Version1.1

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1. GENERAL SPECIFICATIONS

ITEM	SPECIFICATION
PRINT METHOD	thermal direct line printing
Paper loading method	easy paper loading
Paper width	57mm
Print width	48mm
Resolution ration	8dots/mm(384dots/line)
Life of printing head	50km
Printing speed	60mm/sec.; Max.:80MM/sec.(voltage 8.5V）
Character size	12x24dots,or24x24dots
Chinese character fonts	GB18030,12x24dots,or24x24dots
Outline dimension	76.8 W x 77.4 D x 47.6H mm
Installation:	72.8W x 73.4D
Embaded depth	34.65MM
Paper roll sepcification	(widht :57mm,Max. diameter :40mm)
Interface	Serial(RS-232C,TTL)
Input power	DC5V-9V or 12V
Operatiing temperature	0°C~55°C
Storage temperature	-25°C~70°C
Operating humidity	10°C~80°C
Storage humidity	10°C~90°C

2. Printer outline pictures and dimension

2.1 Outline pictures:
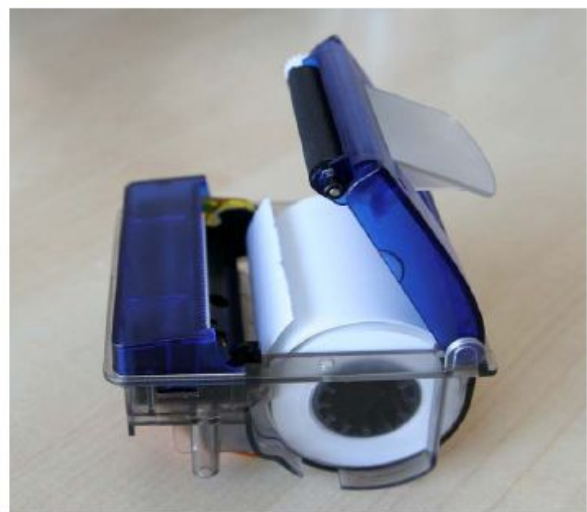
2.1 Dimension :
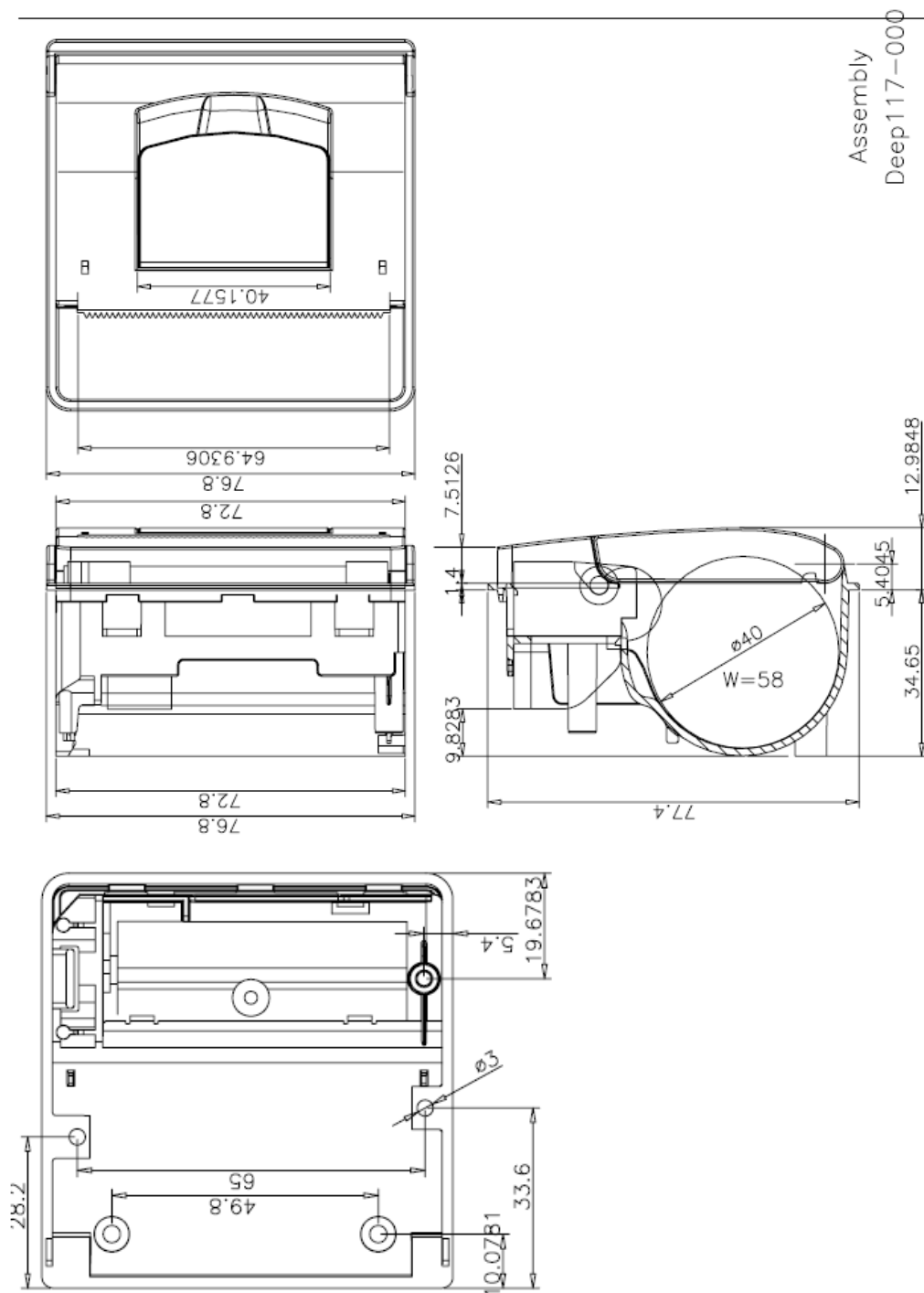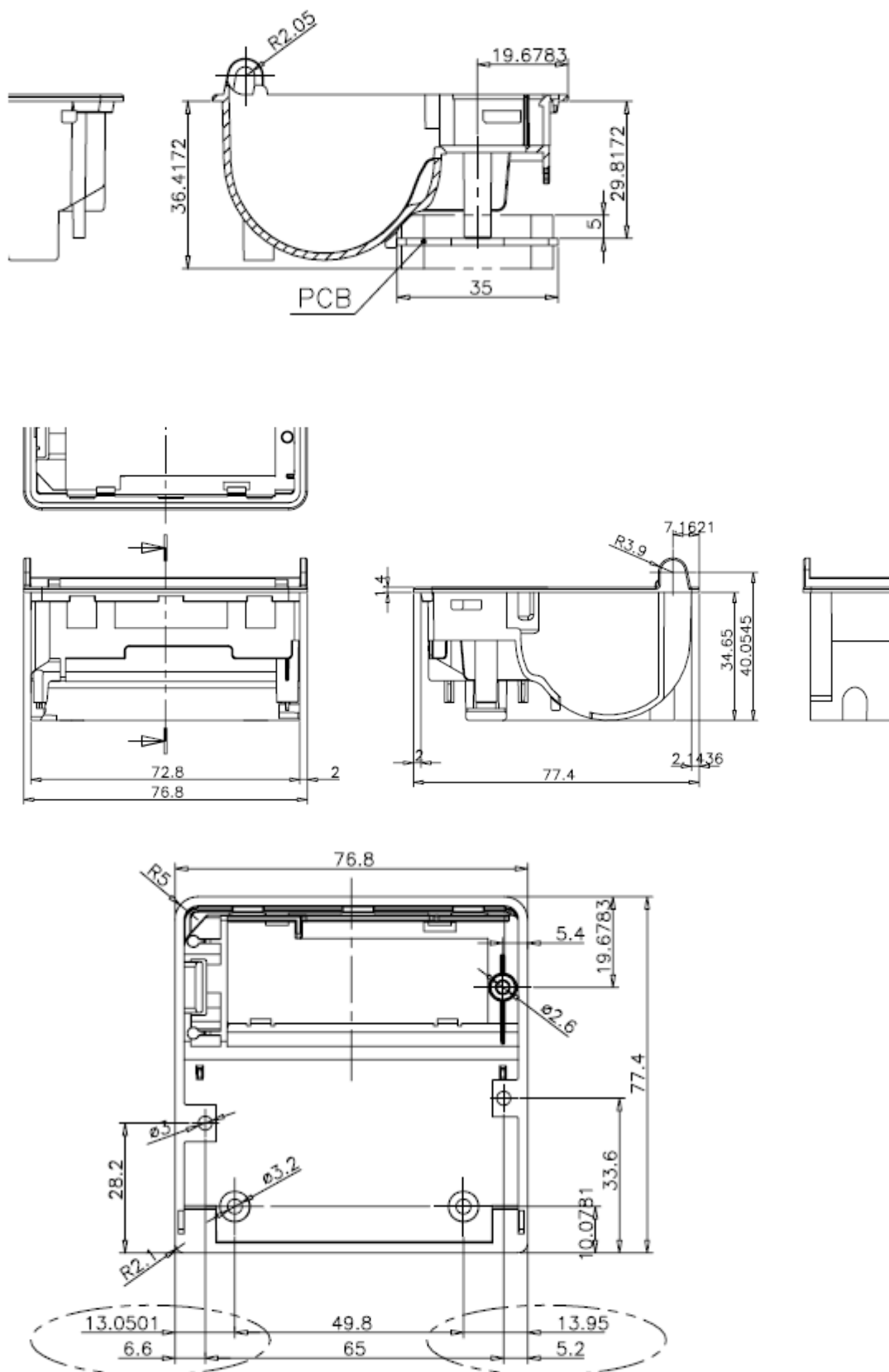
The installation method as below picture：
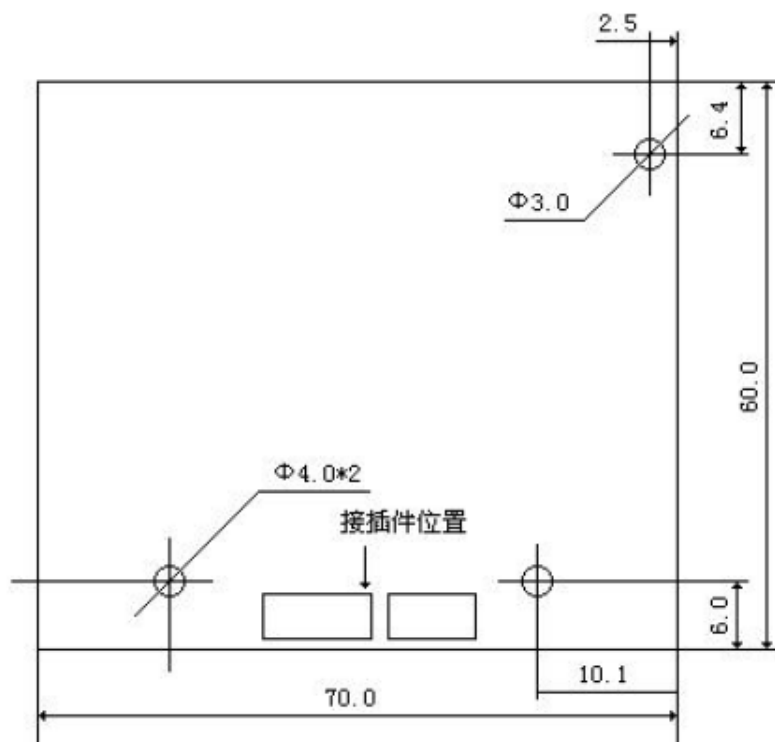
3.HOW TO USE

3.1Printing test

After power up, connect J4 and disconnect, one test page will be printed.

The name of short-circuit point is different from each board.

3.2Panel LED Indicators

There is one LED on board to indicate the status of the board. The indicator is as follows:

Blink one times: Work well

Blink two times: No printer is detected

Blink three times: No paper is detected

Blink five times: Printer mechanism is overheat.

