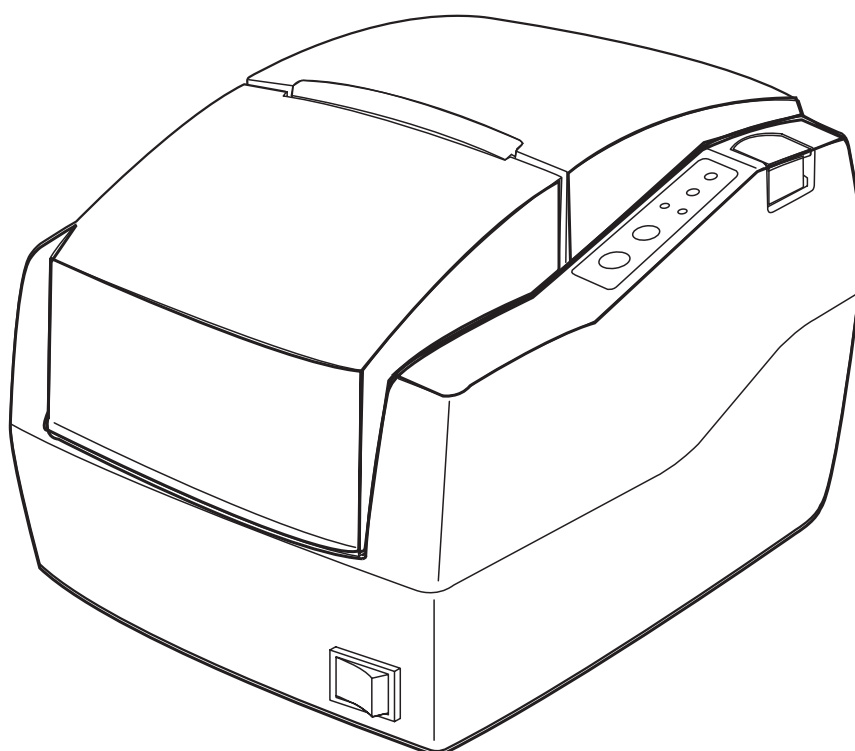


Command Manual

SRP-500

Inkjet Printer
Rev. 1.00



1. EPSON Mode (TM-U200)

n	Command	Description	Hexadecimal
1	CR	Print and carriage return	0D
2	HT	Horizontal tab	09
3	LF	Print and linefeed	0A
4	DLE EOT	Transmit real-time status	10 04
5	DLE ENQ	Real-time request to printer	10 05
6	ESC SP	Set right-side character spacing	1B 20
7	ESC %	Select/Cancel user defined characters	1B 25
8	ESC &	Define user-defined characters	1B 26
9	ESC *	Select bit-image mode	1B 2A
10	ESC !	Select print mode	1B 21
11	ESC -	Turn underline mode on/off	1B 2D
12	ESC =	Select peripheral device status	1B 3D
13	ESC 2	Select default line spacing 1/6 lpi	1B 32
14	ESC 3	Set line spacing	1B 33
15	ESC <	Return home	1B 3C
16	ESC ?	Cancel user defined characters	1B 3F
17	ESC @	Initialize printer	1B 40
18	ESC D	Set horizontal positions	1B 44
19	ESC E	Turn emphasized mode on/off	1B 45
20	ESC G	Turn double-strike mode on/off	1B 47
21	ESC J	Print and feed paper <n> vertical units	1B 4A
22	ESC R	Select an international character set	1B 52
23	ESC U	Turn unidirectional printing mode on/off	1B 55
24	ESC a	Select justification	1B 61
25	ESC c 3	Select paper sensor to output paper end signal	1B 63 33
26	ESC c 4	Select paper sensor to stop printing	1B 63 34
27	ESC c 5	Enable/disable panel button	1B 63 35
28	ESC d	Print and feed <n> line	1B 64
29	ESC g <0>	Start macro record (For logo)	1B 67 00
30	ESC g <n>	Execute macro (For logo)	1B 67 <n>
31	ESC m	Execute partial cut	1B 6D
32	ESC p	Generate pulse	1B 70
33	ESC r	Select color	1B 72
34	ESC t	Select character code table	1B 74
35	ESC v	Transmit paper sensor status	1B 76
36	ESC {	Turn upside-down printing mode on/off	1B 7B
37	GS (A	Execute test print	1B 28 41
38	GS I	Transmit printer ID	1D 49
39	GS V	Select cut mode and cut paper	1D 56
40	GS a	Enable/disable Automatic Status Back (ASB)	1D 61
41	GS j	Enable/disable Automatic Status Back (ASB) for ink	1D 6A
42	GS r	Transmit status	1D 72

2. STAR Mode (SP-320)

n	Command	Description	Hexadecimal
1	BEL	Deferred drive command "A" for peripheral unit 1	07
2	FF	Page feed (Form feed)	0C
3	CR	Print and linefeed (same as LF)	0D
4	SO	Select expanded character mode	0E
5	SI	Select upside-down	0F
6	DC2	Cancel upside-down character	12
7	DC4	Cancel expanded character mode (Default setting)	14
8	CAN	Cancel print data in buffer	18
9	EM	Immediate drive command for peripheral unit2	19
10	SUB	Immediate drive command for peripheral unit 2	1A
11	ESC BEL	Adjust drive pulse width for peripheral unit (Default setting)	1B 07
12	ESC -	Set or Cancel underline mode	1B 2D
13	ESC 4	Red color print selection	1B 34
14	ESC 5	Red color print deselection	1B 35
15	ESC @	Initialize printer	1B 40
16	ESC C	Set page length at n lines	1B 43
17	ESC E	Emphasized print mode	1B 45
18	ESC F	Emphasized print mode deselection (Default setting)	1B 46
19	ESC M	Select 9 x 7(Half dots) character size	1B 4D
20	ESC R	Select international character set	1B 52
21	ESC U	Set or cancel uni-direction mode	1B 55
22	ESC W 1 ESC W <1>	Select expanded character mode	1B 57 31 1B 57 01
23	ESC W 0 ESC W <0>	Cancel expanded character mode (Default setting)	1B 57 30 1B 57 00
24	ESC _ 1 ESC _ <1>	Select over-line mode	1B 5F 31 1B 5F 01
25	ESC _ 0 ESC _ <0>	Cancel over-line mode	1B 5F 30 1B 5F 01
26	ESC a	Feed paper n lines	1B 61
27	ESC d 0	Partial cut	1B 64 30
28	ESC d 1	Partial cut	1B 64 31
29	ESC e 1 ESC e <1>	Set the control panel switch invalid	1B 65 31 1B 65 01
30	ESC e 0 ESC e <0>	Set the control panel switch valid	1B 65 30 1B 65 00
31	ESC f 1 ESC f <1>	Set the ON LINE switch invalid	1B 66 31 1B 66 01
32	ESC f 0 ESC f <0>	Set the ON LINE switch valid	1B 66 30 1B 66 00
33	FS	Immediate drive command "B" for peripheral unit 1	1C

