

Photo Printer

Command Specification (DS40/DS80/DP-DS80D)

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Revision History Chart		First Edition: October 11.2007			Page 1/1
Revised Item	Type of Revision	Revision No.	Revision Date	Approved	Designer
Title Page	Title is renamed.				
ii	"Model to apply" is added.				
iii	"Command table" is added.				
P18	"3-4 The number of free buffers which can transmit printing data" is added.	2.00	2012/02/07		
P19	"3-5 Multi-cut pattern specification value" is added. "3-6 Cutter control specification value" is added. * Refer to the document of revision 1.31 for the revision before 2.00.				
P4	In "1-1.2.9 Get media lot information ", the description mistake of the number of transmission data size is corrected.	2.01	2012/11/07		
P20	"3-7 Example of acquisition of a media lot number" is added.				
	• Added DP-DS80D	2.20	2013/12/18		

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Model to apply

This command specification is applied to the following models.

- DS40
- DS80
- DP-DS80D

Command table

A part of commands has restriction of support by the firmware version.

○:Support Value: Effective firmware version (This or later)

§	Function	Command	Model			Notes
			DS40	DS80	DP-DS80D	
I-1.1	Get printer status	<ESC>P STATUS	○	○	○	Refer to 3-3.1
I-1.2.1	Get printer version information	<ESC>P INFO FVER	○	○	○	
I-1.2.2	Get printer sensor information	<ESC>P INFO SENSOR	○	○	○	
I-1.2.3	Get printer media information	<ESC>P INFO MEDIA	○	○	○	Refer to 3-2
I-1.2.4	Get printer horizontal resolution	<ESC>P INFO RESOLUTION_H	○	○	○	
I-1.2.5	Get printer vertical resolution	<ESC>P INFO RESOLUTION_V	○	○	○	
I-1.2.6	Get number of free print buffers	<ESC>P INFO FREE_BUFFER	○	○	○	Refer to 3-4
I-1.2.7	Get remaining print quantity	<ESC>P INFO MQTY	○	○	○	Refer to 3-10
I-1.2.8	Get Media Color offset values of the lot	<ESC>P INFO MCOLOR	○	○	○	
I-1.2.9	Get media lot information	<ESC>P IMAGE MLOT	○	○	○	Refer to 3-7
I-1.2.10	Get duplex unit status	<ESC>P INFO UNIT_STATUS	—	—	○	Refer to 3-3.2
I-1.2.11	Get cut media information	<ESC>P INFO CUT_PAPER	—	—	○	
I-1.2.12	Get duplex-unit version information	<ESC>P INFO UNIT_FVER	—	—	○	
I-2.1	Sending command of Yellow graphic data block	<ESC>P IMAGE YPLANE	○	○	○	Refer to 2-1, 3-1
I-2.2	Sending command of Magenta graphic data block	<ESC>P IMAGE MPLANE	○	○	○	Refer to 2-1, 3-1
I-2.3	Sending command of Cyan graphic data block	<ESC>P IMAGE CPLANE	○	○	○	Refer to 2-1, 3-1
I-2.4	Designate multi-cut pattern	<ESC>P IMAGE MULTICUT	○	○	○	Refer to 3-5
I-3.1	Print start	<ESC>P CNTRL START	○	○	○	
I-3.2	Cutter control	<ESC>P CNTRL CUTTER	○	○	○	Refer to 3-6,3-8
I-3.3	Overcoat finish	<ESC>P CNTRL OVERCOAT	1.30	1.30	○	
I-3.4	Print re-try control	<ESC>P CNTRL BUFFCNTRL	1.30	1.30	Roll media only	
I-3.5	Duplex unit: Cancel back print & eject	<ESC>P CNTRL DUPLEX_CANCEL	—	—	○	
I-4.1	Clearing of printer table information	<ESC>P TBL_CL	○	○	○	
I-4.2	Update of color control data	<ESC>P TBL_WT CTRLD_UPDATE	○	○	○	
I-4.3	Setting of color control data version	<ESC>P TBL_WT Version	○	○	○	
I-4.4	Acquisition of color control data version	<ESC>P TBL_RD Version	○	○	○	
I-4.5	Acquisition of color control data checksum	<ESC>P MNT_RD CTRLD_CHKSUM	○	○	○	
I-5.1	Clearing the counter A/B	<ESC>P MNT_WT COUNTER_CLR	○	○	○	
I-5.2	Reading the print volume life counter	<ESC>P MNT_RD COUNTER_LIFE	○	○	○	Refer to 3-9
I-5.3	Reading the print volume counter A	<ESC>P MNT_RD COUNTER_A	○	○	○	Refer to 3-9
I-5.4	Reading the print volume counter B	<ESC>P MNT_RD COUNTER_B	○	○	○	Refer to 3-9
I-5.5	Reading the print volume counter P	<ESC>P MNT_RD COUNTER_P	1.04	1.02	○	Refer to 3-9
I-5.6	Setting counter P value	<ESC>P MNT_WT COUNTERP_SET	1.04	1.02	○	
I-5.7	Reading the print volume Matte counter	<ESC>P MNT_RD COUNTER_MATTE	1.30	1.30	○	Refer to 3-9
I-5.8	Reading the print volume counter M	<ESC>P MNT_RD COUNTER_M	1.30	1.30	○	Refer to 3-9
I-5.9	Clearing the counter M	<ESC>P MNT_WT COUNTER_CLR	1.30	1.30	○	
I-5.10	Read Duplex Counter	<ESC>P MNT_RD COUNTER_DUPLEX	—	—	○	Refer to 3-9
I-6.1	Changing to the firmware rewrite mode	<ESC>P FW_UPD FLASH_REWRITE	○	○	○	
I-6.2	Transmission of firmware rewriting data	<ESC>P FW_UPD FLASH_PROGRAM	○	○	○	

1. Details of commands

The commands to be sent to printers shall have a fixed length of 32 bytes in total, consisting of 2-byte start code, 6-byte Argument 1, 16-byte Argument 2 and 8-byte Argument 3. If Argument 4 is additionally needed, the data size of Argument 4 that follows Argument 3 shall be designated.

If the command character strings in Arguments 1 and 2 is less than the specified length, all remaining spaces shall be filled with space data (0x20).

Argument 3, which indicates the Argument 4 data length, shall be designated in 32-bit unit (4-byte unit), 8-digit decimal ASCII numbers. If the valid data length of Argument 4 does-not consist of 32-bit unit numbers, null data (0x00) shall be added to the end of valid data to complete the 32-bit unit. If Argument 4 is not needed, every space of Argument 3 shall be filled with space data.

The data returned from the printer contains 8-byte, fixed-length data at its head. This data indicates the size of successive data in 8-digit decimal ASCII numbers. The successive data will be in 32-bit unit. If the valid data length is less than this, null data shall be added to the end of valid data.

1-1.1 Get printer status

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	STATUS			

[Transmitted data] Start code ESC[1Bh] P
 STATUS Request to send printer status

[Function] The printer sends status information in 5-digit ASCII numbers (with CR<0Dh> at its end).
 (See 3-3.1 for status codes.)

[Returned data]	Size (8)	Data
	00000008	nnnnn<CR> <null> <null>

[Returned data example] 00000008 00001<CR> <null> <null> (Printing)

1-1.2.1 Get printer version information

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	FVER		

[Transmitted data] Start code ESC[1Bh] P
 INFO Request to send printer information
 FVER Request to send printer firmware version

[Function] The printer sends version information in variable-length ASCII character string (with CR<0Dh> at its end).

[Returned data]	Size (8)	Data
	0000nnnn	Variable-length ASCII character string <CR>

[Returned data example] 00000012 ABCD0123<CR> <null> <null> <null>

1-1.2.2 Get printer sensor information

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	SENSOR		

[Transmitted data]	Start code	ESC[1Bh
	INFO	Request to send printer information
	SENSOR	Request to send printer sensor information

[Function]	The printer sends sensor information in variable-length ASCII character string (with CR<0Dh> at its end).
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[Returned data]	Size (8)	Data
	0000nnnn	Variable-length ASCII character string <CR>

[Returned data example]	00000012	ABCD0123<CR> <null> <null> <null>
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1-1.2.3 Get printer media information

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	MEDIA		

[Transmitted data]	Start code	ESC[1Bh] P
	INFO	Request to send printer information
	MEDIA	Request to send printer media information

[Function]	The printer sends media information in 7-digit ASCII character string (with CR<0Dh> at its end). (See 3-2 for 5-digit codes representing the media.)
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[Returned data]	Size (8)	Data
	00000008	MTnnnnn<CR>

[Returned data example]	00000008	MT00200<CR>
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1-1.2.4 Get printer horizontal resolution

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	RESOLUTION_H		

[Transmitted data] Start code ESC[1Bh] P

 INFO Request to send printer information

 RESOLUTION_H Request to send printer media information

[Function] The printer sends head resolution information in 6-digit ASCII character string (with CR<0Dh> at its end).

[Returned data]	Size (8)	Data
	00000008	RHnnnn<CR> <null>

[Returned data example] 00000008 RH0300<CR> <null> (300dpi)

1-1.2.5 Get printer vertical resolution

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	RESOLUTION_V		

[Transmitted data] Start code ESC[1Bh] P
 INFO Request to send printer information
 RESOLUTION_V Request to send printer media information

[Function] The printer sends paper feed resolution information in 6-digit ASCII character string (with CR<0Dh> at its end).

[Returned data]	Size (8)	Data
	00000008	RVnnnn<CR> <null>

[Returned data example] 00000008 RV0600<CR> <null> (600dpi)

1-1.2.6 Get number of free print buffers

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	FREE_PBUFFER		

[Transmitted data] Start code ESC[1Bh] P
 INFO Request to send printer information
 FREE_PBUFFER Request to send the number of free print buffers

[Function] The printer sends the number of pages of free print buffers in 5-digit ASCII character string (with CR<0Dh> at its end).
 Refer to 3-4 for the relation with the number of free print buffers which can transmit paper type and its printing data.