Blink ten times: No Chinese word stock IC is detected

4.CONNECTOR

Please refer to chart printing control board size and interface definetion.
You can choose use RS232, RS232 with TTL level before leaving factory. RS232 with TTL level can get less cost
Chart printing control board size and interface definetion：
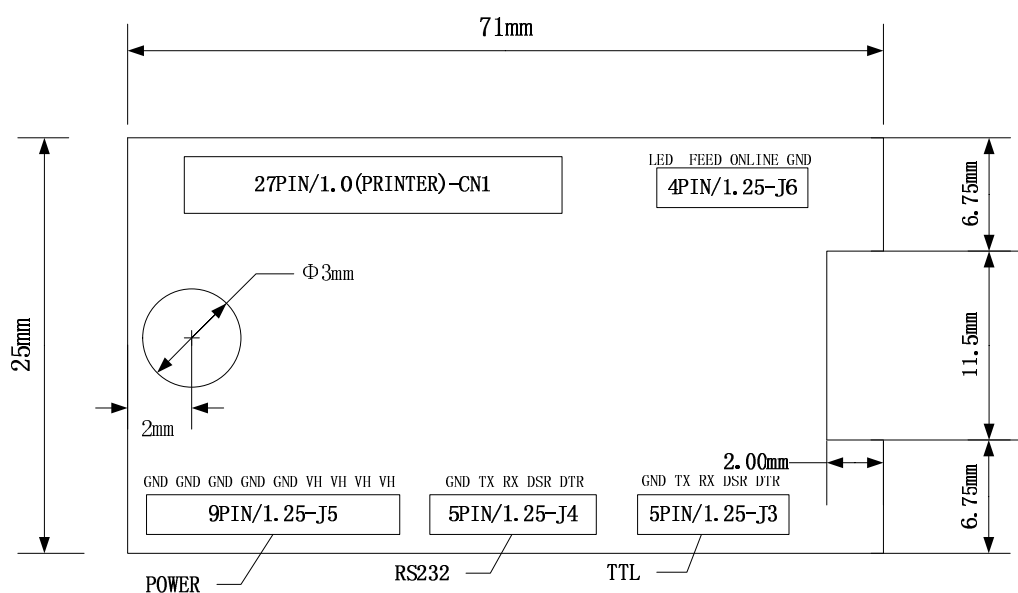
5. Integrated keyboard functions(A1-K model)

The two push buttons and LED functions are described in the following table:

Printer Status →	OFF	OFF Line	On Line	End of Paper	Over/Under Voltage or Temperature
Push Button #1	Execute **self-test** if pressed during Power-On	On Line	Off Line	N/A	
		Switch OFF the printer if pressed more than 2.5 seconds			
Push Button #2	Switch On the Printer	Feeds Paper	Feeds Paper if not already printing	N/A	
LED	OFF	1 Flash "ON"	Always "ON"	3 Flash "ON"	4 Flash "ON"

Note : 1.   Button #1: ; Button #2:
2.   The A1-K micro panel printer with keyboard as optional as below picture.

6.ESC/POS PRINTING COMMAND SET

6.1、Command list

Type	Command	Name
Print Command	LF	Print and line feed
	CR	Print and carriage return
	HT	JMP to the next TAB position
	FF	Print the data in the buffer
	ESC D	Set horizontal tab positions
	ESC J n	Print and Feed n dots paper
	ESC d n	Print and Feed n lines
	ESC = n	Toggle the printer online or offline

Line spacing Command	ESC 2	Select default line spacing
	ESC 3 n	Set line spacing
	ESC a n	Select justification
	GS L nL nH	Set the left blank margin with dots
	ESC B n	Set the left blank char number
	ESC $	**Set absolute print position**
Character Command	ESC ! n	Select print mode(s)
	GS ! n	Set or Cancle the double width and height
	ESC E n	Set or Cancle bold font
	ESC SP n	Set the space between chars
	ESC SO	Turn double width on
	ESC DC4	Turn double width off
	ESC { n	Turn upside-down printing mode on/off
	ESC - n	Set the underline dots(0,1,2)
	ESC % n	Select/Cancel user-defined characters
	ESC &	Define user-defined characters
	ESC ?	Cancle user-defined characters
	ESC R n	Select and internation character set
	ESC t n	Select character code table
	ESC 9 n	Select Chinese code
Bit Image Command	ESC *	Select bit-image mode
	GS *	Define downloaded bit image
	GS /	Print downloaded bit image
	GS v	Print the bitmap with width and height
	DC2 *	Print the bitmap
	DC2 V	Print MSB bitmap
	FS p n m	Print NV bitmap
	FS q n	Define NV bitmap
	DC2 v	Print LSB bitmap
Init Command	ESC @	Initialize printer
Status Command	ESC v n	Transmit paper sensor status
	GS a n	Enable/Disable AutomaticStatus Back(ASB)
Bar Code Command	GS H	Select printing position of human readable characters
	GS h	Set bar code height
	GS x	Set bar code left position
	GS w	Set bar code width
	GS k	Print bar code
Board Para Command	ESC 7 n1 n2	Set printing para. Heat & break time, max heat dot
	ESC C 5 n（support has panel	Select/Cancel panel button。0: Select; 1: Cancel

	button)	
	ESC 8	Select sleeping parameter
	DC2 # n	Select print desity
	DC2 T	Test print
New command	DC2 E	Paper feed to BM
	DC2 m d	Select BM length
	FS &	Select Chinese mode
	FS .	Select char mode
	FS s	save print parameter (Only for **XBLY**)
	FS d	Load default leaving factory set (Only for **XBLY**)

NOTICE: The BM command and not all control board,it is support the command of the control board has BM function.

This version is not support page mode command.

6.2、 Command detail

Outline

A1's thermal printer control board use ESC/POS command set.

The printing command is descripted as followed format:

CMD		Function
Format	ASCII	List by ASCII characters
	Decimal	List by decimal characters
	Hexadecimal	List by hexadecimal characters
Description	Command function description	
Example	Command use example	

6.2.1 Print Commands

LF		Print and line feed
Format:	ASCII	LF
	Decimal:	10
	Hexadecimal:	0A
Description:	LF prints the data in the print buffer and feeds one line. When the print buffer is empty, LF feeds one line.	

CR	Print and carriage return	
Format:	ASCII:	CR
	Decimal:	13

	Hexadecimal:	0D
Description:	When automatic line feed is enabled,thie command functions The same as LF	

HT	Jump to the next TAB position	
Format:	ASCII:	HT
	Decimal:	9
	Hexadecimal:	09
Description:	TAB position is 8 chars position.	

