Panasonic

PROGRAMMABLE CONTROLLER

FP2 S-LINK Unit Manual

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Safety Precautions

Observe the following notices to ensure personal safety or to prevent accidents.
To ensure that you use this product correctly, read this User's Manual thoroughly before use.
Make sure that you fully understand the product and information on safety.
This manual uses two safety flags to indicate different levels of danger.

WARNING

If critical situations that could lead to user's death or serious injury is assumed by mishandling of the product.

-Always take precautions to ensure the overall safety of your system, so that the whole system remains safe in the event of failure of this product or other external factor.
-Do not use this product in areas with inflammable gas. It could lead to an explosion.
-Exposing this product to excessive heat or open flames could cause damage to the lithium battery or other electronic parts.

CAUTION

If critical situations that could lead to user's injury or only property damage is assumed by mishandling of the product.

-To prevent excessive exothermic heat or smoke generation, use this product at the values less than the maximum of the characteristics and performance that are assured in these specifications.
-Do not dismantle or remodel the product. It could cause excessive exothermic heat or smoke generation.
-Do not touch the terminal while turning on electricity. It could lead to an electric shock.
-Use the external devices to function the emergency stop and interlock circuit.
-Connect the wires or connectors securely.
The loose connection could cause excessive exothermic heat or smoke generation.
-Do not allow foreign matters such as liquid, flammable materials, metals to go into the inside of the product. It could cause excessive exothermic heat or smoke generation.
-Do not undertake construction (such as connection and disconnection) while the power supply is on. It could lead to an electric shock.

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Introduction

Thank you for purchasing the FP2 S−LINK unit/CPU with S−LINK.
The FP2 S−LINK unit is designed exclusively for the FP2 programmable controller, and is equipped with numerous functions that make it easy to use the S−LINK with the FP2.
This hardware manual describes the functions, installation, wiring, and operation of the FP2 S−LINK unit/CPU with S−LINK.
Please make sure you understand the material contained in this manual before using your equipment.

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Chapter 6 Shared Memory

Chapter 7 What To Do If An Error Occurs

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Special Precautions

This manual is the instruction manual for the FP2 S−LINK unit/CPU with S−LINK.
For detailed information about the S−LINK, refer to the “S−LINK Design manual and Construction manual.”

About tool software
The only versions of NPST−GR which can be used with the FP2 are Ver. 4.4 and subsequent versions. Please confirm the version before using NPST−GR.

Chapter 1

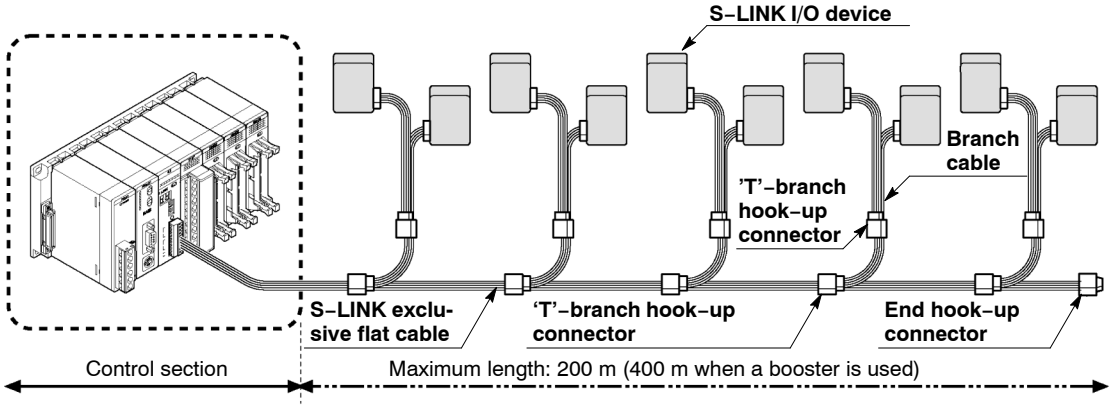
Selecting the Right Equipment

1.1 Features

Two methods of wiring may be employed, depending on the application: standard wiring or loop wiring.

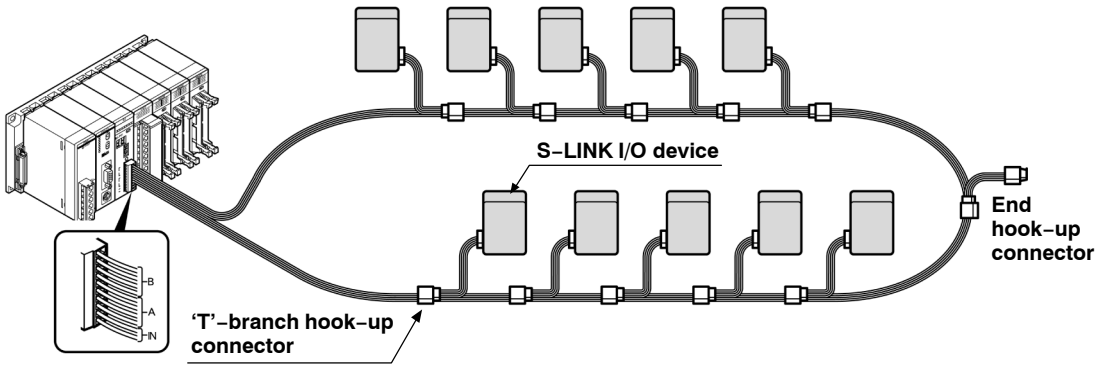
Example: Standard wiring

In this method, wiring is done from the control section using an S−LINK exclusive flat cable and an end hook−up connector is connected at the end of the main cable. The maximum cable length is 200 meters (400 meters if a booster is used).



Example: Loop wiring

The S−LINK exclusive flat cable from is run from the controller, and the end is connected back to the controller. The loop can have a maximum length of 200 meters. The end connector is connected at approximately the mid−point of the loop (the position furthest from the S−LINK unit). Even if the main signal/power line is broken at one point, the system does not go down and signal transmission continues.



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- A built−in S−LINK controller is provided for coupling directly to the S−LINK. This enables wiring for expansion inputs and outputs points to be neat and efficient.
- The user may select combinations offering up to a total of 128 inputs and outputs.
- For the CPU with S−LINK, two internal S−LINK controllers are provided, and two input/output channels (128 points x 2) can be used.
- The inputs and outputs are handled by the program just like ordinary ones.
- The S−LINK system can be easily monitored by reading shared memory data.
- A broad range of peripheral devices for the S−LINK enable easy system configuration.

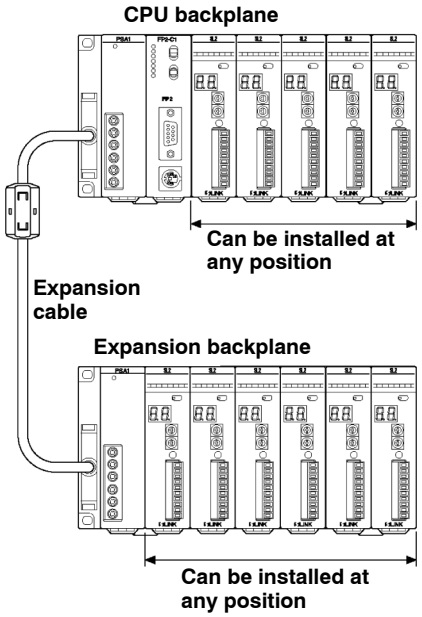
1.2 Types

Name	Internal functions	Model no.
FP2 S−LINK unit	128 input/output points using S−LINK	FP2−SL2
CPU with S−LINK	Two input/output channels (128 points x 2) using S−LINK FP2 CPU function	FP2−C1SL

1.3 Installation Restrictions

1.3.1 FP2 S−LINK Unit

When installing the FP2 S−LINK unit on the CPU backplane or on the expansion backplane, it may be installed at any position.

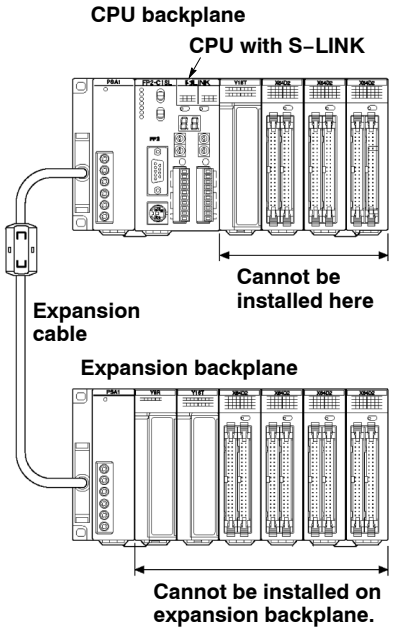


The FP2 S−LINK unit may be installed in any slot other than those used to install the power supply unit and the CPU. Any number may be installed as long as the number is within the range of I/O points that can be controlled by the CPU.

1.3.2 CPU with S−LINK

This may be installed and used only in the position to the right of and adjacent to the power supply unit on the CPU backplane (the position where the CPU can normally be installed).

It cannot be installed and used on the expansion backplane.



1.4 Current Consumption

The internal current consumption (5V power supply) for the FP2 S−LINK unit and the CPU with S−LINK is as shown below. When configuring the system, the usage conditions of other units should be taken into consideration and included in the capacity of the power supply unit.

Name	Model no.	Current consumption (5V power supply)
FP2 S−LINK unit	FP2−SL2	130mA max.
CPU with S−LINK	FP2−C1SL	670mA max.

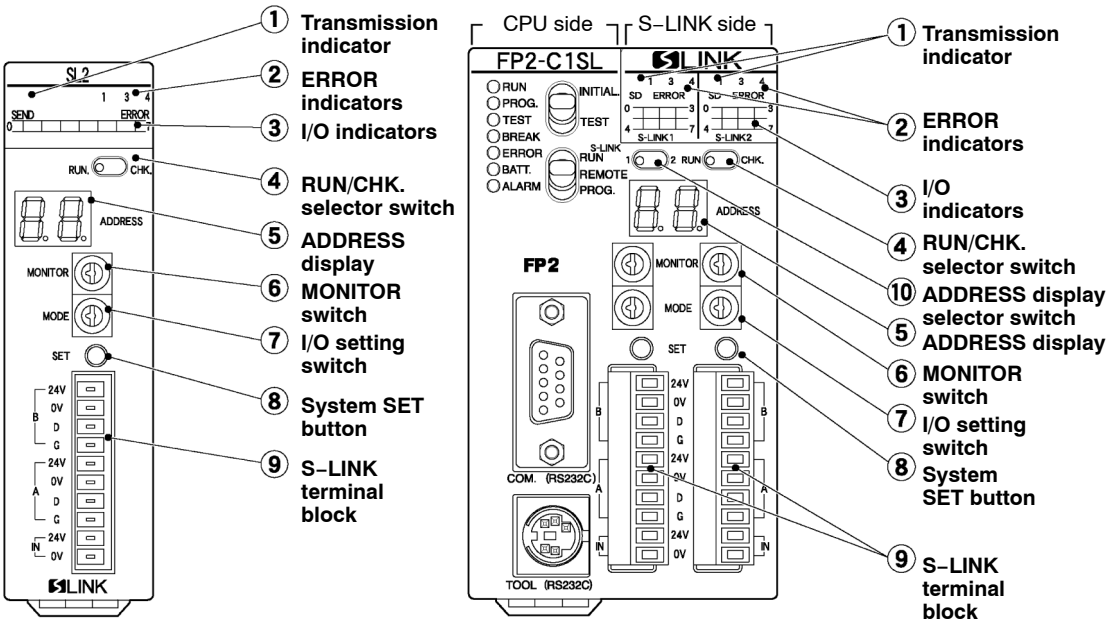
Note

For information on the internal current consumption of other units, refer to the FP2 Hardware Manual and the manual for the relevant unit.

Chapter 2

Specifications

2.1 Parts Related to S−LINK Operation



FP2 S−LINK unit
Model No. FP2−SL2

CPU with S−LINK
Model No. FP2−C1SL

① Transmission indicator (SEND)

The CPU with S−LINK is equipped with Channel 1 and Channel 2 indicator LEDs (Green).
During normal transmission, at the same time as the transmission indicator (SEND) blinks.

