

MELSEC iQ-F

Brother

**Label Printer Sample Program
Reference Manual**

Version 1.00

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Supported printers

Serial connection supported printers
PT-P900 PT-P900W PT-P950NW
TD-4210D TD-4410D TD-4420DN TD-4510D TD-4520DN TD-4550DNWB
TD-2020 TD-2120N TD-2130N TD-2130NSA

Ethernet connection supported printers
PT-P950NW
TD-4420DN TD-4520DN TD-4550DNWB
TD-2120N TD-2130N TD-2130NSA

Available printers are depending on region or countries.

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Revision history

Reference manual revision history

Version	Revised day	Revised content
V1.00	2023/2/1	New creation

Sample program revision history

Version	Revised day	Revised content
V1.00	2023/2/1	New creation

1. Introduction

1.1. Precondition

This manual explains the product under the precondition that the following knowledge has already acquired.

- Mitsubishi Electric programmable controller ladder program, ST language, and FB (Function Block) are fully understood
- Development tool GX Works3 operation method is fully understood

1.2. Guidance for using the manual

The content of the manual you need to be referred to differs depending on which communication method your system uses to connect the sequencer and the label printer.

1.2.1. For system structure with serial connection

2. Outline

2.1. Outline of "Sample program"

2.2. Label printer structure

2.2.1. For serial connection

2.3. System structure

2.3.1. For serial connection

3. Preparing templates

3.1. Template setting

3.2. Template creation

3.3. Template transfer

4. Label printer unit setting

4.1. Printer setting tool

4.2. For serial connection

5. Setting at programmable controller side

5.1. For serial connection

6. Sequence program outline

6.1. Function outline

6.2. Program outline

7. Sequence program explanation

7.1. For serial connection

1.2.2. For system structure with Ethernet connection

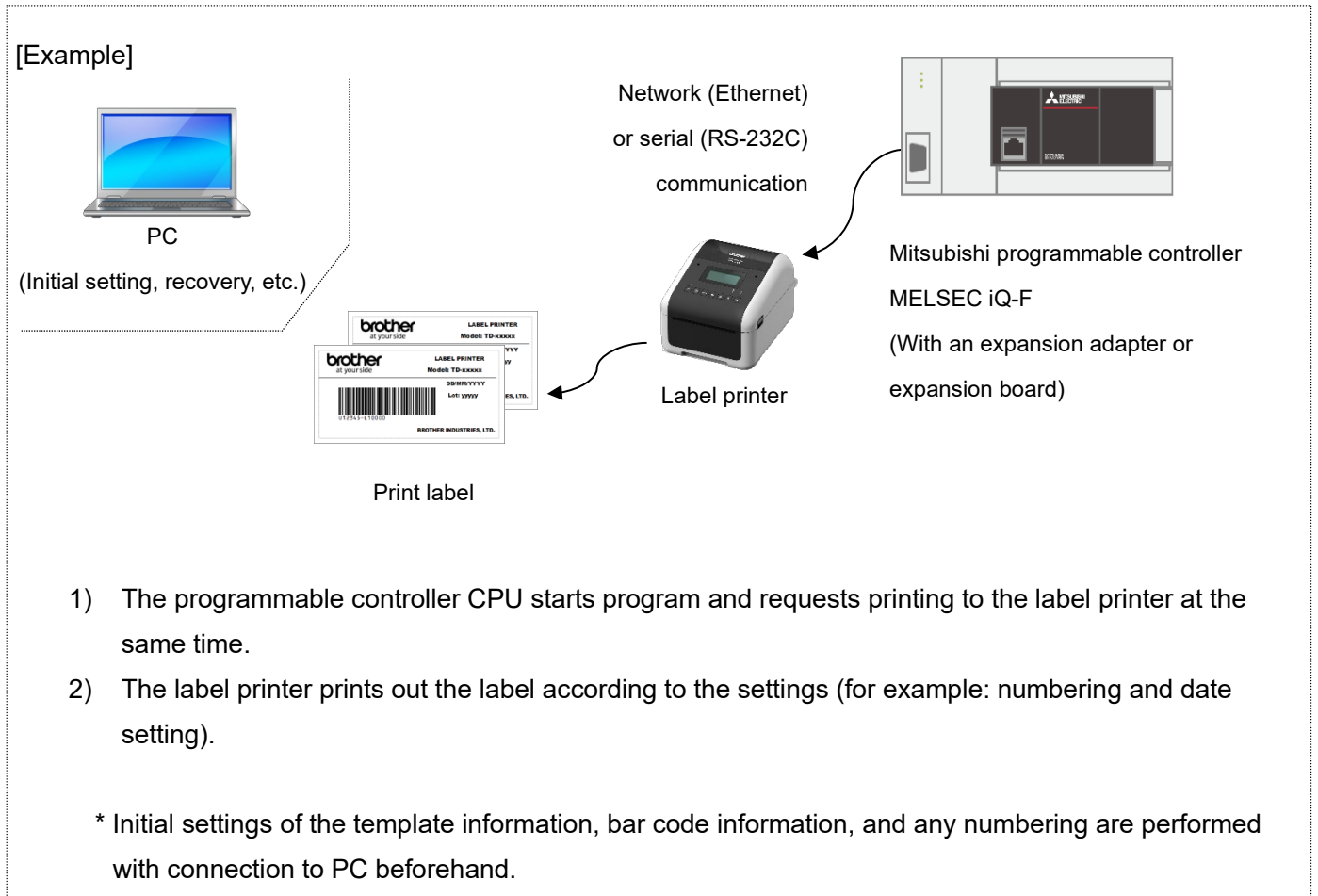
2. Outline
 - 2.1. Outline of "Sample program"
 - 2.2. Label printer structure
 - 2.2.2. For Ethernet connection
 - 2.3. System structure
 - 2.3.2. For Ethernet connection
3. Preparing templates
 - 3.1. Template setting
 - 3.2. Template creation
 - 3.3. Template transfer
4. Label printer unit setting
 - 4.1. Printer setting tool
 - 4.3. For Ethernet connection
5. Setting at programmable controller side
 - 5.2. For Ethernet connection
6. Sequence program outline
 - 6.1. Function outline
 - 6.2. Program outline
7. Sequence program explanation
 - 7.2. For Ethernet connection

2. Outline

2.1. Outline of "Sample program"

The sample program in this manual uses the MELSEC iQ-F series programmable controller and prints out the bar code with Brother label printer.

In this sample program, the label template information has been set to the label printer in advance, this is precondition before use. In this way, the procedure for filling different information for each label from the programmable controller is provided.



2.2. Label printer structure

2.2.1. For serial connection

■ Label printer

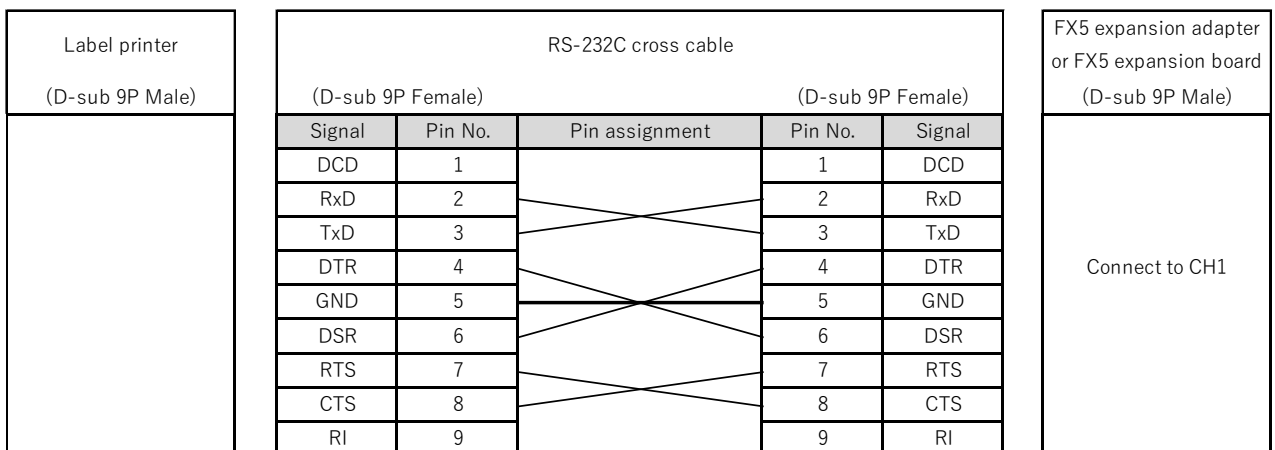
The sample program for serial connection is applied to the following Brother label printers.

Brother label printers
PT-P900
PT-P900W
PT-P950NW
TD-4210D
TD-4410D
TD-4420DN
TD-4510D
TD-4520DN
TD-4550DNWB
TD-2020
TD-2120N
TD-2130N
TD-2130NSA

* Any printers other than above list, which has P-touch Template command mode and interface of serial or Ethernet, have possibility to connect with the programmable controller. For more detail, refer to the following URL.

https://support.brother.com/g/s/es/dev/en/command/reference/index.html?c=eu_ot&lang=en&navi=offall&comple=on&redirect=on

■ RS-232C serial port pinout



* TD-2130N series and PT-P900 series need optional serial cable adapter (PA-SCA-001).

2.2.2. For Ethernet connection

■ Label printer

The sample program for Ethernet connection is applied to the following Brother label printers.

Brother label printers
PT-P950NW
TD-4420DN TD-4520DN TD-4550DNWB
TD-2120N TD-2130N TD-2130NSA

* Any printers other than above list, which has P-touch Template command mode and interface of serial or Ethernet, have possibility to connect with the programmable controller. For more detail, refer to the following URL.

https://support.brother.com/g/s/es/dev/en/command/reference/index.html?c=eu_ot&lang=en&navi=offall&comple=on&redirect=on

■ Hub

Switching hub supporting 100BASE-TX (or repeater hub)

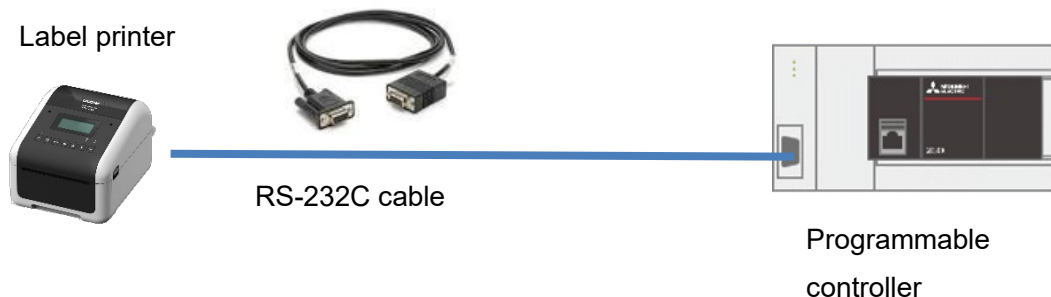
■ LAN cable

Category 5 cable supporting 100BASE-TX

2.3. System structure

2.3.1. For serial connection

The following shows Sample program system structure for serial connection in this manual.



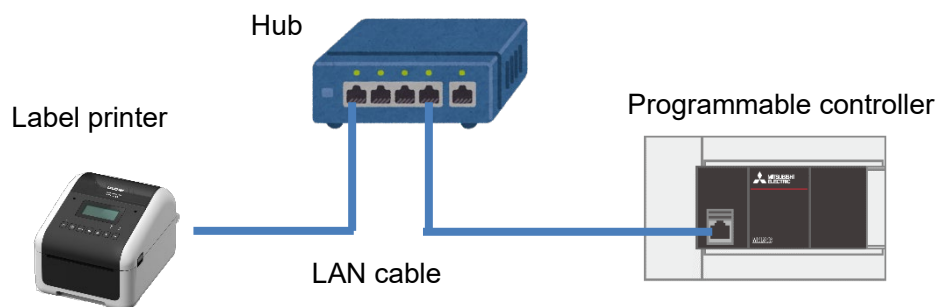
■ Programmable controller module and development tool

	Module type	Model
Programmable controller module	CPU module	FX5U-32MR/ES
	Expansion adapter	FX5-232ADP

* This program is created by GX Works3 Version 1.070Y.

2.3.2. For Ethernet connection

The following shows Sample program system structure for Ethernet connection in this manual.



IP address: 192.168.1.2

IP address: 192.168.1.1

■ Programmable controller module and development tool

	Module type	Model
Programmable controller module	CPU module	FX5U-32MR/ES

* This program is created by GX Works3 Version 1.070Y.

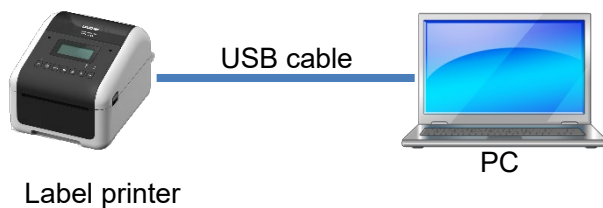
3. Preparing templates

3.1. Template setting

Simple coding and operability during label printing are available by registering template data in advance, including fixed objects (not changed every time) and variable objects (data is changed by sending from the sequencer).

