Falcon 4D Plus Programmer's Manual

Century Systems

The Thermal Printing Experts™

Table of contents

Introduction 4
Setup Commands 5
^An - Printing mode 5
^Bx - Set the backward length 5
^Cx - Number of copies per label 5
^D+dddd.hh - Date calculation function 5
^Dx - Number of labels per cut 5
^Ex - Stop position setting 5
^Fname - Download label format to printer 6
^Gn - Enable/disable See-Through sensor 6
^Hx - Print darkness setting 6
^Kname - Recall label format 6
^L - The start sign of label format 7
^Mx - Set the forward length 7
^On - Stripper 7
^PAx - Auto Print 7
^Px - Number of pages printed 7
^PI - Continuous printing 8
^Qx,y(,z±) - Label length 8
^Rx - Row column adjustment 8
^Sx - Speed setting 9
^T+hhh.mm - Time calculation function 9
^Wx - Label width setting 9
^XGET,CONFIG - Return the configure status 9
^XGET,TPHRESISTANCE - Dot detect 10
^XSET,ACTIVERESPONSE,n - Active response 10
^XSET,BUZZER,n - Set remind beep on/off 10
^XSET,CODEPAGE,n - Select Code Page 850/852 10
^XSET,IMMEDIATE,n - Set immediate response on/off 10
^XSET,MEMORY,n - CF Card/Flash switch 11
^XSET,TOPOFFORM,n - Top of Form 11
^XSETCUT,DOUBLECUT,x - Double cut 11
^XSETRTC,ISOWEEKNUM,n - ISO Week 12
^XSETRTC,LANGUAGE,n - Different language layout 13
^XSET,SLASHZERO,n - Slashed zero 14
^XSET,SMARTBACK,n - Smart backfeed 14
^Yb,p,d,s - Serial Port communication setting 14
Control Commands 15
~B - Display the version message from RS-232 15
~Dm,d,y,h,i,s - Date/Time setting 15
~En, name, size - Download graphic to memory 15
~G - Graphic mode 15
~H,TTF,name,size<CR>data - Download true type font 15
~H,TTF_TABLE,name,size<CR>data - Download Unicode Table 15
~Jx - Bit-Mapped font download 16
~Kn - Response from RS-232 16

~L,DBASE,x,y - Download dBase III to Printer 16
~L,SERIAL,name,data - Download serial file to printer 16
~MDEL - Clear all memory of printer 16
~MDELn,name - Delete specific file from memory 16
~MDIR - Get memory state from printer 17
~MGETS,name - Get Serial File information 17
~MSETT,name<CR>nnnnnnnn<data> - Save the TXT. file to printer 17
~MGETT,name<CR> - Read saved file 17
~Px - Print last label 17
~Q±x - Row Offset Adjustment 18
~Rx - Rotate printing 18
~S,CHECK - Status immediate response command 18
~S,n - Analogue press control keys 18
~T - Print head testing 18
~V - Print Self-Test page 18
~Xn - Print the available space and file information in the memory 19
~X7 - Print database information in memory 19
~X8 - Print serial file name 19
~Z - Reset printer 19
Label formatting commands 20
At, x, y, x_mul, y_mul, gap, rotationInverse, data - Text 20
AT,x,y,w,h,g,r,d,m,data - Print built-in true type font 21
ATt,x,y,w,h,g,r,d,m,data - Print downloaded true type font 21
Bt,x,y,narrow,wide,height,rotation,readable,data - Barcode 22
C#x,y,±value,z - Print count with serial file 22
Cx,ys,±value,prompt - Serial number setting 23
Daa|bb|cc - Define date layout 24
E - Terminate label formatting mode and print label 25
FILEDB,OPEN,name - Open database 25
FILEDB,MOVE,n - Move data record 25
FILEDB,FIND,x,y - Searching from database 25
Gwxxx - Graphic command 25
Hx,y,col_count,row_count,col_width,row_width,line_width - Table 25
La,x, y, x1, y1 - Line command 26
Mx, y, sno, nos, mode, ccode, zip, class, rotation, message - Maxicode 26
Px,y,w,h,r,c,ec,len - PDF 417 26
PCx,y,w,h,r,c,ec,max_len,rotation - PDF 417 with variable length data 27
Qx, y, width, height - Pattern command 27
Rx, y, x1,y1, lrw, ubw - Rectangle 27
Th|m|s - Define time layout formatting 27
V#ADD,name,size,prompt - Store variable with a name 28
V#ADDCHKSUM,x - Add modulus 10 check code 28
V#LINKDB,x,y - Set a Variable name for dBase data 28
V#OPx,p1,p2,p3 - Variable calculation 29
V#RENAME,name,x - Variable rename 29
V#SET,UNPROMPT,x - Disable variable prompt 29
V#STRCPY,x,y - Copy all of variable data 29

V#STRSUB,x,y,first,length - Copy part of Variable value **30**
Vt, x, y, x_mul, y_mul, gap, rotationInverse, data - Print with downloaded character sets **30**
Vxx, length, prompt - Store variable **30**
Vxx,length,prompt,jnl - Variable alignment **31**
Wx,y,mode,type,ec,mask,mul,len,roatae - QR-code **31**
Xx, y, z, data - DataMatrix Code **31**
Yx, y, name - Graphics **31**
Examples **32**
Appendix **44**

Introduction

About EZPL

The EZPL (EZ Programming Language) is a high-level label definition and printer control language.
Features of EZPL are as follows:

1. The data are stored to be processed and will not be printed out until the last printing instruction is received.
2. All the printing contents can be rotated.
3. Images can be downloaded and stored.

There are three types of commands in EZPL:

- **Setup commands** – It includes printer control instructions, configuration instructions and image downloading instructions.
- **Control commands** – It includes commands that can control the printer to take action immediately, such as cleaning memory, feeding label.
- **Label Format commands** - Define the format of data that will be presented on the label, such as Line, Rectangle, Barcode, Text and image.

Rules and syntax

EZPL commands include parameter strings associated with them:

1. The syntax of commands contains capital letters as the ID for each function.
2. The lower case letters in command represent parameters.
3. Control and Setup commands use the tilde (~) and caret (^) as prefix.
4. Label Format commands have no prefix.
5. The comma (,) is the delimiter to separate each parameter, and the CR (Carriage Return) signifies the end of every command.

Example: In “~En,name,size “ command, “E” is an identity letter of this image downloading command; “n”, “name” and “size” are three parameters.

Setup Commands

^An - Printing mode

Syntax	**^An**
Parameter	n = D, Direct thermal mode, the ribbon out sensor is disabled. n = T, Thermal transfer mode, the ribbon out sensor is enabled.
Description	Set the print mode

^Bx - Set the backward length

Syntax	**^Bx**
Parameter	x = 0~1000 (unit: mm)
Description	Set the backward length of the paper

^Cx - Number of copies per label

Syntax	**^Cx**
Parameter	x = 1 ~ 32767
Description	Set the number of copies to print for a label.

^D+dddd.hh - Date calculation function

Syntax	**^D+dddd.hh**	
Parameter	dddd=days in 4 digits. Set how many days to be added to the current date. hh= hours in 2 digits. Set how many hours to be added to the current time.	
Description	This command will set the specified days and hours forward based on the printer's current date then print it.	
Example	In this sample, the printer will print current time and count the date that is 5 days and 12 hours after current time. ^Q40,0,0 ^W100 ^AT ^L Dy2-me-dd Th:m:s ~D01,01,05,12,00,00 AD,72,96,1,1,0,0,Manufactured Date: ^D ^T AD,72,190,1,1,0,0,Expiration Date: ^D+0005.12 E	(current time of the printer) Manufactured Date: 06-JAN-01 12:00 (5 days and 12 hours after current time) Expire Date: 06-JAN-07

^Dx - Number of labels per cut

Syntax	**^Dx**
Parameter	x = 0, disable the cutting. x = 1 ~ 32767, number of label per cut.
Description	Number of labels per cut (refer to page36)

^Ex - Stop position setting

Syntax	**^Ex**
Parameter	x = 0~40 (unit: mm)
Description	Feed the paper to specific stop position.

^Fname - Download label format to printer

Syntax	**^Fname** data
Parameter	name = the name of label format (up to 20 characters) data = the data containing the label formatting command for this stored format
Description	Download label format to the memory of printer. After the download is completed, the printer will beep once (refer to page39). **^Fname** **:** } Control/Setup command **:** data { **^L** **:** } Label format command **:** **E** Duplicate name inspection: If you use the same file name, the printer will print “REPEAT FILE NAME”, and the format will not be stored to the memory.

^Gn - Enable/disable See-Through sensor

Syntax	**^Gn**
Parameter	n = 0, disable see-through sensor (default setting) n = 1, enable see-through sensor
Description	The reflective sensor may not be able to detect the label gap on special label materials. For example, when printing on labels with thick liner, colored liner, or back graphics, the see-through sensor would need to be enabled, since the reflective sensor may not work correctly. *When the see-through sensor is enabled, the moveable sensor must be placed in the center of the printer.

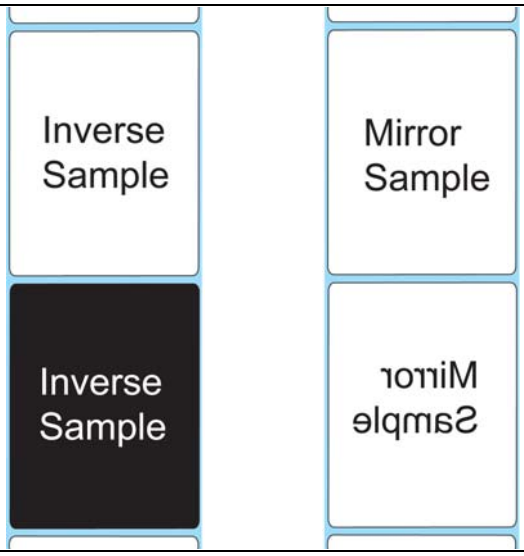
^Hx - Print darkness setting

Syntax	**^Hx**
Parameter	x = 00 ~ 19
Description	Set the darkness of printing.

^Kname - Recall label format

Syntax	**^Kname**
Parameter	name = the name of recalled label format (up to 20 characters)
Description	Recall a label format stored in printer’s memory (refer to page39) **^Kname** **:** } data **:** **E** **:** } Control/Setup command [option] **:** **~Px**

^L - The start sign of label format

Syntax	**^L**
Parameter	Use ^L to do normal printing; ^LI to do inverse printing; ^LM to do Mirror printing.
Description	Define the start sign of Label format. Commands to set up the label format should be listed after this command.
Sample	

^Mx - Set the forward length

Syntax	**^Mx**
Parameter	x = 0~1000 (unit: mm)
Description	Set the forward length of the paper

^On - Stripper

Syntax	**^On**
Parameter	n = 0 , disable the stripper n = 1 , enable the stripper
Description	Enable or disable the Stripper. When you use this command, it should be matched with ^Ex for setting the stop position. (For the stripper setting, please refer to page36)

^PAx - Auto Print

Syntax	**^PAx**	
Parameter	x=1~30000	
Description	After the recall of label, printer will read variables and Serial Number and then print automatically for the number of copies that has been set.	
	^Flabel1 ^Q40,0,0 ^PA3 ^L C0,0000001,+1,Counter V00,15,Variable AF,108,140,1,1,0,0,^C0 AE,122,278,1,1,0,0,^V00 E ^Klabel1 00001 Variable E	Printer will auto print 3 pieces.

