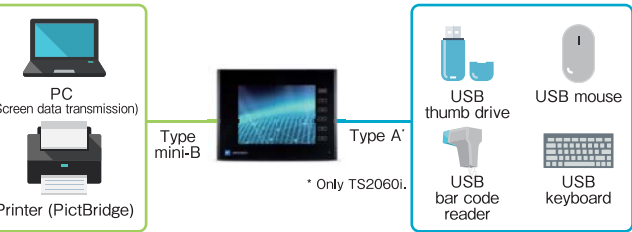
Operation Log*

You can view log data for operations such as pushing of buttons and entering of values to analyze the causes of failure.

Expansion of connectivity by means of USB ports

USB Port (Compatible with USB Ver.2.0)

The unit comes with USB ports. Various devices can be connected using Type A* and Type mini-B ports.



Path-through Programming

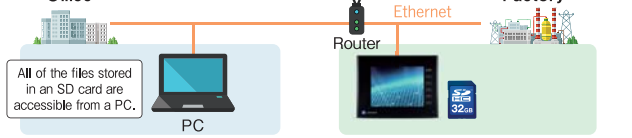
PLC program data can be transferred via the USB slave port. There is no need for cable insertion and removal.



Versatile Network Functions for Increasing Production Efficiency

FTP Server Function

Data stored in an SD card of TS2060i in a remote place can be read out and modified.



MES Incorporated

Various kinds of information such as production quantity, number of defective products and cause of production stoppage are sent in SQL from TS2060i to the database via V-Server. No program is needed for communication with the database. (MES: Manufacturing Execution System)

A Product Line that Meets a Wide Variety of Needs

Special Models

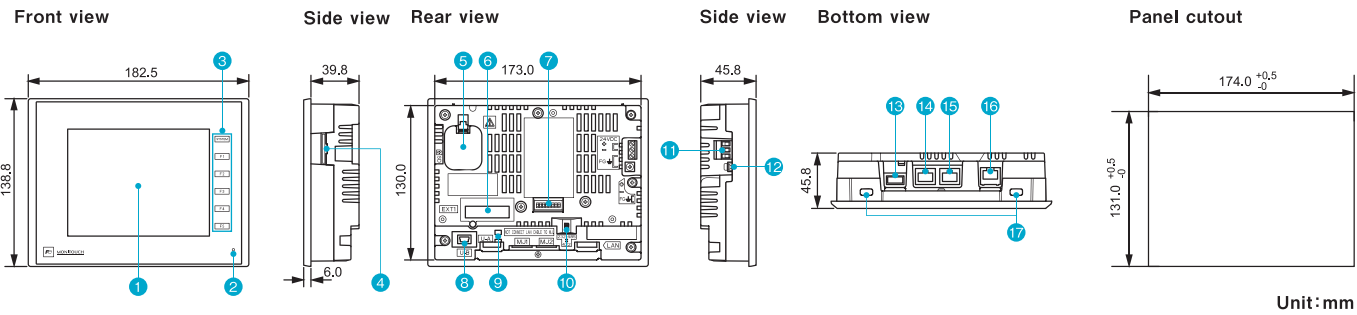
Model	Specifications
TS2060□-U003	Without function switches and Fe-MONITOUCH logo
TS2060□-U150	Without Fe-MONITOUCH logo
TS2060□-004	Sulfidizing-gas resistant

Vertical Installation

Vertical screen layout (90° rotation) is available for display and editing. The viewing angle is 80° and it is easy to see the screen even when it is installed vertically.