② ERROR indicators

The CPU with S−LINK is equipped with Channel 1 and Channel 2 error indicators. These light if an error occurs in the S−LINK system.
ERR1 (Error 1): Short circuit between D − G line.
ERR3 (Error 3): Abnormal voltage level between D − G line.
ERR4 (Error 4): Broken wire or S−LINK I/O device error
For detailed information, refer to section “7.1 Judging Errors From the Error Indicators”.

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☞ Notes

- **If ERR1 (Error 1) occurs by itself, the protective function which guards against a short−circuit between D and G has been activated. To cancel the protective function, turn off the power supply to the S−LINK, and then repair the cause of the short−circuit. (The short−circuit protective function is maintained as long as the power supply to the S−LINK is on.)**
- **If the power supply to the S−LINK is turned off, ERR1 (Error 1) and ERR3 (Error 3) light.**
- **ERR4 (Error 4) is maintained. To cancel this error, either turn the power supply to the FP2 off and then on again, or press the system SET button to reset it if the RUN/CHK. selector switch is set to the RUN position, or turn the power supply to the S−LINK off and then on again.**

③ **I/O indicators (ON/OFF indicators)**
The CPU with S−LINK is equipped with Channel 1 and Channel 2 I/O indicators. The on/off status of the various S−LINK system addresses are displayed in units of eight points. The address to be displayed is selected using the ⑥ MONITOR switch. For detailed information, refer to section “5.4.5.3 Confirming the On/Off Status of Addresses”.

④ **RUN/CHK. selector switch**
Set to RUN: This is the normal operation mode.
Set to CHK.: This is the Check mode (for detailed information, see ⑧ System SET button).
The following items can be confirmed using the system SET button.

When normal: The number of units that the FP2 S−LINK unit recognizes as connected to it are displayed as a blinking display by the ⑤ ADDRESS display, and all of the addresses light in sequential order.

If an error occurs: All of the addresses where errors have occurred are displayed in sequential blinking displays (when ERR4 occurs) by the ⑤ ADDRESS display.

☞ Note

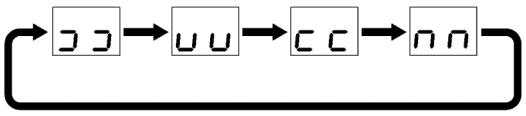
After confirming the above items, always return the system to the operation mode (RUN) side.
For a CPU with S−LINK, switching between RUN and CHK is carried out on both channels (the Channel 1 and Channel 2 sides).

⑤ **ADDRESS display (2−digit hexadecimal display)**

This displays the transmission status, the number of units connected, and the addresses of the various units.

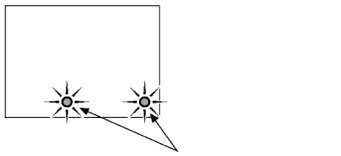
During normal transmission:

The "⊐ ⊐" shaped charactor rotates in the clockwise direction.



If an error occurs:

In case faults occur at several locations, the smallest error address is displayed and the decimal points light up simultaneously. Therefore, if only one S−LINK I/O device is connected beyond the cable disconnection point, the decimal points do not light up.



Decimal points

Note

With a CPU with S−LINK, the above is displayed for the channel selected using the (10) ADDRESS display selector switch.

⑥ **MONITOR switch**

The CPU with S−LINK is equipped with Channel 1 and Channel 2.

The display addresses for the ③ I/O indicators (corresponding to the S−LINK I/O device addresses) are specified in units of 8 points.

For detailed information, refer to section "5.4.5.3 Confirming the On/Off Status of Addresses".

⑦ **I/O setting switch (MODE)**

The CPU with S−LINK is equipped with Channel 1 and Channel 2.

These are used to specify the number of input/output points for the S−LINK system (32, 64, 96, or 128 points). Set value is read only once, when the power supply to the FP2 is turned on.

For detailed information, refer to section "3.2 Specifying the Number of Input/Output Points".

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⑧ System SET button

The CPU with S−LINK is equipped with Channel 1 and Channel 2.

When the RUN/CHK. selector switch is set to RUN:

Pressing the system SET button reads the connection status for the S−LINK system and stores it in the memory. At this point, the ⑤ ADDRESS display lights for a given period of time. (if the same address has been specified for more than one unit, it is counted as one unit. A maximum of two units can have the same address.) In subsequent operation, the S−LINK unit checks for errors using the connection status registered at this time.

(The output unit data effective at the time that the system SET button was pressed is retained.)

When the RUN/CHK. selector switch is set to CHK.:

When normal: Each time the system SET button is pressed, the number which the S−LINK unit recognizes as connected to it is displayed as a blinking display by the ⑤ ADDRESS display, and all of the addresses light in sequential order, starting with the smallest (the display is repeated).

If an error occurs: Each time the system SET button is pressed, all of the addresses where errors have occurred are displayed by the ⑤ ADDRESS display in a sequential blinking display, starting with the smallest (when ERR4 occurs).

☞ Note

If the RUN/CHK. selector switch is set to the RUN position and the system SET button is pressed while an error is in effect, only the number of units that can be confirmed at that point are stored in the memory. There is a possibility that units where the error has not been corrected will not be recognized (if this happens, they will not be a target for the check).

⑨ S−LINK terminal block

The CPU with S−LINK is equipped with Channel 1 and Channel 2 S−LINK terminal blocks.

The power supply and signal wires of the S−LINK are connected to the terminal block.

The S−LINK terminal block is a connector type, and can be detached from the S−LINK unit for wiring operations.

For detailed information, refer to section “4.1 Wiring Methods for S−LINK Main Unit”.

⑩ ADDRESS display selector switch

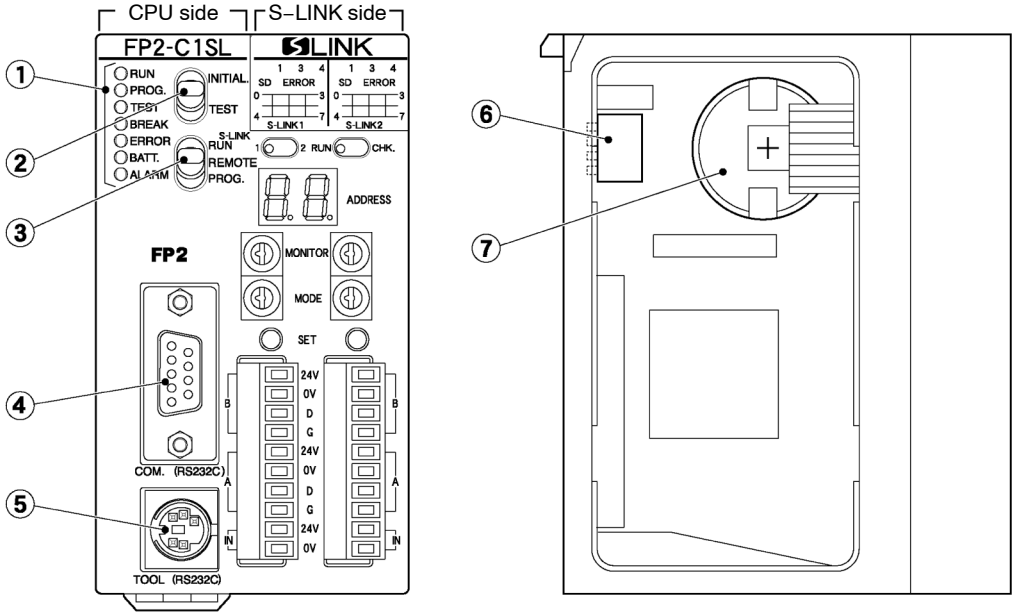
This is used to switch the contents displayed by the ADDRESS display between the Channel 1 and Channel 2 sides.

1: Contents are displayed on the Channel 1 side (the S−LINK 1 side).

2: Contents are displayed on the Channel 2 side (the S−LINK 2 side).

2.2 Parts Related to CPU Operation (CPU with S−LINK)

Operation on the CPU side is the same as that on the standard−type CPU. For detailed information, refer to the FP2 Hardware Manual.



CPU with S−LINK
Model No. FP2−C1SL

① **Status indicator LEDs**
display the operating condition and error statuses.

② **Initialize/test switch**
is used to clear the errors, initialize the operation memory and set the test operation mode.

③ **Mode selector**
is used to change the operation mode.

④ **COM port (RS232C)**
is used to connect a computer or general−serial devices with RS232C port.

⑤ **Tool port (RS232C)**
is used to connect a programming tool.

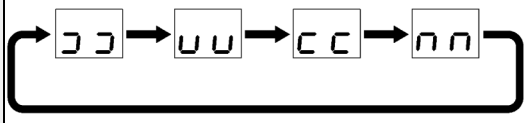
⑥ **Operation condition switch**
is used to set the baud rate of the programming tool, to select the program memory and to select the writing operation for the program memory.

⑦ **Memory backup battery**
for backup of the internal memory (RAM)
Order number: AFC8801 (CR2450 or equivalent)

2.3 Specifications

Item	Specifications	
	FP2 S−LINK unit	**CPU with S−LINK**
Ambient operating temperature	0 to 55°C	
Ambient storage temperature	−20 to 70°C	
Ambient operating humidity	30 to 85% RH (with no condensation)	
Ambient storage humidity	30 to 85% RH (with no condensation)	
Breakdown voltage	500V AC between S−LINK terminal block and ground, for 1 minute 1500V AC between S−LINK terminal block and AC outer terminal, for 1 minute	500V AC between S−LINK terminal block and ground, for 1 minute 1500V AC between AC outer terminal and ground, for 1 minute 500V AC between DC outer terminal and ground, for 1 minute 1500V AC between S−LINK terminal block and AC outer terminal, for 1 minute
Insulation resistance	100MΩ min. between S−LINK terminal block and ground (using 500V DC mega ohmmeter) 100MΩ min. between S−LINK terminal block and AC outer terminal (using 500V DC mega ohmmeter)	100MΩ min. between S−LINK terminal block and ground (using 500V DC mega ohmmeter) 100MΩ min. between AC outer terminal and ground (using 500V DC mega ohmmeter) 100MΩ min. between S−LINK terminal block and AC outer terminal (using 500V DC mega ohmmeter)
Breakdown vibration	10 to 55Hz, 1 sweep/minute Multi−amplitude 0.75mm, 10 minutes each in X, Y, Z directions	
Breakdown shock	98m/s^2 min., 4 times each in X, Y, Z directions	
Usage environment	No corrosive gases. No heavy dust.	
Current consumption	130mA max.	670mA max.
Main unit weight	Approx. 120g	Approx. 250g

2.4 S−LINK Controller Specifications

Item		FP2 S−LINK unit	CPU with S−LINK
No. of channels		1	2
No. of input/output points		128 points max.	128 points x 2 max.
		The number of input and output points can be selected for each channel, using the switch on the main unit. Input: 0/32/64/96/128 points Output: 0/32/64/96/128 points (16−point input and 16−point output also possible)	
Rated power supply voltage		+24V DC ± 10% / Allowable ripple p − p ± 10% max. (Supplied from IN − 24V, IN − 0V of the S−LINK terminal block)	
Current consumption (* note 1)		[S−LINK controller current consumption (including D − G line current consumption)] + 24V DC 1.6A max.	
		[Maximum current which can be supplied (supplied to S−LINK devices and I/O devices from 24V − 0V line)] + 24V DC 5A (fuse: 5A)	
Transmission method		Bi−directional time−divided multiple signal transmission	
Synchronization method		Bit synchronization, frame synchronization	
Transmission protocol		S−LINK protocol	
Transmission speed		28.5 kbps	
Transmission distance (* note 2)		128 I/O signals can be transmitted over a pair of wires up to a distance to 200m max. (400m when a booster is used)	
FAN−out (* note 2)		320	
Connection method		'T'−branch multi−drop wiring or multi−drop wiring (+24V / 0V / D − G line [function provided to protect again short−circuiting between D − G line])	
Interface with FP2 CPU (* note 3)		Common memory system Reading possible through **F150** and **P150** instruction; writing possible through **F151** and **P151** instruction	
Display indicators	**Transmission indicator**	Green LED blinks in response to synchronization signals	
	Error indicators	Red LED light up depending on the error	
	Address display	Red 7−segment LED When normal:  If error occurs: Error address display (hexadecimal) lights In RUN mode: No. of units connected flashes when system SET button is turned on In CHK. mode: Recognized address or address where error occurred flashes when system SET button is turned on	
	I/O (on/off) indicators	Green LED On/off conditions of S−LINK I/O devices are displayed in groups of 8 points. The address to be displayed are selected by the monitor switch.	