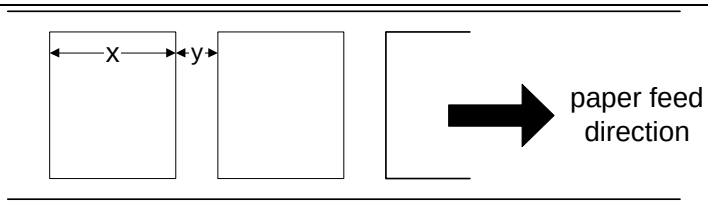
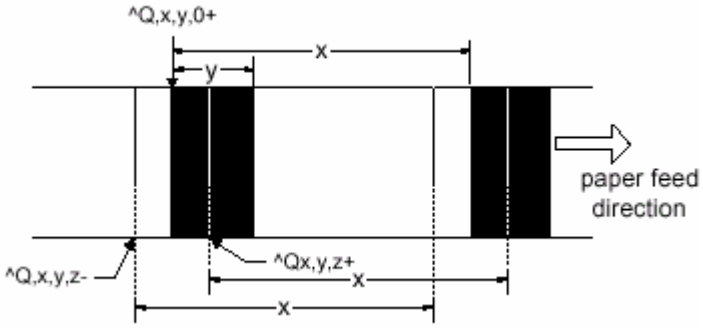
^Px - Number of pages printed

Syntax	**^Px**
Parameter	x = 1 ~ 32767
Description	Set the amount of copies for a printing. The Serial Number will be reset for each time the command is implemented.

^PI - Continuous printing

Syntax	**^PI**	
Parameter	None	
Description	Printer will print immediately, until the “Cancel” key is pressed or the printer is turned off.	
Example	^Flabel2 ^Q40,0,0 ^PI ^L C0,000001,+1,Counter V00,15,Product AF,108,140,1,1,0,0,^C0 AE,122,278,1,1,0,0,^V00 E ^Klabel2 00001 Apple E	. . . 000003 Apple 000002 Apple 000001 Apple

^Qx,y(,z±) - Label length

Syntax	**^Qx,y(,z±)**	
	Gap label: (See fig. 1) x = Label length (unit: mm) y = Gap length (unit: mm)	
Parameter	EX. ^Q25,3 (x=25,y=3) mm	 Figure 1
	Plain paper: x = Label length (unit: mm) y = 0 (constant) z = Feed paper length (unit: mm)	
	Black mark label: x = Label length (unit: mm) y = Black mark width (unit: mm) z = Black line to top of form position. Z+: When the position is outside the black mark. z-: When the position is within the black mark.	
	EX. ^Q25,4,3+ (x=25, y=4, z=3+) mm ^Q25,4,3- (x=25, y=4, z=3-) mm	 Figure 2
Description	Set label size (length, gap length, [plain paper feed length])	

^Rx - Row column adjustment

Syntax	**^Rx**
Parameter	x = 0 ~ 399 dots
Description	Set left margin

^Sx - Speed setting

Syntax	**^Sx**
Parameter	x=2 to 7 inch/sec (CF-4207P) ; 2 to 6 inch/sec (CFD-4206P, CF-4306P, CF-6206P) ; 2 to 4 inch/sec (CFD-4304P, CF-6304P)
Description	Set printing speed

^T+hhh.mm - Time calculation function

Syntax	**^T+hhh.mm**	
Parameter	hhh=hours in 3 digits (from 0 to 23 hours). Set how many hours to be added to the current time. mm=minutes in 2 digits. Set how many minutes to be added to the current time.	
Description	This command will set the specified time forward based on the printer's current time then print it.	
Example	This sample printer will print current time and counting after 10 hours and 30 minutes time and print: ^Q40,0,0 ^W100 ^H10 ^AT ^L ~D04,15,05,12,0,0 AF,600,102,1,1,0,0,^T AF,600,280,1,1,0,0,^T+010.30 AF,58,52,1,1,0,0,Manufactured Time : AF,54,228,1,1,0,0,Expire Time : E	(Printer’s current time) Manufactured Time: 12:00:00 (10 hours and 30 minutes after current time) Expire Time: 22:30:00

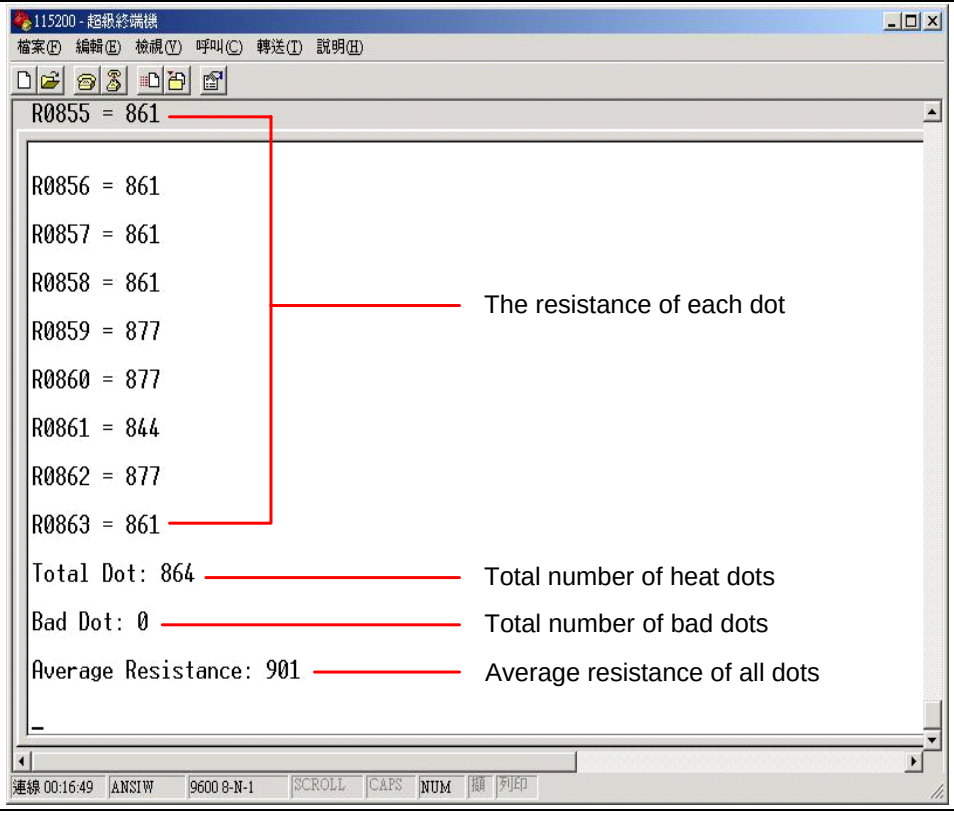
^Wx - Label width setting

Syntax	**^Wx**
Parameter	x=label width (unit: mm), the input range is defined by the specification of printer models.
Description	Label width setting

^XGET,CONFIG - Return the configure status

Syntax	**^XGET,CONFIG**
Parameter	None
Description	The printer will return configure status (the content is same as Self Test page) from RS232 or USB and display it on Hyper Terminal.

^XGET,TPHRESISTANCE - Dot detect

Syntax	**^XGET,TPHRESISTANCE**
Parameter	None
Description	Detect the resistance of each heat dot to check if there is any bad dot on thermal print head.
Example	

^XSET,ACTIVERESPONSE,n - Active response

Syntax	**^XSET,ACTIVERESPONSE,n**
Parameter	n=0, do not return the "ERRORxx" message to PC n=1, return the error message (default). When door open, ribbon out… or other error occur, the printer will return the "ERRORxx" message to PC
Description	Set the Active Response function on/off.

^XSET,BUZZER,n - Set remind beep on/off

Syntax	**^XSET,BUZZER,n**
Parameter	n=0, remind beep function off n=1, remind beep function on
Description	This command can set printer remind beep on/off. When download graphic or font, printer will beep once. And use this command can turn off the remind beep function. But it can't set error beep on/off.

^XSET,CODEPAGE,n - Select Code Page 850/852

Syntax	**^XSET,CODEPAGE,n**
Parameter	n= 0, code page 850 n= 1, code page 852
Description	Set the code page

^XSET,IMMEDIATE,n - Set immediate response on/off

Syntax	**^XSET,IMMEDIATE,n**
Parameter	n=0, set immediate response function off n=1, set immediate response function on (default)
Description	This command can set printer's immediate response function on/off. To implement commands that related to immediate response, the function should be turned on.

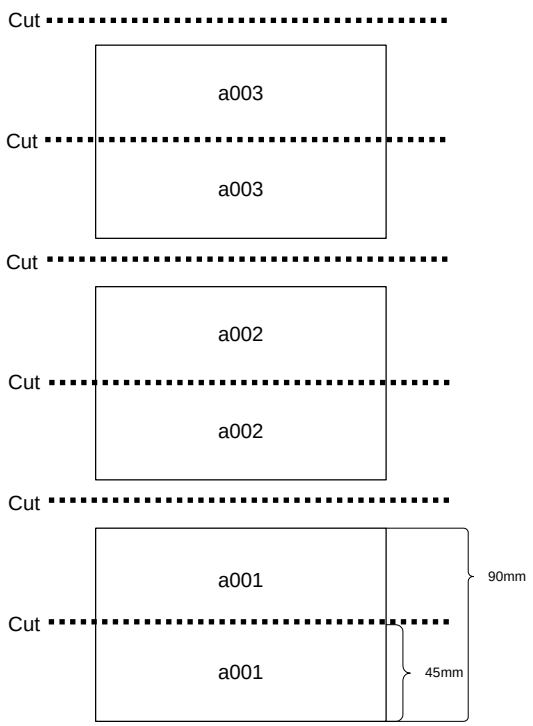
^XSET,MEMORY,n - CF Card/Flash switch

Syntax	**^XSET,MEMORY,n**
Parameter	n=Memory being used n=0, use flash n=1, use CF card *Note: The CF card must be formatted in FAT16. FAT32 and NTFS are not acceptable.
Description	Set flash or CF card as default memory.

^XSET,TOPOFFORM,n - Top of Form

Syntax	**^XSET,TOPOFFORM,n**
Parameter	n=0, disable Top of Form function n =1, enable Top of Form function
Description	Enable/Disable Top of Form function.

^XSETCUT,DOUBLECUT,x - Double cut

Syntax	**^XSETCUT,DOUBLECUT,x**	
Parameter	x=0, disable the doublecut x=offset length (offset length ＜Label length, unit: mm)	
Description	Set the printer to cut twice per label.	
Example	^XSETCUT,DOUBLECUT,45 ^Q90,3 ^E20 ^P3 ^D1 ^L C0,001,+1,A1 AC,350,144,1,1,1,0,a^C0 AC,350,544,1,1,1,0,a^C0 E	
Note	This function may decrease the service life of cutter since the adhesive of label will stain the cutter. Hence it is not recommended to use this function.	

