Panasonic® QUICK INSTRUCTION MANUAL

Communication Module for the SF4D Series SF4D-TM1

CME-SF4DTM1 No.0057-32V

Thank you very much for purchasing this Panasonic product.
Please read this Instruction Manual carefully and thoroughly for the correct and optimum use of this product.
Kindly keep this manual in a convenient place for quick reference.

- This document is a quick reference guide to the functions and connections of the device. The device can be used with a PC (computer) to set the various functions of a light curtain.
  For detailed information, visit "**our website (http://panasonic.net/id/pidsx/global)**".
- Manuals are available in the following languages on our website.
  Japanese, English, Chinese

1 SAFETY CAUTIONS (Always observe)

- This section explains important rules that must be observed to prevent human injury and property damage.
  - The hazards that may occur if the product is used incorrectly are described and classified by level of harm.

⚠ **WARNING**	Risk of death or serious injury.
⚠ **CAUTION**	Risk of minor injury or property damage.

- Use this device as per its specifications. Do not modify this device since its functions and capabilities may not be maintained and it may malfunction.
- This device has been developed / produced for industrial use only.
- This product is suitable for indoor use only.
- Use of this device under the following conditions or environments is not presupposed. Please consult us if there is no other choice but to use this device in such an environment.
  1) Operating this device under conditions or environments not described in this manual.
  2) Using this device in the following fields: nuclear power control, railroad, aircraft, auto mobiles, combustion facilities, medical systems, aerospace development, etc.
- Note that this device may be damaged if it is subject to a strong shock (if it is dropped onto the floor, for example).
- In case of disposal, dispose this device as an industrial waste.

⚠ WARNING

- ♦ **Machine designer, installer, employer and operator**
  - The machine designer, installer, employer and operator are solely responsible to ensure that all applicable legal requirements relating to the installation and the use in any application are satisfied and all instructions for installation and maintenance contained in the instruction manual are followed.
  - Whether this device functions as intended to and systems including this device comply with safety regulations depends on the appropriateness of the application, installation, maintenance and operation. The machine designer, installer, employer and operator are solely responsible for these items.

- ♦ **Engineer**
  - The engineer would be a person who is appropriately educated, has widespread knowledge and experience, and can solve various problems which may arise during work, such as a machine designer, installer or employer etc.

- ♦ **Operator**
  - The operator should read this instruction manual thoroughly, understand its contents, and perform operations following the procedures described in this manual for the correct operation of this device.
  - In case this device does not perform properly, the operator should report this to the employer and stop the machine operation immediately. The machine must not be operated until correct performance of this device has been confirmed.

- ♦ **Environment**
  - Do not use a mobile phone or a radio phone near this device.
  - Do not install this device in the following places:
  1) A location exposed to direct sunlight
  2) A location where condensation may form due to sudden changes of temperature
  3) A location where there are corrosive or combustible gases
  4) A location with significant dirt, metal powder, or salt
  5) A location where organic solvents such as benzene, paint thinner or alcohol, or strong alkaline substances such as ammonia or caustic soda, may come in contact with the device or are present in the air.
  6) A location with significant steam or dust, a location subject to vibration or shock, or a location where water droplets may come into contact with the device.
  7) A location near high-voltage lines, high-voltage equipment, power lines, power equipment, equipment with an amateur radio transmitter, or equipment that generates large switching surges (minimum 100mm)

- ♦ **Other matters**
  - Never modify this device. Risk of impaired device functionality and death or serious injury.

⚠ CAUTION

The device cannot be used in a continuous connection with the light curtain.

2 STANDARDS / REGULATIONS

- This product complies with the standards / regulations below.
 **<European Directives>**
  EMC Directive

CE

3 CONTENTS OF PACKAGE

☐ Controller — 1 pc.
☐ Quick Instruction Guide (Japanese, English, Chinese) — 1 pc. each.
☐ General Information for Safety, Compliance, and Instructions (23 languages) 1 pc.

4 OVERVIEW

- This device is a communication module that is used to copy function settings in a light curtain and to initialize the device.
- This device can be used with a computer to set various functions of a light curtain. You can also check and change the settings of various functions (muting, blanking, etc.), and monitor the intensity of received light.