[Returned data]	Size (8)	Data
	00000008	FPBnn<CR> <null><null>

[Returned data example] 00000008 FPB01<CR> <null><null> (1 free page)

1-1.2.7 Get remaining print quantity

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	MQTY		

[Transmitted data] Start code ESC[1Bh] P
 INFO Request to send printer information
 MQTY Send the remaining number of media to issue

[Function] The printer sends the number of remaining media to issue in 8-digit ASCII character string (with CR<0Dh> at its end). (Refer to 3-10 for the counter default value)

[Returned data]	Size (8)	Data
	00000012	MQTYnnnn<CR> <null><null><null>

[Returned data example] 00000012 MQTY0010<CR> <null><null><null>

1-1.2.8 Get Media Color offset values of the lot

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	MCOLOR		

[Transmitted data]	Start code	ESC[1Bh] P
	INFO	Request to send printer information
	MCOLOR	Send color correction values between media lots

[Function]	The printer sends color correction values between media lots in 6-digit binary character string (with CR<0Dh> at its end).
------------	--

[Returned data]	Size (8)	Data
	00000008	MCnnnn<CR><null>

[Returned data example]	00000008	MC<0x0A><0x0A><0x0A><0x0A> <CR><null>
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1-1.2.9 Get media lot information

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	MLOT		

[Transmitted data]	Start code	ESC[1Bh P
	INFO	Request to send printer information
	MLOT	Send media user information (lot number)

[Function]	The printer sends data of 16 bytes of media user information (lot number) by 20-digit binary character string (CR<0Dh> terminus is included).
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[Returned data]	Size (8)	Data
	00000020	MLnnnnnnnnnnnnnnnnnnnn<CR><null>

[Returned data example]	00000020	ML<0x30><0x31><0x32><0x33><0x34><0x35><0x36><0x37><0x38> <0x39><0x41><0x42><0x43><0x44><0x45><0x46><CR><null>
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Note: In a RF-ID write tool, when lot number input data is less than 16 bytes, a space (0x20) is embedded for the remaining place of data. (See 3-7 for details)

1-1.2.10 Getting the Duplex Unit status

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	UNIT STATUS		

[Transmitted data]	Start code	ESC[1Bh] P
	INFO	Requests transmission of printer information
	UNIT STATUS	Sends the duplex unit status

[Function] The printer sends the duplex unit status in a 5-digit ASCII code (ending with CR<0Dh>).
(Refer to 3-3.2 for the status code)

[Return data]	Size (8)	Data
	00000008	nnnnnn<CR> <null> <null>

```
[Sample return data] 00000008 05017<CR> <null> <null>
```

1-1.2.11 Getting cut media information

[Code]	Start (2)	Parameter1 (6)	Parameter 2 (16)	Parameter 3 (8)	Parameter 4
	<ESC>P	INFO	CUT_PAPER		

[Transmitted data] Start code ESC [1Bh] P
 INFO Requests transmission of printer information
 CUT_PAPER Sends cut paper size (cut paper tray position) and media status

[Function] This sends the cut paper size (tray guide position) and media status in ASCII code (ending with CR<0Dh>).

[Return data]	Size (8)	Data
	00000012	CUTPnnnn<CR> <null> <null> <null>

[Sample return data] 00000012 CUTP0102<CR> <null> <null> <null>

Duplex unit status

4.3 digits (nn00) Paper size (tray guide position)	2.1 digits (00nn) Paper status
0000 Unit not connected	0000 No cut paper
0100 8 x 10.75	0001 Protective sheet
0200 8 x 12	0002 Cut paper set

Sample code

Paper size	Paper status	Code
8x10.75	Cut paper set	0102
8x10.75	Protective sheet	0101
8x10.75	No cut paper	0100

1-1.2.12 Get duplex-unit version information

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	INFO	UNIT_FVER		

[Transmitted data] Start code ESC[1Bh] P
 INFO Request to send printer information
 FVER Request to send duplex-unit firmware version

[Function] The printer sends duplex-unit version information in fixed length ASCII character string (with CR<0Dh> at its end).

[Returned data]	Size (8)	Data
	00000008	nnnnnn <CR><null>

[Returned data example] 00000008 0.85 <0x20> <0x20><CR><null>

When duplex-unit firmware is not support function or duplex-unit is not connected, return data is all blank <0x20>.

1-2.1 Sending command of Yellow graphic data block

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	IMAGE	YPLANE	Nnnnnnnn	data

[Transmitted data] Start code ESC[1Bh] P
 IMAGE Designate start of color image
 YPLANE Designate color (yellow)
 nnnnnnnn Graphic data size (8-digit decimal ASCII number)
 data Graphic data

[Function] This command downloads yellow graphics.

[Attention] Refer to "2-1. Image size" about data transmission with this command.
 Designate the graphic data in 8-bit grayscale in BMP format.
 (The data structure varies partially from that on Windows disk files. See 3-1 for details.)

1-2.2 Sending command of Magenta graphic data block

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	IMAGE	MPLANE	Nnnnnnnn	data

[Transmitted data] Start code ESC[1Bh] P
 IMAGE Designate start of color image
 MPLANE Designate color (magenta)
 nnnnnnnn Graphic data size (8-digit decimal ASCII number)
 data Graphic data

[Function] This command downloads magenta graphics.

[Attention] Refer to "2-1. Image size" about data transmission with this command.
 Designate the graphic data in 8-bit grayscale in BMP format.
 (The data structure varies partially from that on Windows disk files. See 3-1 for details.)

1-2.3 Sending command of Cyan graphic data block

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	IMAGE	CPLANE	Nnnnnnnn	data

[Transmitted data] Start code ESC[1Bh]P
 IMAGE Designate start of color image
 CPLANE Designate color(Cyan)
 nnnnnnnn Graphic data size (8-digit decimal ASCII number)
 data Graphic data

[Function] This command downloads cyan graphics.

[Attention] Refer to "2-1. Image size" about data transmission with this command.
 Designate the graphic data in 8-bit grayscale in BMP format.
 (The data structure varies partially from that on Windows disk files. See 3-1 for details.)

1-2.4 Designate multi-cut pattern

[Code]	Start (2)	Argument(6)	Argument2 (16)	Argument 3(8)	Argument 4
	<ESC>P	IMAGE	MULTICUT	00000008	data

[Transmitted data] Start code ESC[1Bh]P
 IMAGE Designate start of color image
 MULTICUT Designate multi-cut pattern
 00000008 Argument 4 data length (8-digit decimal ASCII number)
 data Paper Size value (Multi-cut pattern)

[Function] Designate the paper size no (Multi-cut pattern). (See 3-5 for details)

[Attention] Send this command before transmitting the image data.

1-3.1 Print start

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	CNTRL	START		

[Transmitted data] Start code ESC[1Bh] P
 CNTRL Printer control command
 START Designate print start

[Function] Starts printing.

1-3.2 Cutter control

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	CNTRL	CUTTER	00000008	data

[Transmitted data] Start code ESC[1Bh] P
 CNTRL Printer control command
 CUTTER Designate cutter control
 00000008 Argument 4 data length (8-digit decimal ASCII number)
 data 00000000: Normal operation
 00000001: Operation causing no cut-paper waste
 00000120: 2inch cut operation

[Function] Controls cutter movement. (See 3-6 for details)

[Attention] Send this command before the start print command is sent.
 This command is only valid once for each image. The printer returns to standard cut operation after each image is printed.
 2inch cut operation is effective only in paper size (6x4) or (6x8).
 Refer to "3-7. Recommended image layout of 2 inches cut operation" about the image layout of 2 inches cut operation.

1-3.3 Overcoat finish

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	CNTRL	OVERCOAT	00000008	data

[Transmitted data] Start code ESC[1Bh] P
 CNTRL Printer control command
 OVERCOAT Designate overcoat finish
 00000008 Argument 4 data length (8-digit decimal ASCII number)
 data 00000000: Glossy (default)
 00000001: Matte
 00000002: Reserved
 00000003: Reserved

[Function] This prints with either a matte or glossy overcoat.

[Attention] Send this command before transmitting the image data.
 This command is only valid once for each image. The printer returns to Glossy setting after each image is printed.

1-3.4 Print re-try control

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	CNTRL	BUFFCNTRL	00000008	data

[Transmitted data] Start code ESC[1Bh] P
 CNTRL Printer control command
 BUFFCNTRL Designate print re-try control
 00000008 Argument 4 data length (8-digit decimal ASCII number)
 data 00000000: Print re-try is disabled (default)
 00000001: Print re-try is enabled

[Function] This controls whether, after an error such as media end occurs, the data that had been received in the printer buffer is printed or not. When the setting is enabled, the image will be printed after the error is cleared.

[Attention] Send this command before the start print command is sent.
 This command is only valid once for each image. The printer will return to disable after each image is printed.
 If the error requires the printer power to be turned OFF then back ON, the printing after error recovery will be invalid regardless of the setting.

1-3.5 Duplex Printer: cancelling back print and ejecting the media

[Code]	Start (2)	Parameter 1 (6)	Parameter 2 (16)	Parameter 3 (8)	Parameter 4
	<ESC>P	CNTRL	DUPLEX_CANCEL		

[Transmitted data] Start code ESC[1Bh] P
 CNTRL Printer control command
 DUPLEX_CANCEL Cancel back print command

[Function] During duplex printing, this cancels the back print after printing the front, then ejects the media.
 This command is used to eject the media with the front side printed in cases such as when the ribbon ends mid-print.

1-4.1 Clearing of printer table information

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	TBL_CL			

[Transmitted data] Start code ESC[1Bh] P
 TBL_CL Start clearing printer table information

[Function] Clears printer table information (color control data) written in the printer.

[Attention] After clearing the information, make sure to write new color control data with an update command of color control data.

1-4.2 Update of color control data

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	TBL_WT	CTRLD_UPDATE	Nnnnnnnn	data

[Transmitted data] Start code ESC[1Bh] P
 TBL_WT Start writing printer table information
 CTRLD_UPDATE Update color control data
 nnnnnnnn Number of color control data (8-digit decimal ASCII number in 4-byte unit)
 data Color control data

[Function] Rewrites color control data.
 The color control data is provided in binary files in unique format.

[Attention] Before writing new color control data with this command, clear the existing color control data with a printer table information clear command.
 If the color control data is not provided in 32-bit (4-byte) unit, send the data after adding null data to the end of color control data to complete the 32-bit unit.