^XSETRTC,ISOWEEKNUM,n - ISO Week

Syntax	**^XSETRTC,ISOWEEKNUM,n**
Parameter	n=0, disable the ISO Week (default) n=1, enable the ISO Week
Description	This command can set ISO week of the year to print.
Example	The following figure shows the ISO Week for 1 January 2000 It is week 52 of year 1999, day 6 of the week, and day 1 of year 2000.

1999	1 Mon	2 Tue	3 Wed	4 Thu	5 Fri	6 Sat	7 Sun
W44	305	306	307	308	309	310	311
W45	312	313	314	315	316	317	318
W46	319	320	321	322	323	324	325
W47	326	327	328	329	330	331	332
W48	333	334	335	336	337	338	339
W49	340	341	342	343	344	345	346
W50	347	348	349	350	351	352	353
W51	354	355	356	357	358	359	360
W52	361	362	363	364	365	1	2

2000	1 Mon	2 Tue	3 Wed	4 Thu	5 Fri	6 Sat	7 Sun
W01	3	4	5	6	7	8	9
W02	10	11	12	13	14	15	16
W03	17	18	19	20	21	22	23
W04	24	25	26	27	28	29	30
W05	31	32	33	34	35	36	37
W06	38	39	40	41	42	43	44
W07	45	46	47	48	49	50	51
W08	52	53	54	55	56	57	58
W09	59	60	61	62	63	64	65

Program: with the ISO Week Date function	Remark
~D1,1,0, 0,0,0	Set the date and time
^XSETRTC,ISOWEEKNUM,1	
^Q50,0,0	
^L	
Dy4-mn-dd	Define the clock type
AC,58,32,1,1,0,0,Today is ^D	Print the date
Dwy1	
AC,58,132,1,1,0,0,Week of year in one digit: ^D	Print the Week of year in one digit
Dwy2	(Week of year in one digit: 52)
AC,58,194,1,1,0,0,Week of year in two digits: ^D	Print the Week of year in two digits
E	(Week of year in two digits: 52)

Program: without the ISO Week Date function	Remark
~D1,1,0, 0,0,0	Set the date and time
^XSETRTC,ISOWEEKNUM,0	
^Q50,0,0	
^L	
Dy4-mn-dd	Define the clock type
AC,58,32,1,1,0,0,NOT ISO week of year (^D)	Print the date
Dwy1	
AC,58,132,1,1,0,0,Week of year in one digit: ^D	Print the Week of year in one digit
Dwy2	(Week of year in one digit: 1)
AC,58,194,1,1,0,0,Week of year in two digits: ^D	Print the Week of year in two digits
E	(Week of year in two digits: 01)

^XSETRTC,LANGUAGE,n - Different language layout

Syntax	**^XSETRTC,LANGUAGE,n**	
Parameter	n=0-English 1-German 3-Spanish 2-French 4-Italian	
Description	This command can set the language of RTC.	
Example	^XSETRTC,LANGUAGE,0 ^Q50,0,0 ^L AC,58,06,1,1,0,0,English Dw1 AC,58,046,1,1,0,0,Day-of-week 3 letter: ^D Dw2 AC,58,098,1,1,0,0,Day-of-week complete: ^D Dwn AC,58,144,1,1,0,0,Day-of-week number: ^D Dm1 AC,58,188,1,1,0,0,Month of year 3 letter: ^D Dm2 AC,58,240,1,1,0,0,Month of year complete: ^D Dmn AC,58,286,1,1,0,0,Month of year number: ^D E ^XSETRTC,LANGUAGE,1 ^Q50,0,0 ^L AC,58,06,1,1,0,0,German Dw1 AC,58,046,1,1,0,0,Day-of-week 3 letter: ^D Dw2 AC,58,098,1,1,0,0,Day-of-week complete: ^D Dwn AC,58,144,1,1,0,0,Day-of-week number: ^D Dm1 AC,58,188,1,1,0,0,Month of year 3 letter: ^D Dm2 AC,58,240,1,1,0,0,Month of year complete: ^D Dmn AC,58,286,1,1,0,0,Month of year number: ^D E	English Day-of-week 3 letter: Thu Day-of-week complete: Thursday Day-of-week number: 4 Month of year 3 letter: Mar Month of year complete: March Month of year number: 03

^XSET,SLASHZERO,n - Slashed zero

Syntax	**^XSET,SLASHZERO,n**	
Parameter	n=0, without slash, n=1, with slash	
Description	Set all zero to be printed as slashed zero.	
Example	^XSET,SLASHZERO,1 ^Q60,0,0 ^L AA,81,15,1,1,0,0,A0123 AB,81,41,1,1,0,0,B0123 AC,81,71,1,1,0,0,C0123 AD,81,111,1,1,0,0,D0123 AE,81,160,1,1,0,0,E0123 AF,81,230,1,1,0,0,F0123 AG,81,298,1,1,0,0,G0123 AH,81,396,1,1,0,0,H0123 E	

^XSET,SMARTBACK,n - Smart backfeed

Syntax	**^XSET,SMARTBACK,n**	
Parameter	n=0, OFF n=1, ON	
Description	This function can reduce the process time when the stripper or the cutter been used. Use this command, when the prior label is waiting for cut or strip, the partial contents of the next label will be printed. After the label has been cut or stripped, the printer will continue print the rest contents of the next label.	
Example	(For stripper) ^XSET,SMARTBACK,1 ^Q100,3 ^E30 ^O1 ^P3 ^L R18,18,750,774,10,10 E	1. Printer will print out first label and part of second label 2. After taking label away, printer continues printing second label and part of third label. 3. After taking label away, printer print out third label.
	(For Cutter) ^XSET,SMARTBACK,1 ^Q100,3 ^E30 ^D1 ^P3 ^L R18,18,750,774,10,10 E	

^Yb,p,d,s - Serial Port communication setting

Syntax	**^Yb,p,d,s**
Parameter	b: Baud Rate (48 or 96 or 19 or 38 or 57 or 11); 48=4800bps; 96=9600bps; 19=19200bps; 38=38400bps; 57=57600bps; 11=115200bps p: Parity (N, O, E); N=none parity; O=odd parity; E=even parity d: Number of data bits (7 or 8) s: Number of stop bits (1 or 2)
Description	Serial Port communication setting

Control Commands

~B - Display the version message from RS-232

Syntax	**~B**
Parameters	None
Description	Show the version number of firmware on Hyper Terminal.

~Dm,d,y,h,i,s - Date/Time setting

Syntax	**~Dm,d,y,h,i,s**	
Parameter	m = Month (01 to 12) d = Date (01 to 31) y = Year (last two digits of year)	h = Hour (00 to 23) i = Minutes (00 to 59) s = Seconds (00 to 59)
Description	Set real time clock of the printer. For format setting of the date, use the Daa|bb|cc command.	
Example	~D12,22,04,11,11,11 ^L Dwn AD,182,145,1,1,0,0,^D Dw2 AD,135,186,1,1,0,0,^D Dw1 AD,168,226,1,1,0,0,^D Dmn/dd/y2 AD,126,110,1,1,0,0,^D E	The following form shows the date for December 2004. Sun. Mon. Tue Wed. Thu. Fri. Sat. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 The print result as below. 12/22/04 3 Wednesday Wed

~En, name, size - Download graphic to memory

Syntax	**~En, name, size**
Parameters	n = P or p: PCX file n = B or b: BMP file name: Name of image (up to 20 character) size: Size of image (bytes), maximum 512K byte.
Description	Download monochrome image onto memory. Printer will beep once after downloaded completed. If the file name of graph is duplicated, the printer will show “REPEAT FILE NAME”, and the download will not be accepted (refer to page38).

~G - Graphic mode

Syntax	**~G**
Parameter	None
Description	Set the printer to image-receiving mode. The image data is sent directly from host to the printing buffer (refer to page37)

~H,TTF,name,size<CR>data - Download true type font

Syntax	**~H,TTF,name,size<CR>data**
Parameter	name = font name, accepted values: from A to Z size = size of font in bytes data: TTF file
Description	True type font can be downloaded by QLabel IV.

~H,TTF_TABLE,name,size<CR>data - Download Unicode Table

Syntax	**~H,TTF_TABLE,name,size<CR>data**
Parameter	name = font name, accepted values: from A to Z size = size of font in bytes data: TTF file
Description	Download the Unicode Table for printing True Type Font.

~Jx - Bit-Mapped font download

Syntax	**~Jx**	
Parameters	x = character; From a ~ z or A ~ Z; the amount is up to 26 characters.	
Description	The command used for font loading is usually generated by QLabel label creation software. The printer will beep once after downloaded. If you use the same file name, the printer will show “REPEAT FILE NAME”, and the download will not be accepted. The downloaded font is compatible with the HP Laser Jet II Plus (PCL-4).	
Example	Download the “HVR0OE1A.SFP” text file to external memory card. Use “A” to do the character code name.	
	~JA	; Define A as HVR0OE1A.SFP
	COPY HVR0OE1A.SFP PRN/B	; Send the order with the DOS mode

~Kn - Response from RS-232

Syntax	**~Kn**
Parameter	n = 0, disable. n = 1, enable.
Description	Respond a “Y” signal from RS-232 back to host after each printing is done.

~L,DBASE,x,y - Download dBase III to Printer

Syntax	**~L,DBASE,x,y** data…
Parameter	x=database name y=database size (unit: byte)
Description	This command can download dBase III file to printer.
Example	~L,DBASE,customer,364 …(Data of customer.dbf)

~L,SERIAL,name,data - Download serial file to printer

Syntax	**~L,SERIAL,name,data…**
Description	name = serial file name data = serial file data
Example	Download serial file to printer.

