



ORIGINAL INSTRUCTIONS

Instruction Manual

Fieldbus Device  
Handheld Terminal  
Series EX600-HT1A



Refer to Declaration of  
Conformity for relevant  
Directives



The intended use of this product is to configure and monitor the EX600 modules.

1 Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)<sup>\*)</sup>, and other safety regulations.

\*) ISO 4414: Pneumatic fluid power - General rules relating to systems.  
ISO 4413: Hydraulic fluid power - General rules relating to systems.  
IEC 60204-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)  
ISO 10218-1: Manipulating industrial robots -Safety. etc.

- Refer to product catalogue, Operation Manual and Handling Precautions for SMC Products for additional information.

- Keep this manual in a safe place for future reference.

	<b>Caution</b>	Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
	<b>Warning</b>	Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	<b>Danger</b>	Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

**Warning**

- Always ensure compliance with relevant safety laws and standards.
- All work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

2 Specifications

Model		EX600-HT1-A
Communication type		RS232C
Communication speed		9600 bps
Power supply		24 VDC is supplied from the SI unit
Current consumption		50 mA or less
Display		LCD with back light
Resolution		128x64 dot
Connector		14 pin connector
Environment	Enclosure	IP20
	Operating temperature range	-10 to 50 °C
	Storage temperature range	-20 to 60 °C
	Operating humidity range	35 to 85%RH (No condensation)
Standard		CE marked (EMC directive/RoHS directive)
Weight		160 g

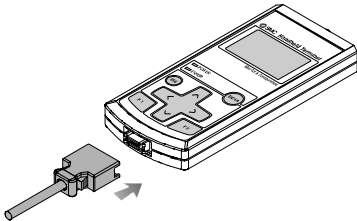
3 Installation

3.1 Installation

**Warning**

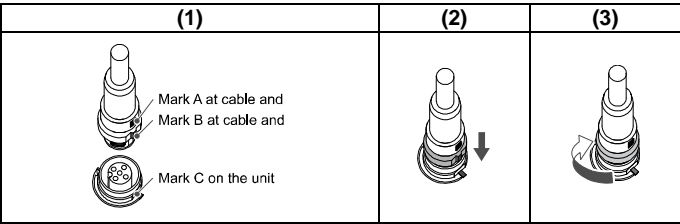
- Do not install the product unless the safety instructions have been read and understood.

Insert the cable for Handheld Terminal into the connector, with the connectors aligned in the same direction.



- Connect the M12 connector on the Handheld Terminal cable into the connector (PCI) of the SI unit.

- Align the mark A on the metal bracket of the cable side connector (plug/socket) with the mark B.
- Align the mark C on the unit and insert the connector into the unit vertically.
- If they are not aligned, the connector cannot be joined properly.
- When the mark B of the connector has been turned 180 degrees (1/2 turn), wiring is completed. Confirm that the connection is not loose. If turned too far, it will become hard to remove the connector.



**\*Note**

- Clean any foreign matter or water droplets stuck to or inside the SI unit or Handheld Terminal and remove them before connecting the cable. If the SI unit is installed in an environment where residual liquid is accumulated, use a soft cloth to gently remove it.

3.2 Environment

**Warning**

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not use in an explosive atmosphere.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not install in a location subject to vibration or impact in excess of the product's specifications.
- Do not mount in a location exposed to radiant heat that would result in temperatures in excess of the product's specifications.

3.3 Piping

**Caution**

- Before connecting piping make sure to clean up chips, cutting oil, dust etc.
- When installing piping or fittings, ensure sealant material does not enter inside the port. When using seal tape, leave 1 thread exposed on the end of the pipe/fitting.
- Tighten fittings to the specified tightening torque.

3.4 Lubrication

**Caution**

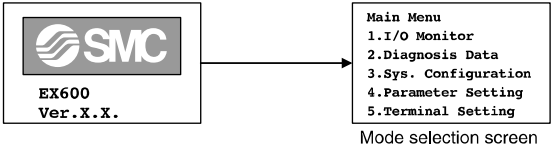
- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is used in the system, refer to catalogue for details.