3.1.1. Device connection

PC device and connection is necessary for preparing process to create / transfer template data. But once the settings is completed, there is no need to connect all the time.



- PC
Use the PC installed with Windows series.
- USB cable type

Brother label printers	USB connector type
PT-P900 PT-P900W PT-P950NW	B type
TD-2020 TD-2120N TD-2130N TD-2130NSA	Mini B type
TD-4210D TD-4410D TD-4420DN TD-4510D TD-4520DN TD-4550DNWB	B type

* For the above label printers, connection operation check with the Mitsubishi programmable controller has already finished, but other models supporting the P-touch Template command are possible to be connected. For more detail, refer to the following URL.

https://support.brother.com/g/s/es/dev/en/command/reference/index.html?c=eu_ot&lang=en&navi=offall&complete=on&redirect=on

3.1.2. Use software

To create/transfer templates, it is necessary to install the following software into PC.

Software	Function
Printer driver	Driver software supporting each label printer
P-touch Editor	Label print data edit software supporting the bar code and image recognition
P-touch Transfer Manager	Software to register templates into label printers. When installing P-touch Editor, it is automatically installed.
Printer setting tool	Software to set template print condition

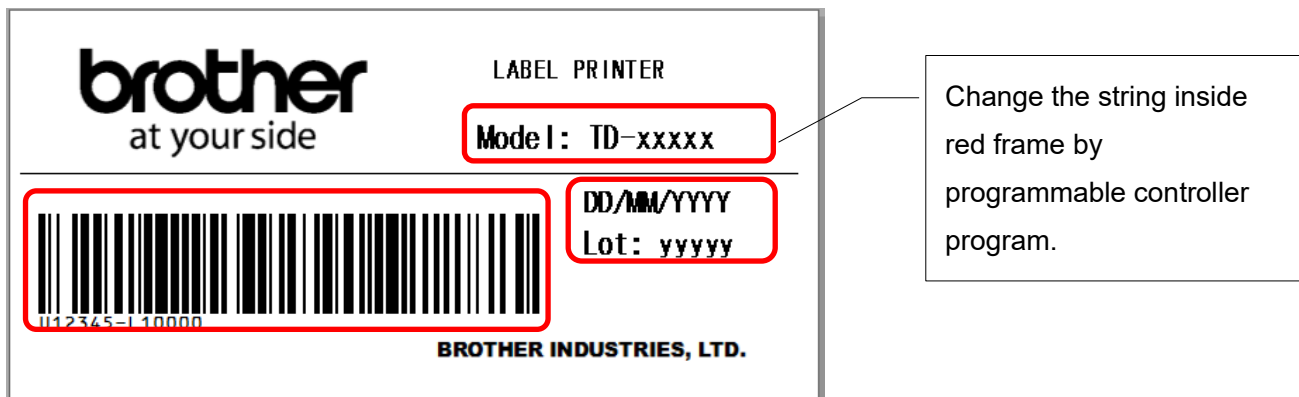
You can download the latest version of software from Brother support website. Also, you can check the latest information of the supported OS and firmware version of each software in the Brother support website.

Brother support website URL (<https://support.brother.com>)

3.2. Template creation

3.2.1. Sample label

The following shows the label which is used in this sample program. (The following is example for TD-4420DN.)



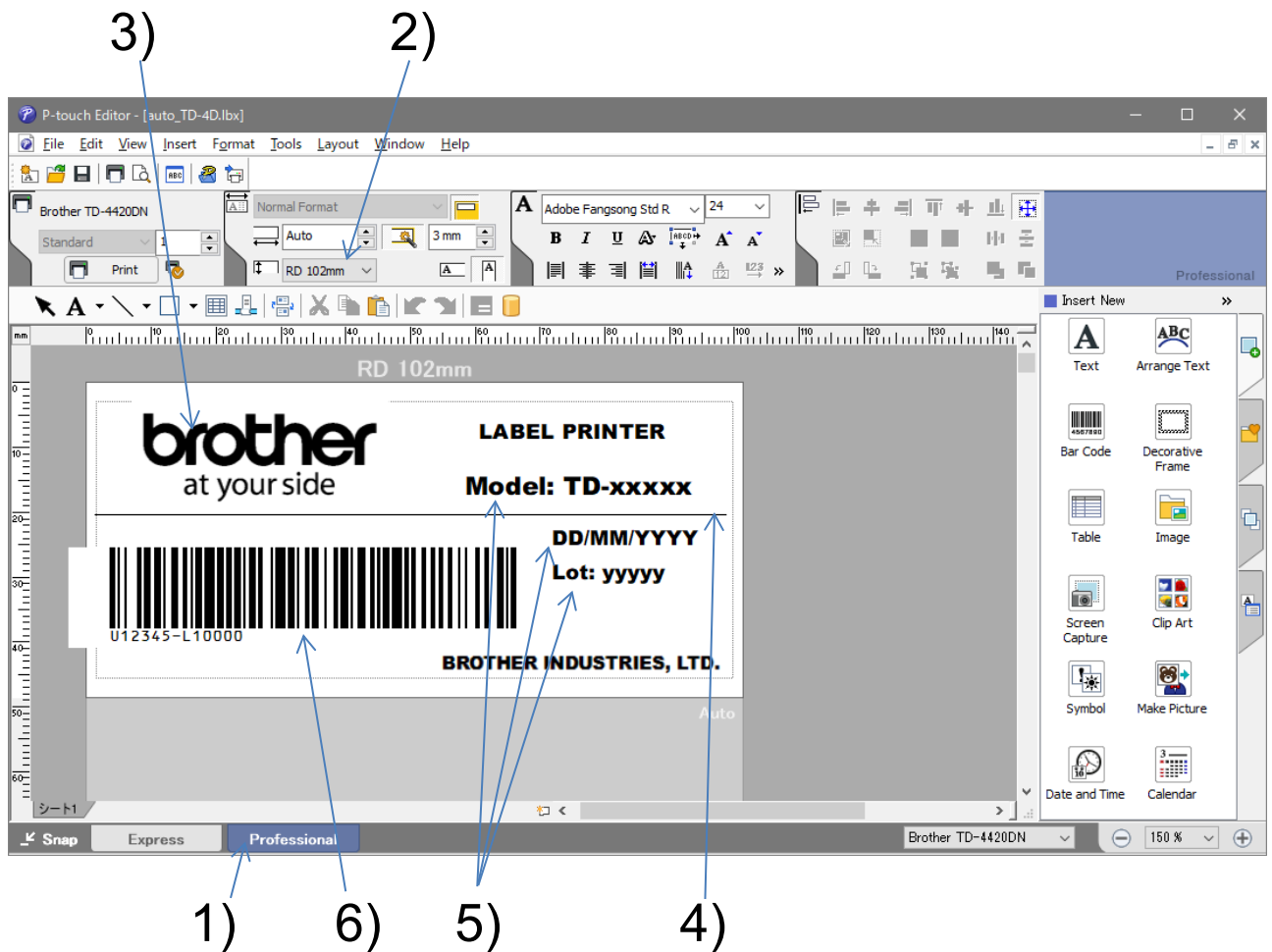
Sample label according to each model (The following file can be opened by "P-touch Editor".)

Brother label printers	File name
PT-P900 PT-P900W PT-P950NW	auto_PT-P900.lbx
TD-2020 TD-2120N TD-2130N TD-2130NSA	auto_TD-2130N.lbx
TD-4210D TD-4410D TD-4420DN TD-4510D TD-4520DN TD-4550DNWB	auto_TD-4D.lbx

* For the next page and thereafter, change above file name to "auto.lbx" to read the explanation.

3.2.2. P-touch Editor operation

(* The following shows the screen of Windows10.)



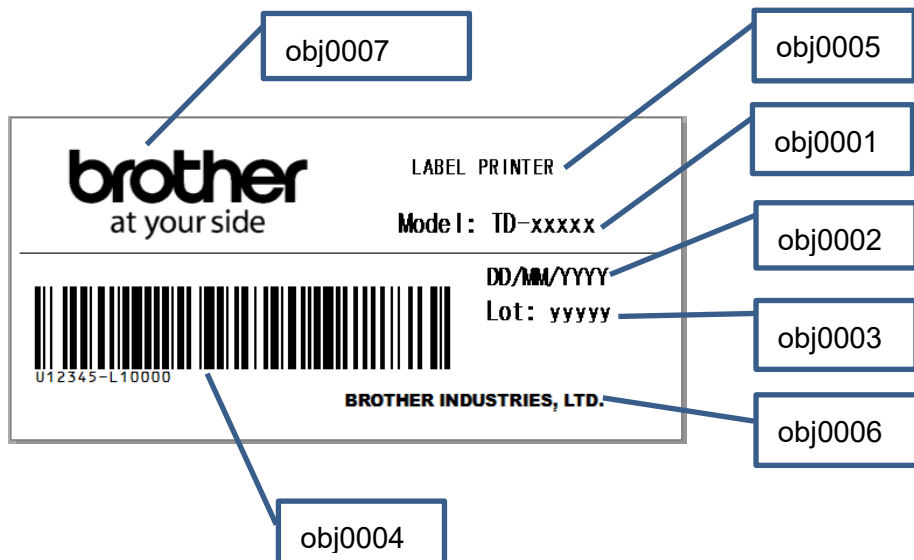
If you want to change sample label layout, open sample label and save the data after changing.

- 1) Start P-touch Editor.
Start from [Start menu] or shortcut.
Select Professional mode.
- 2) Set the label size.
Set the vertical and horizontal size of the print label. (The image shows vertical: Auto mm/horizontal: 102mm)
- 3) Insert the logo image.
Designate image file by [Insert] - [Picture] - [From File..].
- 4) Insert the straight line.
Click [\] in the tool bar and draw the straight line.

- 5) Insert the text.
 Click [A] in the tool bar and enter the text.
 With the text selected, enter "obj000x" in the object name of [Right click] - [Properties] and [Expanded] tab.
 * Important: The number in the object name will be sequential order of the object number.
- 6) Add the bar code and set "Data".
 Click [Bar code] of [Insert New] in the side bar. Enter data in the bar code dialog.
 Set the bar code standard by the "Standard" tab.
- 7) Save and finish.
 In this case, the file name "auto.lbx" is saved.

The above sample label, object name ("obj000x") is set as the following.

Object name list



* For more details on how to use P-touch Editor, refer to [Help] or "Software user's guide" of each label printer.

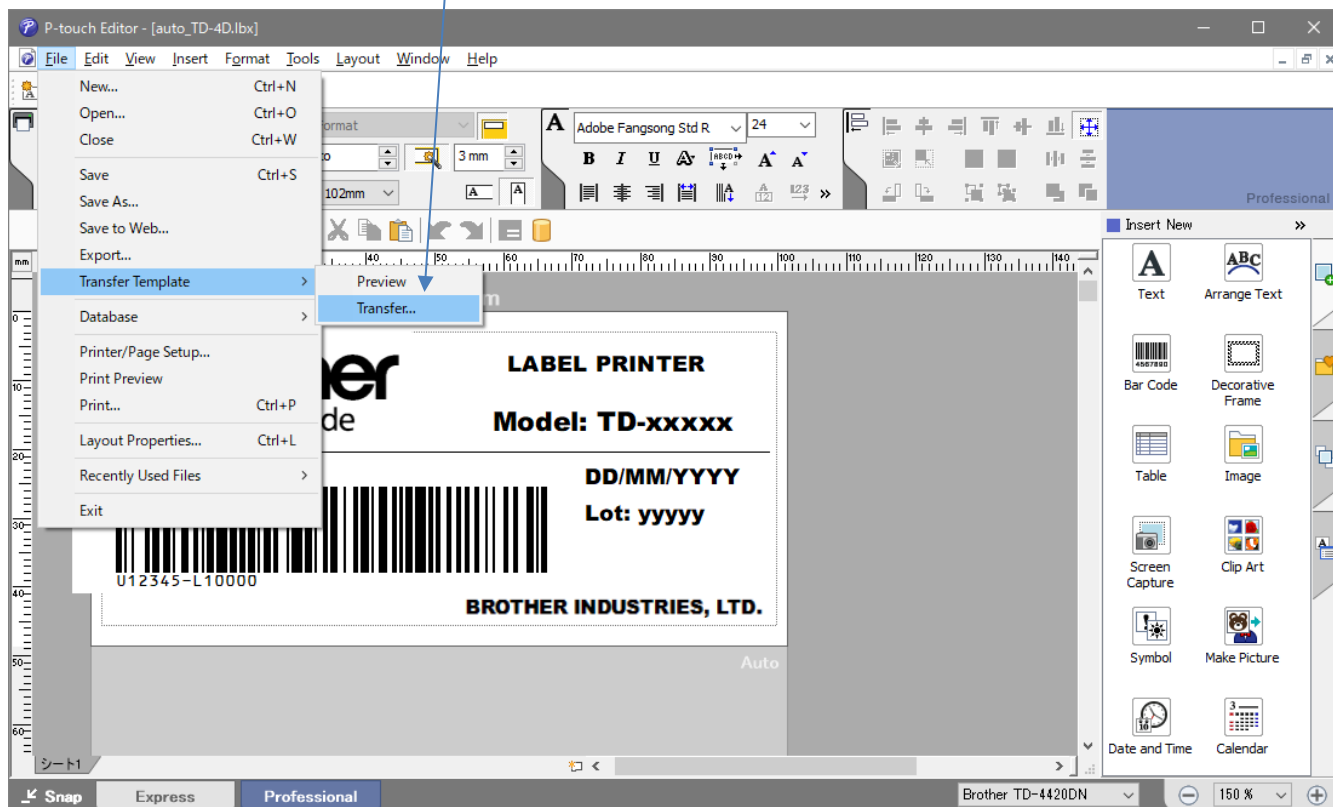
3.3. Template transfer

This section describes how to transfer the template created in the previous chapter.

