

Photo Printer

Command Specification

(DS40/DS80/DP-DS80D/DP-DS620)

Ver. 2.321

Published October 31, 2014

CITIZEN SYSTEMS JAPAN CO.,LTD.

Revision History Chart		First Edition: October 11.2007			Page 1/2
Revised Item	Type of Revision	Revision No.	Revision Date	Approved	Designer
Title Page ii iii P18 P19	Title is renamed. "Model to apply" is added. "Command table" is added. "3-4 The number of free buffers which can transmit printing data" is added. "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.	2.000	2/7/2012		
P4 P20	In "1-1.2.9 Get media lot information ", the description mistake of the number of transmission data size is corrected. "3-7 Example of acquisition of a media lot number" is added.	2.010	11/7/2012		
	• Title is renamed. • DP- DS80D is added.	2.200	12/18/2013		
P30	Figure of the RF-ID write tool change	2.210	2/6/2014		
P24,25 P30	• The explanation for recovering from a Duplex unit error has been changed. • The explanation for the RF-ID media lot numbers has been changed.	2.220	2/28/2014		
Front Cover, i - v P4,6,9 P11-14, P17-20,22 P29-30, P33-35, 39 P41-50	• Title is renamed. • DP- DS620 is added. • The following command is added. 1-1.2.7-2 Get L/PC Size Conversion Media Counter of Remaining Sheets 1-1.2.13 Get Printer Serial Number 1-3.6 Full Cutter Set-up 1-4.6 Get Color Data Version <Type Designation> 1-4.7 Get Color Data Checksum <Type Designation> 1-5.11 Set Standby mode transition time 1-5.12 Get Standby mode transition time 1-5.13 Set Media End Keep Mode 1-5.14 Get Media End Keep Mode 1-5.15 Set USB iSerialNumber availability setting 1-5.16 Get USB iSerialNumber availability setting • The following supplementary information is added 3-11 Full Cutter Set-up command 3-12 Standby Mode 3-13 Ribbon Rewind Function • The following media size is added 5x5, 6x6	2.300	7/17/2014		
P18-20	• Stated that the settings are stored in the printer. The default value for the setting is clarified.	2.310	7/25/2014		
i, iv, v P7,23,25 36,42	• Cut paper 8x6x2 size is added. • The following command is added. 1-1.2.14 Get duplex-unit firmware rewrite information 1-6.3 Changing to the firmware rewrite mode for duplex-unit 1-6.4 Transmission of firmware rewriting data for duplex-unit	2.320	8/22/2014		

Revision History Chart		First Edition: October 11.2007			Page 2/2
Revised Item	Type of Revision	Revision No.	Revision Date	Approved	Designer
P2 P21 P37 P53 P14-16,54 P4,55 Piv,52	• Sensor information is added. • Change the factory preset value of the Media End Keep Mode. (0: not Keep Media End -> 1: Keep Media End) • Rewind (5 x 3.5) is supported. • Stated that the DP-DS620 (A) is printed without rewinding the ribbon. • 3-14 Procedure to update of color control data is added. (include 610.cwd) • 3-15 Ribbon End Check Operation is added. • Get printer version information is changed the command that can be used in Standby Mode	2.321	10/31/2014		

Contents	
Notes	iii
Model to apply	iii
Command table	iv
1. Details of commands	1
1-1.1 Get printer status	1
1-1.2.1 Get printer version information	1
1-1.2.2 Get printer sensor information	2
1-1.2.3 Get printer media information	3
1-1.2.4 Get printer horizontal resolution	3
1-1.2.5 Get printer vertical resolution	4
1-1.2.6 Get number of free print buffers	4
1-1.2.7-1 Get remaining print quantity	4
1-1.2.7-2 Get L/PC Size Conversion Media Counter of Remaining Sheets	5
1-1.2.8 Get Media Color offset values of the lot	5
1-1.2.9 Get media lot information	5
1-1.2.10 Getting the Duplex Unit status	6
1-1.2.11 Getting cut media information	6
1-1.2.12 Get duplex-unit version information	7
1-1.2.13 Get Printer Serial Number	7
1-1.2.14 Get duplex-unit firmware rewrite information	8
1-2.1 Sending command of Yellow graphic data block	9
1-2.2 Sending command of Magenta graphic data block	9
1-2.3 Sending command of Cyan graphic data block	9
1-2.4 Designate multi-cut pattern	10
1-3.1 Print start	11
1-3.2 Cutter control	11
1-3.3 Overcoat finish	11
1-3.4 Print re-try control	12
1-3.5 Duplex Printer: cancelling back print and ejecting the media	12
1-3.6 Full Cutter Set-up	13
1-4.1 Clearing of printer table information	14
1-4.2 Update of color control data	14
1-4.3 Setting of color control data version	14
1-4.4 Acquisition of color control data version	15
1-4.5 Acquisition of color control data checksum	15
1-4.6 Acquisition of color control data version <Type designation>	15
1-4.7 Acquisition of color control data checksum <Type designation>	16
1-5.1 Clearing the counter A/B	17
1-5.2 Reading the print volume life counter	17
1-5.3 Reading the print volume counter A	17
1-5.4 Reading the print volume counter B	18
1-5.5 Reading the print volume counter P	18
1-5.6 Setting counter P value	18
1-5.7 Reading the print volume Matte counter	19
1-5.8 Reading the print volume counter M	19
1-5.9 Clearing the counter M	19
1-5.10 Read Duplex Counter	20
1-5.11 Standby mode transition time setting	20
1-5.12 Standby mode transition time acquisition	20
1-5.13 Setting of Media end keep mode	21
1-5.14 Acquisition of Media end keep mode	21
1-5.15 Set USB iSerialNumber availability setting	22
1-5.16 Get USB iSerialNumber availability setting	22
1-6.1 Changing to the firmware rewrite mode	23
1-6.2 Transmission of firmware rewriting data	23
1-6.3 Changing to the firmware rewrite mode for duplex-unit	24
1-6.4 Transmission of firmware rewriting data for duplex-unit	24
2-1. Image size	25
2-2. Duplex printer: Relationship between the image created by the application and the printer operation/output image	28
3. Supplementary information	32
3-1 Plane data format of each color	32
3-2 Media codes	32
3-3.1 Status codes	33
3-3.2 Duplex-specific status codes	34
3-4 The number of free buffers which can transmit printing data	36
3-5 Multi-cut pattern specification value	37

3-6 Cutter control specification value.....	38
3-7 Example of acquisition of a media lot number.....	39
3-8 Recommended image layout of 2 inch cut operation.....	40
3-9 Counter count-up action	42
3-10 Get the Media Counter of Remaining Sheets(Counter default value)	44
3-11 Full cutter set-up command (DP-DS620).....	45
3-12 Standby Mode (DP-DS620)	52
3-13 Ribbon Rewind Function (DP-DS620).....	53
3-14 Procedure to update of color control data	54
3-15 Ribbon End Check Operation (DP-DS620).....	55

Notes



All contents on this reference manual are the copyright of CITIZEN SYSTEMS JAPAN CO., LTD. Reproduction, transfer, or copying in any form of any part of this document without the prior consent of CITIZEN SYSTEMS JAPAN CO., LTD. is prohibited



Information in this document is subject to change without notice.



Microsoft, Windows is the registered trademark of Microsoft Corporation or registered trademarks of their respective companies.

Copyright(C) CITIZEN SYSTEMS JAPAN CO., LTD. All Right Reserved

Model to apply

This command specification is applied to the following models.

- DS40
- DS80
- DP-DS80D
- DP-DS620

Command table

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

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

§	Function	Command	Note	Model				Notes
				DS40	DS80	DP- DS80D	DP- DS620	
1-1.1	Get printer status	<ESC>P STATUS	*1	○	○	○	○	Refer to 3-3.1
1-1.2.1	Get printer version information	<ESC>P INFO FVER	*1	○	○	○	○	
1-1.2.2	Get printer sensor information	<ESC>P INFO SENSOR	*2	○	○	○	○	
1-1.2.3	Get printer media information	<ESC>P INFO MEDIA	*1	○	○	○	○	Refer to 3-2
1-1.2.4	Get printer horizontal resolution	<ESC>P INFO RESOLUTION_H	*2	○	○	○	○	
1-1.2.5	Get printer vertical resolution	<ESC>P INFO RESOLUTION_V	*2	○	○	○	○	
1-1.2.6	Get number of free print buffers	<ESC>P INFO FREE_BUFFER	*2	○	○	○	○	Refer to 3-4
1-1.2.7-1	Get remaining print quantity	<ESC>P INFO MQTY	*1	○	○	○	○	Refer to 3-10
1-1.2.7-2	Get L/PC Size Conversion Media Counter of Remaining Sheets	<ESC>P INFO RQTY	*1	-	-	-	○	Refer to 3-13
1-1.2.8	Get Media Color offset values of the lot	<ESC>P INFO MCOLOR	*2	○	○	○	○	
1-1.2.9	Get media lot information	<ESC>P INFO MLOT	*1	○	○	○	○	Refer to 3-7
1-1.2.10	Get duplex unit status	<ESC>P INFO UNIT_STATUS	-	—	—	○	—	Refer to 3-3.2
1-1.2.11	Get cut media information	<ESC>P INFO CUT_PAPER	-	—	—	○	—	
1-1.2.12	Get duplex-unit version information	<ESC>P INFO UNIT_FVER	-	—	—	○	—	
1-1.2.13	Get Printer Serial Number	<ESC>P INFO SERIAL_NUMBER	*1	○	○	○	○	
1-1.2.14	Get duplex-unit firmware rewrite information	<ESC>P INFO DUNIT_UPD_STS	-	-	-	1.20	-	
1-2.1	Sending command of Yellow graphic data block	<ESC>P IMAGE YPLANE	*3	○	○	○	○	Refer to 2-1, 3-1
1-2.2	Sending command of Magenta graphic data block	<ESC>P IMAGE MPLANE	*3	○	○	○	○	Refer to 2-1, 3-1
1-2.3	Sending command of Cyan graphic data block	<ESC>P IMAGE CPLANE	*3	○	○	○	○	Refer to 2-1, 3-1
1-2.4	Designate multi-cut pattern	<ESC>P IMAGE MULTICUT	*3	○	○	○	○	Refer to 3-5
1-3.1	Print start	<ESC>P CNTRL START	*3	○	○	○	○	
1-3.2	Cutter control	<ESC>P CNTRL CUTTER	*3	○	○	○	○	Refer to 3-6,3-8
1-3.3	Overcoat finish	<ESC>P CNTRL OVERCOAT	*3	1.30	1.30	○	○	
1-3.4	Print re-try control	<ESC>P CNTRL BUFFCNTRL	*3	1.30	1.30	Roll media only	○	
1-3.5	Duplex unit: Cancel back print & eject	<ESC>P CNTRL DUPLEX_CANCEL	-	—	—	○	—	
1-3.6	Full Cutter Set-up	<ESC>P CNTRL FULL_CUTTER_SET	*3	1.51	-	-	○	Refer to 3-11
1-4.1	Clearing of printer table information	<ESC>P TBL_CL	*3	○	○	○	○	
1-4.2	Update of color control data	<ESC>P TBL_WT CTRLD_UPDATE	*3	○	○	○	○	
1-4.3	Setting of color control data version	<ESC>P TBL_WT Version	*3	○	○	○	○	
1-4.4	Acquisition of color control data version	<ESC>P TBL_RD Version	*2	○	○	○	○	