FF	Print the data in buffer and locate to the next black mark	
Format:	ASCII:	FF
	Decimal:	12
	Hexadecimal:	0c
Description:	Print the data in the buffer. Locate to the black mark. NOTE: Only board with black mark function support this command.	

ESC D	Set horizontal tab positions	
Format:	ASCII:	ESC D
	Decimal:	27 68 n1...nk 00
	Hexadecimal:	1B 44 n1...nk 00
Description:	Set horizontal tab positions,refer to HT。	

ESC J n	Print and feed paper	
Format:	ASCII:	ESC J n
	Decimal:	27 74 n
	Hexadecimal:	1B 4A n
Description:	n = 0-255。 ESC J prints the data in the print buffer and feeds n dots. The command will not change the setting set by command ESC 2, ESC 3.	

ESC d n	Print and feed n lines	
Format:	ASCII:	ESC d n
	Decimal:	27 100 n
	Hexadecimal	1B 64 n
Description:	n = 0-255。 Print the data in the buffer and feed paper n lines. The lines height is defined by ESC 2,ESC 3.	

ESC = n			Set print online or offline
Format		ASCII:	ESC = n
		Decimal:	27 61 n
		Hexadecimal:	1B 3d n
Description:	n = 0,1 1: Online 0: Offline		

6.2.2 Line spacing setting command

ESC 2		Select default line spacing
Format:	ASCII:	ESC 2
	Decimal:	27 50
	Hexadecimal:	1B 32
Description:	ESC 2 sets the line space to default value (32dots)	

ESC 3 n		Set line spacing
Format:	ASCII:	ESC 3 n
	Decimal:	27 51 n
	Hexadecimal:	1B 33 n
Description:	n = 0-255 ESC 3 n sets the line spacing to n dots. The default value is 32	

ESC a n			Select align mode
Format:		ASCII:	ESC a n
		Decimal:	27 97 n
		Hexadecimal:	1B 61 n
Description:	Default is 0 $0 \leqslant m \leqslant 2$ or $48 \leqslant m \leqslant 50$ Align left: n=0,48 Aligh middle: n=1,49 Align right: n=2,50		

GS L nL nH			Set left space
Format:		ASCII:	GS L nL nH
		Decimal:	29 76 nL nH
		Hexadecimal:	1D 4c nL nH
Description:	Set the left space with dots Left space is nL+nH*256,unit:0.125mm,only supported in page mode.		

ESC B n			Set left blank char numbers
Format:		ASCII:	ESC B n
		Decimal:	27 66 n
		Hexadecimal:	1B 42 n
Description:	Default is 0 0 ≤ m ≤ 47		

6.2.3 Character command

ESC $			Set absolute print positions
Format:		ASCII:	ESC $
		Decimal:	27 36 n
		Hexadecimal:	1B 24 nl nH
Description:	Set the distance from the beginning of the line to the position at which subsequent are to be printed. The distance from the beginning of the line to the print position is [(nL + nH ×256) ×0.125 mm]		

ESC ! n			Select print mode
Description:		ASCII:	ESC ! n
		Decimal:	27 33 n
		Hexadecimal:	1B 21 n

Description

    The default value is 0. This command is effective for all characters.

    BIT0: FontA:12×24 FontB: (9×17)

    BIT1: Turn white/black reverse printing mode

    BIT2: 1:Turn on/off upside-down printing mode

    BIT3: Turn Emphasized mode on/off

    BIT4: Turn Double Height mode on/off

    BIT5: Turn Double Width mode on/off

    BIT6: Turn Deleteline mode on/off

GS ! n			Set the font enlarge
Format:		ASCII:	GS ! n
		Decimal:	29 33 n
		Hexadecimal:	1D 21 n

Description:	D3..0 0: height don't enlarge
	1: height enlarge
	D7..4 0: width don't enlarge
	1: width enlarge

ESC E n		Set and cancle bold font
Format:	ASCII:	ESC E n
	Decimal:	27 69 n
	Hexadecimal:	1B 45 n
Description:	D0: 0: normal	
	1: bold	

ESC SP n		Set and cancle bold font
Format:	ASCII:	ESC SP n
	Decimal:	27 32 n
	Hexadecimal:	1B 20 n
Description:	D0: 0: normal	
	1: bold	

ESC SO		Select Double Width mode
Format:	ASCII:	ESC SO
	Decimal:	27 14
	Hexadecimal:	1B 0E
Description:	Select Double Width mode	
	To turn double width off, use LF or DC4 command.	

ESC DC4		Disable Double Width mode
Format:	ASCII:	ESC DC4
	Decimal:	27 20
	Hexadecimal:	1B 14
Description:	Disable Double Width mode	

ESC { n		Set/Cancel Character Updown mode
Format:	ASCII:	ESC { n
	Decimal:	27 123 n
	Hexadecimal:	1B 7B n
Description:	n=1:Enable Updown mode	
	n=0:Disable Updown Mode	
	Default value is 0	

ESC - n			Set the underline height
Format:		ASCII:	ESC - n
		Decimal:	27 45 n
		Hexadecimal:	1B 2D n
Description:	n=0-2,the underline dots default: 0 — no underline		

ESC % n			Enable/Disable User-defined Characters
Format:		ASCII:	ESC % n
		Decimal:	27 37 n
		Hexadecimal:	1B 25 n
Description:	n=1:Enable User-defined character n=0:Disable User-defined character		

ESC & s n m w			Define User-defined characters
Format:		ASCII:	ESC & s n m w d1 d2 ... dx
		Decimal:	27 38 s n m w d1 d2 ... dx
		Hexadecimal:	1B 26 s n m w d1 d2 ... dx

Description

   The command is used to define user-defined character.Max 64 user chars can be defined.

    s= 3, 32 ≤ n ≤ m < 127

    s: Character height bytes, =3(24dots)

    w: Character width 0~12(s=3)

n: User-defined character starting code

   m: User-defined characters ending code

   dx:data, x=s*w

s=3

d1	d4	d7							
d2	d5	d8							
d3	d6	d9							d36

dx format:

	bit7
	bit 6
	bit 5
dx	bit 4
	bit 3
	bit 2
	bit 1
	bit 0

For example: sent follow command can modify blank space for BM (Hexadecimal):

1B 26 03 20 20 0C FF FF FF FF FF FF ······

     12*3

notice: this command only modify defined characters,refer to ESC % n use the defined characters.