Dimensions and Part Names



Part Names

① Display	⑦ DIP switch	⑬ USB-A (U-A) *
② Power lamp	⑧ USB mini-B (U-B)	⑭ Modular jack (MJ1)
③ Function switches	⑨ USB cable fixing hole	⑮ Modular jack (MJ2)
④ SD card connector (SD) *	⑩ Slide switch	⑯ 100BASE-TX/10BASE-T connector (LAN) *
⑤ Battery holder	⑪ Terminal block	⑰ Screw hole
⑥ Communication interface unit connector (EXT1) *	⑫ Communication FG terminal	

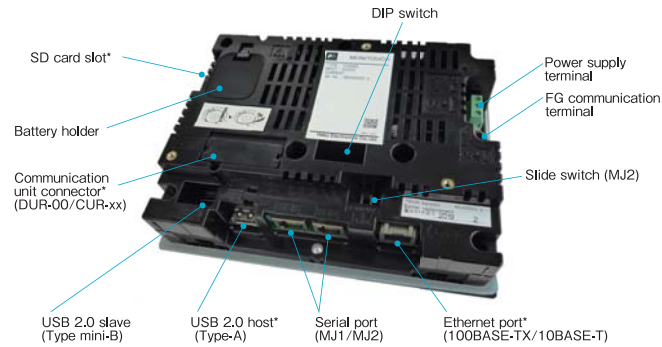
* Only TS2060i.

Model Designation

TS2060i
TS2060

i : Optional unit DUR-00 and CUR-xx can be attached.
SD/SDHC slot: 1CH
Ethernet: 1CH
USB Type A: 1 port
External 5V power supply available
None : No above external interfaces
External 5V power supply not available

Interface



* Only TS2060i.

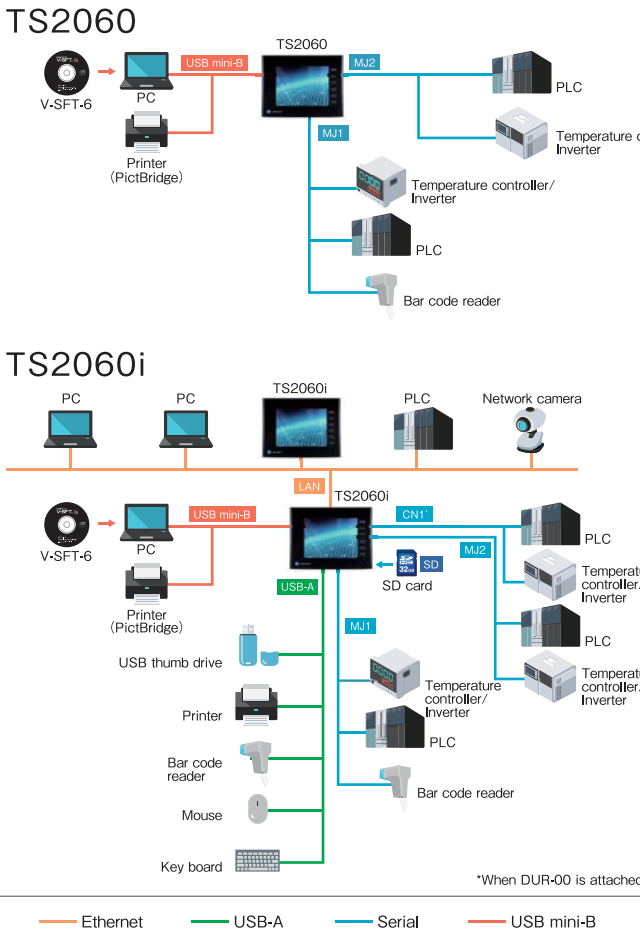
Optional Units

- V-SFT-6** (Configuration software)
Compatible OS: Windows XP / XP 64 Edition / Vista (32bit,64bit) Win7 (32bit,64bit) / Win8 (32bit,64bit) / Win8.1 (32bit,64bit) / Win10 (32bit,64bit)
- TC-D9** (Terminal Converter) *
RS-422/485 terminal converter to connect DUR-00 and a communication unit
- UA-FR** (USB-A port cable) *
Cable to connect to the USB-A (master) port
- V906T-GS, V906T-GSN10**
Protection sheet (5 sheets)
Non-glare type (V906T-GSN10) is available.
- TS-BT** (Battery)
Lithium battery for TS2000 series
- DUR-00** (Optional unit) *
For attaching a Dsub9 pin
- CUR-xx** (Communication interface units) *
Communication units for connecting with networks.
CUR-00 : OPCN-1 CUR-04 : PROFIBUS-DP
CUR-01 : T link CUR-06 : SX bus
CUR-02 : CC-Link CUR-07 : DeviceNet
CUR-03 : Ethernet CUR-08 : FL-net