1-4.3 Setting of color control data version

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	TBL_WT	Version	Nnnnnnnn	data

[Transmitted data]	Start code	ESC[1Bh] P
	TBL_WT	Start writing printer table information
	Version	Set version of color control data
	nnnnnnnn	Character string of version information of color control data (4-byte unit)
	data	Character string of version information of color control data

[Function] Writes version information of color control data.

[Attention] After rewriting the data with a color control data update command, use this command to set the color control data version.

Use the version information of color control data to be set as a file name of color control data file to be provided.

If the version information character string is not provided in 32-bit (4-byte) unit, send the data after adding null data to the end of version information character string to complete the 32-bit unit.

1-4.4 Acquisition of color control data version

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	TBL_RD	Version		

[Transmitted data]	Start code	ESC[1Bh] P
	TBL_RD	Start reading printer table information
	Version	Acquire color control data version

[Function] The printer sends version information (variable-length character string) of color control data.

[Returned data]	Size (8)	Data
	nnnnnnnn	Data (variable-length character string)

[Returned data example] 00000016 DS40_0100.CWD<null><null><null>

1-4.5 Acquisition of color control data checksum

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_RD	CTRLD_CHKSUM		

[Transmitted data] Start code ESC[1Bh] P
 MNT_RD Start reading printer maintenance information
 CTRLD_CHKSUM Acquire color control data checksum

[Function] The printer sends color control data checksum (in hexadecimal number) in 4-digit ASCII character string (with CR<0Dh> at its end).

[Returned data]	Size (8)	Data
	nnnnnnnn	nnnn<CR><null><null><null>

[Returned data example] 00000008 D032<CR><null><null><null>

1-5.1 Clearing the counter A/B

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_WT	COUNTER_CLR	00000004	Cn<CR><NULL>

[Transmitted data] Start code ESC[1Bh] P
 MNT_WT Start setting printer maintenance information
 COUNTER_CLR Various maintenance commands
 00000004 Argument 4 data length (8-digit decimal ASCII number)
 Cn<CR><NULL> n=A or B

[Function] Clears the print volume counter A or B.

1-5.2 Reading the print volume life counter

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_RD	COUNTER_LIFE		

[Transmitted data] Start code ESC[1Bh] P
 MNT_RD Start reading printer maintenance information
 COUNTER_LIFE Read print volume life counter

[Function] Reads the print volume life counter on the printer. (Refer to 3-9 for count-up action)

[Returned data]	Size (8)	Data
	00000012	Fixed-length ASCII character string <CR>

[Returned data example] 00000012 CLnnnnnnnn<CR> <null> <null>

1-5.3 Reading the print volume counter A

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_RD	COUNTER_A		

[Transmitted data] Start code ESC[1Bh] P
 MNT_RD Start reading printer maintenance information
 COUNTER_A Read print volume counter A

[Function] Reads the print volume counter A on the printer. (Refer to 3-9 for count-up action)

[Returned data]	Size (8)	Data
	00000012	Fixed-length ASCII character string <CR>

[Returned data example] 00000012 CAnnnnnnn<CR> <null> <null>

1-5.4 Reading the print volume counter B

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_RD	COUNTER_B		

[Transmitted data] Start code ESC[1Bh] P
 MNT_RD Start reading printer maintenance information
 COUNTER_B Read print volume counter B

[Function] Reads the print volume counter B on the printer. (Refer to 3-9 for count-up action)

[Returned data]	Size (8)	Data
	00000012	Fixed-length ASCII character string <CR>

[Returned data example] 00000012 CBnnnnnnnn<CR> <null> <null>

1-5.5 Reading the print volume counter P

[Code]	Start(2)	Argument1 (6)	Argument (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_RD	COUNTER_P		

[Transmitted data] Start code ESC[1Bh] P
 MNT_RD Start reading printer maintenance information
 COUNTER_P Read Print volume counter P

[Function] Reads the print volume counter P on the printer. (Refer to 3-9 for count- up action)

[Returned data]	Size (8)	Data
	00000012	Fixed-length ASCII character string<CR>

[Returned data example] 00000012 CPnnnnnnnn<CR> <null> <null>

1-5.6 Setting counter P value

[Code]	Start (2)	Argument1 (6)	Argument2(16)	Argument3(16)	引数4
	<ESC>P	MNT_WT	COUNTERP_SET	00000008	nnnnnnn<CR>

[Transmitted data] Start code ESC[1Bh] P
MNT_WT Start writing printer maintenance information
COUNTERP_SET Write print quantity command
00000008 Argument 4 data length (8-digit decimal ASCII number)
nnnnnnn<CR> Counter value information strings.

[Function] Set the counter P value on the printer

1-5.7 Reading the print volume Matte counter

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_RD	COUNTER_MATTE		

[Transmitted data] Start code ESC[1Bh] P
MNT_RD Start reading printer maintenance information
COUNTER_MATTE Read Matte counter

[Function] Reads the print volume Matte counter on the printer.
When overcoat finish is matte print, Matte counter (clearing is impossible) will be counted up.
(Refer to 3-9 for count-up action)

[Returned data]	Size (8)	Data
	00000012	Fixed-length ASCII character string <CR>

[Returned data example] 00000012 CMATnnnnnnn<CR>

1-5.8 Reading the print volume counter M

[Code]	Start(2)	Argument1 (6)	Argument (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_RD	COUNTER_M		

[Transmitted data] Start code ESC[1Bh] P
MNT_RD Start reading printer maintenance information
COUNTER_M Read Print volume counter M

[Function] Reads the print volume counter M on the printer.
When overcoat finish is matte print, counter M (clearing is possible) will be counted up.
(Refer to 3-9 for count-up action)

[Returned data]	Size (8)	Data
	00000012	Fixed-length ASCII character string<CR>

[Returned data example] 00000012 CMnnnnnnn<CR> <null> <null>

1-5.9 Clearing the counter M

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_WT	COUNTER_CLR	00000004	CM<CR><NULL>

[Transmitted data] Start code ESC[1Bh] P
 MNT_WT Start setting printer maintenance information
 COUNTER_CLR Various maintenance commands
 00000004 Argument 4 data length (8-digit decimal ASCII number)
 CM<CR><NULL> Counter M is cleared

[Function] Clears the print volume counter M.

1-5.10 Read Duplex Counter

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_RD	COUNTER_DUPLEX		

[Transmitted data] Start code ESC[1Bh] P
 MNT_RD Starts reading printer maintenance information
 COUNTER_DUPLEX Reads the Duplex counter

[Function] This reads the sheet count of duplex prints from the printer.
 The Duplex counter (which cannot be reset) counts up for printing of cut media (from the duplex unit).
 This counter is only valid for the duplex unit.
 (Refer to 3-9 for count up action)

1-6.1 Changing to the firmware rewrite mode

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	FW_UPD	FLASH_REWRITE		

[Transmitted data] Start code ESC[1Bh] P
 FW_UPD Command for rewriting firmware
 FLASH_REWRITE Switch to the rewrite mode

[Function] This command switches to the firmware rewrite mode.
 Before sending the firmware rewriting data, make sure to use this command to switch to the rewrite mode on the printer. (When switching to the rewrite mode is completed, a blue LED on the printer starts blinking.)

1-6.2 Transmission of firmware rewriting data

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument3 (8)	Argument 4
	<ESC>P	FW_UPD	FLASH_PROGRAM	Nnnnnnnn	data

[Transmitted data] Start code ESC[1Bh] P
 FW_UPD Command for rewriting firmware
 FLASH_PROGRAM Start rewriting firmware
 nnnnnnnn Number of rewriting data (8-digit decimal ASCII number in 4-byte unit)
 data Rewriting data

[Function] Sends firmware rewriting data and rewrites the firmware.
 The firmware rewriting data is provided in Motorola S format files.

[Attention] Before sending the firmware rewriting data, make sure to use a firmware-rewriting-mode switching command to switch to the rewrite mode on the printer.
 If the firmware rewriting data is not provided in 32-bit (4-byte) unit, send the data after adding null data to the end of color control data to complete the 32-bit unit.

2-1. Image size

Model: DS40

Paper Type	Paper Size (inch)	Print area size Width (head-width direction) x Length (paper-feed direction)	Image pixel size	
			300 x 300 DPI (pixel)	300 x 600 DPI (pixel)
(5x3.5) (L)	5"x3.5"	131.1 x 92.1mm	1548 x 1088	1548 x 2176
(6x4) (PC)	6"x 4"	156.1 x 105.0mm	1844 x 1240	1844 x 2480
(5x7) (2L)	5"x 7"	131.1 x 181.0mm	1548 x 2138	1548 x 4276
(6x8) (A5)	6"x 8"	156.1 x 206.2mm	1844 x 2436	1844 x 4872
(6x4)x2 (PC dual image)	6"x 4" (2 sheets)	156.1 x 211.5mm	1844 x 2498	1844 x 4996
(6x9) (A5W)	6"x 9"	156.1 x 232.0mm	1844 x 2740	1844 x 5480
(5x3.5)x2 (L dual image) ※1	5"x3.5" (2 sheets)	131.1 x 184.2mm	1548 x 2176	1548 x 4352
Margin (top/bottom) () is for the paper type of (6x4) or (6x4)x2.		4.5mm	54 (60)	108 (120)
Margin (left/right)		5.0mm	60	60
Medium size for (6x4)x2		1.52mm	18	36
Medium size for (5x3.5)x2		0 mm	0	0
Transmission data width (head width)			1920	1920