5 DESCRIPTION OF PARTS
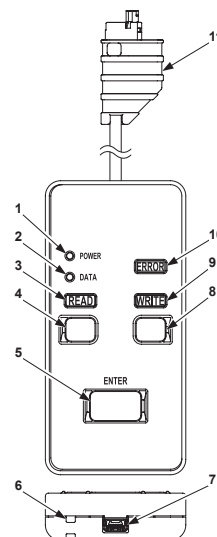
|	Name	Function
1	Power indicator (Green)	Lights when the device is connected to a light curtain. Blinks when the device is only connected to a PC.
2	Data indicator (Orange)	Lights when data is saved if copy protect is invalid. Blinks when data is saved if copy protect is valid.
3	READ indicator (Orange)	Lights when the READ key is pressed. Blinks during communication to read data.
4	READ key	Press to read data.
5	ENTER key	Press to execute a setting or function.
6	Strap holder	Use this holder when using a strap (purchase separately).
7	Mini USB connector	For connection to a PC.
8	WRITE key	Press to write data.
9	WRITE indicator (Orange)	Lights when the WRITE key is pressed. Blinks during communication to write data.
10	ERROR indicator (Yellow)	Lights when an error occurs.
11	Connection cable (1.5m)	For connection to a light curtain.

6 CONNECTION

- The device can be connected to the light curtain even when the light curtain power is ON. To prevent short-circuiting caused by tools or refuse, it is recommended that the work be performed with the power OFF.

Connecting to a light curtain

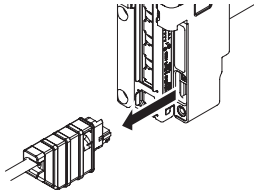*1.* Make sure that the light curtain power is OFF, and remove the indicator cover.
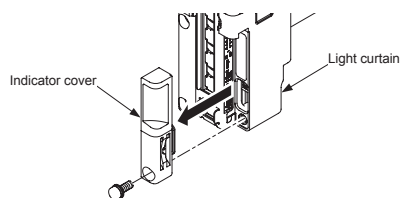
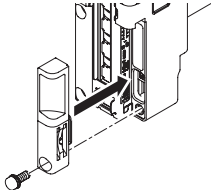*2.* Connect the device's connection cable to the connector inside the light curtain.
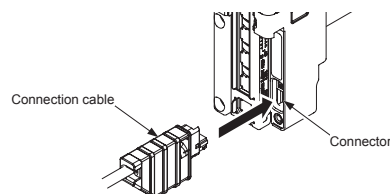
3. Turn ON the light curtain power.
4. The device starts up.

Disconnecting from the light curtain

1. Turn OFF the light curtain power.
2. Remove the device's connection cable from the connector inside the light curtain.
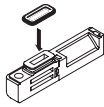
3. All indicators on the device turn OFF.
4. Attach the indicator cover on the light curtain.
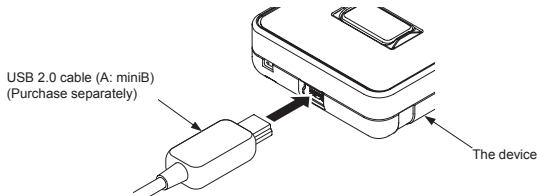Tighten to a torque of 0.3N·m or less.

⚠ CAUTION

There is packing on the indicator cover. If the packing is not fitted on the cover properly, fit as shown below before attaching to the device.
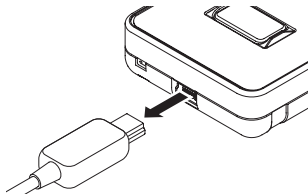
Connecting to a PC

1. Connect the device to a PC with a USB 2.0 cable (A: miniB) (purchase separately).

USB 2.0 cable (A: miniB)
(Purchase separately)

