MELSEC iQ-R

Brother

Label Printer Sample Program

Reference Manual

Version 1.00

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.

Table of Contents

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

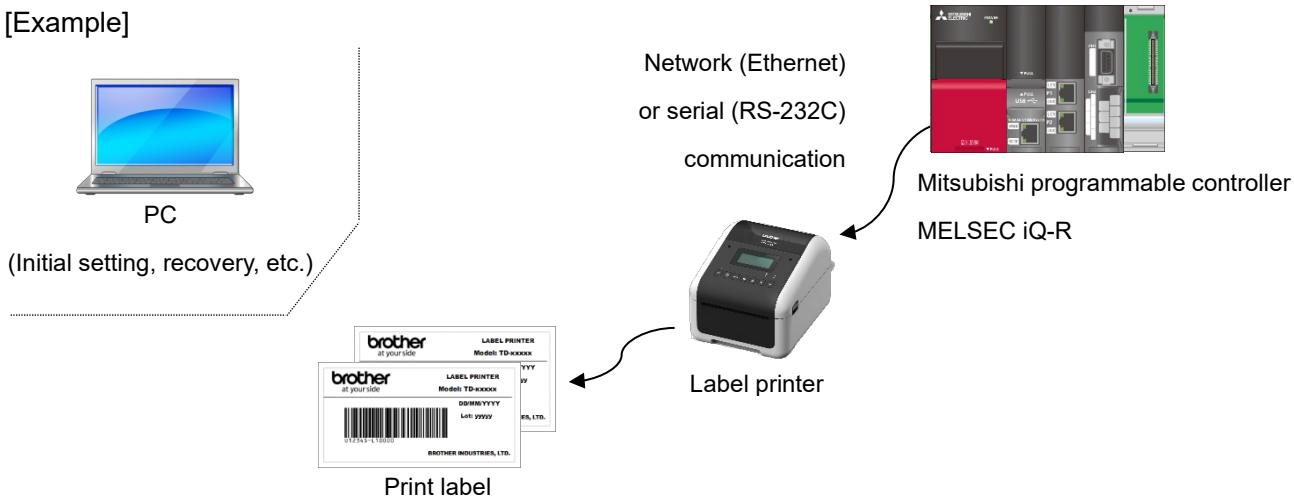
1.2.2. For system structure with Ethernet connection

2. Outline

2.1. Outline of "Sample program"

The sample program in this manual uses the MELSEC iQ-R 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.



1) The programmable controller CPU starts program and requests printing to the label printer at the same time.
2) The label printer prints out the label according to the settings (for example: numbering and date setting).

* Initial settings of the template information, bar code information, and any numbering are performed with connection to PC beforehand.

2.2. Label printer structure

2.2.1. For serial connection

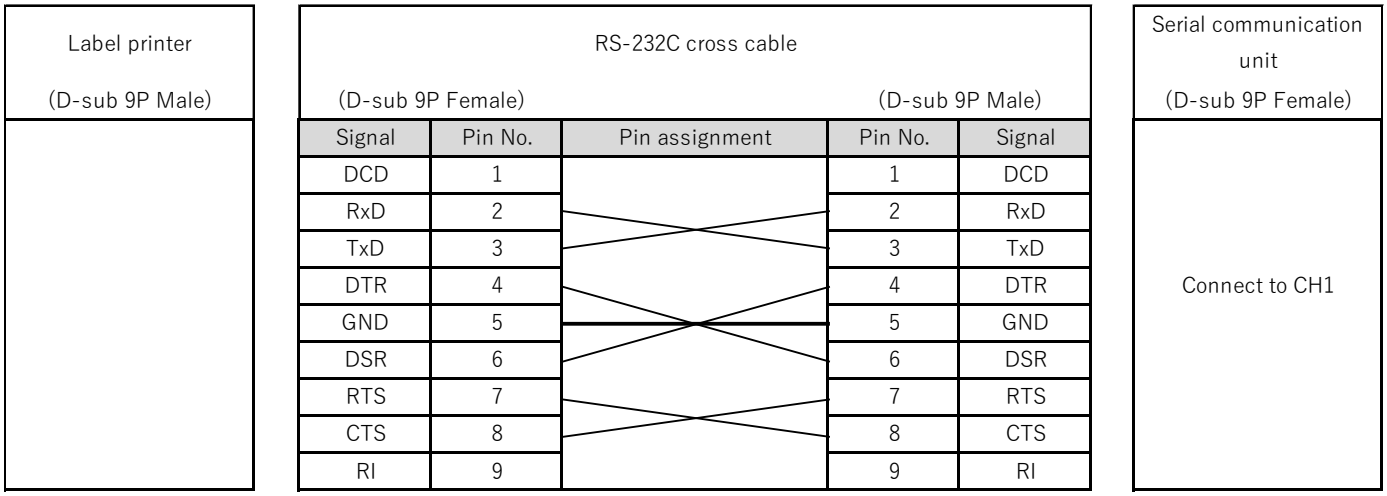
■ Label printer

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)

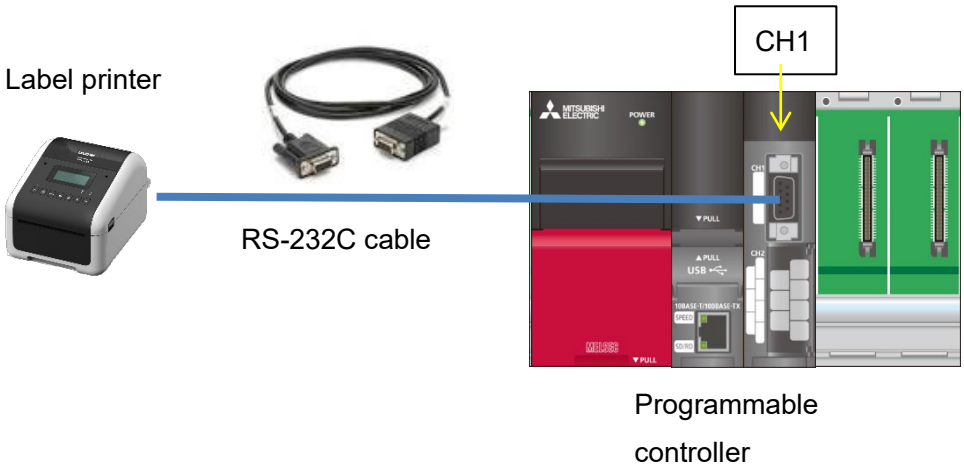
- LAN cable

  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.



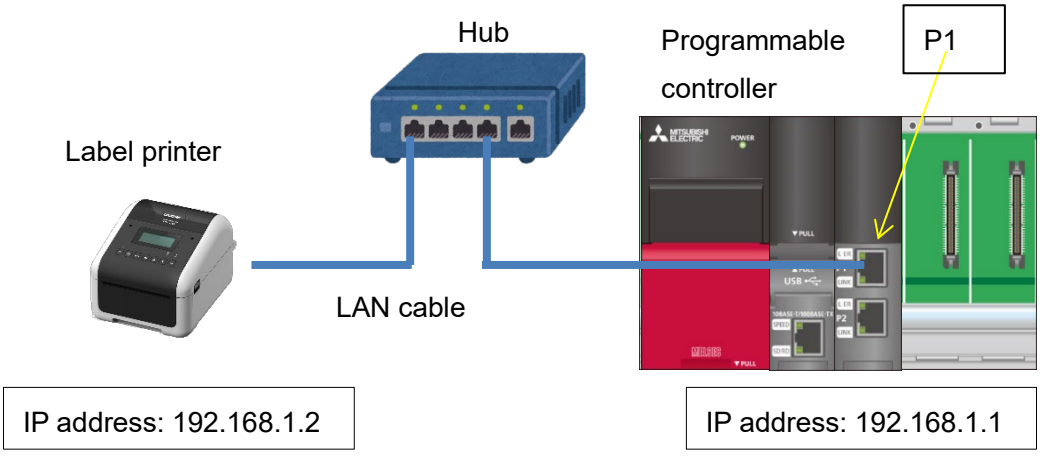
■ Programmable controller module and development tool

Unit	Unit type	Model	Slot No.
	CPU	R08CPU	—
	Serial communication	RJ71C24	0
	Power supply	R61P	—
Base unit	—	R38B	—

* This program is created by GX Works3 Version 1.050C.

2.3.2. For Ethernet connection

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



■ Programmable controller module and development tool

Module	Module type	Model	Slot No.
	CPU	R08CPU	-
	Network (Ethernet)	RJ71EN71	0
	Power supply	R61P	-
Base module	-	R38B	-

* This program is created by GX Works3 Version 1.050C.

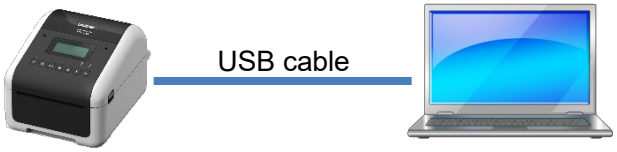
3. Preparing templates

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.



Label printer　　PC

- 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&comple=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

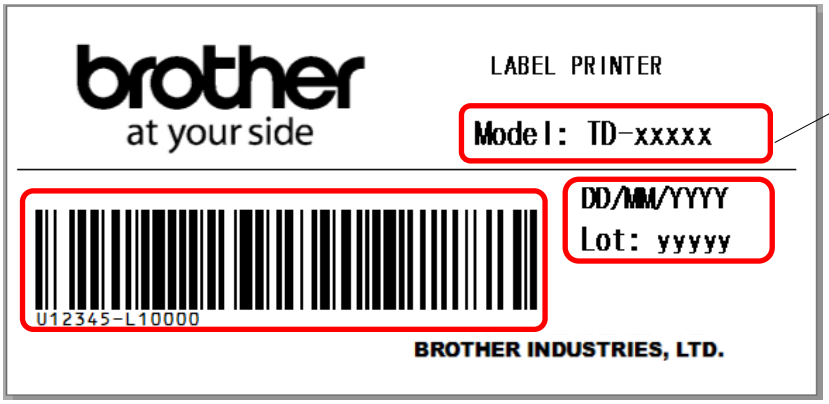
You can download the latest version of software from Brother support website. Also, you can check the latest information of the supported OS and firmware version of each software in Brother support website.

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.)



Change the string inside red frame by programmable controller program.

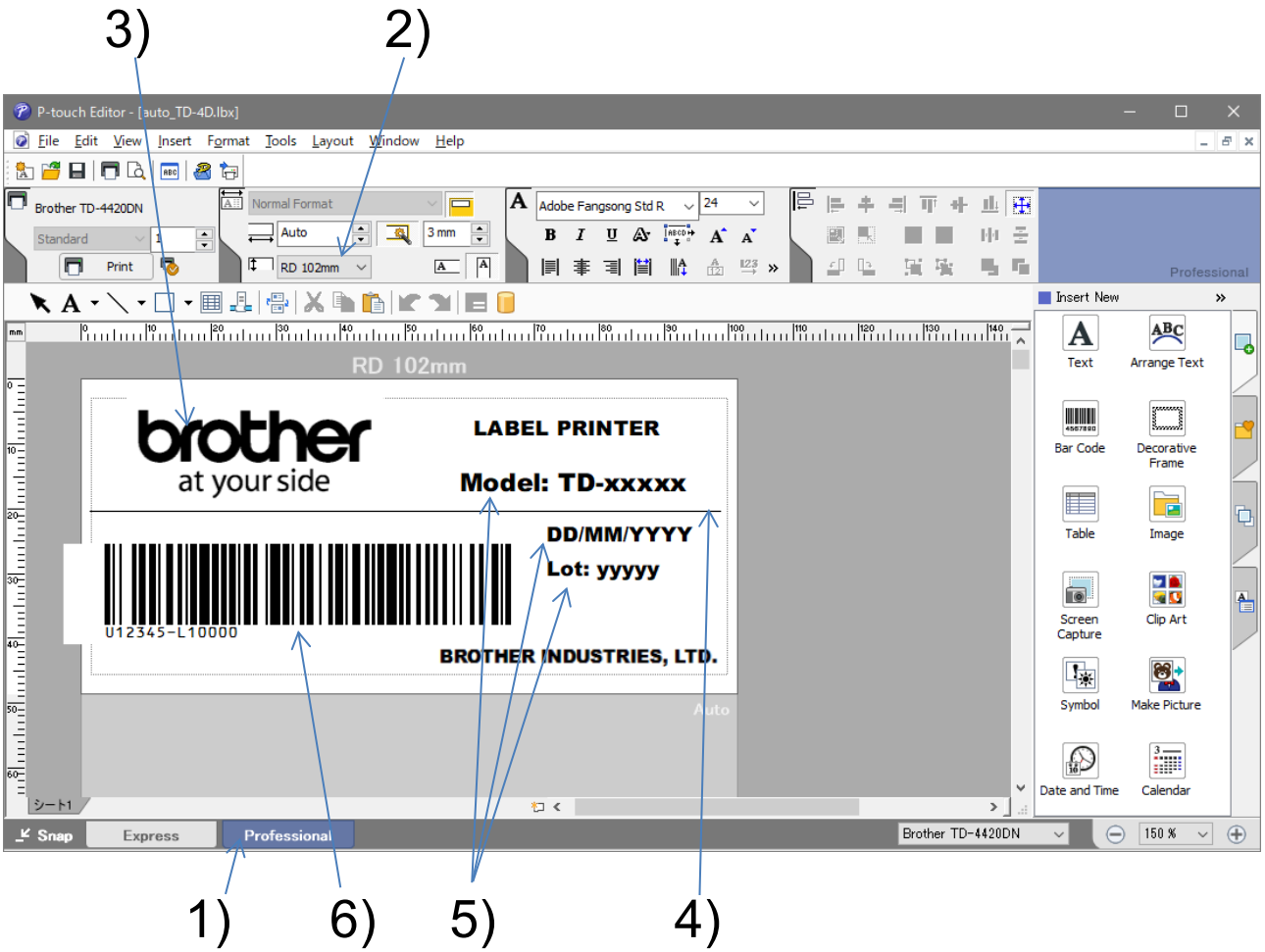
Sample label according to each model (The following file can be opened by "P-touch Editor".)

Brother label printer	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.