ESC ? n	Disable user-defined character
Format:	ASCII：	ESC ? n
	Decimal:	27 37 n
	Hexadecimal:	1B 3F n

Description:

ESC ? n disable user-defined characters, printer will use the interal character.

ESC R n	Select an internal character set
Format:	ASCII：	ESC R n
	Decimal:	27 82 n
	Hexadecimal:	1B 52 n

Description:

Select an internal character set n as follows:

0:USA   5:Sweden   10:Denmark II

1:France   6:Italy   11:Spain II

2:Germany   7:Spain1   12:Latin America

3:U.K.   8:Japan   13:Korea

4:Denmark 1   9:Norway

ESC t n	Select character code table
Format:	ASCII：	ESC t n
	Decimal:	27 116 n
	Hexadecimal:	1B 74 n

Description:

Select a page n from the character code table as follows:

0:437   1:850

ESC 9 n	Select Chinese code format
Format:	ASCII：	ESC 9 n
	Decimal:	27 57 n
	Hexadecimal:	1B 39 n

Description:

Select Chinese code format, n from the character code table as follows:

0:GBK code

1:UTF-8 code

3:BIG5 code

This version is not support English.

6.2.4 Bit Image Command

ESC * m n1 n2 d1 d2...dk		Select bit-image mode
Format:	ASCII:	ESC * m n1 n2 d1 d2 ... dk
	Decimal:	27 42 m n1 n2 d1 d2 ... dk
	Hexadecimal:	1B 2A m n1 n2 d1 d2 ... dk

Description

    Attention: The command may clear the user defined char.

    This command selects a bit image mode using m for the number of dots specifed
    by (nL+nH*256)

    m =0, 1, 32, 33。

    NL=0-255

    nH=0-3

    dx=0-255

    k = nL+256*nH (m=0, 1)

    k = (nL+256*nH)*3 (m=32, 33)

    The modes selected by m are as follows:

      0: 8dots single density, 102dpi

      1: 8dots double density, 203dpi

      31:24 dots single density,102dpi

      32:24 dots double density,203dpi

    The bit image format is the same as user-defined character.

GS * n1 n2 d1...dk		Define downloaded bit image
Format:	ASCII:	GS * n1 n2 d1 ... dk
	Decimal:	29 42 n1 n2 d1 ... dk
	Hexadecimal:	1D 2A n1 n2 d1 ... dk
Description:	This command defineds a downloaded bit image by using x*8 dots in the horizontal direction and y*8 dots in the vertical direction. Once a downloaded bit image has been define, it is avaiable until 1) Another definition is made 2) ESC & or ESC @ is executed 3) The power is turned off 4) The printer is reset x=1～48(width), y=1～255(height), x×y < 1200, k=x×y×8	

GS / n		Print downloaded bit image
Format:	ASCII:	GS / n
	Decimal:	29 47 n
	Hexadecimal:	1D 2F n

Description: Print a bit image that defined using the GS * command. This
             command is ignored if a downloaded bit image has not been defined.
       This command prints a downloaded bit image using the mode specified by n as
       specified in the chart.

n	Pattern Mode	Vertical DPI	Horizontal DPI
0,48	Normal	203DPI	203DPI
1,49	Double width	203DPI	101DPI
2,50	Double height	101DPI	203DPI
3,51	Quadruple	101DPI	101DPI

GS v 0 p wL wH hL hH		Print bitmap height and width
Format：	ASCII：	GS v 0 p wL wH hL hH d1 ... dk
	Decimal：	29 118 0 p wL wH hL hH d1 ... dk
	Hexadecimal：	1D 76 3 p wL wH hL hH d1 ... dk

Description：	p: bitmap format。
	    D0: 1: bitmap need double width
	          0: bitmap don't need double width
	    D1: 1: bitmap need double height
	          0: bitmap don't need double height
	W=wL+wH*256 mean horital bytes
	H=wL+wH*256 mean vertical dots.
	Bitmap use MSB format, the MSB is printed at the left. And data sent first is printed at the left.	

DC2 * r n [d1...dn]		Print bitmap
Format：	ASCII：	DC2 * r n [d1 ... dn]
	Decimal：	18 42 r n [d1 ... dn]
	Hexadecimal：	12 2A r n [d1 ... dn]
Description：	Printing bitmap with width & height r: Bitmap height n: Bitmap width Bitmap format:	
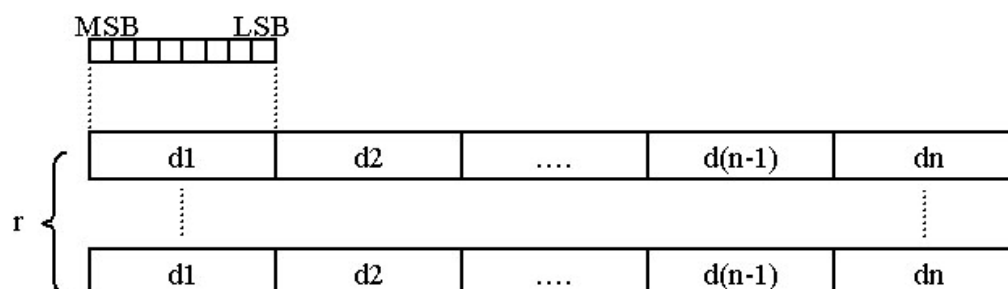
DC2 V nL nH [d1...dn]		Print MSB Bitmap
Format:	ASCII:	DC2 V nL nH [d1 ... d48]
	Decimal:	18 86 nL nH [d1 ... d48]
	Hexadecimal:	12 56 nL nH [d1 ... d48]
Description:	This command use to print MSB format bitmap, The width of bitmap must the same as the printer mechanism Bitmap height: nL+nH*256 Bitmap format:	

