

Photo Printer

Command Specification (DS-RX1)

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CITIZEN SYSTEMS JAPAN CO.,LTD.

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Notes



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Model to apply

This command specification is applied to the following models.

- DS-RX1

Command table

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

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

§	Function	Command	Model	Notes
			DS-RX1	
1-1.1	Get printer status	<ESC>P STATUS	○	Refer to 3-3
1-1.2.1	Get printer version information	<ESC>P INFO FVER	○	
1-1.2.2	Get printer sensor information	<ESC>P INFO SENSOR	○	
1-1.2.3	Get printer media information	<ESC>P INFO MEDIA	○	Refer to 3-2
1-1.2.4	Get printer horizontal resolution	<ESC>P INFO RESOLUTION_H	○	
1-1.2.5	Get printer vertical resolution	<ESC>P INFO RESOLUTION_V	○	
1-1.2.6	Get number of free print buffers	<ESC>P INFO FREE_BUFFER	○	Refer to 3-4
1-1.2.7	Get remaining print quantity	<ESC>P INFO MQTY	○	
1-1.2.8	Get Media Color offset values of the lot	<ESC>P INFO MCOLOR	○	
1-1.2.9	Get media lot information	<ESC>P IMAGE MLOT	○	
1-2.1	Sending command of Yellow graphic data block	<ESC>P IMAGE YPLANE	○	Refer to 2, 3-1
1-2.2	Sending command of Magenta graphic data block	<ESC>P IMAGE MPLANE	○	Refer to 2, 3-1
1-2.3	Sending command of Cyan graphic data block	<ESC>P IMAGE CPLANE	○	Refer to 2, 3-1
1-2.4	Designate multi-cut pattern	<ESC>P IMAGE MULTICUT	○	Refer to 3-5
1-3.1	Print start	<ESC>P CNTRL START	○	
1-3.2	Cutter control	<ESC>P CNTRL CUTTER	○	Refer to 3-6
1-3.3	Overcoat finish	<ESC>P CNTRL OVERCOAT	○	
1-3.4	Print re-try control	<ESC>P CNTRL BUFFCNTRL	○	
1-4.1	Clearing of printer table information	<ESC>P TBL_CL	○	
1-4.2	Update of color control data	<ESC>P TBL_WT CTRLD_UPDATE	○	
1-4.3	Setting of color control data version	<ESC>P TBL_WT Version	○	
1-4.4	Acquisition of color control data version	<ESC>P TBL_RD Version	○	
1-4.5	Acquisition of color control data checksum	<ESC>P MNT_RD CTRLD_CHKSUM	○	
1-5.1	Clearing the counter A/B	<ESC>P MNT_WT COUNTER_CLR	○	
1-5.2	Reading the print volume life counter	<ESC>P MNT_RD COUNTER_LIFE	○	
1-5.3	Reading the print volume counter A	<ESC>P MNT_RD COUNTER_A	○	
1-5.4	Reading the print volume counter B	<ESC>P MNT_RD COUNTER_B	○	
1-5.5	Reading the print volume counter P	<ESC>P MNT_RD COUNTER_P	○	
1-5.6	Setting counter P value	<ESC>P MNT_WT COUNTERP_SET	○	
1-5.7	Reading the print volume Matte counter	<ESC>P MNT_RD COUNTER_MATTE	○	
1-5.8	Reading the print volume counter M	<ESC>P MNT_RD COUNTER_M	○	
1-5.9	Clearing the counter M	<ESC>P MNT_WT COUNTER_CLR	○	
1-6.1	Changing to the firmware rewrite mode	<ESC>P FW_UPD FLASH_REWRITE	○	
1-6.2	Transmission of firmware rewriting data	<ESC>P FW_UPD FLASH_PROGRAM	○	

1. Details of commands

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

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

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

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

1-1.1 Get printer status

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

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

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

1-1.2.3 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 status 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 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).

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

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

1-1.2.8 Get Media Color offset values of the lot

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

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

[Function]	The printer sends color correction values between media lots in 6-digit binary character string (with CR<0Dh> at its end).
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[Returned data]	Size (8)	Data
	00000008	MCnnnn<CR><null>

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

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

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

[Function] The printer sends media user information (lot number) in 14-digit binary character string (with CR<0Dh> at its end).

[Returned data]	Size (8)	Data
	00000016	MLnnnnnnnnnnnnnnnnnnnn<CR><null>

[Returned data example]	00000016	ML<0x01><0x02><0x03><0x04><0x05><0x06><0x07><0x08><0x09><0x0A><0x0B><0x0C><CR><null>
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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. 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. 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. 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).

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.

1-4.1 Clearing of printer table information

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

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

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

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

1-4.2 Update of color control data

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

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

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

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

1-4.3 Setting of color control data version

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

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

[Function] Writes version information of color control data.

[Attention] After rewriting the data with a color control data update command, use this command to set the color control data version.
 Use the version information of color control data to be set as a file name of color control data file to be provided.
 If the version information character string is not provided in 32-bit (4-byte) unit, send the data after adding null data to the end of version information character string to complete the 32-bit unit.