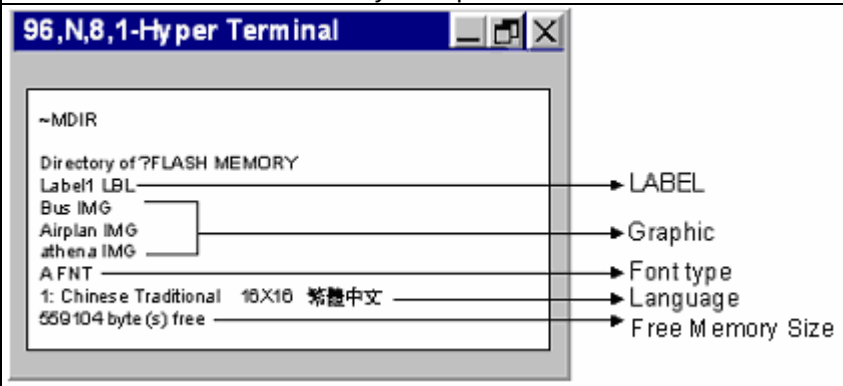
~MDEL - Clear all memory of printer

Syntax	**~MDEL**
Parameter	None
Description	Clear all memory of printer (Asia font is not included)

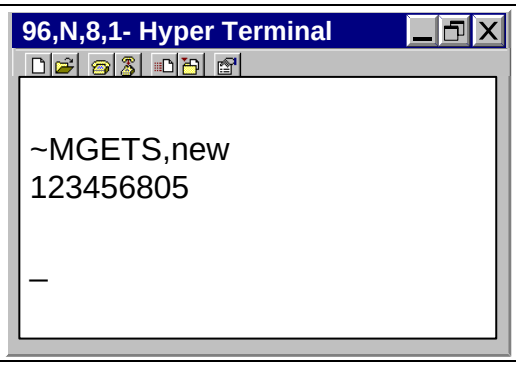
~MDELn,name - Delete specific file from memory

Syntax	**~MDELn,name**	
Parameter	n= D, database A, Asia font C, TTF font E, Bit-Mapped font F, label form G, graphic S, serial file T, text B, Unicode Table name: The name of the graphic, form, Bit-Mapped font or others. *Note: The ‘name’ of Asia font, TTF font and Unicode Table is ID tag.	
Description	Delete specific file from printer’s memory	
Example	~MDELD,customer	Delete “customer” database.
	~MDELG,Bus	The graphic “Bus” will be deleted

~MDIR - Get memory state from printer

Syntax	**~MDIR**
Parameter	None
Description	Show the information of memory from printer
Example	

~MGETS,name - Get Serial File information

Syntax	**~MGETS,name**	
Parameter	name= serial file name	
Description	Show the serial file information on Hyper Terminal	
Example	(Get the information of serial file “new” from printer) ~MGETS,new	

~MSETT,name<CR>nnnnnnnn<data> - Save the TXT. file to printer

Syntax	**~MSETT,name<CR>nnnnnnnn<data>**
Parameter	name= the name of saved nnnnnnnn= data size (8 digits) data= data of saved
Description	Save the TXT. file to printer.

~MGETT,name<CR> - Read saved file

Syntax	**~MGETT,name<CR>**
Parameter	name= the name of saved
Description	Read the saved file from printer.
Example	Use “~MSETT, text1<CR>00000015Text file test2” to save data to printer. Then use “~MGETT,name<CR>“ command to read saved data Example: ~MGETT,text1 Hyper Terminal will show: Text file test2

~Px - Print last label

Syntax	**~Px**
Parameter	x = 1 ~ 32767
Description	This command will repeatedly print the specific copies of the last label format.

~Q±x - Row Offset Adjustment

Syntax	**~Q±x**
Parameter	X=-100 ~ +100
Description	If the printing does not appear in the same place on every label, this command instructs the printer to print label formats. The “+n” move the position that the format specifies upward, and the “–n” move the position downward.

~Rx - Rotate printing

Syntax	**~Rx**
Parameter	x=label width (unit: mm), the input range is defined by the specification of printer models.
Description	Rotate the label format 180-degrees when printing (refer to page38). To return to the original print direction, set the x value greater than the max width of model’s specification.

~S,CHECK - Status immediate response command

Syntax	**~S,CHECK**
Parameter	None
Description	The HyperTerminal will show the status of printer in “**aa,nnnnn<CR><LF>**“ format. aa = printer status information: 00 – Ready 01 – Paper out 02 – Paper jam or miss gap 03 – Ribbon out 04 – Print head is up 05 – Rewinder full 06 – Memory is full 07 – filename can not be found 08 – filename is repeat 09 – Syntax error 20 – Pause 21 – In Setting Mode 22 – In Keyboard Mode 50 – Printer is printing 60 – Printing job in queue nnnnn = number of remaining labels, the value is from 00000 to 99999 *Note: Before using this command, the “^XSET,IMMEDIATE” (Set immediate response on/off) command should be turned on.

~S,n - Analogue press control keys

Syntax	**~S,n**
Parameter	n = FEED n = PAUSE n = UNPAUSE
Description	This command can analogously press function keys on the printer. Key in “~S,FEED” via COM port can generate the same action as pressing the “FEED” key. Key in “~S,PAUSE” via COM port and the printing will be paused. Key in “~S,UNPAUSE” via COM port and the printing will continue.

~T - Print head testing

Syntax	**~T**
Parameter	None
Description	Print a pattern for the user to determine if the print head is damaged (refer to page40).

~V - Print Self-Test page

Syntax	**~V**
Parameter	None
Description	Print out the Self-Test page.

~Xn - Print the available space and file information in the memory

Syntax	**~Xn**
Parameter	n = 1, print label format names and available space in memory. n = 2, print graphic names and available space in memory. n = 3, print Bit-Mapped font names and available space in memory. n = 4, print the name of the label formats, graphics, fonts, and available space in memory. n = 5, print Asia font names and available space in memory
Description	Print the available space in the memory (unit: bytes)

~X7 - Print database information in memory

Syntax	**~X7**
Parameter	None
Description	Print database information in memory

~X8 - Print serial file name

Syntax	**~X8**
Parameter	None
Description	Print serial file name from printer.

~Z - Reset printer

Syntax	**~Z**
Parameter	None
Description	Reset the printer and the LED will flash once.

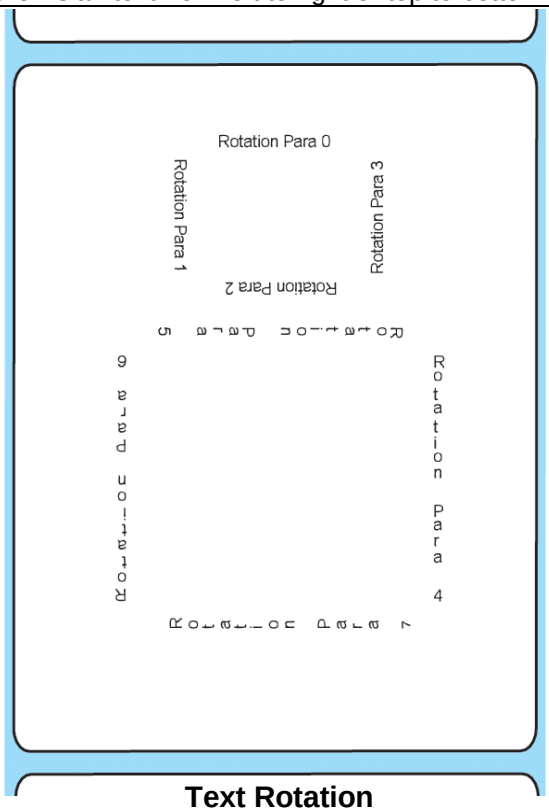
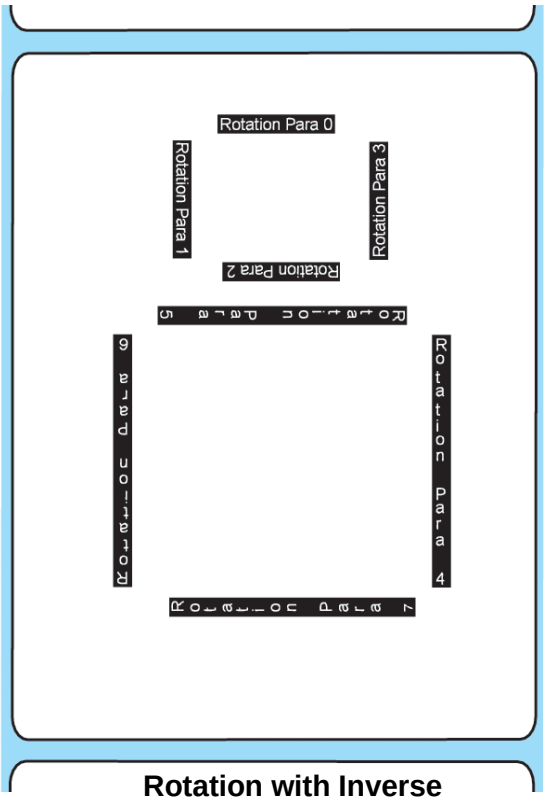
Label formatting commands

At, x, y, x_mul, y_mul, gap, rotationInverse, data - Text

Syntax	**At, x, y, x_mul, y_mul, gap, rotationInverse, data**
Parameter	t: Font type, see table below.

Font	Points	Font style
A	6	CG Triumvirate, Code page 850
B	8	CG Triumvirate, Code page 850
C	10	CG Triumvirate, Code page 850
D	12	CG Triumvirate, Code page 850
E	14	CG Triumvirate, Code page 850
F	18	CG Triumvirate, Code page 850
G	24	CG Triumvirate, Code page 850
H	30	CG Triumvirate, Code page 850
I	16x26 dots for US ASCII 8 bit	
K	OCR-B font	
L	OCR-A font	
t = Zn	Asia font from 1 to 4	

x: Hori of top-left position of text (unit: dot, 1mm = 8 dots in 203dpi printer; 1mm=12 dots in 300dpi printer)
y: Vert of top-left position of text (unit: dot, 1mm = 8 dots in 203dpi printer; 1mm=12 dots in 300dpi printer)
x_mul: Horizontally magnified up to 8 times as large
y_mul: Vertically magnified up to 8 times as large
gap: Distance of the character (unit: dot, 1mm = 8 dots in 203dpi printer; 1mm=12 dots in 300dpi printer)
rotationInverse: The rotation of ASCII text from 0 to 3, the Asian text rotation form 0 to 7
0) 0° 1) 90° 2) 180° 3) 270° 4) 0° 5) 90° 6) 180° 7) 270°
In addition, if the rotation parameter is followed with “I”, the text will be printed in inverse font.
data: Data string (up to 239 characters).

Description	Prints an ASCII or ASIA text string (refer to page34). The ASCII text oriented form left to right, the Asian text from left to right or top to bottom.
Sample	 **Text Rotation**  **Rotation with Inverse**

AT,x,y,w,h,g,r,d,m,data - Print built-in true type font

Syntax	**AT,x,y,w,h,g,r,d,m,data**
Parameter	x: Hori of left-top position of text (unit: dot, 1 mm = 8 dots or 12 dots) y: Vert of left-top position of text (unit: dot, 1 mm = 8 dots or 12 dots) w: The width of font (8~2000 dot) h: The height of font (8~2000 dot) g: Space between characters (0~200 dot) r: The rotation of font from 0 to 3 0) 0° 1) 90° 2) 180° 3) 270° d: DType → 0: ASCII A~Z: Unicode table m: m = 0 → width/height AspectRatio mode m = 1 → Average width mode (refer to Further Information) data: Data to be printed **Portions of this software are copyright 2000-Feb-08 The FreeType Project (www.freetype.org).*
Description	Print built-in True Type Font (TTF).
Further Information	In width/height AspectRatio mode (m = 0): When the width (w) and the height (h) of TTF are equal, the printing result of TTF will be exactly the same with Windows font. There is a formula to calculate the Windows font size from TTF size: *TTFheightsize = WindowsFontsize*dpi/72* For example, if user want to print Windows font 72pt on 203dpi printer, then the TTFheightsize = 72*203/72 = 203. And the TTFwidthsize should be equal to TTFheightsize, which is 203. As a result, when the width and height of TTF both are 203, the printout will be the same with Windows font 72pt.
	In Average width mode (m = 1): The height in dot is calculated the same as width/height AspectRatio mode, but the width is the average width in dots. If width=0, a 1:1 aspect ratio font is rendered.

