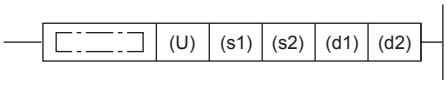
13.4 SLMP Frame Send Instruction

Sending the SLMP frame

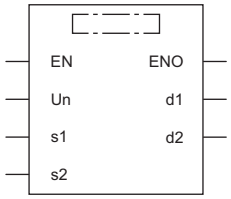
SP.SLMPSND

FX5S FX5UJ FX5U FX5UC

This instruction sends SLMP messages to an SLMP-compatible device.

Ladder diagram	Structured text
	ENO:=SP_SLMPSND(EN,Un,s1,s2,d1,d2);

FBD/LD



("SP_SLMPSND" enters ☐.)

Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(U)*1	Dummy	—	String	ANYSTRING_SINGLE
(s1)	Head device where control data is stored	☞ Page 1050 Control data	Word	ANY16_ARRAY (Number of elements: 19)
(s2)	Head device where request frame is stored	☞ Page 1051 Request frame	Word	ANY16_ARRAY*2
(d1)	Head device for storing response frame	☞ Page 1051 Response frame	Word	ANY16_ARRAY*2
(d2)	Head device number which turns ON when the execution of the instruction is completed and remains on for 1 scan. When the instruction completes with an error, (d2)+1 also turns on.	—	Bit	ANYBIT_ARRAY (Number of elements: 2)
EN	Execution condition	—	Bit	BOOL
ENO	Execution result	—	Bit	BOOL

*1 In the case of ST language and FBD/LD language, U displays as Un.

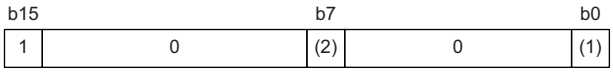
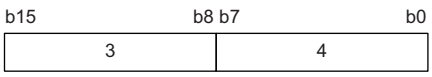
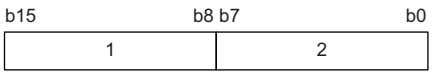
*2 When specifying setting data by using a label, define an array to secure enough operation area and specify an element of the array label.

■Applicable devices

Operand	Bit	Word			Double word		Indirect specification	Constant			Others
	X, Y, M, L, SM, F, B, SB, S	T, ST, C, D, W, SD, SW, R	U☐\G☐	Z	LC	LZ		K, H	E	$	
(U)	—	—	—	—	—	—	—	—	—	○	—
(s1)	—	○	—	—	—	—	○	—	—	—	—
(s2)	—	○	—	—	—	—	○	—	—	—	—
(d1)	—	○	—	—	—	—	○	—	—	—	—
(d2)	○	○*1	—	—	—	—	—	—	—	—	—

*1 T, ST, and C cannot be used.

■Control data

Device	Item	Description	Setting range	Set by
(s1)+0	Execution/error completion type	 (1) Execution type (b0) • 0: Without arrival check (The instruction is regarded as completed when a request message is sent from own station.)*1 • 1: With arrival check (The instruction is regarded as completed when a response message is received from the target device.) (2) Error completion type (b7) Specify whether to set data at completion with an error. • 0: Do not set data in (s1)+13 and later at completion with an error. (Clear (s1)+13 and later.) • 1: Set data at completion with an error in (s1)+13 and later.	—	User
(s1)+1	Completion status	The completion status is stored upon completion of the instruction. 0000H: Completed successfully Other than 0000H: Error (error code)	—	System
(s1)+2	Channel numbers to be used by own station	Specify the channel to be used by own station. 1: No serial number is given	1	User
(s1)+3	IP address of target device (third and fourth octets)	Specify the IP address (third and fourth octets) of target device.*2  3, 4: Indicates the octets of the IP address.	00000001H to DFFFFFFEH (both (s1)+3 and (s1)+4 together) (1 to 3758096382)	User
(s1)+4	IP address of target device (first and second octets)	Specify the IP address (first and second octets) of target device.  1, 2: Indicates the octets of the IP address.		User
(s1)+5	Destination port number	Specify the destination port number.	1 to 65534 (1 to FFFEH)	User
(s1)+6	Request destination network number	0000H (fixed)	0000H	User
(s1)+7	Request destination station number	00FFH (fixed)	00FFH	User
(s1)+8	Request destination module I/O number	Specify request destination module I/O number. • 03D0H: Addressed to control system CPU • 03D1H: Addressed to standby system CPU • 03D2H: Addressed to system A CPU • 03D3H: Addressed to system B CPU • 03E0H: Addressed to multiple CPU No. 1 • 03E1H: Addressed to multiple CPU No. 2 • 03E2H: Addressed to multiple CPU No. 3 • 03E3H: Addressed to multiple CPU No. 4 • 03FFH: To own station (control CPU) When executing the SP.SLMPSND instruction to FX5CPU, specify “03FFH”.	03D0H to 03D3H 03E0H to 03E3H 03FFH	User
(s1)+9	Request destination multidrop station number	0000H (fixed)	0000H	User
(s1)+10	Number of resends	The device becomes effective when the execution type specified by (s1)+0 is "1: With arrival check". ■Before instruction execution Specify the number of resends to be performed if the instruction is not completed within the monitoring time specified by (s1)+11. • 0 to 15 (times) ■At completion of instruction The number of resends performed (result) is stored. • 0 to 15 (times)	0 to 15	User/ system
(s1)+11	Arrival monitoring time	Set the monitoring time until completion of processing. If processing is not completed within the monitoring time, the request is resent the number of times specified in (s1)+10. • 0: 10 s • 1 to 32767: 1 to 32767 s	0 to 32767	User