3. CITIZEN Mode (iDP-3541)

n	Command	Description	Hexadecimal
1	BEL	First drawer drive command1	07
2	LF	Paper feed command	0A
3	FF n	"n"-lines paper feed command	0C n
4	SO	Enlarged character command	0E
5	SI	Normal character command	0F
6	DC1	Initial set command	11
7	DC2	Inverted character command	12
8	DC3	Red color print command	13
9	CAN	Clear command	18
10	SUB	Second drawer drive command	1A
11	ESC BEL	Drive pulse setting command for the first drawer	1B 07
12	ESC -	Underline command	1B 2D
13	ESC 1	1/9 inch paper feed preset command	1B 31
14	ESC 2	2/9 inch paper feed preset command	1B 32
15	ESC C	Paper length set command	1B 43
16	ESC P <0>	Paper partial cut command	1B 50 00
17	ESC P <1>	Paper partial cut command	1B 50 01
18	FS	First drawer quick drive command	1C
19	CR	Printing	ØD
20	ESC * n1 n2	Specifying the bit image mode	1B 2A n1 n2
21	ESC f <1>	Form feed	1B 66 Ø1

4. Control Commands Details

4-1 Command Notation

[Name]	The name of the command.
[Format]	The code sequence. ASCII Indicates the ASCII equivalents. Hex indicates the hexadecimal equivalents. Decimal indicates the decimal equivalents. [] k indicates the contents of the [] should be repeated k times.
[Range]	Gives the allowable ranges for the arguments.
[Description]	Describes the function of the command.

4-2 Explanation of Terms

LSB Least Significant Bit

4-3 Control Commands Details

HT

[Name]	Horizontal tab
[Format]	ASCII HT Hex 09 Decimal 10
[Description]	Moves the print position to the next horizontal tab position.
[Notes]	<ul style="list-style-type: none"> • This command is ignored unless the next horizontal tab position has been set. • Horizontal tab positions are set with ESC D. • The default tab positions are at intervals of 8 characters (columns 9, 17, 25..) for the font B (12 x 12).
[Reference]	ESC D

LF

[Name]	Print and line feed
[Format]	ASCII LF Hex 0A Decimal 10
[Description]	Prints the data in the print buffer and feeds one line based on the current line spacing.
[Note]	This command sets the print position to the beginning of the line.
[Reference]	ESC 2, ESC 3

CR

[Name]	Print and carriage return
[Format]	ASCII CR Hex 0D Decimal 13
[Description]	This command prints the data in the print buffer and does not feed the paper.
[Note]	Sets the print starting position to the beginning of the line
[Reference]	LF

DLE EOT n

[Name]	Real-time status transmission
[Format]	ASCII DLE EOT n Hex 10 04 n Decimal 16 4 n
[Range]	$1 \leq n \leq 4$
[Description]	Transmits the selected printer status specified by n in real time, according to the following parameters: n = 1: Transmit printer status n = 2: Transmit off-line status n = 3: Transmit error status n = 4: Transmit paper roll sensor status

[Notes]

- This command should not be used within the data sequence of another command that consists of 2 or more bytes. For example, If you attempt to transmit ESC 3 n to the printer, but DTR (DSR for the host computer) goes to MARK before n is transmitted and then DLE EOT 3 interrupts before n is received, the code <10>H for DLE EOT 3 is processed as the code for ESC 3 <10>H.

n = 1 : Printer status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Drawer kick-out signal is LOW (connector pin 3)
	On	04	4	Drawer kick-out signal is HIGH (connector pin 3)
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Not used. Fixed to Off.
6	Off	00	0	Not used. Fixed to Off.
7	Off	00	0	Not used. Fixed to Off.

n = 2 : Off-line status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Cover is closed (front & rear)
	On	04	4	Cover is open (front or rear)
3	Off	00	0	Paper is not being fed by using the paper feed button.
	On	08	8	Paper is being fed by the paper feed button.
4	On	10	16	Not used.
5	Off	00	0	Fixed to On.
	On	20	32	No paper-end stop.
6	Off	00	0	Printing stops due to paper end.
	On	40	64	No error. Error occurs.
7	Off	00	0	Not used. Fixed to Off.

Bit 5 : On (printing stops due to paper-end) when printing stops due to paper-end detected by the paper-end sensor or the paper near-end enabled by using the ESC c 4.

n = 3 : Error status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	No mechanical error.
	On	04	4	Mechanical error occurred.
3	Off	00	0	No auto-cutter error.
	On	08	8	Auto-cutter error occurs.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No unrecoverable error.
	On	20	32	Unrecoverable error occurs.
6	Off	00	0	Automatic recover error.
	On	40	64	No automatic recover error.
7	Off	00	0	Not used. Fixed to Off.

Bit 2 : If these errors occur due to paper jams or the like, it is possible to recover by correcting the cause of the error and executing DLE ENQ 2. If an error due to a circuit failure (e.g. wire break) occurs, it is impossible to recover.

n = 4 : Continuous paper sensor status

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2, 3	Off	00	0	Paper near-end sensor. Paper adequate.
	On	0C	12	Paper near-end is detected by the paper near-end sensor.
4	On	10	16	Not used. Fixed to On.
5, 6	Off	00	0	Paper end sensor. Paper adequate.
	On	60	96	Paper end is detected by the paper end sensor.
7	Off	00	0	Not used. Fixed to Off.

