LINEEYE

Interface Converter

Instruction Manual

LAN ⟷ RS-232C	SI-60F
LAN ⟷ RS-232C	SI-60
LAN ⟷ RS-422/485	SI-65

The CD-ROM attached to a product contains the newest English and Japanese instruction manuals in a PDF format. Please also refer to them.

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Introduction

Thank you for your purchase of SI series. To use it correctly, you are advised to read and understand this instruction manual thoroughly. Keep this together with the warranty.

■ ■ Notice ■ ■

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Safety Information

Be sure to read the following

LINEEYE has developed and manufactured this product for purpose of using with electrical devices such as a computer, a personal device, a measurement device, semiconductor manufacturing equipment, a vending machine, a sequencer, display equipment and so on. LINEEYE does not manufacture this product under the purpose of using with equipment which may cause malfunction to do harm to the human body: control equipment for nuclear, aircraft equipment, life maintenance equipment, traffic signals, etc. Therefore, LINEEYE makes no guarantee with the mentioned-above use. If you use this product for the purposes mentioned above, please contact LINEEYE considering safety like Fail Safe under your responsibilities.

Danger Level

⚠ Warning	Should the device be used without following these symbols, there is a possibility of accidents, such as a death or a serious injury, occurring.
⚠ Caution	Should the device be used without following these symbols, there is a possibility of accidents, such as an injury and material damage, occurring.

*"Injury" indicates injury, burn, an electric shock, or the like which does not require hospitalization or the extended hospital visit. "Material damage" indicates damage related to a house, a building, furniture, apparatus, livestock or a pet.

⚠ Warning

- Do not disassemble or modify the converter and AC adapter.
  This may cause overheating, a fire, an electric shock, injury or unit malfunction.
- Stop using the converter immediately when smoke, smells, or unusual sound emanates from itself.
  Continuous use may cause a burn, fire, or electric shock.
- Keep the products dry. Keep them away from water.
  Failure to do so may cause overheating, an electric shock, or unit malfunction.
- Do not insert the metal scrap or the rubbish such as lead wires into the opening.
  Doing so may cause overheating, an electric shock, or unit malfunction.
- Never touch the converter and AC adapter with wet hands.
  Doing so may cause an electric shock.
- Remove the dust on the AC adapter periodically to prevent the heat and ignition.

■ Never use the converter in the place where an inflammable gas leaks.
Doing so may cause ignition.

■ Do not conduct the installation or wiring work when power is applied.
Doing so may cause an electric shock or unit malfunction.

■ Do not use the damaged cables.
Doing so may cause fire by overheating.

■ Use the included AC adapter or ones specified by LINEEYE.
Failure to do so may cause overheating, fire, an electric shock, or injury.

■ Never touch the converters and cables while thunderbolts are occurring.

■ Do not connect the power cord to an outlet that has an illegal number of connections.
Doing so may cause fire by overheating.

⚠ Caution

■ Do not install the converter in the unstable or vibrating place.
Doing so may cause unit malfunction or injury.

■ Do not install the converter in any temperature and humid places, or any places which has the extreme temperature change.
Doing so may cause unit malfunction.

■ Do not install the converter in any places exposed to direct sunlight.
Doing so may cause a burn or unit malfunction by overheating.

■ Be sure not to short-circuit the pins on the connector.
Doing so may cause unit malfunction or injury.

■ Use the included AC adapter with the converter only.
Failure to do so may cause fire or injury by overheating.

■ Be sure to hold the converter when you disconnect the AC adapter from it.
Failure to do so may cause fire or an electric shock by damaging a cord.

■ Please do not damage the power cable by pulling, stamping, or tearing.
This may result in a injury, an electric shock, fire, explosion and or a breakdown due to overheating.

■ Do not place the cord of the AC adapter near heating equipment.
Doing so may cause fire or an electric shock by melting the cord's cover.

■■ Contents ■■

Chapter 1 Before Using The Product

1-1. Overview

SI-60F/SI-60/SI-65 are communication converters to convert asynchronous communications for devices with the serial interface, which is often used in the FA field, into TCP/IP communications on Ethernet LAN. These converters have built-in Lantronix XPort at the LAN interface part, and enable a high- reliability communications.
To create software using socket communications enables to control devices with the serial ports from a PC on the network. Also, installing the included COM port redirector makes you control those devices by using the communications method for the serial.

1-2. Specifications

		SI-60F	SI-60	SI-65
Serial	Interface	RS-232C	RS-232C	RS-422/485
		Dsub9 Pin (Male) #4-40 UNC (inch screw)	Dsub25 Pin (Female) M2.6 mm Screw	5.08mm 6 pole terminal block
		DTE fixed	DTE/DCE Switchable	Able to set the terminator.
	Synchronous Method	Asynchronous		
	Baud Rate (bps)	300/600/1200/2400/4800/9600/19200/38400/57600/115200/230400/460800 *1/921600 *1		
	Data Frame Structure	Data (7 or 8) + Parity (Even, Odd or None) + Stop (1 or 2)		
	Flow Control	Xon/off RTS/CTS		Xon/off, Line monitoring
	LED Display	SD,RD	SD,RD,RS,CS,(6-20)	SD,SD/RD,DRIVER ACTIVE
	Surge Protection	15KV ESD		
LAN	Interface	Ethernet IEEE802.3 RJ-45 connector 10BASE-T/100BASE-TX		
	Protocol	ARP,TCP/IP,UDP/IP,ICMP,SNMP,TFTP,Telnet,DHCP,BOOTP,HTTP,AutoIP		
	LED Display	10BASE-T,100BASE-TX, Activity, Link, Full/Half duplex		
	Transformer Insulation	1500V		
Management		Web manager, Telnet connection, Serial port connection		
Power Supply		DC5 to 25V/220 to 50mA Supplied from an AC adapter or DC-IN.	DC5 to 12V / 250mA Supplied from an AC adapter or Dsub connector.	DC5 to 12V / 300mA Supplied from an AC adapter or terminal block.
Power Consumption		1.3W / 3.6VA *2	3W / 4.4VA *2	3.6W / 5.5VA *2
Operating Temperature,Humidity		-10 to +50℃, 5 to 95%RH	-10 to +50℃*3, 5 to 95%RH	
Storage Temperature,Humidity		-20 to +80℃, 5 to 95%RH		
External Dimension		58(W)×88(D)×24(H)mm	65(W)×95(D)×24(H)mm	65(W)×90(D)×24(H)mm
Weight		170g	200g	200g
Accessories		AC adapter, Utility CD-ROM, Instruction manual, Warranty		

*1 SI-60 cannot be used at 460.8Kbps and 921.6Kbps.
*2 If using the attached AC adapter (AC100V).
*3 When the power supply voltage, which is supplied from the connector (SI-60) or the terminal block (SI-65), is DC10V or higher, the operating temperature is limited up to +40 degree.

1-3. Unpacking and Product Composition

Make sure of the following when unpacking the product.

☐ Converter	: 1	☐ Instruction Manual	: 1
☐ AC Adapter	: 1	☐ Warranty	: 1
☐ Utility CD-ROM	: 1		

Please let your LINEEYE distributor or LINEEYE know if you find any damage to the product caused by transportation, or if there are accessories lacking.

1-4. CD-ROM Included

The converter includes the following CD-ROM

- ☐ The document file such as the instruction manual
- ☐ Sample program which is helpful to develop software by using the converter
- ☐ Configuration tool for LINEEYE products embedded XPort /WiPort (SILANIOinit)
- ☐ The document files such as the XPort user's manual and XPort Installer issued by Lantronix.
- ☐ The utility software for XPort such as COM port redirector issued by Lantronix.

To learn more detail about the contents, read README_E.TXT on the root folder of CD-ROM.

1-5. Option

We provide the following optional goods.

- ☐ RS-232C cable(SI-RS259)
- ☐ RS-422 cable(SI-C422-TT5-5)
- ☐ RS-485 cable(SI-C485-VT3-5)
- ☐ Serial / USB Conversion Cable(LE-US232BS)
- ☐ LAN cable(SI-C5EL-S3)
- ☐ AUX cable(LE2-8C)
- ☐ Power plug cable(SIH-2PG)
- ☐ DIN Plate(SI-DIN70)

For more details about optional goods, please contact LINEEYE distirutors or LINEEYE.

1-6. Description of I/O pins on the XPort

The XPort embedded on the converter had 3 I/O pins. And the description of the I/O pins are different by each version of WEB manager. This instruction manual describes the I/O pins on the XPort as CP0,CP1 and CP2.
Web Manager Ver1.8.0.1: CP0,CP1,CP2:Described in this manual.
Web Manager Ver1.9.0.1:CP1,CP2,CP3.

The version of the XPort differs depending on when you bought the product.

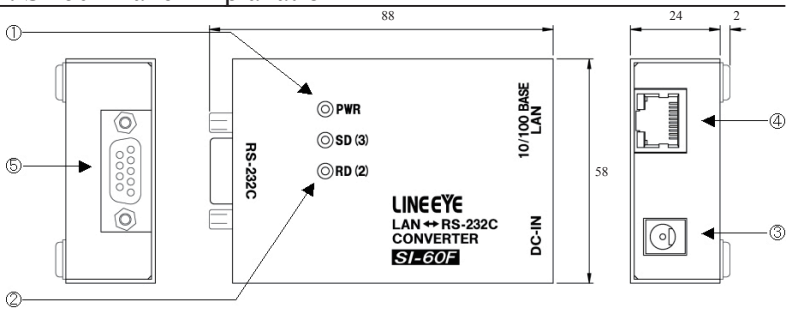
For more information about XPort version, please refer to [9-1. Built in XPort].