The device

2. The device starts up.
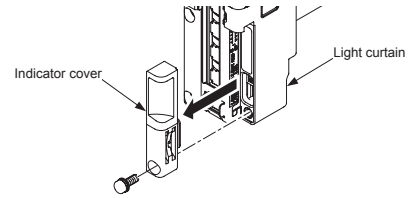
Disconnecting from a PC

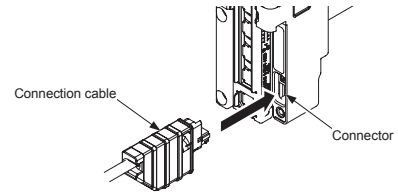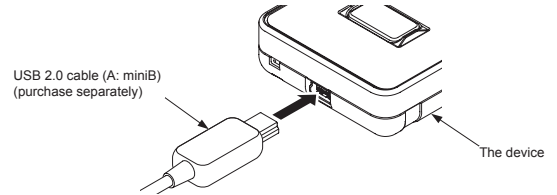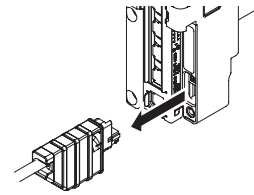*1.* Disconnect the USB cable at the device or at the PC.

2. All indicators on the device turn OFF.

Connecting to a light curtain and a PC

1. Make sure that the light curtain power is OFF, and remove the indicator cover.

Indicator cover

Light curtain

2. Connect the device's connection cable to the connector inside the light curtain.

Connection cable

Connector

3. Connect the device to a PC with a USB 2.0 cable (A: miniB) (purchase separately).

USB 2.0 cable (A: miniB)
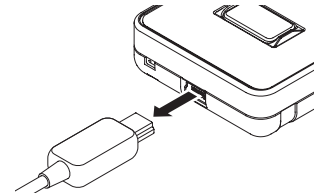(purchase separately)

The device

4. The device starts up.
5. Turn ON the light curtain power.

Disconnecting from the light curtain and the PC

1. Turn OFF the light curtain power.
2. Remove the device's connection cable from the connector inside the light curtain.

3. Disconnect the USB cable at the device or at the PC.

4. All indicators on the device turn OFF.
5. Attach the indicator cover on the light curtain.
Tighten to a torque of 0.3N·m or less.
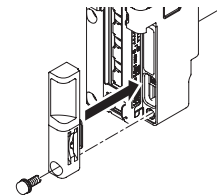
⚠ CAUTION

There is packing on the indicator cover. If the packing is not fitted on the cover properly, fit as shown below before attaching to the device.
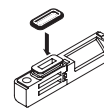
7 FUNCTIONS

- The device is equipped with the functions described below.

Copy function

- This function "reads" the settings in one light curtain and "writes" the settings to another light curtain.

<READ>

- This function reads the settings and log information in a light curtain and saves the information in the device's memory.

<WRITE>

- This function writes settings saved in the device to a light curtain.

Saved data initialization function

- This function initializes the settings and log information saved in the device.

I/F communication function

- This function converts the RS-485 communication of the light curtain to the USB communication of the PC (and vice-versa).

8 OPERATION

Copy function / read function (READ)

Procedure	State	Description
1		Connect the device's connection cable to the connector inside the light curtain. All indicators light for about one second.
2		Indicators other than the power indicator (green) turn OFF. [If data is saved in the device, the data indicator (orange) also remains ON.]
3		Press the READ key for at least 2 seconds.
4		The READ indicator (orange) lights up.
5		Press the ENTER key within 5 seconds. To cancel "READ", press any key other than the ENTER key.
6		The READ indicator (orange) blinks and reading starts. The control output (OSSD1 / 2) of the light curtain turns OFF.
7		The READ indicator (orange) turns OFF and the data indicator (orange) lights up. The settings and log information of the connected light curtain are copied to the device.
8		Remove the device's connection cable from the connector inside the light curtain.

Copy function / Write function (WRITE)

| Procedure	State	Description
1		Connect the device's connection cable to the connector inside the light curtain. All indicators light for about 1 second.
2		Indicators other than the power indicator (green) and data indicator (orange) turn OFF.
3		Press the WRITE key for at least 2 seconds.
4		The WRITE indicator (orange) lights up.
5		Press the ENTER key within 5 seconds. To cancel "WRITE", press any key other than the ENTER key.
6		The WRITE indicator (orange) blinks and writing starts. The control output (OSSD1 / 2) of the light curtain turns OFF.
7		The WRITE indicator (orange) turns OFF. The settings saved in the device are written to the light curtain.
8		Remove the device's connection cable from the connector inside the light curtain.