3.3.1. Start P-touch Transfer Manager

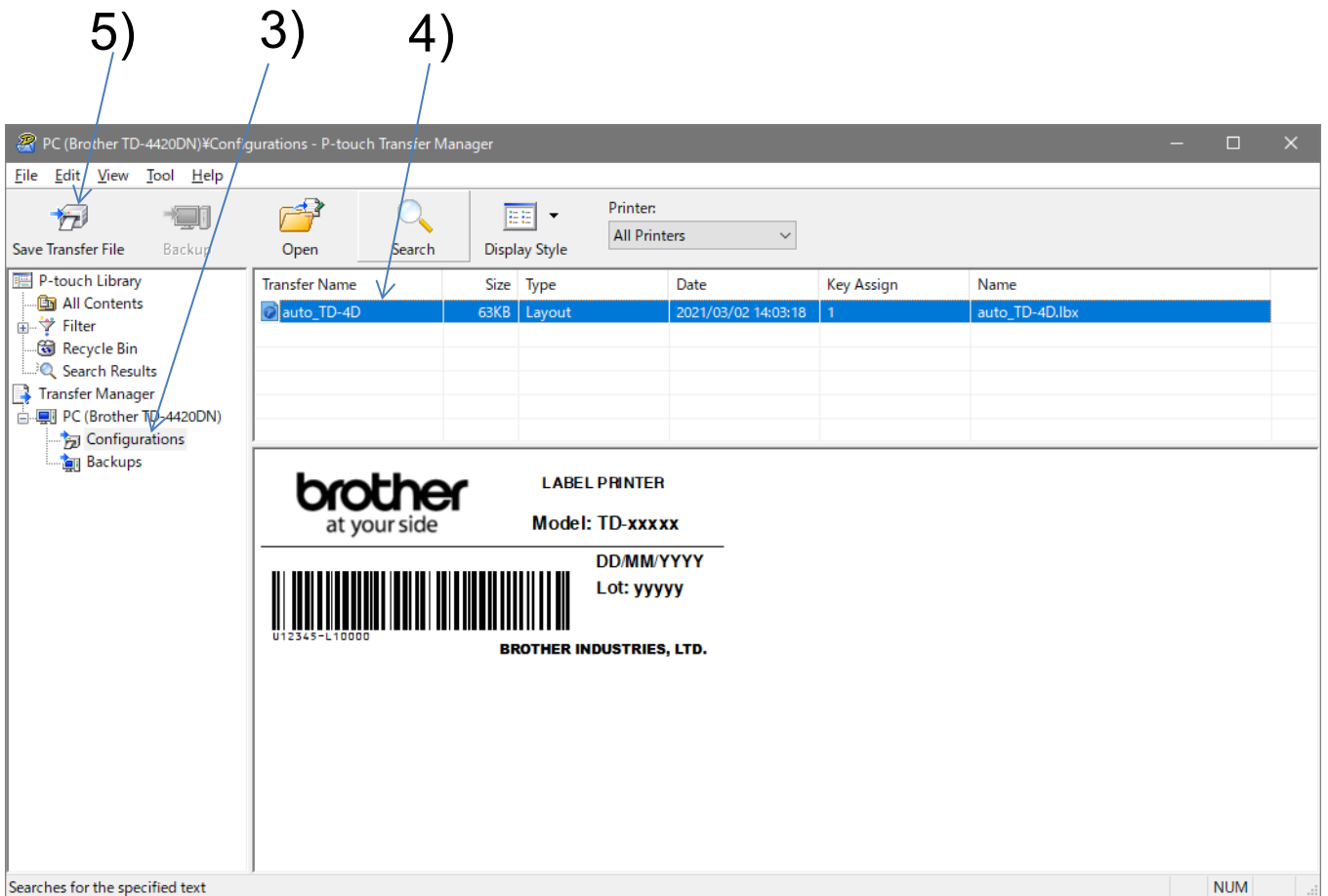
- 1) Open auto.lbx which is used in the previous chapter in P-touch Editor.
- 2) Click [File] - [Transfer Template] - [Transfer] of P-touch Editor.

2)



P-touch Transfer Manager in the next page will start its operation.

3.3.2. P-touch Transfer Manager operation



- 3) Select the target label printer (in this case: TD-4420DN) [Configurations] folder.
- 4) Set the template number for label printer registration.
Select list view data and right-click [Key Assign], then set template number "1".
(It is necessary to match the number to the template at programmable controller side. Refer to the template setting in [Program outline](#) described later.)
- 5) Transfer the template to the label printer.
Click the [Save Transfer File] button with the data selected.

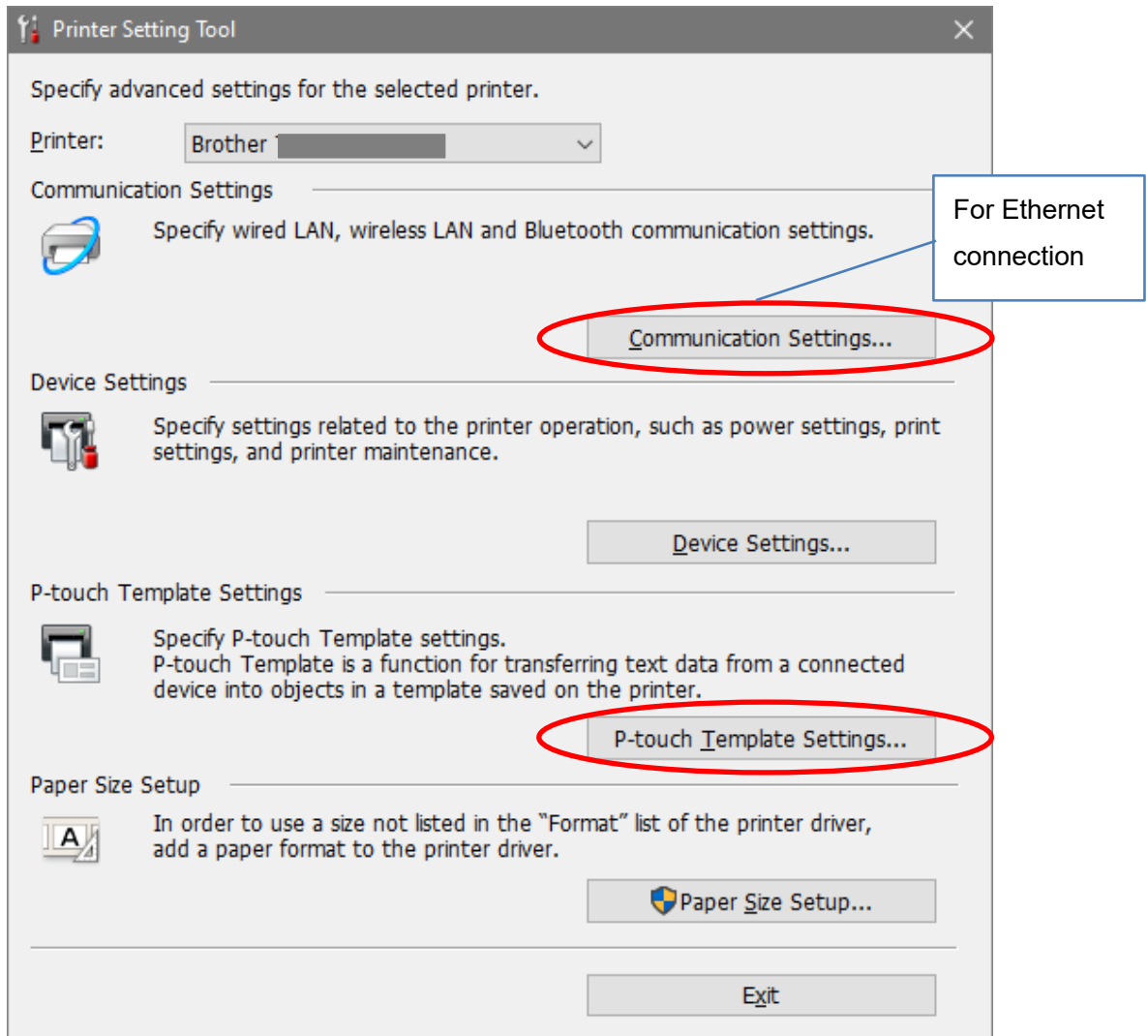
* For more details on how to use P-touch Transfer manager, refer to [Help] or "Software user's guide" of each label printer.

4. Label printer unit setting

4.1. Printer setting tool

- 1) Start the P-touch template setting.

Windows10: Click [Start] - [Brother] - [Printer Setting Tool].



- 2) Click "P-touch Template Settings" in "Printer Setting Tool".

- 3) Set each item.

This program is activated on the following screen.

* If print quality is not good by TD-2130N (or TD-2020,2120N), tick the check box of "Give priority to print quality".

- 4) Press "Setting".

* Example of the screen 1: Setting screen except TD-2130N (or TD-2020, 2120N: Windows10)

Set the Default Command Mode to [P-touch Template].
Specify the settings necessary for the transferred template.
If a different Default Command Mode is selected, use [Device Settings].
To indicate a control code in the text box, put \"mark before ASCII code [00 -FF].
ex. TAB: \\09, CR: \\0D, \\ as 1byte each

Default Command Mode: P-touch Template

Default Template Number: 1

Data Delimiter for P-touch Template: \\09

Trigger for P-touch Template Printing

Command Character: ^FF

Data Insertion into All the Objects

Received Data Size: 10 bytes

Character Code Table: Windows 1252

International Character Set: United States

Command Prefix Character: ^

Non-Printed Character:

Available Return Code: ^CR

Replace FNC1

Default Print Option

Number of Copies: 1

Auto cut: every 1 labels Cut at End

Inverted 180 Degrees

Communication Settings... Default

Set Cancel

* Example of the screen 2: Setting screen of TD-2130N (or TD-2020, 2120N: Windows10)

P-touch Template Settings - Brother TD-2130N

To set properties for the transferred templates, select P-touch Template Mode, and enter the data as required.

To indicate a control code in the text box, put "\mark before ASCII code [00 -FF].
ex. TAB: \09, CR: \0D, \: \ as 1byte each

Default Command Mode: P-touch Template

Default Template Number: 1

Data Delimiter for P-touch Template: \09

Trigger for P-touch Template Printing

Command Character: ^FF

Data Insertion into All the Objects

Received Data Size: 10 bytes

Character Code Table: Windows 1252

International Character Set: United States

Command Prefix Character: ^

Non-Printed Character:

Available Return Code: ^CR

Replace FNC1

Default Print Option

Number of Copies: 1

Give priority to print quality

Inverted 180 Degrees

Communication Settings... Default

Set Cancel

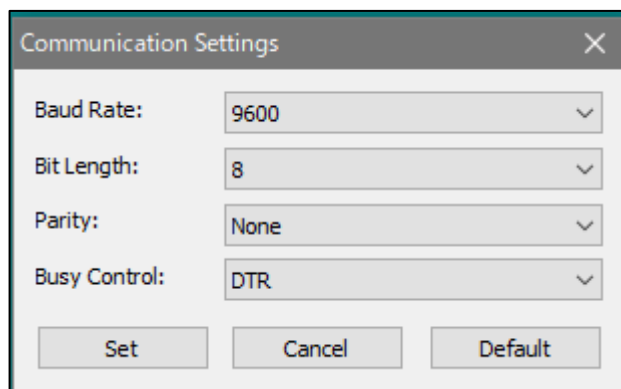
* According to the label printer model, the window is different. For more details on how to use the P-touch Template setting, refer to "P-touch Template manual" of each label printer.

4.2. For serial connection

① Communication Settings

Click "Communication Settings" button at 4.1 "P-touch Template Settings", Communication Settings window is displayed.

In this sample setting, the following screen is displayed. (if you want to change setting, change setting at programmable controller side as well.)

