

Printer Codes

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This document summarises common control codes and escape sequences, as employed in older dot-matrix printers. There is considerable variation in the exact interpretation of such codes, but unless indicated otherwise they work with both Epson (ESC/P) printers and IBM-compatible printers. Other printer models may use some of these sequences or different codes of their own.

The notation for escape sequences is quite simple. For example, the instruction ESC ! BS consists of ESC (code 27) followed by ! (code 33) and BS (code 8).

Standard Control Codes

* Indicates standard ASCII code whose function can vary.

Dec	Cmd	Effect	Printer Type
0	NUL	Null *	
1	SOH	Start of heading *	
2	STX	Start of text *	
3	ETX	End of text *	
4	EOT	End of transmission *	
5	ENQ	Enquiry *	
6	ACK	Acknowledge *	
7	BEL	Sounds printer bell or buzzer	
8	BS	Back Space	
9	HT	Horizontal Tabulation	
10	LF	Line feed	
11	VT	Vertical Tabulation	
12	FF	Form Feed	
13	CR	Carriage Return	
14	S0	Shift out: Select enlarged (double-width) printing for one line. Cancelled by CR (or DC4 if sooner).	
15	SI	Shift in: Select condensed printing (fine print, 17.1 cpi)	IBM
16	DLE	Data link escape *	
17	DC1	Device control 1: Enable printer (print suppress mode off)	ESC/P
18	DC2	Device control 2: Select pica print (10 cpi)	ESC/P
18	DC2	Device control 2: Cancel condensed printing	IBM
19	DC3	Device control 3: Disable printer (print suppress mode on)	ESC/P
20	DC4	Device control 4: Cancel enlarged (double-width) printing if set by S0 but not if enabled by ESC W or ESC !	ESC/P
21	NAK	Not Acknowledge *	
22	SYN	Synchronous idle *	
23	ETB	End of transmission block *	
24	CAN	Cancel: cancel preceding line in printer buffer	
25	EM	End of medium *	
26	SUB	Substitute *	
27	ESC	Escape (see sequences below)	
28	FS	File separator *	
29	GS	Group separator *	
30	RS	Record separator *	
31	US	Unit separator *	

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Escape Sequences

- Indicates Epson escape code that accepts either NUL (0) or ASCII '0' for OFF, similarly SOH (1) or ASCII '1' for ON.

ESC Sequence	Effect	Printer Type	
27 0	ESC NUL	Undefined	
27 1	ESC SOH	Undefined	
27 2	ESC STX	Undefined	
27 3	ESC ETX	Undefined	
27 4	ESC EOT	Undefined	
27 5	ESC ENQ	Undefined	
27 6	ESC ACK	Undefined	
27 7	ESC BEL	Undefined	
27 8	ESC BS	Undefined	
27 9	ESC HT	Undefined	
27 10	ESC LF	Undefined	
27 11	ESC VT	Undefined	
27 12	ESC FF	Undefined	
27 13	ESC CR	Undefined	
27 14	ESC SO	Undefined	
27 15	ESC SI	Condensed printing on (fine print, 17.1 cpi)	
27 16	ESC DLE	Undefined	
27 17	ESC DC1	Undefined	
27 18	ESC DC2	Undefined	
27 18	ESC DC2	Undefined	
27 19	ESC DC3	Undefined	
27 20	ESC DC4	Undefined	
27 21	ESC NAK	Undefined	
27 22	ESC SYN	Undefined	
27 23	ESC ETB	Undefined	
27 24	ESC CAN	Undefined	
27 25 0	ESC EM NUL	Cut Sheet Feeder (CSF) off	ESC/P
27 25 49	ESC EM 1	Cut Sheet Feeder (CSF) bin 1 select	
27 25 50	ESC EM 2	Cut Sheet Feeder (CSF) bin 2 select	
27 25 73	ESC EM I	Cut Sheet Feeder (CSF) single sheet insert	IBM
27 25 82	ESC EM R	Cut Sheet Feeder (CSF) single sheet eject	IBM
27 26	ESC SUB	Undefined	
27 27	ESC ESC	Undefined	
27 28	ESC FS	Undefined	
27 29	ESC GS	Undefined	
27 30	ESC RS	Undefined	
27 31	ESC US	Undefined	
27 32 nn	ESC SP nn	Add nn to inter-character spacing	ESC/P
27 33 0	ESC ! NUL	Master style: pica	ESC/P
27 33 1	ESC ! SOH	Master style: elite	ESC/P
27 33 2	ESC ! STX	Master style: proportional	ESC/P
27 33 4	ESC ! EOT	Master style: condensed	ESC/P
27 33 8	ESC ! BS	Master style: emphasised	ESC/P
27 33 16	ESC ! DLE	Master style: enhanced (double-strike)	ESC/P
27 33 32	ESC ! SP	Master style: enlarged (double-width)	ESC/P
27 33 64	ESC ! @	Master style: italic	ESC/P
27 33 128	ESC ! ---	Master style: underline	ESC/P
		Above values can be added for combined styles.	
27 33 64	ESC ! @		
to	to		
27 33 81	ESC ! Q	Select character set (@ gives ASCII)	IBM