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Notes

1) **For detailed information on current consumption, refer to “Determining the Power Supply Capacitance” in the S−LINK Design Manual.**
2) **For information on the booster and FAN−out, refer to the S−LINK Design Manual.**
3) **The number of input and output points is automatically reflected in input X and output Y.**

Chapter 3

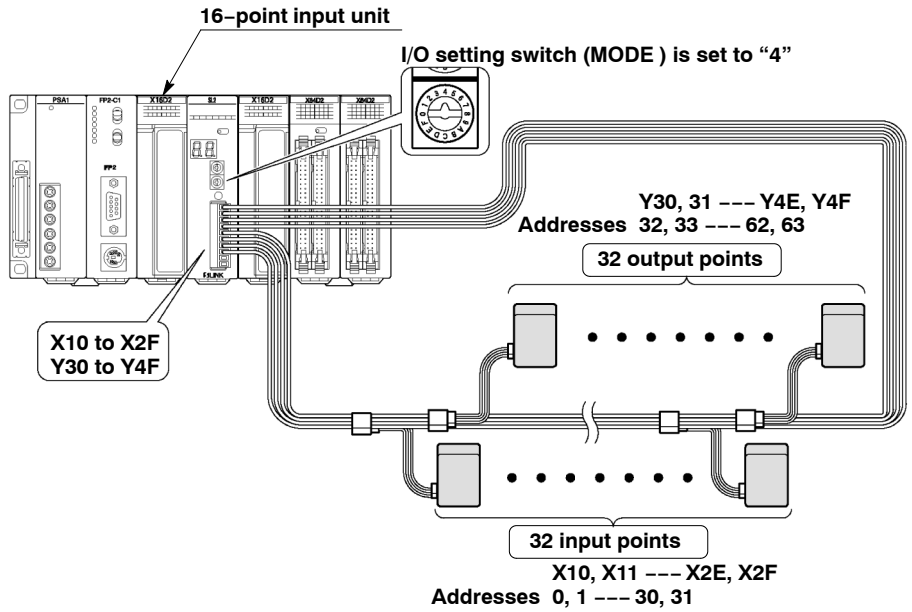
I/O Assignments

3.1 An Overview of I/O Assignments

The S−LINK unit, like other I/O units, is used by assigning inputs (X) and outputs (Y). The inputs/outputs on the FP2 side that result from these assignments are treated as corresponding to the I/O addresses (S−LINK I/O devices) in the S−LINK.

Example:

The illustration below shows an example of the relationship between the addresses in the S−LINK I/O device and the addresses assigned to the S−LINK unit.



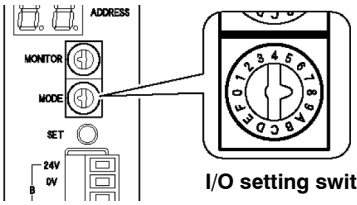
Contents of the illustration: Power supply unit, standard CPU, 16−point input unit, S−LINK unit installed beside these. I/O numbers assigned to the S−LINK unit are X10 to X 2F (32 points) and Y30 to Y4F (32 points). Addresses on the S−LINK are input (0 to 31) and output (32 to 63).

Notes

- **Setting contents selected with the I/O setting switch are read only the one time, when the power supply to the FP2 is turned on.**
- **For detailed information pertaining to the S−LINK, refer to the “S−LINK Construction Manual.”**

3.2 Specifying the Number of Input/Output Points

The number of input points and number of output points for the S−LINK are specified using the I/O setting switch (MODE).
As shown in the table below, the number can be selected from 16 available numbers ranging from 0 to F.



I/O setting switch (MODE)

Specifying numbers with the S−LINK unit I/O setting switch (MODE)							
No.	**FP2**		**S−LINK**		**No. of input points**	**No. of output points**	**Total no. of points**
	Input [no. of points]	**Output [no. of points]**	**Input address**	**Output address**			
0	−−−−[0]	Y (n) 0 to Y (n+1) F [32]	−−−−−	0 to 31	0	32	32
1	−−−−[0]	Y (n) 0 to Y (n+3) F [64]	−−−−−	0 to 63	0	64	64
2	−−−−[0]	Y (n) 0 to Y (n+7) F [128]	−−−−−	0 to 127	0	128	128
3	X (n) 0 to X (n+1) F [32]	−−−−−[0]	0 to 31	−−−−−	32	0	32
4	X (n) 0 to X (n+1) F [32]	Y (n+2) 0 to Y (n+3) F [32]	0 to 31	32 to 63	32	32	64
5	X (n) 0 to X (n+1) F [32]	Y (n+2) 0 to Y (n+5) F [64]	0 to 31	32 to 95	32	64	96
6	X (n) 0 to X (n+3) F [64]	−−−−−[0]	0 to 63	−−−−−	64	0	64
7	X (n) 0 to X (n+3) F [64]	Y (n+4) 0 to Y (n+5) F [32]	0 to 63	64 to 95	64	32	96
8	X (n) 0 to X (n+3) F [64]	Y (n+4) 0 to Y (n+7) F [64]	0 to 63	64 to 127	64	64	128
9	X (n) 0 to X (n+7) F [128]	−−−−−[0]	0 to 127	−−−−−	128	0	128
A	−−−−−[0]	Y (n) 0 to Y (n+5) F [96]	−−−−−−	0 to 95	0	96	96
B	X (n) 0 to X (n+1) F [32]	Y (n+2) 0 to Y (n+7) F [96]	0 to 31	32 to 127	32	96	128
C	X (n) 0 to X (n+5) F [96]	−−−−−[0]	0 to 95	−−−−−	96	0	96
D	X (n) 0 to X (n+5) F [96]	Y (n+6) 0 to Y (n+7) F [32]	0 to 95	96 to 127	96	32	128
E	X (n) 0 to X (n) F [16]	Y (n+1) 0 to Y (n+1) F [16]	0 to 15	16 to 31	16	16	32
F	X (n) 0 to X (n+7) F [128]	−−−−−−[0]	0 to 127	−−−−−	128	0	128

Notes

- **X (n) 0 to X (n + 7) F indicate input numbers for the FP2. Y (n) 0 to Y (n + 7) F indicate output numbers for the FP2.**
- **I/O numbers are determined based on the position of the slot used for installation and the I/O assignments of other units.**
- **With a CPU that has an internal S−LINK, the Channel 1 side is n = 0 and the Channel 2 side is n = 1.**
- **With S−LINK unit installed in a standard CPU, n = 0.**
- **If both input and output are specified, always specify the I/O number for the input first.**
- **The I/O setting switch (MODE) settings should not be changed after the power supply has been turned on. This causes a CPU error to occur.**
- **The number of input/output points selected for the S−LINK unit or CPU with S−LINK serves as the number of I/O points for that unit. When specifying the number of points, be careful of how I/O numbers have been allotted to other units.**
- **The contents of the settings for No. 9 and No. F are the same (either one may be selected).**

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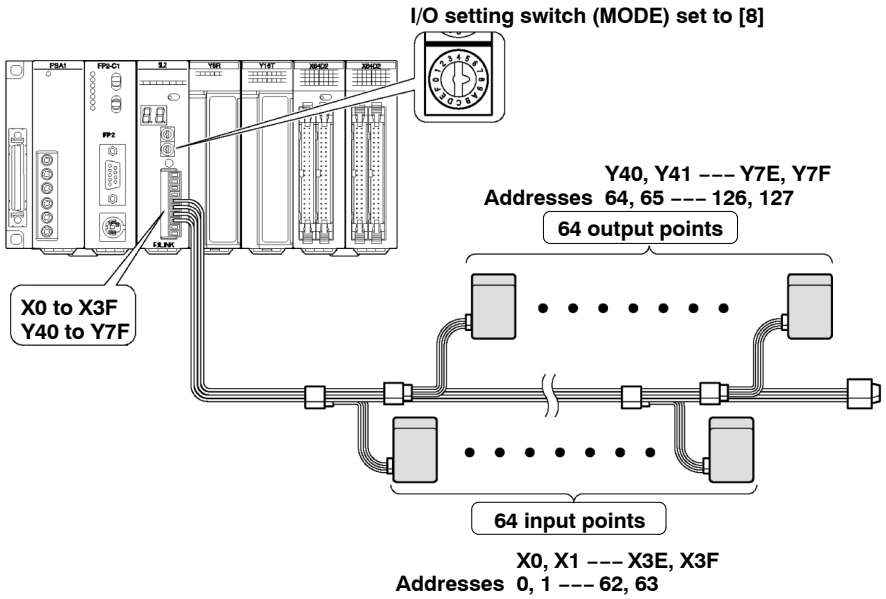
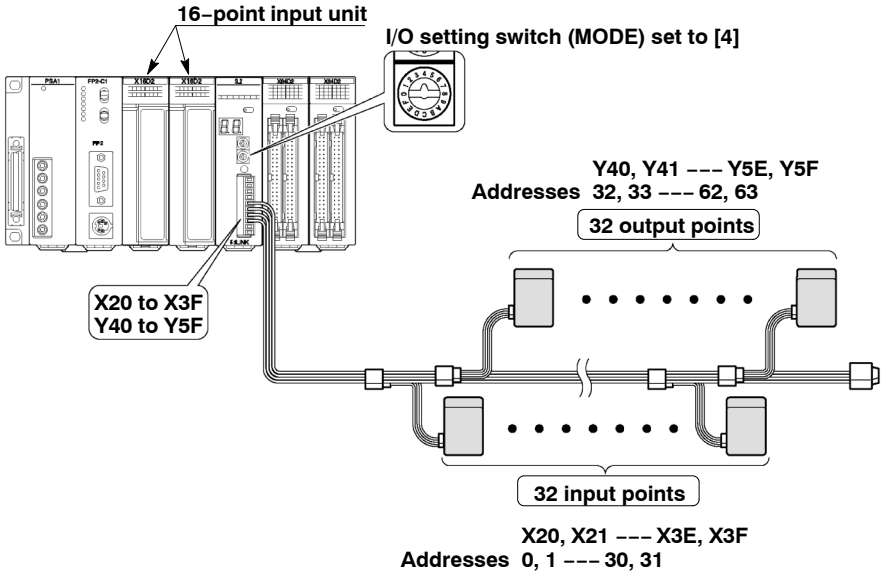
Example 1:

S−LINK unit installed next to a standard CPU, with the I/O setting switch (MODE) set to [8].