⚠ DUR-00 and CUR-xx cannot be used simultaneously.

* Only TS2060i.

System Configuration



PLC driver list

Maker	PLC
Allen-Bradley	PLC-5
	PLC-5 (Ethernet)
	SLC500
	SLC500 (Ethernet TCP/IP)
	NET-ENI (SLC500 Ethernet TCP/IP)
	NET-ENI (MicroLogix Ethernet TCP/IP)
	MicroLogix
	MicroLogix (Ethernet TCP/IP)
	ControlLogix / CompactLogix
	ControlLogix (Ethernet)
	Micro 800 Controllers
	Micro 800 Controllers (Ethernet TCP/IP)
	Direct LOGIC (K-Sequence)
	Direct LOGIC (Ethernet UDP/IP)
Automationdirect	Direct LOGIC (MODBUS RTU)
Azbil	MX series
Baumüller	BMx-x-PLC
Beckhoff	ADS Protocol (Ethernet)
CIMON	BP Series
	CP Series
	S Series
	S Series (Ethernet)
	DVP series
DELTA	ELC
EATON Cutler-Hammer	ELC
EMERSON	EC10/EC20/EC20H (MODBUS RTU)
FANUC	Power Mate
FATEK AUTOMATION	FACON FB series
FUFENG	APC Series Controller
Fuji Electric	MICREX-F series
	MICREX-F series V4-compatible
	MICREX-F T-Link
	MICREX-F T-Link V4-compatible
	SPB (N mode) & FLEX-PC series
	SPB (N mode) & FLEX-PC CPU
	MICREX-SX (T-Link)
	MICREX-SX (OPCN-1)
	MICREX-SX (SX bus)
	MICREX-SX SPH/SPB/SPM/SPE series
	MICREX-SX SPH/SPB/SPM/SPE CPU
	MICREX-SX (Ethernet)
	90 series
	90 series (SNP-X)
GE Fanuc	90 series (SNP)
	90 series (Ethernet TCP/IP)
	RX3i (Ethernet TCP/IP)
	HIDIC-S10/2alpha, S10mini
Hitachi	HIDIC-S10/2alpha, S10mini (Ethernet)
	HIDIC-S10/4alpha
	HIDIC-S10V
	HIDIC-S10V (Ethernet)
Hitach Industrial Equipment Systems	HIDIC-H
	HIDIC-H (Ethernet)
	HIDIC-EHV
	HIDIC-EHV (Ethernet)
HYUNDAI	Hi5 Robot (MODBUS RTU)
	Hi4 Robot (MODBUS RTU)
IDEC	MICRO3
	MICRO Smart
Jetter	MICRO Smart pentra
	JetControl Series2/3 (Ethernet UDP/IP)
JTEKT	TOYOPUC
	TOYOPUC (Ethernet)
	TOYOPUC (Ethernet PC10 mode)
	TOYOPUC-Plus
	TOYOPUC-Plus (Ethernet)
KEYENCE	KZ series link
	KZ-A500 CPU
	KZ/KV series CPU
	KZ24/300 CPU
	KV10/24 CPU
	KV-700
	KV-700 (Ethernet TCP/IP)
	KV-1000
	KV-1000 (Ethernet TCP/IP)
	KV-3000/5000
KOYO ELECTRONICS	KV-3000/5000 (Ethernet TCP/IP)
	KV-7000 (Ethernet TCP/IP)
	SU/SG

