



(English)

3494NB1

MONITOUCH TECHNOSHOT TS1100S OPERATING INSTRUCTIONS

Thank you for selecting the MONITOUCH TS1100S. TS1100S is a touch panel display device for switch operation, lamp or data or message display to be connected to the PLC etc. Make sure that the delivered unit conforms to your requirements and check for any missing or damaged parts. Before using the unit, be sure to thoroughly read this document and the TS1000 Smart Hardware Specifications to ensure proper operation.

Accessories

TS1100S OPERATING INSTRUCTIONS (this manual): 1 copy
Fixtures: 4 pcs.

Model

| | | | | |
|-----------------|---|-------------------------|----|---|
| TS1100Si | 1 | Screen Size | 10 | 10.2 inch widescreen (WVGA) TFT color LCD (65,536 colors) |
| | 2 | Functional capabilities | i | Includes built-in LAN port |

Notes on Safe Usage

This document describes various precautions categorized under the following two levels with the signal words "Danger" and "Caution."

| | |
|----------------|--|
| DANGER | Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. |
| CAUTION | Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and could cause property damage. |

Note that even items indicated with **CAUTION** may also result in a serious accident.

DANGER

- Never use the output function of MONITOUCH for operations that may threaten human life or cause damage to the system, such as switches to be used in case of emergency. Please design the system so that it can cope with touch switch malfunctions. A touch switch malfunction may result in machine accidents or damage.
- Turn off the power supply when setting up the unit, connecting new cables, or performing maintenance or inspections. Otherwise, you may receive an electrical shock or damage may occur.
- Never touch any terminals while the power is on. Otherwise, you may receive an electrical shock.
- The liquid crystal in the LCD panel is a hazardous substance. If the LCD panel is damaged, do not ingest the leaked liquid crystal. If leaked liquid crystal makes contact with skin or clothing, wash it away with soap and water.
- Never disassemble, recharge, deform by pressure, short-circuit, reverse the polarity of the lithium battery, nor dispose of the lithium battery in fire. Failure to follow these conditions may lead to explosion or ignition.
- Never use a lithium battery that is deformed, leaking, or shows any other signs of abnormality. Failure to follow these conditions may lead to explosion or ignition.
- Even if a screen display becomes dim, the touch switch function remains active. Please do not touch the dim screen, it may cause an accident or damage to your machine by malfunction.