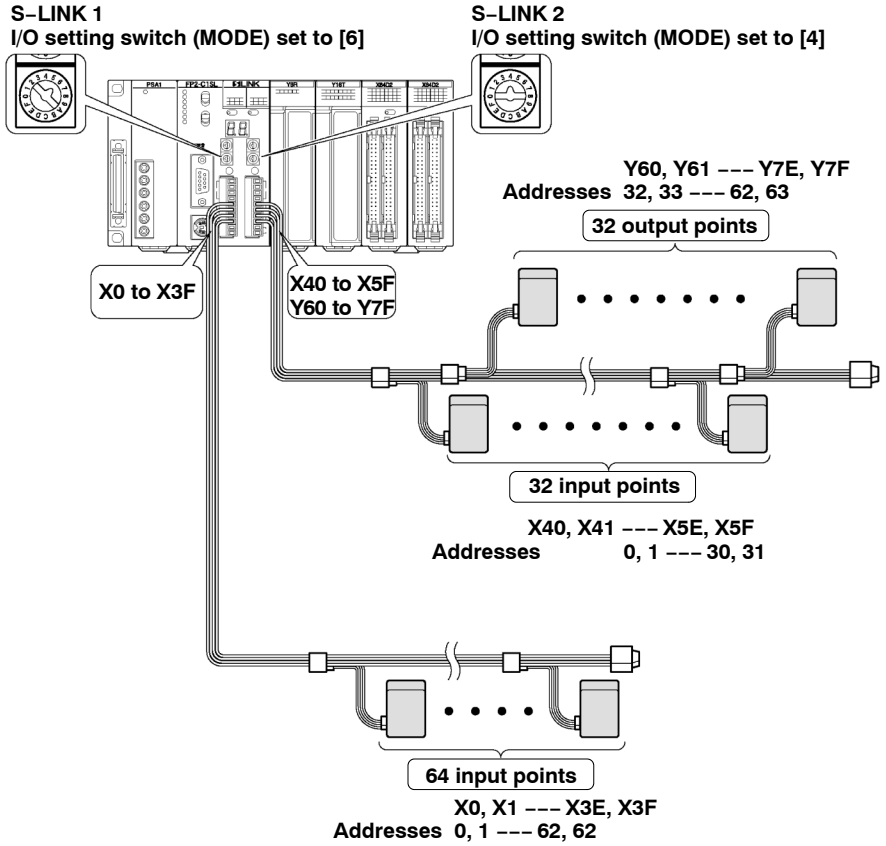
Example 2:

Example where another unit has been installed between the S−LINK unit and the standard CPU, and the I/O setting switch (MODE) has been set to [4].



Example 3:

Example showing CPU with S−LINK being used, with the I/O setting switch (MODE) set to [6] on the S−LINK 1 side and to [4] on the S−LINK 2 side



3.3 Assigning Inputs and Outputs

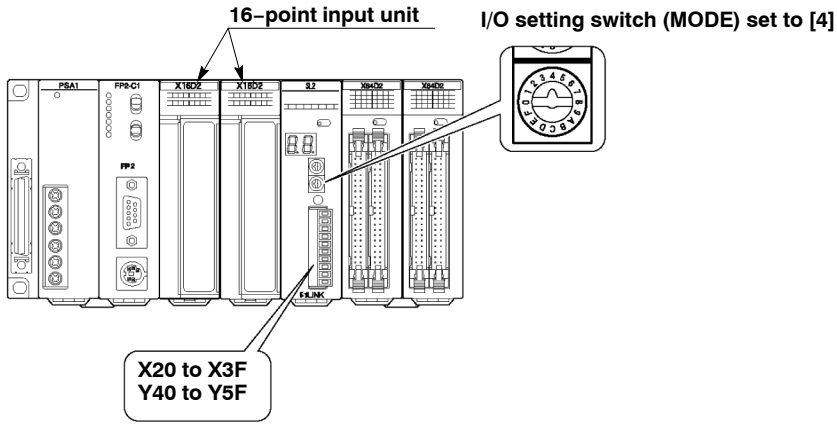
3.3.1 User−Determined Assignments

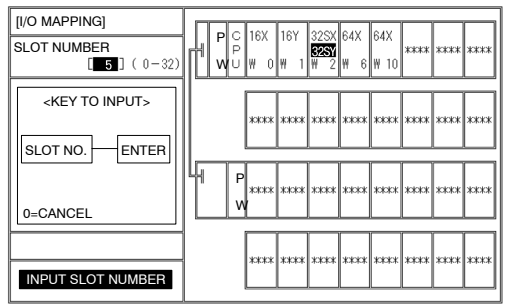
Using NPST−GR, I/O assignments are created, and the contents of the assignments are stored in the system registers of the CPU. With this method, there is no chance of I/O numbers being off even if the unit is installed in the wrong slot, or there are empty slots.

The number of I/O points selected with the I/O setting switch (MODE) should be assigned to the slot where the unit is installed.

Example:

When the I/O setting switch (MODE) is set to [4] (there are 64 points)





The above shows the menu of the NPST−GR software tool.

Note

Input and output for the S−LINK unit are specified using SX and SY.
Input: 16SX, 32SX, 64SX, 96SX, 8WSX
Output: 16SY, 32SY, 64SY, 96SY, 8WSY (8W indicates 128)

3.3.2 I/O Mounting Assignments

Using NPST−GR, the assignment status of the unit being mounted is registered just as it is.
The “I/O Unit Assignment” screen is brought up on the on−line monitor, and the <F10> key (Mount key) is pressed. The <Y> key is then pressed to implement the assignment. The contents specified using the I/O setting switch (MODE) on the S−LINK unit are loaded.

The results when “I/O Mounting Assignments” is implemented are the same as when “Automatic Assignments” is implemented.

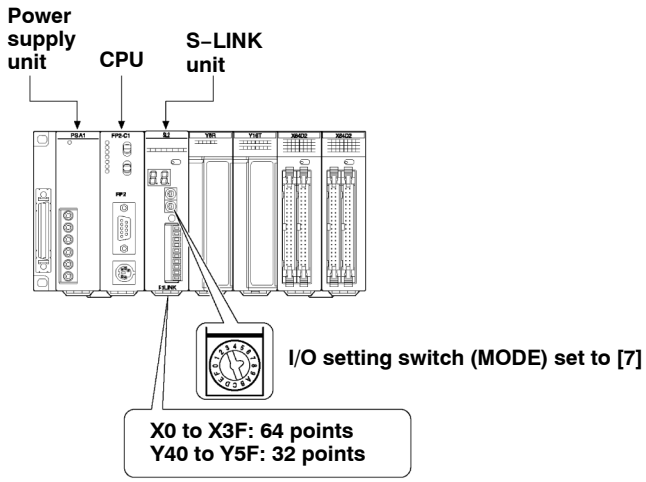
3.3.3 Automatic Assignments

If the power supply to the PLC is turned on after a unit is installed, assignments are made automatically according to the status of the unit. The unit has the number of I/O points selected using the I/O setting switch (MODE).

Example:

The unit has 96 points when the I/O setting switch (MODE) is set to [7].

(Refer to “3.2, Specifying the Number of Input/Output Points”.)



Notes

- **This should be implemented after the system registers are initialized.**
- **The contents of assignments made using the automatic assignment function are not registered.**

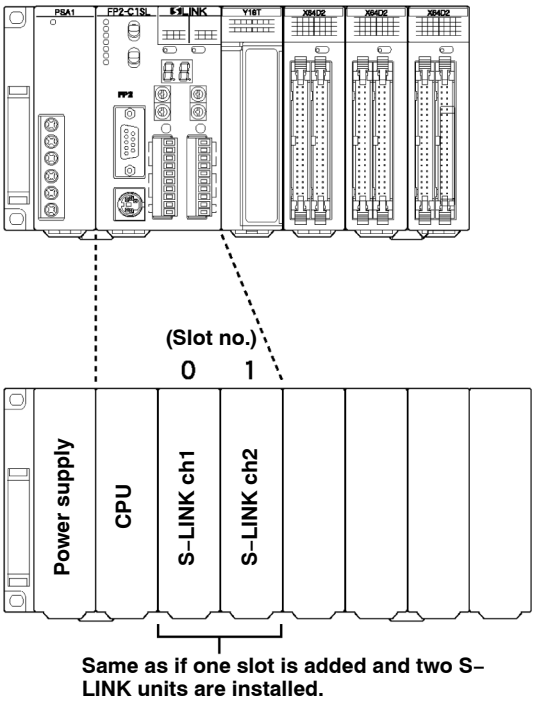
3.4 Slot of CPU with S−LINK

The CPU with S−LINK is consists of a CPU which occupies one slot on the backplane, and S−LINK unit, which also occupies one slot.

The S−LINK unit expands the functions of the slot which it occupies by providing the functions of two S−LINK units in one slot.

When I/O assignments are made, the S−LINK unit component is treated as though there were two slots, with an individual S−LINK unit installed in each.

Example: 7−module type backplane



Chapter 4

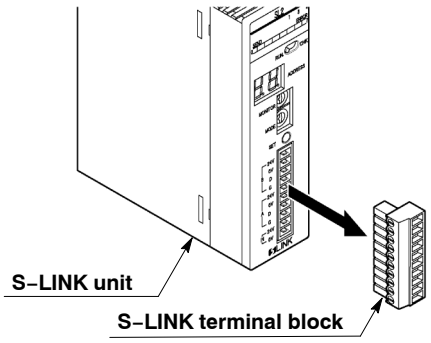
Construction and Wiring

4.1 Wiring Methods for S−LINK Main Unit

There are two method of wiring an S−LINK system standard wiring and loop wiring each having its advantage.
The connections are described below. For detailed information, refer to the “S−LINK Construction Manual.”

4.1.1 Wiring to the S−LINK Terminal Block

The S−LINK terminal block is detachable. Wiring the S−LINK terminal block while it is detached from the unit allows the wiring to be done without detaching the whole main unit.



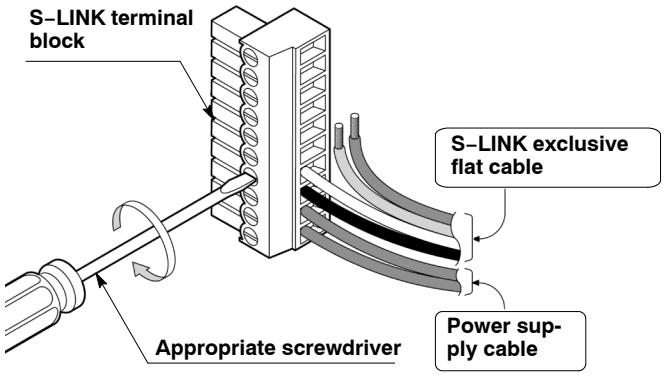
Terminal block: MC1.5/10−ST−3.5 (Made by Phoenix Contact Co.; provided as an accessory)

The wires noted below should be used.

Suitable wiring

Size	Nominal cross−section surface area
AWG #20 to 16	0.5 to 1.25 mm^2

We recommend using the appropriate screwdriver to tighten the wiring.



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Use an appropriate tool to tighten the terminal block.

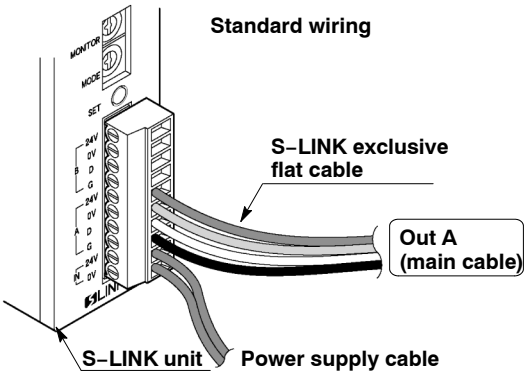
When tightening the terminal block, a screwdriver designed exclusively for that purpose should be used (see table below). The tightening torque should be 0.22 to 0.25 N−m (2.3 to 2.5 kgf−cm).

Appropriate tool (blade width 0.4 × 2.5)

Panasonic Electric Works SUNX Co., Ltd. Order no.	**Phoenix Contact Co. model no.**	
AFP0806	Model no.	Product no.
	SZS 0.4 × 2.5	1205037

4.1.2 Standard Wiring

Only the “Out A (main cable)” of the S−LINK terminal block is used.



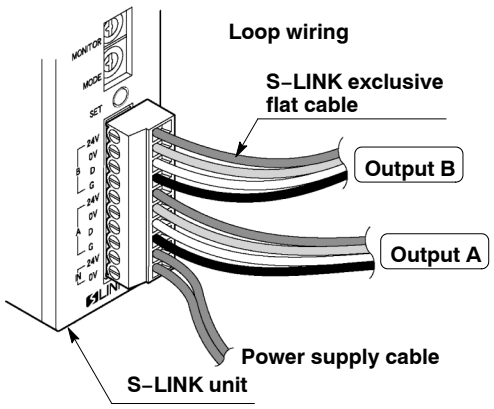
Terminal name		**Color of connecting cable**
Out A (Main cable)	24V	Brown
	0V	Blue
	D	White
	G	Black

Note

For information on power supply wiring, refer to section “4.2 S−LINK Power Supply”. For information on wiring and connecting S−LINK devices, refer to the “S−LINK Construction Manual.”