Maker	PLC
KOYO ELECTRONICS	SR-T (K protocol)
	SU/SG (K-Sequence)
	SU/SG (MODBUS RTU)
	MASTER-KxxxS
LS	MASTER-KxxxS CNET
	MASTER-K series (Ethernet)
	GLOFA CNET
	GLOFA GM7 CNET
	GLOFA GM series CPU
	GLOFA GM series (Ethernet UDP/IP)
	XGT/XGK series CNET
	XGT/XGK series CPU
	XGT/XGK series (Ethernet)
	XGT/XGI series CNET
	XGT/XGI series CPU
	XGT/XGI series (Ethernet)
	A series link
	A series CPU
MITSUBISHI ELECTRIC	A series (OPCN-1)
	QnA series link
	QnA series CPU
	QnA series (Ethernet)
	QnH (Q) series link
	QnH (Q) series CPU
	QnU series CPU
	Q00J/00/01 CPU
	QnH (Q) series (Ethernet)
	QnH (Q) series link (multi CPU)
	QnH (Q) series (multi CPU) (Ethernet)
	QnH (Q) series CPU (multi CPU)
	QnH (Q) series (Ethernet ASCII)
	QnH (Q) series (multi CPU) (Ethernet ASCII)
	QnU series (built-in Ethernet)
	L series link
	L series (built-in Ethernet)
	L series CPU
	A series (CC-LINK)
	QnA series (CC-LINK)
	QnH (Q) series (CC-LINK)
	FX series CPU
	FX2N/1N series CPU
	FX1S series CPU
	FX series link (A protocol)
	FX3U/3UC/3G series CPU
	FX3U/3GE series (Ethernet)
	FX3U/3UC/3G series link (A protocol)
	FX5U/5UC series
	FX5U/5UC series (Ethernet)
	Alink+Net10
	Q170MCP (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
OMRON	SYSMAC C
	SYSMAC C (OPCN-1)
	SYSMAC CV
	SYSMAC CS1/CJ1
	SYSMAC CS1/CJ1 DNA
	SYSMAC CS1/CJ1 (Ethernet)
	SYSMAC CS1/CJ1 (Ethernet Auto)
Panasonic	FP Series (RS232C/422)
	FP Series (TCP/IP)
	FP Series (UDP/IP)
	FP-X (TCP/IP)
	FP7 Series (RS232C/422)
RS Automation	FP7 Series (Ethernet)
	NX7/NX Plus Series (70P/700P/CCU+)
	N7/NX Series (70/700/750/CCU)
	NX700 Series (Ethernet)
SAIA	X8 Series
	X8 Series (Ethernet)
	PCD
	PCD S-BUS (Ethernet)