1-4.4 Acquisition of color control data version

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

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

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

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

[Returned data example] 00000016 CX0100.CWD<null><null><null><null><null><null>

1-4.5 Acquisition of color control data checksum

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

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

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

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

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

1-5.1 Clearing the counter A/B

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

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

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

1-5.2 Reading the print volume life counter

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

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

[Function] Reads the print volume life counter on the printer.

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

[Returned data example]	00000012	CAnnnnnnn<CR> <null> <null>
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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.				
[Returned data]	Size (8)	Data			
	00000012	Fixed-length ASCII character string <CR>			
[Returned data example]	00000012	CBnnnnnnnn<CR> <null> <null>			

1-5.5 Reading the print volume counter P

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

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

[Function]	Reads the print volume counter P on the printer.
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[Returned data]	Size (8)	Data
	00000012	Fixed-length ASCII character string<CR>

[Returned data example]	00000012	CPnnnnnnnn<CR> <null> <null>
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1-5.6 Setting counter P value

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

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

[Returned data example] 00000012 CMATnnnnnnnn<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.

[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_CLR	00000004	CM<CR><NULL>

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

[Function] Clears the print volume counter M.

1-6.1 Changing to the firmware rewrite mode

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

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

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

1-6.2 Transmission of firmware rewriting data

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

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

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

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

2. Image size

Model: DS-RX1

Paper Type	Paper Size (inch)	Print area size Width (head-width direction) x Length (paper-feed direction)	Image pixel size	
			300 x 300 DPI (pixel)	300 x 600 DPI (pixel)
(5x3.5) (L)	5"x3.5"	131.1 x 92.1mm	1548 x 1088	1548 x 2176
(6x4) (PC)	6"x 4"	156.1 x 105.0mm	1844 x 1240	1844 x 2480
(5x7) (2L)	5"x 7"	131.1 x 181.0mm	1548 x 2138	1548 x 4276
(6x8) (A5)	6"x 8"	156.1 x 206.2mm	1844 x 2436	1844 x 4872
(6x4)x2 (PC dual image)	6"x 4" (2 sheets)	156.1 x 211.5mm	1844 x 2498	1844 x 4996
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
Transmission data width (head width)			1920	1920

If "With margin" has been set, the image size will be determined by subtracting the margin from the above image pixel sizes.

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.

* 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)

[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.

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
			Border adjustment data (null)	10 bytes ← Added
	Total of header part	1078 bytes	Total of header part	1088 bytes
	Pixel data	2380800 bytes	Pixel data	2380800 bytes
	Total	2381878 bytes	Total	2381888 bytes
BITMAPFILEHEADER data	bfType	“BM”	bfType	“BM”
	File size bfSize	0x00245836	bfSize	0x00245840
	bfReserved1	0x0000	bfReserved1	0x0000
	bfReserved2	0x0000	bfReserved2	0x0000
	Offset up to pixel data bfOffBits	0x00000436	bfOffBits	0x00000440
		Not located at 32-bit border		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
Type	Size (WxL)	Code		DS-RX1
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 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.

				Model	
Code classification	Occurrence level	How to recover from error	Code	Status	DS-RX1
00000-00999	Occurs during normal operation	As per normal procedure	00000	Idling	○
			00001	Printing	○
			00500	Head cooling down	○
			00510	Cooling the paper winding motor	—
01000-01999	Occurs due to user setting	Recovers by maintenance by users	01000	Cover is open	○
			01010	No Scrap box	—
			01100	Paper End	○
			01200	Ribbon End	○
			01300	Paper jam	○
			01400	Ribbon errors (detect error, ribbon break)	○
			01500	Paper Definition Error (The setting is different from printer setting)	○
			01600	Data error (improper data)	○
02000-02999	Hardware error	Call for service if system does not recover after reboot.	02000	Head voltage error	○
			02100	Head position error	○
			02200	Power supply fun stopped	○
			02300	Cutter error (Cut jamming etc.)	○
			02400	Pinch roller position error	—
			02500	Abnormal head temperature	○
			02600	Abnormal media temperature	○
			02610	Abnormal temperature of paper winding motor	—
			02700	Ribbon tension error	○
			02800	RF-ID module error	○
03000-03999	Other internal error	Call for service if system does not recover after reboot.	03000	System error	○

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

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: DS-RX1

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

3-5 Multi-cut pattern specification value

Transmit the specification value applicable to each paper type.

Paper Type	Specification value	Support paper type (○:Support, —:No support)
		DS-RX1
(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	—

3-6 Cutter control specification value

Cutter operation can be specified by the firmware version differs.

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

Cutter operation	Specification value	Model
		DS-RX1
Normal operation	00000000	○
Operation causing no cut-paper waste	00000001	○
2inch cut operation ※	00000120	1.10※

※The sample version is due to be submitted from September, 2011 one by one.