4.1.3 Loop Wiring

S−LINK unit have output A and output B terminals. Loop wiring is done by connecting one end of the cable to output A and the other end to output B.



Terminal name		Color of connecting cable
Output B	24V	Brown
	0V	Blue
	D	White
	G	Black
Output A	24V	Brown
	0V	Blue
	D	White
	G	Black

Note

For information on power supply wiring, refer to section “4.2 S−LINK Power Supply”. For information on wiring and connecting S−LINK devices, refer to the “S−LINK Construction Manual.”

4.2 S−LINK Main Power Supply

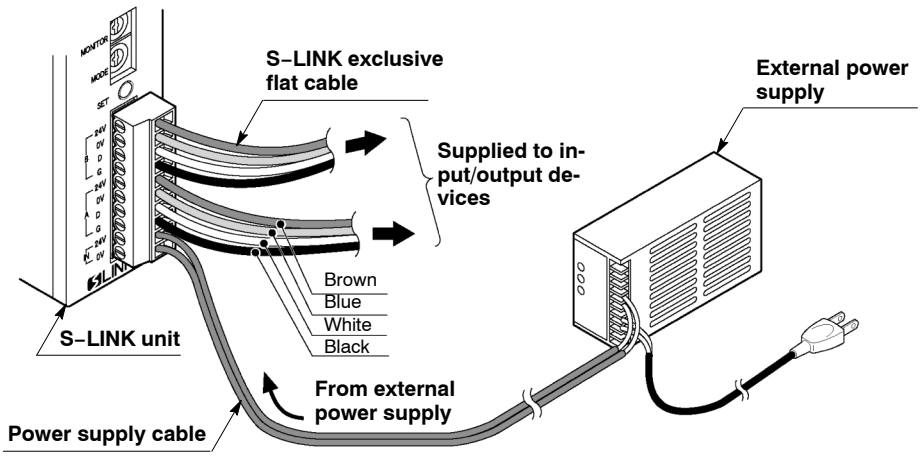
In order to supply power to the various S−LINK devices, an external power supply must be connected to the S−LINK unit and power supplied through that source.

This is the power supply for the S−LINK controller in the S−LINK unit and S−LINK I/O devices to which power is supplied through the 24V – 0V line of the S−LINK main cable.

The current consumption for the overall S−LINK system is calculated by referring to the section entitled “Determining the Power Supply” in the “S−LINK Design Manual.” (For standard purposes, a power supply exceeding 24V DC, 1.6 A should be selected.)

Example:

The power supply is connected to “IN 24V – 0V” on the S−LINK terminal block.



Note

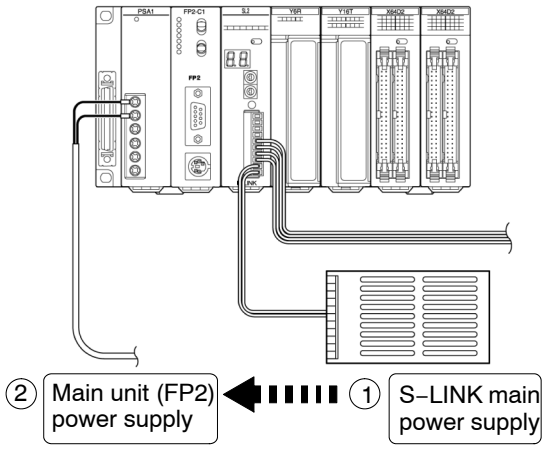
The S−LINK is protected by a fuse, but if too many input/output devices are connected, or if the current consumption is heavy enough to cause the fuse to blow, we recommend providing a local power supply.

Chapter 5

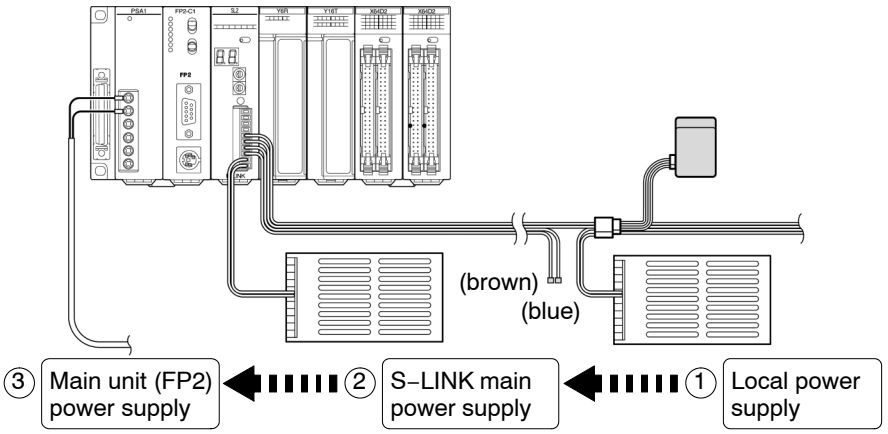
Operation

5.1 Starting Operation

When starting up the main unit (FP2), always turn on the main power supply to the S−LINK (the external power supply) first (or turn both power supplies on at the same time).



If a local power supply is being used for I/O devices connected to the system and for S−LINK I/O devices, make sure the local power supply is turned on before the S−LINK main power supply (or turn both power supplies on at the same time).



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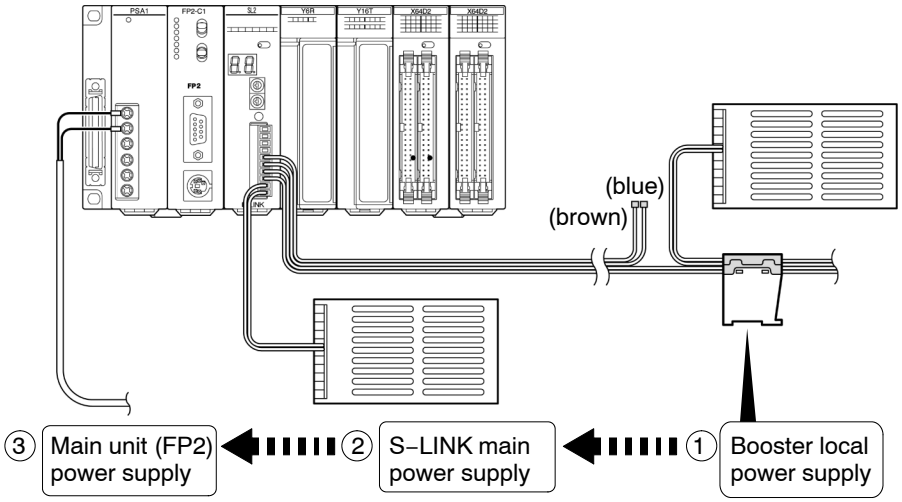
If using the booster local power supply, start up the booster before the S−LINK main power supply.



5.2 Ending Operation

When turning off the power supply to the main unit (FP2), always turn off the main unit power supply before turning off the S−LINK main power supply.

If using a local power supply, always turn off the power supplies in the following sequence: main unit → S−LINK main power supply → local power supply (or turn off the main unit → S−LINK main and local power supplies at the same time).

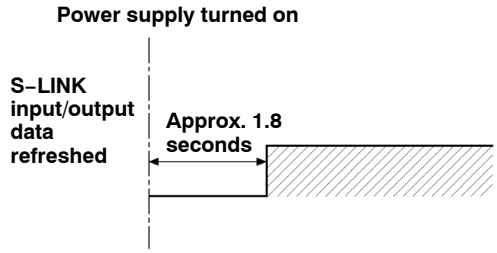
If using the booster local power supply, turn off the power supplies in the following sequence: main unit → S−LINK main power supply → booster local power supply (or turn off the main unit → S−LINK main and booster local power supplies at the same time).

Note

When turning off the power supplies, any S−LINK devices being run from a local power supply will stop operating when the local power supply is turned off, and this causes a disconnection error.

5.3 Timing

After the power supply for the FP2 system is turned on, with the external power supply for the S−LINK (the power supply between D − G line) already on, it takes approximately 1.8 seconds for the S−LINK input/output data to be refreshed.
A timer or similar device should be used to boot the program, so that the program boots after the data has been refreshed.



Note

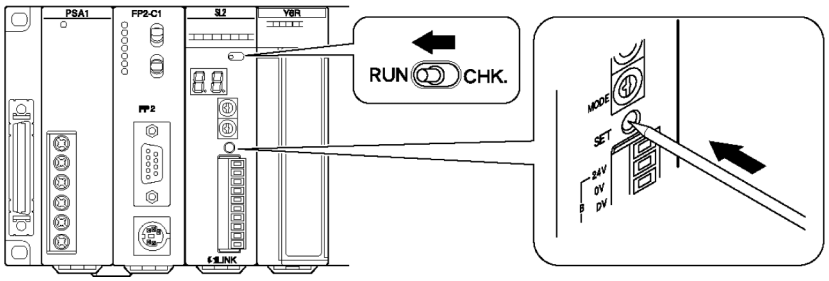
Make sure an adequate time period is taken into consideration, allowing time after booting the system for S−LINK input to pass through the b contact, and other operations to be completed.

5.4 S−LINK I/O Device Address Recognition

When an S−LINK unit is being used for the first time, the connection status for the S−LINK system must be recognized.
Once the connection status has been recognized, it does not have to be done again each time the system is started up, but the operator must make sure that recognition has been carried out the first time that the S−LINK unit is used. Following the procedure noted below, check to make sure that recognition has been carried out.

5.4.1 Recognizing the Address

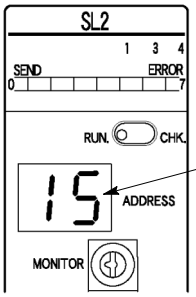
Set the RUN/CHK. selector switch on the S−LINK unit to the “RUN” position.
If the S−LINK system is being operated for the first time, turn on the power supply and then press the system SET button.



Explanation

When the system SET button is pressed, the number of connected devices recognized by S−LINK unit blinks on the address display in hexadecimal (HEX.) number, and then, a “コ コ” shaped character rotates in the clockwise direction.

If the actual number of connected devices differs from the number displayed above, since an unrecognized S−LINK I/O device exists, please check for address overlapping, misconception, etc..



The number of devices is displayed after the power supply is turned on.

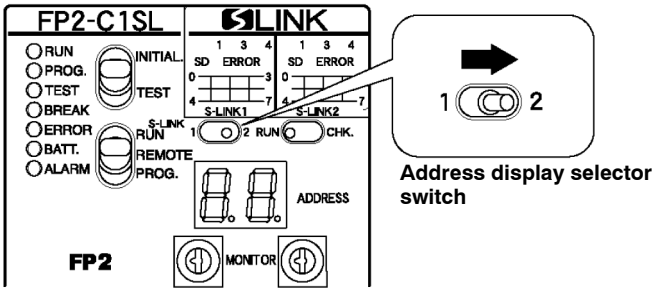
15 (hexadecimal) = 21 (decimal) devices

Note

When booster is connected, even if the address of booster is recognized, it is not included in the number of connected devices.

5.4.2 For a CPU With S−LINK

Set the address display selector switch to the channel on which address recognition is being carried out. All other steps of the operation are the same as those described above.



Address display selector switch

Notes

- **Do not use pointed objects such as needles, or breakable objects such as mechanical pencil lead, to press the system SET button.**
- **If address recognition is performed first, the information is stored in EEPROM. There is thus no need to press the system SET button each time the power is turned on.**
- **When the power supply is switched on for the first time after completing the wiring of S−LINK system, an arbitrary error display may appear. This does not indicate any abnormal operation. (If the system SET button is pressed, this display is erased.)**
- **If an error address is displayed during normal use of the device, do not press the system SET button. Pressing the system SET button causes the check of that address to be skipped during subsequent checking operations.**

5.4.3 What to do if an Error Occurs

Check the address that is displayed, and then turn off the power supply.
Take whatever steps are necessary to correct the error for that address (correct settings and connections) and then turn on the power supply again.