4 Settings

■ Basic operation

**Supply of Power**

- When the SI Unit is connected to the cable, the power is supplied to the Handheld Terminal.
- The POWER LED (green) turns ON, and the start-up screen is displayed on the LCD display.
- Then the screen shifts to the mode selection screen.
- The operation is explained on the following pages.



**Power OFF**

During Main Menu screen, remove the cable connected to the SI unit

**Power Saving**

When the button is pressed for 2 seconds or longer while the power supply is ON, the display on the display on the LCD screen disappears. Press the button to reset it.

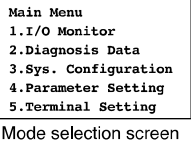
**\*Note**

- The connector should be removed only when the mode selection screen is displayed. Otherwise the terminal could fail or malfunction.

■ Mode selection

**Outline of modes**

The Handheld Terminal has five modes. Each mode further consists of detailed mode levels, which can be used to set and check each type of data.



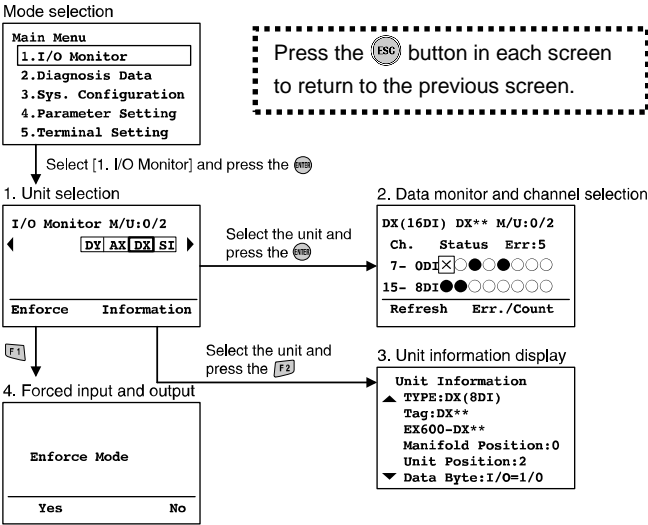
No.	Mode	Outline
1	I/O Monitor	Displays the unit input and output status and performs forced input and output.
2	Diagnosis Data	Displays the input and output status of the unit, detailed error contents and error log.
3	Sys. Configuration	Sets the sysstem operation as follows. 1. Edits the tag name of each unit. 2. Update the unit structre memory infoaion. 3. Select the Hold/Clear function to be set either by the SI unit switches, or by the Handheld Terminal. 4. Clears the ON/OFF counter valve of each unit. 5. Resets the parameters of each unit to the default values. 6. Clear all error logs.
4	Parameter Setting	Sets various parameters.
5	Terminal Setting	Sets the operation of the Handheld Terminal as follows. 1. Sets the contrast of the LCD display screen. 2. Sets the brightness of the LCD display screen. 3. Sets the volume of the click sound when buttons are pressed. 4. Sets the time before entering Power Save mode when no operation is performed. 5. Returns the settings 1 to 4 above to the default values. 6. Change the password.

■ 1. I/O monitor

**Mode levels**

The I/O monitor mode is composed as shown in the diagram below.