DLE ENQ n

[Name]	Real-time request to printer			
[Format]	ASCII	DLE	ENQ	n
	Hex	10	05	n
	Decimal	16	5	n
[Range]	n = 2			
[Description]	The printer responds to a request from the host specified by n. n = 2: Recovers from an error after clearing the receive and print buffers.			

[Notes]

- This command should not be used within the data sequence of another command that consists of two or more bytes. For example, If you attempt to transmit ESC 3 n to the printer, but DTR (DSR for the host computer) goes to MARK before n is transmitted, and DLE ENQ 2 interrupts before n is received, the code <10>H for DLE ENQ 2 is processed as the code for ESC 3 <10>H.
- This command n = 2 is valid only when a mechanical error or an auto-cutter error has occurred.
- DLE ENQ 2 enables the printer to recover from an error after clearing the data in the receive buffer and the print buffer.
The printer retains the settings (by ESC !, ESC 3, etc.) in effect when the error occurred. The printer can be initialized completely by using this command and ESC @.
This command is enabled only for errors that have the possibility of recovery

ESC SP n

[Name]	Set right-side character spacing			
[Format]	ASCII	ESC	SP	n
	Hex	1B	20	n
	Decimal	27	32	n
[Range]	$0 \leq n \leq 255$			
[Description]	Sets the character spacing for the right side of the character to [n x 0.122 mm {1/208 inches}] .			
[Notes]	The right-side character spacing for double-width mode is twice the normal value.			
[Default]	n = 0			

ESC ! n

[Name]	Select print mode(s)			
[Format]	ASCII	ESC	!	n
	Hex	1B	21	n
	Decimal	27	33	n
[Range]	$0 \leq n \leq 255$			
[Description]	Selects print mode(s) using n as follows:			

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Character font A (12 x 14) selected.
	On	01	1	Character font B (12 x 12) selected.
1	-	-	-	Undefined.
2	-	-	-	Undefined.
3	Off	00	0	Emphasized mode not selected.
	On	08	8	Emphasized mode selected.
4	Off	00	0	Double-height mode not selected.
	On	10	16	Double-height mode selected.
5	Off	00	0	Double-width mode not selected.
	On	20	32	Double-width mode selected.
6	-	-	-	Undefined.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.

[Notes]

- When both double-height and double-width modes are selected, quadruple size characters are printed.
- Underlining is added to the entire width of each character, including the space to the right of a character, but is not added to portions of lines that were skipped by means of an **HT**.

[Default]

n = 1

[Reference]

ESC E, ESC –

ESC % n

[Name] Select/cancel user-defined character set

[Format]

ASCII	ESC	%	n
Hex	1B	25	n
Decimal	27	37	n

[Range] $0 \leq n \leq 255$

[Description] Selects or cancels the user-defined character set.

When the Least Significant Bit (LSB) is 0, the user-defined character set is canceled and the internal character set is enabled.

When the LSB is 1, the user-defined character set is selected.

[Notes]

- When the downloaded character set has been released, the internal character set is specified automatically.

[Default]

n = 0

[Reference]

ESC &, ESC ?

ESC & y c1 c2 [x1 d1...d(y x x1)]...[xk d1... d(y x xk)]

[Name]	Define user-defined characters
[Format]	ASCII ESC & y c1 c2 [x1 d1...d(y x x1)]...[xk d1... d(y x xk)] Hex 1B 26 y c1 c2 [x1 d1...d(y x x1)]...[xk d1... d(y x xk)] Decimal 27 38 y c1 c2 [x1 d1...d(y x x1)]...[xk d1... d(y x xk)]
[Range]	y = 2 $32 \leq c1 \leq c2 \leq 255$ $0 \leq x \leq 14$ (Font A) $0 \leq x \leq 12$ (Font B) $0 \leq d1 \dots d(y \times x) \leq 255$
[Description]	Defines user-defined characters. <ul style="list-style-type: none"> • y specifies the number of bytes in the vertical direction. • c1 specifies the beginning character code for the definition, and c2 specifies the final code. When only one character is desired, use c1 = c2. • x specifies the number of dots in the horizontal direction.
[Notes]	<ul style="list-style-type: none"> • Consecutive character codes for multiple characters can be defined in one definition. When specifying only one character, specify c1 = c2. • "d" is definition data that indicates the pattern for "x" dots in the horizontal direction starting from the left edge. If "x" does not satisfy the number of dots in the character configuration pattern, the remaining dots on the right are spaces. • The number of bytes required to download a character definition for one character is "y" x "x". • In the definition data, a "1" represents a dot that is to be printed, and a "0" represents a dot that is not to be printed. • Independent downloaded character definitions are possible for each font. • The font is selected by the "ESC !" command. • The defined downloaded characters are cleared in the following circumstances: <ol style="list-style-type: none"> 1) When "ESC @" is executed 2) When deleted by "ESC ?" 3) When the printer is reset or turned off
[Default]	The internal character set
[Reference]	ESC %, ESC ?