5.4.4 Results and Processing of Address Recognition

If there are no problems

The displayed numeric value matches the actual number of S−LINK I/O devices that are connected to the S−LINK system. Operation of the FP2 can now be begun.

Explanation

The connection status that is recognized is stored in the EEPROM in the S−LINK unit. After this, it will not be necessary to press the system SET button when the power supply is turned on.

Checking for errors in the S−LINK during operation will be carried out based on the connection status stored in the memory at this time.

If there is a problem

The displayed numeric value does not match the actual number of S−LINK I/O devices that are connected to the S−LINK system.

Explanation

There is a S−LINK I/O device that has not been correctly recognized.

Turn off the power supply and check carefully for erroneous connections, and to make sure none of the addresses specified for S−LINK I/O devices have been duplicated.

For information on connections and on specifying addresses, please refer to the “S−LINK Construction Manual.”

After the error is corrected

Carry out the steps described in “5.4.1 Recognizing the Address”, once again.

5.4.5 Confirming Connected Stations

5.4.5.1 Confirming All Recognized Addresses

When the procedures described on section “5.4 S−LINK I/O Device Address Recognition”, are completed, the user can confirm the addresses of the S−LINK I/O devices that have been recognized.
This is useful in preventing problems such as erroneous settings where the same address may have been assigned to two or more S−LINK I/O devices.

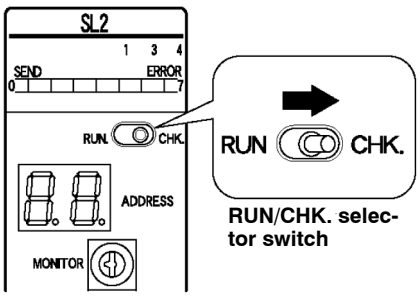
Note

If the same address is assigned to multiple devices, the S−LINK I/O devices will be recognized as a single device.

Procedure:

1. **Set the RUN/CHK. selector switch to the “CHK.” position.**

   The S−LINK unit switches to check (CHK.) mode.
   The number of recognized connected devices blinks.
   (At this time, even if booster is connected, it is not included in the number of connected devices.)

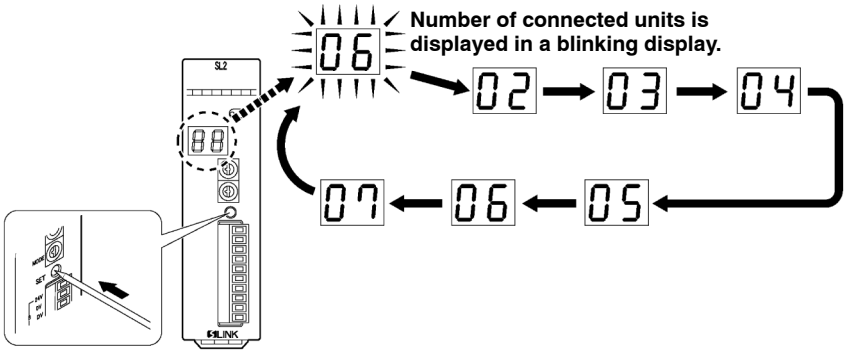


RUN/CHK. selector switch

2. **Press the system SET button.**

   The smallest of the recognized addresses is displayed.
   After this, each time the system SET button is pressed, the recognized addresses are displayed successively in the ascending order. (only the first set address in case of multi−channel S−LINK I/O devices)
   After the last recognized address is displayed, the number of recognized connected devices is displayed once again, and then, the display of the addresses is repeated.
   Further, by pressing the system SET button continuously for some time, the recognized addresses can be displayed successively.

Example:

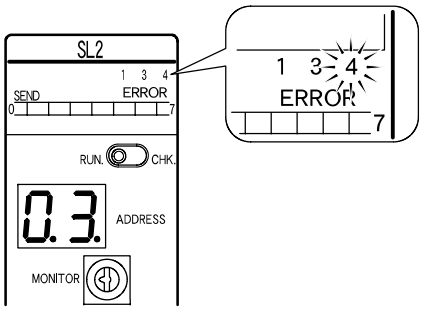


Note

After confirmation has been made, always set the RUN/CHK. selector switch back to the “RUN” position. The display reverts to the normal “ ” display.

5.4.5.2 Confirming All Addresses Where Errors Have Occurred

When the ERROR 4 indicator illuminates (a wire is broken or a problem has occurred in an S−LINK I/O device), you can check the address of the S−LINK I/O device where the error has occurred.

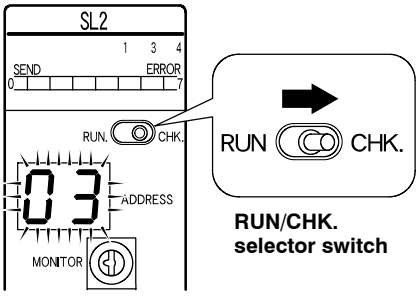


Note

For an explanation of the contents of the address display, refer to section “7.3 Judging Error Displays”.

Procedure:

1. **Set the RUN/CHK. selector switch to “CHK.” position.**
   The S−LINK unit switches to check (CHK.) mode.



RUN/CHK. selector switch

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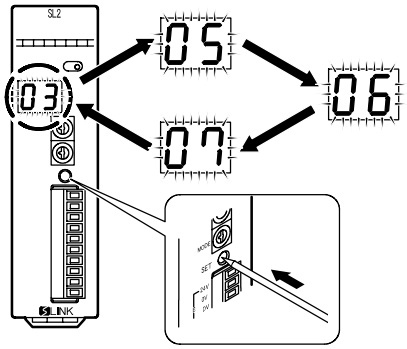
2. Press the system SET button.

Each time the system SET button is pressed, the addresses of the S−LINK I/O devices where a fault has occurred blink, successively, in the ascending order.



Note

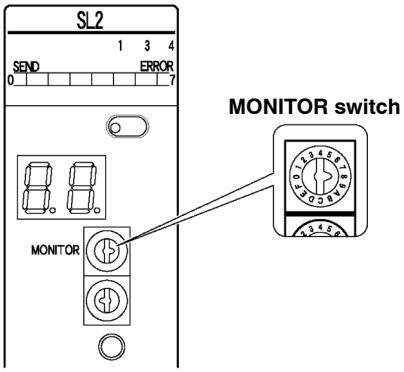
After confirmation is made, always set the RUN/CHK. selector switch back to the “RUN” position.

5.4.5.3 Confirming the On/Off Status of Addresses

It is possible to confirm the on/off status of the various addresses in the S−LINK.

Procedure:

1. Using the MONITOR switch, select the numeric value where the address to be confirmed is stored.



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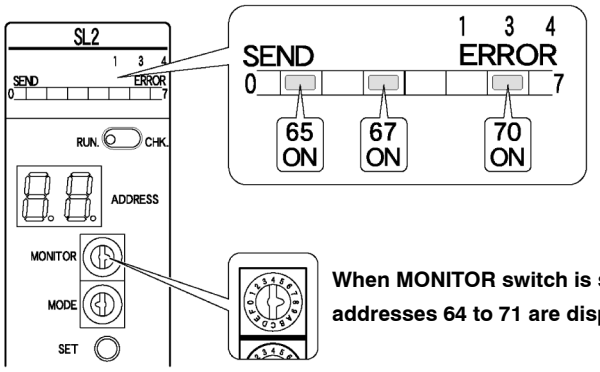
2. Check to see which segments of the I/O display on the front of the unit are lighted.

Based on the below table, the on/off status of addresses can be confirmed in units of eight points.



When MONITOR switch is set to [8], addresses 64 to 71 are displayed

As shown in the table below, eight addresses are assigned to each numeric value on the MONITOR switch, in sequential order. Select the numeric value that includes the address to be confirmed.

[Displayed Addresses]

I/O indicator	MONITOR switch															
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**A**	**B**	**C**	**D**	**E**	**F**
0	0	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
1	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121
2	2	10	18	26	34	42	50	58	66	74	82	90	98	106	114	122
3	3	11	19	27	35	43	51	59	67	75	83	91	99	107	115	123
4	4	12	20	28	36	44	52	60	68	76	84	92	100	108	116	124
5	5	13	21	29	37	45	53	61	69	77	85	93	101	109	117	125
6	6	14	22	30	38	46	54	62	70	78	86	94	102	110	118	126
7	7	15	23	31	39	47	55	63	71	79	87	95	103	111	119	127

Note

If you display a non−existent unit address (one that is greater than the total number of I/O points selected with the I/O setting switch), an arbitrary number appears.

Chapter 6

Shared Memory

6.1 Configuration of the Shared Memory

The S−LINK is equipped with an internal shared memory that enables data to be read from and written to the CPU. The CPU with S−LINK unit has internal shared memories in both S−LINK1 and S−LINK2.

Function of the shared memory

Information such as the detection of unit (S−LINK device) addresses where errors occur, when they occur, and the number of S−LINK devices connected to the S−LINK system is stored in the memory. Data can be read from and written to the CPU using high−level instructions.

Reading data from the shared memory using NPST−GR

Procedure:

1. **Press the <CTRL> and <ESC> keys to switch to the on−line monitor.**
2. **On the NPST menu, specify “Monitor” → “Read shared memory”.**
3. **Press the <F1> key and specify a slot number.**
   → For information on slot number, refer to section “6.2 Shared Memory Reading Program”.
4. **Press the <F4> key to execute “Read PC”. This reads the status.**

Reading data from the shared memory using the program

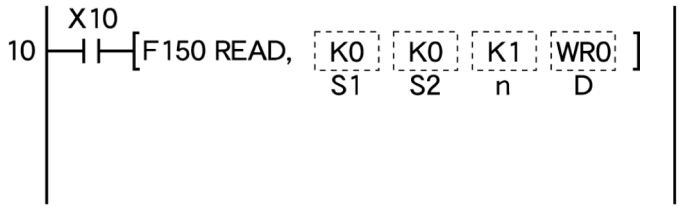
Any desired area of the memory can be read using the intelligent unit read instruction **F150 (READ)**.
For detailed information, check the next page.

6.2 Shared Memory Reading Program

The high−level instruction "**F150**" is used to read data from the shared memory in the S−LINK unit. For specific information on using the instruction, refer to the "FP series (FP−C/FP2/FP3/FP5/FP10/FP10SH) Programming Manual".

F150 (READ) and P150 (PREAD)

These instructions are used to read data from the memory of the intelligent unit.



Types of memory areas that can be specified (specified in word units) (•: May be specified / – : May not be specified)

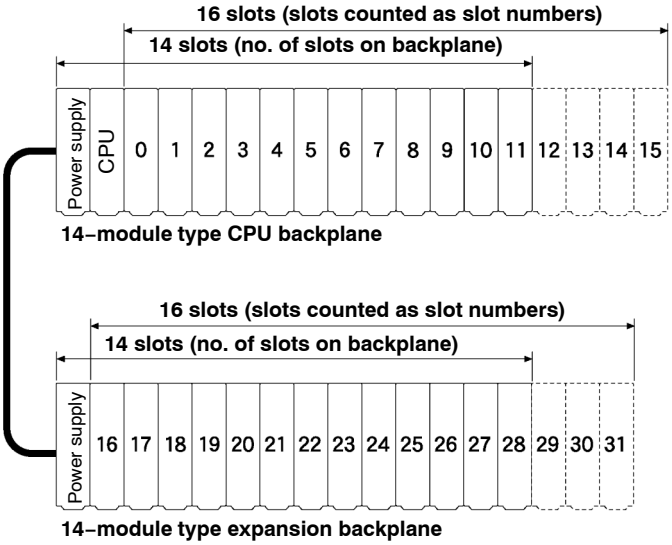
Operand		WX	WY	WR	WL	SV	EV	DT	LD	FL	I0 to ID	Constant		Index modifier
												K	H	
S1	Slot number specification	–	–	–	–	–	–	–	–	–	–	•	•	•
S2	First address to be read from intelligent unit memory	–	–	–	–	–	–	–	–	–	–	•	•	•
n	No. of words to be read	–	–	–	–	–	–	–	–	–	–	•	•	•
D	First no. of area where data to be read is stored	–	•	•	•	•	•	•	•	•	–	–	–	•

Explanation

The data stored in the shared memory specified by S1 is read from the address specified by S2 in the number of words specified by n, and is stored starting from the area specified by D.