1-4.5	Acquisition of color control data checksum	<ESC>P	MNT_RD	CTRLD_CHKSUM	*2	○	○	○	○	
1-4.6	Acquisition of color control data version <Type designation>	<ESC>P	TBL_RD	CWD300_Version CWD600_Version CWD610_Version	*2	—	—	—	○	
1-4.7	Acquisition of color control data checksum <Type designation>	<ESC>P	MNT_RD	CWD300_Checksum CWD600_Checksum CWD610_Checksum	*2	—	—	—	○	
1-5.1	Clearing the counter A/B	<ESC>P	MNT_WT	COUNTER_CLR	*3	○	○	○	○	
1-5.2	Reading the print volume life counter	<ESC>P	MNT_RD	COUNTER_LIFE	*2	○	○	○	○	Refer to 3-9
1-5.3	Reading the print volume counter A	<ESC>P	MNT_RD	COUNTER_A	*2	○	○	○	○	Refer to 3-9
1-5.4	Reading the print volume counter B	<ESC>P	MNT_RD	COUNTER_B	*2	○	○	○	○	Refer to 3-9
1-5.5	Reading the print volume counter P	<ESC>P	MNT_RD	COUNTER_P	*2	1.04	1.02	○	○	Refer to 3-9
1-5.6	Setting counter P value	<ESC>P	MNT_WT	COUNTERP_SET	*3	1.04	1.02	○	○	
1-5.7	Reading the print volume Matte counter	<ESC>P	MNT_RD	COUNTER_MATTE	*2	1.30	1.30	○	○	Refer to 3-9
1-5.8	Reading the print volume counter M	<ESC>P	MNT_RD	COUNTER_M	*2	1.30	1.30	○	○	Refer to 3-9
1-5.9	Clearing the counter M	<ESC>P	MNT_WT	COUNTER_CLR	*3	1.30	1.30	○	○	
1-5.10	Read Duplex Counter	<ESC>P	MNT_RD	COUNTER_DUPLEX	-	—	—	○	—	Refer to 3-9
1-5.11	Standby mode transition time setting	<ESC>P	MNT_WT	STANDBY_TIME	*3	-	-	-	○	Refer to 3-12
1-5.12	Standby mode transition time acquisition	<ESC>P	MNT_RD	STANDBY_TIME	*2	-	-	-	○	Refer to 3-12
1-5.13	Setting of Media end keep mode	<ESC>P	MNT_WT	END_KEEP_MODE	*3	-	-	-	○	
1-5.14	Acquisition of Media end keep mode	<ESC>P	MNT_RD	END_KEEP_MODE	*2	-	-	-	○	
1-5.15	Set USB iSerialNumber availability setting	<ESC>P	MNT_WT	USB_ISERI_SET	*3	-	-	-	○	
1-5.16	Get USB iSerialNumber availability setting	<ESC>P	MNT_RD	USB_ISERI_SET	*2	-	-	-	○	
1-6.1	Changing to the firmware rewrite mode	<ESC>P	FW_UPD	FLASH_REWRITE	*3	○	○	○	○	
1-6.2	Transmission of firmware rewriting data	<ESC>P	FW_UPD	FLASH_PROGRAM	-	○	○	○	○	
1-6.3	Changing to the firmware rewrite mode for duplex-unit	<ESC>P	FW_UPD	DUNIT_REWRITE	-	-	-	○	-	
1-6.4	Transmission of firmware rewriting data for duplex-unit	<ESC>P	FW_UPD	DUNIT_PROGRAM	-	-	-	○	-	

Note

*1: Compatible model= DP-DS620

The printer can send return data even in Standby mode. (Refer to 3-12)

*2: Compatible model = DP-DS620

During Standby mode, the printer will return to normal mode before carrying out the command and sending the return data (sends after approx. 10 sec). The Host will have to wait for the printer to send the return data. (Refer to 3-12)

*3: Compatible model = DP-DS620

During Standby mode, the printer will return to normal mode before carrying out the command (performs command after approx. 10 sec). (Refer to 3-12)

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).

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

[Returned data example] 00000200 HDT-011;MDT-022;RML-033;...GSB-099;<CR>

[Sensor Information]

HDT-***;	Head temperature	
MDT-***;	Media temperature	
PMK-***;	Paper mark	
RML-***;	Ribbon mark left	
RMC-***;	Ribbon mark center	
RMR-***;	Ribbon mark right	
PSZ-***;	Paper size	
PNT-***;	Paper notch	
PJM-***;	Paper jam	
PED-***;	Paper end	
PET-***;	Paper empty	
HDV-***;	Head voltage	
HMD-***;	Humidity	
RP1-***;	Roll media paper end detection sensor-1	(Only compatible for DP-DS80D)
RP2-***;	Roll media paper end detection sensor-2	(Only compatible for DP-DS80D)
GSR-***;	Color Sensor (Red)	(Only compatible for DP-DS620)
GSG-***;	Color Sensor (Green)	(Only compatible for DP-DS620)
GSB-***;	Color Sensor (Blue)	(Only compatible for DP-DS620)

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.)

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

[Returned data example] 00000008 MT00200<CR>

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)

1-1.2.7-1 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)
 (For the DP-DS620, if this value is 0 it signals ribbon end, but it runs ribbon check before this point.
 See "3-15 Ribbon End Check Operation (DP-DS620)" for details.)

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

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

1-1.2.7-2 Get L/PC Size Conversion Media Counter of Remaining Sheets

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

[Transmitted data]	Start code	ESC[1Bh] P
	INFO	Request to send printer information
	ROTY	Send the number of remaining sheets which has been converted to L or PC size

[Function] The printer sends the number of remaining sheets which has been converted to L size, when you load the 5x7(2L) size media to printer

Or, the printer sends the number of remaining sheets which has been converted to PC size, when you load the 6x8(A5) size media to printer.

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

[Returned data example]	00000012	RQTY0400<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>
-------------------------	----------	---------------------------------------

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).
------------	---

[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>
-------------------------	----------	--

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	nnnnn<CR> <null> <null>
[Returned data example]	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>
[Returned data example]	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>.

1-1.2.13 Get Printer Serial Number

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

[Transmitted data]	Start code	ESC[1Bh] P
	INFO	Request to send printer information
	SERIAL_NUMBER	Request to send printer serial number

[Function]	The printer sends the serial number in a 32-digit ASCII code.
------------	---

[Returned data]	Size (8)	Data
	00000032	nnnnnnnn <null> <null> ... <null>

[Returned data example]	00000032	1234ABCD <null> <null> ... <null>
-------------------------	----------	-----------------------------------

1-1.2.14 Get duplex-unit firmware rewrite information

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

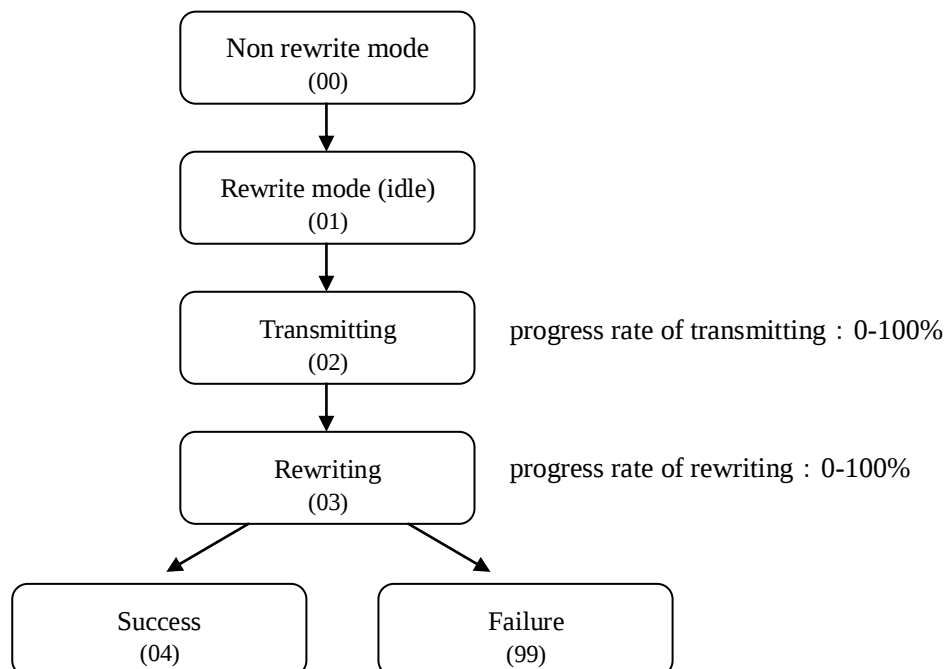
[Transmitted data]	Start code	ESC[1Bh] P
	INFO	Request to send printer information
	DUNIT_UPD_STS	Request to send firmware rewrite information

[Function]	The printer sends duplex-unit firmware rewrite 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]	00000032	STS-02; PRG-050; EXT-00000000; <CR>
-------------------------	----------	-------------------------------------

No	Items	Strings	Setting Values
1	Status	STS-	00 : non rewrite mode 01 : duplex-unit firmware rewrite mode (idle) 02 : duplex-unit firmware is transmitting. 03 : duplex-unit firmware is rewriting. 04 : Rewriting the duplex-unit firmware is success. 99 : Rewriting the duplex-unit firmware is failure.
2	Progress Rate	PRG-	000~100
3	Extended Information	EXT-	00000000~99999999



Status transition diagram of duplex-unit firmware rewrite mode

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 Example of acquisition of a media lot number" about the image layout of 2 inches cut operation.