※1 Firmware version 1.50 or later

Model: DS80

Paper Type	Paper Size (inch)	Print area size Width (head-width direction) x Length (paper-feed direction)	Image pixel size	
			300 x 300 DPI (pixel)	300 x 600 DPI (pixel)
(8x4)	8"x 4"	207.3 x 104.6mm	2448 x 1236	2448 x 2472
(8x5)	8"x 5"	207.3 x 130.0mm	2448 x 1536	2448 x 3072
(8x6)	8"x 6"	207.3 x 155.4mm	2448 x 1836	2448 x 3672
(8x8)	8"x 8"	207.3 x 206.2mm	2448 x 2436	2448 x 4872
(8x4)x2	8"x 4" (2 sheets)	207.3 x 211.8mm	2448 x 2502	2448 x 5004
(8x5) (8x4)	8"x 5", 8"x 4"	207.3 x 237.2mm	2448 x 2802	2448 x 5604
(8x10)	8"x 10"	207.3 x 257.0mm	2448 x 3036	2448 x 6072
(8x5)x2	8"x 5" (2 sheets)	207.3 x 262.6mm	2448 x 3102	2448 x 6204
(8x6) (8x4)	8"x 6", 8"x 4"	207.3 x 262.6mm	2448 x 3102	2448 x 6204
(8x6) (8x5)	8"x 6", 8"x 5"	207.3 x 288.0mm	2448 x 3402	2448 x 6804
A4 Length	8"x 11.7"	207.3 x 300.0mm	2448 x 3544	2448 x 7088
8x12	8"x 12"	207.3 x 307.8mm	2448 x 3636	2448 x 7272
(8x6)x2	8"x 6" (2 sheets)	207.3 x 313.4mm	2448 x 3702	2448 x 7404
(8x8) (8x4)	8"x 8", 8"x 4"	207.3 x 313.4mm	2448 x 3702	2448 x 7404
(8x4)x3	8"x 4" (3 sheets)	207.3 x 319.0mm	2448 x 3768	2448 x 7536
Margin (top/bottom)		4.5mm	54	108
Margin (left/right)		5.0mm	60	60
Medium size for multi-cutting		2.54mm	30	60
Transmission data width (head width)			2560	2560

Model: DP-DS80D

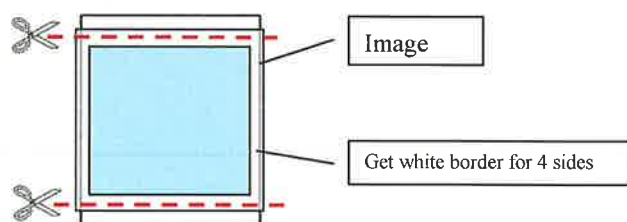
<Roll paper>

Paper Type	Paper Size (inch)	Print area size※1 Width (head-width direction) x Length (paper-feed direction)	Image pixel size	
			300 x 300 DPI (pixel)	300 x 600 DPI (pixel)
(8x4)	8"x 4"	207.3 x 104.6mm	2448 x 1236	2448 x 2472
(8x5)	8"x 5"	207.3 x 130.0mm	2448 x 1536	2448 x 3072
(8x6)	8"x 6"	207.3 x 155.4mm	2448 x 1836	2448 x 3672
(8x8)	8"x 8"	207.3 x 206.2mm	2448 x 2436	2448 x 4872
(8x4)x2	8"x 4" (2 sheets)	207.3 x 211.8mm	2448 x 2502	2448 x 5004
(8x5) (8x4)	8"x 5", 8"x 4"	207.3 x 237.2mm	2448 x 2802	2448 x 5604
(8x10)	8"x 10"	207.3 x 257.0mm	2448 x 3036	2448 x 6072
(8x5)x2	8"x 5" (2 sheets)	207.3 x 262.6mm	2448 x 3102	2448 x 6204
(8x6) (8x4)	8"x 6", 8"x 4"	207.3 x 262.6mm	2448 x 3102	2448 x 6204
(8x6) (8x5)	8"x 6", 8"x 5"	207.3 x 288.0mm	2448 x 3402	2448 x 6804
A4 Length	8"x 11.7"	207.3 x 300.0mm	2448 x 3544	2448 x 7088
(8x12)	8"x 12"	207.3 x 307.8mm	2448 x 3636	2448 x 7272
(8x6)x2	8"x 6" (2 sheets)	207.3 x 313.4mm	2448 x 3702	2448 x 7404
(8x8) (8x4)	8"x 8", 8"x 4"	207.3 x 313.4mm	2448 x 3702	2448 x 7404
(8x4)x3	8"x 4" (3 sheets)	207.3 x 319.0mm	2448 x 3768	2448 x 7536
White border area top-bottom		4.5mm	54	108
White border area left-right		5.0mm	60	60
Median size for multi-cut		2.54mm	30	60
Transmit data width (head width)			2560	2560

<Cut paper>

Paper Type	Paper Size (inch)	Print area size※1 Width (head-width direction) x Length (paper-feed direction)	Image pixel size	
			300 x 300 DPI (pixel)	300 x 600 DPI (pixel)
(8x4)	8"x 4"	207.3 x 104.6mm	2448 x 1236	2448 x 2472
(8x5)	8"x 5"	207.3 x 130.0mm	2448 x 1536	2448 x 3072
(8x8)	8"x 8"	207.3 x 206.2mm	2448 x 2436	2448 x 4872
(8x10)	8"x 10"	207.3 x 257.0mm	2448 x 3036	2448 x 6072
(8x10.5)	8"x 10.5"	207.3 x 269.7mm	2448 x 3186	2448 x 6372
(8x10.75)※2	8"x 11.75"	207.3 x 269.7mm	2448 x 3186	2448 x 6372
(8x12)	8"x 12"	207.3 x 307.8mm	2448 x 3636	2448 x 7272
(8x4)x2	8"x 4" (2 sheets)	207.3 x 211.8mm	2448 x 2502	2448 x 5004
(8x5)x2	8"x 5" (2 sheets)	207.3 x 262.6mm	2448 x 3102	2448 x 6204
(8x4)x3※3	8"x 4" (3 sheets)	207.3 x 313.40mm	2448 x 3702	2448 x 7404
White border area top-bottom		4.5mm	54	108
White border area left-right		5.0mm	60	60
Medium size for (8x4)x2 or (8x5)x2 size		2.54mm	30	60
Medium size for (8x4)x3 size		-0.27 mm	-3 (Over rap)	-6 (Over rap)
Transmit data width (head width)			2560	2560

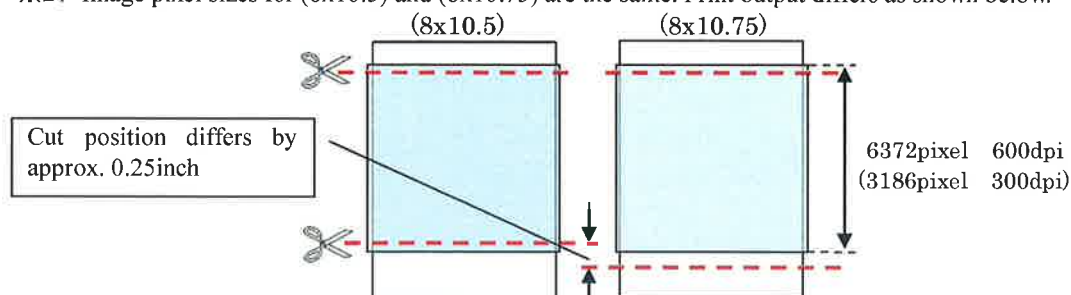
When printing with a white border on all sides, a white border is added to the image. See the chart for the border size.



When transferring data of the above image pixel size, every one of them should be laid out at the center of above-mentioned "Transmission data width (head width)" pixels. The left and right free pixels shall be filled with blank data.

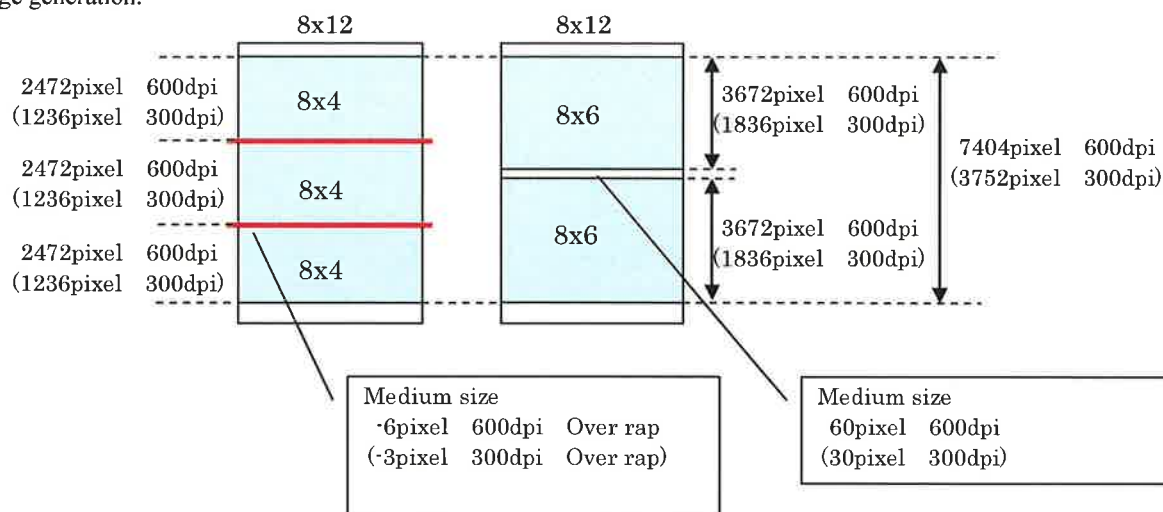
※1: The print area sizes are set to be larger than the actual paper sizes. (1.5mm larger for top and bottom, 2.0mm larger for left and right)

※2: Image pixel sizes for (8x10.5) and (8x10.75) are the same. Print output differs as shown below.



※3: When it is multi-cut 8x4x3 print using cut paper, for image layout.

When it is multi-cut 8x4x3 print using cut paper, should be the same as the roll paper 8x6x2 size the vertical size of the image generation.



[Note when Transmitting Image]

The order of transmission of plain data is Y at first, the next is M, and the last is C. Please keep this order.

Moreover, in DS40 or DS80 model, it transmits as follows.

※ When sending the data by USB2.0, please send such that the terminal data for each plane is a short packet (512 bytes or less). The data terminus needs to be a short packet for operational stability, and is not needed for anything else.