Chapter2 SI-60F Usage

2-1. SI-60F Overview and Features

SI-60F is a converter to convert asynchronous communications for devices equipped with the RS-232C interface to TCP/IP or UDP/IP communications on Ethernet LAN. It connects RS-232C interface device to a PC without a serial port via LAN, with a small DTE(fixed) Dsub9 pin (male).

2-2. SI-60F Panel Explanation

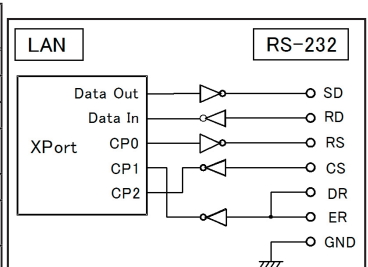


1	Power LED	Lights when turning on the power.
2	Data Status LED	Indicates the data transmission/ reception status for RS-232C.Lights when the pin signal corresponding to Dsub connector is above +3V.
3	AC Adapter Jack	Is a socket to connect to the AC adapter. → [2-4. SI-60F Power Source]
4	Ethernet Connector	Ethernet IEEE802.3 RJ-45connector 10Base-T/100Base-TX auto-detection available. →[9-5. LAN Connector Specification]
5	RS-232C Connector	Dsub9 pin (male) Screw: #4-40 UNC(inch screw)

● RS-232C Connector Pin Assignment

Pin No.	Name	I/O Direction *1	Description
1	CD	-	non-connected
2	RD	In	Reception Data
3	SD	Out	Transmission Data
4	ER	In	Internal connection to 6 pin *2
5	GND	-	Signal Grand
6	DR	In	Internal connection to 4 pin *2
7	RS	Out	Transmission Request
8	CS	In	Transmission Permit
9	CI	-	non-connected

● Block Chart



*1 "Out" means a direction to output signals from the converter.
"In" means a direction to input signals to the converter.

*2 Inputs the negated signals to the CP1 terminal on a built-in XPort.

2-3. SI-60F Cable Connection

LAN

Connect by the proper UTP cable to the LAN connector.

For 10Base-T ---------- Category 3, 4, 5

For 100Base-TX ---------- Category 5

Note: Although the standardized length of a LAN cable is max. 100 meters, use the cable as short as possible if there is much noise.

➔[5-1. Connection to the Networok]

RS-232C

Connect by the proper RS-232C cable which fits the shape of the RS-232C connector on the target devices. Then, make sure of the input/output specification of signal pins.

e.g.1: Connecting the serial port (Dsub9 pin - male) of SI-60F to the device (Dsub25 pin, female) of DCE specification.

➔ Use straight connection cable such as SI-RS259(SI-RS259 cable is an optional cable.) to connect.

e.g.2: Connecting the serial port (Dsub9 pin - male) of SI-60F to the device (DSUB9pin, male) of DCE specification.(male)

➔Use cross connection cable which both ends with DSUB9pin(female) to connect.

e.g.3: Connecting the AUX port (Mini DIN8 pin, female) of analyzers, (LE-8200/3500/2500/7200/3200/2200/1200) to SI-60F.

➔ Use LE2-8V cable to connect.(LE2-8V cable is an optional cable.)

2-4. SI-60F Power Source

Supply power to the converter in either of two ways.

- Supplies power by plugging the included AC adapter or the optional AC adapter into the AC adapter plug. The AC adapter of Japanese model is for the use in Japan only.

- Supply DC5V to 12V (4W) from 9pin of RS-232C connector.

Note: Do not connect an AC adapter when supplying from RS-232C connector.

Connection Plug: Outer diameter is 5.5mm. Inner diameter is 2.1mm. Length of top of the plug is 9.5+0.3mm. (Possible to use both center plus and center minus plug.)

2-5. SI-60F Built-in XPort Setup

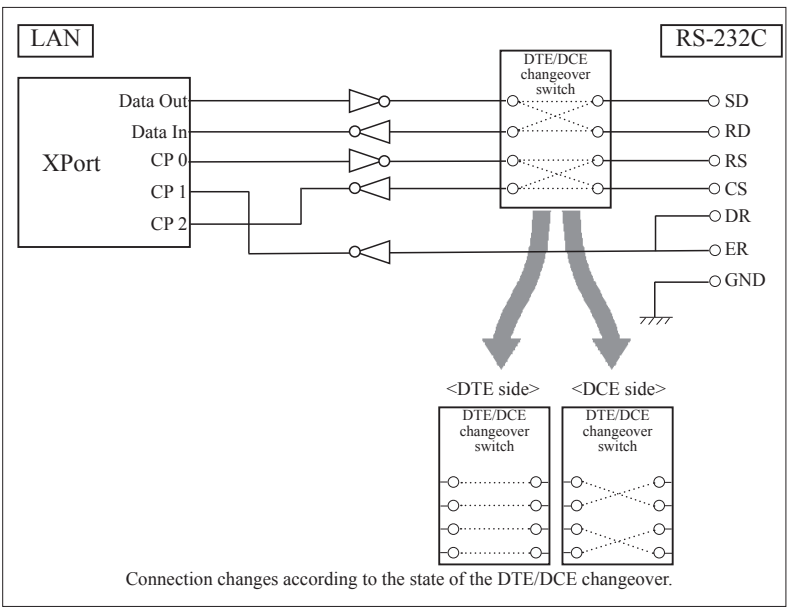
Depending on the network environments or the usage, the built-in XPort setup of the converter is required to change. To learn about XPort setup, read [Chapter 5 Basic Configuring Tasks][Chapter 6 Configuration Using Web Manager].In addition, when using the COM port redirector, read [Chapter 8 COM Port Redirector].

Chapter3 SI-60 Usage

3-1. SI-60 Overview and Features

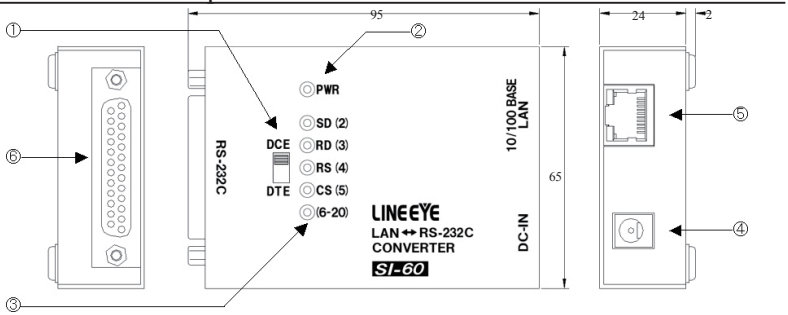
SI-60 is a communication converter to convert asynchronous communications for devices equipped with the RS-232C interface to TCP/IP or UDP/IP communications on Ethernet LAN. Since the slide switch on the converter is designed for DTE/DCE switchable, any devices can be connected to the RS-232C side.

The following chart shows the internal structure of the converter.



Connection changes according to the state of the DTE/DCE changeover.

3-2. SI-60 Panel Explanation



1	DTE/DCE Switch	Changes the RS-232C connector specification of the converter to DTE or DCE.
2	Power Supply LED	Lights when powering the converter.
3	Data Status LED	Indicates a data transmission/ reception status for the RS-232C.Lights when the pin signal corresponding to Dsub connector is above +3V.
4	AC Adapter Jack	Is a socket to connect to the AC adapter. ➔ [3-4. SI-60 Power Source]
5	Ethernet Connector	Ethernet IEEE802.3 RJ-45connector 10Base-T/100Base-TX auto-detection available. ➔ [9-5. LAN Connector Specification]
6	RS-232C Connector	Dsub25 pin (Female) M2.6 mm Screw

● RS-232C Connector Pin Assignment

Pin No. *1	Name	I/O Direction *2		Description
		DTE	DCE	
1	FG	-		Frame Grand
2	SD	Out	In	Transmission Data
3	RD	In	Out	Reception Data
4	RS	Out	In	Transmission Request
5	CS	In	Out	Transmission Permit
6	DR	In	In	Internal connection to 20 pin *3
7	GND	-	-	Signal Grand
9	+DC IN	-	-	External power supply input *4
20	ER	In	In	Internal connection to 6 pin *3

*1 Pins not mentioned in this table indicate the non-connected terminals.
*2 "Out" means a direction to output signals from the converter.
"In" means a direction to input signals to the converter.
*3 Inputs the negated signals to the CP1 terminal on a built-in XPort.
*4 ➔ [3-4. SI-60 Power Source]

3-3. SI-60 Cable Connection

LAN

Connect by the proper UTP category cable which matches the Ethernet connector.

For 10Base-T ---------- Category 3, 4, 5

For 100Base-TX ---------- Category 5

Note: Although the standardized length of a LAN cable is max. 100 meters, use the cable as short as possible if there is much noise.

➔ [5-1. Connection to the Networok]

RS-232C

Connect with the proper RS-232C cable which fits the shape of the RS-232C connector on the target devices. Then, make sure of the input/output specification of signal pins and connection of the RS-232C cable. Set DTE/DCE switch.

e.g.1: Use straight connection cable to connect the device which has DCE specifications.

➔ Set DTE/DCE switch to DTE.

e.g.2: Use SI-RS259 cable to connect the PC(DTE).