ESC * m nL nH d1...dk

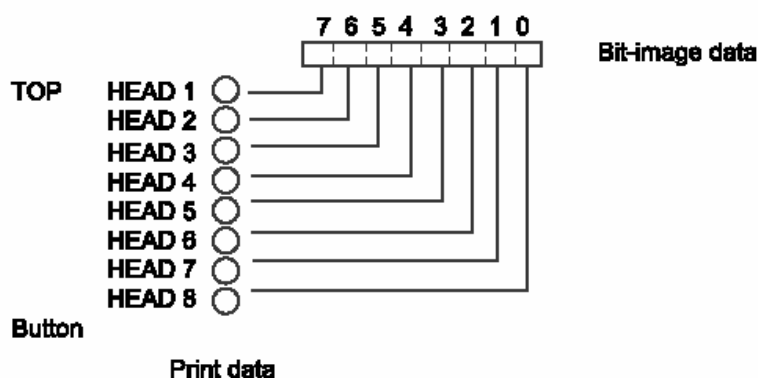
[Name]	Select bit-image mode
[Format]	ASCII ESC * m nL nH d1...dk Hex 1B 2A m nL nH d1...dk Decimal 27 42 m nL nH d1...dk
[Range]	m = 0, 1 $0 \leq nL \leq 255$ $0 \leq nH \leq 3$ $0 \leq d \leq 255$
[Description]	Selects a bit-image mode using m for the number of dots specified by nL and nH

- Divide the number of dots to be printed by 256. The integer answer is nH and the remainder is nL. Therefore, the number of dots in the horizontal direction is calculated by $nL + 256 \times nH$.
- If the bit-image data input exceeds the number of dots to be printed on a line, the excess data is ignored.
- d indicates the bit-image data. Set a corresponding bit to 1 to print a dot or to 0 to not print a dot.
- The bit-image modes selectable by m are as follows.

m	No. of Vertical Dots	Dot Density	Adjacent Dot	Maximum number of dots
0	8	Single Density	Permitted	252
1	8	Double Density	Permitted	504

[Notes]

- If the values of m and nH are out of the specified range, the following data is processed as normal data.
- After printing a bit image, the printer returns to normal data processing mode.
- The relationship between the image data and the dots to be printed is as follows.



ESC - n

[Name] Turn underline mode on/off

[Format]

ASCII	ESC	–	n
Hex	1B	2D	n
Decimal	27	45	n

[Range] n = 0, 1, 48, 49

[Description] Turns underline mode on or off,

- When n = 0 or 48, underline mode is turned off.
- When n = 1 or 49, underline mode is turned on.

[Notes]

- Underlines can be printed for all characters, but not for the space set by HT.
- This command and ESC ! turn underline mode on or off in the same way.
- If n is out of the specified range, this command is ignored.

[Default] n = 0

[Reference] ESC !, ESC 2

[Name] Select default line spacing

[Format]

ASCII	ESC	2
Hex	1B	32
Decimal	27	50

[Description] Selects default (1/6-inch) line spacing.

[Reference] ESC 3

ESC 3 n

[Name]	Set line spacing			
[Format]	ASCII	ESC	3	n
	Hex	1B	33	n
	Decimal	27	51	n
[Range]	$0 \leq d \leq 255$			
[Description]	Sets the line spacing to [n x (1/192)] inches.			
[Default]	n = 32 (1/6 inch)			
[Reference]	ESC 2			

ESC <

[Name]	Return home			
[Format]	ASCII	ESC	<	
	Hex	1B	3C	
	Decimal	27	60	
[Description]	Moves the print head to the standby position.			
[Notes]	<ul style="list-style-type: none"> • The leftmost end is detected by the home position sensor. • Since the home position is detected when this command is executed, the printing position may shift after this command is executed. 			

ESC = n

[Name]	Select device			
[Format]	ASCII	ESC	=	n
	Hex	1B	3D	n
	Decimal	27	61	n
[Range]	n = 1			
[Description]	Selects device to which host computer sends data.			
	<ul style="list-style-type: none"> • n = 1 ; enable • n = 2 ; disable 			
[Default]	n = 1			

ESC ? n

[Name]	Cancel user-defined characters			
[Format]	ASCII	ESC	?	n
	Hex	1B	3F	n
	Decimal	27	63	n
[Range]	$32 \leq n \leq 255$			
[Description]	Cancels user-defined characters.			
[Notes]	<ul style="list-style-type: none"> • This command cancels the pattern defined for the character code specified by n. After the user-defined characters is cancelled, the corresponding pattern for the internal character is printed. • This command deletes the defined pattern for the specified code in the character font selected by the "ESC !" command. • If a user-defined character has not been defined for the specified character code, the printer ignores this command. 			
[Reference]	ESC &, ESC %			

ESC @

[Name]	Initialize printer		
[Format]	ASCII	ESC	@
	Hex	1B	40
	Decimal	27	64
[Description]	Clears the data in the print buffer and resets the printer mode to the mode that was in effect when the power was turned on.		
[Notes]	<ul style="list-style-type: none">• The DIP switch settings are not checked again.• The data in the receive buffer is not cleared.		

ESC D n1... nk NUL

[Name]	Set horizontal tab positions			
[Format]	ASCII	ESC	D	n1...nk NUL
	Hex	1B	44	n1...nk 00
	Decimal	27	68	n1...nk 0
[Range]	$1 \leq d \leq 255$			
	$0 \leq k \leq 32$			
[Description]	Sets horizontal tab positions.			
	<ul style="list-style-type: none">• n specifies the column number (counted from the beginning of the line) for setting a horizontal tab position.• k indicates the total number of horizontal tab positions to be set.			
[Notes]	<ul style="list-style-type: none">• The tab position is set at [character width x n] from the beginning of the line. The character width includes the right-side space of the character, and is twice the normal value when double-width is specified.• This command deletes horizontal tab positions that have already been set.• When "n = 8" has been set for the horizontal tab position, the printing position moves to the ninth digit when HT is executed.• Up to 32 tab positions can be set. Data exceeding 32 tab positions is processed as normal data. Input <n>k in ascending order and place a NUL code <00>H at the end when <n>k is less than or equal to the preceding value <n>k-1, tab setting is finished and the following data is processed as normal data.• ESC D NUL cancels all horizontal tab positions.• The previously specified horizontal tab positions do not change, even if the character width changes.			
[Default]	The default tab positions are at intervals of 8 characters (columns 9, 17, 25, ...) for the font B (12 x 14).			
[Reference]	HT			