Device	Item	Description	Setting range	Set by
(s1)+12	Clock setting flag	The validity status (valid or invalid) of the data in (s)+13 and later is stored. • 0: Invalid • 1: Valid	—	System
(s1)+13	Clock data (Set only in an abnormal state)	Upper 8 bits: Month (01H to 12H) Lower 8 bits: Year (00H to 99H: Lower two digits of the year)	—	System
(s1)+14		Upper 8 bits: Hour (00H to 23H) Lower 8 bits: Day (01H to 31H)		
(s1)+15		Upper 8 bits: Second (00H to 59H) Lower 8 bits: Minute (00H to 59H)		
(s1)+16		Upper 8 bits: Year (00H to 99H: Upper two digits of the year) Lower 8 bits: Day of the week (00H (Sun.) to 06H (Sat.))		
(s1)+17	Error-detected device IP address (third and fourth octets)	The IP address (third and fourth octets) of the station where an error was detected is stored. b15 b8 b7 b0 3 | 4 3, 4: Indicates the octets of the IP address.	—	System
(s1)+18	IP address of error detected device (first and second octets)	The IP address (first and second octets) of the station where an error was detected is stored. b15 b8 b7 b0 1 | 2 1, 2: Indicates the octets of the IP address.	—	System

*1 If (s1)+0 is set to "0: Without arrival check", receive data is not set. Set 0 in (s1)+0 in the following cases:
· When a command that does not return a response message is used
· When a response message is not referred to

*2 When “0” or “255” is specified to the fourth octet of the IP address of the target device, a send error occurs and the SP.SLMPSND instruction is completed with an error.
In addition, the error code (C1CDH (SP.SLMPSND instruction message send error)) is stored in the completion status.

• When data of the error completion type (the 7th bit of (s1)+0) is set to "1" and "0", the operations are shown below.

Error completion type (The 7th bit of (s1)+0)	Completion status (s1)+1	Clock setting flag (s1)+12	Clock data (s1)+13 to 16	IP address of error detected device (s1)+17, 18
0: Do not set the data at completion with an error	Normal completion	0: Invalid	0 (Clear)	0 (Clear)
	Error completion	0: Invalid	0 (Clear)	0 (Clear)
1: Set the data at completion with an error	Normal completion	0: Invalid	0 (Clear)	0 (Clear)
	Error completion	1: Valid	Set the information at completion with an error.	Set the information at completion with an error.

■Request frame

Device	Item	Description	Setting range	Set by
(s2)+0	Request data length	Specify the data length from the monitoring timer to the request data. (In units of bytes)	1 to 2000	User
(s2)+1	Monitoring timer	This timer sets the waiting time for the target device that received a request message to wait for response to processing request issued to the request destination. (Unit: Increments of 250 ms) • 0: Infinite wait • 1 to 65535: 1 to 65535 ×250 ms	0 to 65535	User
(s2)+2 to (s2)+n	Request data	The request data of the SLMP message is stored.	—	User

■Response frame

Device	Item	Description	Setting range	Set by
(d1)+0	Response data length	The data length from the end code to the response data is stored. (In units of bytes)	2 to 2000	System
(d1)+1	End code	The result of command processing is stored. In normal end, 0 is stored. In abnormal end, an error code set by the target device is stored.*1	—	System
(d1)+2 to (d1)+n	Response data	Execution results for the request data are set. (Some commands do not return response data.)	—*2	System

*1 For the set error code and the corresponding error description, check the specifications of the target device.