➔ Set DTE/DCE switch to DCE.

e.g.3: Use LE2-8V cable to connect the AUX port (Mini DIN8 pin, female) of analyzers, (LE-8200/3500/2500/7200/3200/2200/1200) to SI-60.

➔ Set DTE/DCE switch to DTE.

3-4. SI-60 Power Source

Supply power to the converter in either of two ways.

- Supplies power by plugging the included AC adapter or the optional AC adapter into the AC adapter plug. The AC adapter of Japanese model is for the use in Japan only.
- Supply DC5V to 12V (4W) from 9pin of RS-232C connector.

Note: Do not connect an AC adapter when supplying from RS-232C connector.

> Connection Plug: Outer diameter is 5.5mm. Inner diameter is 2.1mm. Length of top of the plug is 9.5+0.3mm. (Possible to use both center plus and center minus plug.)

3-5. SI-60 Built-in XPort Setup

Depending on network environments or the usage, the built-in XPort setup of the converter is required to change. To learn about XPort setup, read "XPort Setup" in Chapter 5 and [Chapter 6 Configuration Using Web Manager].

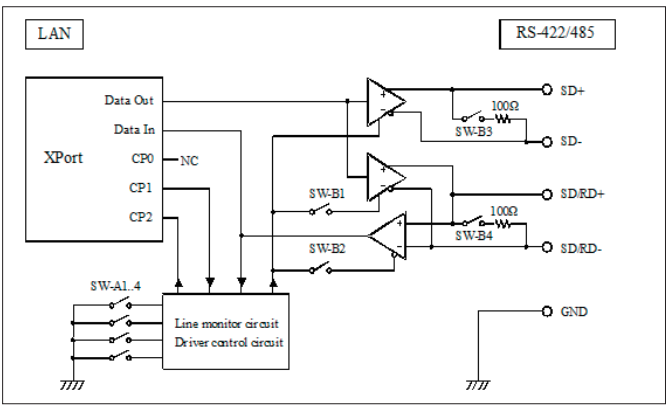
In addition, when using the COM port redirector, read "COM Port Redirector" in Chapter 8.

Chapter4 SI-65 Usage

4-1. SI-65 Overview and Features

SI-65 is a communication converter to convert asynchronous communications for devices equipped with the RS-422/485 interface to TCP/IP communications on Ethernet LAN. Since the converter supports both two-wire and four-wire full duplex, using the device allows you to support various systems.

The following chart shows the internal structure of the converter.



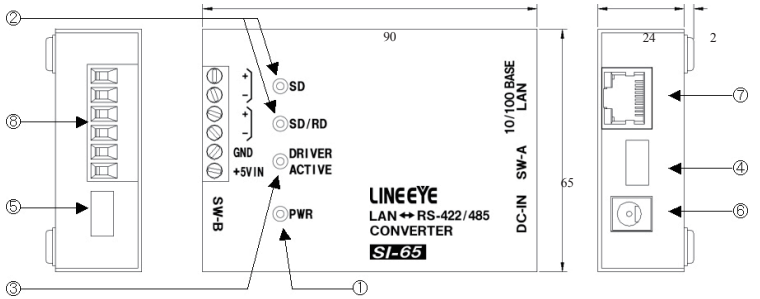
■ Line Monitoring Function

RS-485 communications of two-wire half duplex is required to send data after confirming that any devices have not sent data into the RS-485 line. The line monitoring function allows to detect that any devices have not sent data into the RS-485 line, and to conduct the flow control. To use this function, the flow control of built-in XPort is required to set to CTS/RTS (Hardware).

RS-485 Line Condition	Flow Control Condition
The period of time from when to detect a space bit of the data in the RS-485 line sent by another device, to when not to get to continuously detect a space bit over internal timer time of the converter, while the RS-485 driver of the converter is not active.	Prohibits sending data from the converter to the RS-485 circuit.
The period of time when not to detect a space bit in the RS-485 line which another device continuously sends over internal timer time of the converter, or when the RS-485 driver of the converter is active.	Permits to send data from the converter to the RS-485 circuit.

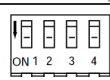
Note: This function allows the flow control to operate in a direction of sending only. The flow control in a direction of receiving does not operate.

4-2. SI-65 Panel Explanation



1	Power Supply LED	Lights when turning on the power.
2	Data Status LED	Indicates a data transmission/ reception status for RS-422/485.Blinks the SD LED if there is data from LAN to RS-422/485. Blinks the RD LED if there is data from RS-422/485 to LAN.
3	Driver Status LED	Lights when the driver for RS-485 is active.
4	Dip Switch A *1	Selects the line monitoring function and driver control.
5	Dip Switch B *1	Selects the communication method, terminator, etc.
6	AC Adapter Jack	Is a socket to connect to the AC adapter. ➔ [4-5. SI-65 Power Source]
7	Ethernet Connector	Ethernet IEEE802.3 RJ-45 connector. 10Base-T/100Base-TX auto-detection available. ➔ [9-5. LAN Connector Specification]
8	RS-422/485 Terminal Block	5.08mm pitch 6pole terminal block (Press-to-screw type) Standard Torque: 0.25Nm/M3. ➔ [4-4.SI-65 cable connection]

*1 Press down the DIP switch to switch on and press up to switch off.



● 6 Pole Terminal Block Pin Assignment for RS-422/485

Terminal No.	Name	Full Duplex Mode *1		Half Duplex Mode *1	
		I/O Direction *2	Description	I/O Direction *2	Description
1	SD+	Out	Transmission Data+	-	Cannot use *3
2	SD-	Out	Transmission Data-	-	Cannot use *3
3	SD/RD+	In	Reception Data +	I/O	Transmission/ Reception Data +
4	SD/RD-	In	Reception Data -	I/O	Transmission/ Reception Data -
5	GND	-	Signal Grand *4	-	Signal Grand *4
6	+5V IN	-	External Power Input *5	-	External Power Input *5

*1 Can switch by the dip switch.
*2 "Out" means a direction to output signals from the converter. "In" means a direction to input signals to the converter. "I/O" means both directions to input and output.
*3 Do not connect anything when using the half duplex mode.
*4 Connect GND to prevent devices from over voltage damage. ➔ [4-4. SI-65 Cable Connection]
*5 ➔ [4-5. SI-65 Power Source]

4-3. SI-65 Hardware Setup

The two 4-position dip switches on the converter allows you to conduct the following setups: the line monitoring function, the driver control method, terminator enable/disable, and echo back enable/disable.

SW-A No.1-3 (Baud Rate Setup)

Following communication speed (baud rate) you wish to use, this setup is to set the internal timer used for the non-communication monitoring circuit and driver control circuit. Using this timer conducts to monitoring non-communication condition more than 16 bits in RS-485 line and to control the RS-485 driver.

* Speed ➔ [6-2. Communication conditions of serial port]

Speed (bps) [ ] indicates a representative example.	SW-A No.1	SW-A No.2	SW-A No.3	Internal Timer *1(ms)
Over300 [300, 600]	OFF	OFF	OFF	57
Over 1200 [1200]	ON	OFF	OFF	14.3
Over 2400 [2400]	OFF	ON	OFF	7.1
Over 4800 [4800]	ON	ON	OFF	3.6
Over 9600 [9600]	OFF	OFF	ON	1.8
Over 19200 [19200]	ON	OFF	ON	0.9
Over 38400 [38400, 57600]	OFF	ON	ON	0.45
Over 115.2k [115.2k to 920k]	ON	ON	ON	0.11

*1 The internal timer is accurate at +10 to -10%.

SW-A No.4 (Driver Control)

Selects two kinds of control methods in the RS-422/485 driver control line of the converter: active and auto.

SW-A	Meaning	OFF	ON
No.4	RS-422/485 transmission driver control	Active	Auto

● OFF (Active) Setting

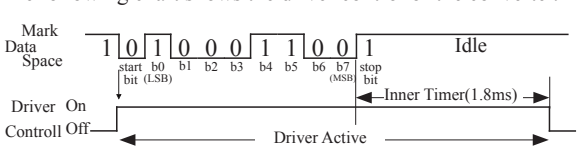
To keep the driver active, set the CP1 of the XPort I/O pin "L"(active). ("H" is for non-active.) The default setting of CP1 is a low level. ➔ [9-4. General-purpose I/O pins]

● ON (Auto) Setting

This setting detects the first space bit (start bit) in the string which you wish to send from the converter to the RS-422/485 line, and automatically makes the driver active. The active status of the driver keeps from the last space bit in the string being sent until the internal timer time being set. After that, the driver automatically becomes non-active.

<eg.>9600bps Data 31H SW-A No.1-3 OFF/OFF/ON (1.8mS)

The following chart shows the driver control of the converter.



The device is kept active for 1.8ms (internal timer time) after the last space bit.Please do not let the other device respond within 1.8ms.

SW-B	Meaning	OFF	ON
No.1	Select a line mode	RS-422 (full duplex)	RS-485(half duplex)
No.2	Echo reception of transmission data	With echo back	Without echo back
No.3	Terminal control between SD+ and SD-	Without terminal control	With terminal control(100 ohm)
No.4	Terminal control between SD/ RD+ and SD/RD-.	Without terminal control	With terminal control(100 ohm)

SW-B No1 (Line Mode)

Selects the RS-422/485 line specification which is connected to the converter.