【Note】

For conversion: 1mm = 8 dots when printing with 203dpi printer; 1mm = 12 dots when printing with 300dpi printer.

ATt,x,y,w,h,g,r,d,m,data - Print downloaded true type font

Syntax	**ATt,x,y,w,h,g,r,d,m,data**
Parameter	t: TTF type, accepted values: from A to Z x: Hori of left-top position of text (unit: dot, 1 mm = 8 dots or 12 dots) y: Vert of left-top position of text (unit: dot, 1 mm = 8 dots or 12 dots) w: The width of font (8~2000 dot) h: The height of font (8~2000 dot) g: Space between characters (0~200 dot) r: The rotation of font from 0 to 3 0) 0° 1) 90° 2) 180° 3) 270° d: DType → 0: ASCII A~Z: Unicode table m: m = 0 → width/height AspectRatio mode m = 1 → Average width mode (refer to Further Information) data: Data to be printed
Description	Print downloaded True Type Font.
Further Information	In width/height AspectRatio mode (m = 0): When the width (w) and the height (h) of TTF are equal, the printing result of TTF will be exactly the same with Windows font. There is a formula to calculate the Windows font size from TTF size: *TTFheightsize = WindowsFontsize*dpi/72* For example, if user want to print Windows font 72pt on 203dpi printer, then the TTFheightsize = 72*203/72 = 203. And the TTFwidthsize should be equal to TTFheightsize, which is 203. As a result, when the width and height of TTF both are 203, the printout will be the same with Windows font 72pt.
	In Average width mode (m = 1): The height in dot is calculated the same as width/height AspectRatio mode, but the width is the average width in dots. If width=0, a 1:1 aspect ratio font is rendered.

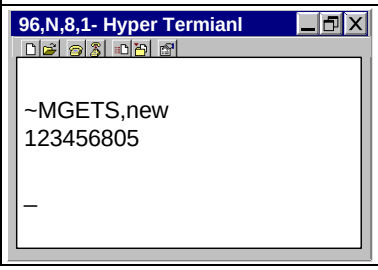
Bt,x,y,narrow,wide,height,rotation,readable,data - Barcode

Syntax	**Bt,x,y,narrow,wide,height,rotation,readable,data**
Parameter	t: Barcode type, see table below.

type	Barcode	type	Barcode
A	Code 39	P	Code 93
A2	Code 39 with check digit	Q	Code 128 (auto subset A/B/C)
B	EAN 8	Q2	Code 128 (subset A/B/C)
C	EAN 8 - Add ON 2	R	UCC 128
D	EAN 8 - Add ON 5	S	Post NET
E	EAN 13	T	DUN 14 ONLY 90
F	EAN 13 – Add ON 2	U	EAN 128
G	EAN 13 – Add ON 5	V	RPS 128
H	UPC A	W	China Postal Code
I	UPC A - Add ON 2	X	HIBC
J	UPC A - Add ON 5	Y	Plessey
K	UPC E	Z	I 2 of 5 with Shipping Bearer Bars
L	UPC E - Add ON 2	1	UCC/EAN-128 K-MART
M	UPC E - Add ON 5	2	UCC/EAN-128 RANDAN
N	I 2 of 5	3	Telepen
N2	I 2 of 5 with check digit	4	FIM
O	Codabar		

x: Hori. of top-left position of barcode (unit: dot, 1 mm = 8 dots or 12 dots)
y: Vert. of top-left position of barcode (unit: dot, 1 mm = 8 dots or 12 dots)
narrow (x dimension): narrow bar from 1 ~ 10 dots(0.125 ~ 1.25 mm)
**DUN 14 narrow setting from 5 ~ 8 dots; UPC/EAN narrow setting from 2 ~ 4 dots **
wide: wide bar from 2 ~ 30 dots(0.25 ~ 0.5 mm); **CODE 39, 93, CODABAR & I 2 of 5**
height: Barcode height in dots (24 ~ 1200 dots)
rotation: rotation of barcode (0 ~ 3)
0) 0° 1) 90° 2) 180° 3) 270°
readable:
0 – human readable off
1 – below barcode, left
2 – above barcode, left
3 – below barcode, centered
4 – above barcode, centered
5 – below right
6 – above right
data: barcode data.

C#x,y,±value,z - Print count with serial file

Syntax	**C#x,y,±value,z**	
Parameter	z= counter index y= serial file name ±value= ±value of serial variable (up to 12-digit) z='0'~'9' or 'B' for decimal, 'A' for hexadecimal, 'C' for 0~9,A~Z	
Description	Set print count with serial file by this command.	
Example	~L,SERIAL,new,123456795	Download the new file to printer first
	Turn printer off Turn printer on. Print again. ^Q60,0,0 ^P5 ^L C#0,new,+1,0 AG,50,137,1,1,0,0,^C0 E	Print Result: 123456800 123456801 123456802 123456803 123456804
	Key in ~MGETS,new in HyperTerminal	

Cx,ys,±value,prompt - Serial number setting

Syntax	**Cx,ys,±value,prompt**
Parameter	x: 0 to 9(up to10group), maximum combination up to 3 groups. y: select the decimal y = none, Decimal (0~9) y = A, Hexadecimal (0~9,A~F) y = C, 0~9, A~Z s: start value of serial variable (up to 13-digit). You can use the leading spaces to replace the leading zeros. ±value: ±value of serial variable (up to 12-digit) prompt: prompt of serial variable (up to 20 characters)
Description	Set the serial number (refer to page37)
Example	^Q50,0,0 ^W100 ^H10 ^P3 ^L Dy2-me-dd Th:m:s C0,000,+1,Prompt C1, 1,+1,Prompt C2,AEE,+1,Prompt1 C3,CZYY,+1,Prompt2 AC,80,10,1,1,0,0,decimal with leading zeros: ^C0 AC,80, 80,1,1,0,0,decimal with leading spaces: ^C1 AC,80,160,1,1,0,0,hexadecimal: ^C2 AC,80,240,1,1,0,0, 0~9 A~Z: ^C3 E

decimal with leading zeros: 002
decimal with leading spaces: 3
hexadecimal: F0
0~9 A~Z: ZZ0

decimal with leading zeros: 001
decimal with leading spaces: 2
hexadecimal: EF
0~9 A~Z: ZYZ

decimal with leading zeros: 000
decimal with leading spaces: 1
hexadecimal: EE
0~9 A~Z: ZYY

Daa|bb|cc - Define date layout

Syntax	**Daa|bb|cc**		
Parameter	aa = Year y2: Year with two digits (such as 97) y4: Year with four digits (such as 1997) bb = Month me: Month in letters (JAN, FEB, ...) mn: Month in numeric (01, 02, ...) cc = day of 2 digits | = Partition, can be any ASCII character from decimal 32 to 63. Djj1: Julian calendar format(YYDD) Djj2: Julian calendar format(YDDD) Dwy1: week of year format(W) Dwy2: week of year format(WW) Dwn: day-of-week as number value Dw1: day-of-week as 3 letter abbreviation Dw2: day-of-week as complete Dm1: month of the year as 3 letter abbreviation Dm2: month of the year as a complete name		
Description	Define the date layout for print out		
Example	^Q100,0,0 ^W100 ^L Dy2-me-dd AD,36,40,1,1,0,0,^D Djj1 AD,36,80,1,1,0,0,^D Dwy1 AD,36,120,1,1,0,0,^D Dw1 AD,36,160,1,1,0,0,^D Dm1 AD,36,200,1,1,0,0,^D Dy4/mn/dd AD,36,280,1,1,0,0,^D Djj2 AD,36,320,1,1,0,0,^D Dwy2 AD,36,360,1,1,0,0,^D Dw2 AD,36,400,1,1,0,0,^D Dm2 AD,36,440,1,1,0,0,^D Dwn AD,36,530,1,1,0,0,^D AC,228,82,1,1,0,0,julian date format AC,228,124,1,1,0,0,week of year format AC,228,166,1,1,0,0,day-of-week as 3 letter abbreviation AC,228,210,1,1,0,0,month of the year as 3 letter abbreviation AC,228,318,1,1,0,0,julian date format AC,228,360,1,1,0,0,week of year format AC,228,402,1,1,0,0,day-of-week as complete AC,228,446,1,1,0,0,month of the year as a complete name AC,228,532,1,1,0,0,day-of-week as number value AC,228,40,1,1,0,0,Date layout AC,228,274,1,1,0,0,Date layout E	05-APR-15 5105 15 Fri Apr 2005/04/15 05105 15 Friday April 5	Date layout Julian date format Week of year format Day of week as 3 letter abbreviation Month of the year as 3 letter abbreviation Date layout Julian date format Week of year format Day-of-week as complete Month of the year as a complete name Day of week as number value

E - Terminate label formatting mode and print label

Syntax	**E**
Parameter	None
Description	End of formatting command; printer will print label after receiving this command.

FILEDB,OPEN,name - Open database

Syntax	**FILEDB,OPEN,name**
Parameter	name=the name of the database
Description	Open a database for printing.
Example	FILEDB,OPEN,customer

FILEDB,MOVE,n - Move data record

Syntax	**FILEDB,MOVE,n**	
Parameter	n: Move the point of record in demand. n = number n = FIRST, the first record n = LAST, the last record n = NEXT, the next record n = PRIOR, the prior record	
Description	Use variable or counter to select a specific record from the database.	
Example	FILEDB,MOVE,3 FILEDB,MOVE,FIRST FILEDB,MOVE,NEXT	Move to third record Move to first record Move to next record

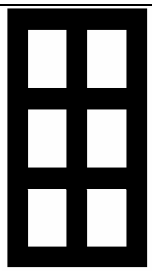
FILEDB,FIND,x,y - Searching from database

Syntax	**FILEDB,FIND,x,y**	
Parameter	x=Column name in database file y=Keyword for searching	
Description	Select a specific record form database and print it.	
Example	Download database “customer” : ^Q60,0,0 ^P1 ^L FILEDB,OPEN,customer V00,10,Prompt0 V#LINKDB,PHONE,V00 FILEDB,FIND,NAME,Mary AC,79,120,1,1,0,0, Marry’s phone: ^V00 E	Find Mary’s data and print it.