Ex.) In this example, with L-size 300DPI 1920(horizontal, head width) × 1088(vertical) = 2088960, a data terminus USB short packet of 256 bytes is made and sent (sample shown for Windows OS).

```
HANDLE USBHandle;           // Output destination handle address
DWORD lengthL1 = 1920 * 1088 - 256; // Value of data length minus 256 bytes from data terminus
DWORD lengthL2 = 256;       // Short packet 256 bytes (data terminus)
LPVOID data_ptr;            // Pointer to the head of the plane data
DWORD bytes_written;        // Number of bytes of data written
BYTE bRes;                  // Result of function execution

// This writes the value of the data length minus 256 bytes.
bRes = WriteFile(USBHandle, data_ptr, lengthL1, &bytes_written, NULL);
// This writes the terminal 256 bytes of data.
bRes = WriteFile(USBHandle, (data_ptr + lengthL1), lengthL2, &bytes_written, NULL);
```

2-2. Duplex printer: Relationship between the image created by the application and the printer operation/output image

The application determines the order that images are sent to the printer for the desired result, and rotates and alters the image size to be sent depending on the print orientation, etc. The relationship between the orientation of the image sent to the printer and the completed print is as shown in the chart below.

◆ For duplex printing (Duplex cut paper, no layout. For 1-side printing with overcoating on the reverse side, the process is the same.)

Paper type Output size	Duplex designation	Image creation, Layout & transmit order	Image Transmit Process and Printer Operation	Media Delivery Image
Duplex Cut paper 8x8 8x10 8x10.5 8x10.75 8x12	Long edge	① ② ③ Front A ④ ⑤ ⑥ Back B	<Image transmission procedure> Process ① Paper size setting ② Send BMP image A ③ Print command ④ Paper size setting ⑤ Send BMP image B ⑥ Print command Command <ESC>P IMAGE MULTICUT <ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE <ESC>P CNTRL START <ESC>P IMAGE MULTICUT (※Same order as in 1) <ESC>P CNTRL START Sample parameter(for 8x8 size) (Parameter4) 00000211 (Parameter4) 00000311 (Example of the process for 1-side printing with overcoating on the reverse side) ※When printing an image on one side, and only overcoating the reverse side, send an all-white BMP image to the overcoat side.	
	Short edge	① ② ③ Front A ④ ⑤ ⑥ Back B	<Printer operation> 1. Standby 2. Paper feed 3. Printing 4. Reverse 5. Printing 6. Feed out/cut 7. Finish/Standby	

◆For duplex printing (Duplex cut paper, 2-image layout. When printing only 1 side and overcoating the other side, the process is the same.)

Paper type Output size	Duplex designation	Image creation、 Layout & transmit order	Printer Operation and Image Transmit Process	Media Delivery Image
Duplex Cut paper	Long edge	① ② ③ Front C 8x5 Front A 8x5 ④ ⑤ ⑥ Back D 8x5 Back B 8x5 Create and send a 2-image layout	⇒ <Image transmission procedure> Process Command Sample parameter (for 8x5x2 size) ① Paper size setting <ESC>P IMAGE MULTICUT (Parameter 4)00000214 ② Send BMP Image C+A <ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE Create and send a 2-image layout ③ Print command <ESC>P CNTRL START ④ Paper size setting <ESC>P IMAGE MULTICUT (Parameter 4)00000314 ⑤ Send BMP Image D+B <ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE Create and send a 2-image layout ⑥ Print command <ESC>P CNTRL ST (Example of the process for 1-side printing with overcoating on the reverse side) ※When printing an image on one side, and only overcoating the reverse side, send an all-white BMP image to the overcoat side.	
8x5x2 (2-image layout)	Short edge	① ② ③ 表 C 8x5 表 V 8x5 ④ ⑤ ⑥ 裏 D 8x5 裏 B 8x5 Create and send a 2-image layout	⇒ <Printer operation> ①Stand by ②Paper feed ③Printing ④Reverse ⑤Printing ⑥Feed out/cut ⑦Finish/Stand by Two 5-inch cuts	

◆For single-side printing (Cut media, using the duplex unit)

Paper type Output size	Duplex designation	Image creation, Layout & transmit order		Printer Operation and Image Transmit Process	Media Delivery Image
Cut paper 8x10 8x10.5 8x10.75	No	① ② Front A	⇒	<Image transmission procedure> Process ① Paper size setting ② Send BMP image A ③ Print command Command <ESC>P IMAGE MULTICUT <ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE <ESC>P CNTRL START Sample parameter(for 8x8 size) (Parameter4)00000111 <Printer operation> ①Standby ②Paper feed ③Printing ④Feed out/Cut	
Cut paper Multi-layout	No	Create and send a 2-image layout ① ② ③ Front B 8x5 Front A 8x5	⇒	<Image transmission procedure> Process ① Paper size setting ② Send BMP Image B+A ③ Print command Command <ESC>P IMAGE MULTICUT <ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE <ESC>P CNTRL START Sample parameter (for 8x5x2 size) (Parameter 4)00000114 Create and send a 2-image layout <Printer operation> ①Standby ②Paper feed ③Printing ④Feed out/Cut Two 5-inch cuts	

◆ For 1-side printing (roll paper, not using the duplex unit)

Paper type Output size	Duplex designation	Image creation, Layout & transmit order		Image Transmit Process and Printer Operation	Media Delivery Image
Roll paper	No	① ② ③ Front A	⇒	<Image transmission procedure> Process ① Paper size setting ② Send BMP image A ③ Print command Command <ESC>P IMAGE MULTICUT <ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE <ESC>P CNTRL START Sample parameter (for 8x8 size) (Parameter4) 00000011 <Printer operation> 1. Standby 2. Printing 3. Feed out /Cut	
Roll paper Multi-layout	No	Create and send a 2-image layout ① ② ③ Front B 8x6 Front A 8x6	⇒	<Image transmission procedure> Process ① Paper size setting ② Send BMP image B+A ③ Print command Command <ESC>P IMAGE MULTICUT <ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE <ESC>P CNTRL START Sample parameter (for (8x6)x2 size) (Parameter4) 00000015 Create and send a 2-image layout <Printer operation> 1. Standby 2. Printign 3. Feed out /Cut	

3. Supplementary information

3-1 Plane data format of each color

The 8-bit grayscale in BMP format is used to transmit print data. To locate the pixel data counted from the head of BMP format data to be at the 32-bit border, some data structure shall be expanded by adding data for adjusting the pixel data border, as shown in the table below.

Case of 1920x1240 pixel image

	On Windows disk file			For print data transmission command		
Data structure	BITMAPFILEHEADER	14	bytes	BITMAPFILEHEADER	14	bytes
	BITMAPINFOHEADER	40	bytes	BITMAPINFOHEADER	40	bytes
	RGBQUAD	1024	bytes	RGBQUAD	1024	bytes
	Total of header part	1078	bytes	Border adjustment data (null)	10	bytes <- Added
				Total of header part	1088	bytes
	Pixel data	2380800	bytes	Pixel data	2380800	bytes
	Total	2381878	bytes	Total	2381888	bytes
BITMAPFILEHEADER data	bFileType	"BM"		bFileType	"BM"	
File size	bFileSize	0x00245836		bFileSize	0x00245840	
	bReserved1	0x0000		bReserved1	0x0000	
	bReserved2	0x0000		bReserved2	0x0000	
Offset up to pixel data	bfOffBits	0x00000436	Not located at 32-bit border	bfOffBits	0x00000440	Located at 32-bit border

3-2 Media codes

This printer indicates every media to use in 5-digit decimal numbers.

The data returned by the Printer media information transmission request command consists of these 5-digit codes (ASCII numbers) allocated to each media.

Media code setting

Fourth digit (0n000) Paper type	Third and second digit (00nn0) Paper type	First digit (0000n) Position detection mark
No. 00000 Standard paper	No. 00200 5x3.5 (L)	No. 00000 Without mark
No. 01000 Sticker paper	No. 00210 5x7 (2L)	No. 00001 With mark
	No. 00300 6x4 (PC)	
	No. 00310 6x8 (A5)	
	No. 00400 6x9 (A5W)	
	No. 00500 8x10	
	No. 00510 8x12	

Examples:

				Support media of each model	
Type	Size (W x L)	Code		DS40	DS80
5x3.5 (L) Standard paper	(127.0 x 89.0mm)	00200		○	—
6x4 (PC) Standard paper	(152.0 x 101.0 mm)	00301		○	—
5x7 (2L) Standard paper	(127.0 x 178.0 mm)	00210		○	—
6x8 (A5) Standard paper	(152.0 x 203.0 mm)	00310		○	—
6x9 (A5W) Standard paper	(152.0 x 229.0 mm)	00400		○	—
8x10 Standard paper	(203.0 x 254.0mm)	00500		—	○
8x12 Standard paper	(203.0 x 305.0mm)	00510		—	○

(○:Support, —:No support)

3-3.1 Status codes

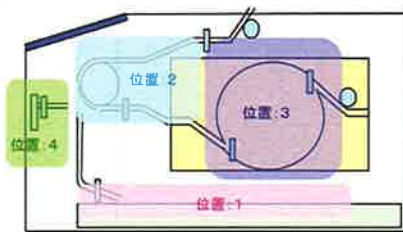
All printer information returned by the Printer status transmission request command consists of 5-digit decimal number data.

Please use these codes to judge the printer operation status and occurrence of various errors.

The following is a classification list of status codes. (The status generated by the model differs.)