27 34	ESC "	Undefined	
27 35	ESC #	Use bit 8 of received input data, overriding ESC = or ESC > commands	ESC/P
27 35 48	ESC # 0	Draft mode	IBM
27 36 n1 n2	ESC \$ n1 n2	Set absolute dot position to n1+(n2*256) in 60th of inch	ESC/P
27 36	ESC \$	Copy standard character set to down-line loadable (DLL) character generator (CG)	IBM
27 37 0	ESC % NUL	• User-defined character set off	ESC/P
27 37 1	ESC % SOH	• User-defined character set on	ESC/P
27 37 65 m	n1...n11	Load down-line loadable (DLL) ascender	IBM
27 37 66 m	ESC % A m n1...n11	Indent print position by dot position n1...n4	IBM
27 37 68 m	ESC % B m n1...n4	Load down-line loadable (DLL) descender	IBM
27 37 71	ESC % D m n1...n11	Italic printing on	IBM
27 37 72	ESC % G	Italic printing off	IBM
27 37 80	ESC % H	Proportional spacing on	IBM
27 37 81	ESC % P	Proportional spacing off	IBM
27 37 89	ESC % Q	Designate down-line loadable (DLL) as utility character set	IBM
27 37 90	ESC % Y	Designate down-line loadable (DLL) as quasi-NLQ	IBM
27 38 0 d0 d1	data...	Define user-defined characters from ASCII code d0 to d1	ESC/P
27 39	ESC & d0 d1	data...	
27 40	ESC ')	Undefined	
27 41	ESC (High speed draft (HSD) mode	ESC/P
27 42 mm n1 n2	data...	Generate 8-pin bit-image of quality set by mm. Some Epson devices use simpler system with mm set to 4, 5 or 6 for 80, 72 or 90 dpi.	ESC/P
27 43	ESC * mm n1 n2	data...	
27 44	ESC +	Undefined	
27 45 48	ESC ,	Undefined	
27 45 49	ESC - 0	Underlining off	
27 46	ESC - 1	Underlining on	
27 47 cc	ESC .	Undefined	
27 48	ESC / cc	Select vertical tab channel for future VT commands (cc = 0 - 7)	ESC/P
27 49	ESC 0	8 lpi line spacing (1/8 inch)	
27 50	ESC 1	10.2 lpi line spacing (7/72 inch)	
27 51	ESC 2	6 lpi line spacing (1/6 inch)	ESC/P
27 52	ESC 2	Activate programmable line spacing as set by ESC A	IBM
27 53 nn	ESC 3 nn	Select nn/216 inch line spacing	
27 54	ESC 4	Italic characters on	ESC/P
27 55	ESC 4	Set top of form to current print head position	IBM
27 56	ESC 5	Italic characters off	ESC/P
27 57 48	ESC 5 0	Automatic LF after CR off	IBM
27 58 49	ESC 5 1	Automatic LF after CR on	IBM
27 59	ESC 6	Permit printing ASCII codes 128-159 and 255	ESC/P
27 60	ESC 6	Select IBM character set 2 (World Trade)	IBM