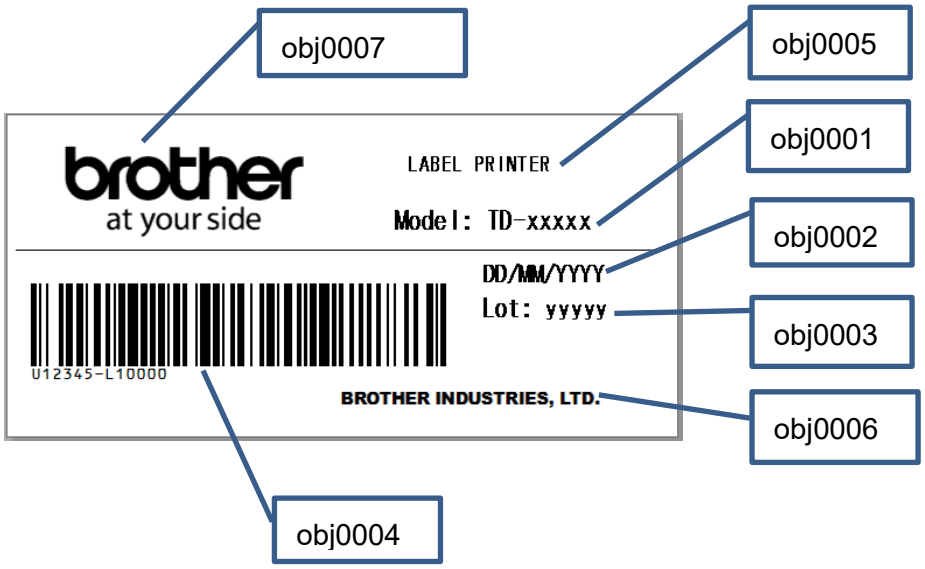
Set the bar code standard by the "Standard" tab.

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



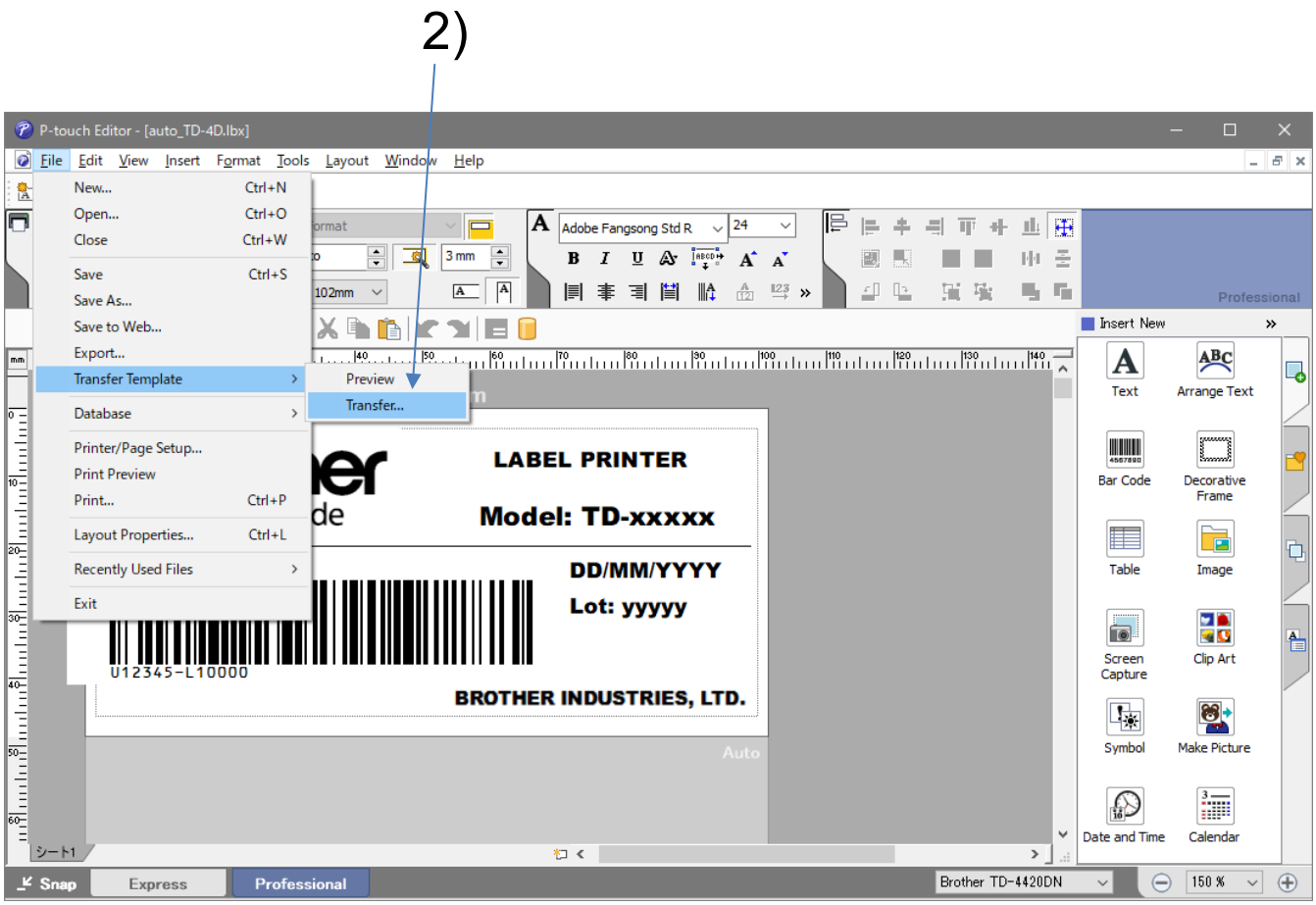
* For more details on how to use P-touch Editor, refer to [Help] or "Software user's guide" of each label printer.

3.3. Template transfer

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

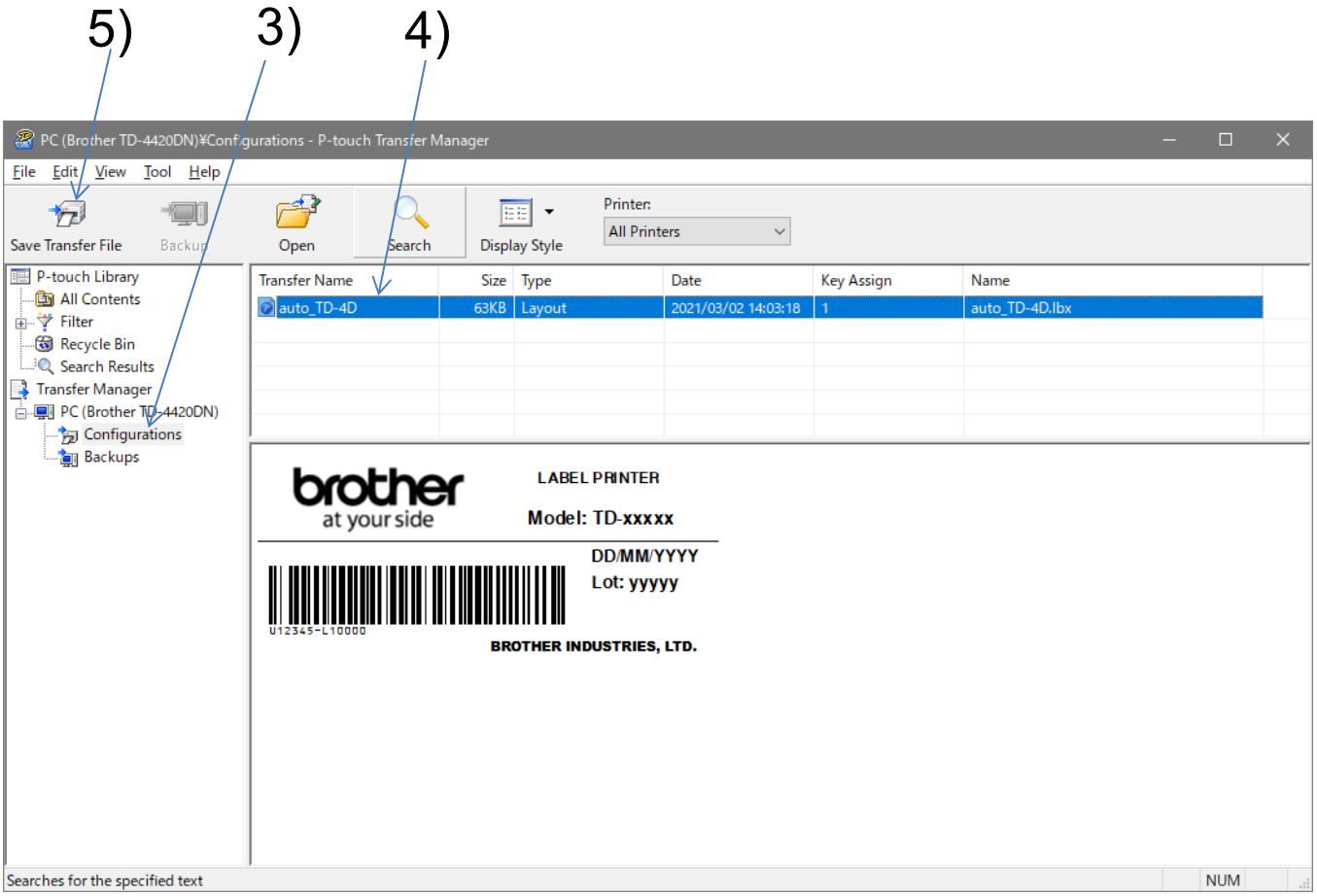
3.3.1. Start P-touch Transfer Manager

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.



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.

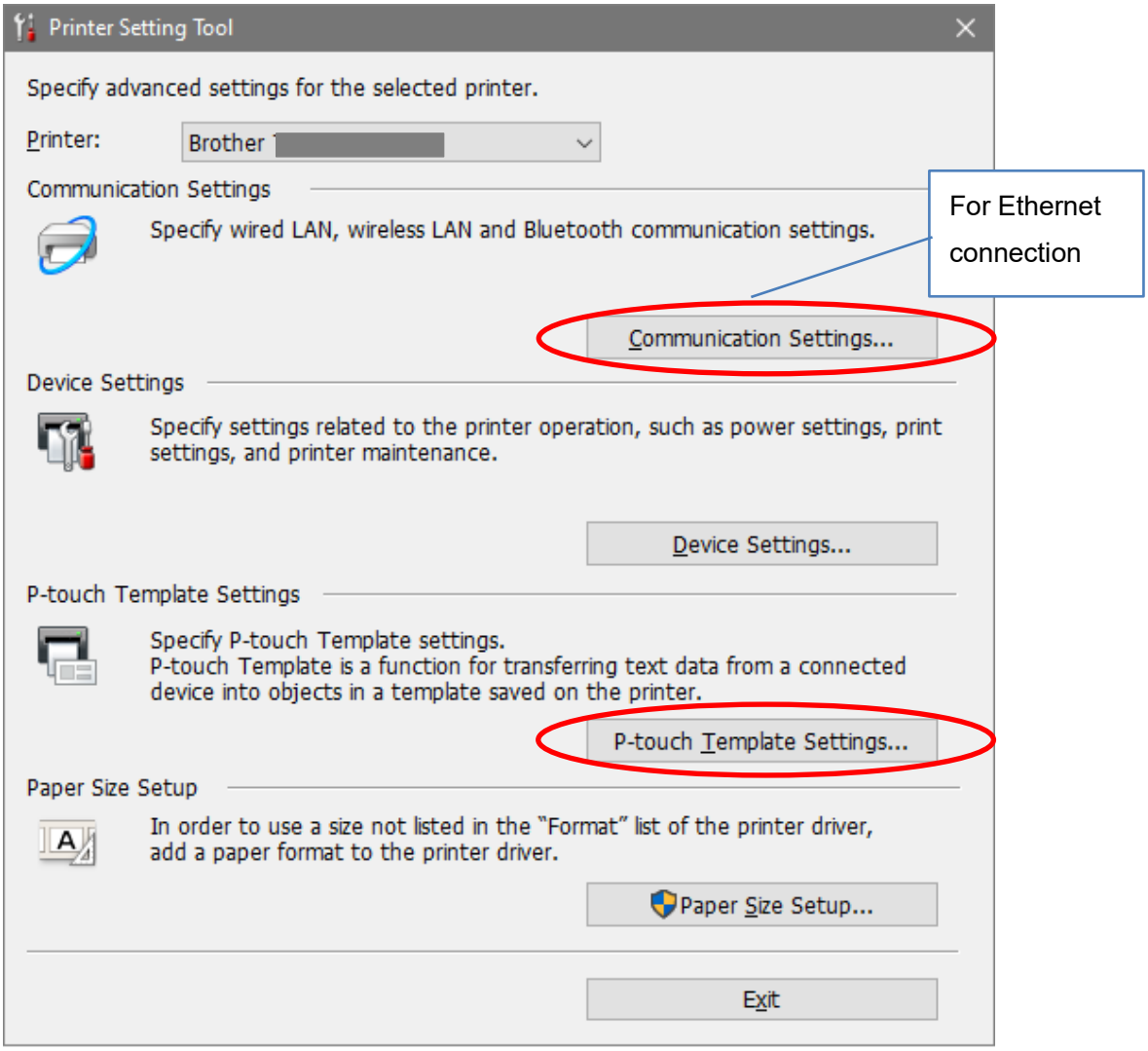
* For more details on how to use P-touch Transfer manager, refer to [Help] or "Software user's guide" of each label printer.

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".