4 Settings - continued

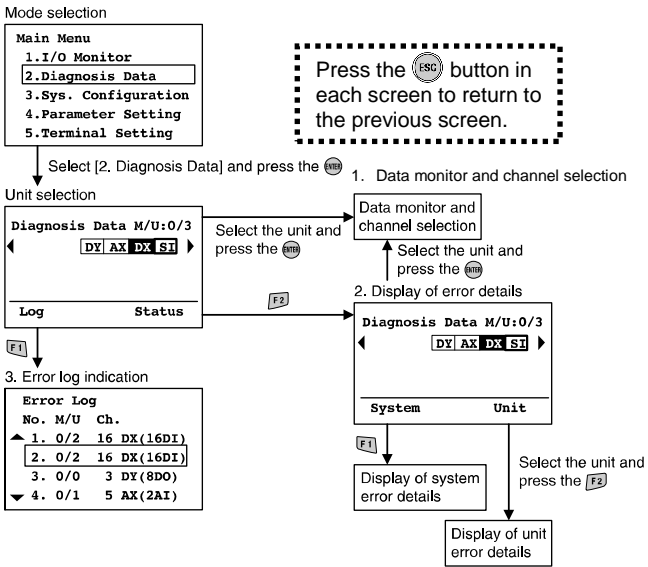


Mode	Outline
1. Unit Selection	Select the unit to perform the operation from 2 to 4.
2. Data monitor and channel selection	Input and output status of the unit, error information, and ON/OFF count values are displayed.
3. Unit information display	The information of the unit selected is displayed.
4. Forced input and output	The input and output signal of the unit is forcibly operated with the Handheld Terminal.

■ 2. Diagnosis Data

**Mode levels**

The diagnostic data check mode is composed as shown in the figure below.



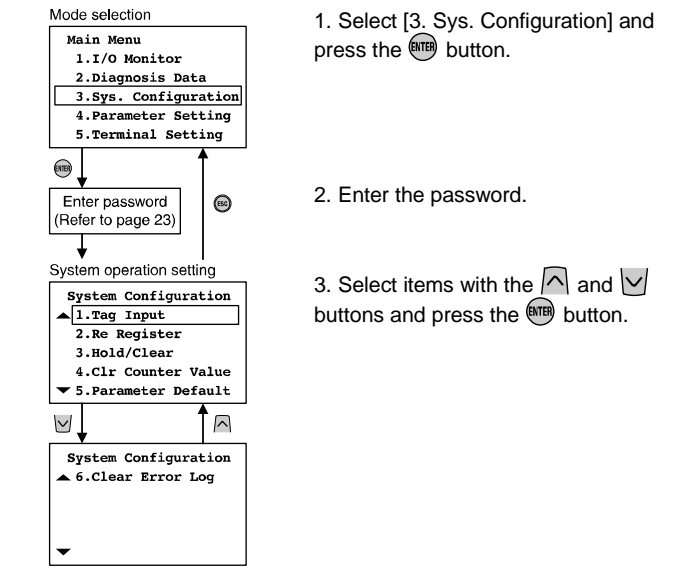
Mode	Outline
1. Channel status display	Input and output status of channels and error information are displayed.
2. Display of error details	Diagnostic error information is displayed per system and unit in detail.
3. Error log indication	The latest error log of the EX600 system is displayed in the order errors were generated (30 errors max.).

■ 3. Sys. Configuration

**Mode levels**

The system operation setting mode is composed as shown in the figure below.

4 Settings - continued

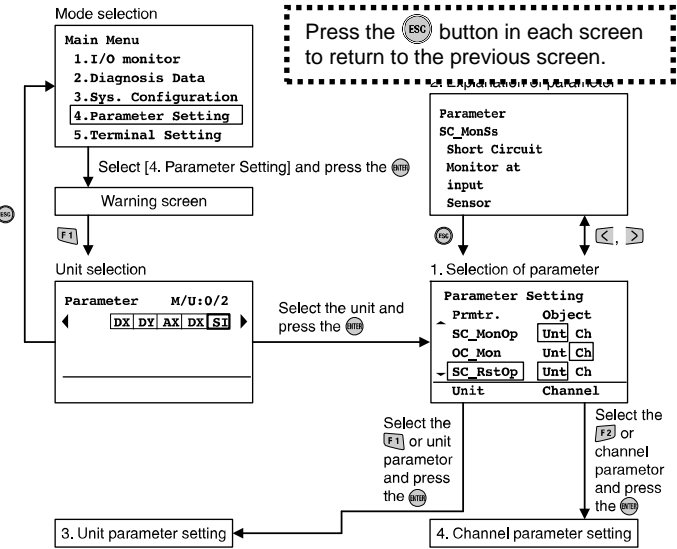


Mode	Outline
1. Tag Input	The tag name of the unit is compiled.
2. Re Register	The structure memory information of the unit is updated.
3. Hold/Clear	This mode is used to select whether the Hold/Clear function is set by the switch on the SI unit or by the Handheld Terminal.
4. Clr Counter Value	The ON/OFF counter value of each unit is cleared.
5. Parameter Default	Parameters of each unit are reset to the default values.
6. Clear Error Log	All error logs are cleared.