If you specify both this command and Full Cutter Set-up command, Full Cutter Set-up command will be given priority.

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.
 Refer to "3-14 Procedure to update of color control data" for details.

[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_CW	Nnnnnnnn	data

[Transmitted data] Start code ESC[1Bh] P
 TBL_WT Start writing printer table information
 CTRLD_UPDATE_CW 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.
 Refer to "3-14 Procedure to update of color control data" for details.

[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.
 Refer to "3-14 Procedure to update of color control data" for details.

[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. Refer to "3-14 Procedure to update of color control data" for details.
------------	---

[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).

[Refer to "3-14 Procedure to update of color control data" for details.](#)

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

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

1-4.6 Acquisition of color control data version <Type designation>

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

[Transmitted data]	Start code	ESC[1Bh] P
	TBL_RD	Start reading printer table information
	CWDxxx_Version	Acquire the version information of color control data that has been type specification
		When xxx is "300", it is acquired the version information for 300dpi.
		When xxx is "600", it is acquired the version information for 600dpi.
		When xxx is "610", it is acquired the version information for low speed.

[Function]	The printer sends version information (variable-length character string) of color control data that has been type specification.
	Refer to "3-14 Procedure to update of color control data" for details.

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

[Returned data example]	00000020	DS620_300_0100.CWD<null><null>
-------------------------	----------	--------------------------------

1-4.7 Acquisition of color control data checksum <Type designation>

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

[Transmitted data] Start code ESC[1Bh] P
 MNT_RD Start reading printer maintenance information
 CWDxxx_Checksum Acquire the checksum of color control data that has been type
 specification
 When xxx is "300", it is acquired the checksum for 300dpi.
 When xxx is "600", it is acquired the checksum for 600dpi.
 When xxx is "610", it is acquired the checksum for low speed.

[Function] The printer sends the checksum of color control data that has been type specification (in hexadecimal number) in
 4-digit ASCII character string (with CR<0Dh> at its end).
[Refer to "3-14 Procedure to update of color control data" for details.](#)

[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	CAnnnnnnnn<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 CBnnnnnnn<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 CPnnnnnnn<CR> <null> <null>

1-5.6 Setting counter P value

[Code]	Start (2)	Argument1 (6)	Argument2(16)	Argument3(16)	Argument 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	CMnnnnnnnn<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_CLEAR	00000004	CM<CR><NULL>

[Transmitted data]	Start code	ESC[1Bh] P
	MNT_WT	Start setting printer maintenance information
	COUNTER_CLEAR	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)

1-5.11 Standby mode transition time setting

[Code]	Start (2)	Argument1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_WT	STANDBY_TIME	00000004	nnnn

[Transmitted data] Start code ESC[1Bh] P
MNT_WT Start setting printer maintenance information
STANDBY_TIME Standby mode transition time
00000004 Argument 4 data length (8-digit decimal ASCII number in 4-byte unit)
nnnn Transition time (4-digit ASCII character string)
nnnn=0000~0099
0001~0099=1~99 minutes (default 10 minutes)
0000=Not transition to the standby mode

[Function] Set the time to transition to standby mode in 1 minute increments. (Up to 99 minutes maximum) Settings are stored in the printer. (It is valid even when you turn off the printer.)
If the Idle state continues for a set time, it transitions to the standby mode.
The printer does not transition to the standby mode if you set the transition time to 0000.

[Attention] When changing to a time shorter than the 10-minute default time, please check the information listed in the "Power Consumption" section of the Printer Product Specification Manual before proceeding.

1-5.12 Standby mode transition time acquisition

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

[Transmitted data] Start code ESC[1Bh] P
MNT_RD Start reading printer maintenance information
STANDBY_TIME Standby mode transition time

[Function] The printer sends standby mode transition time in 2-digit ASCII character string (with CR<0Dh> at its end).
The default value for this setting is "10 minutes".

[Returned data]	size (8)	data
	00000008	00nn<CR> <null><null> <null>

[Returned data example] 00000008 0010<CR> <null><null> <null>

1-5.13 Setting of Media end keep mode

[Code]	Start (2)	Argument1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_WT	END_KEEP_MODE	00000004	nn<CR><NULL>

[Transmitted data]	Start code	ESC[1Bh] P
	MNT_WT	Start setting printer maintenance information
	END_KEEP_MODE	Media end keep mode
	00000004	Argument 4 data length (8-digit decimal ASCII number in 4-byte unit)
	nn<CR><NULL>	Setting of mode (2-digit ASCII character string)
	nn = 00 or 01	
	01 = The mode to keep media end	(factory preset value)
	00 = The mode not to keep media end	

[Function]	After Media End occurs, this command sets whether the Media End status is saved after the cover is opened/closed or the power is turned back ON. This command is valid for both Media End (ribbon end or paper end) and Media Error (ribbon error or paper jam). In the “Keep” mode, change the ribbon and paper while the printer is still ON in order to cancel the Media End status. To cancel the Media Error status, resolve the cause of the Media Error and reset the media while the printer is still ON. In the “Don’t Keep” mode, the Media End status and Media Error status will be cancelled as in current models when the cover is opened/closed or the power turned back ON. Settings are stored in the printer. (It is valid even when you turn off the printer.)
------------	---

1-5.14 Acquisition of Media end keep mode

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

[Transmitted data]	Start code	ESC[1Bh] P
	MNT_RD	Start reading printer maintenance information
	END_KEEP_MODE	Media end keep mode

[Function]	The printer sends setting of media end keep mode in 2-digit ASCII character string (with CR<0Dh> at its end). The factory preset value for this setting is " The mode to keep media end (1)".
------------	--

[Returned data]	size (8)	data
	00000004	nn<CR> <null>

[Returned data example]	00000004	00<CR> <null>
-------------------------	----------	---------------

1-5.15 Set USB iSerialNumber availability setting

[Code]	Start (2)	Argument1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	MNT_WT	USB_ISERI_SET	00000004	nn<CR><NULL>

[Transmitted data]	Start code	ESC[1Bh] P
	MNT_WT	Start setting printer maintenance information
	USB_ISERI_SET	USB iSerialNumber Setting
	00000004	Argument 4 data length (8-digit decimal ASCII number in 4-byte unit)
	nn	availability setting of USB iSerialNumber
		01 = Enable the USB iSerialNumber
		00 = Disable the USB iSerialNumber (default)

[Function]	Set the availability of USB iSerialNumber
	When you enable this setting, serial number is the product serial number of the product-specific information.
	Settings are stored in the printer. (It is valid even when you turn off the printer.)

1-5.16 Get USB iSerialNumber availability setting

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

[Transmitted data]	Start code	ESC[1Bh] P
	MNT_RD	Start reading printer maintenance information
	USB_ISERI_SET	USB iSerialNumber Setting

[Function]	The printer sends the availability setting of USB iSerialNumber in 2-digit ASCII character string. (with CR<0Dh> at its end).
	The default value for this setting is "Disable the USB iSerialNumber (0)".

[Returned data]	size (8)	data
	0000nnnn	nn<CR> <null>

[Returned data example]	00000004	nn<CR> <null>
-------------------------	----------	---------------

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 the firmware rewrite mode changing command to change 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.
-------------	---

1-6.3 Changing to the firmware rewrite mode for duplex-unit

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

[Transmitted data]	Start code	ESC[1Bh] P
	FW_UPD	Command for rewriting firmware
	DUNIT_REWRITE	Switch to the rewrite mode
	00000008	Argument 4 data length (8-digit decimal ASCII number)
	data	Baud rate setting
		00000000: 38400 bps
		00000001: 57600 bps
		00000002: 115200 bps
		00000003: 230400 bps

[Function]	This command switches to the duplex-unit firmware rewrite mode. Before sending the duplex-unit firmware rewriting data, make sure to use this command to switch to the duplex-unit rewrite mode on the printer. (When switching to the rewrite mode is completed, a blue LED on the printer starts blinking.) This mode will continue until finished to rewrite the firmware or turned off the printer.
------------	---

[Attention]	During the duplex-unit firmware rewrite mode cannot print.
-------------	--

1-6.4 Transmission of firmware rewriting data for duplex-unit

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

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

[Function]	Sends duplex-unit firmware rewriting data and rewrites the firmware. The duplex-unit firmware rewriting data is provided in binary format files.
------------	---

[Attention]	Before sending the firmware rewriting data, make sure to use the firmware rewrite mode changing command for duplex-unit to change to the duplex-unit 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 firmware rewriting data to complete the 32-bit unit.
-------------	--

2-1. Image size

Model: DS40 / DP-DS620

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
(5x5) ※2	5"x5"	131.1 x 130.4mm	1548 x 1540	1548 x 3080
(6x4) (PC)	6"x4"	156.1 x 105.0mm	1844 x 1240	1844 x 2480
(6x6) ※2	6"x6"	156.1 x 155.4mm	1844 x 1836	1844 x 3672
(5x7) (2L)	5"x7"	131.1 x 181.0mm	1548 x 2138	1548 x 4276
(6x8) (A5)	6"x8"	156.1 x 206.2mm	1844 x 2436	1844 x 4872
(6x4)x2 (PC dual image)	6"x4" (2 sheets)	156.1 x 211.5mm	1844 x 2498	1844 x 4996
(6x9) (A5W) ※3	6"x9"	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 DS40 Firmware version 1.50 or later