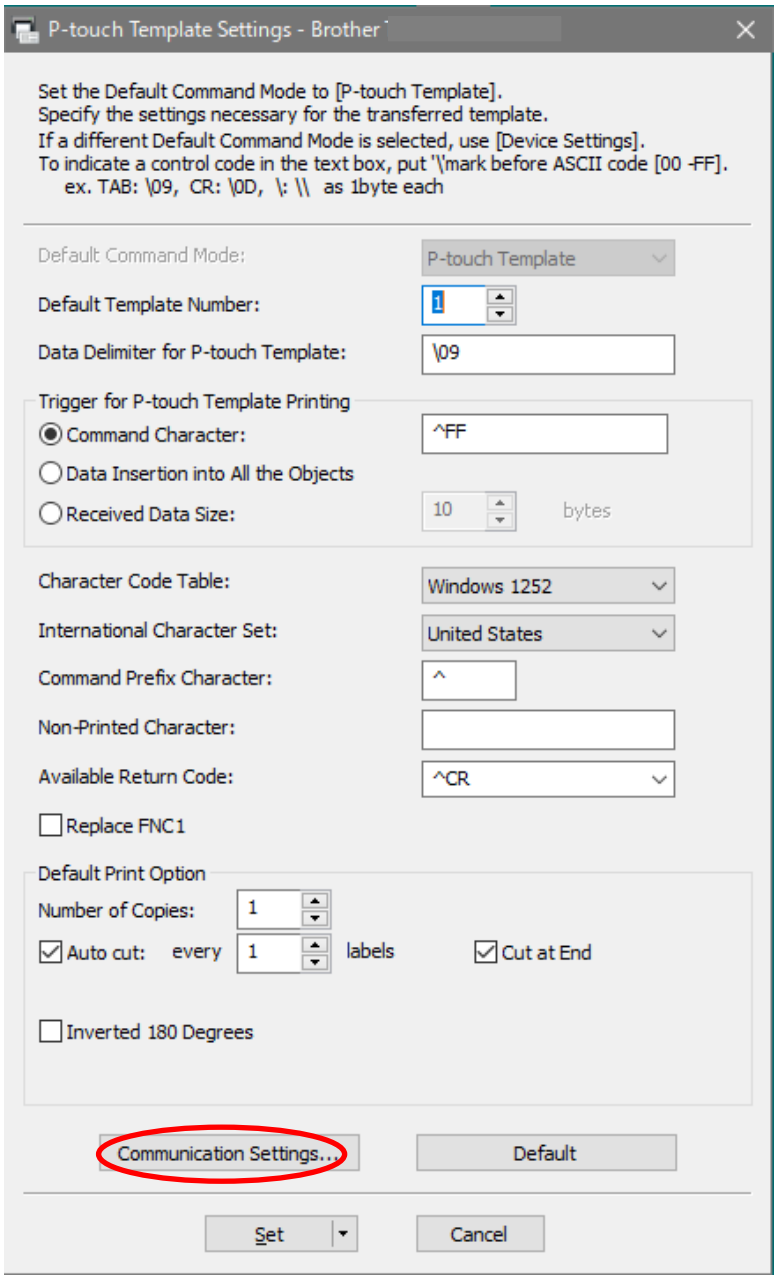
3) Set each item.

This program is activated on the following screen.

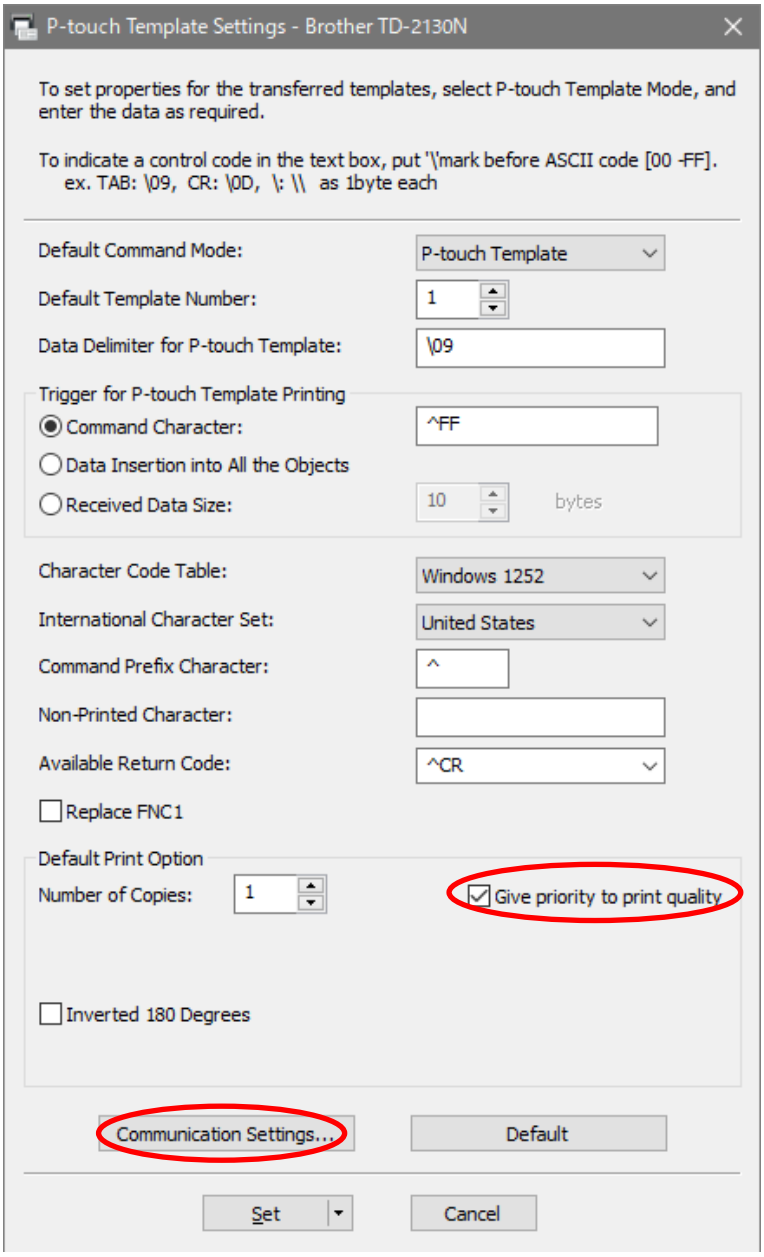
* If print quality is not good by TD-2130N (or TD-2020,2120N), tick the check box of "Give priority to print quality".

4) Press "Setting".

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



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



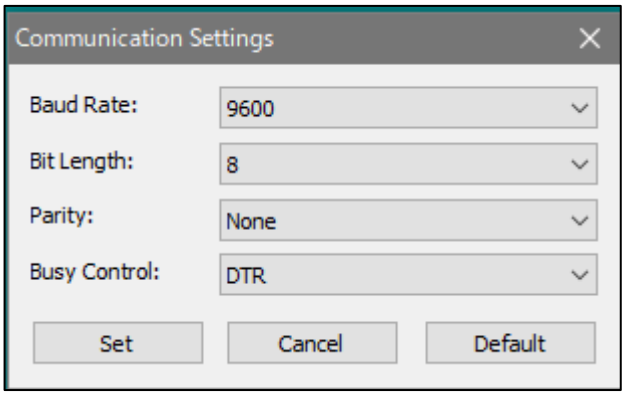
* According to the label printer model, the window is different. For more details on how to use the P-touch Template setting, refer to "P-touch Template manual" of each label printer.

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.)

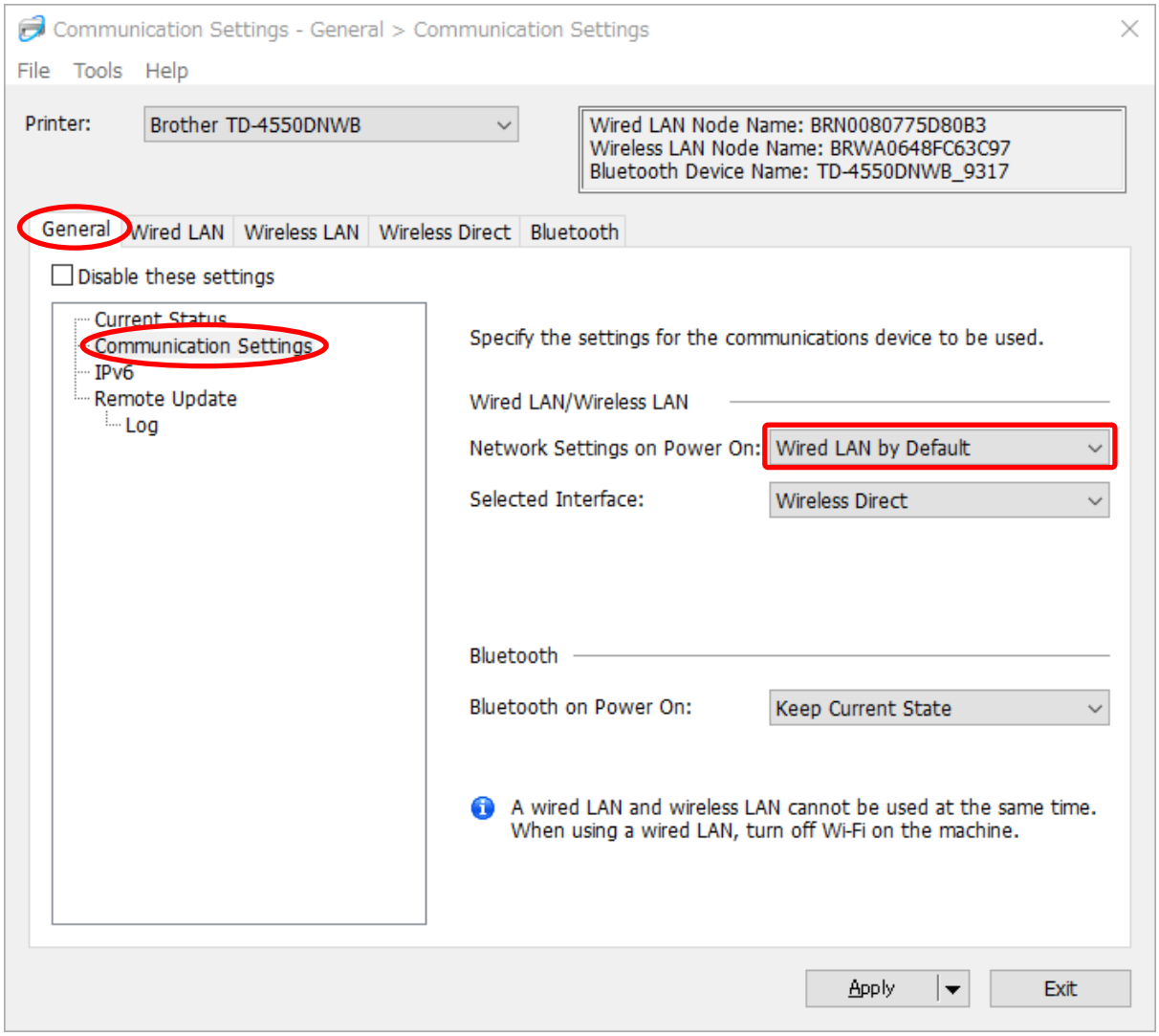


4.3. For Ethernet connection

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.

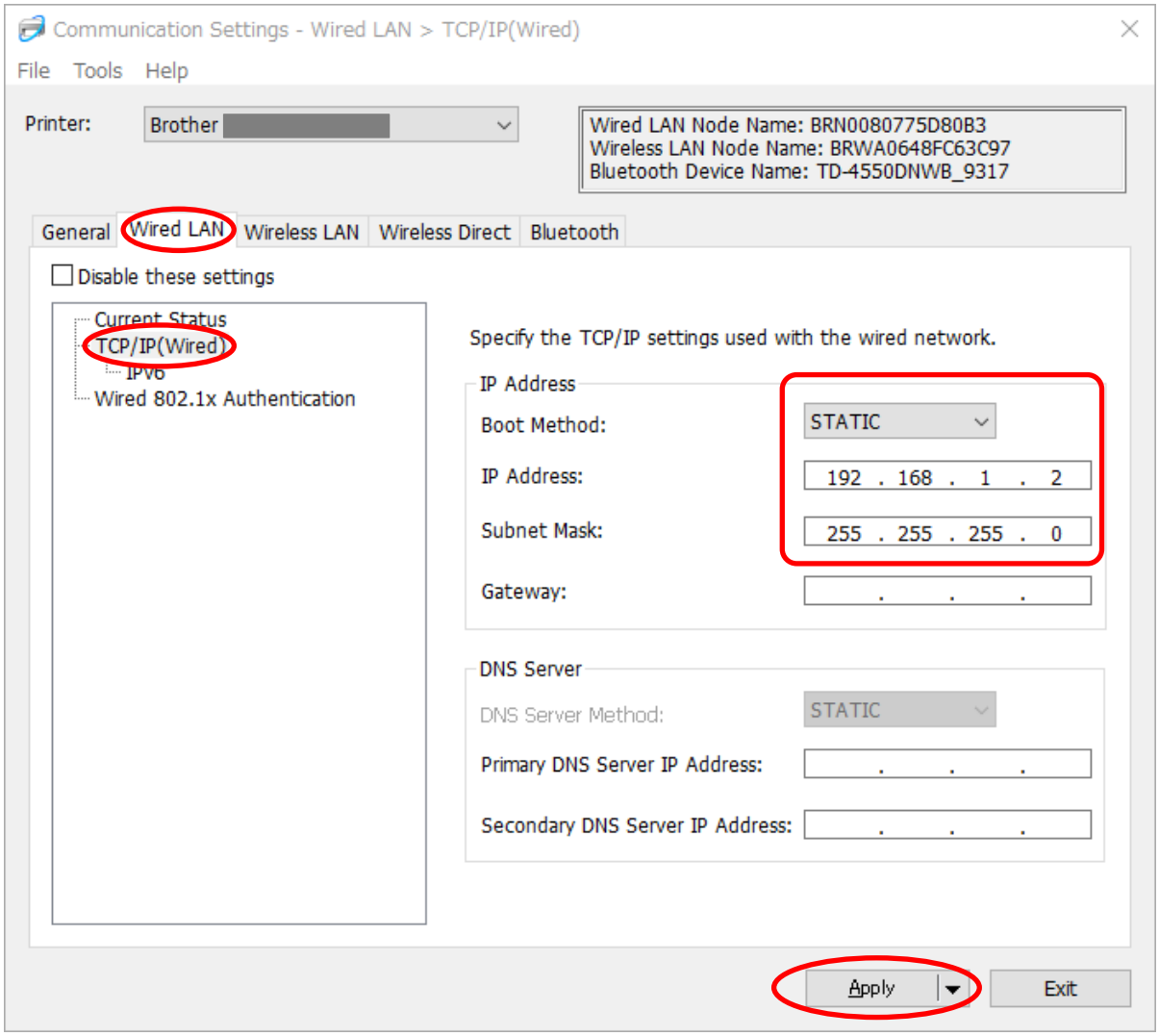
2) Wired LAN setting

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-R 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.