ESC E n

[Name]	Turn emphasized mode on/off			
[Format]	ASCII	ESC	E	n
	Hex	1B	45	n
	Decimal	27	69	n
[Range]	$32 \leq n \leq 255$			
[Description]	Turns emphasized mode on or off.			
	<ul style="list-style-type: none"> When the LSB of n is 0, emphasized mode is turned off. When the LSB of n is 1, emphasized mode is turned on. 			
[Notes]	* Printing is slower in emphasized mode.			
	<ul style="list-style-type: none"> Only the lowest bit of n is enabled. 			
	<ul style="list-style-type: none"> The printer does not emphasize bit-images. 			
	<ul style="list-style-type: none"> This command and ESC ! turn on and off emphasized mode in the same way. The last proceeded command becomes effective. 			
	<ul style="list-style-type: none"> Printer output is the same in double-strike (ESC G) and in emphasized. 			
[Default]	n = 0			
[Reference]	ESC !, ESC G			

ESC G n

[Name]	Turn double-strike mode on/off			
[Format]	ASCII	ESC	G	n
	Hex	1B	47	n
	Decimal	27	71	n
[Range]	$0 \leq n \leq 255$			
[Description]	Turns double-strike mode on or off.			
	<ul style="list-style-type: none"> When the LSB of n is 0, double-strike mode is turned off. When the LSB of n is 1, double-strike mode is turned on. 			
[Notes]	* Printing is slower in double-strike mode.			
	<ul style="list-style-type: none"> Only the lowest bit of n is enabled. 			
	<ul style="list-style-type: none"> The printer does not double-strike for bit-images. 			
	<ul style="list-style-type: none"> Printer output is the same in double-strike and in emphasized (ESC E). 			
[Default]	n = 0			
[Reference]	ESC E			

ESC J n

[Name]	Print and feed paper			
[Format]	ASCII	ESC	J	n
	Hex	1B	4A	n
	Decimal	27	74	n
[Description]	Prints the data in the print buffer and feeds the paper			
	[n x 0.122mm {1/192 inches}] .			
[Notes]	<ul style="list-style-type: none"> After printing is completed, this command sets the print starting position to the beginning of the line. 			
	<ul style="list-style-type: none"> This command has no effect on the line feed amount set by the "ESC 2" command or the "ESC 3" command. 			

ESC R n

[Name] Select an international character set

[Format] ASCII ESC R n
 Hex 1B 52 n
 Decimal 27 82 n

[Range] $0 \leq n \leq 10$

[Description] Selects an international character set n from the following table:

n	Character set	n	Character set
0	U.S.A	6	Italy
1	France	7	Spain I
2	Germany	8	---
3	U.K.	9	Norway
4	Denmark I	10	Denmark II
5	Sweden		

[Default] n = 0

ESC U n

[Name] Turn unidirectional printing mode on/off

[Format] ASCII ESC U n
 Hex 1B 55 n
 Decimal 27 85 n

[Range] $0 \leq n \leq 255$

[Description] Turns unidirectional printing mode on or off

- When the LSB of n is 1, turn on unidirectional printing mode.

[Notes]

- Only the lowest bit of n is enabled.
- To avoid horizontal printing misalignment, unidirectional printing mode should be used.

[Default] n = 0

ESC a n

[Name] Select justification

[Format] ASCII ESC a n
 Hex 1B 61 n
 Decimal 27 97 n

[Range] $0 \leq n \leq 2, 48 \leq n \leq 50$

[Description] Aligns all the data in one line to the specified position.
 n selects the type of justification as follows:

n	Justification
0, 48	Left justification
1, 49	Centering
2, 50	Right justification

[Notes]

- The command is enabled only when input at the beginning of the line.
- A portion of data skipped by means of HT is also target data for the justification function.

[Default] n = 0

[Example]

Left justification	Centering	Right justification
ABC	ABC	ABCC
ABCD	ABCD	ABCDC
ABCDE	ABCDE	ABCDEC

ESC c 3 n

[Name] Select paper detector(s) to output paper end signals

[Format] ASCII ESC c 3 n
 Hex 1B 63 33 n
 Decimal 27 99 51 n

[Range] $0 \leq n \leq 255$

[Description] Selects paper detector(s) to output paper end signals, using n as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Paper roll near end sensor disabled.
	On	01	1	Paper roll near end sensor enabled.
1	Off	00	0	Paper roll near end sensor disabled.
	On	02	2	Paper roll near end sensor enabled.
2	Off	00	0	Paper roll end detector disabled.
	On	04	4	Paper roll end detector enabled.
3	Off	00	0	Paper roll end detector disabled.
	On	08	8	Paper roll end detector enable.
4	-	-	-	Undefined
5	-	-	-	Undefined
6	-	-	-	Undefined
7	-	-	-	Undefined

[Notes]

- It is possible to select multiple detectors to output signals.
- Then, if any of the detectors detects a paper end, the paper end signal is output.
- Detectors are switched when executing this command.
- Because of this, the paper-out signal switching may delay depending on the receive buffer state.

[Default] n = 15

ESC c 4 n

[Name] Select paper sensor(s) to stop printing

[Format] ASCII ESC c 4 n
 Hex 18 63 34 n
 Decimal 27 99 52 n

[Range] $0 \leq n \leq 255$

[Description] Selects the paper sensor(s) used to stop printing when a paper-end is detected, using n as follows :

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Paper roll near end sensor disabled.
	On	01	1	Paper roll near end sensor enabled.
1	Off	00	0	Paper roll near end sensor disabled.
	On	02	2	Paper roll near end sensor enabled.
2	-	-	-	Undefined
3	-	-	-	Undefined
4	-	-	-	Undefined
5	-	-	-	Undefined
6	-	-	-	Undefined
7	-	-	-	Undefined

[Notes]

- The printer goes off-line after printing stops.
- The paper roll near-end sensor is an option, therefore, if the paper roll near-end sensor is enabled by this command when the sensor is not equipped, it does not stop printing.
- The paper roll near-end sensor is enabled when either bit 0 or 1 is 1.
- The paper roll end sensor is a sensor which is always used to make an effective to stop printing.

[Default] n = 0

ESC c 5 n

[Name] Enable/disable panel buttons

[Format] ASCII ESC c 5 n
 Hex 1B 63 35 n
 Decimal 27 99 53 n

[Range] $0 \leq n \leq 255$

[Description] Enables or disables the panel buttons.

