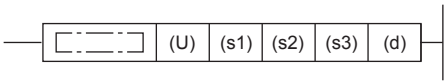
13.5 File Transfer Function Instruction

Sending FTP client files

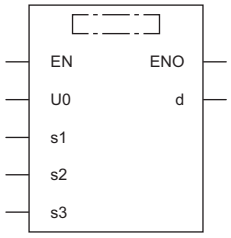
SP.FTPPUT

FX5S FX5UJ FX5U FX5UC

This instruction sends files in the CPU module, which are specified by (s2), to the folder path of the FTP server, which is specified by (s3).

Ladder	ST
	ENO:=SP_FTPPUT(EN,U0,s1,s2,s3,d);

FBD/LD



("SP.FTPPUT" enters □.)

Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(U)*1	Dummy (Input the character string ['U0'].)	—	String	—*2
(s1)	Start device where control data is stored	Refer to the control data.(☞ Page 1055)	Word	ANY16_ARRAY (Number of elements: 4)
(s2)	Name of files stored in the CPU module (transfer source)*3	—	Unicode string*4	ANYSTRING_DOUBLE
(s3)	Folder path of the FTP server (transfer destination)*3	—	Unicode string*4	ANYSTRING_DOUBLE
(d)	Head device number which turns ON when the execution of the instruction is completed and remains on for 1 scan. In the case of abnormal completion, also (d)+1 will be turned on.	—	Bit	ANYBIT_ARRAY (Number of elements: 2)
EN	Execution condition	—	Bit	BOOL
ENO	Execution result	—	Bit	BOOL

*1 Displayed as U0 in the ST language and FBD/LD language.
*2 Specify the dummy character string with its character string constant.
*3 Unicode string or the start device where the Unicode string is stored.
*4 Even though the data type is Unicode string, only one-byte alphanumeric characters, symbols, and kana characters; and two-byte characters (Shift JIS codes) can be used.

■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)	—	○	—	—	—	—	○	—	—	○	—
(s3)	—	○	—	—	—	—	○	—	—	○	—
(d)	○*1	○*2	—	—	—	—	—	—	—	—	—

*1 S cannot be used.

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

■Control data

Device	Item	Description	Setting range	Set by
(s1)+0	Application setting area	b15 … b4 b3 b2 b1 b0 0 (2) (1) 0 (1) Transfer completion file delete setting (b2) Specify whether to delete transfer completion files or not. • 0: Do not delete • 1: Delete (2) Temporary file create setting (b3) Specify whether to create a temporary file (FTPCLI_I.TMP) during the file transfer processing or not. Setting this bit to 0 prevents files from becoming undefined in the transfer destination when a cable is disconnected or power is shut off during the file transfer processing. • 0: Create • 1: Do not create	As shown on the left	User
(s1)+1	Completion status	The completion status is stored upon completion of the instruction. • 0000H: Completed successfully • Other than 0000H: Completed with an error (error code)	—	System
(s1)+2	Total number of files to be transferred	The total number of files to be transferred by the SP.FTPPUT instruction is stored.	—	System
(s1)+3	Number of transferred files	The number of transferred files is stored.	—	System

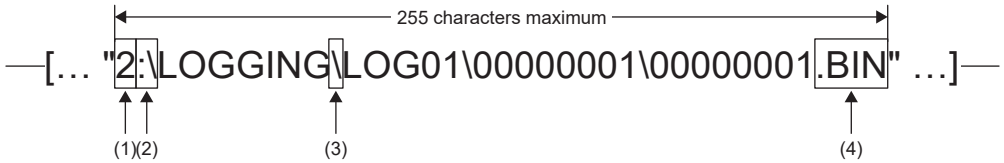
Processing details

- This instruction sends files in the CPU module, which are specified by (s2), to the folder path of the FTP server, which is specified by (s3). The CPU module opens a connection with the FTP server set in the module parameters (FTP Client Settings) at execution of the instruction, and closes a connection after sending files. For details on the parameter setting, refer to the following.

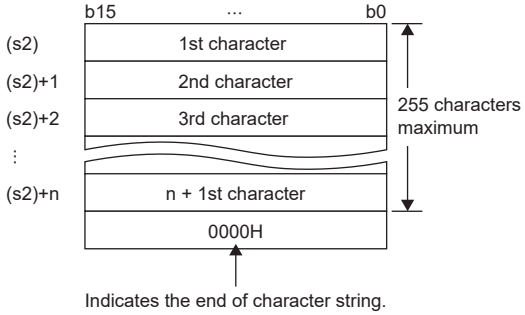
MELSEC iQ-F FX5 User's Manual (Communication)

- The total number of files to be transferred by the SP.FTPPUT instruction is stored in (s1)+2, and the number of transferred files is stored in (s1)+3.