Code classification	Occurrence level	How to recover from error	Code	Status	Model		
					DS40	DS80	DP-DS80D
00000-00999	Occurs during normal operation	As per normal procedure	00000	Idling	○	○	○
			00001	Printing	○	○	○
			00500	Head cooling down	○	○	○
			00510	Cooling the paper winding motor	○	○	○
01000-01999	Occurs due to user setting	Recovers by maintenance by users	01000	Cover is open	○	○	○
			01010	No Scrap box	○	○	○
			01100	Paper End	○	○	○
			01200	Ribbon End	○	○	○
			01300	Paper jam	○	○	○
			01400	Ribbon errors (detect error, ribbon break)	○	○	○
			01500	Paper Definition Error (The setting is different from printer setting)	○	○	○
			01600	Data error (improper data)	○	○	○
02000-02999	Hardware error	Call for service if system does not recover after reboot.	02000	Head voltage error	○	○	○
			02100	Head position error	○	○	○
			02200	Power supply fun stopped	○	○	○
			02300	Cutter error (Cut jamming etc.)	○	○	○
			02400	Pinch roller position error	—	—	—
			02500	Abnormal head temperature	○	○	○
			02600	Abnormal media temperature	○	○	○
			02610	Abnormal temperature of paper winding motor	○	○	○
			02700	Ribbon tension error	○	○	○
			02800	RF-ID module error	○	○	○
03000-03999	Other internal error	Call for service if system does not recover after reboot.	03000	System error	○	○	○
05000- 05999	Duplex unit errors	Recovery methods from the errors and error codes will be determined by DNP-Hino. For details, please refer to the documents prepared by DNP-Hino.	05017	Paper jam in duplex unit paper supply area (loc. 1)	—	—	○
			05019	Paper jam in duplex unit upper paper feed area (loc. 2)	—	—	○
			05023	Paper jam in area of duplex unit shell (loc. 3)	—	—	○
			05027	Paper jam in area of duplex unit eject slot (loc. 4)	—	—	○
			05049	Duplex unit paper delivery motor malfunction	—	—	○
			05065	Duplex unit reversing block (shell) internal feed motor malfunction	—	—	○
			05081	Duplex unit pinch malfunction	—	—	○
			05097	Duplex unit act pass guide malfunction	—	—	○
			05113	Duplex unit side guide malfunction	—	—	○
			05129	Duplex unit skew correction malfunction	—	—	○
			05145	Duplex unit reverse block (shell) malfunction	—	—	○
			05161	Duplex unit feed tray malfunction	—	—	○
			05177	Duplex unit cut operation malfunction	—	—	○
			05193	Duplex unit tray error	—	—	○
			05209	Duplex unit maintenance cover open	—	—	○
			05241	Duplex unit system error	—	—	○

Paper jam locations (loc. 1~4) (from DNP-Hino)



(○:Status is generated. —:Status is not generated.)

3-3.2 Duplex-specific status codes

The information returned to the duplex unit status request command is shown in the chart below.

These status codes allow you to get the operating status and discern errors in the duplex unit.

Recovery methods from the errors and error codes will be determined by DNP-Hino.

API definition	Code	Status
NON_ERROR	5000	No error
UCS_NONCONNECT	5500	Duplex unit is not connected
UCS_JAMMING_SUPPLY_SENS_ON	5017	The print didn't pass the supply sensor, so the sensor didn't switch ON (no paper) (paper feed operation)
UCS_JAMMING_SUPPLY_SENS_OFF	5018	The print didn't reach the supply sensor, so the sensor didn't switch OFF (paper present) (paper feed operation)
UCS_JAMMING_SLOT_SENS_ON	5019	The print didn't pass the delivery slot sensor, so the sensor didn't switch ON (no paper) (paper feed / reversing operation)
UCS_JAMMING_SLOT_SENS_OFF	5020	The print didn't reach the delivery slot sensor, so the sensor didn't switch OFF (paper pres.) (paper feed/reversing operation)
UCS_JAMMING_PASS_SENS_ON	5021	The print didn't pass the pinch pass sensor, so the sensor didn't switch ON (no paper) (reversing / ejecting operation)
UCS_JAMMING_PASS_SENS_OFF	5022	The print didn't reach the pinch pass sensor, so the sensor didn't switch OFF (paper present) (reversing / ejecting operation)
UCS_JAMMING_SHELL_SENS1_ON	5023	The print didn't pass shell pass sensor-1, so the sensor didn't switch ON (no paper) (reversing / ejecting operation)
UCS_JAMMING_SHELL_SENS1_OFF	5024	The print didn't reach shell pass sensor-1, so the sensor didn't switch OFF (paper present) (reversing / ejecting operation)
UCS_JAMMING_SHELL_SENS2_ON	5025	The print didn't pass shell pass sensor-2, so the sensor didn't switch ON (no paper) (reversing operation)
UCS_JAMMING_SHELL_SENS2_OFF	5026	The print didn't reach shell pass sensor-2, so the sensor didn't switch OFF (paper present) (reversing operation)
UCS_JAMMING_EJECT_SENS_ON	5027	The print didn't pass the eject sensor, so the sensor didn't switch ON (no paper) (ejecting operation)
UCS_JAMMING_EJECT_SENS_OFF	5028	The print didn't reach the eject sensor, so the sensor didn't switch OFF (paper present) (ejecting operation)
UCS_JAMMING_SLOT_FG_SENS	5029	During printing, the printer transfer FG sensor didn't detect the print (printing)
UCS_JAMMING_SHELL_FG_SENS	5030	While delivering the print out of the shell roller, the FG sensor in the shell didn't detect the print (reversing operation)
UCS_REMAIN_SUPPLY_SENS	5033	Paper supply sensor is OFF (paper present)
UCS_REMAIN_SLOT_SENS	5034	Printer feed slot sensor is OFF (paper present)
UCS_REMAIN_PASS_SENS	5035	Pinch pass sensor is OFF (paper present)
UCS_REMAIN_SHELL_SENS1	5036	Shell pass sensor 1 is OFF (paper present)
UCS_REMAIN_SHELL_SENS2	5037	Shell pass sensor 2 is OFF (paper present)
UCS_REMAIN_EJECT_SENS	5038	Eject sensor is OFF (paper present)
UCS_CAPSTAN_TRAPZ_ERROR	5049	The capstan drive control didn't end within the set time
UCS_SHELL_ROLLER_ERROR	5065	Shell roller malfunction (slow or stuck)
UCS_PINCH_OPEN_ERROR	5081	The pinch roller could not be moved to the release position
UCS_PINCH_CLOSE_ERROR	5082	The pinch roller could not be moved to the pinch position
UCS_PINCH_INIT_ERROR	5083	The pinch roller initialization could not be completed
UCS_PINCH_POS_UNKNOWN	5084	The pinch roller position is unknown (during trials only)
UCS_PASS_GUIDE_SUPPLY_ERROR	5097	The pass guide could not be moved to the supply position
UCS_PASS_GUIDE_SHELL_ERROR	5098	The pinch roller could not be moved to the retracted position
UCS_PASS_GUIDE_EJECT_ERROR	5099	The pinch roller could not be moved to the eject position
UCS_PASS_GUIDE_INIT_ERROR	5100	The pass guide initialization could not be completed
UCS_PASS_GUIDE_POS_UNKNOWN	5101	The pass guide position is unknown (during trials only)
UCS_SIDE_GUIDE_HOME_ERROR	5113	The side guide could not be moved to the HOME position
UCS_SIDE_GUIDE_POS_ERROR	5114	The side guide could not be moved to the prescribed position
UCS_SIDE_GUIDE_INIT_ERROR	5115	The side guide initialization could not be completed
UCS_ACT_GUIDE_HOME_ERROR	5129	The act guide could not be moved to the HOME position
UCS_SHELL_ROTATE_HOME_ERROR	5145	The shell roller didn't rotate to the HOME position
UCS_SHELL_ROTATE_REV_ERROR	5146	The shell roller didn't rotate to the REV position
UCS_LEVER_DOWN_ERROR	5161	The paper feed lever could not be moved to the DOWN position

UCS_LEVER_LOCK_ERROR	5162	The paper feed lever could not be moved to the LOCK position
UCS_LEVER_UP_ERROR	5163	The paper feed lever could not be moved to the UP position
UCS_CUTTER_HOME_ERROR	5177	The cutter could not be returned to the HOME position
UCS_CUTTER_AWAY_ERROR	5178	The cutter could not be moved to the AWAY position
UCS_CUTTER_INIT_ERROR	5179	Cutter initialization could not be completed
UCS_CUTTER_POS_UNKNOWN	5180	Cutter position is unknown (in testing only)
UCS_TRAY_OUT	5193	Paper tray removed during printing
UCS_TOP_COVER_OPEN	5209	Maintenance cover opened during printing
UCS_SYSTEM_ERROR	5241	System error

3-4 The number of free buffers which can transmit printing data

When the numbers of free buffers are the following value, printing data can be transmitted to a printer.

However, when changing gloss printing and matte printing mutually, the number of free buffers is 2 by every paper type.

Model: DS40

Paper Type	Gloss printing		Matte printing	
	300 x 300 DPI	300 x 600 DPI	300 x 300 DPI	300 x 600 DPI
5x3.5 (L)	1, 2	1, 2	1, 2	1, 2
6x4 (PC)	1, 2	1, 2	1, 2	1, 2
5x7 (2L)	1, 2	1, 2	1, 2	2
6x8 (A5)	1, 2	2	1, 2	2
6x4x2 (PC dual image)	1, 2	2	1, 2	2
6x9 (A5W)	1, 2	2	1, 2	2
5x3.5x2 (L dual image)	1, 2	1, 2	1, 2	2

Model: DS80

Paper Type	Gloss printing		Matte printing	
	300 x 300 DPI	300 x 600 DPI	300 x 300 DPI	300 x 600 DPI
(8 x 4)	1, 2	1, 2	1, 2	1, 2
(8 x 5)	1, 2	1, 2	1, 2	1, 2
(8 x 6)	1, 2	1, 2	1, 2	1, 2
(8 x 8)	1, 2	1, 2	1, 2	1, 2
(8 x 4) x 2	1, 2	1, 2	1, 2	1, 2
(8 x 5) (8 x 4)	1, 2	1, 2	1, 2	1, 2
(8 x 10)	1, 2	1, 2	1, 2	1, 2
(8 x 5) x 2	1, 2	1, 2	1, 2	1, 2
(8 x 6) (8 x 4)	1, 2	1, 2	1, 2	1, 2
(8 x 6) (8 x 5)	1, 2	1, 2	1, 2	1, 2
A4 Length	1, 2	1, 2	1, 2	2
(8 x 12)	1, 2	1, 2	1, 2	2
(8 x 6) x 2	1, 2	1, 2	1, 2	2
(8 x 8) (8 x 4)	1, 2	1, 2	1, 2	2
(8 x 4) x 3	1, 2	1, 2	1, 2	2

Model : DP-DS80D

Paper type	Gloss printing		Matte printing	
	300 x 300 DPI	300 x 600 DPI	300 x 300 DPI	300 x 600 DPI
(8 x 4)	1, 2	1, 2	1, 2	1, 2
(8 x 5)	1, 2	1, 2	1, 2	1, 2
(8 x 6)	1, 2	1, 2	1, 2	1, 2
(8 x 8)	1, 2	1, 2	1, 2	1, 2
(8 x 4) x 2	1, 2	1, 2	1, 2	1, 2
(8 x 5) (8 x 4)	1, 2	1, 2	1, 2	1, 2
(8 x 10)	1, 2	1, 2	1, 2	1, 2
(8 x 5) x 2	1, 2	1, 2	1, 2	1, 2
(8 x 6) (8 x 4)	1, 2	1, 2	1, 2	1, 2
(8 x 6) (8 x 5)	1, 2	1, 2	1, 2	1, 2
A4 Length	1, 2	1, 2	1, 2	2
(8 x 12)	1, 2	1, 2	1, 2	2
(8 x 6) x 2	1, 2	1, 2	1, 2	2
(8 x 8) (8 x 4)	1, 2	1, 2	1, 2	2
(8 x 4) x 3	1, 2	1, 2	1, 2	2
(8 x 10.5)	1, 2	1, 2	1, 2	1, 2
(8 x 10.75)	1, 2	1, 2	1, 2	1, 2

3-5 Multi-cut pattern specification value

Transmit the specification value applicable to each paper type. (Paper type supported by the model differs.)