※2 only DP-DS620

※3 only DS40

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"x4"	207.3 x 104.6mm	2448 x 1236	2448 x 2472
(8x5)	8"x5"	207.3 x 130.0mm	2448 x 1536	2448 x 3072
(8x6)	8"x6"	207.3 x 155.4mm	2448 x 1836	2448 x 3672
(8x8)	8"x8"	207.3 x 206.2mm	2448 x 2436	2448 x 4872
(8x4)x2	8"x4" (2 sheets)	207.3 x 211.8mm	2448 x 2502	2448 x 5004
(8x5)_(8x4)	8"x5", 8"x4"	207.3 x 237.2mm	2448 x 2802	2448 x 5604
(8x10)	8"x10"	207.3 x 257.0mm	2448 x 3036	2448 x 6072
(8x5)x2	8"x5" (2 sheets)	207.3 x 262.6mm	2448 x 3102	2448 x 6204
(8x6)_(8x4)	8"x6", 8"x4"	207.3 x 262.6mm	2448 x 3102	2448 x 6204
(8x6)_(8x5)	8"x6", 8"x5"	207.3 x 288.0mm	2448 x 3402	2448 x 6804
A4 Length	8"x11.7"	207.3 x 300.0mm	2448 x 3544	2448 x 7088
8x12	8"x12"	207.3 x 307.8mm	2448 x 3636	2448 x 7272
(8x6)x2	8"x6" (2 sheets)	207.3 x 313.4mm	2448 x 3702	2448 x 7404
(8x8)_(8x4)	8"x8", 8"x4"	207.3 x 313.4mm	2448 x 3702	2448 x 7404
(8x4)x3	8"x4" (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

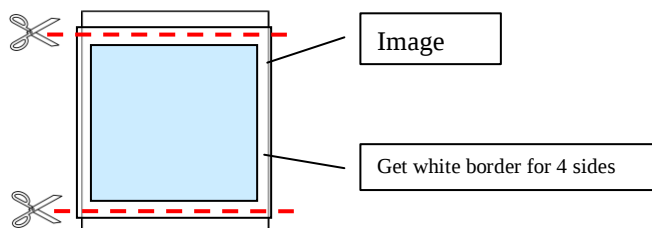
<Roll paper>

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>

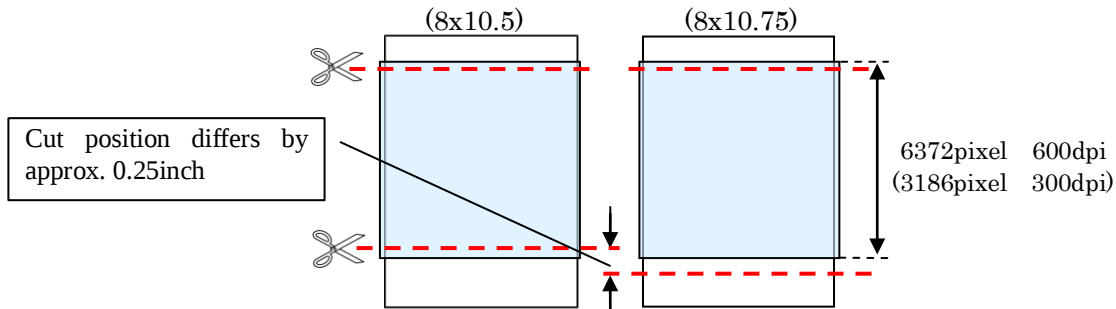
Paper Type	Paper Size (inch)	Print area size※1 Width (head-width direction) x Length (paper-feed direction)	Image pixel size	
			300 x 300 DPI (pixel)	300 x 600 DPI (pixel)
(8x4)	8"x 4"	207.3 x 104.6mm	2448 x 1236	2448 x 2472
(8x5)	8"x 5"	207.3 x 130.0mm	2448 x 1536	2448 x 3072
(8x6)	8"x 6"	207.3 x 155.4mm	2448 x 1836	2448 x 3672
(8x8)	8"x 8"	207.3 x 206.2mm	2448 x 2436	2448 x 4872
(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
(8x6)x2	8"x 6" (2 sheets)	207.3 x 313.4mm	2448 x 3702	2448 x 7404
(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, (8x6)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.



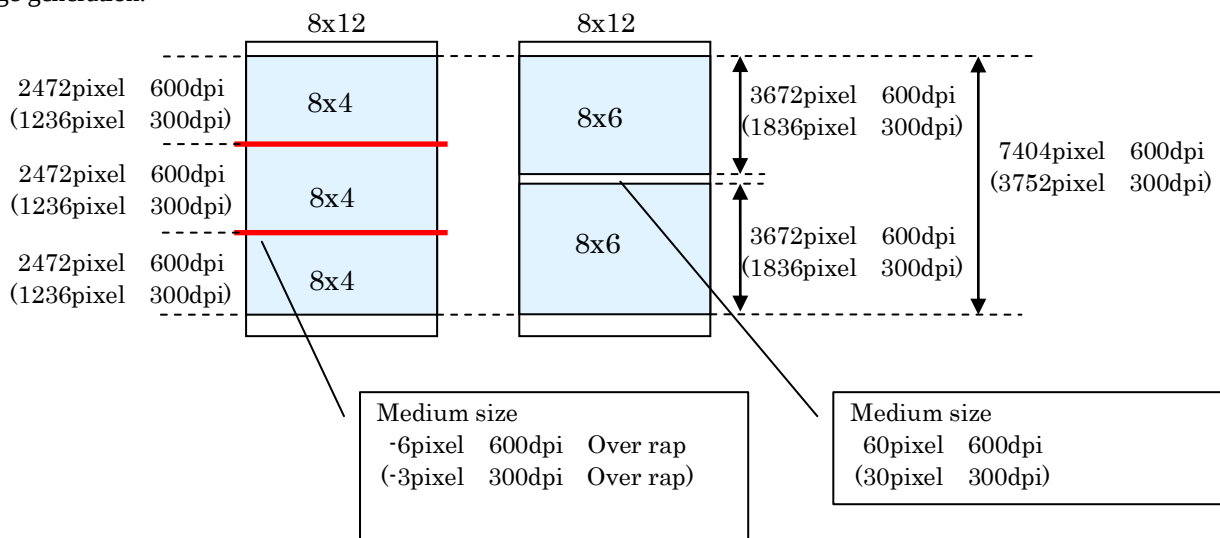
When transferring data of the above image pixel size, every one of them should be laid out at the center of above-mentioned "Transmission data width (head width)" pixels. The left and right free pixels shall be filled with blank data.

- ※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 Single-layout	Long edge	① ② ③ Front A ④ ⑤ ⑥ Back B Image transmission order	<Image transmission procedure> Process Command Sample parameter(for 8x8 size) ① Paper size setting <ESC>P IMAGE MULTICUT (Parameter4)00000211 ② Send BMP image A <ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE ※1 ③ Print command <ESC>P CNTRL START ④ Paper size setting <ESC>P IMAGE MULTICUT (Parameter4)00000311 ⑤ Send BMP image B (※Same order as in 1) ⑥ Print command <ESC>P CNTRL START (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 Image transmission order	<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 Multi-layout	Long edge	① ② ③ Front C 8x5 ④ ⑤ ⑥ Back D 8x5 Front A 8x5 Back B 8x5 Create and send a 2-image layout	⇒	<Image transmission procedure> <table><tr><td>Process</td><td>Command</td><td>Sample parameter (for 8x5x2 size)</td></tr><tr><td>① Paper size setting</td><td><ESC>P IMAGE MULTICUT</td><td>(Parameter 4)00000214</td></tr><tr><td>② Send BMP Image C+A</td><td><ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE</td><td>Create and send a 2-image layout</td></tr><tr><td>③ Print command</td><td><ESC>P CNTRL START</td><td></td></tr><tr><td>④ Paper size setting</td><td><ESC>P IMAGE MULTICUT</td><td>(Parameter 4)00000314</td></tr><tr><td>⑤ Send BMP Image D+B</td><td><ESC>P IMAGE YPLANE <ESC>P IMAGE MPLANE <ESC>P IMAGE CPLANE</td><td>Create and send a 2-image layout</td></tr><tr><td>⑥ Print command</td><td><ESC>P CNTRL ST</td><td></td></tr></table> (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.	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		
	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																									
	Short edge	① ② ③ Front C 8x5 ④ ⑤ ⑥ Back D 8x5 Front A 8x5 Back B 8x5 Create and send a 2-image layout	⇒	<Printer operation> ① Stand by ② Paper feed ③ Printing ④ Reverse ⑤ Printing ⑥ Feed out/cut ⑦ Finish/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 Single-layout	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 8×8 size) (Parameter4)00000111 <Printer operation> ① Standby ② Paper feed ③ Printing ④ Feed 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 8×5×2 size) (Parameter 4)00000114 Create and send a 2-image layout <Printer operation> ① Standby ② Paper feed ③ Printing ④ Feed 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 Single-layout	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					
File size	bfType	“BM”	bfType	“BM”	
	bfSize	0x00245836	bfSize	0x00245840	
Offset up to pixel data	bfReserved1	0x0000	bfReserved1	0x0000	
	bfReserved2	0x0000	bfReserved2	0x0000	
	bfOffBits	0x00000436	bfOffBits	0x00000440	Located at 32-bit border
		Not 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、 DP-DS620	DS80、 DP-DS80D
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)

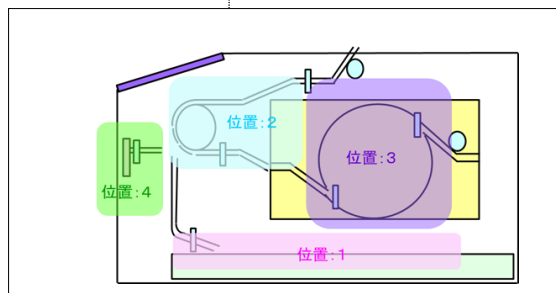
3-3.1 Status codes

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	DP-DS620
00000-00999	Occurs during normal operation	As per normal procedure	00000	Idling	○	○	○	○
			00001	Printing	○	○	○	○
			00500	Head cooling down	○	○	○	○
			00510	Cooling the paper winding motor	○	○	○	○
			00900	Standby Mode	—	—	—	○
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)	○	○	○	○
02000-02999	Hardware error	Call for service if system does not recover after reboot.	01600	Data error (improper data)	○	○	○	○
			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	○	○	○	—
03000-03999	Other internal error	Call for service if system does not recover after reboot.	02800	RF-ID module error	○	○	○	○
			03000	System error	○	○	○	○
05000- 05999	Duplex unit errors	For error codes and error recovery, please refer to the Duplex unit manual.	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	—	—	○	—



(○: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.