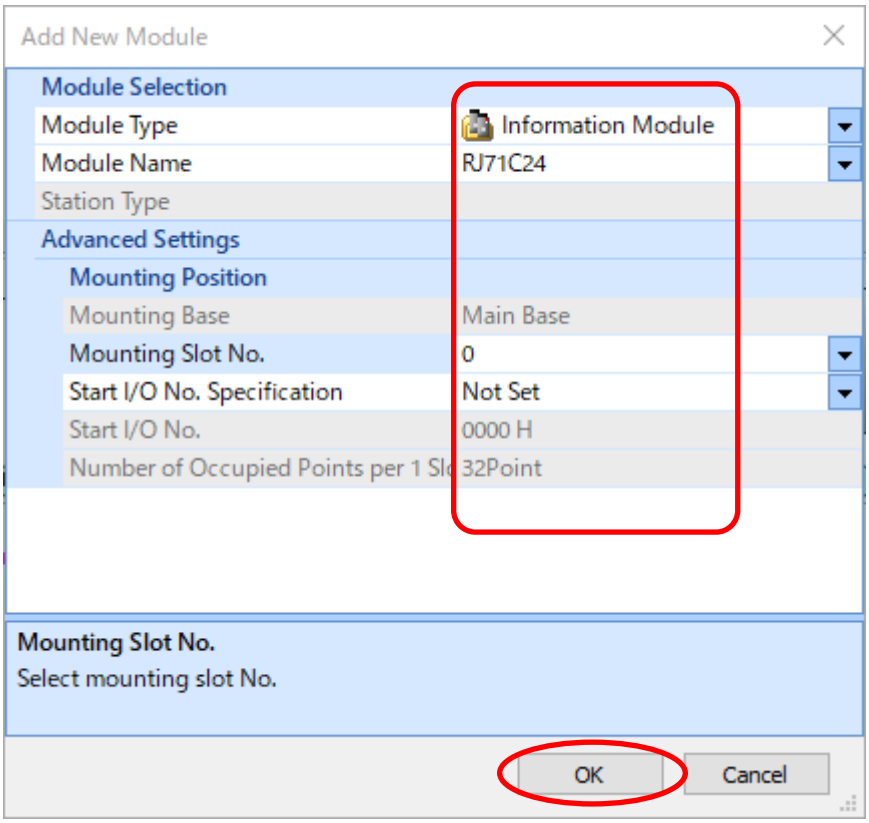
5.1. For serial connection

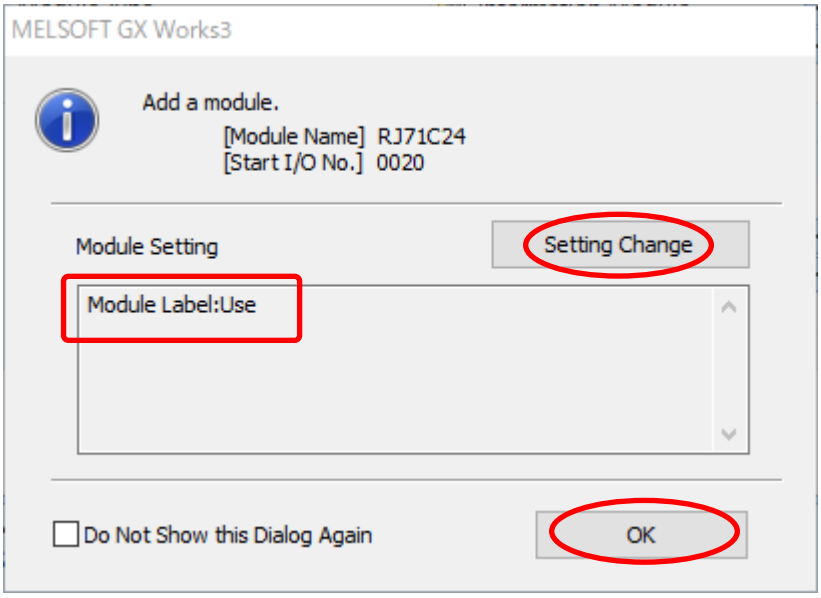
- CPU parameter setting

  The setting remains as default condition.

- Registration of unit label of Serial communication unit

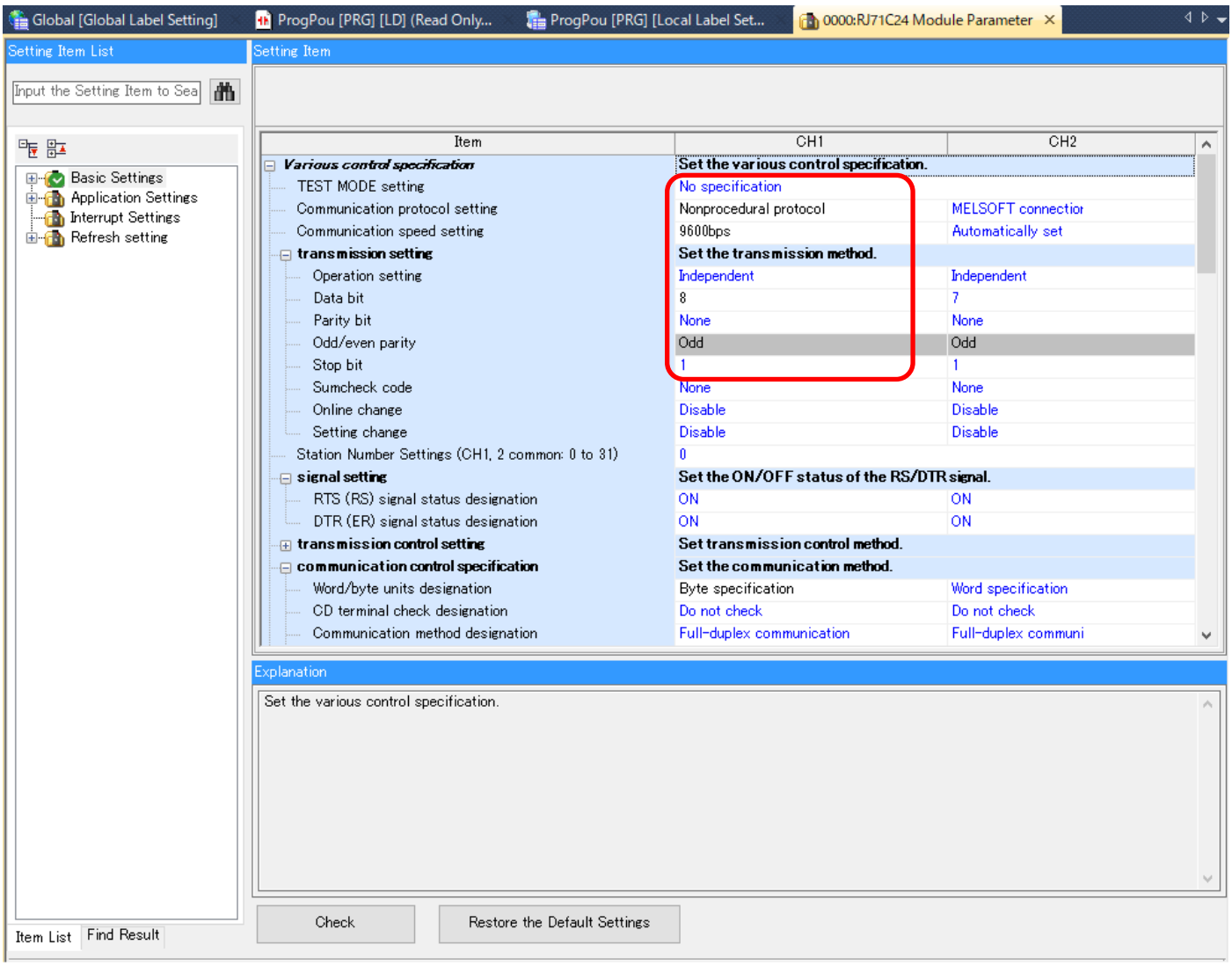
  [Navigation window] [Parameter] [Unit information], right click [Add New Module]





Set as it shows same as the screen above.

■ Serial communication unit (CH1) parameter setting



The setting shall be same as Communication Settings at label printer side.

Parameters beside the above screen are same as default value.

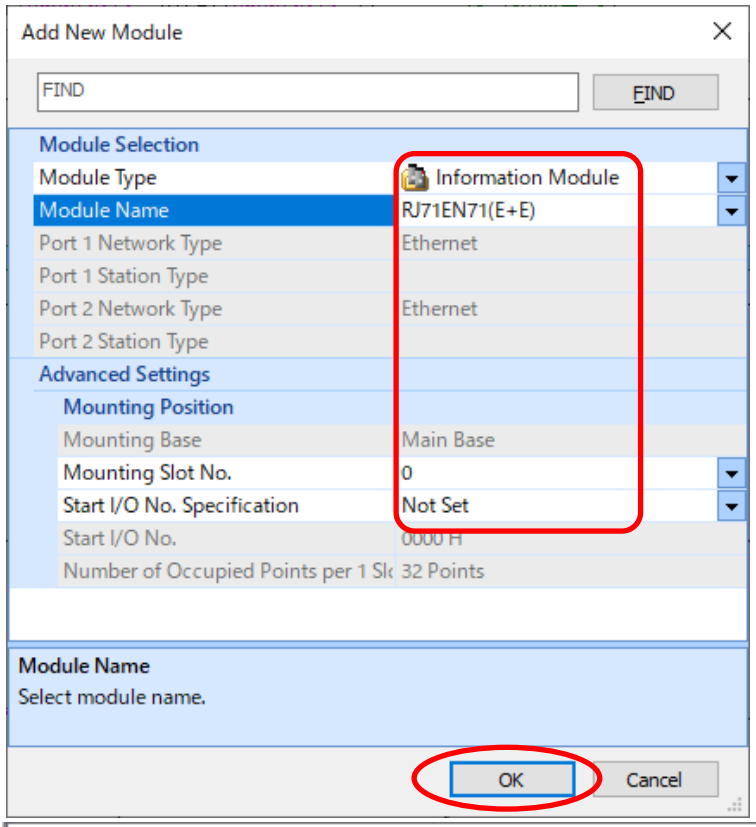
5.2. For Ethernet connection

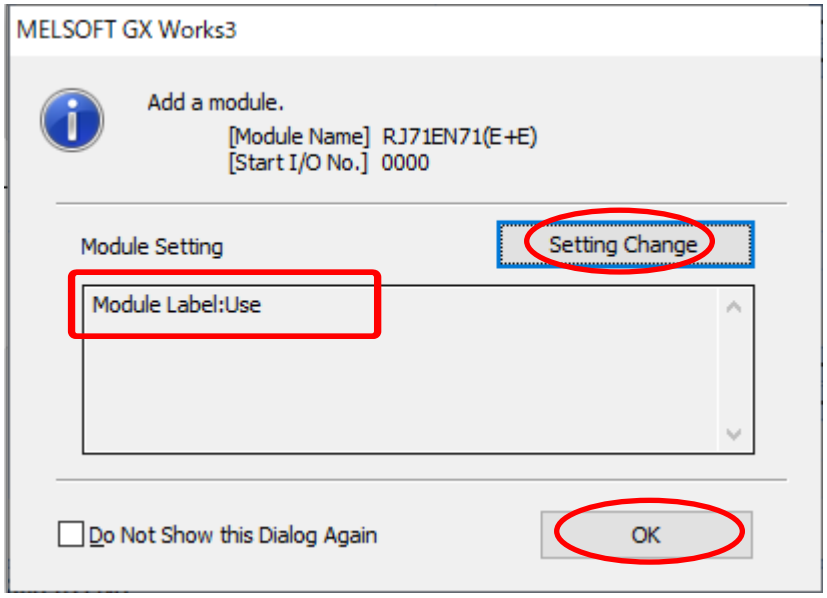
- CPU parameter setting

  The setting remains as default condition.

- Registration of module labels for network module

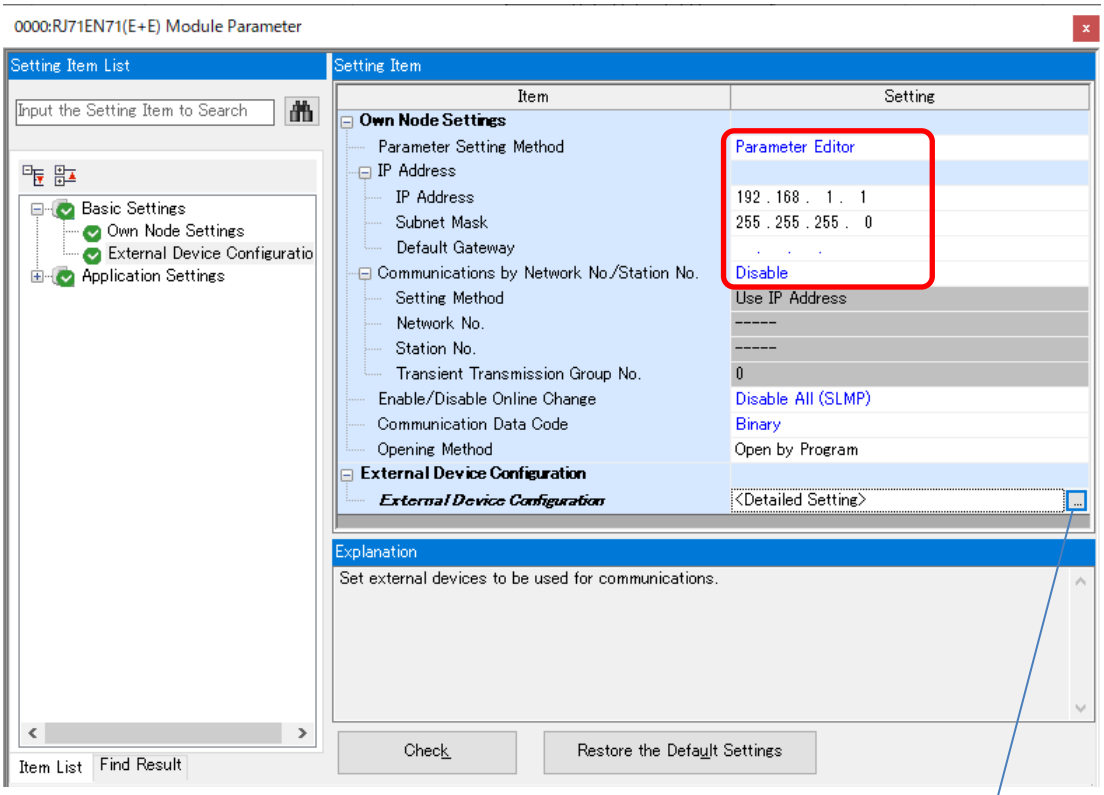
  Select [Navigation window] → [Parameter] → [Module information], and right-click [Add New Module].