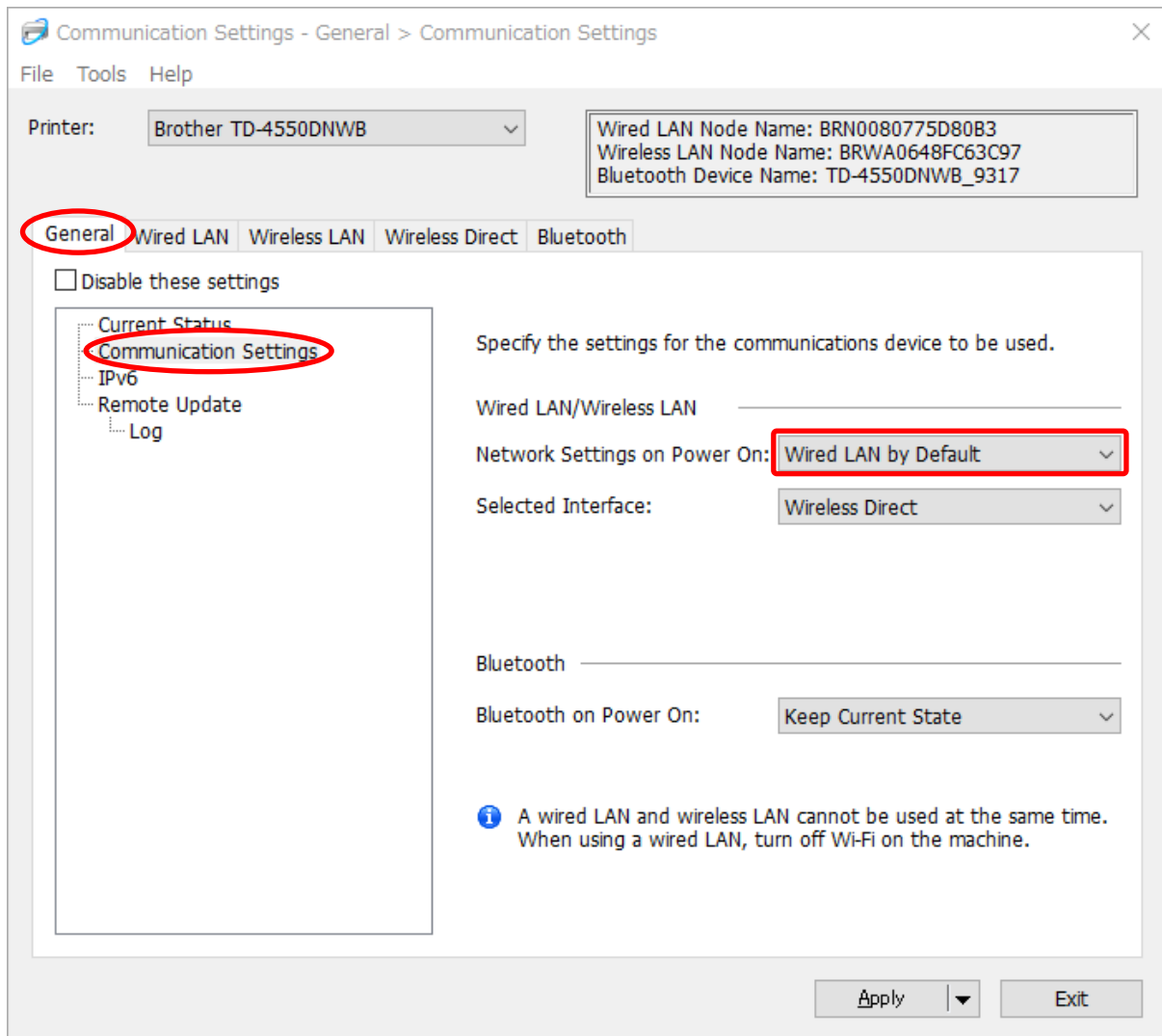


4.3. For Ethernet connection

1) Communication Settings

Click the "Communication Settings" button at 4.1 "Printer Setting Tool", the Communication Settings screen is displayed.

Click "Communication Settings" of the "General" tab and set "Network Settings on Power On" to "Wired LAN by Default" as the following. (screen is example of TD-4550DNWB)



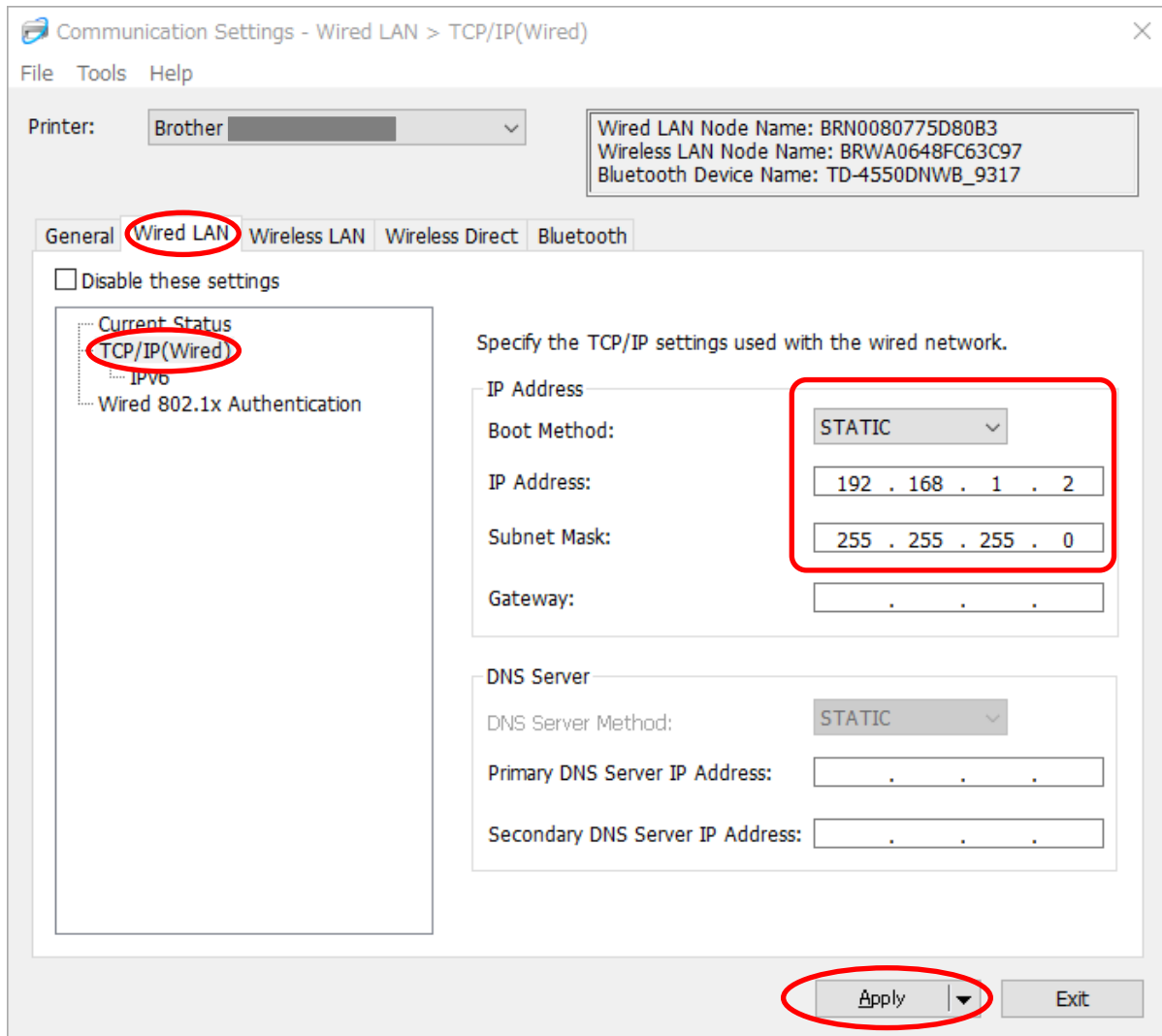
TD-4420DN, TD-4520DN, TD-2120N and TD-2130N/NSA are fixed in Wired LAN.

2) Wired LAN setting

Click the "Wired LAN" tab in the displayed window and press "TCP/IP (Wired)" to display the communication conditions as follows.

In this sample setting, set the IP address as follows.

Click the "Apply" button after changing to reflect the setting value by rebooting the label printer. (If you want to change the setting, change the setting at programmable controller side as well.)



5. Setting at programmable controller side (MELSEC iQ-F series)

The sample program display is shown as the following. After the setting by GX Works3, write the program and PLC parameter in the programmable controller.

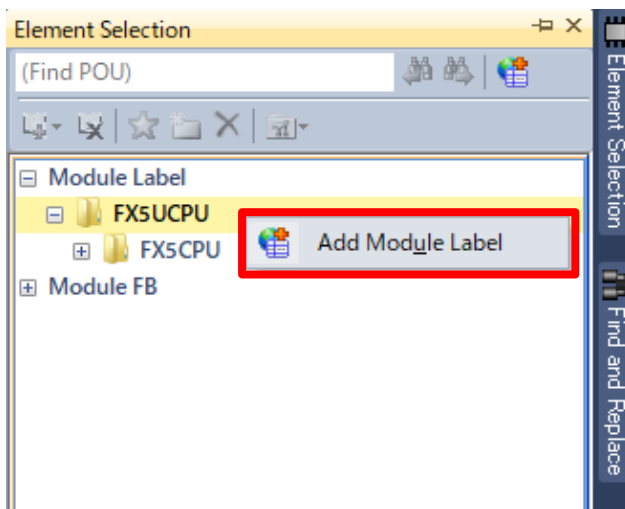
5.1. For serial connection

- CPU parameter setting

The setting remains as default condition.

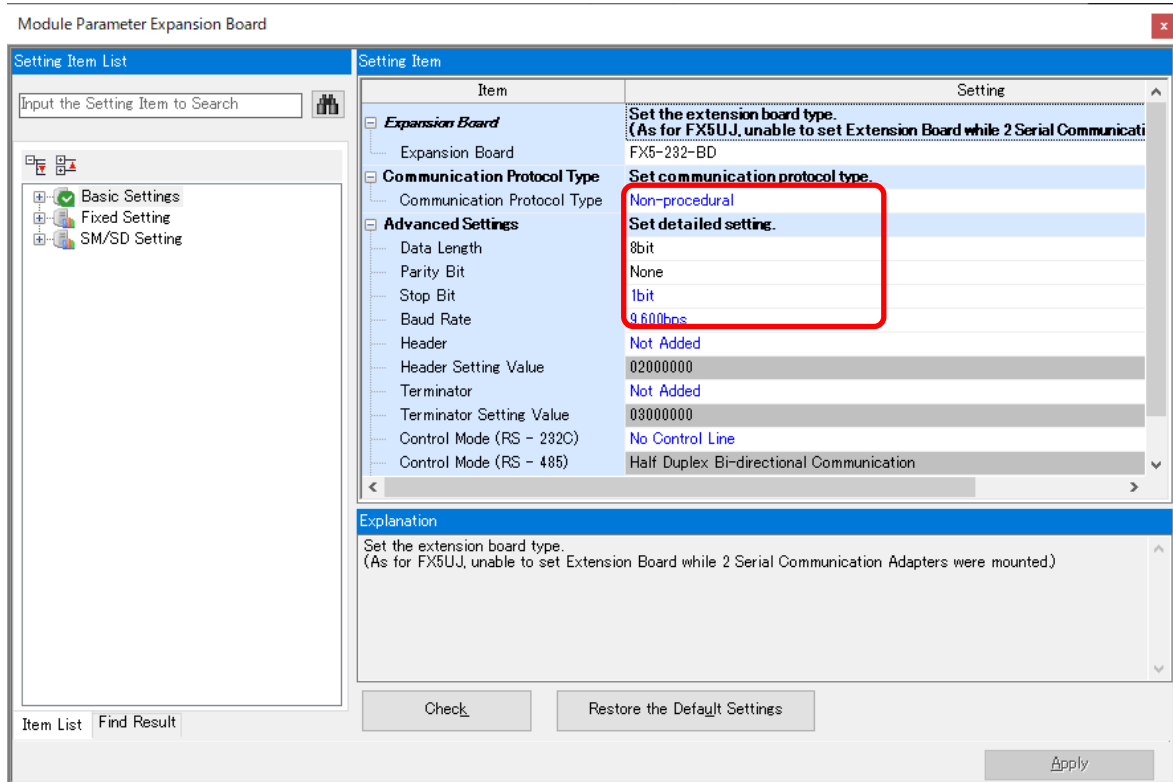
- Registration of module labels for serial communication module

Select [Element Selection] → [Module] → [Module Label] → [FX5UCPU], and right-click [Add Module Label].



Set as shown above.