For error codes and error recovery, please refer to the Duplex unit manual.

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 / DP-DS620

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
5x5 <only DP-DS620>	1, 2	1, 2	1, 2	1, 2
6x4 (PC)	1, 2	1, 2	1, 2	1, 2
6x6 < only DP-DS620>	1, 2	1, 2	1, 2	1, 2
5x7 (2L)	1, 2	1, 2	1, 2	1*, 2
6x8 (A5)	1, 2	2	1, 2	1*, 2
6x4x2 (PC dual image)	1, 2	2	1, 2	1*, 2
6x9 (A5W) <only DS40>	1, 2	2	1, 2	2
5x3.5x2 (L dual image)	1, 2	1, 2	1, 2	1*, 2

*only DP-DS620

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	DS40	DS80	DP-DS80D DP-DS620
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	—	—
		(6 x 6)	00000027	—	—	—
		(5 x 5)	00000029	—	—	—
		(5 x 3.5) x N	00000401	—	—	—
		(6 x 4)x N	00000402	—	—	—
Cut-paper designation	Simplex printing	(8 x 10)	00000106	—	—	○
		(8 x 12)	00000107	—	—	○
		(8 x 4)	00000108	—	—	○
		(8 x 5)	00000109	—	—	○
		(8 x 6)	00000110	—	○	○
		(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 6) x 2	00000115	—	—	○
		(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 6)	00000210	—	○
			(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 6) x 2	00000215	—	○
			(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 6)	00000310	—	○
			(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 6) x 2	00000315	—	○
			(8 x 4) x 3	00000328	—	○

※1 Firmware version 1.50 or later

※2 Firmware version 0.30 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)

		Model			
Cutter operation	Specification value	DS40	DS80	DP-DS80D	DP-DS620
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

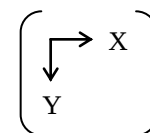
Media lot number input data (RF-ID write setup)		RF-ID tag data (*1)	Host side acquisition data
0 character (When there's no setup)	""	0x20 0x20 0x20 ... 0x20 16 characters are spaces	ML<0x20><0x20><0x20>...<0x20><0x0D><0x00> 16 characters
Setup of 1 character	"A"	0x41 0x20 0x20 ... 0x20 15 characters 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	"ABCDEFGHJKLMNOP"	0x41 0x42 0x43 ... 0x50	ML<0x41><0x42><0x43>...<0x50><0x0D><0x00> 16 characters
Setup of 17 characters (It can't setup) (*2)	"ABCDEFGHJKLMNOP"	0x41 0x42 0x43 ... 0x50	ML<0x41><0x42><0x43>...<0x50><0x0D><0x00> 16 characters

(*1) RF-ID tag data

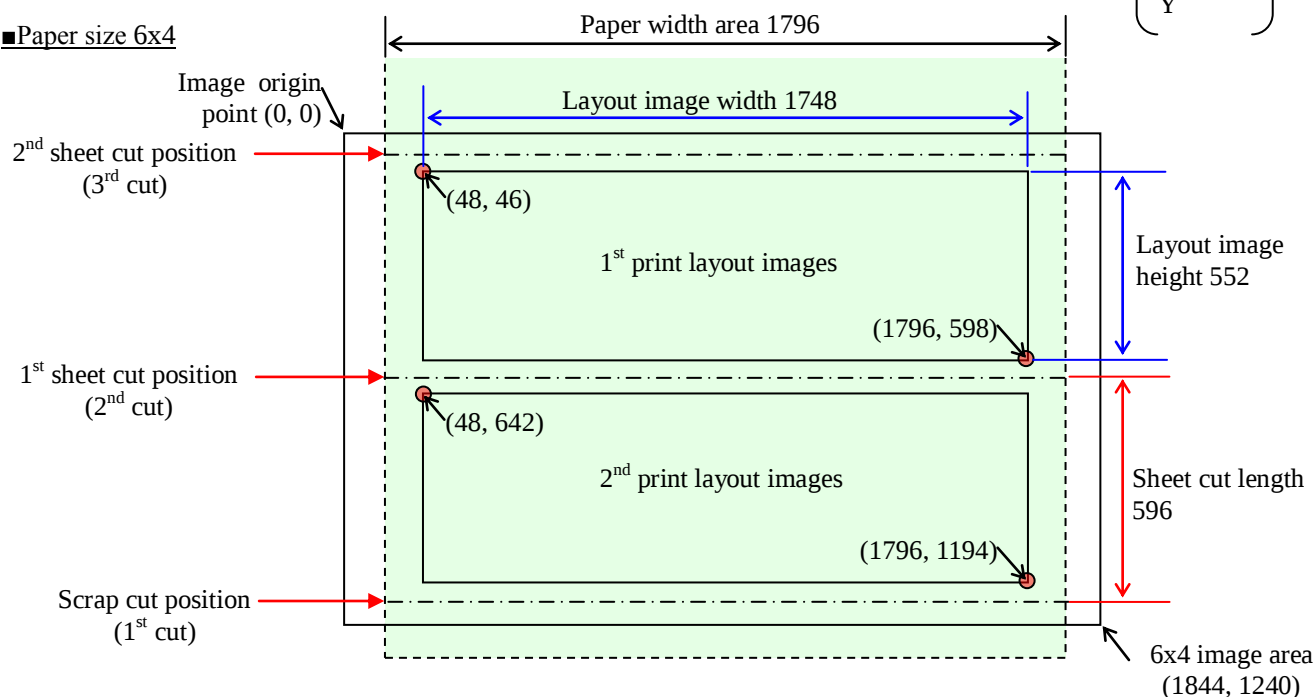
If the RF-ID tag media lot number does not reach 16 characters, space (0x20) is written in the part of the remainder.

3-8 Recommended image layout of 2 inch cut operation

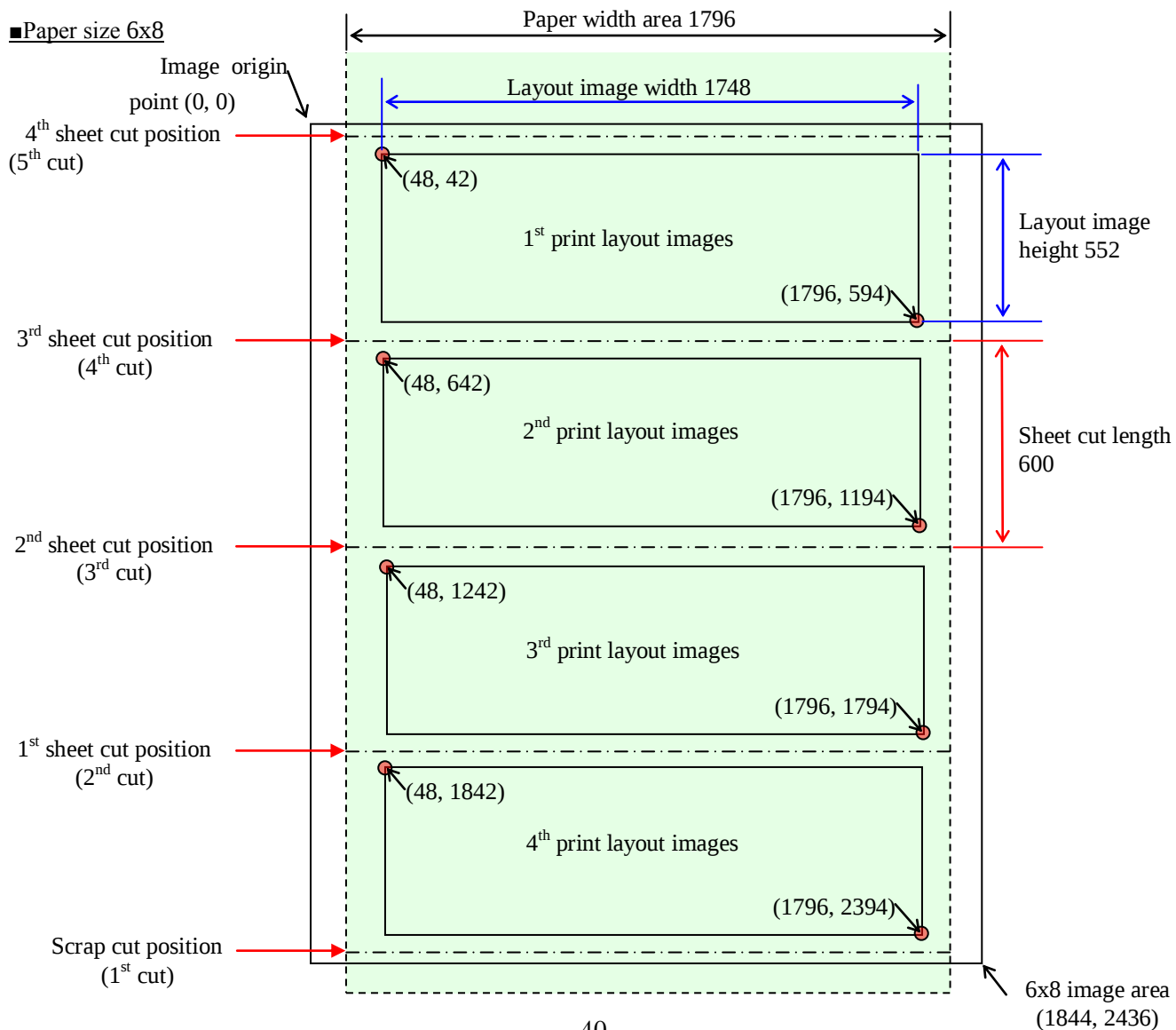
(For when the resolution setting is 300x300dpi)



■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	Y	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 / DP-DS620	Print Size		Counter L/A/B Matte/M	Counter P
Single-cut	(5x3.5) (L)		+1	+1
	(6x4) (PC)		+1	+1
	(5x5)	<only DP-DS620>	+2	+1
	(6x6)	<only DP-DS620>	+2	+1
	(5x7) (2L)		+2	+1
	(6x8) (A5)		+2	+1
	(6x9) (A5W)	<only DS40>	+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 Refer 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

※ DS40 firmware version 1.50 or later.