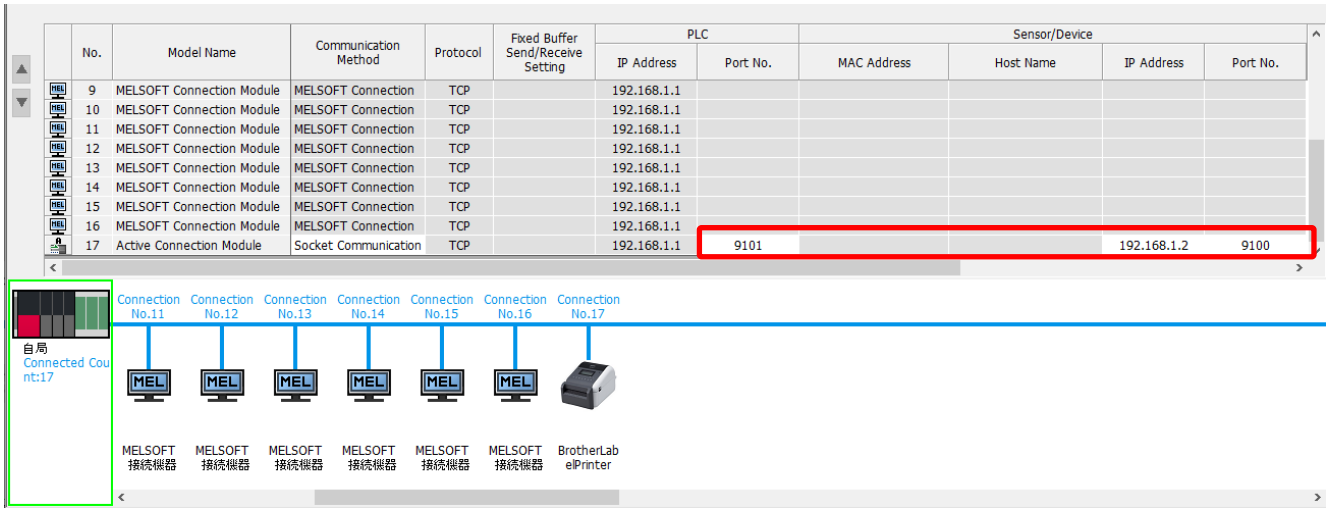
Set as shown above.

■ 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.17.

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

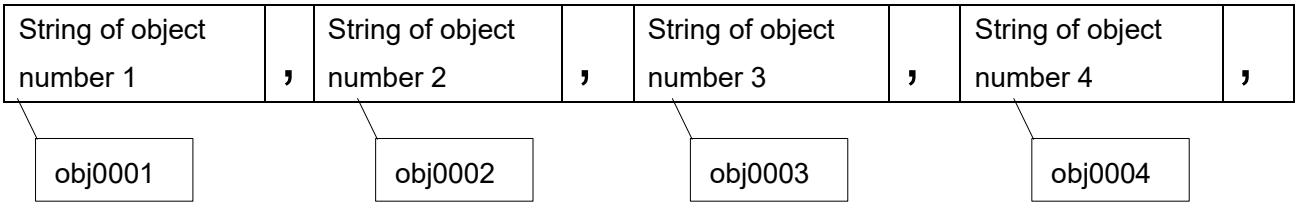
This program can transmit the following P-touch Template commands to the label printer just one time communication.

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

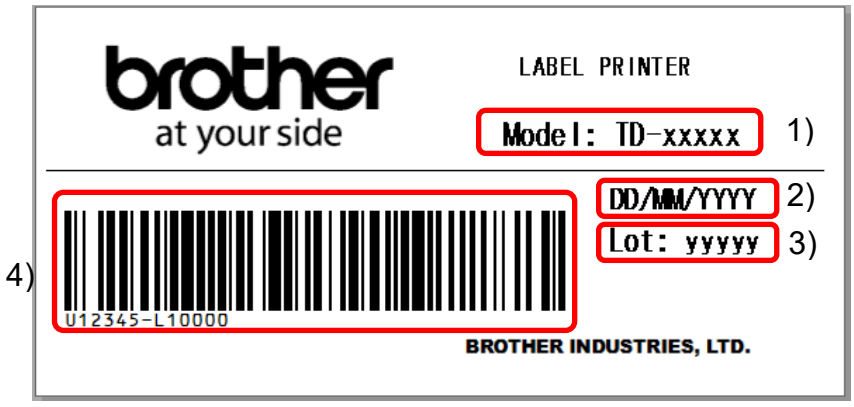
For example, filling data of 5 is the following data string.

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_r_ot.gx3
Program name	SETPRINT
Development tool	GX Works3 Version 1.050C
Use language	Ladder, ST language, FB
Use FB	M+RJ71C24_Output for serial communication unit

* Project file target sequencers are set by MELSEC iQ-R series.

7.1.2. Label variable definition

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

No.	Label name	Data type	Initial value	Usage
1	SendData	POINTER		Data transmission by serial communication module
2	SetTransData	POINTER		Prepare the command line to be transmitted
3	uSerialCH	WORD	1	Communication channel number of the serial communication module
4	uTransErrCode	WORD	0	Transmission error code
5	uSerialNum	WORD	10000	For bar code serial numbering
6	uDateTime[7]	WORD		For calendar information storage
7	wTransDataSize	INT		Transmission data length
8	wPrintCount	INT	0	Print timing counter
9	wSendData[128]	INT		Transmission data buffer
10	bTransExecFlg	BOOL		Data transmission in execution
11	bStartSend	BOOL		Transmission start
12	bSendRequest	BOOL	0	Transmission request
13	bSend_OK	BOOL	0	Transmission success
14	bSend_NG	BOOL	0	Transmission failure
15	bSetDataFlg	BOOL	1	Transmission data set
16	sInitStr	STRING		Initial setting command string
17	sObj1Str	STRING		String for object 1
18	sObj2Str	STRING		String for object 2
19	sObj3Str	STRING		String for object 3
20	sObj4Str	STRING		String for object 4
21	sPrintStartStr	STRING		String for printing start
22	sModelStr	STRING		String for model number
23	sLotNumStr	STRING		String for lot number
24	sYearStr	STRING		String for years
25	sMonthStr	STRING		String for months
26	sDayStr	STRING		String for days
27	sTempStr	STRING		String for concatenation

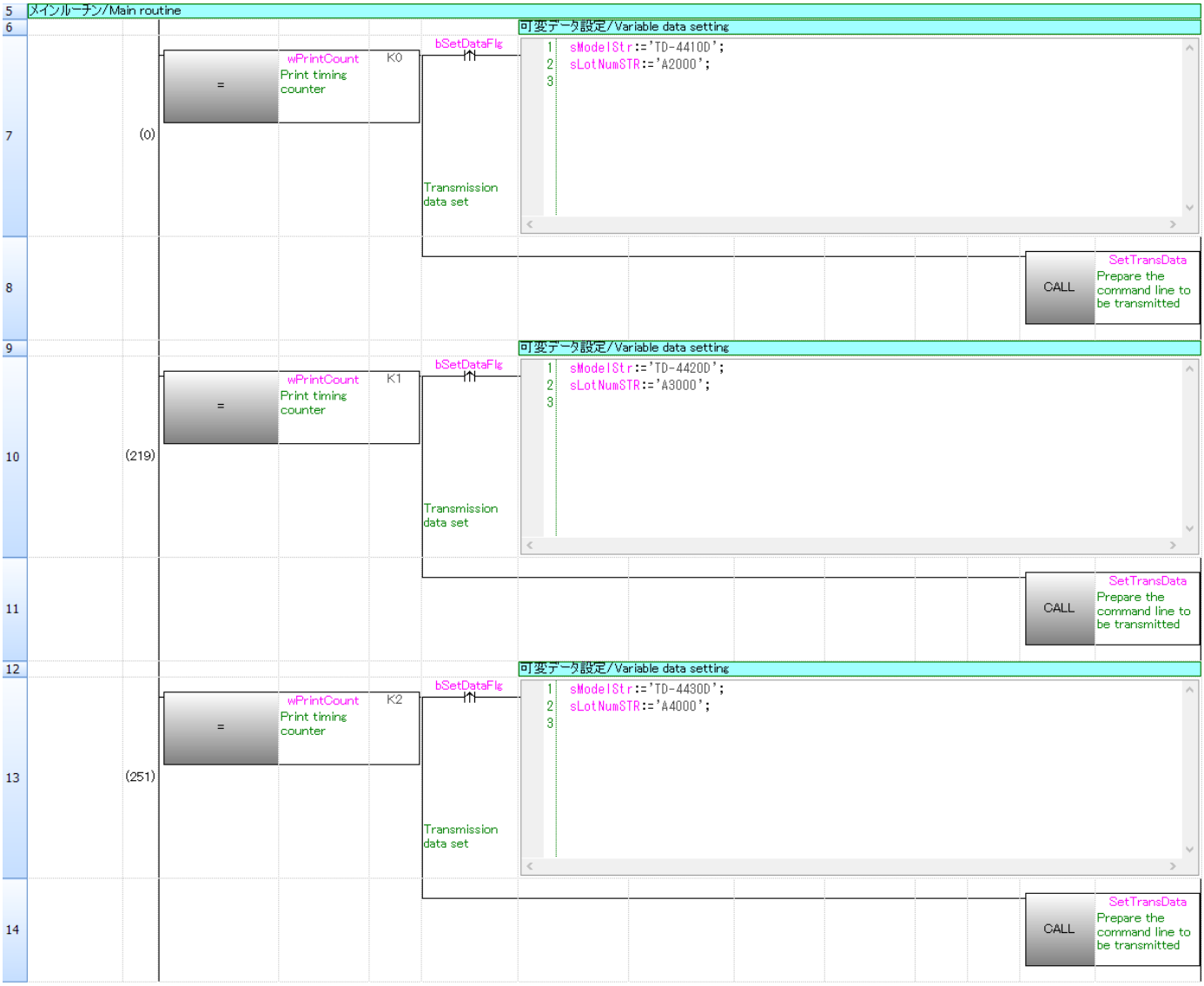
* Data type

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

7.1.3. Program detail

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

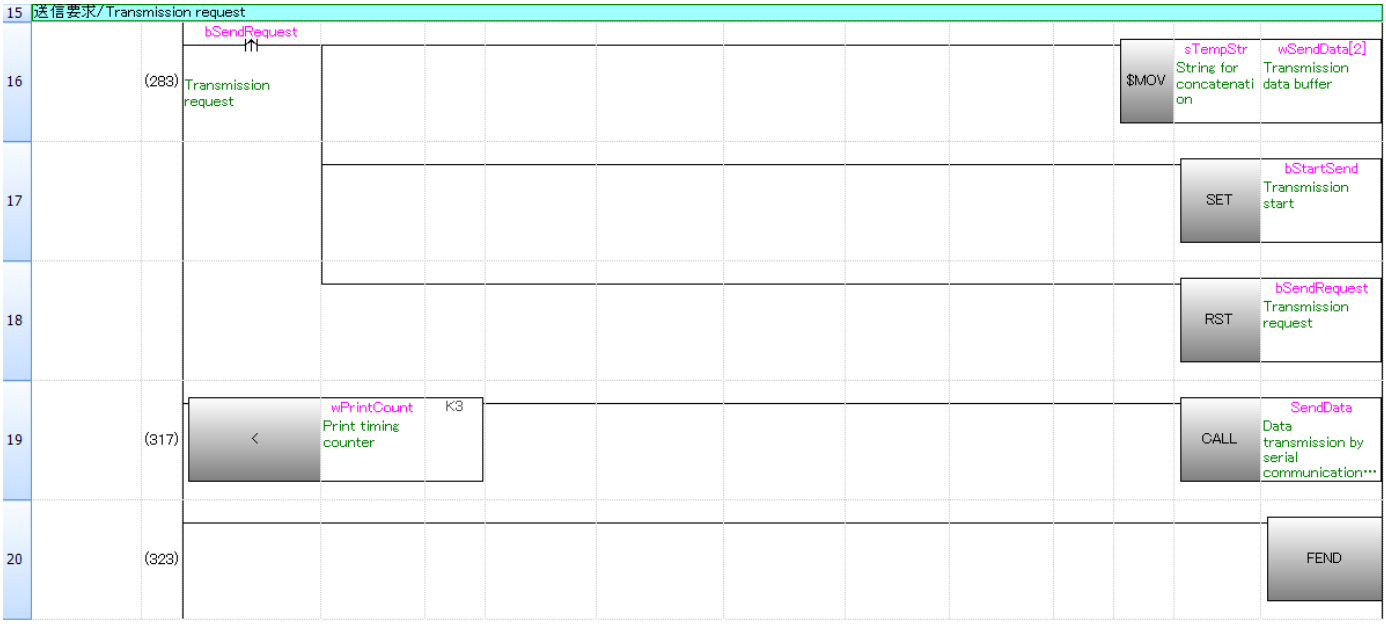
7.1.3.1. Main routine



Set letter string to print out in each page.

Row number	Print page	wPrintCount	sModelStr	sLotNumStr
7	Page 1	0	TD-4410D	A2000
10	Page 2	1	TD-4420D	A3000
13	Page 3	2	TD-4430D	A4000

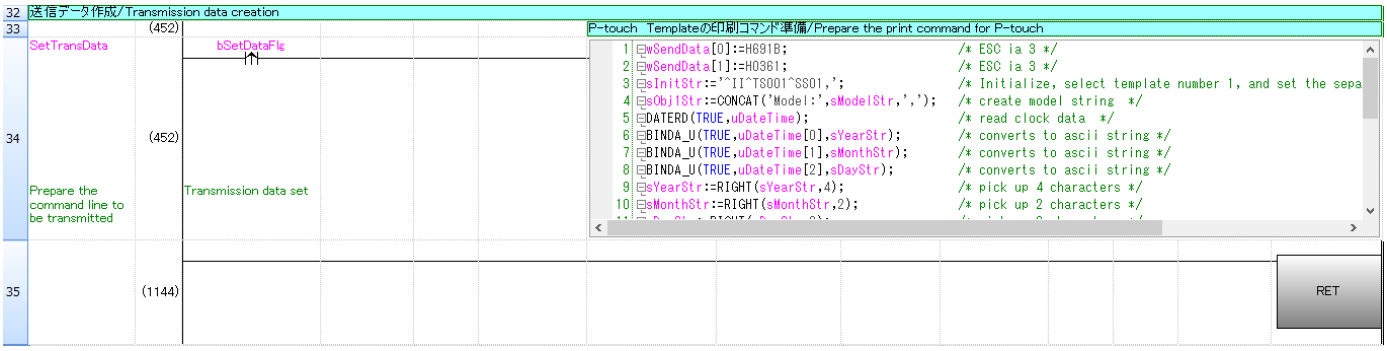
bSetDataFlg turns ON just one time by printing 1 page.



Row number 16: Sub-routine Copy transmitted data prepared at SetTransData to the transmission data array "wSendData".

Row number 19: Call Sub-routine SendData when it is wPrintCount＜3.