CAUTION

- Check the appearance of the unit after unpacking. Do not use the unit if any damage or deformation is found. Failure to do so may lead to fire, damage, or malfunction.
- For use in a facility or as part of a system related to nuclear energy, aerospace, medical, traffic equipment, or mobile installations, please consult your local distributor.
- Operate (or store) MONITOUCH under the conditions indicated in this document and related manuals. Failure to do so could cause fire, malfunction, physical damage or deterioration.
- Observe the following environmental restrictions on use and storage of the unit. Otherwise, fire or damage to the unit may result.
 - Avoid locations where there is a possibility that water, corrosive gas, flammable gas, solvents, grinding fluids, or cutting oil can come into contact with the unit.
 - Avoid high temperatures, high humidity, and outside weather conditions, such as wind, rain, or direct sunlight.
 - Avoid locations where excessive dust, salt, and metallic particles are present.
 - Avoid locations where vibrations or physical shocks may be transmitted to the unit.
- Equipment must be correctly mounted so that the main terminal of MONITOUCH will not be touched inadvertently. Otherwise, you may receive an electric shock or an accident may occur.
- Tighten the fixtures on MONITOUCH to an equal torque of 3.54 lbf-in (0.4 N·m). Excessive tightening may distort the panel surface. Loose mounting screws may cause the unit to fall down, malfunction, or short-circuit.
- Periodically check that terminal screws on the power supply terminal block and fixtures are firmly tightened. Using the unit with loose screws or nuts may result in fire or malfunction.
- Tighten the terminal screws on the power supply terminal block to an equal torque of 4 lbf-in (0.45 N·m). Improper tightening of screws may result in fire, malfunction, or other serious trouble.
- MONITOUCH has a glass screen. Do not drop or impart any physical shock to the unit. Otherwise, the screen may be damaged.
- Correctly connect the cables to the terminals of MONITOUCH in accordance with the specified voltage, current and wattage. Overvoltage, overcurrent, overwattage, or incorrect cable connection may cause fire, malfunction, or damage to the unit.
- Do not use a positive ground for the 24-V power supply to the TS1100S. If a positive ground is used and an external communication device such as a computer is connected, the 24-V power supply may short circuit and cause damage. If a positive ground is unavoidable, refer to "Positive Grounding" in the TS1000 Smart Hardware Specifications.
- Prevent any conductive particles from entering into MONITOUCH. Failure to do so may lead to fire, damage, or malfunction.
- Do not attempt to repair, disassemble, or modify MONITOUCH yourself. Contact Hakko Electronics or the designated contractor for repairs. Otherwise, such action may cause a malfunction.
- Hakko Electronics Co., Ltd. is not responsible for any damages resulting from repair, overhaul, or modification of MONITOUCH that was performed by an unauthorized person.
- Do not use sharp-pointed tools to press touch switches.
- Only experts are authorized to set up the unit, connect cables, and perform maintenance and inspection.
- Note that the lithium battery contains combustible material such as lithium and organic solvents. Mishandling may cause heat, explosion, or ignition resulting in fire or injury. Read related manuals carefully and handle the lithium battery correctly as instructed.
- Take safety precautions during operations such as changing settings when the unit is running, forced output, and starting and stopping the unit. Any misoperations may cause unexpected machine movement, resulting in machine accidents or damage.
- In facilities where a failure of MONITOUCH could lead to accidents threatening human life or other serious damage, make sure that such facilities are equipped with adequate safeguards.
- At the time of disposal, MONITOUCH must be treated as industrial waste.
- Before touching MONITOUCH, discharge static electricity from your body by touching grounded metal. Excessive static electricity may cause malfunction or trouble.
- Never remove the strage (USB memory) when it is being accessed. Doing so may destroy the data on the strage. When removing the strage, make the Main Menu screen displayed, or press the [Strage Removal] switch placed on the RUN screen.
- Do not press two or more positions on the screen at the same time. If two or more positions are pressed at the same time, the switch located between the pressed positions may be activated.

Notes on LCD

- Tiny spots (dark or luminescent) may appear on the display due to the liquid crystal characteristics. Please note that this is not a fault or malfunction of MONITOUCH.

UL/cUL Approval

The TS1100S is UL/cUL-approved. (File No.: E313548 (UL61010-1, UL61010-2-201))

UL Listing Application for Systems Equipped with MONITOUCH

- The back panel of MONITOUCH is not approved as an enclosure. For UL listing application, build MONITOUCH in the system, and configure an enclosure so that the entire system will be UL-approved.
- Use MONITOUCH indoors only.
- For use on a flat surface of a type 1 enclosure.
- Use a bare cable for wiring of the power supply.

| Screw size | Tightening torque | Power cable |
|------------|---------------------|--|
| M3 | 4 lbf-in (0.45 N·m) | AWG18 - AWG14, Rated temperature 60 °C Use copper conductor only. |

- Use the Class 2 power supply for the 24-VDC power unit.