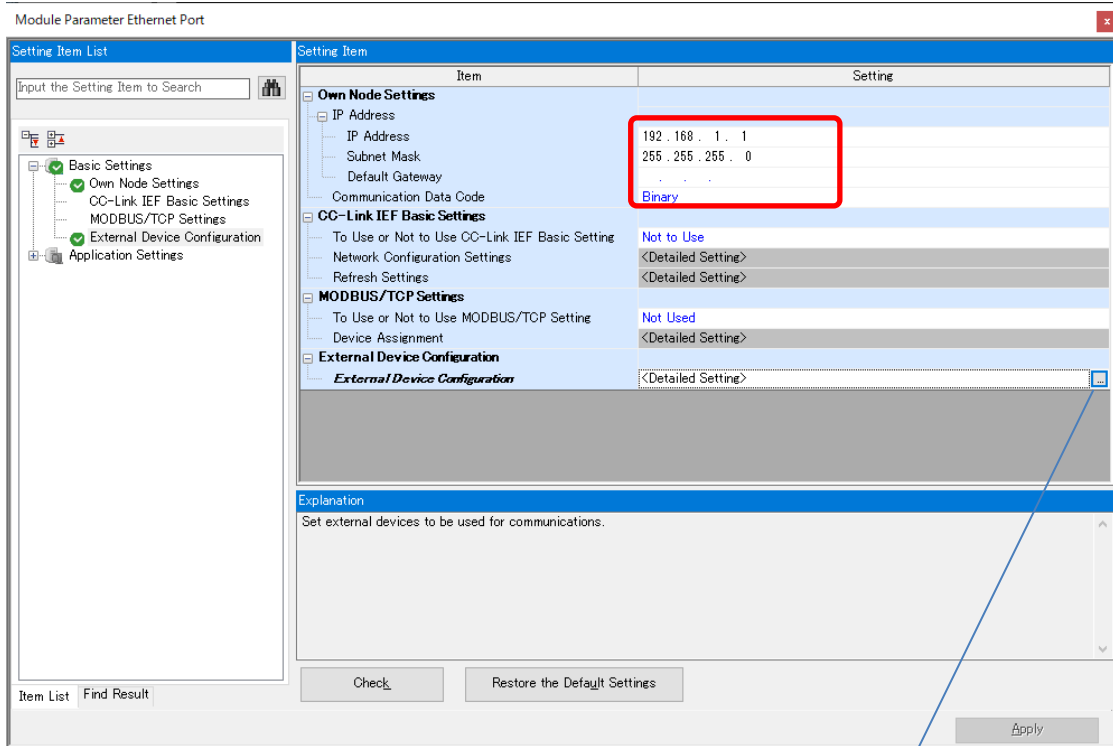
■ Parameter setting of FX expansion adapter (CH3) or FX expansion board (CH2)



The setting shall be the same as [Communication Settings](#) at label printer side.
Parameters beside the above screen are the same as the default value.

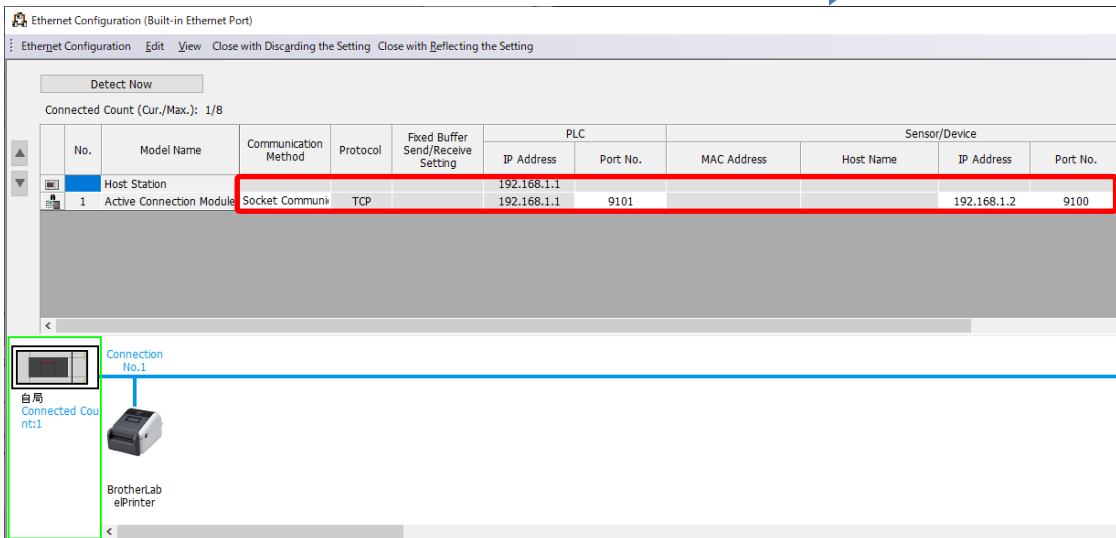
5.2. For Ethernet connection

- CPU parameter setting
The setting remains as default condition.
- Network module (port 1) parameter setting (own node)



Parameters beside the above screen are the same as the default value.

- Network module (port 1) parameter setting (target node)



Set it to be connection No.1.

6. Sequence program outline

6.1. Function outline

This chapter explains the use example of the print operation using Brother label printer based on the information from the Mitsubishi programmable controller (MELSEC).

6.2. Program outline

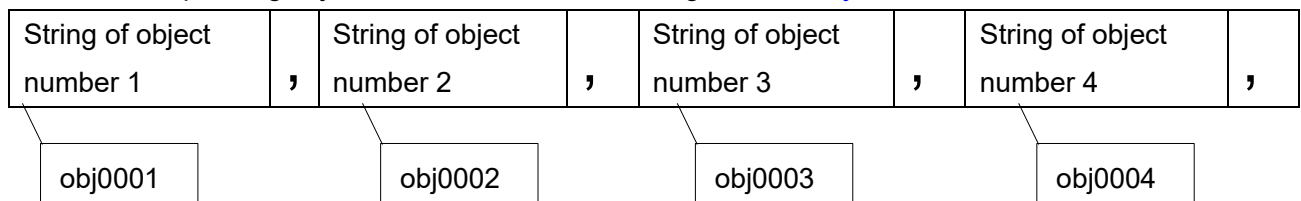
This program can transmit the following P-touch Template commands to the label printer just one time communication.

For the explanation of each command, refer to [Each command explanation](#) in [Appendix A].

	Command	Content
1	ESC 'ia' 03h	Changing the mode inside the printer to "P-touch Template mode"
2	'^II'	Initialization
3	'^TS001'	Selecting template number "1"
4	'^SS01, '	Setting a separator to ',' (comma)
5	Filling data	Concatenated string from obj0001-obj0004
6	'^FF'	Printing start

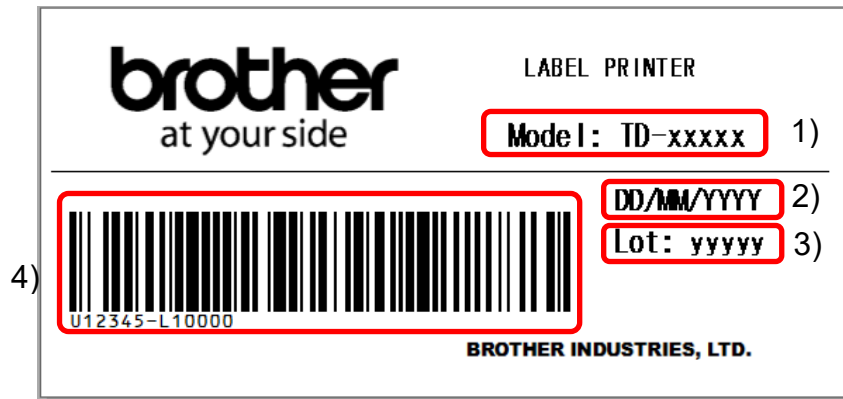
For example, filling data of 5 is the following data string.

For the corresponding object name, refer to the drawing in 3.2.2 [Object name list](#).



By printing the data shown above in each page, change the data a little so that total 3 pages of printing will be completed.

Relation between templates and filling data



	Page 1	Page 2	Page 3
1)	TD-4410D	TD-4420D	TD-4430D
2)	Create 'DD/MM/YYYY' string using the calendar inside the programmable controller.		
3)	A2000	A3000	A4000
4)	U12345-L10000	U12345-L10001	U12345-L10002

7. Sequence program explanation

7.1. For serial connection

7.1.1. Use program

Project file name in this program	gw_ld-brother-pt-232_f_ot.gx3
Program name	SETPRINT
Development tool	GX Works3 Version 1.070Y
Use language	Ladder, ST language, FB
Use FB	For serial communication module M+FX5UCPU-SerialComm_Output

* Project file target programmable controllers are set by the MELSEC iQ-F series.

7.1.2. Label variable definition

Global labels used in this program are shown in the following.

No.	Label name	Data type	Usage
1	SendData	POINTER	Data transmission
2	SetTransData	POINTER	Prepare the command line to be transmitted
3	uTransErrCode	WORD	Transmission error code
4	uSerialNum	WORD	For bar code serial numbering
5	uDateTime[7]	WORD	For calendar information storage
6	wTransDataSize	INT	Transmission data length
7	wPrintCount	INT	Print timing counter
8	wSendData	INT	Transmission data buffer
9	bTransExecFlg	BOOL	Data transmission in execution
10	bStartSend	BOOL	Transmission start
11	bSendRequest	BOOL	Transmission request
12	bSend_OK	BOOL	Transmission success
13	bSend_NG	BOOL	Transmission failure
14	bSetDataFlg	BOOL	Transmission data set
15	sInitStr	STRING	Initial setting command string
16	sObj1Str	STRING	String for object 1
17	sObj2Str	STRING	String for object 2
18	sObj3Str	STRING	String for object 3
19	sObj4Str	STRING	String for object 4
20	sPrintStartStr	STRING	String for printing start
21	sModelStr	STRING	String for model number
22	sLotNumStr	STRING	String for lot number
23	sYearStr	STRING	String for years
24	sMonthStr	STRING	String for months
25	sDayStr	STRING	String for days
26	sTempStr	STRING	String for concatenation

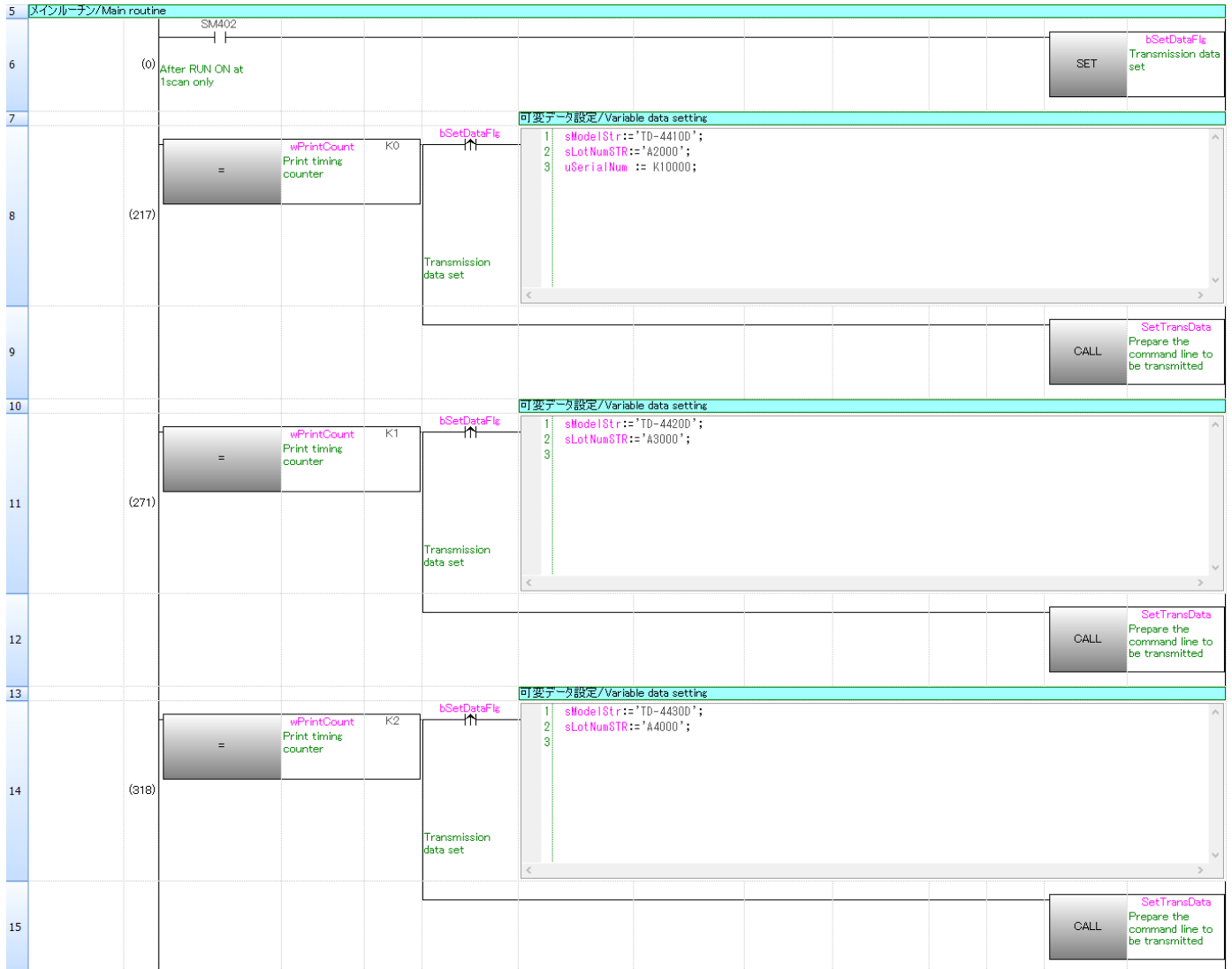
* Data type

POINTER	Pointer
WORD	Word [without code]/bit stream [16 bit]
INT	Word [with code]
BOOL	Bit
STRING	String

7.1.3. Program detail

The following is the explanation of the program according to the function block.