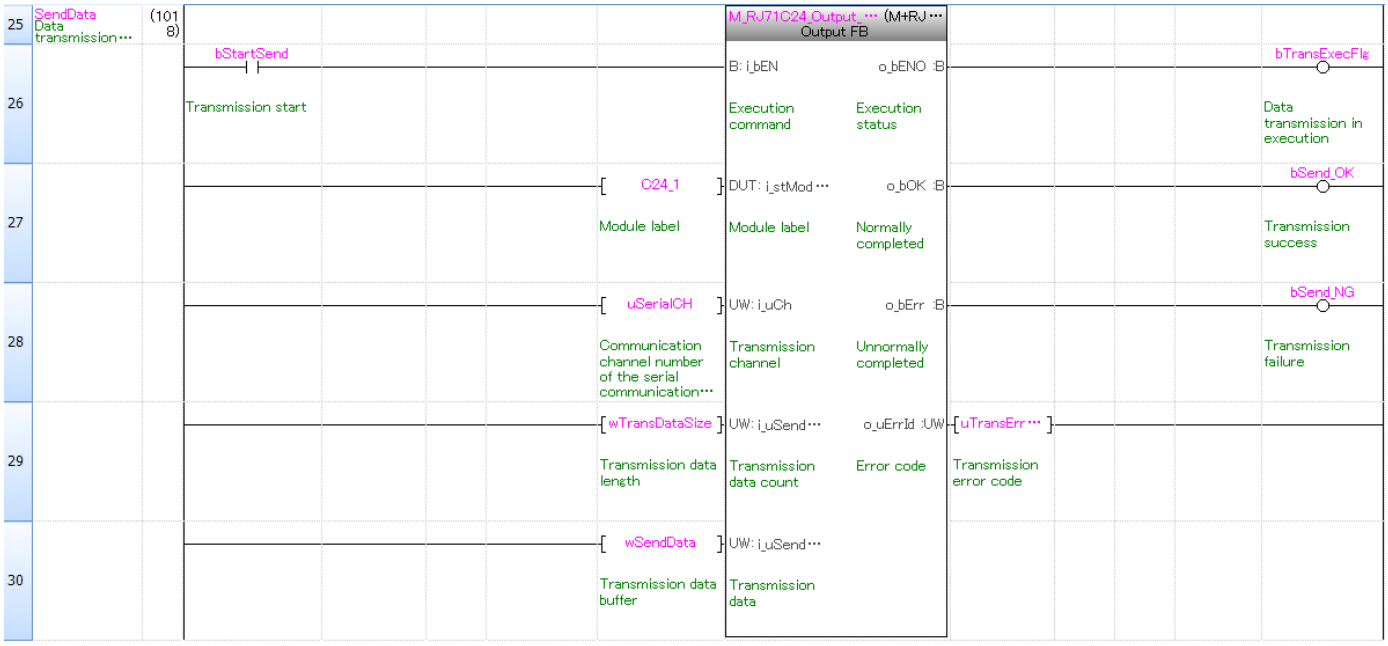
7.1.3.2. P-touch Template Printing command preparation



All command data in the ST language is as follows.

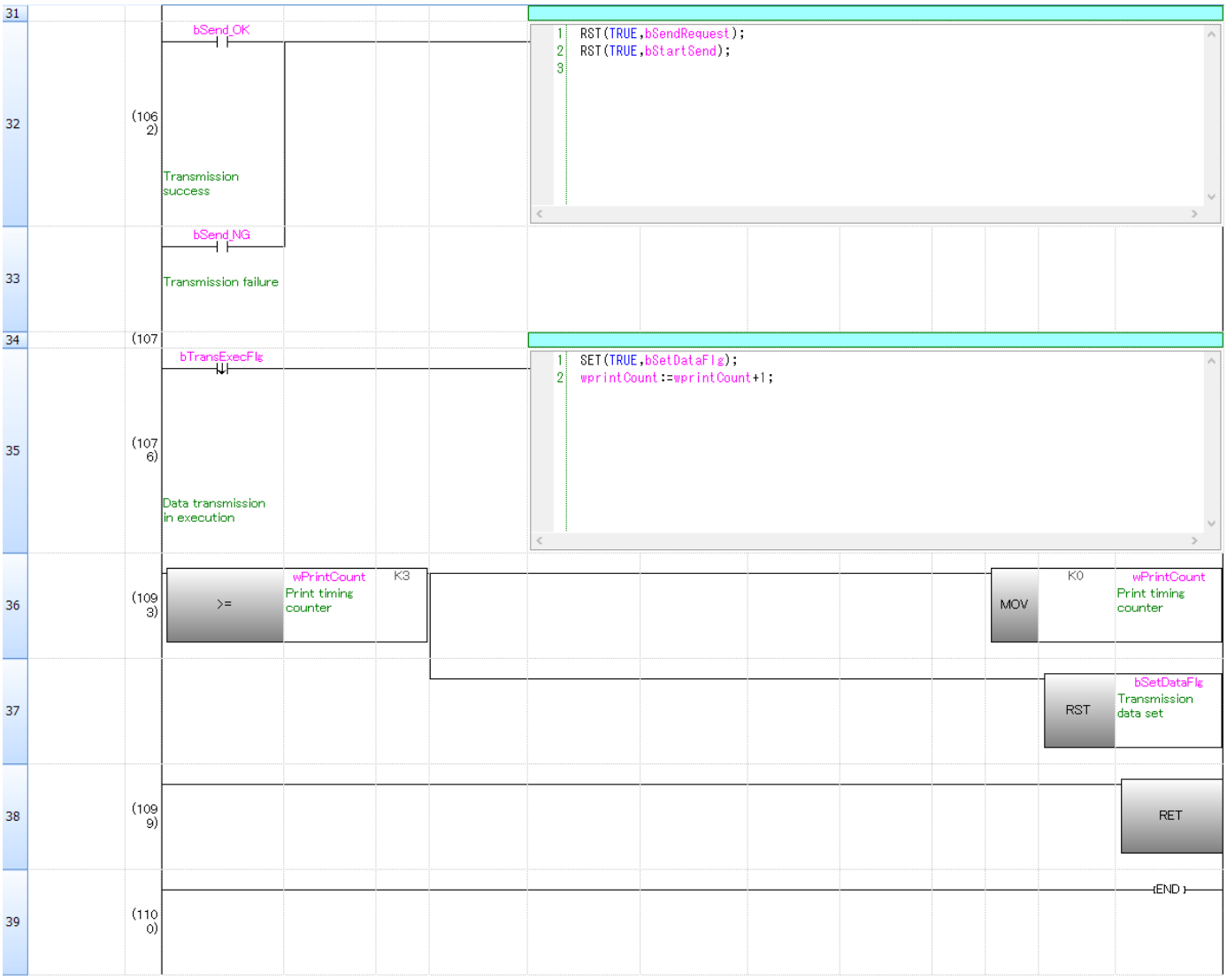
```
wSendData[0]:=H691B;                                    /* ESC ia 3 */
wSendData[1]:=H0361;                                    /* ESC ia 3 */
sInitStr:='^II^TS001^SS01,';          /* Initialize, select template number 1, and set the separator to "," */
sObj1Str:=CONCAT('Model:',sModelStr,',');               /* create model string */
DATERD(TRUE,uDateTime);                                 /* read clock data */
BINDA_U(TRUE,uDateTime[0],sYearStr);                    /* converts to ascii string */
BINDA_U(TRUE,uDateTime[1],sMonthStr);                   /* converts to ascii string */
BINDA_U(TRUE,uDateTime[2],sDayStr);                     /* converts to ascii string */
sYearStr:=RIGHT(sYearStr,4);                            /* pick up 4 characters */
sMonthStr:=RIGHT(sMonthStr,2);                          /* pick up 2 characters */
sDayStr:=RIGHT(sDayStr,2);                              /* pick up 2 characters */
sObj2Str:=CONCAT(sDayStr,'/',sMonthStr,'/',sYearStr,',');/* create date string */
sObj3Str:=CONCAT('Lot:',sLotNumSTR,',');                /* create lot number string */
BINDA_U(TRUE,uSerialNum,sObj4Str);                      /* converts to ascii string */
uSerialNum:=uSerialNum+1;                               /* increase serial number */
sObj4Str:=CONCAT('U12345-L',RIGHT(sObj4Str,5));         /* create barcode string */
sPrintStartStr:='^FF';                                  /* print start */
sTempStr:=CONCAT(sInitStr,sObj1Str,sObj2Str,sObj3Str,sObj4Str,sPrintStartStr);/* combine strings */
wTransDataSize:=len(sTempStr)+4;                        /* set transmission data length */
SET(TRUE,bSendRequest);                                 /* set transmission request */
RST(TRUE,bSetDataFlg);                                  /* reset transmission data set flag */
```

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 [ ].

For the operation of M+RJ71C24_Output, refer to "MELSEC iQ-R Serial Communication Module Function Block Reference" for the Mitsubishi Electric programmable controller.



Row number 32/33: When transmission is completed, bSendRequest (request transmission) and bStartSend (start transmission) are reset.

Row number 35: When bTransExecFlg (under transmission) turns OFF, bSetDataFlg (transmission data set) is set and 1 is added to wPrintCount.

Row number 36/37: 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_r_ot.gx3
Program name	SETPRINT
Development tool	GX Works3 Version 1.050C
Use language	Ladder, ST language, FB
Use FB	For network module M+RJ71EN71_EE_Refresh_Data M+RJ71EN71_EE_ConnectionOpen M+RJ71EN71_EE_Send_Socket M+RJ71EN71_EE_ConnectionClose

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

7.2.2. Label variable definition

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

No.	Label name	Data type	Initial value	Usage
1	uOpenErrID	WORD		Open error code
2	uSendErrID	WORD		Transmission error code
3	uCloseErrID	WORD		Closed error code
4	uSerialNum	WORD	10000	For bar code serial numbering
5	uDateTime[7]	WORD		For calendar information storage
6	wPrintCount	INT	0	Print timing counter
7	wSendData[128]	INT		Transmission data buffer
8	bRunRefresh	BOOL		Refresh in execution
9	bStartOpen	BOOL		Socket open start
10	bStartOpenFB	BOOL		Socket open start FB
11	bRunOpen	BOOL		Socket open in execution
12	bOpen_OK	BOOL		Socket open success
13	bOpen_NG	BOOL		Socket open failure
14	bStartSend	BOOL		Transmission start flag

No.	Label name	Data type	Initial value	Usage
15	bRunSend	BOOL		Transmission processing in execution
16	bSend_OK	BOOL		Transmission success
17	bSend_NG	BOOL		Transmission failure
18	bStartClose	BOOL		Socket close start
19	bStartCloseFB	BOOL		Socket close start FB
20	bRunClose	BOOL		Socket close in execution
21	bClose_OK	BOOL		Socket close success
22	bClose_NG	BOOL		Socket close failure
23	bSendRequest	BOOL	0	Transmission request flag
24	bSetDataFlg	BOOL	1	Transmission data set
25	sInitStr	STRING		Initial setting command string
26	sObj1Str	STRING		String for object 1
27	sObj2Str	STRING		String for object 2
28	sObj3Str	STRING		String for object 3
29	sObj4Str	STRING		String for object 4
30	sPrintStartStr	STRING		String for printing start
31	sModelStr	STRING		String for model number
32	sLotNumStr	STRING		String for lot number
33	sYearStr	STRING		String for years
34	sMonthStr	STRING		String for months
35	sDayStr	STRING		String for days
36	sTempStr	STRING		String for concatenation

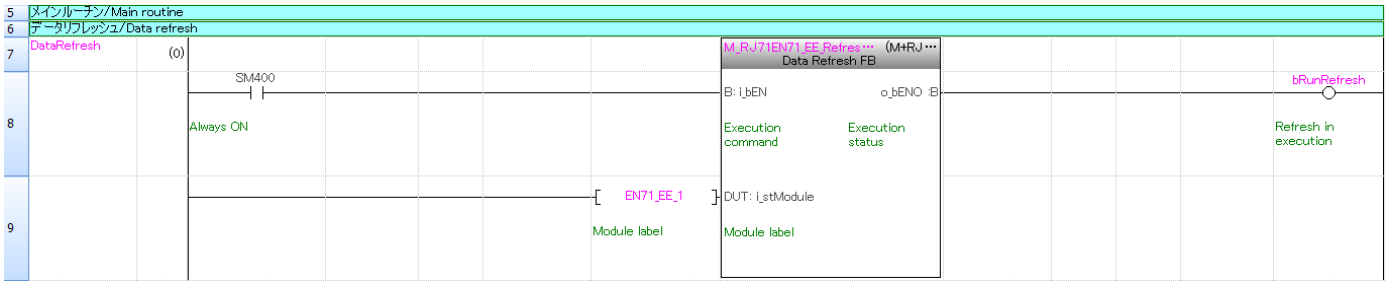
* Data type

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

7.2.3. Program detail

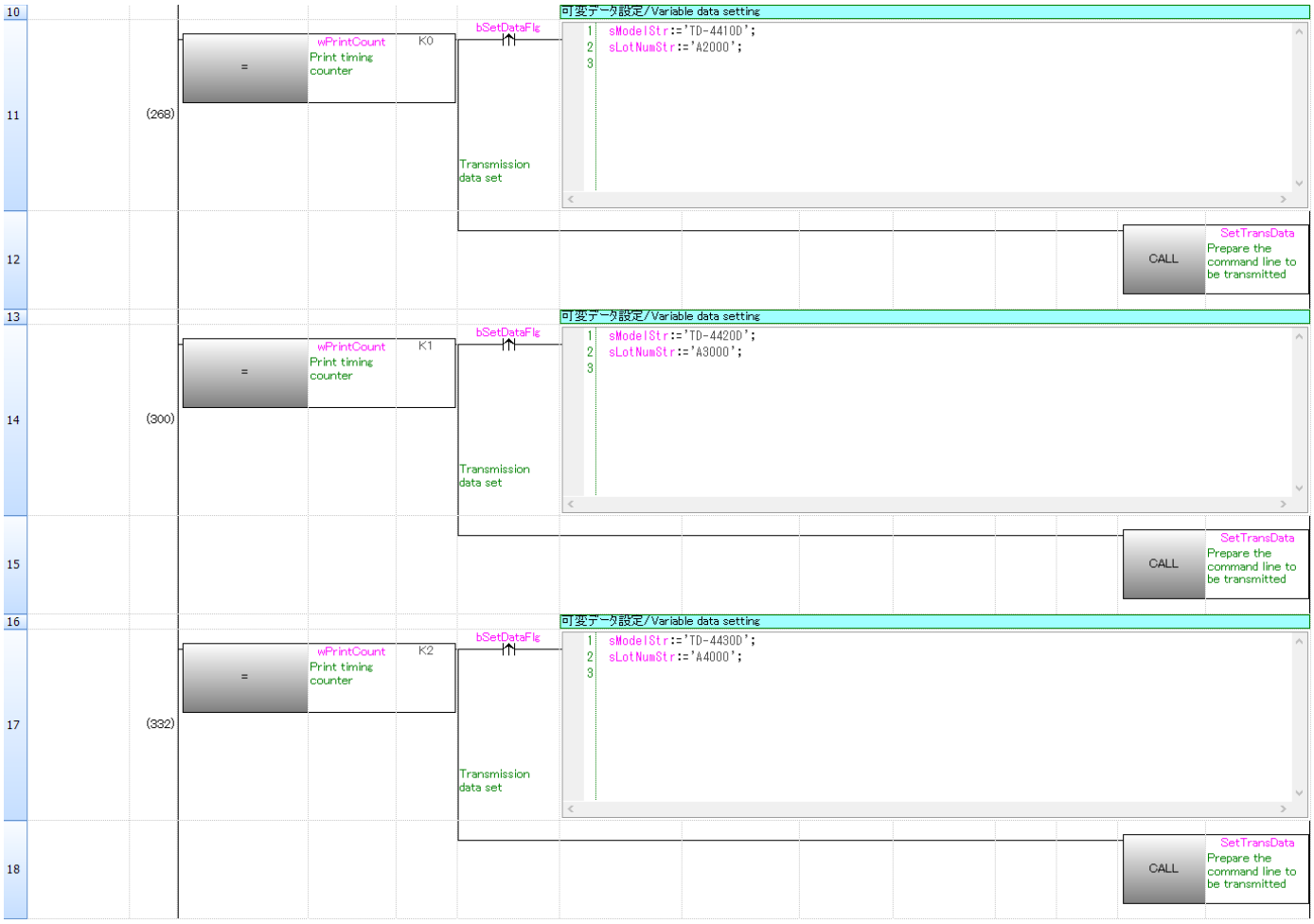
The following is the explanation of the program by function block.