PLC driver list

Maker	PLC
SAMSUNG	SPC series
	N_plus
	SECNET
SHARP	JW series
	JW100/70H COM port
	JW20 COM port
	JW series (Ethernet)
	JW300 series
	JW311/312/321/322 series (Ethernet)
SINFONIA TECHNOLOGY	JW331/332/341/342/352/362 series (Ethernet)
	SELMART
Siemens	S5 PG port
	S7
	S7-200 PPI
	S7-200 (Ethernet ISOTCP)
	S7-300/400MPI
	S7-300/400 (Ethernet ISOTCP)
	S7-300/400 (Ethernet TCP/IP PG protocol)
	S7-1200/1500 (Ethernet ISOTCP)
	S7 PROFIBUS-DP
	Ti500/505
	Ti500/505 V4 Compatible
	TP03 (MODBUS RTU)
TECO	TSX Micro
Telemecanique	TSX Micro
TOSHIBA	T series / V series (T compatible)
	T series / V series (T compatible) (Ethernet UDP/IP)
	EX series
TOSHIBA MACHINE	nv series (Ethernet UDP/IP)
	TC200
TOYO DENKI	μGPCsx (OPCN-1)
	μGPCsx (SX bus)
	μGPCsx series
	μGPCsx CPU
	μGPCsx series (Ethernet)
TURCK	BL Series Distributed I/O (MODBUS TCP/IP)
Ultra Instruments	UIC CPU (MODBUS ASCII)
UNITRONICS	M90/M91 /Vision Series (ASCII)
VIGOR	Vision Series (ASCII Ethernet TCP/IP)
VIGOR	M series
WAGO	750 series (MODBUS RTU)
WAGO	750 series (MODBUS Ethernet)
XINJE	XC Series (MODBUS RTU)
Yaskawa Electric	MEMOBUS
	CP9200SH/MP900
	MP2300(MODBUS TCP/IP)
	CP/MP EXPANSION MEMOBUS (UDP/IP)
	MP2000 series
	MP2000 series(UDP/IP)
	MP3000 series (Ethernet UDP/IP)
	MP3000 series EXPANSION MEMOBUS (Ethernet)
Yokogawa Electric	FA-M3
	FA-M3R
	FA-M3/FA-M3R (Ethernet UDP/IP)
	FA-M3/FA-M3R (Ethernet UDP/IP ASCII)
	FA-M3/FA-M3R (Ethernet TCP/IP)
	FA-M3/FA-M3R (Ethernet TCP/IP ASCII)
	FA-M3V
	FA-M3V (Ethernet)
	FA-M3V (Ethernet ASCII)
Others	Universal Serial
	FL-Net
	PROFIBUS-DP
	DeviceNet
	Without PLC connection
	MODBUS RTU
	MODBUS RTU EXT Format
	MODBUS TCP/IP (Ethernet)
	MODBUS TCP/IP (Ethernet)Sub Station
	MODBUS TCP/IP (Ethernet) EXT Format
	MODBUS ASCII
	MODBUS slave (RTU)
	MODBUS slave (TCP/IP)
	MODBUS slave (ASCII)
	V-Link

Temperature Controllers, Servos and Inverters

Maker	Temperature Cotroller/Servo/Inverter
A&D	AD4402 (MODBUS RTU)
	AD4404 (MODBUS RTU)
Agilent	4263 Series
Azbil	SDC10
	SDC15
	SDC20
	SDC21
	SDC25/26
	SDC30/31
	SDC35/36
	SDC45/46
	SDC40A
	SDC40G
	DMC10
	DMC50 (COM)
	AHC2001
	AHC2001+DCP31/32
	DCP31/32
Banner	NX (CPL)
Bosch Rexroth	NX (MODBUS RTU)
	NX (MODBUS TCP/IP)
	Presense PLUS (Ethernet/IP (TCP/IP))
	IndraDrive
CHINO	LT400 Series (MODBUS RTU)
	DP1000
	DB1000B (MODBUS RTU)
	KR2000 (MODBUS RTU)
	LT230 (MODBUS RTU)
	LT300 (MODBUS RTU)
	LT830 (MODBUS RTU)
DELTA TAU DATA SYSTEMS	PMAC
	PMAC (Ethernet TCP/IP)
Fuji Electric	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)
	FRENIC5000G11S/P11S
	FRENIC5000G11S/P11S (MODBUS RTU)
	FRENIC5000VG7S (MODBUS RTU)
	FRENIC-HVAC/AQUA (MODBUS RTU)
	FRENIC-Mini (MODBUS RTU)
	FRENIC-Ace (MODBUS RTU)
	FRENIC-Eco (MODBUS RTU)
	FRENIC-Multi (MODBUS RTU)
	FRENIC MEGA (MODBUS RTU)
	FRENIC MEGA SERVO (MODBUS RTU)
	FRENIC-VG1 (MODBUS RTU)
	FRENIC Series (Loader)
	HFR-C9K
	HFR-C11K
	HFR-K1K
	PPMC (MODBUS RTU)
	FALDIC-alpha series
	FALDIC-W series
	PH series
	PHR (MODBUS RTU)
	WA5000
	APR-N (MODBUS RTU)
	ALPHA5 (MODBUS RTU)
	ALPHA5 Smart (MODBUS RTU)
	WE1MA (Ver.A) (MODBUS RTU)
	WE1MA (Ver.B) (MODBUS RTU)
	WSZ series
	WSZ series (Ethernet)
Gammaflux	TTC2100
Hitachi Industrial Equipment Systems	SJ300 series
	SJ700 series
IAI	X-SEL controller
	ROBO CYLINDER (RCP2/ERC)
	ROBO CYLINDER (RCS/E-CON)
	PCON/ACON/SCON(MODBUS RTU)