CE Marking

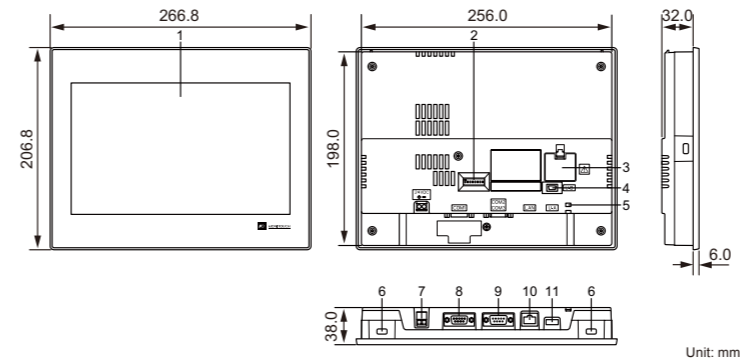
- The TS1100S complies with the following EMC directives and RoHS directives. EN61000-6-2, EN61000-6-4, EN50581
- The TS1100S is identified as a class-A product in industrial environments. In the case of use in a domestic environment, the unit is likely to cause electromagnetic interference. Preventive measures should thereby be taken appropriately.

General Specifications

| Item | Specifications |
|---|---|
| Conformance Standards | CE (EN61000-6-2, EN61000-6-4, EN50581), KC, UL/cUL (UL61010-1, UL61010-2-201) |
| Rated Voltage | 24 VDC |
| Rated Current | 0.6 A |
| Acceptable Voltage Range | 24 VDC ±10 % |
| Acceptable Momentary Power Failure | Within 1 ms |
| Power Consumption (Maximum Rating) | 12 W or less |
| Rush Current | 7 A or less, 6 ms (surrounding air temperature at 25 °C) |
| Surrounding Air Temperature | 0 °C to +50 °C *1 |
| Storage Surrounding Air Temperature | -10 °C to +60 °C *1 |
| Operational Ambient Humidity | 85 % RH or less (without dew condensation) *1 |
| Storage Ambient Humidity | 85 % RH or less (without dew condensation) *1 |
| Altitude | 2000 m or less |
| Atmosphere | No corrosive gas, no excessive dust, and no conductive dust |
| Vibration Resistance | JIS B 3502 (IEC61131-2) compliant Vibration frequency: 5 to 9 Hz, Half-amplitude: 3.5 mm, Vibration frequency: 9 to 150 Hz, Constant acceleration: 9.8 m/s ² (1.0 G), X, Y, and Z: 3 directions (10 times each) |
| Shock Resistance | JIS B 3502 (IEC61131-2) compliant Peak acceleration: 147 m/s ² (15 G), X, Y, and Z: 3 directions, 3 times each (18 times in total) |
| Noise Resistance | 1000 Vp-p (pulse width 1 μs, rising time: 1 ns) |
| Static Electricity Discharge Resistance | Compliant with IEC61000-4-2, contact: 4 kV, air: 8 kV |
| Overvoltage Category *2 | II |
| Pollution Degree *3 | 2 |
| Cooling System | Natural cooling |
| Weight | Approx. 1.0 kg |
| Dimensions W × H × D | 266.8 × 206.8 × 38.0 mm |
| Panel Cut-Out Dimensions | 257.0 ^{+0.5} × 199.0 ^{-0.5} mm |
| Material | PPE/PS |
| Surface Sheet | PET : 0.188 mm |

- *1 Use MONITOUCH in an environment with a wet-bulb temperature of 39 °C or less. Otherwise, MONITOUCH may be damaged.
- *2 This indicates the distribution section to which the unit is intended to be connected to within the path between the distribution of the public power network and machinery in the facility. "Category II" applies to devices supplied with power from mains sockets or similar points. The withstand surge voltage is 500 V for devices rated up to 50 V.
- *3 "Pollution degree 2" indicates the conditions where only non-conductive pollution occurs. However, due to condensation, temporary conductive pollution may occur.