7.2.3.1. Main routine



Transfer the contents of the buffer memory in the RJ71EN71 network part to the module label.

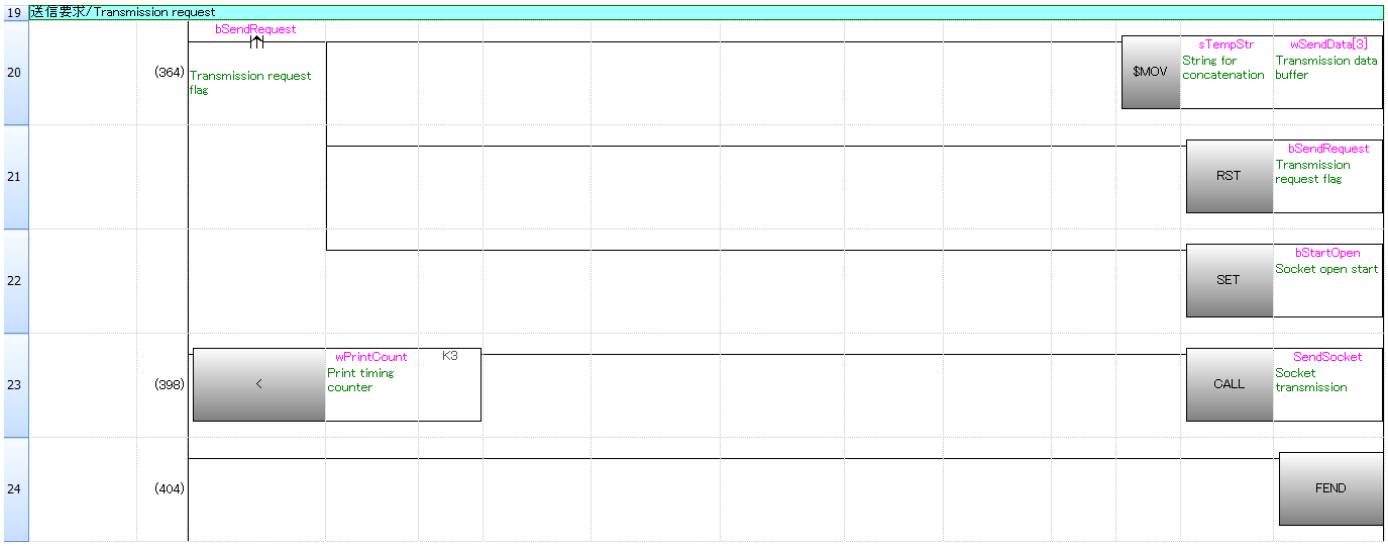
For the operation of M+RJ71EN71_EE_Refresh_Data, refer to "MELSEC iQ-R Ethernet, CC-Link IE, and MELSECNET/H Function Block Reference" for the Mitsubishi Electric programmable controller.



Set a string to print out in each page.

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

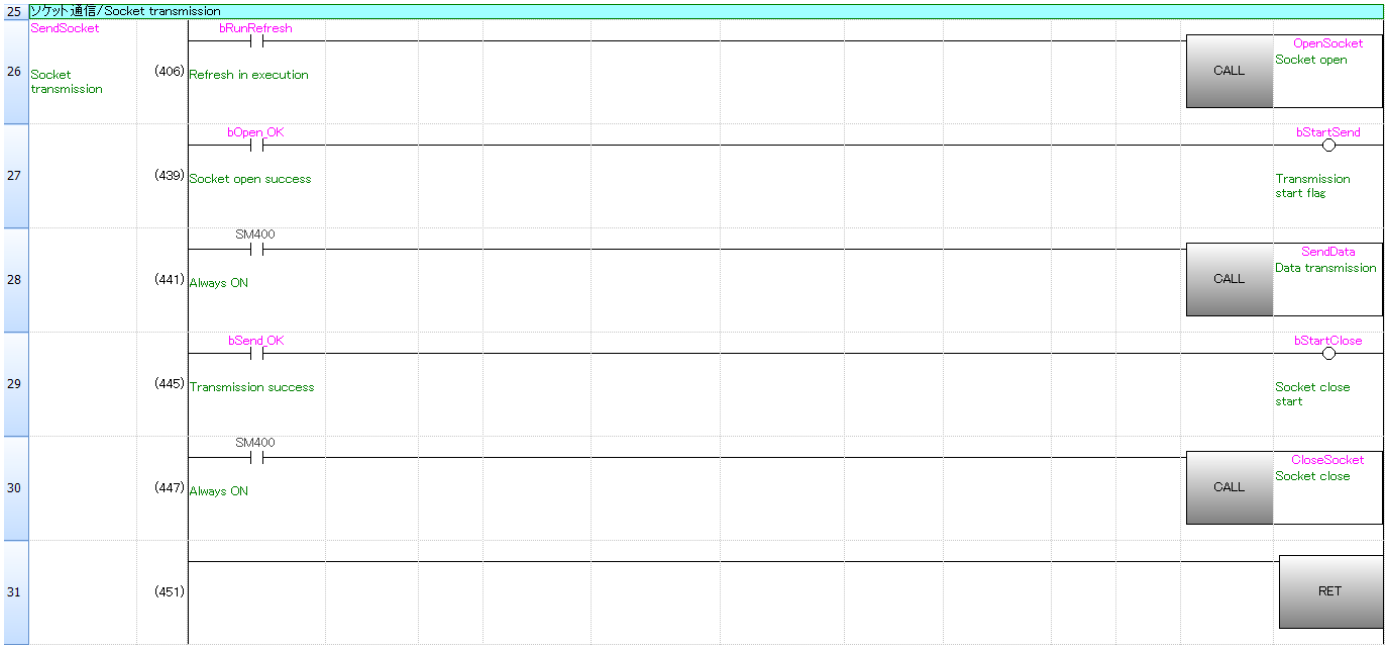
bSetDataFlg turns ON just one time by printing 1 page.



Row number 20: Copies transmitted data prepared at Sub-routine SetTransData to the transmission data array "wSendData".

Row number 23: Calls Sub-routine SendSocket when it is wPrintCount < 3.

7.2.3.2. Socket communication processing



Row number 26: Calls Sub-routine OpenSocket when bRunRefresh is ON.

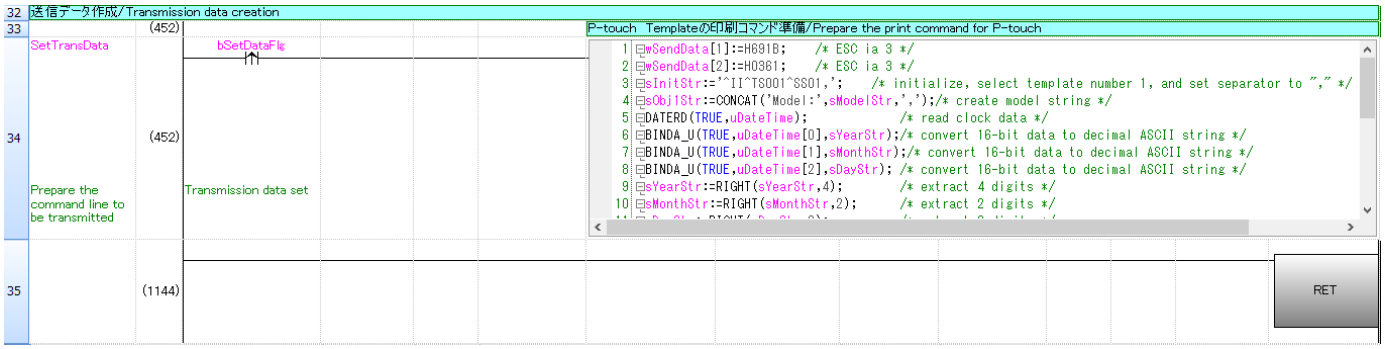
Row number 27: Turns ON bStartSend when bOpenOK is ON (normally open).

Row number 28: Calls Sub-routine SendData. when SM400 (always ON) is ON.

Row number 29: Turns ON bStartClose when bSendOK is ON (transmission success).

Row number 30: Calls Sub-routine CloseSocket when SM400 (always ON) is ON.

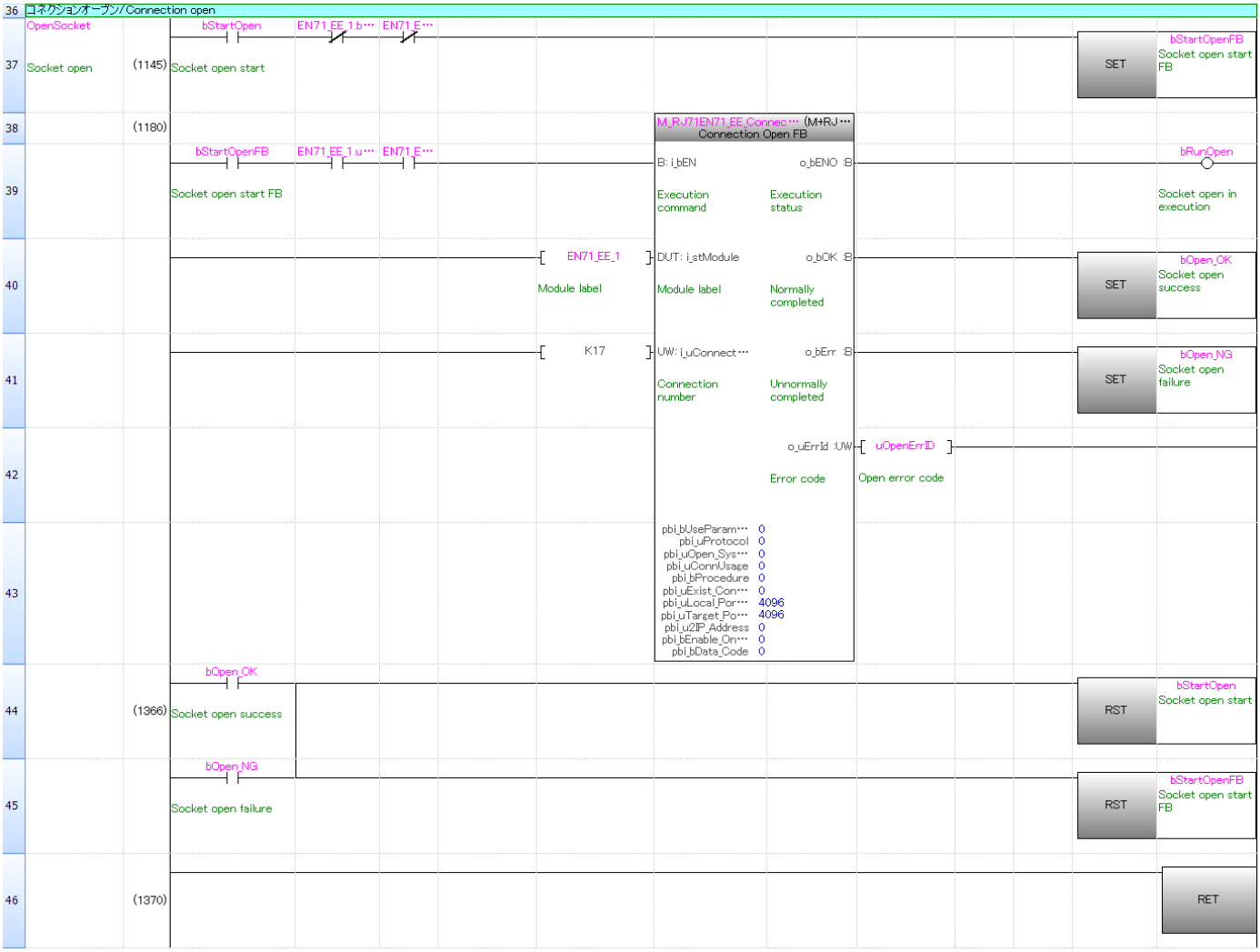
7.2.3.3. P-touch Template Printing command preparation



All command data in the ST language is as follows.