- When the LSB of n is 0, the panel buttons are enabled.
- When the LSB of n is 1, the panel buttons are disabled.

[Notes]

- Only the least significant bit of "n" is valid.
- When the panel buttons are disabled, no buttons on the panel are usable.
- If "disabled" is set, the paper feed switch no longer functions.

[Default] n = 0

ESC d n

[Name]	Print and feed n lines			
[Format]	ASCII	ESC	d	n
	Hex	1B	64	n
	Decimal	27	100	n
[Range]	$0 \leq n \leq 255$			
[Description]	Prints the data in the print buffer and feeds n lines.			
[Notes]	<ul style="list-style-type: none"> • This command sets the print starting position to the beginning of the line. • The amount of paper fed per line is based on the value set using the line spacing command (ESC 2 or ESC 3) 			
[Reference]				

ESC g<0> <k> [<nH> <nL>]k[d1...dm]k

[Name]	Start macro record			
[Format]	ASCII	ESC	g	<0><k> [<nH> <nL>]k[d1...dm]k
	Hex	1B	67	00 <k> [<nH> <nL>]k[d1...dm]k
	Decimal	27	103	00 <k> [<nH> <nL>]k[d1...dm]k
[Range]	$k \leq 10$			
	$0 \leq nL \leq 255$			
	$0 \leq nH \leq 255$			
	$[(256 \times nH) + nL]_1 + \dots + [(256 \times nH) + nL]_k < 2\text{Mbit}$			
[Description]	$0 \leq d \leq 255$			
	Start macro definition (Define logo)			
	<ul style="list-style-type: none"> • k = the number of total macro index • $(256 \times nH) + nL$ = the Length of each macro • $m = (256 \times nH) + nL$. 			
[Notes]	The SRP-500 Printer maintains a 2M bit (256KB) section of flash memory to save user information			
[Reference]	<ul style="list-style-type: none"> • This function is useful define NV bit image (Logo). 			
	User easily download Logo to printer using SRP-500 Store Maker Utility.			

ESC g n

[Name]	Execute Macro			
[Format]	ASCII	ESC	g	n
	Hex	1B	67	n
	Decimal	27	103	n
[Range]	$1 \leq n \leq 10$			
[Description]	Execute macro using the parameter by n.			
[Notes]				
	<ul style="list-style-type: none"> • n = Macro index number. 			

ESC m

[Name]	Execute partial cut		
[Format]	ASCII	ESC	m
	Hex	1B	6D
	Decimal	27	109
[Description]	Execute partial cut with one point uncut		

ESC p m t1 t2

[Name]	Generate pulse			
[Format]	ASCII	ESC	p	m t1 t2
	Hex	1B	70	m t1 t2
	Decimal	27	112	m t1 t2
[Range]	m = 0, 1, 48, 49			
	$0 \leq t1 \leq 255$			
	$0 \leq t2 \leq 255$			
[Description]	Outputs the pulse specified by t1 and t2 to connector pin m as follows:			

n	Connector Pin
0	Drawer kick-out connector pin 2
1	Drawer kick-out connector pin 5

[Notes]

- The pulse ON time is [t1 x 2] ms and the OFF time is [t2 x 2] ms.
- When t2 < t1, the printer processes t1 x 2 ms.

[Reference]

ESC r n

[Name]	Select print color			
[Format]	ASCII	ESC	r	n
	Hex	1B	72	n
	Decimal	27	114	n
[Range]	n = 0, 1, 48, 49			
[Description]	Selects the print color.			

n	Selected color
0, 48	Black
1, 49	Red

[Notes]

- Valid only when input at the beginning of a line.

[Default]

n = 0

ESC t n

[Name]	Select character code table			
[Format]	ASCII	ESC	t	n
	Hex	1B	74	n
	Decimal	27	116	n
[Range]	n = 0, 2, 3, 4, 5, 16, 17, 18, 19, 21, 22, 23			
[Description]	Selects a page n from the character code table.			

n	Page	n	Page
0	PC437	17	PC866
2	PC850	18	PC852
3	PC860	19	PC858
4	PC863	21	PC862
5	PC865	22	PC864
16	PC1252	23	PC874

[Default]	n = 0
[Reference]	

ESC v

[Name]	Transmit paper sensor status			
[Format]	ASCII	ESC	v	
	Hex	1B	76	
	Decimal	27	118	
[Description]	Transmits the status of paper sensor(s) as 1 byte of data			
[Notes]				

- GS r 1 can also be used to check the status. GS r is recommended for transmitting the paper sensor status. ESC v is not a recommended command.
- When DTR/DSR control is selected by DIP switch (Handshaking) with a serial interface, the printer transmits the status after confirming that the host is ready to receive data. If the host computer is not ready to receive data, the printer waits until the host becomes ready.
- When XON/XOFF control is selected by DIP switch (Handshaking) with a serial interface, the printer transmits the status without confirming whether the host computer can receive data.
- The peripheral device status to be transmitted is as follows:

Bit	Off/On	Hex	Decimal	Function
0,1	Off	00	0	Paper roll near end sensor : paper adequate
	On	03	3	Paper roll near end sensor : paper near end
2,3	Off	00	0	Paper roll end sensor : paper present
	On	0C	12	Paper roll end sensor : paper not present
4	Off	00	0	Fixed
5	Off	00	0	Undefined
6	Off	00	0	Undefined
7	Off	00	0	Undefined

ESC { n

[Name] Turns on/off upside-down printing mode

[Format] ASCII ESC { n
Hex 1B 7B n
Decimal 27 123 n

[Range] $0 \leq n \leq 255$

[Description] Turns upside-down printing mode on or off.

- When the LSB of n is 0, upside-down printing mode is turned off.
- When the LSB of n is 1, upside-down printing mode is turned on.