• Specify the transfer source drive number (2) of the CPU module, the folder path where the files are stored, and the file name (including an extension) in (s2) in Unicode string. The only files which can be specified as a path are those stored under the LOGGING or DEBUG folder in the SD memory card (Drive 2). The maximum number of characters used in a file path is 255. The maximum number of characters used in a path, excluding the file name, is 246 (not including a delimiter). Use one-byte '\' or '/' as a delimiter to specify the boundaries between the elements in a file path.



(1)Drive numbers that can be specified are 2. (MELSEC iQ-F FX5 User's Manual (Application))
(2)Use one-byte ':\' or ':/' as a delimiter of the drive number.
(3)Use one-byte '\' or '/' as a delimiter of the folder path and file.
(4)The specified file name should include an extension.



• Wild card characters (*, ?) can be used in the file name or the extension specified in (s2).

Symbol	Description
*	An asterisk '*' is replaced with any character or string (including none) in a file name.
?	A question mark '?' is replaced with a character (excluding none) in a file name. ('?' can be used multiple times.)

Wild card characters do not recognize periods.

Using wild card characters in the following ways results in an error.

• Two or more asterisks '*' are used in a file name (before the period) or an extension. (Example: *abc*.txt)
• An asterisk '*' and a question mark '?' are used in a file name (before the period) or an extension. (Example: *ab?. txt)

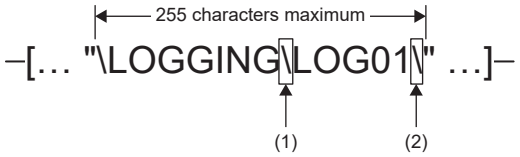
When any wild card character is used, the number of files that can be transferred is determined by the total size of the file names of the specified files. The specified files can be transferred when the number of these files and the total size of the file names satisfy the following condition. If a file transfer function instruction is executed without satisfying the following condition, the instruction completes with an error.

(Fi + NM) + 1 < 32768 [bytes]

N: Total number of files that match the wild card specification
Fi: Total size of the file names that match the wild card specification
M: Specific information size (Fixed value: 6 bytes)

• If an error occurs in any one of the files to be transferred during execution of the SP.FTPPUT instruction, the transfer processing will be stopped upon detection of the error, and the rest of target files will not be transferred.
• If the number of characters in the file path which includes a file name and an extension exceeds 255, files will not be transferred even though the wild card specification conditions are satisfied.

- Specify the folder path of the transfer destination FTP server in (s3) in Unicode string. The specified folder path shall be a relative path from home directory of the FTP server. Use one-byte '\' or '/' as a delimiter to specify the boundary of the folder path.*1 The maximum number of characters used in the folder path is 255. Note that the total number of characters in a folder path (including the delimiter at the end) and the file name specified in (s2) must be within the maximum path length supported by the transfer destination FTP server. The delimiter at the end of a string can be omitted. When omitted, '\' is assumed to be set at the end. If a nonexistent folder path is specified, a folder is automatically created by the system at execution of the instruction, and then the processing is performed.



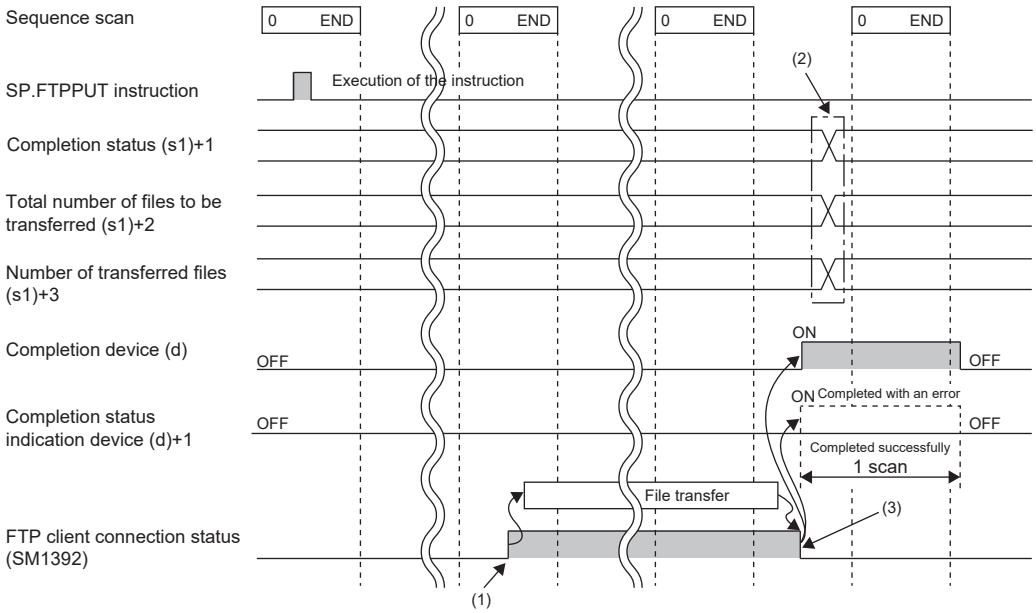
(1)Use one-byte '\' or '/' as a delimiter to specify the boundary of the folder path.*1
(2)The delimiter at the end of string can be omitted.