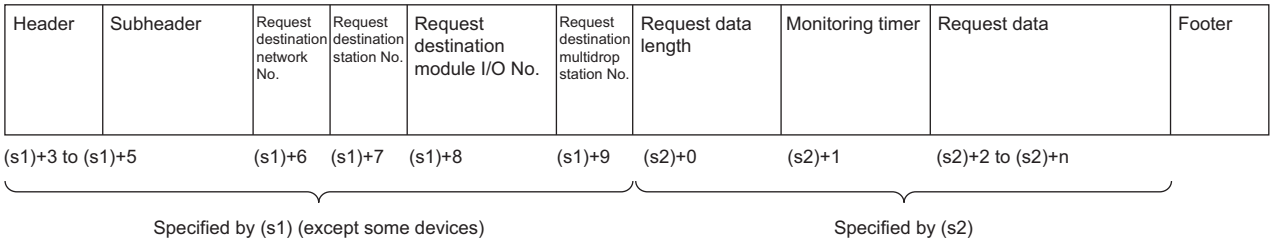
*2 For details of the response data, refer to the MELSEC iQ-F FX5 User's Manual (Communication).

Processing details

- This instruction sends the request frame in the device specified by (s2) and later to the target device specified by the target device IP address in the control data. When a response message is received from the target device, it is stored in the device specified by (d1).

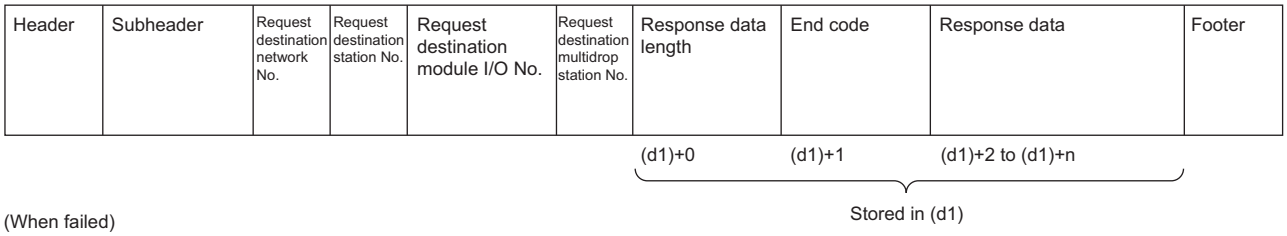
The following figures show the request data and the response data in normal/abnormal end.

●Request data

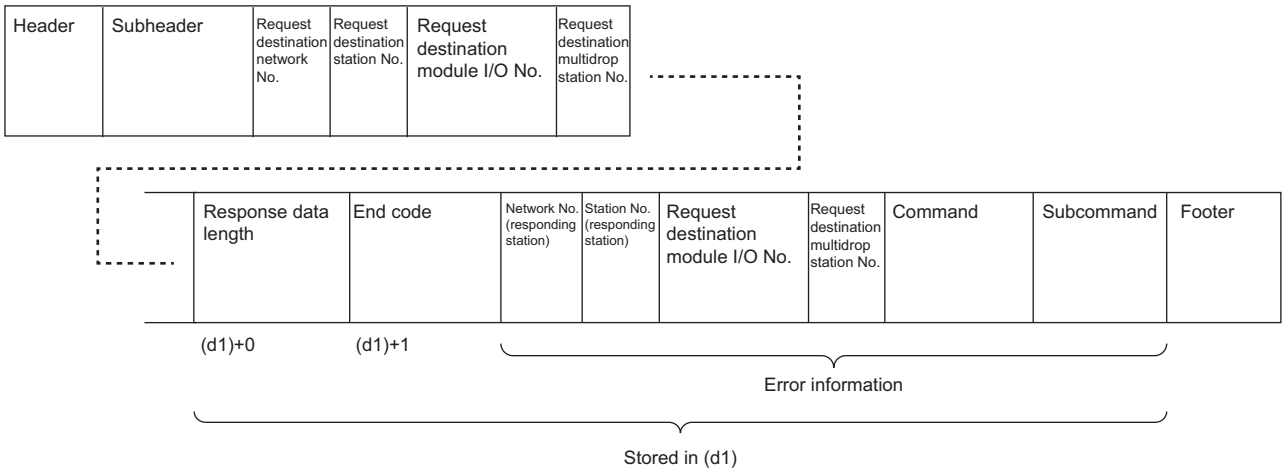


●Response data

(When completed)