- OFF (Full Duplex) Setting
  This setting makes the converter operate in the full duplex RS-422 mode. Communicated data is sent from SD+ and SD- terminals, and is received to SD/ RD+ and SD/RD- terminals.
- ON (Half Duplex) Setting
  This setting makes the converter operate in the half duplex RS-485 mode. Communicated data is sent and received through SD/RD+ and SD/RD- terminals.

SW-B No.2 (Echo Back Setup)

Selects the echo back specification for the half duplex RS-485 mode.

- OFF(Echo Back)
  Echo back the data which is sent from the converter to the RS-485 line. The full duplex RS-422 mode does not echo back data even when this switch is in the OFF setting.
- ON(No Echo Back)
  When you communicate in the half duplex RS-485 mode, setting this switch to ON prohibits the data, which is sent from the converter to the RS-485 line, is echoed back to the LAN host. Therefore, while the driver is active, the ON setting makes the receiver non-active.

Note: Be sure to set this switch to OFF in the full duplex RS-422 mode.

SW-B No.3 (Terminal End Between SD+ and SD-)

Setting this switch to ON inserts the terminator 100 ohm between SD+ and SD- (terminal block 1, 2) in a direction of parallel.

SW-B No.4 (Terminal End Between SD/RD+ and SD/RD-)

Setting this switch to ON inserts the terminator 100 ohm between SD/RD+ and SD/ RD- (terminal block 3, 4) in a direction of parallel.

4-4. SI-65 Cable Connection

LAN

Connect by the proper UTP category cable which matches the Ethernet connector.

For 10Base-T ---------- Category 3, 4, 5

For 100Base-TX ---------- Category 5

Note: Although the standardized length of a LAN cable is a maximum 100 meter, use the cable as short as possible.

➔ [5-1. Connection to the Networok]

RS-422/485

Connect RS-422/485 terminal block of SI-65 and RS-422/485 signal line of the target device by using a twisted pair cable.

● Proper RS-232C cable

Size : AWG24-14, single wire 0.2- 2.5mm2, twisted cable 0.12- 1.5mm2, L=6mm can be removed.

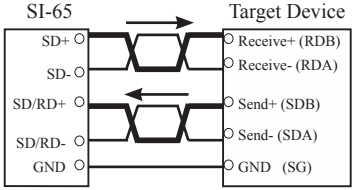
If using the ferrule terminal, ferrule diameter should be 1.5mm or less.

Following are the recommendation.

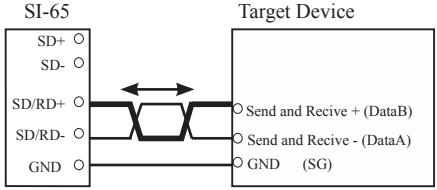
Phoenix Contact Inc. "AI0.25-8YE AWG24"

JST Mfg. Co., Ltd." TUB-05 AWG26-22"

RS-422 (full duplex) Setting



RS-485(half duplex) Setting

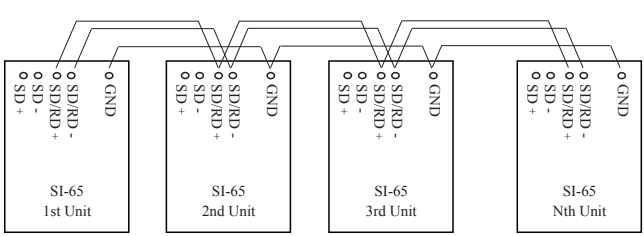


* ( ) are the examples of RS-422/485 differential signals.

Usually, differential signal [+] uses [B] and differential signal [-] uses [A].

* Connect the GND(SG) between devices to protect higher voltage runs into the other device.

The following chart shows a connection example to connect the converter to more than two devices in the half duplex mode by N to N.



<Transfer Distance>
The faster communication speed is, the shorter the transfer distance for RS-422/485 is. See the right table and set communication speed following the actual distance.
Also, the maximum of the actual communication speed changes depending on conditions: environments like noise, cable features used, etc. For actual use, be sure to conduct a communication test to check.

Distance (m)	Speed (bps)
100	to 920k
200	to 230.4k
600	to 115.2k
1200	to 57.6k
2400	to 9,600

4-5. SI-65 Power Source

Supply power to the converter in either of two ways.

■ AC adapter

Supplies power by plugging the included AC adapter or the optional AC adapter into the AC adapter plug on the converter. The AC adapter of Japanese model is for the use in Japan only. Please do not exceed the input voltage rate. To use the products abroad, an optional AC adapter is available.

Connection Plug: Outer diameter is 5.5mm. Inner diameter is 2.1mm. Length of top of the plug is 9.5+0.3mm. (Possible to use both center plus and center minus plug.)

■ Terminal block

Supplies DC+5 to +12V (4W) from 6 pin of 6 pole terminal block.

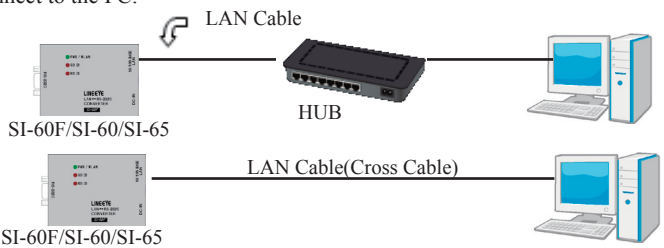
4-6. SI-65 Built-in XPort Setup

Depending on network environments used or the usage, built-in XPort setup of the converter is required to change. To learn about XPort setup, read [Chapter 5 Basic Configuring Tasks]and [Chapter 6 Configuration Using Web Manager]
In addition, when using the COM port redirector, read [Chapter 8 COM Port Redirector]

Chapter 5 Basic Configuring Tasks

5-1. Connection to the Networok

To set the products from the PC via LAN cable, use the cross cable for directly connecting to the PC. And, use the straight cable when using the HUB (etc.) to connect to the PC.



*SI-60F/SI-60/SI-65 does not have AutoMDI/MDI-X Function.

5-2.Basic Set-Up Tasks

Depending on network environments used or the usage, you can use the following procedures remotely or locally:

- Configure the unit over the network by using Web Manager
  To configure the unit over the network, enter the IpAddress of SI60/65/60F to Web browser and use web manager.
  ➔ For more details refer to [Chapter 6 Configuration Using Web Manager]
- Configuration via Telnet or Serial Port
  Use a Telnet connection to configure the unit over the network or use a terminal or terminal emulation program to access the serial port locally.
  (IF you configure the unit through a serial connection, reset the XPort unit by cycling the unit's power (turning the power off and back on). Immediately upon resetting the device, enter three lowercase x characters (xxx).)

  ➔ For more details , refer to XPort user's manual(XPort_UG.pdf) in the CD-ROM.

  When you allot IP address, please contact the network administrator and do it with consideration for the condition of the network and the purpose of the use.

  If you connect the devise to the network with improper configuration (IP address e.g.), it may affect whole the network. Thus, please make a note of following contents by contacting the network administrator.

  ☐ IP Address .....[. . .]
  ☐ Subnet Mask.....[. . .]
  ☐ Default Gateway.....[. . .]

  Please note that you may not be able to configure again in case you disconnect the power during the process of configuration or forget the password you set. This will need repair.

5-3. IP Address Assignment

Before using the converter, you need to assign IP address to the built-in XPort. There are some IP address assignment methods. Assign by the proper method, concerning the usage and environments, and consulting with your network manager.

* When the configuration of the IP Address of XPort (built-in) is 0.0.0.0 (factory setting), these functions will be Enable. In case of 0.0.1.0, only the DHCP Client function will be Enable.

Using the DHCP Function

When the DHCP function is valid, XPort receives IP address, subnet mask and default gateway address, which were dynamically assigned by DHCP server on the network, at the time of starting XPort operation.

Using the AutoIP Function

When AutoIP function is valid and there is no DHCP server on the network, XPort selects an IP address within the class B subnet 169.254.x.x, at the time of starting XPort operation. And it uses the ARP request to check whether or not any devices on the network use the address.

If it is not used, the address will be used as the XPort address. If it is used, XPort selects another IP address from the reserved addresses, and check it again by the ARP request.

➔ [5-4.DeviceInstaller Usage] [9-1. Built in XPort]

5-4. DeviceInstaller Usage

The CD-ROM contains a utility "Device Installer" to assign the IP address. "Microsoft .NET Framework 2.0" or ".NET Framework 4.0" are needed for some version of the Device Installer.

Note

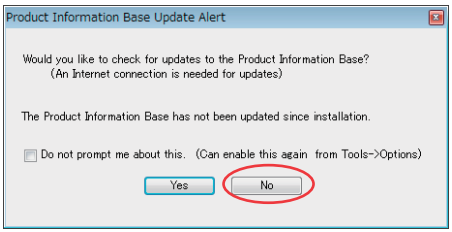
When you use this device concurrently with a device which has XPort of older firmware (v1.8 or older), please use the DeviceInstaller which was used for the device of the older firmware.

In this case, XPort device of the current firmware will be shown as "(Unknown:x9)".

To install, login to a PC in administrator rights and follow the installation wizard instructions.

1. Execute the setup file in the DeviceInstaller. Select the folder which matches your version. (*1)
2. Follow the installation wizard instructions.