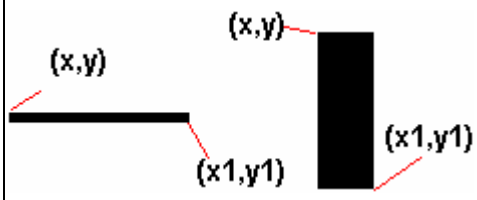
Gwxxx - Graphic command

Syntax	**Gwxxx**
Parameter	wxxx... w: byte number of image data xxx...: image data
Description	This command is a sub-command of ~G It is sent by binary data. W is the digits number byte of image data (refer to page37). For example, if the image file is 50 bytes, the command is G2xxx . (2: ASCII is 50 decimal)

Hx,y,col_count,row_count,col_width,row_width,line_width - Table

Syntax	**Hx,y,col_count,row_count,col_width,row_width,line_width**	
Parameter	x: left-upper Hori .pos. (unit: dots) y: left-upper Vert. Pos. (unit: dots) col_count: numbe of columns row_count: number of rows col_width: column width row_width: row width line_width: line width	
Description	Draw a table in the label.	
Example	H20,20,2,3,20,30,10	

La,x, y, x1, y1 - Line command

Syntax	**La,x, y, x1, y1**
Parameter	a = o, overwrite the line on the bottom a = e, exclusive the line on the bottom x: left-up; per horizontal(Hori.) pos. (unit: dots; 1mm= 8 dots or 12 dots) y: left-upper vertical (Vert.) pos. (unit: dots; 1mm= 8 dots or 12 dots) x1: right-bottom Hori. Pos. (unit: dots) y1: right-bottom Vert. Pos. (unit: dots) 
Description	Define a line to render in the label (refer to page35) *Note: The diagonal line draw is not available.

Mx, y, sno, nos, mode, ccode, zip, class, rotation, message - Maxicode

Syntax	**Mx, y, sno, nos, mode, ccode, zip, class, rotation, message**
Parameter	x: Hori. of left-bottom pos. of barcode (unit: dots). y: Vert. of left-bottom pos. of barcode (unit: dots). sno: symbol number, in set of symbols：1 ~ 8. nos: number of symbols in set of symbols：1 ~ 8 sets. mode: mode of maxicode 2, 3, 4 or 6. ccode: 3 digits country code. zip: postal code 9 digits for US style postal code. If there is a 5 digits zip code, 4 zeros must be padded 6 digits alphanumeric zip code for non-US style postal code. class: service class, 3 digits numeric. rotation: rotation of barcode (0 ~ 3) 0) 0° 1) 90° 2) 180° 3) 270° message: 1 ~ 84 characters.
Description	Print a 2 dimensional Maxicode (refer to page35)

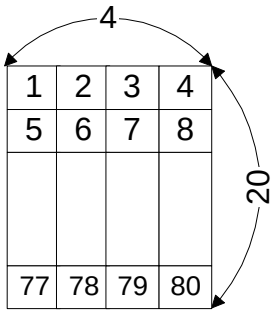
Px,y,w,h,r,c,ec,len - PDF 417

Syntax	**Px,y,w,h,r,c,ec,len** Data
Parameters	x= Hori. of left-bottom pos. of barcode (unit: dots) y= Vert. of left-bottom pos. of barcode (unit: dots) w= Width (x dimension) of the narrowest element (bar or space) in the barcode. h= Height (y dimension) of each barcode row in the symbol. r= number of barcode rows, from 3 to 90. If you key in 0, printer will count all the rows. c= number of barcode columns, from 1 ~ 30. If you key in 0, printer will count the all columns. ec= error correction level: 0 ~ 8. len= number of encoded data bytes, including carriage returns ↵ and line feed. Data= data to be encoded(the length of the data is equal to len; up to 1024 characters)
Description	Print a 2 dimensional PDF417 code (refer to page35)

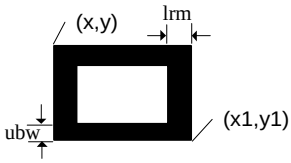
PCx,y,w,h,r,c,ec,max_len,rotation - PDF 417 with variable length data

Syntax	**PCx,y,w,h,r,c,ec,max_len,rotation**	
Parameter	x= Hori. of left-bottom pos. of barcode (unit: dots) y= Vert. of left-bottom pos. of barcode (unit: dots) w= Width (x dimension) of the narrowest element (bar or space) in the barcode. h= Height (y dimension) of each barcode row in the symbol. r= number of barcode rows, from 3 to 90. If you key in 0, printer will count all the rows. c= number of barcode columns, from 1 ~ 30. If you key in 0, printer will count the all columns. ec= error correction level: 0 ~ 8. max_len= max of number encoded data bytes, including carriage returns ↵ and line feed. rotation= rotation of barcode (0 ~ 3) 0) 0° 1) 90° 2) 180° 3) 270°	
Description	To adjust the PDF 417 data length by this command	
Example	^Q50,0,0 ^L PC141,104,3,5,3,3,3,50 &*0123456789 Line2 Line3 9876543210&* E	(Data read from CCD: 0123456789[CR][LF]Line2[CR][LF]Line3[CR][LF]9876543210)

Qx, y, width, height - Pattern command

Syntax	**Qx, y, width, height** Data...	
Parameters	x = Hori. of left-bottom pos. (unit: dots). y = Vert. of left-bottom pos. (unit: dots). width = width of graphic (unit: byte) height = height of graphic (unit: dots) (data length = width x height)	
Description		Data send out 1 2 3 4 .....77 78 79 80 width = 4 ; height = 20 (data length: 4x20 = 80) (refer to page38)

Rx, y, x1,y1, lrw, ubw - Rectangle

Syntax	**Rx, y, x1,y1, lrw, ubw**	
Parameter	x = left-upper Hori .pos. (unit: dots) y = left-upper Vert. Pos. (unit: dots) x1 = right-bottom Hori. Pos. (unit: dots) y1 = right-bottom Vert. Pos. (unit: dots) lrw = thickness of left, right border (unit: dots) ubw = thickness of upper bottom border (unit: dots)	
Description	Draw a rectangle in the label (refer to page35)	

Th|m|s - Define time layout formatting

Syntax	**Th|m|s**
Parameter	h = Hour format (2 digits, 00 ~ 23) m = Minute format (2 digits, 00 ~ 59) s = Second format (2 digits, 00 ~ 59) | = Partition (It can be any separator between dec. 32 to 63 of ASCII).
Description	Define the time layout for internal real-time clock (refer to page34)

V#ADD,name,size,prompt - Store variable with a name

Syntax	**V#ADD,name,size,prompt**	
Parameters	name= descriptive name size= number of character prompt= prompt of variable	
Description	The name of the variable can be defined by user.	
Example	~MDELF,aaa ^Faaa ^Q50,0,3 ^AD ^L V#ADD,weight,10,Weight V#ADD,date,15,Date AE,7,46,1,1,0,0,Weight is ^(weight) AE,7,86,1,1,0,0,Date is ^(date) E ^Kaaa 16 kg 11/26/2004 E ~P1	Weight is 16 kg Date is 11/26/2004

V#ADDCHKSUM,x - Add modulus 10 check code

Syntax	**V#ADDCHKSUM,x**	
Parameters	x= variable	
Description	Add the modulus 10 check code to x	
Example	Add modulus 10 check code to V00 ~MDELF,test ^Ftest ^Q60,0,0 ^L V00,16,Prompt V#ADDCHKSUM,V00 AE,47,57,1,1,0,0,Date:^V00 E ^Ktest 111222333 E ~P1	Print result Enter Variable value 111222333 Print result 1112223332

V#LINKDB,x,y - Set a Variable name for dBase data

Syntax	**V#LINKDB,x,y**
Parameter	x= Column name of database y= Variable
Description	Before using this command, a dBase data should opened first, and then can link dBase data to print designate data out.
Example	Please refer to page42

V#OPx,p1,p2,p3 - Variable calculation

Syntax	**V#OPx,p1,p2,p3**	
Parameters	x=+, -, *, /, % ; p1,p2,p3= variable x=+, p1=p2+p3 x=-, p1=p2-p3 x=*, p1=p2*p3 x=/, p1=p2/p3 x=%, p1=p2%p3	
Description	This command can calculate variables. (refer to page41)	
Example	V#OP+,V00,V01,V02 V#OP-,V00,V01,V02 V#OP*,V00,V01,V02 V#OP/,V00,V01,V02 V#OP%,V00,V01,V02	V00=V01+V02 V00=V01-V02 V00=V01*V02 V00=V01/V02 V00=V01%V02

V#RENAME,name,x - Variable rename

Syntax	**V#RENAME,name,x**	
Parameters	name= new name of the variable (max 8 characters) x= variable	
Description	Rename the variable.	
Example	~MDELF,aaa ^Faaa ^Q50,0,3 ^AD ^L V00,10,Prompt V01,10,Prompt V#RENAME,weight,V00 V#RENAME,date,V01 AE,7,46,1,1,0,0,Weight is ^(weight) AE,7,86,1,1,0,0,Date is ^(date) E ^Kaaa 16 kg 11/20/2004 E ~P1	Weight is 16 kg Date is 11/20/2004

V#SET,UNPROMPT,x - Disable variable prompt

Syntax	**V#SET,UNPROMPT,x**	
Parameters	x= variable	
Description	This command can set the variable without prompt.	
Example	V#OP+,V00,V01,V02 V#SET,UNPROMPT,V00	Use doesn't need to input the value of V00

V#STRCPY,x,y - Copy all of variable data

Syntax	**V#STRCPY,x,y**	
Parameters	x= target variable y= source variable	
Description	Copy all data of y to x	
Example	V#STRCPY,V00,V01	Copy all of V01 data to V00

V#STRSUB,x,y,first,length - Copy part of Variable value

Syntax	**V#STRSUB,x,y,first,length**	
Parameters	x= target variable y= source variable first= the position of first character length= the number of characters	
Description	Copy part of y value to x	
Example	Copy year, month and day values respectively from a whole date variable. ~MDELF,test ^Ftest ^Q60,0,0 ^L V00,16,PromptV0 V01,16,PromptV1 V02,16,PromptV2 V03,16,PromptV2 V#STRSUB,V01,V00,5,2 V#STRSUB,V02,V00,8,2 V#STRSUB,V03,V00,0,4 V#SET,UNPROMPT,V01 V#SET,UNPROMPT,V02 V#SET,UNPROMPT,V03 AE,47,57,1,1,0,0,Date:^V00 AE,38,115,1,1,0,0,Month:^V01 AE,38,155,1,1,0,0,Day:^V02 AE,38,205,1,1,0,0,Year:^V03 E ^Ktest 2005/01/31 E ~P1	Print result: Date:2005/01/31 Month:01 Day:31 Year:2005

Vt, x, y, x_mul, y_mul, gap, rotationInverse, data - Print with downloaded character sets

Syntax	**Vt, x, y, x_mul, y_mul, gap, rotationInverse, data**	
Parameter	t: the font name; from A ~ Z x: Hori of top-left position of text (unit: dot, 1mm = 8 dots in 203dpi printer; 1mm=12 dots in 300dpi printer) y: Vert of top-left position of text (unit: dot, 1mm = 8 dots in 203dpi printer; 1mm=12 dots in 300dpi printer) x_mul: Horizontally magnified up to 8 times as large y_mul: Vertically magnified up to 8 times as large gap: Distance of the character (unit: dot, 1mm = 8 dots in 203dpi printer; 1mm=12 dots in 300dpi printer) rotationInverse: The rotation of ASCII text from 0 to 3, the Asian text rotation form 0 to 7 0) 0° 1) 90° 2) 180° 3) 270° 4) 0° 5) 90° 6) 180° 7) 270° In addition, if the rotation parameter is followed with “I”, the text will be printed in inverse font. data: Data string (up to 239 characters).	
Description	Download Bit-Mapped font to memory. All parameters are all the same with text command	
Example	VA,5,10,1,1,1,0,data	The name of font “A”