384 dots

1th byte	2th byte	....	47th byte	48th byte

n+1th byte	n+2th byte	....	n+47th byte	n+48th byte

<< n = nL + nH*256 >>

MSB   LSB
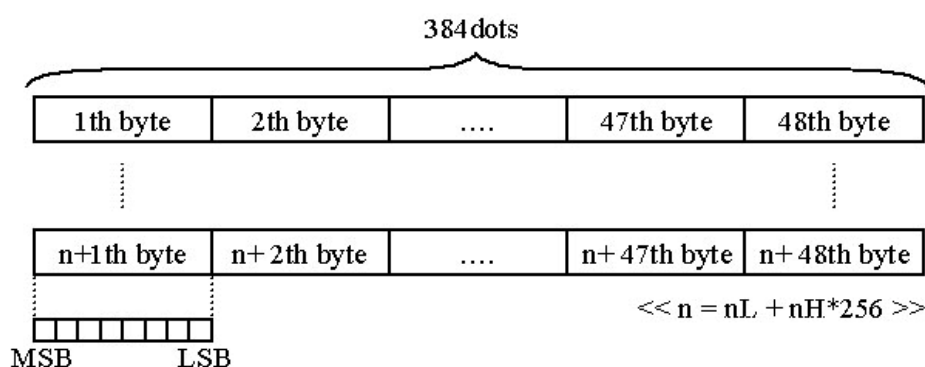
FS p n m		Print MV bit image
Format:	ASCII:	FS p n m
	Decimal:	28 112 *n m*
	Hexadecimal:	1C 70 *n m*
Description:	NV bit image means a bit image which is defined in a non-volatile memory by **F S q** and printed by **F S p** 。 $1 \leq n \leq 255$ $0 \leq m \leq 3$, $48 \leq m \leq 51$ (*n* is the number of the NV bit image，m specifies the bit image mode)	

FS q n		Define NV bit image
Format:	ASCII:	FS q n [xL xH yL yH d1...dk]1...[x L xH yL yH d1...dk]n
	Decimal:	28 113 *n* [xL xH yL yH d1...dk]1...[x L xH yL yH d1...dk]n
	Hexadecimal:	1C 71 *n m* [xL xH yL yH d1...dk]1...[x L xH yL yH d1...dk]n
Description:	This command cancels all NV bit image that have already been defined by this command. In this case, all data needs to be sent again. $0 \leq n \leq 255$, $0 \leq x L \leq 255$, $0 \leq xH \leq 3$, $0 \leq yL \leq 255$, $0 \leq yH \leq 1$, $0 \leq d \leq 255$, k=(x L+ xH×256)×(yL + yH×256)×8	

DC2 v nL nH [d1...dn]		Print LSB Bitmap
Format:	ASCII:	DC2 v nL nH [d1 ... d48]
	Decimal:	18 118 nL nH [d1 ... d48]
	Hexadecimal:	12 76 nL nH [d1 ... d48]
Description:	This command use to print LSB format bitmap, The width of bitmap must the same as the printer mechanism Bitmap height: nL+nH*256 Bitmap format:	
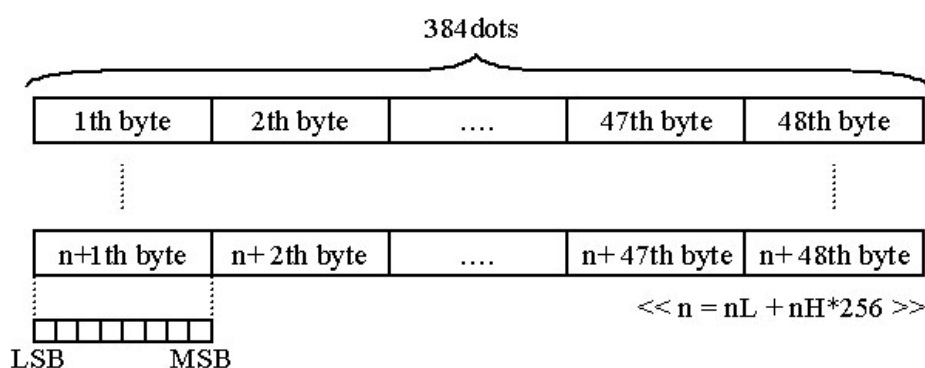
6.2.5 Init command

ESC @		Initialize the printer
Format:	ASCII:	ESC @
	Decimal:	27 64
	Hexadecimal:	1B 40

Description :   Initializes the printer.

> The print buffer is cleared.
> Reset the param to default value.
> return to standard mode
> Delete user-defined characters

6.2.6 Status Command

ESC v n		Transmit paper sensor status
Format:	ASCII:	ESC v n
	Decimal:	27 118 n
	Hexadecimal:	1B 76 n

Description :   The return value is 1 bytes ,It is a different on behalf of the

status:

  Bit 0: on/offline; 1 on, 0 off。

  Bit 1: 0, undefined

  Bit 2: paper out/have ; 1 paper out，0 paper have。

  Bit 3: voltage：1 ＞9.5V, 0 normal。

  Bit 4: 0, undefined

  Bit 5: 0, undefined

  Bit 6: temperature; 1＞60°, 0 normal

  Bit 7: 0, undefined

For example: return "0x04" is means paper out.

GS a n			Enable/Disable Automatic Status Back(ASB)	
Format:		ASCII:	GS a n	
		Decimal:	29 97 n	
		Hexadecimal:	1D 61 n	
Description:	n definition as follows:			
	Bit	Function	Value	
			0	1
	0	0		
	1			
	2	Disable/Enable ASB	Disable	Enable
	3-4			
	5	Disable/Enable RTS as flow control	Disable	Enable
	6-7			
	When ASB is enabled, the printer will send the changed status to PC automatically.			

6.2.7 Bar Code Command

GS H n			Select printing position of human readable characters
Format:		ASCII:	GS H n
		Decimal:	29 72 n
		Hexadecimal:	1D 48 n

Description:	$0 \leqslant n \leqslant 3, 48 \leqslant n \leqslant 51$
	n as follows:
	0,48: not print HRI
	1,49: Above the bar code
	2,50: Below the bar code
	3,51:Both Above and below the bar code

GS h n		Set bar code height	
Format:	ASCII:	GS h n	
	Decimal:	29 104 n	
	Hexadecimal:	1D 68 n	
Description:	This command selects the height of a barcode. n specifies the number of dots in the vertical direction. The default value is 50 $1 \leqslant n \leqslant 255$		

GS x n		Set barcode printing left space	
Format:	ASCII:	GS x n	
	Decimal:	29 120 n	
	Hexadecimal:	1D 78 n	
Description:	The print bar code staring positions is: 0→255		