(When failed)



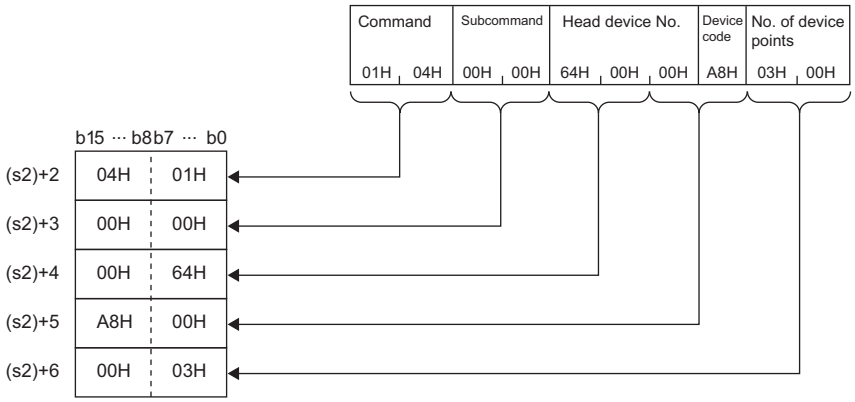
- The SP.SLMPSND instruction communicates using UDP. Set the target device to use UDP.
- The SP.SLMPSND instruction communicates in binary code. Match the setting of the target device also with the binary code.
- The normal or abnormal completion of the SP.SLMPSND instruction can be confirmed with the completion device (d2) specified in the setting data and the completion status indication device (d2)+1.

Device	Operation
Completion device (d2)	The device is turned on by END processing for the scan in which the SP.SLMPSND instruction is completed and turned off by next END processing.
Completion status indication device (d2)+1	The device is turned on or off depending on the status when the SP.SLMPSND instruction is completed. When completed normally: The device remains off. When completed abnormally: The device is turned on by END processing for the scan in which the SP.SLMPSND instruction is completed and turned off by next END processing.

Ex.

Sending "Device Read (command: 0401H)" which reads the value in D100 to D102

●Request data



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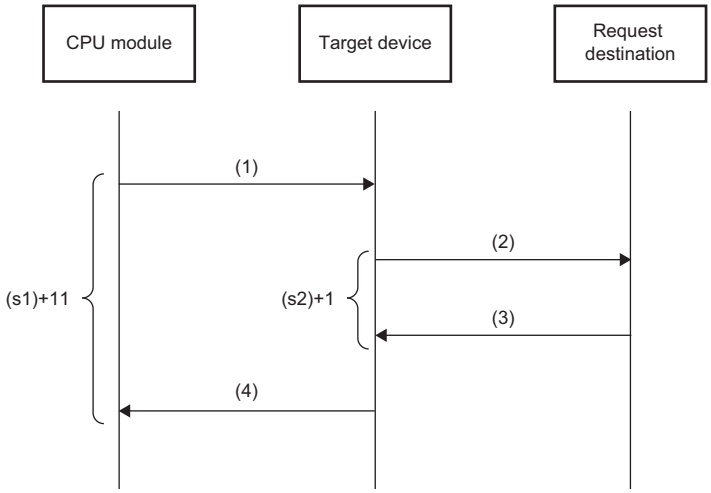
Precautions

Specify the arrival monitoring time ((s1)+11) of the control data and monitoring timer ((s2)+1) of the request frame so that the arrival monitoring time ≥ monitoring timer.



(1) Request message
(2) Processing request from target device to request destination
(3) Processing response from request destination to target device
(4) Response message

Point

The SP.SLMPSND instruction is successfully completed even if the target device returns an abnormal response. When the SP.SLMPSND instruction is completed successfully, whether the response is normal or abnormal can be identified by the end code of the response frame. When an abnormal response is returned, check the manual of the SLMP-compatible device being used and take corrective action.

Operation error

Error code (SD0/SD8067)	Description
3405H	The value set to (s1)+2 as own station channel is out of the range, 1 to 9.
	The value set to (s2)+0 as the request data length is out of the range, 1 to 2000.

Upon completion with an error, the completion status indication device (d2)+1 is turned on and an error code is stored in the completion status (s1)+1. For the error code stored in the completion status (s1)+1, refer to the following.

MELSEC iQ-F FX5 User's Manual (Communication)