Temperature Controllers, Servos and Inverters

Maker	Temperature Cotroller/Servo/Inverter
KOGANEI	IBFL-TC
Lenze	ServoDrive9400 (Ethernet TCP/IP)
MITSUBISHI ELECTRIC	FR-500
	FR-V500
	MR-J2S-A
	MR-J3-A
	MR-J3-T
	FR-E700
MOOG	J124-04x series
M-SYSTEM	R1M series (MODBUS RTU)
OMRON	E5AK
	E5AK-T
	E5AN/E5EN/E5CN/E5GN
	E5AR/E5ER
	E5CK
	E5CK-T
	E5CN-HT
	E5EK
	E5ZD
	E5ZE
	E5ZN
	V600/620/680
	KM20
	KM100
Orientalmotor	V680S (Ethernet TCP/IP)
	High-efficiency AR Series (MODBUS RTU)
	CRK Series (MODBUS RTU)
Panasonic	MINAS A4 Series
	LP-400
	KW Series
RKC	SR-Mini (MODBUS RTU)
	CB100/CB400/CB500/CB700/CB900 (MODBUS RTU)
	SR-Mini (Standard Protocol)
	REX-F400/F700/F900 (Standard Protocol)
	SRV (MODBUS RTU)
	MA900/MA901 (MODBUS RTU)
	SRZ(MODBUS RTU)
RS Automation	FB100/FB400/FB900 (MODBUS RTU)
	CSD5 (MODBUS RTU)
	Moscon-F50 (MODBUS RTU)
SANMEI	Cuty Axis
SanRex	DC AUTO (HKD type)
SHARP	DS-30D
	DS-32D
SHIMADEN	SHIMADEN standard protocol
SHINKO TECHNOS	C Series
	FC Series
	GC Series
	DCL-33A
	JCx-300 Series
	PC-900
	PCD-33A
Siemens	ACS-13A
	ACD/ACR Series
	WCL-13A
SUS	S120 (Ethernet ISOTCP)
	XA-A*
TOHO	TTM-000
	TTM-00BT
	TTM-200 (MODBUS RTU)
TOKYO CHOKOKU PRODUCTS	MB3315/1010
TOSHIBA	VF-S7
	VF-S9
	VF-S11
	VF-S15
	VF-A7
	VF-AS1
	VF-P7
	VF-PS1
	VF-FS1
	VF-MB1
	VF-nC1
	VF-nC3
	VELCONIC series
TOSHIBA MACHINE	G-TRAN series
ULVAC	F340A
UNIPULSE	F371
	F720A

Maker	Temperature Cotroller/Servo/Inverter
UNIPULSE	F800
	F805A
YAMAHA	RCX142
Yokogawa Electric	UT100
	UT750
	UT550
	UT520
	UT350
	UT320
	UT2400/2800
	UT450
	UT32A/35A (MODBUS RTU)
	UT52A/55A (MODBUS RTU)
Others	UT75A (MODBUS RTU)
	μR10000/20000 (Ethernet TCP/IP)
	MODBUS RTU
	MODBUS TCP/IP (Ethernet)