27 55	ESC 7	Prevent printing ASCII codes 128–159 and 255	ESC/P
27 55	ESC 7	Select IBM character set 1	IBM
27 56	ESC 8	Disable paper-out detector	
27 57	ESC 9	Enable paper-out detector	
27 58 0 0 0		Copy character ROM to user-defined characters	ESC/P
	ESC : NUL NUL NUL		
27 58	ESC :	Select elite print (12 cpi)	IBM
27 59	ESC ;	Undefined	
27 60	ESC <	Unidirectional printing for one line	ESC/P
27 60	ESC >	Home head	IBM
27 61	ESC =	Set bit 8 of incoming data to 0 (all characters non-italic)	ESC/P
27 62	ESC >	Set bit 8 of incoming data to 1 (all characters italic)	ESC/P
27 63 75 mm		Reassign 8-pin bit image command ESC K to mode mm (see ESC *)	ESC/P
	ESC ? K mm		
27 63 76 mm		Reassign 8-pin bit image command ESC L to mode mm (see ESC *)	ESC/P
	ESC ? L mm		
27 63 89 mm		Reassign 8-pin bit image command ESC Y to mode mm (see ESC *)	ESC/P
	ESC ? Y mm		
27 63 90 mm		Reassign 8-pin bit image command ESC Z to mode mm (see ESC *)	ESC/P
	ESC ? Z mm		
27 64	ESC @	Initialise printer with default tabs	ESC/P
27 65 nn	ESC A nn	Select nn/72 line spacing (ESC 2 must follow for IBM printer)	
27 66 n1 n2 ... 0		Set vert tabs, n1, n2 ..., 1 to 255 in ascending order	
	ESC B n1 n2 ... NUL		
27 66 0	ESC B NUL	Cancel above tab settings	
27 67 nn	ESC C nn	Set page length to nn lines	
27 67 0 nn	ESC C NUL nn	Set page length to nn inches	
27 68 n1 n2 ... 0		Set horizontal tabs in ascending order	
	ESC D n1 n2 ... NUL		
27 68 0	ESC D NUL	Cancel above tab settings	
27 69	ESC E	Emphasised (bold) printing on (overprinted with sideways shift)	
27 70	ESC F	Emphasised (bold) printing off	
27 71	ESC G	Double-strike printing on (overprinted after 1/216 inch line feed)	
27 72	ESC H	Double-strike printing off	
27 73 48	ESC I 0	• Use codes 0–31 and 128–159 as control codes	ESC/P
27 73 48	ESC I 0	Utility mode	IBM
27 73 49	ESC I 1	• Use codes 0–31 and 128–159 as characters	ESC/P
27 73 49	ESC I 1	Utility mode	IBM
27 73 50	ESC I 2	NLQ mode	IBM
27 73 51	ESC I 3	NLQ mode	IBM
27 74 nn	ESC J nn	Perform nn/216 inch line feed. Acts as CR if nn = 0	
27 75 n1 n2 data...		Single density bit-image, often 60 dpi,	
	ESC K n1 n2 data...	(same as ESC * NUL) or as defined by ESC ?	
27 76 n1 n2 data...		Double density bit-image, often 120 dpi,	
	ESC L n1 n2 data...	(same as ESC * SOH) or as defined by ESC ?	
27 77	ESC M	Select elite print (12 cpi)	ESC/P