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
	(8x6)	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
	(8x10.75)	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
	(8x6)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
DP-DS620	5x3.5 (L)	400	400
	6x4 (PC)	400	400
	5x7 (2L)	230	230
	6x8 (A5)	200	200

When paper initialize is performed, such as after changing the media, the paper will be fed out and the remaining media quantity will be decreased by 1. (DP-DS620 only feeds out paper)

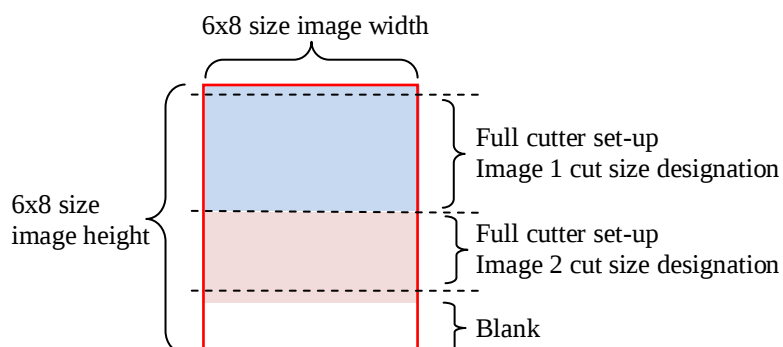
3-11 Full cutter set-up command (DP-DS620)

■Basic concept

Image layout

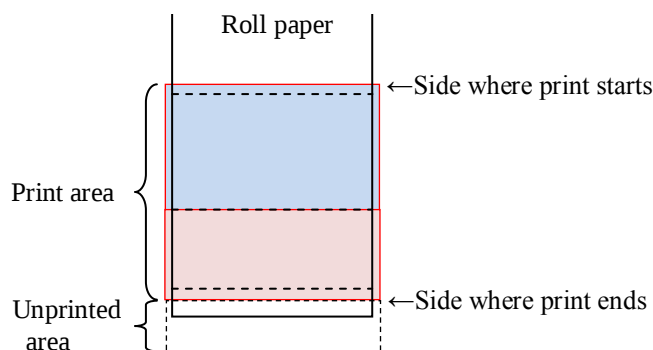
Set the image layout in the 6x8 area according to the designated cut size.

The transmitted image data is fixed as 6x8 size.



Printing

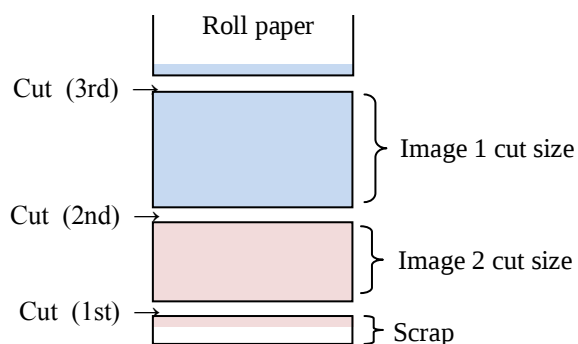
Of the 6x8 size area, only the total length of the designated cut sizes is printed.



Cutting

After cutting off the scrap, the designated print size sheets will be fed out.

A Blank is not printed, so no unnecessary paper is fed out.

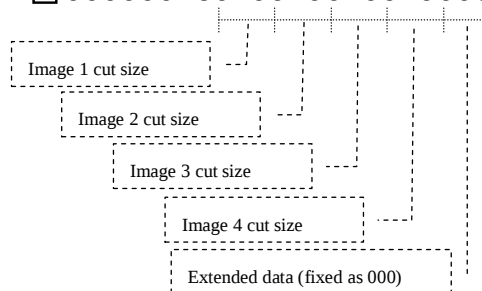


Setting examples (Standard type)

This shows the output results when the following commands are transmitted.

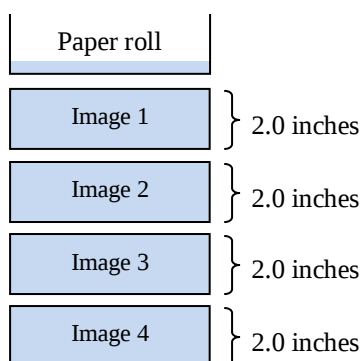
<Transmitted command 1>

<ESC>PCNTRL _FULL_CUTTER_SET _00000016020020020020000<CR>



<Output result 1>

Images 1-4 are all cut as 2 inches, and four prints are output.

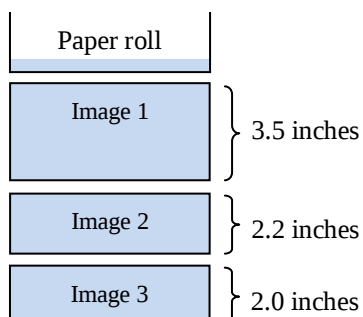


< Transmitted command 2>

<ESC>PCNTRL _FULL_CUTTER_SET _00000016035022020000000<CR>

< Output result 2>

This outputs one 3.5 inch, one 2.2 inch, and one 2.0 inch print, for a total of three prints.

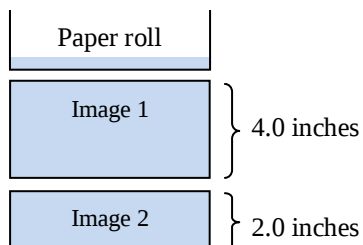


< Transmitted command 3>

<ESC>PCNTRL _FULL_CUTTER_SET _000000160400200000000000<CR>

< Output result 3>

This outputs one 4.0 inch and one 2.0 inch print, for a total of two prints.



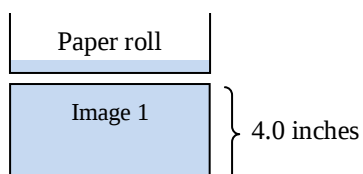
< Transmitted command 4>

<ESC>PCNTRL _FULL_CUTTER_SET _000000160400000200000000<CR>

< Output result 4>

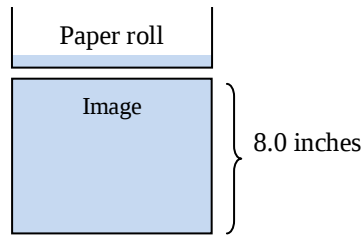
This outputs one 4.0 inch print.

Image 2 cut size is designated as “000” (cut quantity 1), so any following cut sizes are disregarded.



Setting examples (Non-standard type)

If the following commands are transmitted, standard-sized (6x8) printing is performed.



<Case 1>

<ESC>PCNTRL _ FULL_CUTTER_SET _ 000000160400300200000000<CR> is transmitted.

→ The total cut size exceeds 8 inches, so the command is aborted and standard printing occurs.

<Case 2>

<ESC>PCNTRL _ FULL_CUTTER_SET _ 000000160100200200000000<CR> is transmitted.

→Image 1 cut size is outside value parameters, so the command is aborted and standard printing occurs.

<Case 3>

<ESC>PCNTRL _ FULL_CUTTER_SET _ 000000160400200200000000<CR> (Standard) is transmitted, then

<ESC>PCNTRL _ FULL_CUTTER_SET _ 000000160400400200000000<CR> (Over-sized) is transmitted.

→The second command cancels the Full-Cutter Set-up function, and standard printing occurs.

<Case 4>

<ESC>PCNTRL _ FULL_CUTTER_SET _ 000000160400200200000000<CR> (Standard) is transmitted, and (6x4) printing occurs, after which (6x8) printing is performed.

→ For printing other than (6x8) size, the Full Cutter Set-up function is cleared, and standard (6x8) printing occurs.

■ Setting Conditions for Full Cutter Set-up Command

• With the following conditions, a maximum of 4 sheets can be cut.

The total of mmm + nnn + ppp + qqq is less than 8 inches (080).

Any area less than the total of 8 inches will be processed unprinted.

Settings with a total size exceeding 8 inches will be invalid, and regular (6x8) size printing will be performed.

Image cut size setting values

Image cut size	Setting value										Effective field
2.0 inch	020										mmm, nnn, ppp, qqq
2.1~3.0 inch	021	022	023	024	025	026	027	028	029	030	mmm, nnn, ppp
3.1~4.0 inch	031	032	033	034	035	036	037	038	039	040	mmm, nnn, ppp
4.1~5.0 inch	041	042	043	044	045	046	047	048	049	050	mmm, nnn
5.1~6.0 inch	051	052	053	054	055	056	057	058	059	060	mmm, nnn
6.1~7.0 inch	061	062	063	064	065	066	067	068	069	070	mmm
7.1~8.0 inch	071	072	073	074	075	076	077	078	079	080	mmm