Vxx, length, prompt - Store variable

Syntax	**Vxx, length, prompt**
Parameters	xx = a code name of the variable, from 00 ~ 99 length = number of characters (up to 98characters). prompt = prompt of variable (maximum up to 60 characters)
Description	Define variables for further use. (refer to page39)

Vxx,length,prompt,jnl - Variable alignment

Syntax	**Vxx,length,prompt,jnl**
Parameter	xx = a code of the variable length= length of variable value prompt= prompt of variable j=Justification option n=l(for left), c(for center), r(for right) l=the length of entire string in millimeters
Description	Variable arrangement by appoint setting

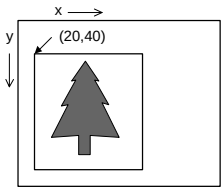
Wx,y,mode,type,ec,mask,mul,len,roatae - QR-code

Syntax	**Wx,y,mode,type,ec,mask,mul,len,roatae**	
Parameters	x= Hori. of left-bottom pos. of barcode (unit: dots) y= Vert. of left-bottom pos. of barcode (unit: dots) mode= barcode mode type= set orginal or enhanced ec= error correction level mask= masking factor mul= multiple (1-8) len= number of encoded data bytes, including carriage returns ↵ and line feed. roatae=rotation of barcode (0 ~ 3) 0) 0° 1) 90° 2) 180° 3) 270°	
Description	Print QR-code by setting.	
Example	Q50,0,0 ^L W10,10,2,1,L,8,10,36,0 0123456789ABCDEFGHIJKLMNOPQRSTUV WXYZ E	Data mode: 2 Model type: 1 Error level: L Masking factor: 8 Multiple:10 Data length: 36

Xx, y, z, data - DataMatrix Code

Syntax	**Xx, y, z, data**
Parameters	x: Hori. of left-bottom pos. of barcode (unit: dots). y: Vert. of left-bottom pos. of barcode (unit: dots). z: Enlarge the DataMatrix Code 8 times (horizontally and vertically). data: bar-code data (up to 500 characters).
Description	Print DataMatrix code. (refer to page36)

Yx, y, name - Graphics

Syntax	**Yx, y, name**	
Parameter	x: Hori. Pos. of left-upper of graphics (unit: dots) y: Vert. Pos. of left-upper of graphics (unit: dots) name: Name of graphics download	
Description	This command is for printing a graphic that has been previously stored in printer memory (refer to page38)	
	Example: A graphic in printer named “Graphic1”, command Y20, 40; Graphic1 ↵ will put this graphic into label at position (20, 40).	

Examples

Barcode samples

CODE	SAMPLE	CODE	SAMPLE
Code 39	CODE39	UPC E Add on 2	0 234567 3 12
EAN 8	1234 5670	UPC E Add on 5	0 234567 3 12345
EAN 8 Add on 2	1234 5670 12	I 2 of 5	4321
EAN 8 Add on 5	1234 5670 12345	CODABAR	ABCD
EAN 13	1 234567 890128	Code 93	CODE 93
EAN 13 Add on 2	1 234567 890128 12	Code 128	CODE 128
EAN 13 Add on 5	1 234567 890128 12345	EAN 128	EAN 128
UPC A	1 23456 78901	MAXICODE	
UPC A Add on 2	1 23456 78901 2 12	PDF 417	
UPC A Add on 5	1 23456 78901 2 12345	UPC E	0 234567 3
DataMatrix Code		QR Code	
UCC128	(12) 3 4567890 123456789	DUN 14	1 23 45678 90123 1
POST NET	1 2 3 4 0	RPS128	1234567890123456789017

Examples

How to construct a label using EZPL command:

To create a label, it must be an order command combination.

Control command And Setup up command	
^L	^L is precedent for the beginning of label format
Label format command	Label format command must be included between the ^L and E command
E	E is ending of label format

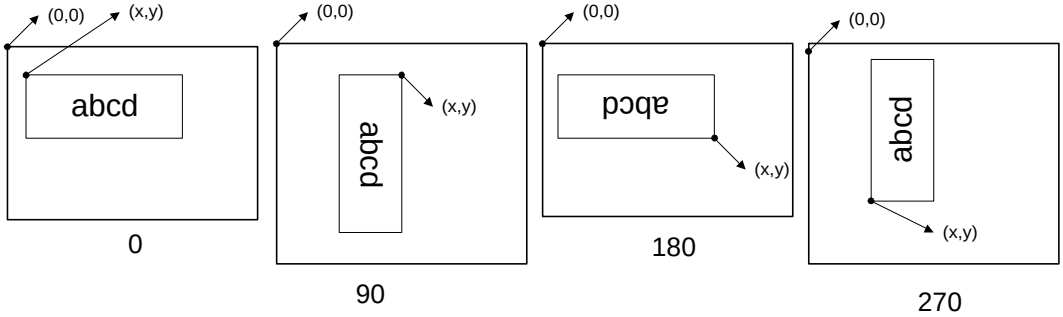
** Control or setup commands to be used in the label command area will be ineffective.

Example:
The following example is printing a label with EAN8. The program is a text file. No matter what language you use in programming, simply send out the text file of the contents and you can control the printing with Falcon Series printers.
Save the following contents (command file named: EX1.TXT).

Program command	Description
^Q25,3	Setting up the height 25mm, gap 3mm
^W32	Setting up the width 32mm
^H10	Setting up the darkness 10
^S6	Setting up the speed 6 inches per second
^P1	Setting up the number of printing 1
^E10	Setting up the paper advance length to 10 mm from the print head after printing. The label will move back 10 mm when the next label is printed.
^C1	Setting up the number of copies (start value is 1)
^O0	Setting up the auto stripper function to be turned OFF
^R0	Setting up the left margin 0 dot
^D0	Turning the cutting function off
^L	The label content of start symbol
BB,42,39,2,5,100,0,1,1234567	Select EAN8 label, data content is 1234567
E	Label content of stop symbol

The label can be created by the following MS-DOS command:
C:\>COPY EX1.TXT PRN↵
To send the label to serial port by the following MS-DOS command:
C:\>MODE COM1 96,N,8,1
C:\>TYPE EX1.TXT >> COM1

Setting the x and y values:



1. Text

Example	Result	Rotate printing	Result
^Q50,0,2 ^W50 ^S6 ^H10 ^R10 ~D8,27,00,8,39,36 ^L AC,10,10,1,1,1,0,PRINTER AC,10,50,1,1,1,0,^D AC,10,100,1,1,1,0,^T E	PRINTER AUG/27/00 08:39:36	^Q50,0,0 ^W50 ^S6 ^H10 ^L AC,100,30,1,1,1,0,ROTATION 0 AC,38,0,1,1,1,1,ROTATION 90 AC,260,150,1,1,1,2,ROTATION 180 AC,290,200,1,1,1,3,ROTATION 270 E	ROTATION 0 ROTATION 90 ROTATION 180 ROTATION 270
Adjusting the character spacing	**Result**	**Asia Font**	**Result**
^Q30,0,0 ^W50 ^S6 ^H10 ^L AC,10,10,1,1,10,0,PRINTER AC,10,100,1,1,1,0,PRINTER E	P R I N T E R PRINTER	^L AZ,100,12,1,1,0,4,中文 AZ,223,65,1,1,0,5,中文 AZ,60,100,1,1,0,6,中文 AZ,90,144,1,1,0,7,中文 E	中文 中文 中文 中文

The data output is a default setting and user can change it with ~D command (refer to page24).
The time output format is a default setting and user can change it with T command.

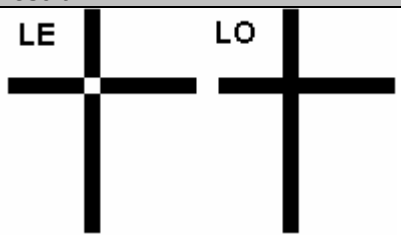
2. Barcode

Example	Result	Rotation of barcode	Result
^H10 ^S6 ^Q30,0,2 ^W60 ^L BB,20,100,3,3,100,0,1,1234567 E	1234 5670	^H10 ^S6 ^W25 ^Q30,0,2 ^L BE,100,20,2,4,80,1,1,123456789012 E	1 234567 890128

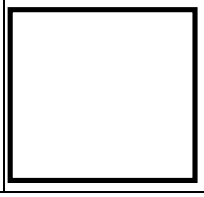
3. RTC Setting

Change the date formatting	Result
Dy4-me-dd	2000-MAY-29
Dy4/mn/dd	2000/05/29
Dmn|dd|y4	05|29|2000
Dy4	2000
Dme	MAY
Ddd	09
Dy4-me	2000-MAY
Dme-dd	MAY-29

4. Line printing

Example	Description	Result
^Q50,3 ^W100 ^E32 ^H7 ^P1 ^S6 ^L Lo,212,45,311,53 Lo,244,11,252,128 Le,34,43,149,51 Le,72,8,80,121 E	; Darkness= 7 ; Speed = 6 inch/second ; Label height = 50mm, gap = 3 mm ; Label width = 100mm	

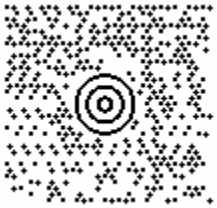
5. Rectangle printing

Example	Description	Result
^H10 ^S6 ^Q50,2 ^W70 ^L R20,20,120,120,8,8 E	; Darkness = 10 ; Speed = 6 inch/second ; Label height = 50mm, gap = 2 mm ; Label width= 70mm ; (x,y) = (20,20), (x1,y1) = (120,120) lrw = 8 dots, ubw = 8 dots	

6. PDF417

Example	Result
^Q50,0,3 ^W70 ^S6 ^H10 ^L P30,20,3,3,3,3,1,100 12345678 12345678 12345678 12345678 12345678 12345678 12345678 12345678 12345678 12345678 E	

7. Maxicode

Example	Result
^Q50,0,0 ^W70 ^S6 ^H10 ^L M30,20,1,1,2,840,068107317,8,0,123456 E	

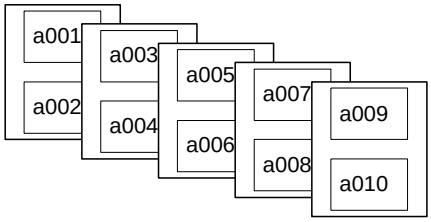
8. DataMatrix Code

Example	Result
^Q50,0,3 ^W90 ^S6 ^H10 ^L X30,20,5,1234567890123456789012345678 90 E	

9. Stripper setting

Example	Result
^Q50,2 ^W50 ^S6 ^O1 ^E10 ^P1 ^H10 ^L AD,20,20,1,1,3,0,Stripper Function E	; Label height= 50mm, gap= 2mm ; Label width= 50mm ; Speed =6 inch/second ; Stripper enable ; Set stop position to 10 mm ; Printing one label ; Darkness = 10 ; Label format begin sign ; Label format end and begin print