3. After Installing the DeviceInstaller, following page will be appeared. Select "No".



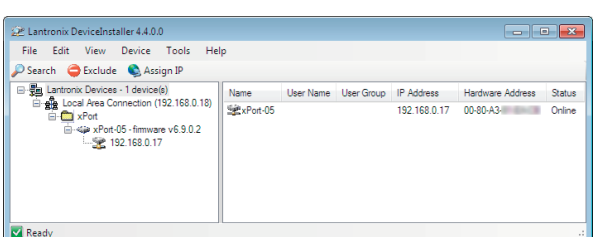
This message on the screen is to prompt you to update the PIB file which relates a device ID of Lantronix products to the device name.

You need not update if you are using Deviceinstaller of the latest version. But if you are using Ver4.1.x.x or older, please update it from the website of Lantronix because the XPort-05 will be shown as "Unknown X9".

* 1 : The version of the DeviceInstaller may differ depending on when you bought this product. Please refer Release.txt in the folder of the name of the version in the CD-ROM attached to the product (CD-ROM\lantronix\DeviceInstaller\) for the detail of .Net Framework and supported OSs.

5-5. Check IP Address

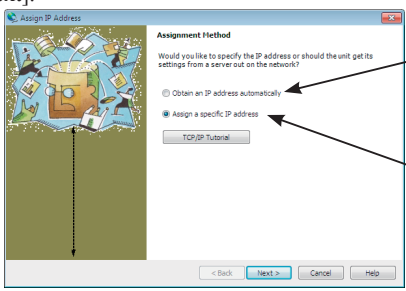
1. Connect SI60/65/60F to the network.
2. Start Device Installer from the start menu.
3. The main window of Device Installer appears.It finds SI-60F/SI-60/SI-65 connected to the network automatically and lists in a table on the main window. (If there are devices other than SI-60F/SI-60/SI-65 using XPort on the network, they are also listed in a table..)



4. Select which matches the hardware address for the device being set from the table.

5-6. Assign IP Address

1. On the toolbar, click Assign IP . The Assign IP Address window displays.
2. On the Assignment Method page, select Assign a specific IP address and click [Next].

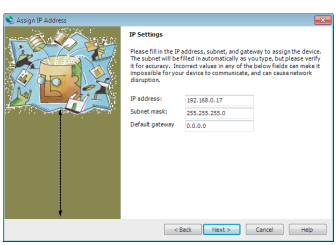


Obtain an IP address automatically

Assign a specific IP address

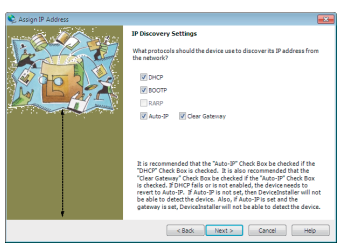
[Assign a specific IP address]

3."IP Settings" page appears. Enter the values. Then click [Next] .



[Obtain an IP address automatically]

3."IP Discovery Settings" page appears. Select a function you would like to enable, and then click [Next].



* Assign by the proper method, concerning the usage and environments, and consulting with your network manager.
* We recommend you to disable DHCP and BOOTP or always keep Auto-IP effective because when failing in the address assignment, Device Installer cannot detect SI-60F/SI-60/SI-65 even if DHCP, BOOTP or both are effective.

4. XPort restart by pressing "Assign" button on the "Assignment" page.

IP address can also be assigned using Setup mode and SILANIOinit.

➔ Reffer to XPort user's manual(XPort_UG.pdf) in the CD-ROM.

➔SILANIOinit is configuration tool for LINEEYE products embedded XPort/ WiPort.

Chapter 6 Configuration Using Web Manager

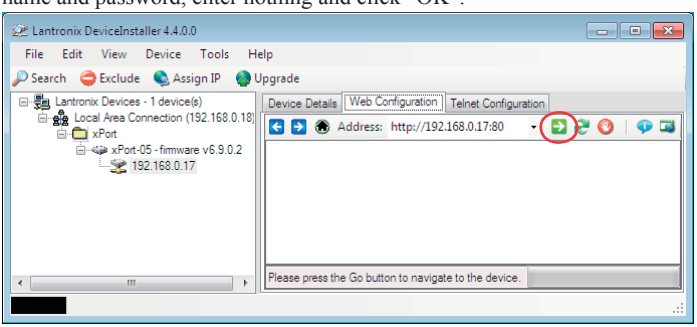
6-1. Web Manager Usage

The configuration can be changed from a Web manager(Lantronix's browser-based configuration tool).

➔ For more details refer to XPort user's manual(XPort_UG.pdf) in tne CD-ROM.

- Accessing from the deviceinstaller

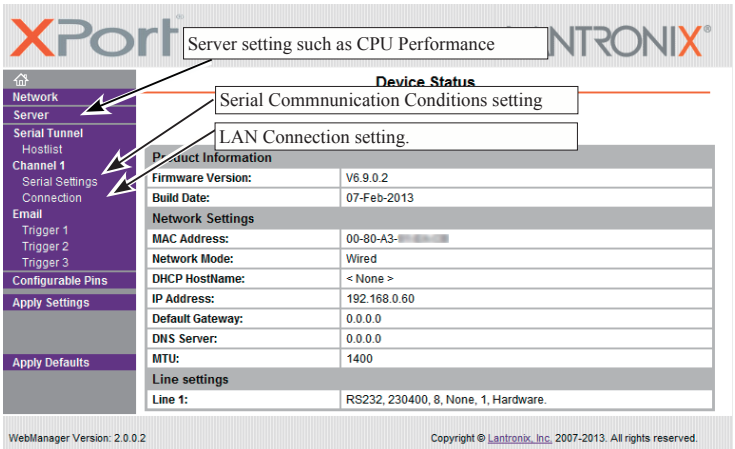
  Start DeviceInstaller from the start menu to display DeviceInstaller window.Select the device being set. Select "Web Configuration" tab and click [ ] icon. Enter the user name and the password, as you will be required. If you have not set your user name and password, enter nothing and click "OK".



- Accessing from the web browser

  Open your web browser and enter the IP address of the XPort(IP address of SI-60/65/60F) Then you will be required to enter the user name and the password. If you have not set your user name and password, enter nothing and click "OK".

● Web Manager Usage



After setting the various settings such as [Port Settings] ,[Connection] etc.., click "OK" button. Then"Done!" will be displayed and the setup contents hold by Web Manager temporarily.

To save and apply the configuration changes to the device server, click the Apply Settings button.(Clicking OK on each page does not change the configuration on the device. Clicking the OK button tells the XPort what changes to use; the Apply Settings button makes the changes permanent and reboots the XPort.)

Note

Set the setting of IE. Select [Tool] ➔ [Internet Options] ➔ [Temporary Internet files] and set as [Every visit to the page]

When you use Internet Explorer10, please use it in compatibility mode.

Note: If you change the IP address or the default gateway and set it by "Apply Setting", state of progress of configuration process will appear repeatedly, because the connection between this device and the PC for configuration cannot be sustained.

In this case, please close the Web manager. Then run the Web manager again with the changed IP address.

6-2. Communication conditions of serial port

1.When using SI-60F/SI-65 with baud rate 460800/921600bps of the serial port, select "Server" and set High to "CPU Performance Mode". Then, set baud rate of "Serial Settings".

2.Select [Channel1] -> [Serial Settings].
Set “Protocol” to be “RS-232C”in serial side. Set Baud Rate, Data Bits, Parity, Stop Bits and Flow Control to be same as the target device.

3. Click[OK] and then click [Apply Settings].

6-3.Set up LAN connection mode

■ LAN protocol

Select [Channel 1] --> [Connection].Then select TCP or UDP.
You can setup either one of them.
* IF you select UDP protocol, set [Datagram Type] to [01].
Change [Remote Host] and [Remote Port] if necessary.

■ Server Mode

If you select TCP protocol set [Accept Incoming].
Select Yes to accept incoming connections.(Server mode)

■ Client Mode

If you select TCP protocol set [Accept Incoming].
Select No to Never accept incoming.(Client mode)

6-4. Other Setting

➔ For more details , refer to the online help or XPort user's manual (XPort_UG.pdf)] in the CD-ROM.

■ Pack Control

The packing algorithms define how and when packets are sent to the network.

Select [Channel 1] -->[Serial Settings] and check [Pack Control]--> [Enable Packing] to control the received data as you define.

e.g.)

Packets are sent to the network, when no serial data is received for 12 msecs or received 2bytes of CRC data after received 0x03

Idle Gap Time	: 12msec
Match 2 Byte Sequence	: No
Match Bytes	: 0x03,0x00
Send Frame Immediate	: No
Send Trailing Bytes	: Two

If the packet size reaches to the Maximum Transmission Unit(MTU)(default 1400 bytes), a transmission might occur even if the packets are not satisfy the condition.

■ Disconnect TCP

Select [Channel 1] -> [Connection] and set [Disconnect Mode] to setup the condition of disconecct TCP by the serial non-communication time.

■ TCP Keepalive

Select [Server].Set [TCP Keepalive (secs)]1 to 65(sec).
No TCP keepalive packet will be send, if you set 0.
Check the connection status by sending the TCP packet for checking.

■ Restore default XPort settings

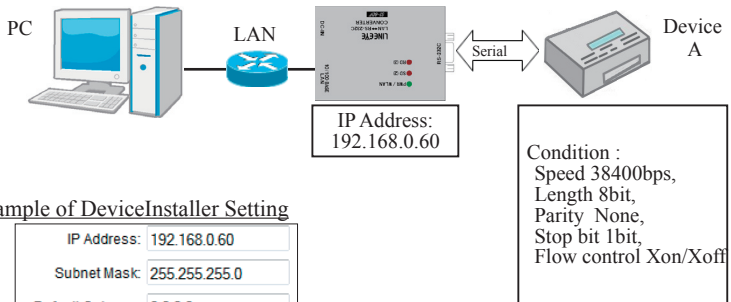
Select [Apply Defaults] of Main menu to initial (factory default) all setup, except network address(such as IP address etc.) and I/O pin.