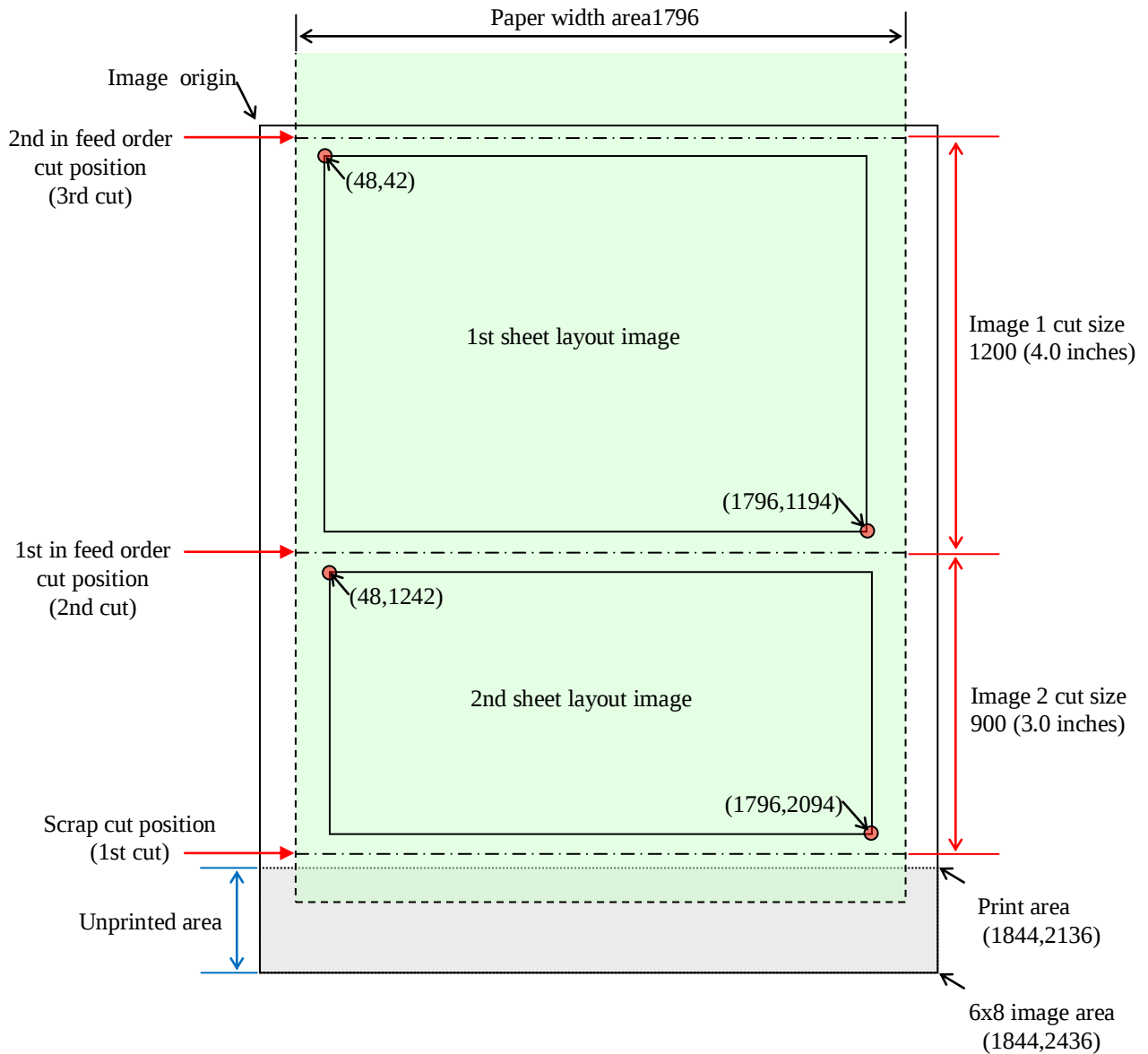
• List of Setting Value Combinations

Cut sheet count	Image 1 cut size mmm	Image 2 cut size nnn	Image 3 cut size ppp	Image 4 cut size qqq	Expansion data rrr
1	020 ~ 080	000	000	000	000
2	020 ~ 060	060 ~ 020	000	000	000
3	020	020 ~ 040	040 ~ 020	000	000
	021	020 ~ 039	039 ~ 020	000	000
	022	020 ~ 038	038 ~ 020	000	000
	023	020 ~ 037	037 ~ 020	000	000
	024	020 ~ 036	036 ~ 020	000	000
	025	020 ~ 035	035 ~ 020	000	000
	026	020 ~ 034	034 ~ 020	000	000
	027	020 ~ 033	033 ~ 020	000	000
	028	020 ~ 032	032 ~ 020	000	000
	029	020 ~ 031	031 ~ 020	000	000
	030	020 ~ 030	030 ~ 020	000	000
	031	020 ~ 029	029 ~ 020	000	000
	032	020 ~ 028	028 ~ 020	000	000
	033	020 ~ 027	027 ~ 020	000	000
	034	020 ~ 026	026 ~ 020	000	000
	035	020 ~ 025	025 ~ 020	000	000
	036	020 ~ 024	024 ~ 020	000	000
	037	020 ~ 023	023 ~ 020	000	000
	038	020 ~ 022	022 ~ 020	000	000
	039	020 ~ 021	021 ~ 020	000	000
	040	020	020	000	000
4	020	020	020	020	000

■ Image layout example

Resolution setting: 300x300dpi

Full cutter set-up setting value: 040 030 000 000 000 (for 2 sheets: 4.0 inches and 3.0 inches)



• Typical value of image data print area (Y coordinate, unit: pixels)

Total cut size	Resolution 300dpi	Resolution 600dpi
2.0 inch	0~636	0~1272
2.5 inch	0~786	0~1572
3.0 inch	0~936	0~1872
3.5 inch	0~1086	0~2172
4.0 inch	0~1236	0~2472
4.5 inch	0~1386	0~2772
5.0 inch	0~1536	0~3072
5.5 inch	0~1686	0~3372
6.0 inch	0~1836	0~3672
6.5 inch	0~1986	0~3972
7.0 inch	0~2136	0~4272
7.5 inch	0~2286	0~4572
8.0 inch	0~2436	0~4872
The value of print area per 0.1 inch	30	60

• Typical value of recommended layout coordinates for the image (unit: pixels)

Resolution setting			300x300dpi	300x600dpi	
Layout image Top left coordinates (X, Y)	Image 1		48, 42	48, 84	
	Image 2 (Image 1 cut size)	2.0 inch	48, 642	48, 1284	
		2.5 inch	48, 792	48, 1584	
		3.0 inch	48, 942	48, 1884	
		3.5 inch	48, 1092	48, 2184	
		4.0 inch	48, 1242	48, 2484	
		4.5 inch	48, 1392	48, 2784	
		5.0 inch	48, 1542	48, 3084	
		5.5 inch	48, 1692	48, 3384	
		6.0 inch	48, 1842	48, 3684	
	Image 3 (Image 1 and 2 total combined cut size)	4.0 inch	48, 1242	48, 2484	
		4.5 inch	48, 1392	48, 2784	
		5.0 inch	48, 1542	48, 3084	
		5.5 inch	48, 1692	48, 3384	
		6.0 inch	48, 1842	48, 3684	
	Image 4		48, 1842	48, 3684	
Layout image Bottom right coordinates (X, Y)	Image 1 (Image 1 cut size)	2.0 inch	1796, 594	1796, 1188	
		2.5 inch	1796, 744	1796, 1488	
		3.0 inch	1796, 894	1796, 1788	
		3.5 inch	1796, 1044	1796, 2088	
		4.0 inch	1796, 1194	1796, 2388	
		4.5 inch	1796, 1344	1796, 2688	
		5.0 inch	1796, 1494	1796, 2988	
		5.5 inch	1796, 1644	1796, 3288	
		6.0 inch	1796, 1794	1796, 3588	
		6.5 inch	1796, 1944	1796, 3888	
		7.0 inch	1796, 2094	1796, 4188	
		7.5 inch	1796, 2244	1796, 4488	
		8.0 inch	1796, 2394	1796, 4788	
	Image 2 (Image 1 and 2 total combined cut size)	4.0 inch	1796, 1194	1796, 2388	
		4.5 inch	1796, 1344	1796, 2688	
		5.0 inch	1796, 1494	1796, 2988	
		5.5 inch	1796, 1644	1796, 3288	
		6.0 inch	1796, 1794	1796, 3588	
		6.5 inch	1796, 1944	1796, 3888	
		7.0 inch	1796, 2094	1796, 4188	
		7.5 inch	1796, 2244	1796, 4488	
		8.0 inch	1796, 2394	1796, 4788	
	Image 3 (Images 1 ~ 3 total combined cut size)	6.0 inch	1796, 1794	1796, 3588	
		6.5 inch	1796, 1944	1796, 3888	
		7.0 inch	1796, 2094	1796, 4188	
		7.5 inch	1796, 2244	1796, 4488	
		8.0 inch	1796, 2394	1796, 4788	
	Image 4		1796, 2394	1796, 4788	
	The value of Y coordinate per 0.1 inch			30	60

3-12 Standby Mode (DP-DS620)

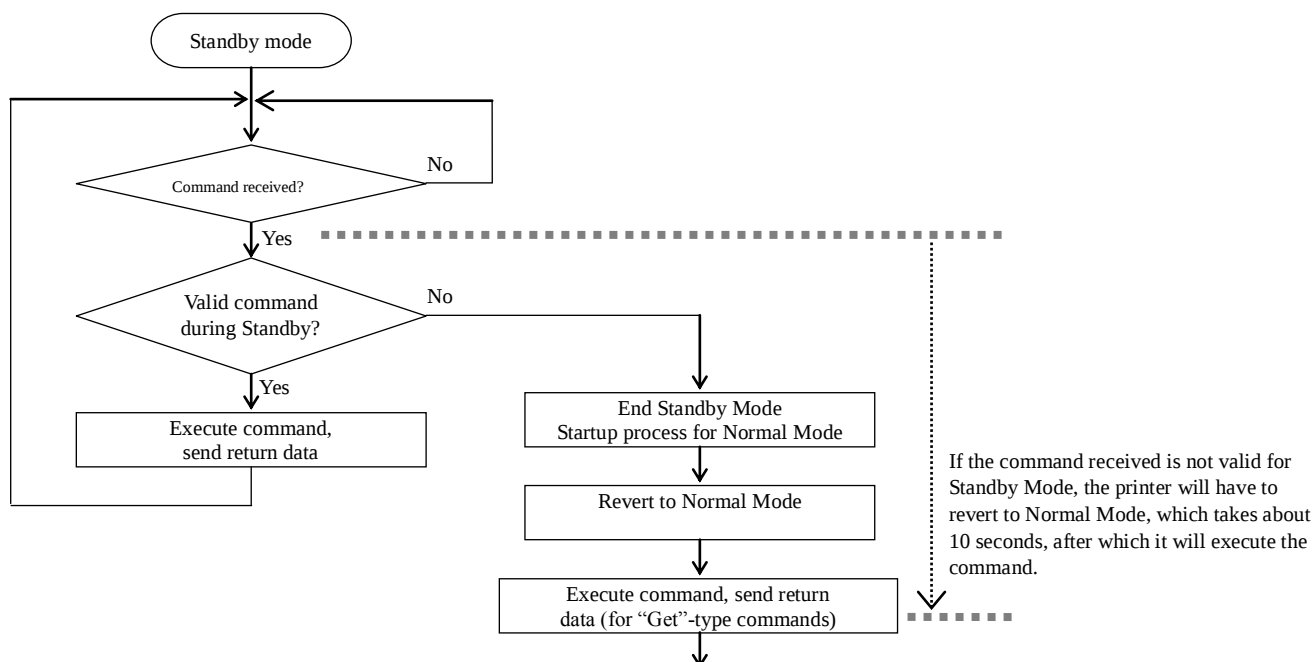
- If the printer is Idle for 10 minutes (or the set time if the standby transition time command has been used to change it) and does not receive any commands from the host other than those listed below, it will enter Standby Mode.