10. Cutter setting

Example	Description	Result
^Q20,0,0 ^H5 ^S2 ^P10 ^D2 ^C1 ^L R10,10,120,90,2,2 C0,001,+1,A1 AC,20,30,1,1,1,0,a^C0 E	;plain paper length:20mm feed label length :0mm ;print 10 labels ;2 labels per cut	

11. Serial number

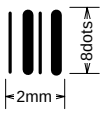
TEXT			
Example 1	**Result**	**Example 2**	**Result**
^Q10,0,0 ^W30 ^S6 ^H10 ^P10 ^L C0,0000,+2,A1 AB,10,10,1,1,2,0,^C0 E	0018 0016 0014 0012 0010 0008 0006 0004 0002 0000	~P10 If you want to continue printing 10 more serial numbers that is starting from 0018, enter the command “~P10”. With this command you do not have to re-enter all the command in example.	0038 0036 0034 0032 0030 0028 0026 0024 0022 0020
Example 3	**Result**	**Example 4**	**Result**
^Q10,0,0 ^W30 ^S6 ^H10 ^P4 ^C2 ^L C0,0000,+2,A1 AB,10,10,1,1,2,0,^C0 E	0006 0006 0004 0004 0002 0002 0000 0000	^Q10,0,0 ^W30 ^S6 ^H10 ^P8 ^L C0,0000,+2,A1 AB,10,10,1,1,2,0,abc^C0def E	abc0014def abc0012def abc0010def abc0008def abc0006def abc0004def abc0002def abc0000def

Barcode	
Barcode with serial number	**Result**
^H10 ^S6 ^Q20,0,2 ^W50 ^P10 ^L C0,000,-1,A3 BE,20,100,3,3,100,0,1,111111^C0111 E	

12. Graphic driver format

Example	Description
^Q20,2 ^W50 ^R20 ~G G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA G(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA E	; Left margin = 20 dots For this example, ASCII “(“character is 40 decimal (=40 bytes). Total 14 lines, so the graphics height is 1.75mm (14 dots) Result

13. Pattern command setting

Example	Result
^Q,20,0,0 ^W40 ^S6 ^D5 ^L Q40,10,2,8 GGGGGGGGGGGGGGGG E	 Length: 2x8=16
Description	
0100011101000111 0100011101000111 0100011101000111 0100011101000111 0100011101000111 0100011101000111 0100011101000111 0100011101000111 HEIGHT = 8 DOTS 1 BYTE 1 BYTE WIDTH = 2 BYTES G : 01000111 (binary)	

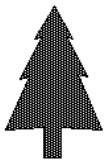
14. Rotate label format for printing

Example	Description	Result
^Q40,2 ^W50 ^S6 ^H10 ~R50 ^L AC,153,42,1,1,1,2,ROTATE BB,156,112,2,5,50,2,1,1234567 E	; Label size is 40 mm(h) x 50 mm(w); 2 mm gap ; Rotate the label format 180° for printing	
^Q50,0,0 ~R200 ^L AC,20,10,1,1,1,0,ROTATE BB,20,45,2,5,50,0,1,1234567 E	; Disable the rotate function	

15. Download graphic to printer's memory

Following the below steps to download graphic to printer.

1. Prepare a graphic file (file name: TREE.PCX, file size: 922 bytes).
2. Prepare two text files (TEST1.TXTand TEST2.TXT, see the following contents).

TEST1.TXT	TEST2.TXT	Print Result
~EP,TREE,922	^Q30,0,0 ^W50 ^S2 ^H5 ^L Y30,50,TREE E	

3. In DOS mode, running the following commands.

COPY TEST1.TXT PRN↵
COPY TREE.PCX PRN/B↵
COPY TEST2.TXT PRN↵

16. Download label and variable settings

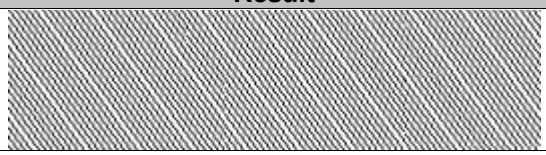
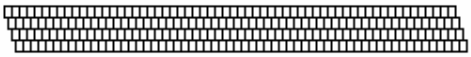
Example	Description
^Ftest ^Q50,0,15 ^W70 ^H10 ^S6 ^E12 ^L C0,0000,+1,serial no. V00,10,name V01,8,barcode V02,6,price AE,108,306,1,1,1,0,$^V02 AC,39,27,1,1,1,0,S/N.^C0 AD,126,78,1,1,1,0,^V00 BA,108,135,2,5,100,0,1,^V01 E	; Download label to memory card and the label name is “test”. ; Setting serial number is C0 ; Setting three variables V00, V01, V02

17. Recall label format from memory

Example 1	Description	Result
^Ktest 0000 Book 12345678 200.00 E ~P1	Recall label format without changing the label format C0 = 0000 V00 = book V01 = 12345678 V02 = 200.00	S/N.0000 book * 12345678 * $200.00
Example 2	**Description**	**Result**
^Ktest 1111 Pencil 12345678 100.00 E ^Q35,0,0 ^S6 ^H10 ~P2	Recall label format and change label format C0 = 1111 V00 = pencil V01 = 12345678 V02 = 100.00 Changing the size Changing speed to 6”/sec Changing darkness to 10 Printing the last label twice	S/N.1111 Pencil * 12345678 * $100.00 S/N.1112 Pencil * 12345678 * $100.00

Each time you change variable data or label format, repeat to send command from ^Kname to ~Px.

18. Print head test & Version list

Example	Result
~T	
~V	EZXXXX : VX.XXX Serial port :96,N,8,1  1 DRAM installed Image buffer size : 1475K 000 FORM(S) IN MEMORY 000 GRAPHIC (S) IN MEMORY 000 FONT(S) IN MEMORY 000 ASIAN FONT(S) IN MEMORY 150K BYTES FREE MEMORY ^S6 ^H8 ^R000 ~R200 ^W100 ^Q100,3 Option : ^D0 ^O0 ^AD Gap Sensor AD : 129 162 195 (3)

19. Use variable settings

	Example	Result
1. User input unit price and amount. Printer calculates total price.	~MDELF,test1 ^Ftest1 ^Q60,0,0 ^P1 ^L V00,10,Price V01,10,Amount V02,10,Total Price V#OP*,V02,V00,V01 V#SET,UNPROMPT,V02 AC,30,110,1,1,0,0,Price: ^V00 AC,30,189,1,1,0,0,Amount: ^V01 AE,30,273,1,1,0,0,Total Price: ^V02 E ^Ktest1 100 3 E ~P1	Price: 100 Amount: 3 Total Price: 300
2. Calculation sample	~MDELF,test2 ^Ftest2 ^Q60,0,0 ^L V00,10,Input V00 V01,10,Input V01 V02,10,Input V02 V03,20,Input V03 V04,20,Input V05,20,Input V06,20,Input V#OP+,V02,V01,V00 V#OP-,V03,V01,V00 V#OP*,V04,V01,V00 V#OP/,V05,V01,V00 V#OP%,V06,V01,V00 V#SET,UNPROMPT,V02 V#SET,UNPROMPT,V03 V#SET,UNPROMPT,V04 V#SET,UNPROMPT,V05 V#SET,UNPROMPT,V06 AA,38,37,1,1,0,0,V00=^V00 AA,38,77,1,1,0,0,V01=^V01 AE,38,115,1,1,0,0,V1+V0=^V02 AE,38,165,1,1,0,0,V1-V0=^V03 AE,38,215,1,1,0,0,V1*V0=^V04 AE,38,265,1,1,0,0,V1/V0=^V05 AE,38,315,1,1,0,0,V1 MOD V0=^V06 E ^Ktest2 10 20 E ~P1	V00=10 V01=20 V1+V0=30 V1-V0=10 V1*V0=200 V1/V0=2 V1 MOD V0 = 0

20. dBase III data setting

Example:

customer.dbf has following data

NAME	ADDRESS	PHONE
Tom	Address of Tom	11111111
Mary	Address of Mary	22222222
John	Address of John	33333333
Joe	Address of Joe	44444444
Bob	Address of Bob	55555555
Gilbert	Address of Gilbert	66666666

Example	Description	Result
^Q60,0,0 ^P1 ^L FILEDB,OPEN,customer V00,10,Prompt0 V#LINKDB,PHONE,V00 FILEDB,FIND,NAME,Mary AC,79,120,1,1,0,0, Mary's phone: ^V00 E	Print out Mary's phone number	Mary's phone: 22222222
^Q60,0,0 ^P1 ^L FILEDB,OPEN,customer V00,10,Prompt0 V#LINKDB,ADDRESS,V00 FILEDB,FIND,NAME,John AC,79,120,1,1,0,0, ^V00 E	Print out John Address	Address of John
^Q60,0,0 ^P1 ^L FILEDB,OPEN,customer V00,10,Prompt V#LINKDB,NAME,V00 FILEDB,MOVE,LAST AC,79,120,1,1,0,0,Last Name is ^V00 E	Print out last person name	Last Name is Gilbert
^Q60,0,0 ^P1 ^L FILEDB,OPEN,customer V00,10,Prompt V#LINKDB,NAME,V00 FILEDB,MOVE,2 AC,79,120,1,1,0,0,Second Name is ^V00 E	4.Print second person name	Second Name is Mary

^Q60,0,0 ^P3 ^L FILEDB,OPEN,customer C0,1,+1,DB Move C V00,10,name V01,10,phone V#LINKDB,NAME,V00 V#LINKDB,PHONE,V01 FILEDB,MOVE,C0 AC,79,120,1,1,0,0,^V00 Phone is ^V01 E	Print first, second and third person phone number	Tom Phone is 11111111 Mary Phone is 22222222 John Phone is 33333333

Appendix.

Barcode Details

1. Code 128

BQ2, X, Y, NARROW, WIDE, HEIGHT, RTATION, READABLE, DATA

Code 128 Subset A: Included the standard uppercase alphanumeric keyboard characters, control and special characters.

Code 128 Subset B: Includes the standard uppercase, lowercase alphanumeric keyboard characters and special characters.

Code 128 Subset C: Used for double density encoding of numeric data (the set of 100 digit pairs from 00 through 99).

Example	
Subset A: BQ2,8,8,2,5,40,0,0,AAPPLE	To select Code 128 Subset A, place a ASCII A before the data to be encoded.
Subset B: BQ2,8,8,2,5,40,0,0,BAPPLE	To select Code 128 Subset B, place a ASCII B before the data to be encoded.
Subset C: BQ2,8,8,2,5,40,0,0,C1234	To select Code 128 Subset C, place a ASCII C before the data to be encoded.
Special character handling: BQ2,8,8,2,5,40,0,0, ATEST&G	To encode FNC1 into a Code 128 Subset A, send the ASCII &G.

ASCII	2 Character	Code A	Code B	Code C
96	&A	FNC3	FNC3	-NA-
97	&B	FNC3	FNC2	-NA-
98	&C	SHIFT	SHIFT	-NA-
99	&D	Code C	Code C	-NA-
100	&E	Code B	FNC	Code B
101	&F	FNC4	Code A	Code A
102	&G	FNC1	FNC1	FNC1