GS w n		Set bar code width	
Format:	ASCII:	GS w n	
	Decimal:	29 119 n	
	Hexadecimal:	1D 77 n	
Description:	Set bar code width : n = 2,3 default: 2		

GS k m d1 d2 ... dk NUL GS k m n d1 d2 ... dn		Print bar code	
Format: 1	ASCII:	GS k m d1 d2 ... dk NUL	
	Decimal:	29 107 m d1 d2 ... dk 0	
	Hexadecimal:	1D 6B m d1 d2 ... dk 00	
Format: 2	ASCII:	GS k m n d1 d2 ... dn	
	Decimal:	29 107 m n d1 d2 ... dn	
	Hexadecimal:	1D 6B m n d1 d2 ... dn	

Description: m: bar code type

   Format 1: $0 \leqslant m \leqslant 10$

   Format 2： $65 \leqslant m \leqslant 75$

   n: bar code length

m		Bar Code System	Number of Characters	Remarks
①	0	UPC-A	$11 \leq k \leq 12$	$48 \leq d \leq 57$
	1	UPC-E	$11 \leq k \leq 12$	$48 \leq d \leq 57$
	2	JAN13 (EAN13)	$12 \leq k \leq 13$	$48 \leq d \leq 57$
	3	JAN 8 (EAN8)	$7 \leq k \leq 8$	$48 \leq d \leq 57$
	4	CODE39	$1 \leq k'$	$48 \leq d \leq 57$, $65 \leq d \leq 90$, 32, 36, 37, 43, 45, 46, 47
	5	ITF	$1 \leq k$ (even)	$48 \leq d \leq 57$
	6	CODABAR	$1 \leq k'$	$48 \leq d \leq 57$, $65 \leq d \leq 68$, 36, 43, 45, 46, 47, 58
②	65	UPC-A	$11 \leq n \leq 12$	$48 \leq d \leq 57$
	66	UPC-E	$11 \leq n \leq 12$	$48 \leq d \leq 57$
	67	JAN13 (EAN13)	$12 \leq n \leq 13$	$48 \leq d \leq 57$
	68	JAN 8 (EAN8)	$7 \leq n \leq 8$	$48 \leq d \leq 57$
	69	CODE39	$1 \leq n \leq 255$	$48 \leq d \leq 57$, $65 \leq d \leq 90$, 32, 36, 37, 43, 45, 46, 47
	70	ITF	$1 \leq n \leq 255$ (even)	$48 \leq d \leq 57$
	71	CODABAR	$1 \leq n \leq 255$	$48 \leq d \leq 57$, $65 \leq d \leq 68$, 36, 43, 45, 46, 47, 58
	72	CODE93	$1 \leq n \leq 255$	$0 \leq d \leq 127$
	73	CODE128	$2 \leq n \leq 255$	$0 \leq d \leq 127$

If the messages have illegal characters, printer will not print the barcode.
If the barcode exceed to normal print width, it doesn't know the print result .
This command is executed finish, printer will print barcode by the command
 of barcode setted，it has nothing to do with line space.

6.2.8 Control Parameter Command

ESC c 5 n		Enable/disable panel buttons
Format:	ASCII:	ESC C 5 n
	Decimal:	27 99 53 n
	Hexadecimal:	1B 63 35 n
Description:	Enable/disable panel buttons（support the panel buttons ）： When the LSB of n is 0,the panel buttons are enable； When the LSB of n is 1,the panel buttons are disable。	

ESC 7 n1 n2 n3		Setting Control Parameter Command
c	ASCII:	ESC 7 n1 n2 n3
	Decimal:	27 55 n1 n2 n3

	Hexadecimal:	1B 37 n1 n2 n3
Description:	Set "max heating dots","heating time", "heating interval" n1 = 0-255 Max printing dots,Unit(8dots),Default:7(64 dots) n2 = 3-255 Heating time，Unit(10us),Default:80(800us) n3 = 0-255 Heating interval,Unit(10us)， Default:2(20us) The more max heting dots, the more peak current will cost whenprinting, the faster printing speed. The max heating dots is 8*(n1+1) The more heating time, the more density , but the slower printing speed. If heating time is too short, blank page may occur. The more heating interval, the more clear, but the slower printingspeed.	

ESC 8 n1 n2		Sleep parameter
Format:	ASCII:	ESC 8 n1 n2
	Decimal:	27 56 n1 n2
	Hexadecimal:	1B 38 n1 n2
Description:	Setting the time for control board to enter sleep mode. n1+n2*256 The time waiting for sleep after printing finished, Unit(Second), Default:0(don't sleep) When control board is in sleep mode, host must send one byte(0xff) to wake up control board. And waiting 50ms, then send printing command and data. **NOTE：The command is useful when the system is powered by battery.**	

DC2 # n		Set printing density
Format:	ASCII:	DC2 # n
	Decimal:	18 35 n
	Hexadecimal:	12 23 n
Description:	D4..D0 of n is used to set the printing density Density is 50% + 5% * n(D4-D0) D7..D5 of n is used to set the printing break time Break time is n(D7-D5)*250us	

DC2 T		Printing test page
Format:	ASCII:	DC2 T
	Decimal:	18 84
	Hexadecimal:	12 54
Description:	Printing test page	

6.2.9 New command

DC2 E		Feed paper to mark
Format:	ASCII:	DC2 E
	Decimal:	18 69
	Hexadecimal:	12 45
Description:	Feed paper to mark	

DC2 m d ll lh		Set mark paper length
Format:	ASCII:	DC2 m d ll lh
	Decimal:	18 109 d ll lh
	Hexadecimal:	12 6d d ll lh
Description:	d = 0,1 1:stop at mark position 0:go on 3 steps after mark position detected $0 \leqslant ll \leqslant 255$ $0 \leqslant lh \leqslant 255$ Paper length is (ll+lh*256) steps,means (ll+lh*256)/8 mm	

FS &		Select Chinese print mode
Format:	ASCII:	FS &
	Decimal:	28 38
	Hexadecimal:	1c 26
Description:	Select Chinese print mode The data of after Greater than 0X80 is as the Chinese coding processing。	

FS .		Canel Chinese mode
Format:	ASCII:	FS .
	Decimal:	28 46
	Hexadecimal:	1C 2E
Description:	Canel Chinese print mode.	