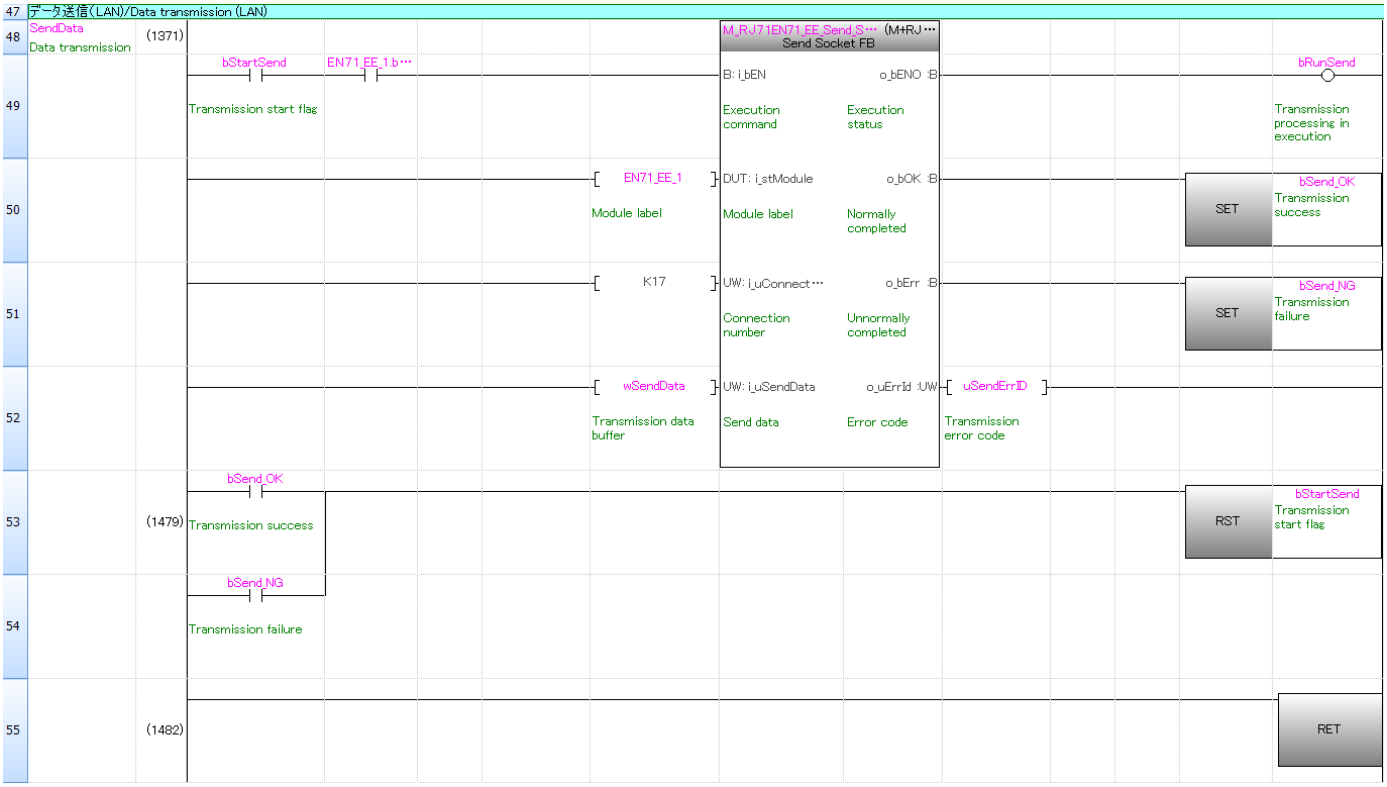
```
wSendData[1]:=H691B;                          /* ESC ia 3 */
wSendData[2]:=H0361;                          /* ESC ia 3 */
sInitStr:='^II^TS001^SS01,';          /* initialize, select template number 1, and set separator to "," */
sObj1Str:=CONCAT('Model:',sModelStr,','); /* create model string */
DATERD(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] */
SET(TRUE,bSendRequest);                       /* set transmission request */
RST(TRUE,bSetDataFlg);                        /* reset transmission data set flag */
```

7.2.3.4. Socket communication connection open



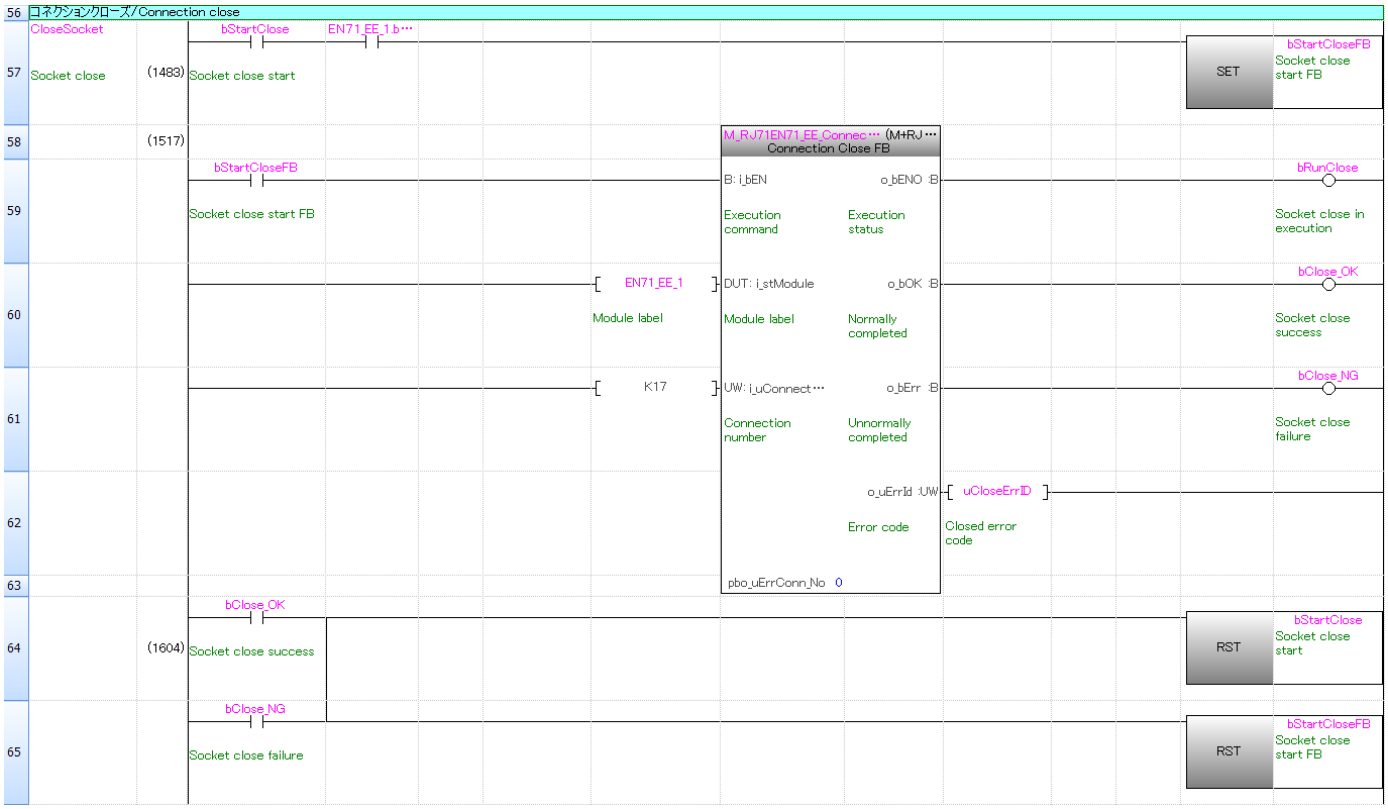
For the operation of M+RJ71EN71_EE_ConnectionOpen FB, refer to "MELSEC iQ-R Ethernet, CC-Link IE, and MELSECNET/H Function Block Reference" for the Mitsubishi Electric programmable controller.
In addition, the above program is quoted from "7.1 Communication Examples of Ethernet" of "MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)" for the Mitsubishi Electric programmable controller. For details, refer to that manual.

7.2.3.5. Socket communication data transmission



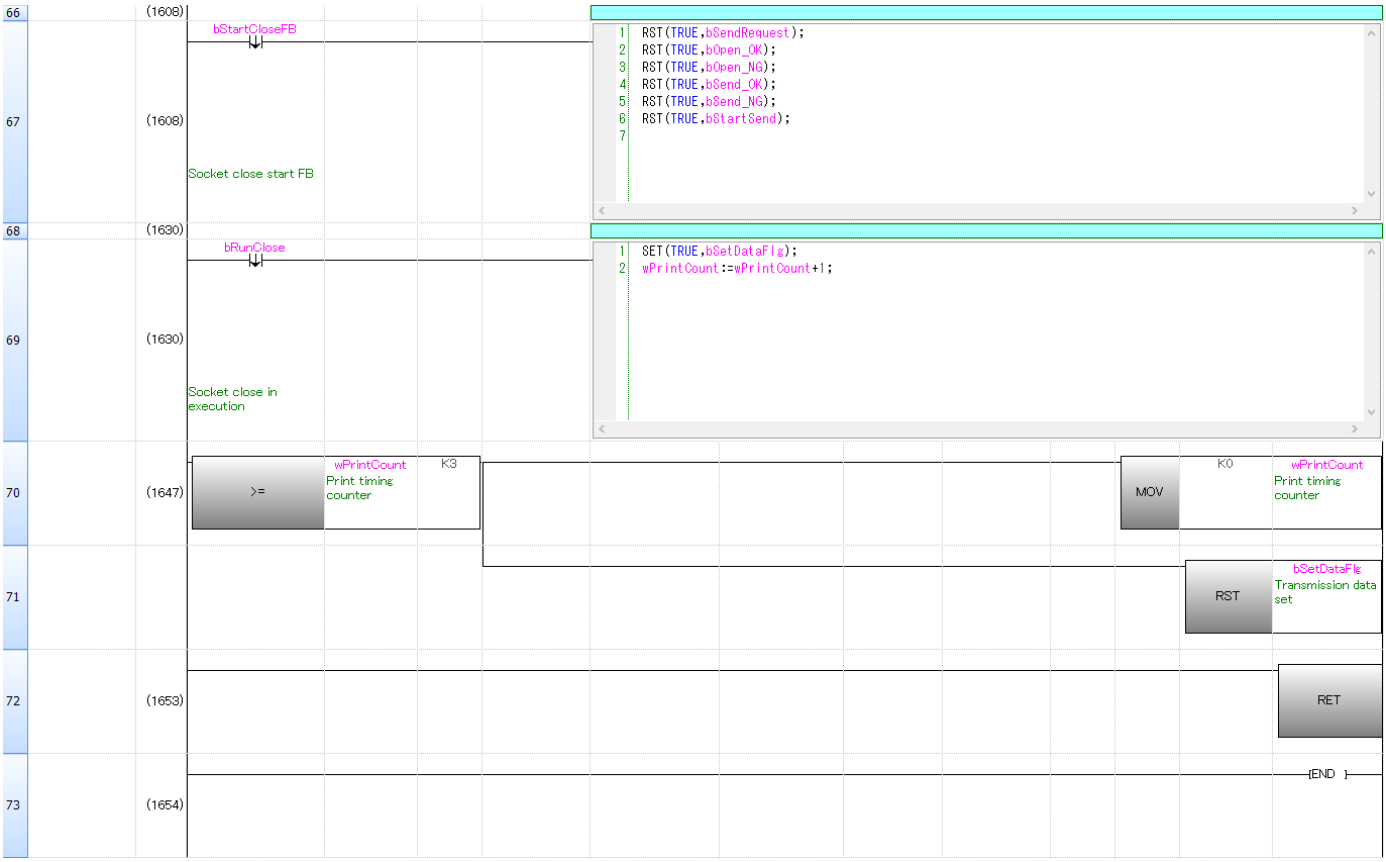
For the operation of M+RJ71EN71_EE_Send_Socket FB, refer to "MELSEC iQ-R Ethernet, CC-Link IE, and MELSECNET/H Function Block Reference" for the Mitsubishi Electric programmable controller.
In addition, the above program is quoted from "7.1 Communication Examples of Ethernet" of "MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)" for the Mitsubishi Electric programmable controller. For details, refer to that manual.

7.2.3.6. Socket communication connection close



For the operation of M+RJ71EN71_EE_ConnectionClose FB, refer to "MELSEC iQ-R Ethernet, CC-Link IE, and MELSECNET/H Function Block Reference" for the Mitsubishi Electric programmable controller.
In addition, the above program is quoted from "7.1 Communication Examples of Ethernet" of "MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup)" for the Mitsubishi Electric programmable controller. For details, refer to that manual.

7.2.3.7. Processing to print next page



Row number 67: Turns OFF the variable of above control when bStartCloseFB turns OFF.

Row number 69: When bRunClose (close in execution) turns OFF, turns ON bSetDataFlg and increases wPrintCount by one for the next printing.

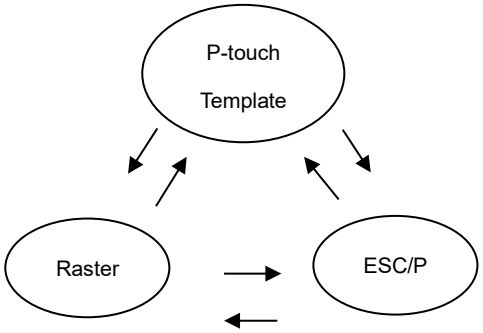
Row number 70: wPrintCount (print timing counter) is 3 or larger, 0 is stored in wPrintCount (print timing counter) and bSetDataFlg (transmission data set) is reset.

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

Command mode

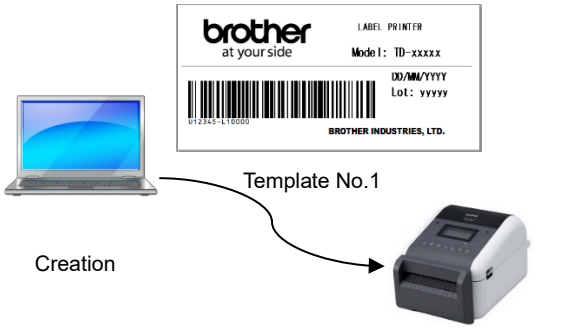
Brother label printers have three functions such as "Raster" mode, "ESC/P" mode and "P-touch Template" mode. This is called "Command mode". Command mode is set according to its printing functions and receiving command type.

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

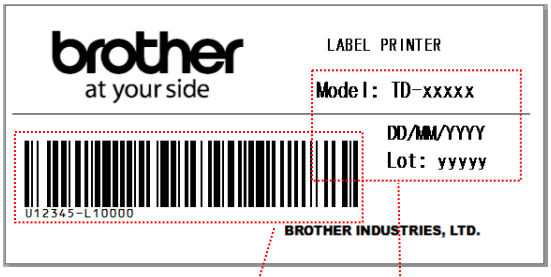


P-touch Template

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

(Alphanumeric character is automatically +1 CountUP every)

Direct insertion

(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 Printer
  - 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:

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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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