■ 4. Parameter Setting

Mode levels

The parameter setting mode is composed as shown in the figure below.



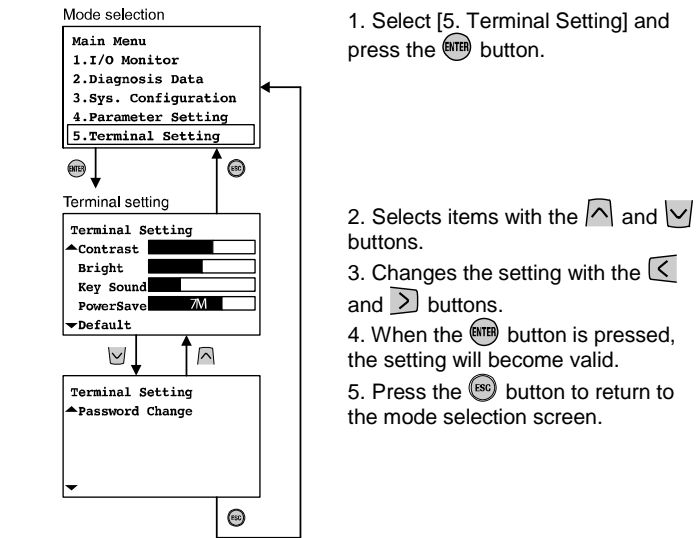
Mode	Outline
1. Selection of parameter	All the parameters of the unit selected are displayed.
2. Explanation of parameter	Parameter details are explained.
3. Unit parameter setting	Parameters of each unit are set.
4. Channel parameter setting	Parameters of each channel are set.

■ 5. Terminal Setting

Mode levels

The Terminal Setting mode is composed as shown in the diagram below.

4 Settings - continued



Mode	Outline	Default setting
Contrast	The contrast the LCD display is set in 9 stages (0 to 8).	4
Bright	The brightness of the LCD display is set in 5 stages (0 to 4).	2
Key Sound	The button click sound volume is set in 5 stages (0 to 4).	2
PowerSave	The time until the unit goes into POWER SAVE mode when no button operation is performed is set 5 stages (OFF, 1 min., 3 min., 7 min. and 10 min.).	1M
Default	All of the settings above are returned to the default settings.	-
Password Change	Change the password.	0000

5 How to Order

Refer to catalogue for 'How to Order'.

6 Outline Dimensions (mm)

Refer to catalogue for outline dimensions.

7 Maintenance

7.1 General Maintenance

- Caution**
- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
  - If handled improperly, compressed air can be dangerous.
  - Maintenance of pneumatic systems should be performed only by qualified personnel.
  - Before performing maintenance, turn off the power supply and be sure to cut off the supply pressure. Confirm that the air is released to atmosphere.
  - After installation and maintenance, apply operating pressure and power to the equipment and perform appropriate functional and leakage tests to make sure the equipment is installed correctly.
  - If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly and safety checks are carried out as required to ensure continued compliance with applicable national regulations.
  - Do not make any modification to the product.
  - Do not disassemble the product, unless required by installation or maintenance instructions.

8 Limitations of Use

8.1 Limited warranty and Disclaimer/Compliance Requirements

Refer to Handling Precautions for SMC Products.

9 Disposal

This product is classified as Waste Electrical or Electronic Equipment according to the WEEE Directive 2012/19/EU and should not be disposed of as municipal waste, in order to reduce the impact on human health and the environment.

10 Contacts

Refer to Declaration of Conformity and [www.smcworld.com](http://www.smcworld.com) for contacts.

SMC Corporation

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