			Support paper type of each model (○:Support, —:No support)						
		Paper Type	Specification value	CX	CX-W	DP-DS80D			
Roll-paper designation			(5 x 3.5)	00000001	○	—	—		
			(6 x 4)	00000002	○	—	—		
			(5 x 7)	00000003	○	—	—		
			(6 x 8)	00000004	○	—	—		
			(6 x 9)	00000005	○	—	—		
			(8 x 10)	00000006	—	○	○		
			(8 x 12)	00000007	—	○	○		
			(8 x 4)	00000008	—	○	○		
			(8 x 5)	00000009	—	○	○		
			(8 x 6)	00000010	—	○	○		
			(8 x 8)	00000011	—	○	○		
			(6 x 4) x 2	00000012	○	—	—		
			(8 x 4) x 2	00000013	—	○	○		
			(8 x 5) x 2	00000014	—	○	○		
			(8 x 6) x 2	00000015	—	○	○		
			(8 x 5)_(8 x 4)	00000016	—	○	○		
			(8 x 6)_(8 x 4)	00000017	—	○	○		
			(8 x 6)_(8 x 5)	00000018	—	○	○		
			(8 x 8)_(8 x 4)	00000019	—	○	○		
			(8 x 4) x 3	00000020	—	○	○		
			A4 Length	00000021	—	○	○		
			(5 x 3.5) x 2	00000022	○※1	—	—		
Cut-paper designation	Simplex printing			(8 x 10)	00000106	—	—	○	
				(8 x 12)	00000107	—	—	○	
				(8 x 4)	00000108	—	—	○	
				(8 x 5)	00000109	—	—	○	
				(8 x 8)	00000111	—	—	○	
				(8 x 10.5)	00000125	—	—	○	
				(8 x 10.75)	00000126	—	—	○	
				(8 x 4) x 2	00000113	—	—	○	
				(8 x 5) x 2	00000114	—	—	○	
				(8 x 4) x 3	00000128	—	—	○	
	Duplex printing	Front design.			(8 x 10)	00000206	—	—	○
					(8 x 12)	00000207	—	—	○
					(8 x 4)	00000208	—	—	○
					(8 x 5)	00000209	—	—	○
					(8 x 8)	00000211	—	—	○
					(8 x 10.5)	00000225	—	—	○
					(8 x 10.75)	00000226	—	—	○
					(8 x 4) x 2	00000213	—	—	○
					(8 x 5) x 2	00000214	—	—	○
					(8 x 4) x 3	00000228	—	—	○
		Back design.			(8 x 10)	00000306	—	—	○
					(8 x 12)	00000307	—	—	○
					(8 x 4)	00000308	—	—	○
					(8 x 5)	00000309	—	—	○
					(8 x 8)	00000311	—	—	○
					(8 x 10.5)	00000325	—	—	○
					(8 x 10.75)	00000326	—	—	○
					(8 x 4) x 2	00000313	—	—	○
		(8 x 5) x 2	00000314	—	—	○			
		(8 x 4) x 3	00000328	—	—	○			

※1 Firmware version 1.50 or later

3-6 Cutter control specification value

Cutter operation which can be specified by the firmware version differs.

○:Support —:No support Value: Effective firmware version (This or later)

Cutter operation	Specification value	Model		
		DS40	DS80	DP-DS80D
Normal operation	00000000	○	○	Roll media only
Operation causing no cut-paper waste	00000001	○	○	Roll media only
2inch cut operation	00000120	1.40	—	—

3-7 Example of acquisition of a media lot number

Media lot number input data (RF-ID write setup by DNP)		RF-ID tag data (*1)	Host side acquisition data
Before writing in by DNP (at the time of CSJ shipment)		0x00 0x00 0x00 ... 0x00	ML<0x00><0x00><0x00>...<0x00><0x0D><0x00> 16 characters
0 character (When there's no setup)	""	0x20 0x20 0x20 ... 0x20 16 characters are spaces	ML<0x20><0x20><0x20>...<0x20><0x0D><0x00> 16 characters
Setup of 1 character	"A"	0x41 0x20 0x20 ... 0x20 15 characters are spaces	ML<0x41><0x20><0x20>...<0x20><0x0D><0x00> 16 characters
Setup of 2 characters	"AB"	0x41 0x42 0x20 ... 0x20 14 characters are spaces	ML<0x41><0x42><0x20>...<0x20><0x0D><0x00> 16 characters
:	:	:	:
Setup of 16 characters	"ABCDEFGHIJKLMNPO"	0x41 0x42 0x43 ... 0x50	ML<0x41><0x42><0x43>...<0x50><0x0D><0x00> 16 characters
Setup of 17 characters (It can't setup) (*2)	"ABCDEFGHIJKLMNPO"	0x41 0x42 0x43 ... 0x50	ML<0x41><0x42><0x43>...<0x50><0x0D><0x00> 16 characters

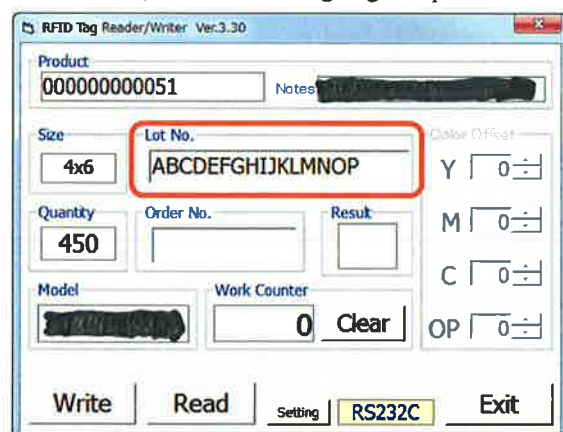
(*1) RF-ID tag data

The media lot number of a RF-ID tag is cleared by [0x00 0x00 ... 0x00] at the time of CSJ shipment.

The RF-ID write tool for DNP is writing in by making the remainder into a space (0x20), when a media lot number is less than 16 characters.

(*2) Setting of 17 or more characters

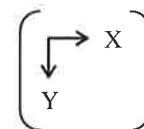
The RF-ID write tool for DNP has restricted the number of characters which can be inputted into a media lot number to 16 characters, and even if it is going to input 17 or more characters, it cannot input it.