➔ [9-2. Factory Setting]

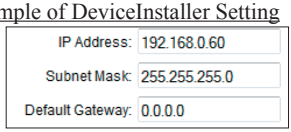
Chapter 7 Setup Example

7-1. Server mode usage

To use Device A (connected with the serial port of SI-60/65/60F) through network connection by TCP connection request from a device on the network such as PC to SI-60/65/60F, please refer following setting.



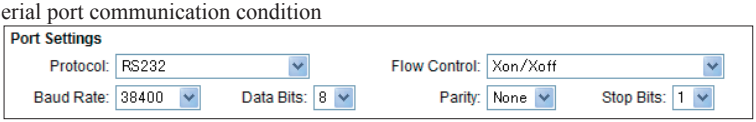
Example of DeviceInstaller Setting



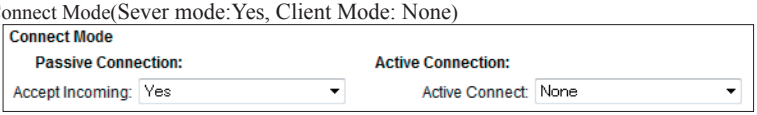
* Assign by the proper method, concerning the usage and environments, and consulting with your network manager.

Example of Web Manager Setting

Serial port communication condition

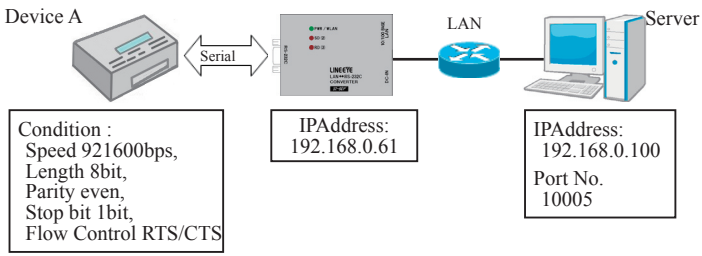


Connect Mode(Sever mode:Yes, Client Mode: None)

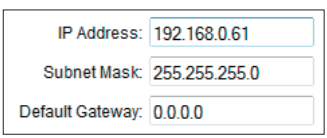


7-2. Client Mode Usage

To use the serial port of the Device A through network connection by TCP connection request from SI-60/65/60F to a server on the network when SI-60/65/60F has received a serial data of Device A, please refer following setting.



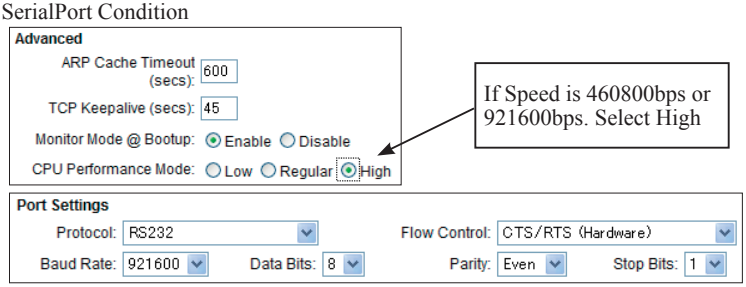
Example of DeviceInstaller Setting



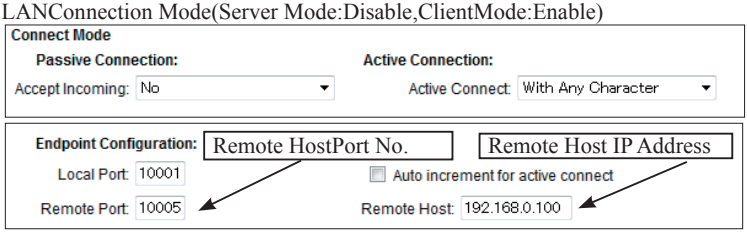
* Assign by the proper method, concerning the usage and environments, and consulting with your network manager.

Example of Web Manager Setting

SerialPort Condition

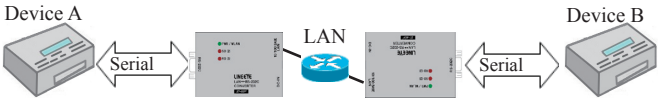


LANConnection Mode(Server Mode:Disable,ClientMode:Enable)



7-3. Using two units of SI-60/65/60F

To extend serial communication between Device A and Device B through network by using two units of SI-60/65/60F, please refer following setting.



Condition:
Speed 115200bps,
Length 8bit,
Parity even,
Stop bit 1bit,
Flow Control RTS/CTS

SI60/65/60F 1
IPAddress :
192.168.0.60
Port No.
10001

SI60/65/60F 2
IPAddress :
192.168.0.61
Port No.
10001

Condition:
Speed 9600bps,
Length 8bit,
Parity even,
Stop bit 1bit,
Flow Control RTS/CTS

Example of DeviceInstaller Setting

SI60/65/60F 1

IP Address:	192.168.0.60
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0

SI60/65/60F 2

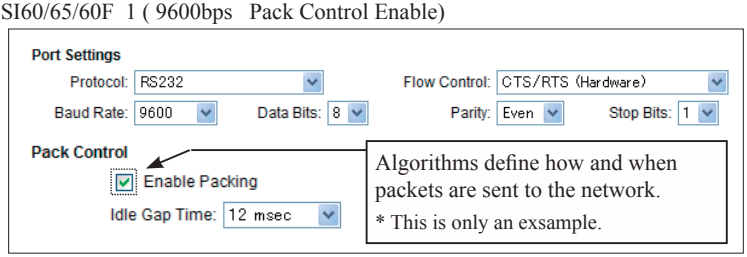
IP Address:	192.168.0.61
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0

* Assign by the proper method, concerning the usage and environments, and consulting with your network manager.

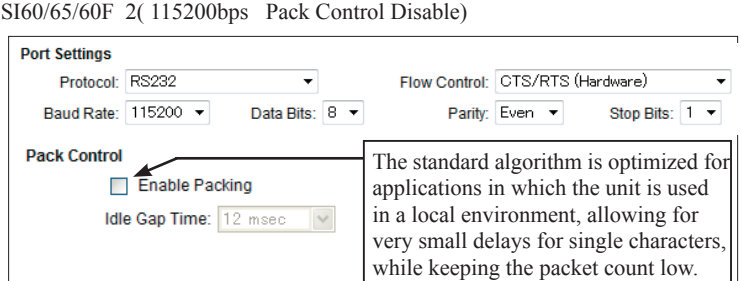
Example of Web Manager Setting

SerialPort Condition

SI60/65/60F 1 (9600bps Pack Control Enable)

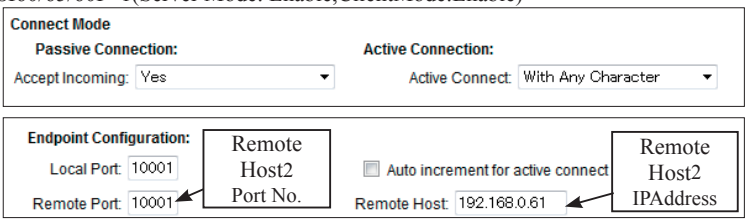


SI60/65/60F 2(115200bps Pack Control Disable)

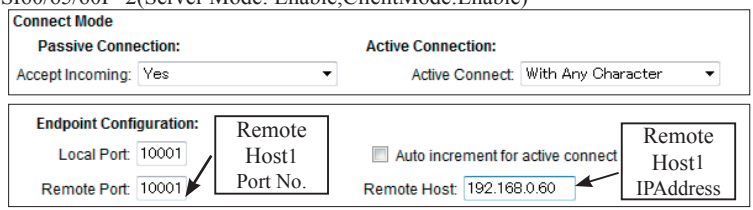


LANConnection Mode

SI60/65/60F 1(Server Mode: Enable,ClientMode:Enable)



SI60/65/60F 2(Server Mode: Enable,ClientMode:Enable)



Because "Active Connect" of both SI-60/65/60F 1 and SI-60/65/60F 2 are configured as "With Any Character", when a serial port of SI-60/65/60F 1 or 2 receives data, the device which received the data will connect with the other device by TCP and send the data through the network.

Note: Like this example, communication will be done without errors though the conditions of Device A and Device B differ. However, please confirm that this time gap of send/receive or any other effect of this function will not affect the system before the usage.

Chapter 8 COM Port Redirector

8-1.About Virtual COM Port

The COM Port Redirector is the utility software to get the serial communication application not supporting the network connection to be able to use on the network. The redirector creates the virtual COM ports in Windows. Communications for these virtual COM ports are transferred to the serial port on the converter through the network.

Note

- The COM Port Redirector works at most of the application software. However, some applications, which have a limit to receive/transmit data, may not work well. In this case, change the timeout of communication longer or change the setting to support socket communications.
- The COM Port Redirector cannot be used with other software, which creates the virtual COM port. Be sure not to install the COM Port Redirector to PCs, which have already installed such software.

8-2. SI60/65/60F Basic Setting

Depending on the target devices, setup of the serial port and virtual COM port condition is required to change.