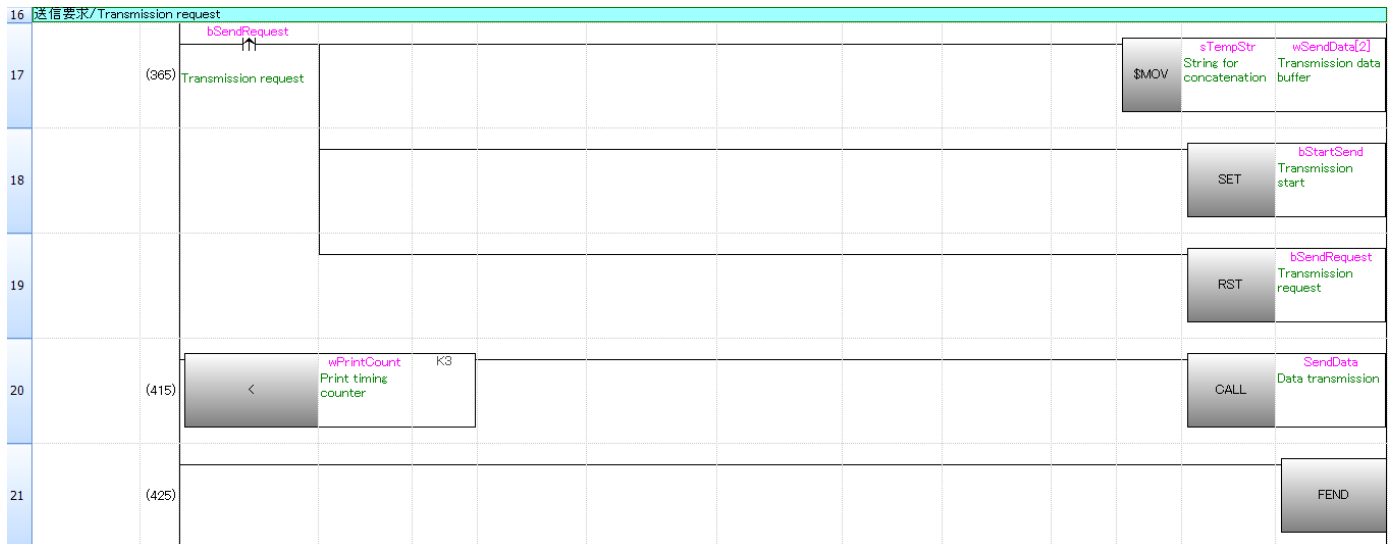
7.1.3.1. Main routine



Set a string to print out in each page.

Row number	Print page	wPrintCount	sModelStr	sLotNumStr
8	Page 1	0	TD-4410D	A2000
11	Page 2	1	TD-4420D	A3000
14	Page 3	2	TD-4430D	A4000

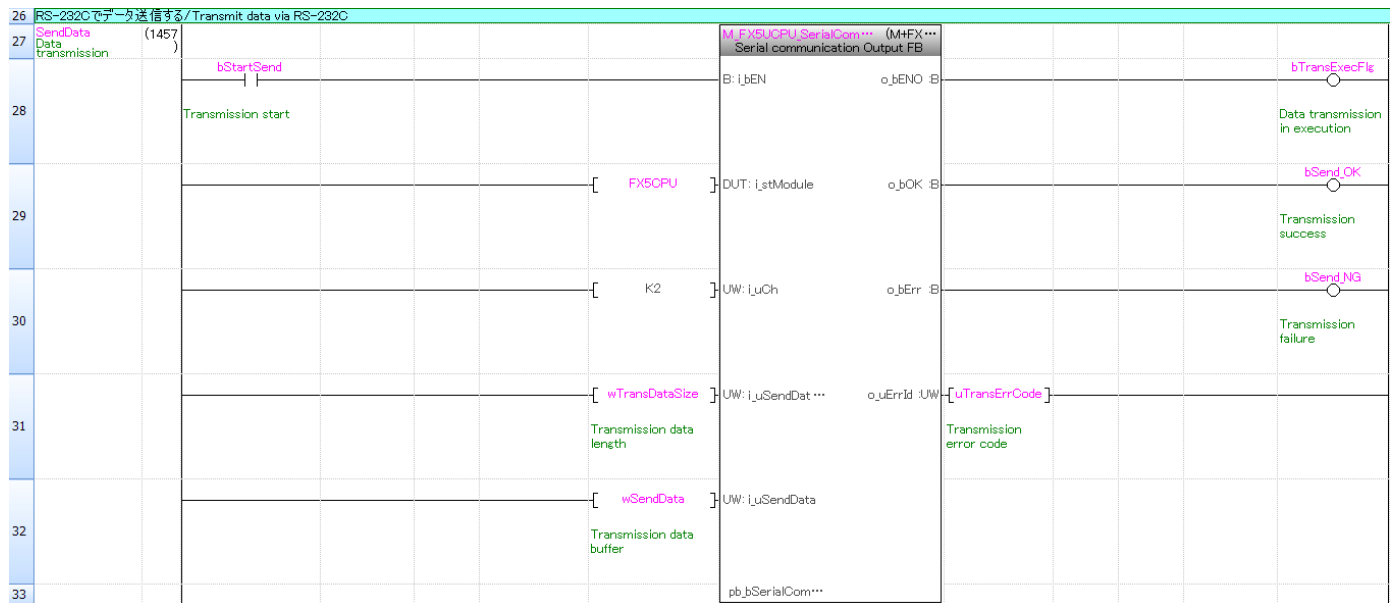
bSetDataFlg turns ON just one time by printing 1 page.



Row number 17: Copies transmitted data prepared at Sub-routine SetTransData to the transmission data array "wSendData".

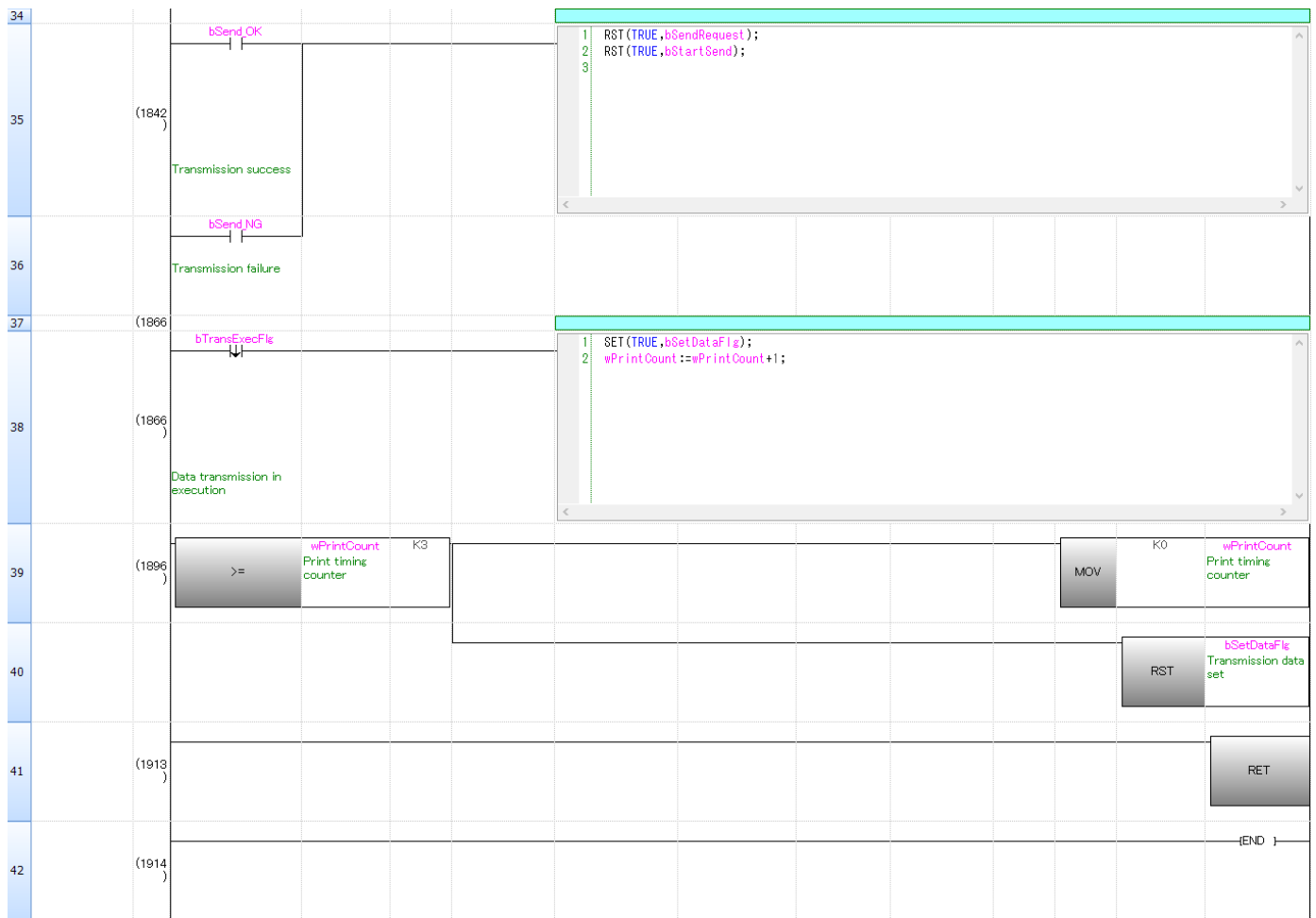
Row number 20: Calls Sub-routine SendData when it is wPrintCount < 3.

7.1.3.3. Transmission processing



The data is transmitted with the number of bytes which is shown in the transmit data length wTransDataSize stored in wSendData [] or later.

For the operation of M+FX5UCPU-SerialComm_Output, refer to "MELSEC iQ-F FX5 CPU Module Function Block Reference" for the Mitsubishi Electric programmable controller.



Row number 35/36: When transmission is completed, resets bSendRequest (request transmission) and bStartSend (start transmission).

Row number 38: When bTransExecFlg (under transmission) turns OFF, resets bSetDataFlg (transmission data set) and increases wPrintCount by one.

Row number 39/40: wPrintCount (print timing counter) is 3 or larger, 0 is stored in wPrintCount (print timing counter) and bSetDataFlg (transmission data set) is reset.

7.2. For Ethernet connection

7.2.1. Use program

Project file name in this program	gw_ld-brother-pt-e_f_ot.gx3
Program name	SETPRINT
Development tool	GX Works3 Version 1.070Y
Use language	Ladder, ST language

* Project file target programmable controllers are set by the MELSEC iQ-F series.

7.2.2. Label variable definition

Global labels used in this program are shown in the following.

No.	Label name	Data type	Usage
1	uOpenErrID	WORD	Open error code
2	uSendErrID	WORD	Transmission error code
3	uCloseErrID	WORD	Closed error code
4	uSerialNum	WORD	For bar code serial numbering
5	uDateTime[7]	WORD	For calendar information storage
6	wPrintCount	WORD	Print timing counter
7	wSendData[128]	WORD	Transmission data buffer
8	bStartOpen	BOOL	Socket open start
9	bStartOpenRun	BOOL	Socket open execution
10	bOpen_OK	BOOL	Socket open success
11	bOpen_NG	BOOL	Socket open failure
12	bStartSend	BOOL	Transmission start flag
13	bSend_OK	BOOL	Transmission success
14	bSend_NG	BOOL	Transmission failure
15	bStartClose	BOOL	Socket close start
16	bStartCloseRun	BOOL	Socket close execution
17	bClose_OK	BOOL	Socket close success
18	bClose_NG	BOOL	Socket close failure
19	bSendRequest	BOOL	Transmission request flag
20	bSetDataFlg	BOOL	Transmission data set
21	sInitStr	STRING	Initial setting command string
22	sObj1Str	STRING	String for object 1

No.	Label name	Data type	Usage
23	sObj2Str	STRING	String for object 2
24	sObj3Str	STRING	String for object 3
25	sObj4Str	STRING	String for object 4
26	sPrintStartStr	STRING	String for printing start
27	sModelStr	STRING	String for model number
28	sLotNumStr	STRING	String for lot number
29	sYearStr	STRING	String for years
30	sMonthStr	STRING	String for months
31	sDayStr	STRING	String for days
32	sTempStr	STRING	String for concatenation
33	bOpenResult[2]	BOOL	Open command execution result
34	bSendResult[2]	BOOL	Send command execution result
35	bCloseResult[2]	BOOL	Close command execution result
36	wOpenCtrl[10]	INT	Open command control data
37	wSendCtrl[2]	INT	Send command control data
38	wCloseCtrl[2]	INT	Close command control data