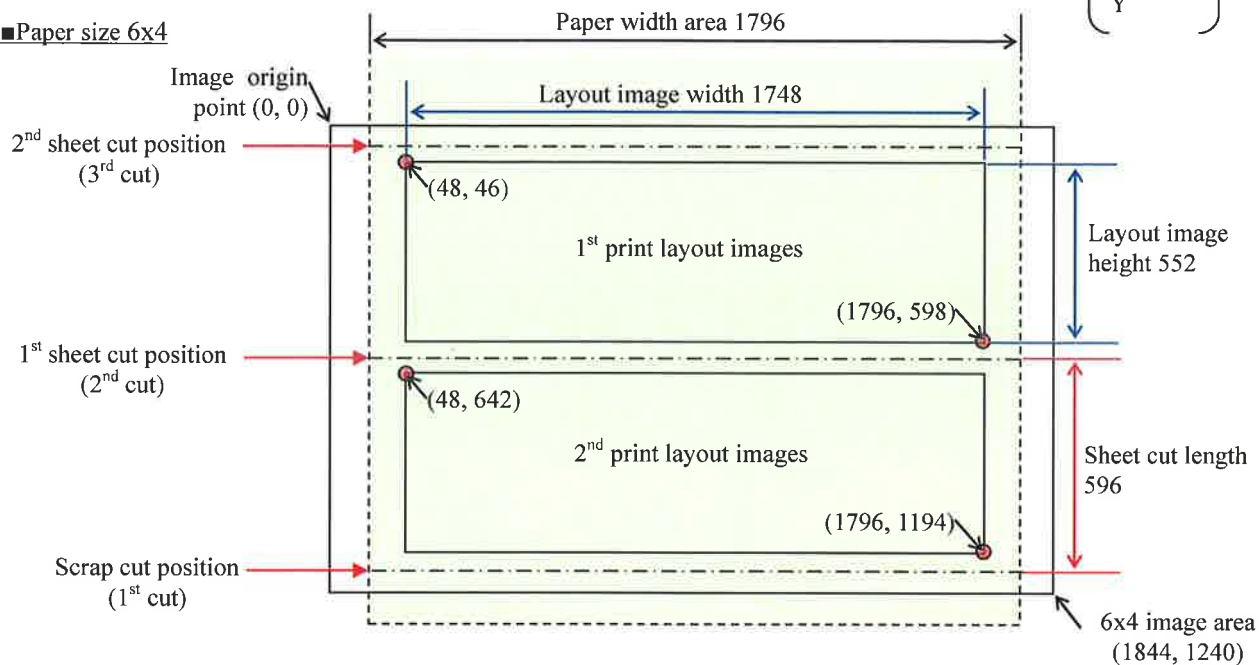
The RF-ID write tool for DNP

3-8 Recommended image layout of 2 inch cut operation

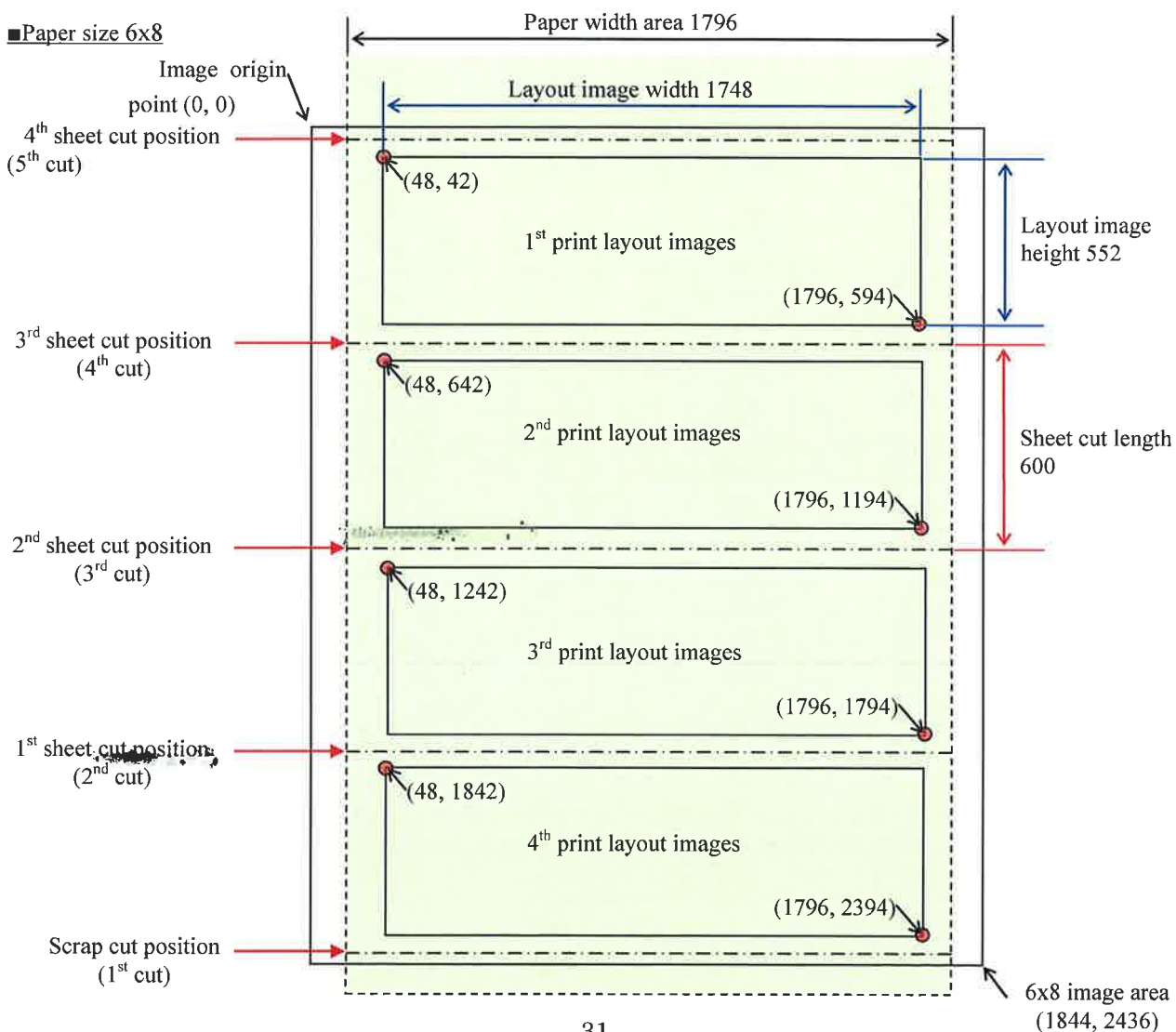
(For when the resolution setting is 300x300dpi)



■ Paper size 6x4



■ Paper size 6x8



Parameter List (units=pixels)

		Paper size 6x4		Paper size 6x8	
Resolution(dpi)		300x300	300x600	300x300	300x600
Image size	X	1844	1844	1844	1844
	Y	1240	2480	2436	4872
For 2-inch cuts					
Layout image size	X	1748	1748	1748	1748
	Y	552	1104	552	1104
1 st print coord.(X,Y)	Top left	48,46	48,92	48,42	48,84
	Bot. right	1796,598	1796,1196	1796,594	1796,1188
2 nd print coord.(X,Y)	Top left	48,642	48,1284	48,642	48,1284
	Bot. right	1796,1194	1796,2388	1796,1194	1796,2388
3 rd print coord. (X,Y)	Top left	---	---	48,1242	48,2484
	Bot. right	---	---	1796,1794	1796,3588
4 th print coord. (X,Y)	Top left	---	---	48,1842	48,3684
	Bot. right	---	---	1796,2394	1796,4788
Y-space between layouts		44	88	48	96
Sheet cut length		596	1192	600	1200
Sheet size(W x H)		152mm x 50.5mm		152mm x 50.8mm	

3-9 Counter count-up action

■Stand-alone:

Timing of a count-up is after performing a cut of a print picture correctly.

Count-up is not performed when an error occurred. Counter P is cleared to 0, if a power supply is turned off.

DS40	Print Size		Counter L/A/B Matte/M	Counter P
Single-cut	(5x3.5) (L)		+1	+1
	(6x4) (PC)		+1	+1
	(5x7) (2L)		+2	+1
	(6x8) (A5)		+2	+1
	(6x9) (A5W)		+2	+1
Multi-cut	(6x4)x2 (PC 2-image layout)	1st image	---	+1
		2nd image	+2	+1
	(5x3.5)x2 (L 2-image layout)	1st image	---	+1
		2nd image	+2	+1
2inch cut *Only correspondence model Refet to cutter control command	(6x4)	1st sheet	---	+1
		2nd sheet	+1	+1
	(6x8)	1st sheet	---	+1
		2nd sheet	---	+1
		3rd sheet	---	+1
		4th sheet	+2	+1

DS80	Print Size		Counter L/A/B Matte/M	Counter P
Single-cut	(8x10)		+1	+1
	(8x12)		+1	+1
	(8x4)		+1	+1
	(8x5)		+1	+1
	(8x6)		+1	+1
	(8x8)		+1	+1
	A4 Length		+1	+1
Multi-cut	(8x4)x2	1st image	---	+1
		2nd image	+1	+1
	(8x5)x2	1st image	---	+1
		2nd image	+1	+1
	(8x6)x2	1st image	---	+1
		2nd image	+1	+1
	(8x5)_(8x4)	1st image	---	+1
		2nd image	+1	+1
	(8x6)_(8x4)	1st image	---	+1
		2nd image	+1	+1
	(8x6)_(8x5)	1st image	---	+1
		2nd image	+1	+1
	(8x8)_(8x4)	1st image	---	+1
		2nd image	+1	+1
	(8x4)x3	1st image	---	+1
		2nd image	---	+1
		3rd image	+1	+1

■Duplex

The counter is increased after a print image is cut normally.

The counter doesn't increase when an error occurs. Counter P is cleared to 0 when the power is turned OFF.

When using roll media

DP-DS80D	Print size		Counter L/A/B Matte/M	Counter P	Counter Duplex
Single cut	(8x10)		+1	+1	---
	(8x12)		+1	+1	---
	(8x4)		+1	+1	---
	(8x5)		+1	+1	---
	(8x6)		+1	+1	---
	(8x8)		+1	+1	---
	A4 Length		+1	+1	---
Multi-cut	(8x4)x2	1 st side	---	+1	---
		2 nd side	+1	+1	---
	(8x5)x2	1 st side	---	+1	---
		2 nd side	+1	+1	---
	(8x6)x2	1 st side	---	+1	---
		2 nd side	+1	+1	---
	(8x5)_(8x4)	1 st side	---	+1	---
		2 nd side	+1	+1	---
	(8x6)_(8x4)	1 st side	---	+1	---
		2 nd side	+1	+1	---
	(8x6)_(8x5)	1 st side	---	+1	---
		2 nd side	+1	+1	---
	(8x8)_(8x4)	1 st side	---	+1	---
		2 nd side	+1	+1	---
	(8x4)x3	1 st side	---	+1	---
		2 nd side	---	+1	---
		3 rd side	+1	+1	---

When using cut media

DP-DS80D	Print size		Counter L/A/B Matte/M	Counter P	Counter Duplex
Single Cut	(8x10)	1 side	+1	+1	+1
		Both sides	+2	+1	+2
	(8x12)	1 side	+1	+1	+1
		Both sides	+2	+1	+2
	(8x4)	1 side	+1	+1	+1
		Both sides	+2	+1	+2
	(8x5)	1 side	+1	+1	+1
		Both sides	+2	+1	+2
	(8x8)	1 side	+1	+1	+1
		Both sides	+2	+1	+2
	(8x10.5)	1 side	+1	+1	+1
		Both sides	+2	+1	+2
Multi-cut	(8x4)x2	1 side	1st sheet	--	--
			2nd sheet	+1	+1
		Both sides	1st sheet	--	--
			2nd sheet	+2	+2
	(8x5)x2	1 side	1st sheet	--	--
			2nd sheet	+1	+1
		Both sides	1st sheet	--	--
			2nd sheet	+2	+2
	(8x4)x3	1 side	1st sheet	--	--
			2nd sheet	--	--
			3rd sheet	+1	+1
		Both sides	1st sheet	--	--
			2nd sheet	--	--
			3rd sheet	+2	+2

3-10 Get the Media Counter of Remaining Sheets (Counter default value)

Counter default value of each model and each media are as follows.

Machine	Media	Sheet/Roll	Counter default Value
DS40	5x3.5 (L)	400	450
	6x4 (PC)	400	450
	5x7 (2L)	230	280
	6x8 (A5)	200	250
	6x9 (A5W)	180	230
DS80	8x10	130	180
DP-DS80D	8x12	110	160