➔ [6-2. Communication conditions of serial port]

Assign a specific IP Address.(recomendation)

➔ [Chapter 5 Basic Configuring Tasks]

8-3. Install COM Port Redirector

Install ComPortRedirector(SPR) to your PC.

* If you already have other version of COM Port Redirector, please uninstall it.
* Login to the PC as administrator.

1.Insert the utility CD-ROM into the CD-ROM drive.Select Execute the setup file in the ComPortRedirector. Select the folder which matches your version.

2.To install, follow the installation wizard instructions.

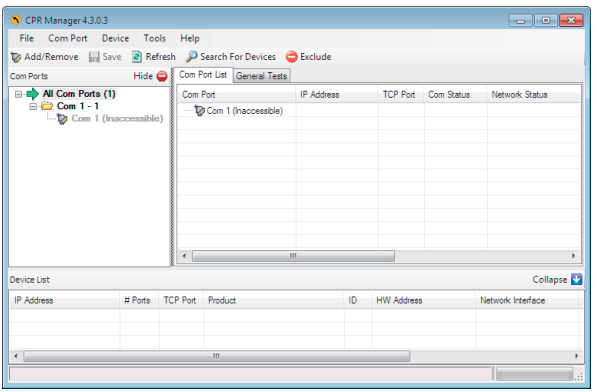
3.Restart the PC.

NOTE: Environment for the usage of supported OS differs depending on the version of the ComPortRedirector attached to the product. For further detail, please refer Release.txt in the folder of the name of the version (\lantronix\ ComPortRedirector) in the CD-ROM attached to the product.

8-4. COM Port Redirector Ver4.x.x.x Setup

Connect SI60/65/60F to the network.
Login to the PC as administrator.

1. From start menu, go to "Lantronix" -> "CPR 4.x" -> "CPR Manager. "CPR Manager" window will be displayed.



2.Click [Com Port]-[Add and Remove] of toolbar to open the dialog to register/delete the virtual COM port. Select the COM number and click [OK].

3. In the dialog box, check the COM port you wish to use as the virtual COM port.

4. In the [Settings] tab, there is a host list table. Set the IP address and port number at [Host] and [TCP Port] in the [Service1]. Click [Search For Devices] icon and double clicking the XPort on the “Device list” to reflect it in the host list table.

5. Click “Save” icon or go to [Com Port] -> [Save Settings] to save the configurations. If your computer shows a dialog of hardware installation, ignore it and click [Next].

➔ For more details , refer to Com Port Redirector manual(Com-Port-Redirector_QS.pdf) in the CD-ROM

Chapter 9 Documents

9-1. Built in XPort

XPort is built in SI60/65/60F and it is the lan communication module of Lantronix.

● Web Manager

Web-Manager is Lantronix's browser-based configuration tool to configure the XPort.

➔ For more details , refer to [Chapter 6 Configuration Using Web Manager]

● DHCP Client Function and AutoIP Function

Before using the converter, you need to assign IP address to the built-in XPort. There are some IP address assignment methods. Assign by the proper method, concerning the usage and environments, and consulting with your network manager.

[DHCP Client Function]

When the DHCP function is valid, XPort receives IP address, subnet mask and default gateway address, which were dynamically assigned by DHCP server on the network, at the time of starting XPort operation.

[AutoIP Function]

When AutoIP function is valid and there is no DHCP server on the network, XPort selects an IP address within the class B subnet 169.254.x.x, at the time of starting XPort operation. And it uses the ARP request to check whether or not any devices on the network use the address.

● Version and Other information

The XPort has been updated several times. To use this product properly, please use the manual and the tools contained in the CD-ROM, which comes with the product.

Model	Shipment	Hardware	Firmware	WEB Manager	CPR
60/65/60F	Since 2009	XPort-03	6.6.0.2	1.7.0.1	4.2.0.0
	Since 2010	XPort-04	6.7.0.1	1.8.0.1	4.3.0.0
	Since 2013	XPort-04	6.8.0.2	1.9.0.1	4.3.0.1
	Since 2013	XPort-05	6.9.0.2	2.0.0.2	4.3.0.3

Confirm the firmware version in the property of device, which is searched and shown by Device Installer.
For more details refer to the HP of Lantronix(http://www.lantronix.com).

● About XPort-05

The XPort which is built in the product has been changed from XPort-04 to XPort-05 because of the version-up by the manufacturer.

You can use this product as before because the product specification of this device has not been changed and there is no problem in using with conventional products.

<Changed content of the XPort>

MAC address (vendor code) has been changed to “0080A3”.

No compatibility with the firmwares of XPort-03/04.

The design of the top page of the Web manager has been changed.

9-2. Factory Setting

When SI60/65/60F is shipped, built-in XPort are set as follows :

RS-232C Condition:
Protocol: RS232 (Do not change),
Speed : 9600bps , 8bit, Parity: None , Stop 1bit, Flow Control: None

LAN Action Mode:
Accept Incoming Yes(Server ModeEnable),
Active Connect None(ClientModeDisable),
Port No.10001,
IP Address0.0.0.0 (DHCP Client Function and AutoIP Function : Enable)

Telnet password:
(Password : Disable)

Configurable Pins:

Item	Setting Values		
	SI-60F	SI-60	SI-65
CP0	HW Flow Control out	HW Flow Control out	HW Flow Control out
CP1	General Purpose I/O (Input)	General Purpose I/O (Input)	General Purpose I/O (Output)
CP2	HW Flow Control In	HW Flow Control In	HW Flow Control In
Active Level	Low	Low	High

Note: Do not change the settings of CO1 and Active Level.

Webmanager for XPort firmware v1.8 displays “CP1” for “CP0”, “CP2” for “CP1” and “CP3” for “CP2”.

➔ [1-6. Description of I/O pins on the XPort]

Items excepting Configurable Pins have the same setups with the factory default for XPort.

➔ For more details refer to [XPort User's Guide (XPort_UG.pdf)] in the CD-ROM.

9-3. How to apply the factory setting

To apply the factory setting into SI60/65/60F, download the configuration file from the utility CD([/LINEEYE/SetupRecord]).Apply the downloaded file when selecting the setup record file.

Version	SI-60	SI-65	SI-60F
Ver6.9.0.2	SI_60V6902_xxxxxx.rec	SI_65_V6902_xxxxxx.rec	SI_60F_V6902_xxxxxx.rec

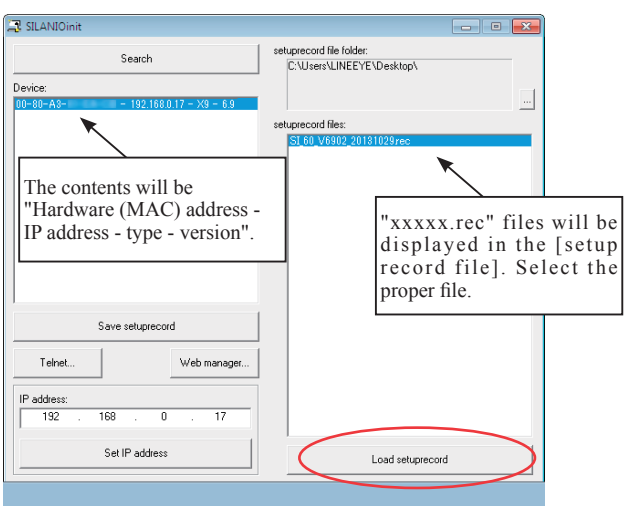
Use deviceInstaller or [SILANIOinit](configuration tool) to apply the factory settings into SI60/65/60F.

Operation of [SILANIOinit](configuration tool)

1. Copy "SILANIOinit.exe" from the "/LINEEYE/SILANIOinitXXX" folder (XXX would be the version of SILANIOinit.) in the utility CD to the appropriate folder (For example, "c:/setup/").

2. Set your device in the same network segment as your PC.(If your devices are not in the same network segment, you may not able to set.)

3. To execute the program, double click on "SILANIOinit" and click "search" to display all XPort/WiPort embedded
   Select your target device. Make sure you select the correct hardware (MAC) address.



4. Click [save setup record] and the configuration will be saved.
   ➔ To use this application, refer to the “SILANIOinit.txt” in the CD-ROM.

Operation of DeviceInstaller

1. Install DeviceInstaller to your PC and download the configuration file from the utility CD to the appropriate folder (For example, "c:/setup/").
➔ [5-4. DeviceInstaller Usage]

2. Set your device in the same network segment as your PC.(If your devices are not in the same network segment, you may not able to set.)

3. Start Deveiceinstaller and click [Search] to display all XPort/WiPort embedded Select your target device. Make sure you select the correct hardware (MAC) address.

4. Click upgrade icon or go to [Device] ➔[Upgrade].

5.[Device upgrade wizard –step 1/5] will appear. Select [Custom install] and click [Next].

6.[Device upgrade wizard –step 2/5] will appear. Click [Next].

7.[Device upgrade wizard –step 3/5] will appear. Select [Install setup records from a file] and click [Browse].

8.Open the configuration file in the appropriate folder (For example, "c:/setup/") . Click [Next].

9.[Device upgrade wizard –step 4/5] will appear. Click [Next]. Start the writing of configuration files to the target device.

10.[Device upgrade wizard –step 5/5] will appear. “installation has finished” will be displayed. Close the window.

➔For more details refer to DeviceInstaller User's Guide (\lantronix\Docs\ DeviceInstaller_UG.pdf)]

* Network address such as IP Address etc..would not be changed if you use DeviceInstaller to set Setup Record.