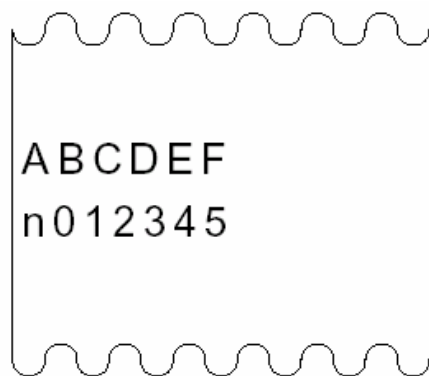
[Notes]

- Only the lowest bit of n is effective.
- This command is enabled only when input at the beginning of a line.
- In upside-down printing mode, the printer rotates the line to be printed by 180° and then prints it.

[Default] n = 0

[Example]

Upside-down printing mode is turned off



Upside-down printing mode is turned on



Paper feed direction Paper feed direction

GS (A pL pH n m

[Name] Execute test print

[Format] ASCII GS (A pL pH n m
Hex 1D 28 41 pL pH n m
Decimal 29 40 65 pL pH n m

[Range] $(pL + (pH \times 256)) = 2$ (where pL = 2, pH = 0)

$0 \leq n \leq 2, 48 \leq n \leq 50$

$1 \leq m \leq 3, 49 \leq n \leq 51$

[Description]

- Executes a test print with a specified test pattern on a specified paper.
- pL and pH specifies the number of the parameter such as n,m to $(pL + (pH \times 256))$ bytes.

- n specifies the paper to be tested

n	Paper
0, 48	Basic sheet (paper roll)
1, 49 2, 50	Paper roll

- m specifies a test pattern

n	Test pattern
1, 49	Hexadecimal dump
2, 50	Printer status print

[Notes]

- When the hexadecimal dump is printed by this command, the data which is transmitted after the command may not be printed because the printer clears the receive buffer. To avoid this, transmit data from the host after the printer prints the starting message of the hexadecimal dump.
- This command is enabled only when processed at the beginning of a line in standard mode.

GS I n

[Name] Transmit printer ID

[Format] ASCII GS I n
Hex 1D 49 n
Decimal 29 73 n

[Range] $1 \leq n \leq 3$

[Function] Transmits the printer ID specified by n as follows:

Bit	Printer ID	Specification	ID (hexadecimal)
1,49	Printer model ID	SRP-500 series See table	0D
2,50	Type ID	below	
3,51	ROM version ID	ROM version	

n = 2, Type ID

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	Two-byte character code not supported.
	On	01	1	Two-byte character code supported.
1	Off	00	0	Auto cutter not equipped.
	On	02	2	Auto cutter equipped.
2	-	-	-	Undefined.
3	-	-	-	Undefined.
4	Off	00	0	Not used. Fixed to Off.
5	-	-	-	Undefined.
6	-	-	-	Undefined.
7	Off	00	0	Not used. Fixed to Off.

[Notes]

- The printer ID is transmitted when the data in the receive buffer is developed. Therefore, there may be a time lag between receiving this command and transmitting the status, depending on the receive buffer status.

① GS V m

② GS V m n

[Name]	Feeds paper for cutting position.					
[Format]	①	1 ASCII	GS	V	m	
		Hex	1D	56	m	
		Decimal	29	86	m	
	②	ASCII	GS	V	m	n
		Hex	1D	56	m	n
		Decimal	29	86	m	n
[Range]	①	m = 1, 49		②	m = 66, 0 ≤ n ≤ 255	
[Description]	Feeds paper for cutting position as follows:					

Bit	Print mode
1, 49	Partial cut (one portion left uncut)
66	Feeds paper for (cutting position + [n x 0.122 mm {1/192 inches}]), and partial cut.

[Notes]

- This command is effective only at the beginning of a line.
- When n = 0, the printer feeds the paper to the cutting position.
- When n , 0,the printer feeds the paper to (cutting position +[n x 0.122 mm {1/192 inches}])).

GS a n

[Name]	Enable/Disable Automatic Status Back			
[Format]	ASCII	GS	a	n
	Hex	1D	61	n
	Decimal	29	97	n
[Range]	0 ≤ n ≤ 255			
[Description]	Enables or disables ASB and specifies the status items to include, using n as follows:			

Bit	Off/On	Hex	Decimal	Status for ASB
0	Off	00	0	Drawer kick-out connector pin 3 status disabled.
	On	01	1	Drawer kick-out connector pin 3 status enabled.
1	Off	00	0	On-line/off-line disabled.
	On	02	2	On-line/off-line enabled
2	Off	00	0	Error status disabled.
	On	04	4	Error status enabled.
3	Off	00	0	Paper roll sensor status disabled.
	On	08	8	Paper roll sensor status enabled.
4	-	-	-	Undefined.
5	-	-	-	Undefined.
6	-	-	-	Undefined.
7	-	-	-	Undefined.

[Notes]

- Even if only one of the statuses is enabled, the status is sent when this command is executed. Subsequently, whenever the state of a valid status changes, that status is sent. In this case, because the current state is shown for each status, there is a possibility of a state change for a status for which ASB is not enabled.
- If all statuses are disabled, the Automatic Status Back (ASB) function is disabled.
- When transmitting a status, the printer transmits only four bytes.
- Four bytes of status data must be consecutive, except for XOFF code.
- This command is executed when the data in the receive buffer is developed. Therefore, there may be a time lag between receiving this command and transmitting the status, depending on the receive buffer status.
- When the printer is disabled by ESC = (Select peripheral device), this command is disabled but ASB is not disabled.
- The status to be transmitted are as follows:

First byte (printer information)

Bit	Off/On	Hex	Decimal	Status for ASB
0	Off	00	0	Not used. Fixed to Off.
1	Off	00	0	Not used. Fixed to Off.
2	Off	00	0	Drawer kick-out connector pin 3 is LOW.
	On	04	4	Drawer kick-out connector pin 3 is HIGH.
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Cover is close (Front & rear)
	On	20	32	Cover is open (Front or rear)
6	Off	00	0	Paper is not being fed by the paper feed button.
	On	40	64	Paper is being fed by the paper feed button.
7	Off	00	0	Not used. Fixed to Off.