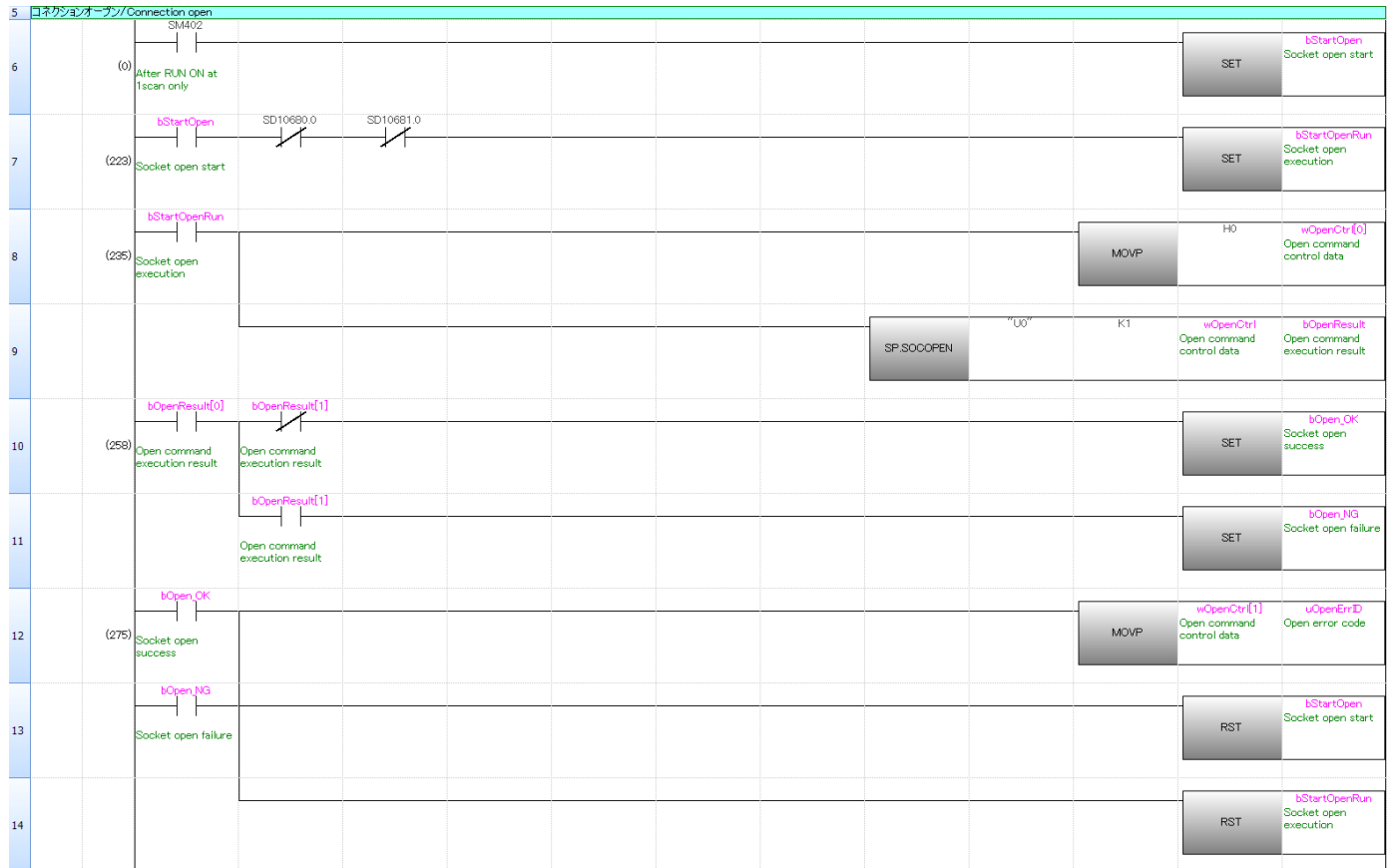
* Data type

WORD	Word [without code]/bit stream [16 bit]
INT	Word [with code]
BOOL	Bit
STRING	String

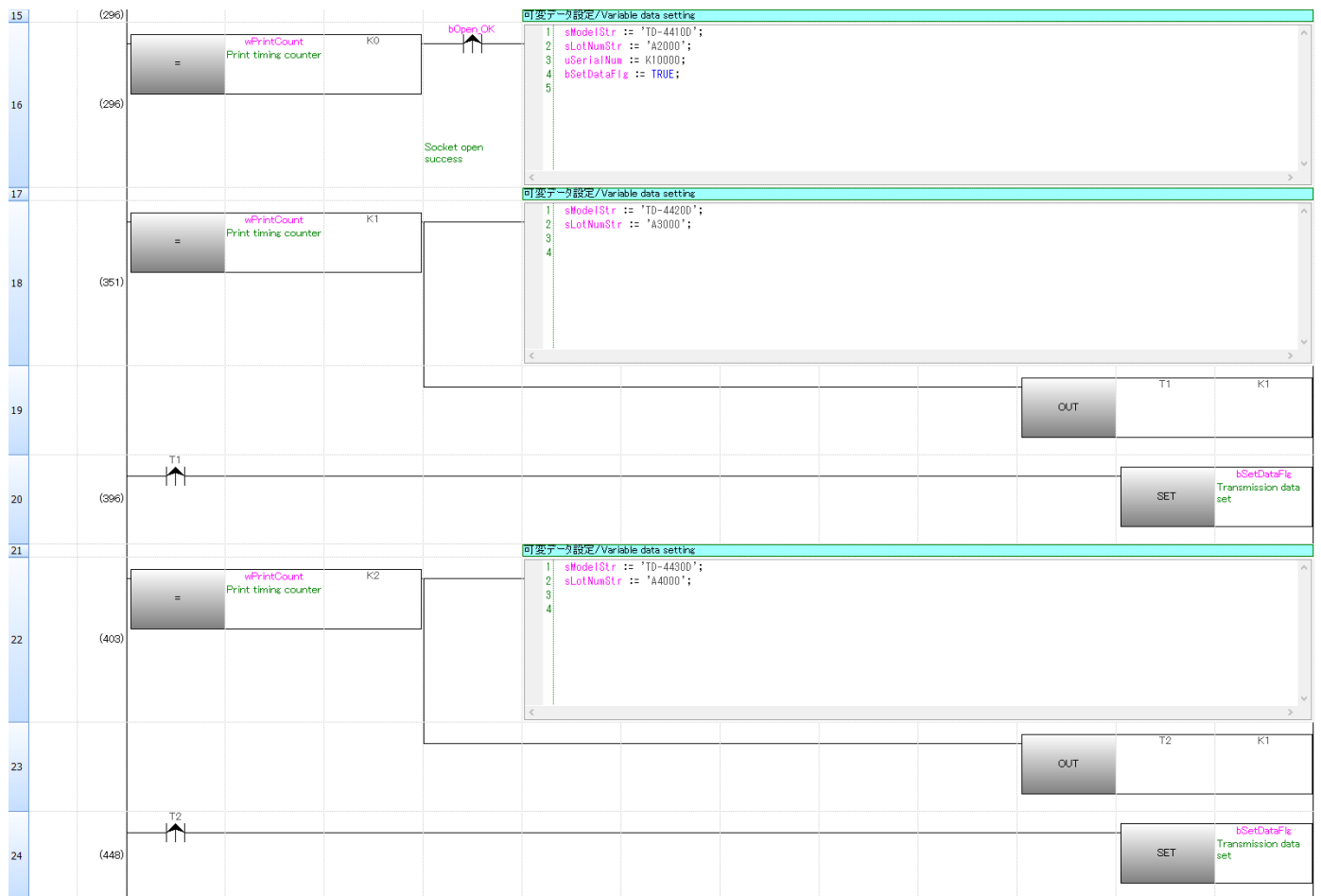
7.2.3. Program detail

The following is the explanation of the program by function block.

7.2.3.1. Socket communication connection open



For the operation of row number 8: SP.SOCOPEM, refer to "MELSEC iQ-F FX5 User's Manual (Ethernet Communication)" for the Mitsubishi Electric programmable controller.



Set a string to print out in each page.

Row number	Print page	wPrintCount	sModelStr	sLotNumStr
16	Page 1	0	TD-4410D	A2000
18	Page 2	1	TD-4420D	A3000
22	Page 3	2	TD-4430D	A4000

bSetDataFlg turns ON just one time by printing 1 page.

7.2.3.2. P-touch Template Printing command preparation

```

P-touch Templateの印刷コマンド準備/Prepare the print command for P-touch
1 @wSendData[1]:=H691B; /* ESC ia 3 */
2 @wSendData[2]:=H0361; /* ESC ia 3 */
3 @sInitStr:="^II^TS001^SS01,"; /* initialize, select template number 1, and set separator to ", " */
4 @sObj1Str:=CONCAT('Model:',sModelStr,','); /* create model string */
5 @TRD(TRUE,uDateTime); /* read clock data */
6 @BINDA_U(TRUE,uDateTime[0],sYearStr); /* convert 16-bit data to decimal ASCII string */
7 @BINDA_U(TRUE,uDateTime[1],sMonthStr); /* convert 16-bit data to decimal ASCII string */
8 @BINDA_U(TRUE,uDateTime[2],sDayStr); /* convert 16-bit data to decimal ASCII string */
9 @sYearStr:=RIGHT(sYearStr,4); /* extract 4 digits */
10 @sMonthStr:=RIGHT(sMonthStr,2); /* extract 2 digits */
11 @sDayStr:=RIGHT(sDayStr,2); /* extract 2 digits */
12 @sObj2Str:=CONCAT(sDayStr,',',sMonthStr,',',sYearStr,','); /* create date string */
13 @sObj3Str:=CONCAT('Lot:',sLotNumStr,','); /* create lot number string */
14 @BINDA_U(TRUE,uSerialNum,sObj4Str); /* convert 16-bit data to decimal ASCII string */
15 @uSerialNum:=uSerialNum+1; /* increase serial number by one */
16 @sObj4Str:=CONCAT('U12345-L',RIGHT(sObj4Str,5)); /* create barcode string */
17 @sPrintStartStr:="^FF"; /* start printing */
18 @sTempStr:=CONCAT(sInitStr,sObj1Str,sObj2Str,sObj3Str,sObj4Str,sPrintStartStr); /* concatenate strings */
19 @wSendData[0]:=len(sTempStr)+4; /* add 4 bytes of transmission data length wSendData [1] and [2] */