*1 Note that '\' cannot be used as a delimiter for some FTP servers.

- If a NULL character is specified by (s3) or only "0000H" is specified for the device, the CPU module directly accesses under the home directory of the FTP server. For details, follow the FTP server specifications.
- If a file with the same name exists in the transfer destination, the file will be overwritten.
- If a large file to be transferred is specified in the FTP client function, it may take long to transfer the file. For example: When the scan time is 5 ms, the time required for the SP.FTPPUT instruction to transfer a 16 MB file is approx. 548 seconds.
- The normal or abnormal completion of the SP.FTPPUT instruction can be confirmed with the completion device (d) specified in the setting data and the completion status indication device (d)+1.

Device	Operation
Completion device (d)	The device is turned on by END processing for the scan in which the SP.FTPPUT instruction is completed and turned off by next END processing.
Completion status indication device (d)+1	The device is turned on or off depending on the status when the SP.FTPPUT 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.FTPPUT instruction is completed and turned off by next END processing.

- The following figure shows the execution timing of the SP.FTPPUT instruction.



(1)SM1392 turns on during the END processing after the CPU module is connected to the FTP server.
(2)Values are stored upon completion of the instruction.
(3)When all files have been transferred, SM1392 turns off.

- SM1392 (FTP client connection status) is on while the CPU module is connected to the FTP server, and SM1392 turns off when disconnected.
- SM753 (File access in progress) turns on while the SP.FTPPUT instruction is being executed. While SM753 is on, the SP.FTPPUT instruction cannot be executed. If executed, no processing is performed.
- If the SP.FTPPUT instruction is executed while the SP.FTPPUT instruction is being executed, the instruction is ignored and not executed until the currently executing instruction completes. When the instruction is ignored, SM699 (Dedicated instruction skip flag) turns on.
- In the following cases, the instruction completes with an error: when there is no free space in the transfer destination; or when b3 (Temporary file create setting) of (s1)+0 is set to 0 (Create), but there is not enough free space for storing transfer-target files and a temporary file (same size as transfer-target files) in the transfer destination.
- When the number of files matching the wild card exceeds the upper limit number of transferable files, the instruction will be completed abnormally.
- When the wild card is designated in the file name, the file name in the transfer destination will be in all capital letters.

Precautions

- If a cable is disconnected, power is shut off, or the CPU module is reset during the file transfer processing, delete unnecessary files (such as a temporary file and undefined files) on the FTP server as needed. Then, transfer files again.
- When b2 (Transfer completion file delete setting) of (s1)+0 is set to 1 (Delete), note the following.

Item	Description
When files in the CPU module are transferred	Files required for the CPU module to operate are also deleted. If deleted, operations of the CPU module cannot be guaranteed.
When wild card characters are used to specify a file name	Required files may be deleted unintentionally.

- When b3 (Temporary file create setting) of (s1)+0 is set to 0 (Create), a temporary file of 12 characters (FTPCLI_I.TMP) will be created in the transfer destination. Therefore, set the folder path so that the total number of characters in the folder path and the temporary file does not exceed the maximum path length supported by the FTP server.
- Do not use any unsupported character(s) in the operand of the SP.FTPPUT instruction. Furthermore, if a file includes any unsupported character(s) in its file name, do not store the file in a folder which is a transfer source of the SP.FTPPUT instruction.

Operation error

Error code (SD0/SD8067)	Description
2820H	There is no NULL code (0000H) in each setting area in the device/label memory in device specified by (s2), (s3) and later.
3405H	The number of characters in the string specified by (s2) exceeds 255.
	The number of characters in the path specified by (s2), excluding the file name, exceeds 246 (not including a delimiter).
	The total number of characters in the strings specified by (s2) (only the file name part, excluding the drive number and folder path) and (s3) exceeds 255.
	The drive number specified by (s2) is out of range.
3426H	A file name is not specified by (s2).
	The file name that cannot be transferred is specified by (s2).
	The delimiter used to separate the drive number in (s2) is neither ':\' nor ':/'.
	Two or more asterisks '*' are used in the file name (before the period) or the extension specified by (s2).
	An asterisk '*' and a question mark '?' are used in the file name (before the period) or the extension specified by (s2).
	Wild card characters, '*' and '?', are used in the string specified by (s3).
3430H	The SP.FTPPUT instruction was executed without setting FTP client parameters.
3582H	The SP.FTPPUT instruction is executed in an interrupt program.