Second byte (printer information)

Bit	Off/On	Hex	Decimal	Status for ASB
0	Off	00	0	Not used. Fixed to Off.
1	Off	00	0	Not used. Fixed to Off.
2	Off	00	0	No mechanical error.
	On	04	4	Mechanical error.
3	Off	00	0	No auto cutter error.
	On	08	8	Auto cutter error occurred.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	No unrecoverable error.
6	On	20	32	Unrecoverable error.
	Off	00	0	Not used. Fixed to Off.
7	Off	00	0	Not used. Fixed to Off.

Third byte (paper sensor information)

Bit	Off/On	Hex	Decimal	Status for ASB
0, 1	Off	00	0	Paper near-end sensor: paper adequate. Paper
	On	03	3	near-end sensor: paper near end.
2, 3	Off	00	0	Paper end sensor: paper present. Paper end
	On	0C	12	sensor: no paper present.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	Not used. Fixed to Off.
6	Off	00	0	Not used. Fixed to Off.
7	Off	00	0	Not used. Fixed to Off.

Fourth byte (paper sensor information)

Bit	Off/On	Hex	Decimal	Status for ASB
0	On	01	1	Not used. Fixed to On.
1	On	02	2	Not used. Fixed to On.
2	On	04	4	Not used. Fixed to On.
3	On	08	8	Not used. Fixed to On.
4	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	Not used. Fixed to Off.
6	Off	00	0	Not used. Fixed to Off.
7	Off	00	0	Not used. Fixed to Off.

[Default] n = 0

GS j n

[Name] Enable/disable Automatic Status Back (ASB) for ink

[Format] ASCII GS j n
Hex 1D 6A n
Decimal 29 106 n

[Range] $0 \leq n \leq 255$

[Default] n = 0

[Description] Enables or disables the ASB for ink
n specifies the status for the ASB in the table below :

Bit	Function	Binary	Hexadecimal	Decimal
0	Disable online/offline status of the ink mechanism	0	00	0
	Enable online/offline status of the ink mechanism	1	01	1
1	Disable the status of ink detection	0	00	0
	Enable the status of ink detection	1	02	2
2~7	Reserved	0	00	0

[Notes]

- ASB(Automatic Status Back) transmits the status such as ink near-end, ink cartridge installed/not installed automatically to the printer in real-time. It is called [ASB function] and the status is [ASB status]. If you use ASB, application can acquire the printer change in real-time and passively.
- Enabling any status (except n =0) starts ASB. Then the current ASB status is transmitted. After that, when ASB is active, the selected enabled ASB status is transmitted each time the status changes.
- When n = 0, ASB is disabled. During ASB is disabled, ASB status is not transmitted.
- ASB status for ink is 4-byte, consisting of [header + status A + status B + NUL].
- Header is [Hexadecimal = 35H/Decimal = 53]

• Status A :

Bit	Function	Binary	Hexadecimal	Decimal
0	Ink near-end not detected (1 st color)	0	00	0
	Ink near-end detected (1 st color)	1	01	1
1	Ink end not detected (1 st color)	0	00	0
	Ink end detected (1 st color)	1	02	2
2	Ink cartridge installed (1 st color)	0	00	0
	Ink cartridge not installed (1 st color)	1	04	4
3	Ink cartridge installed (2 nd color)	0	00	0
	Ink cartridge not installed (2 nd color)	1	08	8
4	Reserved	-	-	-
5	Cleaning is not being performed	0	00	0
	Cleaning is being performed	1	20	32
6	Fixed	1	40	64
7	Fixed	0	00	0

• Status B :

Bit	Function	Binary	Hexadecimal	Decimal
0	Ink near-end not detected (2 nd color)	0	00	0
	Ink near-end detected (2 nd color)	1	01	1
1	Ink end not detected (2 nd color)	0	00	0
	Ink end detected (2 nd color)	1	02	2
2~5	Reserved	-	-	-
6	Fixed	1	40	64
7	Fixed	0	00	0

- ASB is enabled if any status item is selected. The printer transmits a 4-byte status when this command is executed. The printer automatically transmits a 4-byte status message whenever the status changes. Each status represents the current status.

<i>n</i>		ASB status	
Bit	Status	ASB status	Bit
0	Online/offline status of ink mechanism	Detect ink end	Status A: Bit 1
		Detect ink cartridge	Status A: Bit 2
		Cleaning	Status A: Bit 5
1	Ink detection status	Detect ink near-end	Status A: Bit 0
		Detect ink end	Status A: Bit 1
		Detect ink cartridge	Status A: Bit 2

GS r n

[Name]	Transmit status
[Format]	ASCII GS r n Hex 1D 72 n Decimal 29 114 n
[Range]	$1 \leq n \leq 2, 49 \leq n \leq 50$
[Description]	Transmits the status specified by n as, follows:

n	Function
0, 48	Transmits paper sensor status
1,49	Transmits drawer kick-out connector status

[Notes]

- This command is executed when the data in the receive buffer is developed. Therefore, there may be a time lag between receiving this command and transmitting the status, depending on the receive buffer status.
- The status types to be transmitted are shown below:

Paper sensor status (n = 1, 49)

Bit	Off/On	Hex	Decimal	Status for ASB
0, 1	Off	00	0	Paper near-end sensor: paper present. Paper near-end
	On	03	3	sensor: paper near end.
2, 3 4	Off	00	0	Paper end sensor. Paper present. Paper end sensor:
	On	0C	12	no paper present.
	Off	00	0	Not used. Fixed to Off.
5	Off	00	0	Not used. Fixed to Off.
6	Off	00	0	Not used. Fixed to Off.
7	Off	00	0	Not used. Fixed to Off.

Drawer kick-out connector status (n = 2,50)

Bit	Off/On	Hex	Decimal	Status for ASB
0	Off	00	0	Drawer kick-out connector pin 3 is LOW. Drawer
	On	01	1	kick-out connector pin 3 is HIGH.
1	Off	00	0	Not used. Fixed to Off.
2	Off	00	0	Not used. Fixed to Off.
3	Off	00	0	Not used. Fixed to Off.
4	Off	00	0	Not used. Fixed to Off.
6	Off	00	0	Not used. Fixed to Off.
7	Off	00	0	Not used. Fixed to Off.