Names of Components and Dimensions



- Display
- DIP switches
- Battery holder
- USB mini-B port (U-B)
- USB cable clamp hole
- Mounting holes
- Power supply terminal block
- D-sub 9-pin connector (COM1) for RS-422/RS-485 communication
- D-sub 9-pin connector (COM2/COM3) for RS-232C/RS-485 communication
- LAN connector (LAN)
- USB-A port (U-A)

D-sub 9-pin (COM1/COM2/COM3)

This connector is used for serial communication (RS-232C/RS-422/RS-485) with an external device.

| Pin No. | COM1 (female, inch screw threads) | | COM2/COM3 *2 (male, inch screw threads) | |
|---------|------------------------------------|------------------|---|------------------------------|
| | RS-422 (4-wire)/RS-485 (2-wire) *1 | | RS-232C/RS-485 (2-wire) | |
| | | | | |
| Signal | Description | | Signal | Description |
| 1 | +RD | Receive data (+) | -SD/RD | RS-485 send/receive data (-) |
| 2 | -RD | Receive data (-) | RD | RS-232C receive data |
| 3 | -SD | Send data (-) | TD | RS-232C send data |
| 4 | +SD | Send data (+) | NC | Not used |
| 5 | SG | Signal ground | SG | Signal ground |
| 6 | | | +SD/RD | RS-485 send/receive data (+) |
| 7 | | | RTS | RS-232C request to send |
| 8 | NC | Not used | CTS | RS-232C clear to send |
| 9 | | | SG | Signal ground |

- *1 Change between RS-422 (4-wire) and RS-485 (2-wire) using DIP switches 2 and 3.
- *2 This unit supports communication with the RS-232C and RS-485 (2-wire) ports using the same connector. The RS-232C (COM2) and RS-485 (COM3) ports can be used at the same time.

LAN Connector (LAN)

The LAN connector is used for Ethernet communication (100BASE-TX, 10BASE-T). Specification: IEEE802.3 (u)-compliant, UDP/IP and TCP/IP support, Auto-MDIX and Auto-Negotiation function support

| | |
|----------------|---|
| CAUTION | Do not connect any peripheral device that will carry excess voltage to the LAN connector. |
|----------------|---|

For more information on the LAN connectors and cables, refer to the separate TS1000 Smart Hardware Specifications.

USB Ports (U-A/U-B)

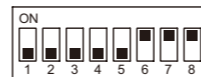
These ports are used for connecting USB devices and a printer or transferring screen programs (USB mini-B only). Specification: Compliant with USB version 2.0

For more information on using USB ports and securing cables, refer to the separate TS1000 Smart Hardware Specifications.

DIP Switches

The dip switch settings are as follows. (The following figure shows the DIP switch settings upon delivery.) Turn the power off before changing any DIP switch settings.

(Enlarged view)



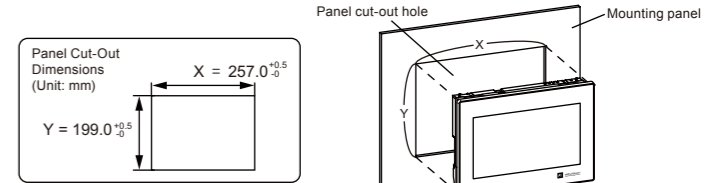
| No. | Description |
|-----|---|
| 1 | Automatic storage upload |
| 2 | Switch from 4-wire mode to 2-wire mode for COM1 (+) |
| 3 | Switch from 4-wire mode to 2-wire mode for COM1 (-) |
| 4 | Terminating resistor for Siemens MPI/PPI (-RD/SG) |
| 5 | Terminating resistor for Siemens MPI/PPI (+RD/5V) |
| 6 | Terminating resistor for COM1 +SD/-SD |
| 7 | Terminating resistor for COM1 +RD/-RD |
| 8 | Terminating resistor for COM3 |

For more information, refer to the separate TS1000 Smart Hardware Specifications.