Note: Data written with the copy function may be lost due to external causes. After copying settings, check the operation of the light curtain before use.

Saved data initialization function

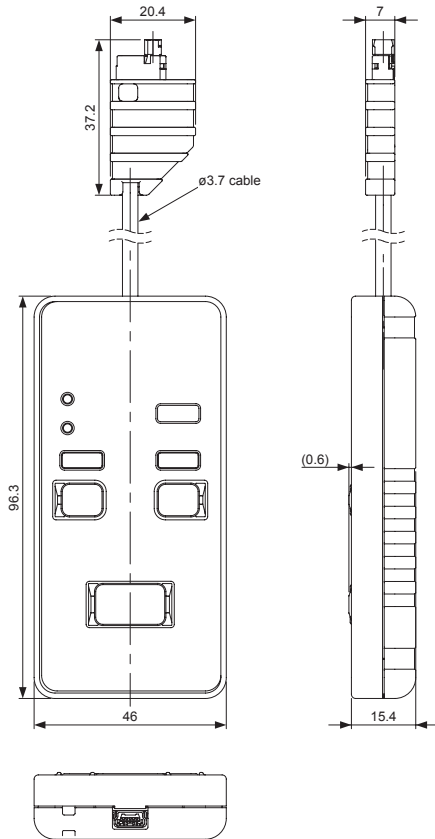| Procedure	State	Description
1		Connect the device's connection cable to the connector inside the light curtain. All indicators light for about 1 second.
2		Indicators other than the power indicator (green) and data indicator (orange) turn OFF.
3		Press the READ key and WRITE key at the same time for at least 2 seconds.
4		The READ indicator (orange) and WRITE indicator (orange) light up.
5		Press the ENTER key within 5 seconds. To cancel "INITIALIZE", press any key other than the ENTER key.
6		The data indicator (orange) turns OFF. The settings and logs saved in the device are erased and initialized.
7		Remove the device's connection cable from the connector inside the light curtain.

9 TROUBLESHOOTING

Problem	Cause	Solution
All indicators are turns OFF	Connector not connected securely.	Connect the connector firmly.
The ERROR indicator (yellow) blinks and data cannot be read.	Sensor communication error. (Noise or communication circuit failure.)	Check the ambient noise conditions near the device.
The ERROR indicator (yellow) and data cannot be written.	Data is not saved.	The data was not saved, so read the data from the source and write to the device again.
	You used the write function in a different light curtain configuration.	Make sure the data configuration matches the configuration of the connected light curtain.
	Copy protection is in effect.	If the data indicator (orange) is blinking, writing is prohibited (copy protection). Use the Configurator Light Curtain software to cancel copy protection.
	Sensor communication error. (Noise or communication circuit failure)	Check the ambient noise conditions near the device.
The ERROR indicator (yellow) is lit.	The saved data is corrupted.	The saved data is corrupted, so initialize the device. Read the data from the source and write to the device again.
	Internal failure.	If the ERROR indicator (yellow) does not turn OFF after you initialize the device, replace the device.
The data indicator (orange) does not turn OFF and data cannot be initialized.	Internal failure.	Replace the device.
I wrote settings to the light curtain but the settings are not applied.	Turn the power ON again.	Turn ON the light curtain power again.
	Power supply break, wire break, etc.	Repeat the write.
	During optical synchronization, only the emitter or only the receiver wrote data.	If the light curtain is configured by optical synchronization, perform read/write to both the emitter and receiver.

10 SPECIFICATIONS

Product name	Communication module for **SF4D** Series
Model No.	**SF4D-TM1**
Communication method	Light curtain: RS-485 bidirectional communication (dedicated protocol) PC (computer): USB
Protective structure	IP40 (IEC)
Ambient temperature	-10 to +55°C (No condensation or icing), Storage: -25 to +60°C
Ambient humidity	30 to 85% RH, Storage: 30 to 95% RH
Elevation	2,000m or less (Note)
Connection method	USB: Mini B male, cable with connector (1.5m)
Weight (main unit only)	Approx. 75g

Note: Do not use or store in an environment that has been pressurized to an air pressure higher than the atmospheric pressure at 0m.

11 DIMENSIONS (Units: mm)