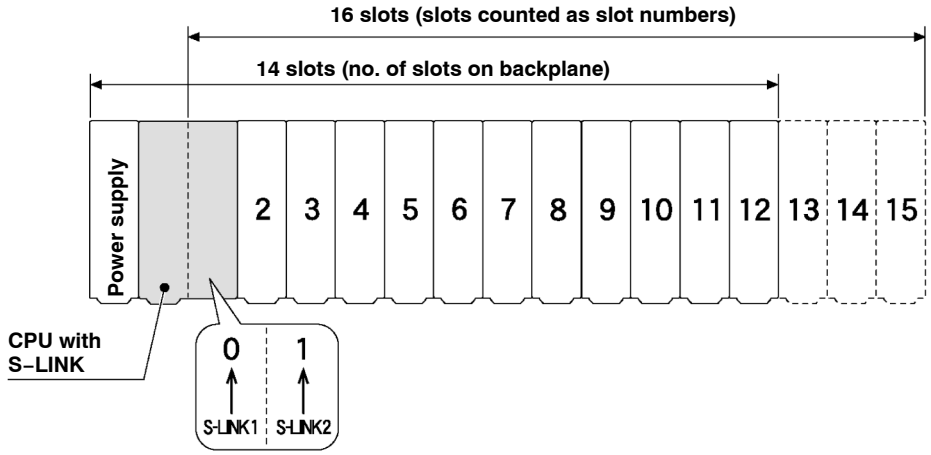
Specifying the slot number

The slot numbers of the target S−LINK unit are assigned automatically, in response to the installation position.



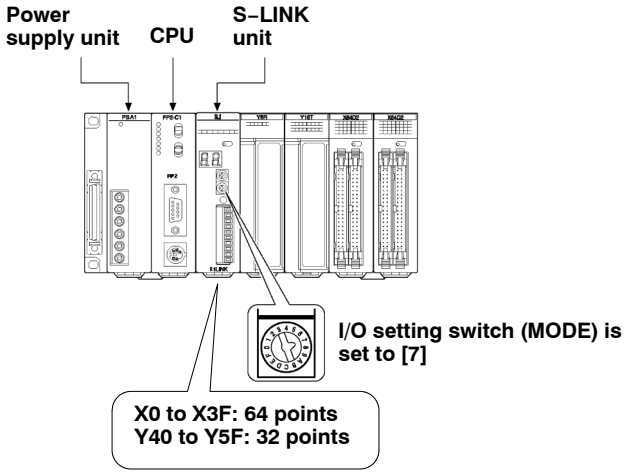
For a CPU with S−LINK

The slot numbers “0” and “1” are assigned to S−LINK1 and S−LINK2, respectively.



Example:

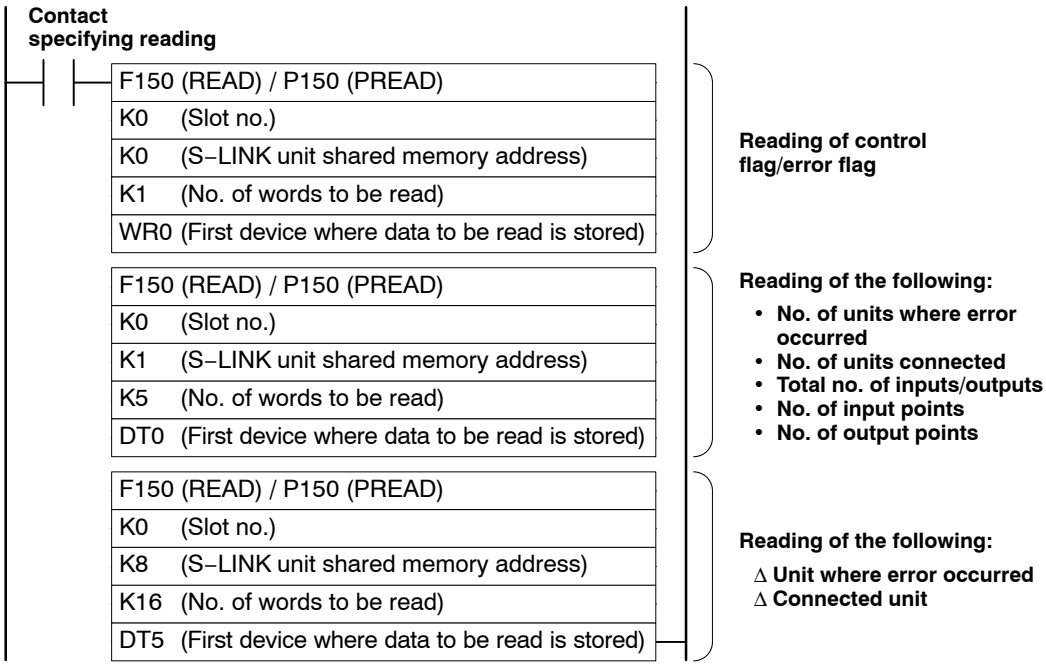
The following program example shows a case where the S−LINK unit is installed on the backplane in the position indicated in the illustration.



Note

If the FP2 is configured differently, the slot number and the first device containing the data to be read should be changed.

Program



Results of execution

[Control flag/error flag]
(R8 to R15 = off)

R 0	ERR1
R 1	ERR2 (not used)
R 2	ERR3
R 3	ERR4
R 4	S−LINK communication status
R 5	(Not used)
R 6	Set
R 7	(Not used)

[Other information]

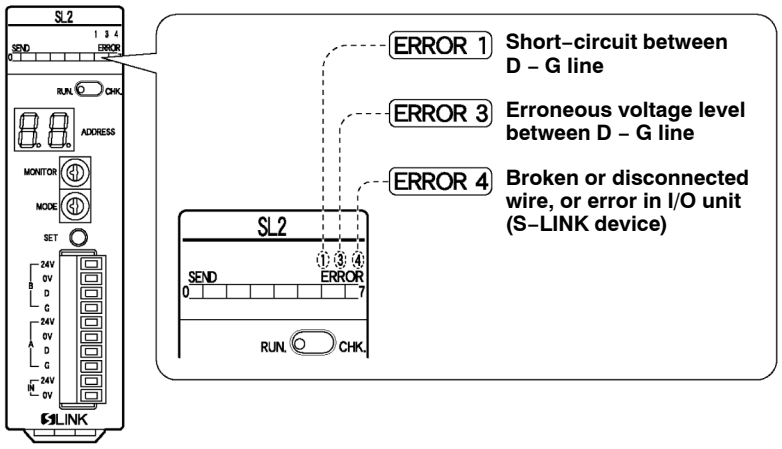
DT0	No. of units where error occurred
DT1	No. of units connected
DT2	Total no. of inputs/outputs
DT3	No. of input points
DT4	No. of output points
DT5 to DT12	Unit where error occurred
DT13 to DT20	Connected unit

6.2 Shared Memory Reading Program

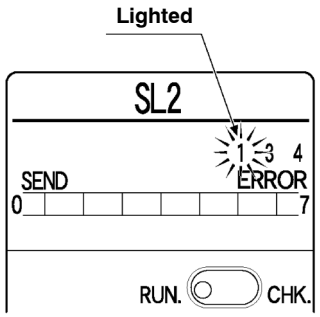
Chapter 7

What To Do If An Error Occurs

7.1 Judging Errors From the Error Indicators



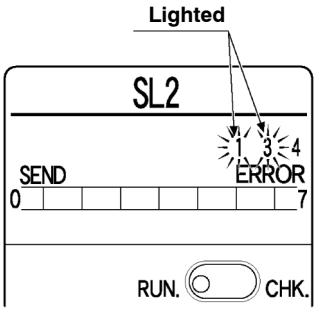
7.1.1 ERR1 is Lighted



Note

The short−circuit protective function is not canceled simply by eliminating the cause of the error. Always turn off the S−LINK main and local power supplies (the power supply between D − G line) and turn it back on again.

7.1.2 ERR1 and ERR3 are Lighted

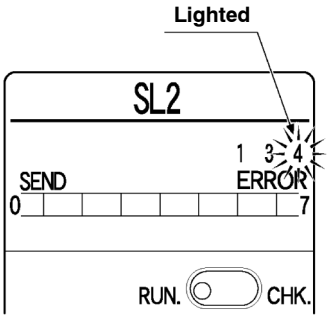


The S−LINK main and local power supplies (the power supply between D − G line) are off, or the power supplies were turned on in the wrong sequence.

Check to make sure that the power supplies were turned on in the appropriate sequence. See section “5.1 Starting Operation”.

Turn off the S−LINK main and local power supplies (the power supply between D − G line) and the power supply of FP2, eliminate the cause of the problem, and turn the power supplies on again.

7.1.3 ERR4 is Lighted



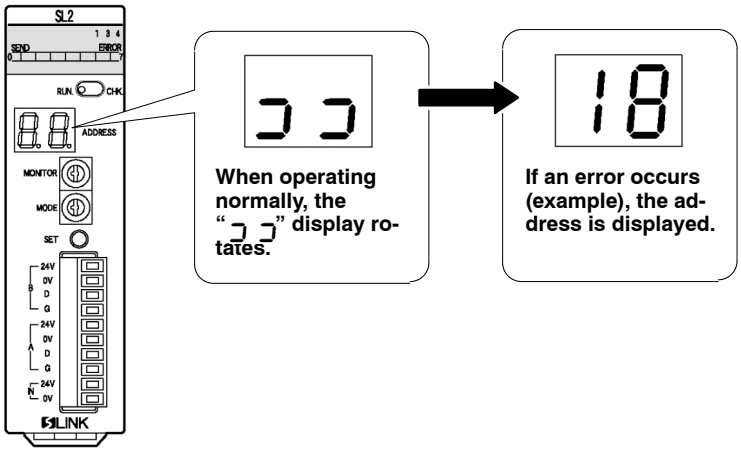
There is a broken or disconnected wire in the S−LINK, or there is an error in an S−LINK device. If this happens, set the RUN/CHK. selector switch to the “CHK.” position, and press the system SET button. This displays the address of the S−LINK I/O device where the error occurred in the address display window (if errors have occurred at multiple addresses, the display changes sequentially each time the system SET button is pressed). This error display is retained. Turn off the S−LINK main and local power supplies (the power supply between D − G line), and repair the broken or disconnected wire, or eliminate the problem with the input/output unit. Then turn on the S−LINK main and local power supplies (the power supply between D − G line).

7.2 Address Display

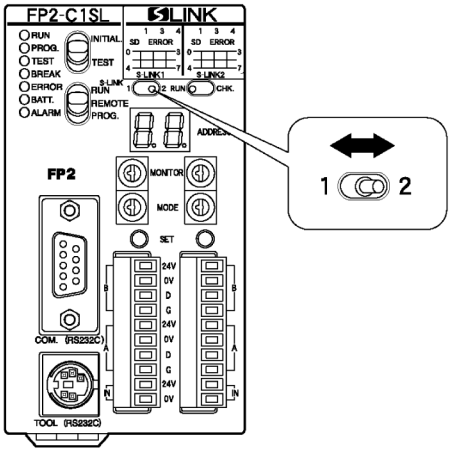
When the system is functioning normally, two small squares with the left side open "⊐ ⊐" are displayed here.

If an error occurs at an address in the S−LINK (an S−LINK device), that address is displayed as a numeric value.

Example:



For a CPU with S−LINK, use the address display selector switch to select the channel where operation is to be checked.



7.3 Judging Error Displays

7.3.1 Only a Numeric Value is Displayed

Example:

*** This is a hexadecimal number display.**

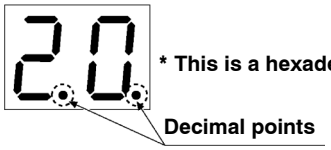
An error has occurred at the address that is displayed.