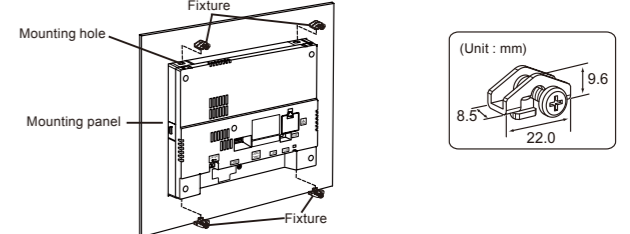
Mounting Procedure

Mounting Procedure

- Mount the TS1100S unit into the mounting panel (maximum thickness of 5.0 mm).
 - Insert the optional gasket (TS1100S-WP) so that it is securely sandwiched between the TS1100S and the mounting panel.
 - The TS1100S unit can be mounted in upright, 90° left, and 90° right orientations.

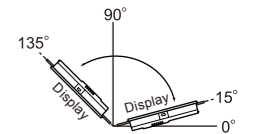


- Insert the four fixtures provided with the TS1100S unit into the mounting holes and tighten them with the tightening screws (tightening torque: 3.54 lbf-in (0.4 N·m)).
 - Ground the mounting panel to prevent any buildup of static electricity.



Mounting Angle

Install the unit within the angle range of 15 to 135 degrees.



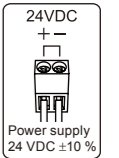
Electrical Wiring and Grounding

| | |
|---------------|---|
| DANGER | Electrical shock hazard! Shut off the power before connecting the power supply cable. |
|---------------|---|

Cable Specifications

| | |
|----------------|--|
| CAUTION | <ul style="list-style-type: none"> Do not solder the end sections of power cable wires. Soldering may result in bad electrical contacts. When using stranded wire for the power cable, make sure the strands are sufficiently twisted. Failure to do so may cause shorting between stray strands or adjacent electrodes. |
|----------------|--|

| | |
|-------------------|---|
| Tightening Torque | 4 lbf-in (0.45 N·m) |
| Cable Size | Power cable: AWG 18 to AWG 14 Discrete wire/solid wire (diameter: 1.0 to 1.6 mm) |
| Core wire length | 6.5 mm |



Power Supply Cable Connection

| | |
|---------------|---|
| DANGER | Avoid applying excessive force to the power supply cable. This may lead to unintentional disconnection of the cable and cause serious accidents such as electric shock. |
|---------------|---|

- The power source must be within the allowable voltage fluctuation.
- Use a power source with low noise between the cables or between the ground and the cable.
- Do not insert two wires into a single terminal on the terminal block.
- Use the thickest power supply cable possible to minimize drops in voltage, and twist.
- Keep power supply cables away from high-voltage, large-current carrying cables.

Notes on Usage of Lithium Battery

The battery provides backup power to the user memory area in SRAM (non-volatile device memory \$L and \$LD, sampling data storage etc.) as well as the built-in clock.

| | |
|----------------|---|
| CAUTION | A battery is already installed upon delivery. |
|----------------|---|

Only experts are authorized to perform battery replacement. For more information on battery specifications, replacement, disposal, and export precautions, refer to the TS1000 Smart Hardware Specifications.

Note on the Directive 2006/66/EC

- The symbol mark on the right is valid for countries in the European Union only.
- The symbol mark on the right is according to the Directive 2006/66/EC Article 20 Information for end-users and Annex II.
- The symbol mark on the right means that battery, at the end-of-life, should be disposed of separately from your household waste.
- If a chemical symbol is printed beneath the symbol on the right, this chemical symbol means that the battery contains a heavy metal at a certain concentration. This will be indicated as follows:
Hg: mercury (0.0005 %), Cd: cadmium (0.002 %), Pb: lead (0.004 %)
- In the European Union, there are separate collection systems for used batteries. Please dispose of batteries correctly at your local community waste collection/recycling center.



FE Hakko Electronics Co., Ltd.

890-1, Kamikashiwano-machi, Hakusan-shi, Ishikawa, 924-0035 Japan

TEL : +81-76-274-2144 FAX : +81-76-274-5136

URL <http://www.monitouch.com>

Importer in Europe
Fuji Electric Europe GmbH
Goethering 58, 63067 Offenbach / Main, Germany