27 78 nn	ESC N nn	Set bottom margin to nn lines	
27 79	ESC 0	Set bottom margin to zero lines	
27 80	ESC P	Select pica print (10 cpi)	ESC/P
27 80 48	ESC P 0	Proportional spacing off	IBM
27 80 49	ESC P 1	Proportional spacing on	IBM
27 81 nn	ESC Q nn	Set right margin to nn columns of character width	ESC/P
27 81 3	ESC Q ETX	Disable printing	IBM
27 81 22	ESC Q SYN	Disable printing	IBM
27 82 0	ESC R NUL		
to	to		
27 82 20	ESC R DC4	Select international character set	ESC/P
27 82	ESC R	Restore default tab settings	IBM
27 83 48	ESC S 0	• Superscript on	
27 83 49	ESC S 1	• Subscript on	
27 84	ESC T	Superscript/Subscript off	
27 85 48	ESC U 0	• Unidirectional mode off	
27 85 49	ESC U 1	• Unidirectional mode on	
27 86 0	ESC V NUL	Standard character spacing	
27 86 nn	ESC V nn	Change character spacing by nn	
27 87 48	ESC W 0	• Enlarged (double-width) printing off	
27 87 49	ESC W 1	• Enlarged (double-width) printing on	
27 88 nn mm		Set left margin to nn, right margin to mm	IBM
	ESC X nn mm		
27 89 n1 n2 data...		High speed double density bit-image	
	ESC Y n1 n2 data...	(as ESC * STX) or as defined by ESC ?	
27 90 n1 n2 data...		High speed quad density bit-image, often 240 dpi	
	ESC Z n1 n2 data...	(as ESC * ETX) or as defined by ESC ?	
27 91 64 n1 n2 m1... m4		Begin double-height or double-width printing as specified in data	IBM
	ESC [@ n1 n2 m1... m4		
27 92 n1 n2		Set relative dot position to n1+(n2*256) in 120th of inch	ESC/P
	ESC \ n1 n2		
27 92 n1 n2 ...		Print continuously from all-character set	IBM
	ESC \ n1 n2 ...		
27 93	ESC]	Reverse line feed	IBM
27 94 0 n1 n2 data...		Single density 9-pin bit-image	ESC/P
	ESC ^ NUL n1 n2 data...		
27 94 1 n1 n2 data...		Double density 9-pin bit-image	ESC/P
	ESC ^ SOH n1 n2 data...		
27 94 n	ESC ^ n	Print one character from all-character set	IBM
27 95 48	ESC _ 0	Over-scoring off	
27 95 49	ESC _ 1	Over-scoring on	
27 96	ESC `	Undefined	
27 97 0	ESC a NUL	NLQ left justification	ESC/P
27 97 1	ESC a SOH	NLQ centre justification	ESC/P
27 97 2	ESC a STX	NLQ right justification	ESC/P
27 97 3	ESC a ETX	NLQ full or fill justification	ESC/P
27 98 cc n1 n2 ... 0		Set vertical tabs in channel cc, with tab	

27 99	ESC b	cc n1 n2 ... NUL	positions n1, n2... in ascending order	ESC/P
27 100	ESC c		Undefined	
27 101 0	ESC d		Undefined	
27 101 1	ESC e	NUL	Set horiz tab increment (not all printers)	ESC/P
27 102 0	ESC e	S0H	Set vertical tab increment (not all printers)	ESC/P
27 102 1	ESC f	NUL	Horizontal skip (not all printers)	ESC/P
27 103	ESC f	S0H	Vertical skip (not all printers)	ESC/P
27 104	ESC g		Undefined	
27 105 0	ESC h		Undefined	
27 105 1	ESC i	NULL	• Typewriter mode off	ESC/P
27 106 nn	ESC i	S0H	• Typewriter mode on	ESC/P
27 107 nn	ESC j	nn	Perform nn/216 inch reverse line feed	ESC/P
27 108 nn	ESC k		Select font family (not all printers)	ESC/P
27 109	ESC l	nn	Set left margin to nn columns of current character width	ESC/P
27 110	ESC m		Select special graphics characters (not all printers)	ESC/P
27 111	ESC n		Undefined	
27 112 48	ESC o		Undefined	
27 112 49	ESC p	0	• Proportional spacing off	ESC/P
27 113	ESC p	1	• Proportional spacing on	ESC/P
27 114	ESC q		Undefined	
27 115 48	ESC r		Undefined	
27 115 49	ESC s	0	Half-speed mode off	ESC/P
27 116 0	ESC s	1	Half-speed mode on	ESC/P
27 116 1	ESC t	NUL	Normal Epson character set	ESC/P
27 117	ESC t	S0H	Line graphics Epson character set	ESC/P
27 118	ESC u		Undefined	
27 119 48	ESC v		Undefined	
27 119 49	ESC w	0	Double-height off	ESC/P
27 120 0	ESC w	1	Double-height on	ESC/P
27 120 1	ESC x	NUL	• Draft mode	ESC/P
27 121	ESC x	S0H	• NLQ mode	ESC/P
27 122	ESC y		Undefined	
27 123	ESC z		Undefined	
27 124	ESC {		Undefined	
27 125	ESC		Undefined	
27 126	ESC }		Undefined	
27 127	ESC ~		Undefined	
27 128	ESC DEL		Undefined	