```

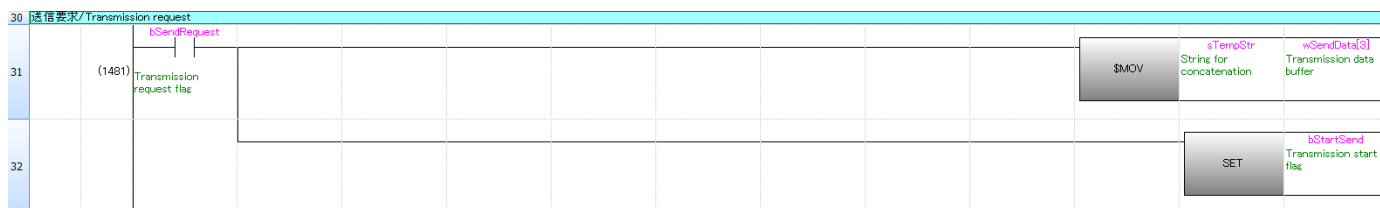
All command data in the ST language is as follows.

```

wSendData[1]:=H691B; /* ESC ia 3 */
wSendData[2]:=H0361; /* ESC ia 3 */
sInitStr:="^II^TS001^SS01,"; /* initialize, select template number 1, and set separator to ", " */
sObj1Str:=CONCAT('Model:',sModelStr,','); /* create model string */
TRD(TRUE,uDateTime); /* read clock data */
BINDA_U(TRUE,uDateTime[0],sYearStr); /* convert 16-bit data to decimal ASCII string */
BINDA_U(TRUE,uDateTime[1],sMonthStr); /* convert 16-bit data to decimal ASCII string */
BINDA_U(TRUE,uDateTime[2],sDayStr); /* convert 16-bit data to decimal ASCII string */
sYearStr:=RIGHT(sYearStr,4); /* extract 4 digits */
sMonthStr:=RIGHT(sMonthStr,2); /* extract 2 digits */
sDayStr:=RIGHT(sDayStr,2); /* extract 2 digits */
sObj2Str:=CONCAT(sDayStr,',',sMonthStr,',',sYearStr,','); /* create date string */
sObj3Str:=CONCAT('Lot:',sLotNumStr,','); /* create lot number string */
BINDA_U(TRUE,uSerialNum,sObj4Str); /* convert 16-bit data to decimal ASCII string */
uSerialNum:=uSerialNum+1; /* increase serial number by one */
sObj4Str:=CONCAT('U12345-L',RIGHT(sObj4Str,5)); /* create barcode string */
sPrintStartStr:="^FF"; /* start printing */
sTempStr:=CONCAT(sInitStr,sObj1Str,sObj2Str,sObj3Str,sObj4Str,sPrintStartStr); /* concatenate strings */
wSendData[0]:=len(sTempStr)+4; /* add 4 bytes of transmission data length wSendData [1] and [2] */

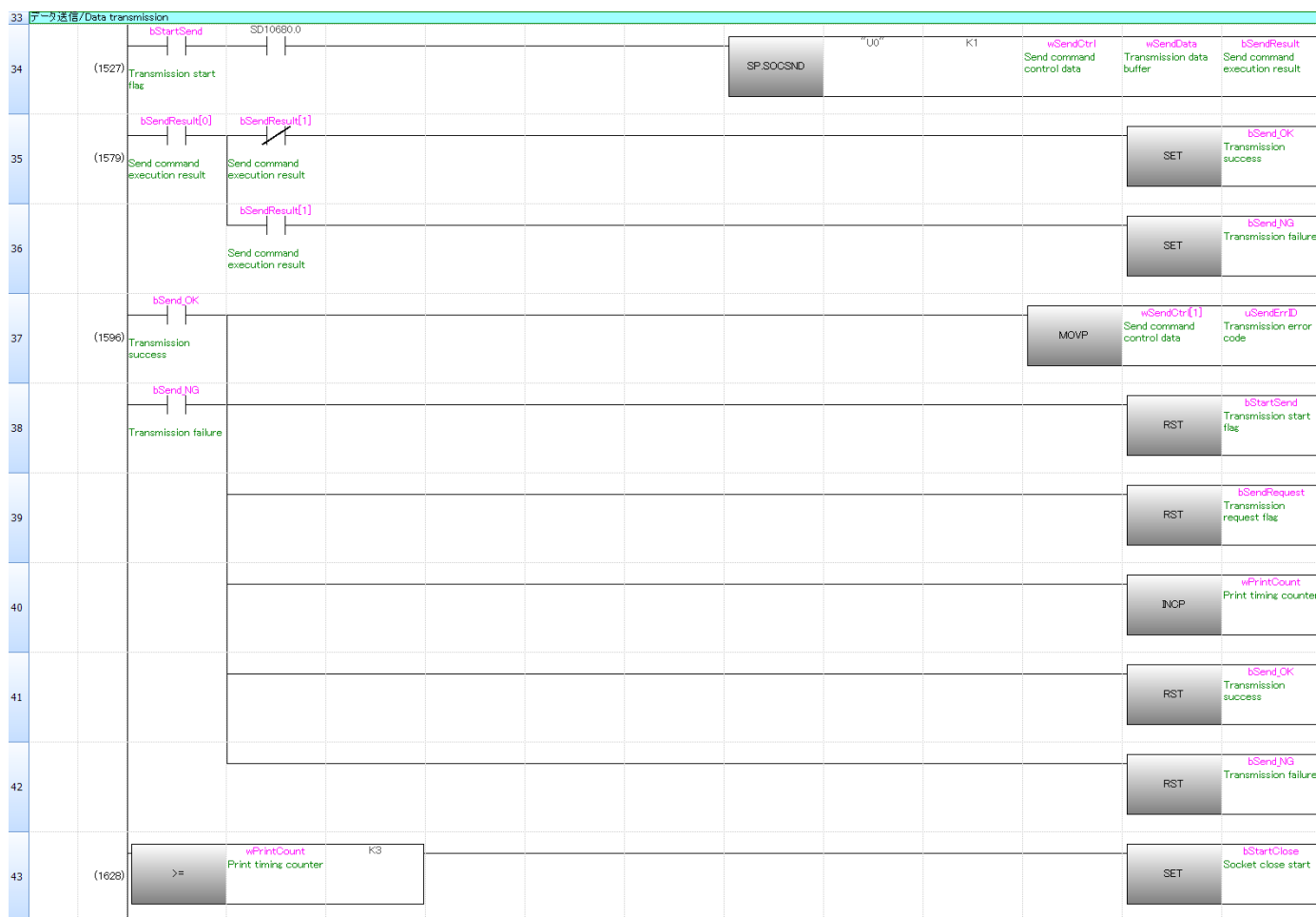
```

7.2.3.3. Transmission request



Row number 31: Copies transmission data prepared by transmission data creation to the transmission data array "wSendData [3]".

7.2.3.4. Data transmission

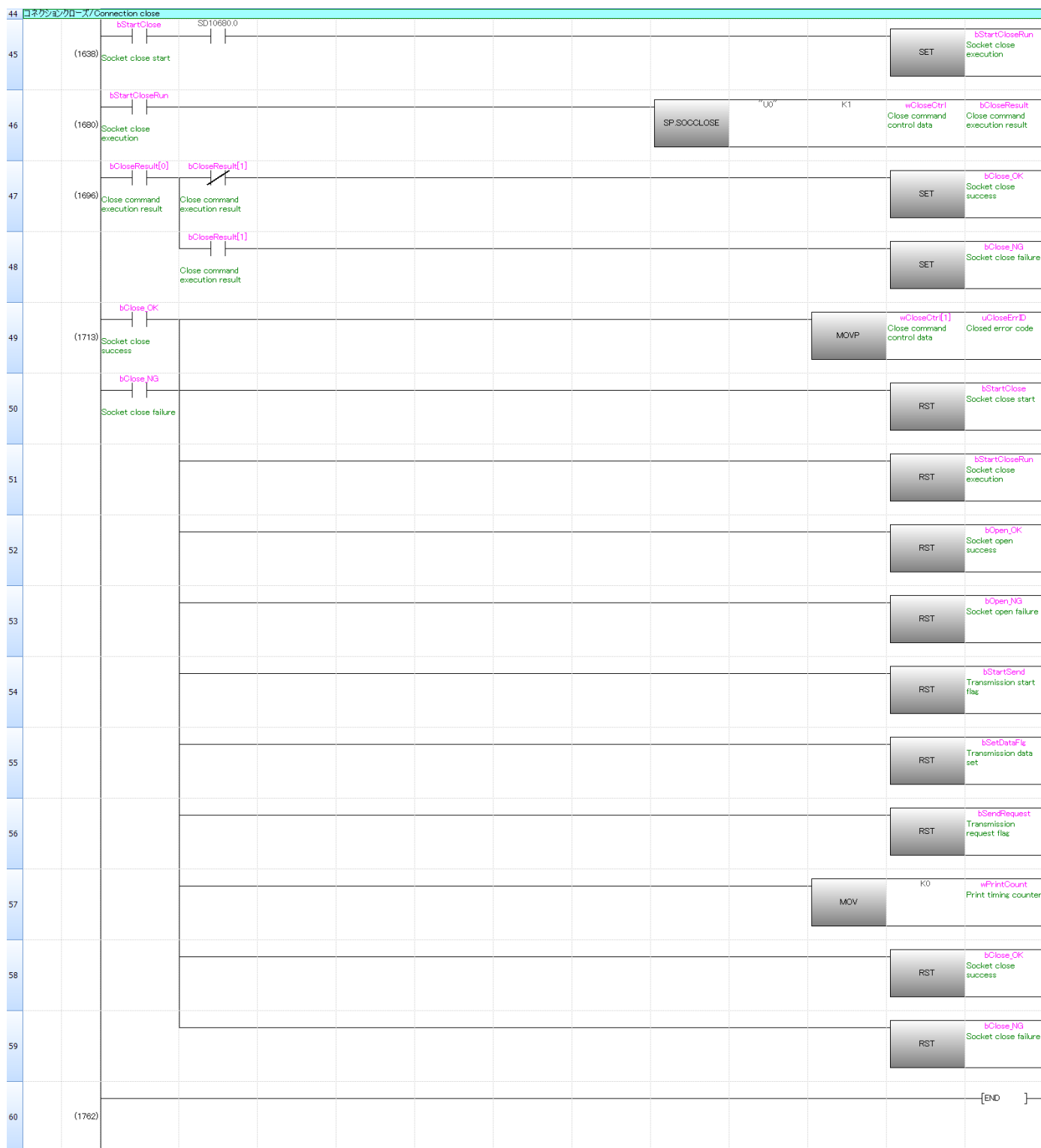


For the operation of row number 34: SP.SOCSND, refer to "MELSEC iQ-F FX5 User's Manual (Ethernet Communication)" for the Mitsubishi Electric programmable controller.

Row number 37/38: When transmission is completed, turns OFF the variable of above control and increases wPrintCount by one for the next printing.

Row number 43: Turns ON bStartClose when wPrintCount is 3 or larger.

7.2.3.5. Socket communication connection close



For the operation of row number 46: SP.SOCCLOSE, refer to "MELSEC iQ-F FX5 User's Manual (Ethernet Communication)" for the Mitsubishi Electric programmable controller.

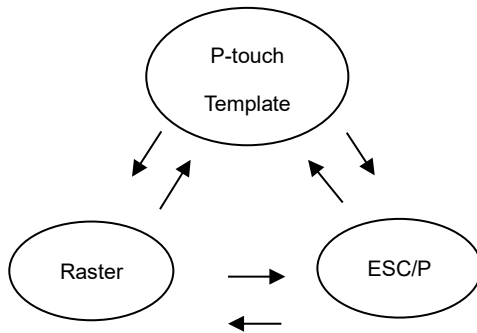
Row number 49/50: When close processing is completed, turns OFF the variable of above control.

[Appendix A] Outline of communication protocol to control label printer

Command mode

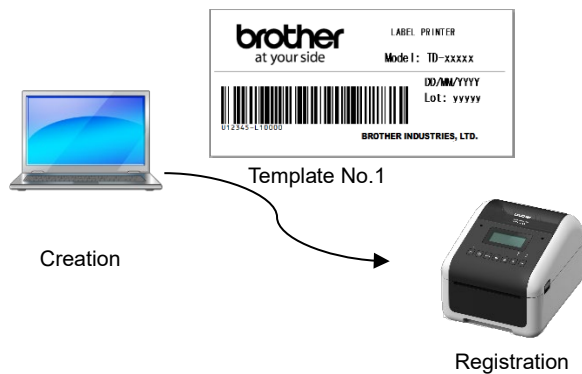
Brother label printers have three functions such as "Raster" mode, "ESC/P" mode and "P-touch Template" mode. This is called "Command mode". Command mode is set according to its printing functions and receiving command type.

This sample program uses "P-touch Template" mode.



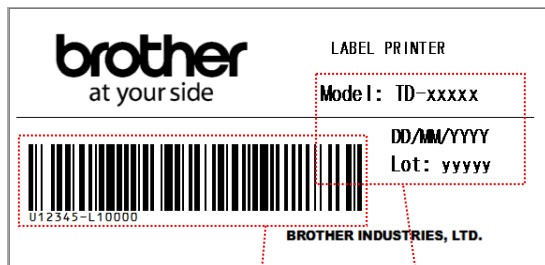
P-touch Template

Template data is necessary for using this mode. Template is label layout and set fixed objects and variable objects. Template data is created by PC and registered onto the printer in advance. And "Template Number" is called as key code by sequencer when printing.



Templates consist of so called "Object", the general term of {Text, Bar code and image drawing}.

"Direct insertion" and "Numbering" can be performed to objects.



Numbering

Direct insertion

(Alphanumeric character is automatically +1 CountUP every)

(Fill any string when printing)

[Each command explanation]

ESC i a Command mode setting

Command mode	Common to all mode
Usage	Switch to command mode
Data length	4 bytes
Data	1Bh 69h 61h n Designate command mode to "n" 00h = ESC/P 01h = Raster 03h = P-touch Template

^II Initialization

Command mode	P-touch Template
Usage	Return all dynamic setting values to unit setting values
Data length	3 bytes
Data	5Eh 49h 49h

^TS Template selection setting

Command mode	P-touch Template
Usage	Select template (Designate template No.)
Data length	6 bytes
Data	5Eh 54h 53h n1 n2 n3 Fix 30h to n1 Designate template No. to n2, n3 (n2 * 10) + n3 → Template No. Change the above to ASCII number {30h to 39h} and designate it

^SS Separation symbol designation

Command mode	P-touch Template
Usage	Set data and separation symbol at the time of data filling time
Data length	5 bytes + Separator
Data	5Eh 53h 53h n1 n2 data (n1*10) +n2: String length (1-20) Data: String (Max. 20 characters)

^FF Printing start

Command mode	P-touch Template
Usage	Printing start
Data length	3 bytes
Data	5Eh 46h 46h

More details of commands or other "P-touch Template command", refer to "P-touch Template manual" of the each label printer.

[Appendix B] Related Manual

■ Brother Label Printers

- Brother User's guide TD-2020 / TD-2120N / TD-2130N / TD-2130NSA
- Brother User's guide TD-4210D / TD-4410D / TD-4420DN / TD-4510D / TD-4520DN / TD-4550DNWB
- Brother User's guide PT-P900 / PT-P900W / PT-P950NW
- Software developer manual P-touch Template Manual / Command reference TD-2020 / TD-2120N / TD-2130N / TD-2130NSA
- Software developer manual P-touch Template Manual / Command reference TD-4210D / TD-4410D / TD-4420DN / TD-4510D / TD-4520DN / TD-4550DNWB
- Software developer manual P-touch Template Manual / Command reference PT-P900 / PT-P900W / PT-P950NW

The above manuals are available to download from Brother support website.

(<https://support.brother.com>)

[Contact window]

Product and support information

Find Brother global website and select in your country or region:

(<https://www.brother.com>)

Developer support

Top page: (<https://support.brother.com/g/s/es/dev/en/index.html>)

Contact form: (https://secure6.brother.co.jp/dev/ContactUs_InputDisp.aspx)



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brother