< Commands that can be used in Standby Mode >

Function	Command
Get Printer Status	<ESC>P STATUS
Get Printer Serial Number	<ESC>P INFO SERIAL_NUMBER
Get Remaining Media Quantity	<ESC>P INFO MQTY
Get 6x4 Conversion Ribbon Quantity	<ESC>P INFO RQTY
Get Media User Info (Lot No.)	<ESC>P INFO MLOT
Get Media Code	<ESC>P INFO MEDIA
Get Printer Version Information	<ESC>P INFO FVER

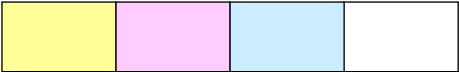
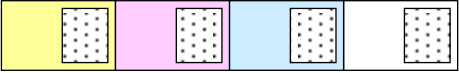
- The commands listed above can be used during Standby Mode.
- While in the Standby Mode, the printer status will be “Standby” (status code “00900”), and the green LED will change from lit to flashing.
- If any commands other than those listed above are sent, or the cover is opened, the printer will come out of Standby Mode.
- If the printer receives a command other than those listed above while in Standby Mode, it will revert to Normal Mode before executing the command. In this case, the printer will need to undergo the startup process to revert to Normal Mode, and it will take approximately 10 seconds for the command to be executed. (See the chart below)
For “Get”-type commands that require return data from the printer, it will take approximately 10 seconds from the time of the command until the return data is sent from the printer. Therefore, after the Host issues the command, it will be necessary to wait while the return data is sent back from the printer.

Printer operation when receiving commands during Standby



3-13 Ribbon Rewind Function (DP-DS620)

- The host uses the Media Counter of Remaining Sheets information from the “Get L/PC Size Conversion Media Counter of Remaining Sheets” command to check the ribbon panel status. (5x7^{*1}, 6x8 media)
- If the L/PC Size Conversion Media Counter of Remaining Sheets returned is an even number, the ribbon panels are unused, and if it is an odd number, the panels are half-used.

L/PC Size Conversion Media Counter of Remaining Sheets	Ribbon Panel Status			
Even number	Unused condition			
Odd number	Half-used condition			

- In order to use the ribbon rewind function for printing, you have to designate the “Rewind (6x4)” or “Rewind (5x3.5) ^{*1}” code for the multi-cut pattern print designation (print size designation). If any code other than the “Rewind (6x4)” or “Rewind (5x3.5) ^{*1}” code is designated, the ribbon rewind operation will not take place.

^{*1} When Rewind (6x4) is selected with the DP-DS620 (A), printing is performed without rewinding the ribbon.
The same applies when Rewind (5x3.5) is selected.

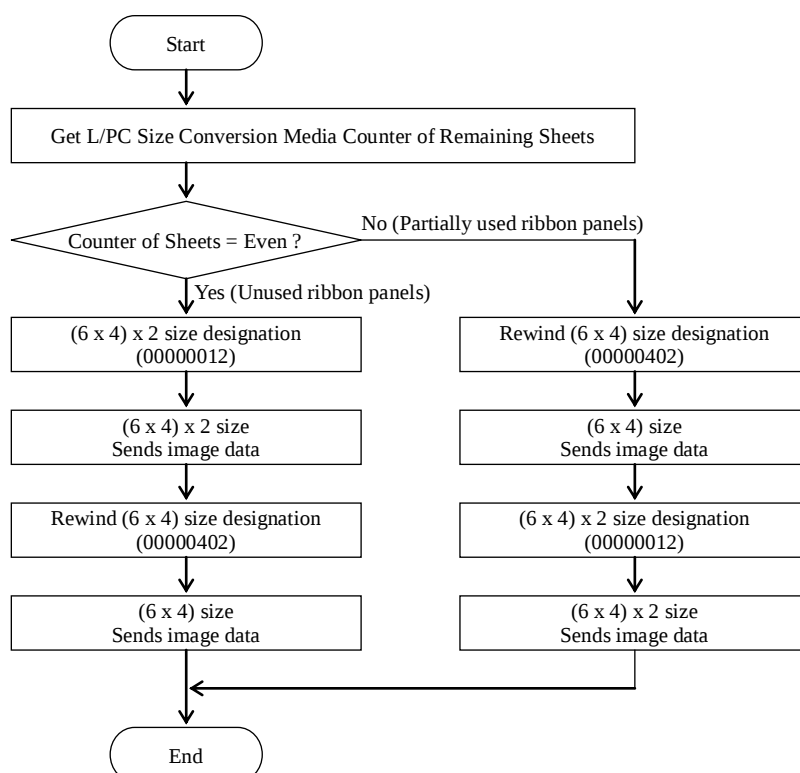
Print Size	Multi-cut pattern Designation value
(5 x 3.5)	00000001
(6 x 4)	00000002
Rewind (5 x 3.5) ^{*1}	00000401
Rewind (6 x 4)	00000402

Note

※¹ Firmware version 0.30 or later

■ Example of the Ribbon Rewind Operation Process

This shows the process for the printing of three 6x4-size prints.



3-14 Procedure to update of color control data

If you write the color control data using Command, you can do it in the following procedures. Then check that the writing occurred properly by checking the version and checksum.

Using Command)

- | | |
|---------------------------------|---|
| 1 <ESC>P TBL_CL | Clear the control data. |
| 2 <ESC>P TBL_WT CTRLD_UPDATE_CW | Write the 300dpi control data. |
| 3 <ESC>P TBL_WT Version | Set the 300dpi control data version. |
| 4 <ESC>P TBL_RD Version | Check the 300dpi control data version. |
| 5 <ESC>P MNT_RD CTRLD_CHKSUM | Check the 300dpi control data checksum. |
| 6 <ESC>P TBL_WT CTRLD_UPDATE_CW | Write the 600dpi control data. |
| 7 <ESC>P TBL_WT Version | Set the 600dpi control data version. |
| 8 <ESC>P TBL_RD Version | Check the 600dpi control data version. |
| 9 <ESC>P MNT_RD CTRLD_CHKSUM | Check the 600dpi control data checksum. |

■DP-DS620

Using Command)

- | | |
|----------------------------------|---|
| 1 <ESC>P TBL_CL | Clear the control data. |
| 2 <ESC>P TBL_WT CTRLD_UPDATE_CW | Write the 300dpi control data. |
| 3 <ESC>P TBL_WT Version | Set the 300dpi control data version. |
| 4 <ESC>P TBL_RD CWD300_Version | Check the 300dpi control data version. |
| 5 <ESC>P TBL_RD CWD300_Checksum | Check the 300dpi control data checksum. |
| 6 <ESC>P TBL_WT CTRLD_UPDATE_CW | Write the 600dpi control data. |
| 7 <ESC>P TBL_WT Version | Set the 600dpi control data version. |
| 8 <ESC>P TBL_RD CWD600_Version | Check the 600dpi control data version. |
| 9 <ESC>P TBL_RD CWD600_Checksum | Check the 600dpi control data checksum. |
| 10 <ESC>P TBL_WT CTRLD_UPDATE_CW | Write the Low Speed (*1) control data. |
| 11 <ESC>P TBL_WT Version | Set the Low Speed (*1) control data version. |
| 12 <ESC>P TBL_RD CWD610_Version | Check the Low Speed (*1) control data version. |
| 13 <ESC>P TBL_RD CWD610_Checksum | Check the Low Speed (*1) control data checksum. |

*1. Low Speed: For rewind printing of high density images

3-15 Ribbon End Check Operation (DP-DS620)

The ribbons for printers until now had a black line at the head of each color panel, and ribbon end was determined after the ribbon was wound following OP printing, by whether the black line for the next Yellow panel was detected or not. The end of the ribbon was made such that the black line for the next Yellow panel was in a position that would not be detected by the ribbon sensor (it was designed with a lengthened pitch between the OP and Yellow).

Conversely, the ribbon for the DP-DS620 doesn't have a black line for detection at each color panel (it detects the panel color), and the panel pitch is shortened and the Yellow panel is in a position that can be detected by the ribbon sensor at the end of the ribbon. Therefore, for the DP-DS620, the ribbon count is determined with the count recorded in the RF-ID tag. When the remaining count is 0, it determines ribbon end.

Normally, the actual remaining ribbon count and the ribbon count recorded in the RF-ID tag will match, but if trouble such as jamming occurs during printing, and the actual remaining ribbon count is 1 less than that recorded in the RF-ID tag, then even though it has used the last of the ribbon, it will detect the next Yellow panel and the RF-ID tag will show 1 remaining, so it won't show ribbon end.

In order to avoid this, only when the RF-ID tag shows the following remaining ribbon count, it will run the ribbon end check operation.

<Conditions for Ribbon End Check>

Media Size	RF-ID-tag Ribbon count (after OP printing)	
	Command: <ESC>P INFO MQTY	Command: <ESC>P INFO RQTY
5x3.5 (L)	2 or 1	-
6x4 (PC)	2 or 1	-
5x7 (2L)	2 or 1	4 or 2 (5x3.5 conversion qty)
6x8 (A5)	2 or 1	4 or 2 (6x4 conversion qty)

When the RF-ID ribbon count after OP printing is as shown above, it will run the following ribbon end check operation.

<Ribbon End Check Operation>

After OP printing, it will wind the ribbon until the ribbon sensor detects the Yellow panel.

After the ribbon sensor detects the Yellow panel, it will continue to wind the ribbon for a predetermined length (about 20mm). Note that, ribbon winding at this time is wound at slowly, in order to prevent peeling of the adhesion part of a ribbon supply bobbin and a ribbon film.

After it has wound for the predetermined length, the ribbon will rewind, Yellow panel position will be set, and operation will continue.

If it cannot be wound the predetermined length (winding stops), it will be ribbon end, and operation will stop.