Note

Please note that if you write inappropriate configuration file (e.g. configuration file for different models or different versions of the firmware), the XPort may not run correctly and will need repair.

9-4. General-purpose I/O pins

XPort CP1 pin of SI-60F/60 is for the input pin between DR and ER lines of RS-232C. And, XPort CP1 pin of SI-65 is for the output pin of RS-422/485 driver control. To read the input status, send TCP/IP or UDP/IP command to the port number 30704.

CPI(DR and ER of RS-232C Control line) check command of SI-60F/60

Command : 13h 00h 00h 00h 00h 00h 00h 00h (9 nyte)
Response : 13h xxh 00h 00h 00h (5 byte)
* "xxh" bit 1 = 0 :DR and ER of RS-232C Control line are non active.
* "xxh" bit 1 = 1 :DR and ER of RS-232C Control line are active.(+ 3V and above)

CPI(RS-422/465 driver) control command of SI-65

"xxh" in the sixth byte of command specifies the output status. "xxh" in the second byte of response shows the result.

Command : 1Bh 02h 00h 00h 00h xxh 00h 00h 00h 00h (9byte)
Response : 1Bh xxh 00h 00h 00h (5byte)
* "xxh" bit 1 = 0 : Specify RS-422/485 driver is acrive as factory setting.
* "xxh" bit 1 = 1 : Specify RS-422/485 driver is non acrive.

9-5. LANConnector Specification

LAN Connector Pin Assignment

Pin No.	Name	I/O Direction *1	Description
1	TX+	Out	Transmission Data +
2	TX-	Out	Transmission Data -
3	RX+	In	Reception Data +
4	-	-	Not Used
5	-	-	Not Used
6	RX-	In	Reception Data -
7	-	-	Not Used
8	-	-	Not Used

*1 "Out" means a direction to output signals from the converter. "In" means a direction to input signals to the converter.

LAN Connector LED Display

Left LED	Right LED	Meaning
OFF		Does not connect Ethernet.
Solid Amber		Connected 10 Base.
Solid Green		Connected 100 Base.
	OFF	Idle
	Blinking Amber	Communicating in the half-duplex mode. (Lights only when communicating.)
	Blinking Green	Communicating in the full-duplex mode. (Lights only when communicating.)

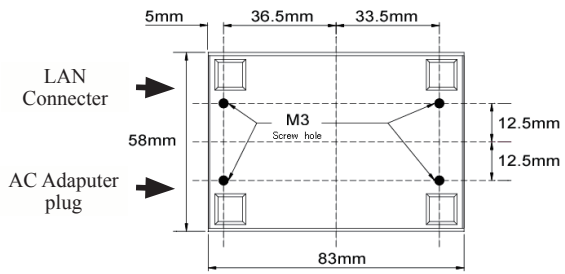
9-6. Installation Method

Rubber feet are put on the bottom of the device. Please set it on a flat and stable place.

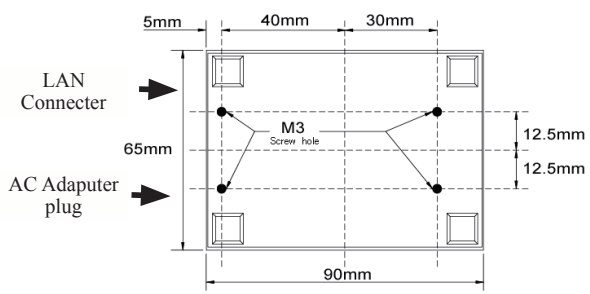
■ Fix the converter

There are the four M3 screw holes on the back of the converter.
When you fix the converter in place, screw the screws into those holes.

SI-60F



SI-60/SI-65



Note

To fix the converter, screw the screws within 7mm in the surface of the bottom case. When you screw the screws deeper than that, it may damage the board inside.

■ Attachment to DIN rail

To attach the product to 35mm DIN rail, please screw DIN attachment plate (SI-DIN70) to M3 screw hall of the bottom of the product. Then, fix it by pushing it into the DIN rail from the front side of the rail.

Chapter 10 Warranty and After-Sales Service

10-1. Troubleshooting

The "PWR" LED does not light.

< When using the AC adapter > Is the AC adapter connected correctly?	Check that you plug the AC adapter into the AC adapter plug or wall outlet correctly.
< When powering from the connector or terminal block > Is the RS-232C connector or terminal block connected correctly?	Check that you connect the RS-232C connector or terminal block correctly.

Neither the left and right LEDs for the LAN connector do not light or blink.

Is the LAN cable connected correctly?	Check that the connector is connected correctly, or that the cable breaks, etc.
Is the link LED on the switching hub lighting?	Try to connect with other port of hub.
Do you select the proper connection with the straight or cross-over cable for LAN?	Use the proper LAN cable which meets specification of the LAN connector for the target devices.

Cannot find in the Deviceinstaller

Is SI-60/65/60F connected to the same network segment with PC?	Can not serach, if SI-60/65/60F connected to the differnt network segment.
Is IP address of SI-60/65/60F duplicated with other equipment ?	If the IP address of SI-60/65/60F duplicated with other equipment, take off the LAN cable immediately and change the IP address. ➔ Refer to XPort user's manual(XPort_UG.pdf) in the CD-ROM.
Does the security software on the PC interrupt communications?	Check the settings in your OS or security software.

Accessing from the Web browser cannot start the Web manager.

Do you correctly Assign IP Address, subnet mask and gateway?	Check the setup on the converter.
Do rooters, firewall or others on the network interrupt communications?	Contact your network administrator to check.

Set from the Web browser but cannot reflect when opening it again.

Check the setting of IE.	➔ Refer the Note of[6-1. Web Manager Usage]

Cannot connect the converter from the network.

Is the IP address and port number set correctly?	Search the device by using the deviceinstaller and check the network address again.
Is SI-60/65/60F connected to the other network segment beyond the rooter?	Assign IP Address of rooter to default gateway of SI60/65/60F. Also condition of rooter firewall may need to be change,contact your network administrator to check.
Are you using COMPortRedirector?	Please confirm if the COMPort No. which is set on the COMPortRedirector is used on the side of the application software.
Is the connection mode set to Server Mode?	Check the condition of SI60/65/60F.

Cannot communicate on the serial port side (SI-60F,SI-60)

Are Data Status LEDs blinking?	It is working correctly if the SD and RD LEDs are blinking on the timing of data transmission. Note: This can be difficult to distinguish when the transmitted data is too small.
Is the RS-232C cable connected correctly?	Check that the connector is connected correctly, or that the cable breaks, etc.
Is the DTE/DCE change-over switch on the SI-60 set correctly?	Check the specifications for the RS-232C connectors and cables on the target devices, and conduct the proper setup.
Is the communication condition set correctly?	Set to the same values the communication speed, data bits, parity, stop bits, flow control, etc on both the converter and target device.
Can it communicate with a serial port of the PC?	Please confirm if it can communicate with the PC in the communication condition of set-up mode by serial connection. ➔For more details , refer to XPort user's manual(XPort_UG.pdf) in the CD-ROM.

Cannot communicate on the RS-422/RS-485 port side(SI-65)

Are SR/RD LEDs blinking?	It is working correctly if the LEDs are blinking when the data was transmitted on the RS-422/485 line. Note: This can be difficult to distinguish when the transmitted data is too small.
Is the terminal block connected correctly?	Check that the terminal block is connected correctly, that the cables are disconnected, that the cables connected to the wrong connectors, and so on.
Is the DIP switch set correctly?	Set the DIP switch correctly following the connection method, communication conditions, etc.
Are the GND terminal on the converter and the signal grand on the target device, connected?	Connect the GND terminal on the converter to the signal grand on the target device.
Is the communication condition set correctly?	Set to the same values the communication speed, data bits, parity, stop bits, flow control, etc on both the converter and target device.

10-2. Warranty and Repair

Warranty

Within a period of 12 months from the date of shipment, LINEEYE warrants that your purchased products (excepting consumable parts such as the batteries and software) are free of charge from any defects in material and workmanship, only when the products are operated in accordance with procedures described in the documents supplied by LINEEYE.

If the defects exist during the Warranty period, please send back the products to LINEEYE distributors or LINEEYE office. LINEEYE will repair or exchange them at no charge. In this case, the shipping charge will be at your own expense.

- The foregoing warranties are the sole warranties given by LINEEYE. Above warranties shall not be applied to the products that have been modified, repaired or altered (excepting by LINEEYE employees) or that have been subjected to unusual physical or electrical stress, misuses, abuse, negligence or accidents.
  LINEEYE disclaims all other warranties including the warranties of merchantability, fitness for some particular purposes and noninfringement of third party right. LINEEYE cannot promise that the software is error-free or will operate without any interruption.
  When you have some errors while operating the software, please refer to the contents and modified programs shown on our web page (http://www.lineeye.com). Please download it from there.

Repair

LINEEYE will repair the products at your own expense.

For malfunction, please contact the LINEEYE distributors where you purchased at. Or, contact us directly.

If your product needs to be repaired, please read details about a repair on our web page and ask for a repair.

10-3. After-Sales Service

Our web site contains information about his product. In addition, LINEEYE provides a support for technical questions by Mail Form (click "contact us" on our web site).

For supports, the user registration is required. Please be sure to register from the registration page on our web site.

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TEL: 075-693-0161 FAX: 075-693-0163

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