There is only one address where an error has occurred.

Turn off the power supply to the S−LINK (the power supply between D – G line), and correct the error. Then turn on the power supply to the S−LINK (the power supply between D – G line).

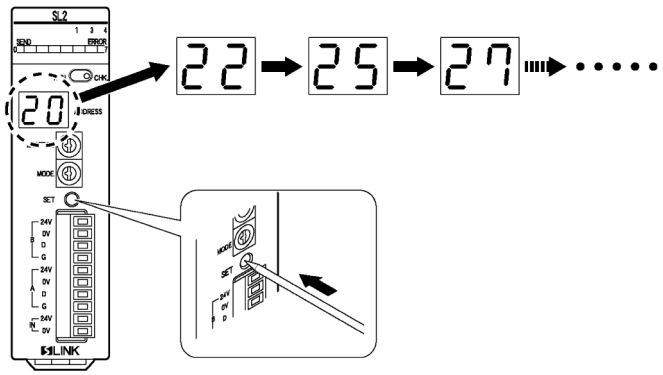
7.3.2 A Numeric Value and Decimal Points are Displayed

Example:



More than one error has occurred.

The numeric value that is displayed indicates the smallest address of the addresses where errors have occurred.



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To check error addresses other than the one that is displayed, set the “RUN/CHK.” selector switch to the “CHK.” position, and press the system SET button.

Turn off the power supply to the S−LINK (the power supply between D − G line), and correct the error. Then turn on the power supply to the S−LINK (the power supply between D − G line).

Note

Set the “RUN/CHK.” selector switch to the “CHK.” position before pressing the system SET button.

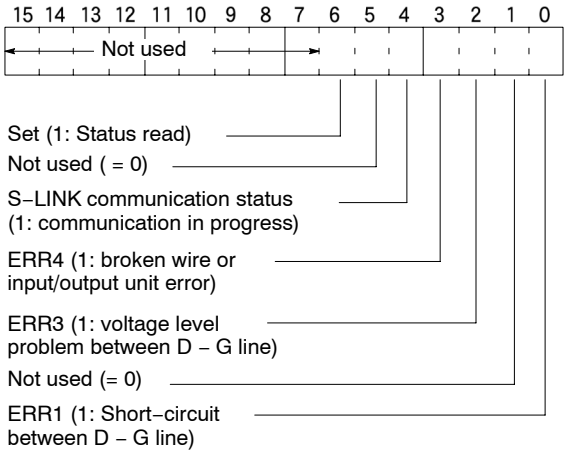
7.3 Judging Error Displays

Chapter 8

Appendix

8.1 Table of Shared Memory Addresses

Configuration of shared memories in the S−LINK unit

Address	Assignment	No. of words	Set value	Read	Write
H0	**Control flag/ error flag**	1	Indicates S−LINK unit control and error contents.  ΣIf Bit 0 (ERR1) = 1, the protective function that guards against a short−circuit between D − G line has been triggered. To cancel the short−circuit protective function, turn off the power supply to the S−LINK, correct the cause of the short−circuit, and re−boot the unit (the short−circuit protective function continues to be active as long as the S−LINK power supply is on). ΣIf the S−LINK power supply is off, Bit 0 (ERR1) and Bit 2 (ERR3) = 1. ΣBit 3 (ERR4) = 1 is retained. To cancel it, the FP2 power supply must be turned off and then on again (or the system SET button pressed and reset). For information on settings, refer to section “5.4 S−LINK IO Device Address Recognition”. ΣIf communication is in progress, Bit 4 (S−LINK communication status) is “1”. ΣBit 6 (Set) has the same function as the system SET button on the main unit (FP2), and sets the system for shared memory address 6. If “1” is written for this bit, the S−LINK connection status at that point is read. This bit automatically returns to “0” after the connection status has been read.	YES	YES
H1	**No. of connected devices where errors occurred**	1	This indicates the target number of connected devices if ERR4 (Error 4) occurs.	YES	NO
H2	**No. of connected devices**	1	This indicates the number of S−LINK I/O devices connected to the S−LINK unit.	YES	NO

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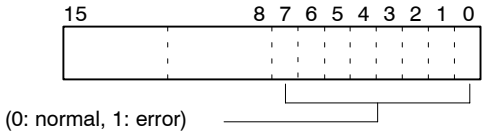
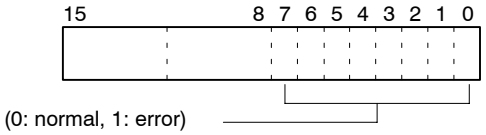
8.1 Table of Shared Memory Addresses

Address	Assignment	No. of words	Set value	Read	Write
H3	**Total no. of input/output points**	3	The total number of input and output points, the number of input points, and the number of output points specified using the I/O setting switch (MODE) are input. A numeric value of 0, 16, 32, 64, 96, or 128 points is input.	YES	NO
H4	**No. of input points**				
H5	**No. of output points**				
H6	**System setting**	1	This has the same function as the system SET button of address H0, Bit 6 (Set). If “1” is written for this bit, the S−LINK connection status at that point is read. This bit automatically returns to “0” after the status has been read.	YES	YES
H7	**Communication frame confirmation**	1	If there is consecutive and different output to the same address, if the following data is written to the address before the output data previously written to that address is transferred to the S−LINK output unit, the earlier data is ignored. The confirmation made after the communication frame has been completed is used to check whether the output data has been transferred to the S−LINK output unit. If any numeric value other than “0” is written after the output data has been written, the value automatically becomes “0” after the output data has been transferred to the S−LINK output unit. Checking to make sure that the value has been changed to “0” in the program and then writing the next output data prevents errors in the transmission of output data.	YES	YES
H8 to HF	**S−LINK I/O device where error occurred (for 128 units)**	8	If ERR4 occurs, this indicates the address of the S−LINK I/O device that is the target of the error. If one of the bits is “1”, ERR4 (broken wire or input/output unit error) has occurred at that address. (See section “8.1.1 Error Address Quick Reference Table”.)	YES	NO
H10 to H17	**Connected devices (for 128 devices)**	8	This indicates the address of S−LINK I/O device connected to the S−LINK system. If one of the bits is “1”, an S−LINK I/O device is connected at that address. (See section “8.1.2 Connection Unit Address Quick Reference Table”.)	YES	NO
H18	**Error address for booster**	1	Indicates the booster address where the error occurred. 	YES	NO
H19	**Connection address for booster**	1	Indicates the booster address connected to the S−LINK system. 	YES	NO
H1A to H7F	**Not used**	–	–	–	–

8.1.1 Error Address Quick Reference Table

If “1” is written for a bit, ERR4 has occurred at that address.

Bit / Address	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
H 8	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
H 9	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
H A	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
H B	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
H C	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
H D	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
H E	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	96
H F	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113	112

(1: error, 0: normal)

8.1.2 Connection Unit Address Quick Reference Table

If “1” is written for a bit, an S−LINK I/O device is connected at that address.

Bit / Address	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
H 10	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
H 11	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
H 12	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
H 13	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
H 14	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
H 15	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
H 16	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	96
H 17	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113	112

(1: connected, 0: not connected)

Note

If the same address is set for two S−LINK devices, they will be counted as one S−LINK device.

8.2 S−LINK Address Quick Reference Table

FP2 S−LINK address substitution table

I/O address		S−LINK address	
		Decimal	Hexa−decimal
X0	Y0	0	0
X1	Y1	1	1
X2	Y2	2	2
X3	Y3	3	3
X4	Y4	4	4
X5	Y5	5	5
X6	Y6	6	6
X7	Y7	7	7
X8	Y8	8	8
X9	Y9	9	9
XA	YA	10	A
XB	YB	11	B
XC	YC	12	C
XD	YD	13	D
XE	YE	14	E
XF	YF	15	F

I/O address		S−LINK address	
		Decimal	Hexa−decimal
X10	Y10	16	10
X11	Y11	17	11
X12	Y12	18	12
X13	Y13	19	13
X14	Y14	20	14
X15	Y15	21	15
X16	Y16	22	16
X17	Y17	23	17
X18	Y18	24	18
X19	Y19	25	19
X1A	Y1A	26	1A
X1B	Y1B	27	1B
X1C	Y1C	28	1C
X1D	Y1D	29	1D
X1E	Y1E	30	1E
X1F	Y1F	31	1F

I/O address		S−LINK address	
		Decimal	Hexa−decimal
X20	Y20	32	20
X21	Y21	33	21
X22	Y22	34	22
X23	Y23	35	23
X24	Y24	36	24
X25	Y25	37	25
X26	Y26	38	26
X27	Y27	39	27
X28	Y28	40	28
X29	Y29	41	29
X2A	Y2A	42	2A
X2B	Y2B	43	2B
X2C	Y2C	44	2C
X2D	Y2D	45	2D
X2E	Y2E	46	2E
X2F	Y2F	47	2F

I/O address		S−LINK address	
		Decimal	Hexa−decimal
X30	Y30	48	30
X31	Y41	49	31
X32	Y42	50	32
X33	Y43	51	33
X34	Y44	52	34
X35	Y45	53	35
X36	Y46	54	36
X37	Y47	55	37
X38	Y48	56	38
X39	Y49	57	39
X3A	Y4A	58	3A
X3B	Y4B	59	3B
X3C	Y4C	60	3C
X3D	Y4D	61	3D
X3E	Y4E	62	3E
X3F	Y4F	63	3F

I/O address		S−LINK address	
		Decimal	Hexa−decimal
X40	Y40	64	40
X41	Y41	65	41
X42	Y42	66	42
X43	Y43	67	43
X44	Y44	68	44
X45	Y45	69	45
X46	Y46	70	46
X47	Y47	71	47
X48	Y48	72	48
X49	Y49	73	49
X4A	Y4A	74	4A
X4B	Y4B	75	4B
X4C	Y4C	76	4C
X4D	Y4D	77	4D
X4E	Y4E	78	4E
X4F	Y4F	79	4F

I/O address		S−LINK address	
		Decimal	Hexa−decimal
X50	Y50	80	50
X51	Y51	81	51
X52	Y52	82	52
X53	Y53	83	53
X54	Y54	54	54
X55	Y55	85	55
X56	Y56	86	56
X57	Y57	87	57
X58	Y58	88	58
X59	Y59	89	59
X5A	Y5A	90	5A
X5B	Y5B	91	5B
X5C	Y5C	92	5C
X5D	Y5D	93	5D
X5E	Y5E	94	5E
X5F	Y5F	95	5F

I/O address		S−LINK address	
		Decimal	Hexa−decimal
X60	Y60	96	60
X61	Y61	97	61
X62	Y62	98	62
X63	Y63	99	63
X64	Y64	100	64
X65	Y65	101	65
X66	Y66	102	66
X67	Y67	103	67
X68	Y68	104	68
X69	Y69	105	69
X6A	Y6A	106	6A
X6B	Y6B	107	6B
X6C	Y6C	108	6C
X6D	Y6D	109	6D
X6E	Y6E	110	6E
X6F	Y6F	111	6F

I/O address		S−LINK address	
		Decimal	Hexa−decimal
X70	Y70	112	70
X71	Y71	113	71
X72	Y72	114	72
X73	Y73	115	73
X74	Y74	116	74
X75	Y75	117	75
X76	Y76	118	76
X77	Y77	119	77
X78	Y78	120	78
X79	Y79	121	79
X7A	Y7A	122	7A
X7B	Y7B	123	7B
X7C	Y7C	124	7C
X7D	Y7D	125	7D
X7E	Y7E	126	7E
X7F	Y7F	127	7F

8.2 S−LINK Address Quick Reference Table

Record of changes

Manual No.	Date	Description of changes
ARCT1F275E/ ACG-M275E	NOV.1999	First edition
ARCT1F275E-1/ ACG-M275E-1	NOV.2006	Second edition
ARCT1F275E-2/ ACG-M275E-2	NOV.2008	Third edition - Change in Corporate name
ARCT1F275E-3	AUG.2011	Fourth edition - Change in Corporate name - Fixed Errors

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