FS s		Save print parater
Format:	ASCII:	FS s
	Decimal:	28 115
	Hexadecimal:	1C 73

Description:	Save print parater. (only for **XBLY**)

FS d		Load default leaving factory set
Format:	ASCII:	FS d
	Decimal:	28 100
	Hexadecimal:	1C 64
Description:		Load default leaving factory set . (only for **XBLY**)

Appendix 1: Code page

Page0 **PC437** **Page3 CP860 [Portuguese]**

Code page 437																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	₧	ƒ
A_	á	í	ó	ú	ñ	Ñ	a	o	¿	⌐	¬	½	¼	¡	«	»
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	·	·	√	ⁿ	2	■	

Page 1 Katakana

ﾀ ﾁ ﾂ ﾃ ﾄ ﾅ ﾆ ﾇ ﾈ ﾉ ﾊ ﾋ ﾌ ﾍ ﾎ ﾏ

ﾐ ﾑ ﾒ ﾓ ﾔ ﾕ ﾖ ﾗ ﾘ ﾙ ﾚ ﾛ ﾜ ﾝ ﾞ ﾟ

〆 円 年 月 日 時 分 秒 〒 市 区 町 村 人

Page2 PC850[Multilingual]

Code page 850															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	ƒ
A_	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
B_	░	▒	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
C_	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
D_	ð	Ð	Ê	Ë	È	ı	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
E_	Ó	ß	Ô	Ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
F_		±	‗	¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	

Page3 PC860[Portuguese]

Code page 860

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ã	à	Á	ç	ê	Ê	è	Í	Ô	ì	Ã	Â
9_	É	À	È	ô	õ	ò	Ú	ù	Ì	Õ	Ü	¢	£	Ù	₧	Ó
A_	á	í	ó	ú	ñ	Ñ	a	o	¿	Ò	¬	½	¼	¡	«	»
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	

Page4 PC863[Canadian-French]

Code page 863															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	Â	à	¶	ç	ê	ë	è	ï	î	‗	À	§
9_	É	È	Ê	ô	Ë	Ï	û	ù	¤	Ô	Ü	¢	£	Ù	Û	ƒ
A_	¦	´	ó	ú	¨	¸	³	¯	Î	┌	¬	½	¼	¾	«	»
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	

PAGE5 PC865[NORDIC]

Code page 865															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	₧	ƒ
A_	á	í	ó	ú	ñ	Ñ	a	o	¿	⌐	¬	½	¼	¡	«	¤
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²		NBSP

PAGE6 PC1251 [CYRILLIC]

Code page 1251															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ђ	Ѓ	,	ѓ	„	…	†	‡	€	‰	Љ	‹	Њ	Ќ	Ћ	Џ
9_	ђ	`	'	"	"	•	–	—		™	љ	›	њ	ќ	ћ	џ
A_	NBSP	Ў	ў	Ј	¤	Ґ	¦	§	Ё	©	Є	«	¬	SHY	®	Ї
B_	°	±	І	і	ґ	µ	¶	·	ё	№	є	»	ј	Ѕ	ѕ	ї
C_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
D_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
E_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
F_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я

PAGE7 PC866 CYRILLIEC #2

Code page 866															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
F_	Ё	ё	Є	є	Ї	ї	Ў	ў	°	∙	·	√	№	¤	■	NBSP

Page8 MIK[Cyrillic **/Bulgarian**]

Code page MIK															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
C_	└	┴	┬	├	─	┼	╢	║	╚	╔	╩	╦	╠	═	╬	┐
D_	░	▒	▓	│	┤	№	§	╖	╜	┘	┌	█	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	NBSP

Page9 CP755

Code page 755

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_	░	▒	▓	│	┤	Ā	╣	╗	╕	╢	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	ā	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	Š	╨	Č	č	╞	╒	ġ	Ī	ī	┘	┌	█	▄	ū	Ū	■
E_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
F_	Ē	ē	Ģ	Ķ	ĸ	ļ	Ļ	ž	Ž	·	·	√	Ņ	Š	■	NBSP

Page10 Iran

Code page Iran

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	·	١	٢	٣	٤	٥	٦	٧	٨	٩	،	ــ	؟F	آ	ئ	ء
9_	ا	ـا	ب	ـب	پ	ـپ	ت	ـت	ث	ـثـ	ج	*ـجـ	*ـچـ	چ	ـح	ح
A_	خ	ـخ	د	ذ	ر	ز	ژ	س	ـس	ش	ـش	ص	ـص	ض	ـض	ط
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗		╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	ظ	ع	ـعـ	ـع	غ	ـغـ	ـغـ	ـغ	ف	ـفـ	ق	ـق	ك	ـك	گ	
F_	ـگ	ل	لا	ـل	م	ـمـ	ن	ـن	و	ه	ـهـ	ـه	ى	ـى	ي	ـي

Page15 CP862 [Hebrew]

Code page 862																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	א	ב	ג	ד	ה	ו	ז	ח	ט	י	ך	כ	ל	ם	מ	ן
9_	נ	ס	ע	ף	פ	ץ	צ	ק	ר	ש	ת	¢	£	¥	₧	ƒ
A_	á	í	ó	ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	»
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	NBSP

Page 16 PC1252 Latin 1

Code page 1252																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€		‚	ƒ	„	…	†	‡	^	‰	Š	‹	Œ		Ž	
9_		`	'	"	"	•	–	—	~	™	š	›	œ		ž	Ÿ
A_	NBSP	¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	SHY	®	¯
B_	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C_	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D_	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
E_	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F_	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Page 17 WCP1253 [Greek]

Code page 1253															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€		,	ƒ	„	…	†	‡		‰		‹				
9_		`	′	″	″	•	–	—		™		›				
A_	NBSP	¨	Ά	£	¤	¥	¦	§	¨	©		«	¬	SHY	®	―
B_	°	±	²	³	΄	µ	¶	·	Έ	Ή	Ί	»	Ό	½	Ύ	Ώ
C_	ΐ	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
D_	Π	Ρ		Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Ϊ	Ϋ	ά	έ	ή	ί
E_	ΰ	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
F_	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ϊ	ϋ	ό	ύ	ώ	

Page18 PC852

Code page 852															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	ů	ć	ç	Ł	ë	Ő	ő	Î	Ź	Ä	
9_	É	Ĺ	í	ô	ö	Ľ	ľ	Ś	ś	Ö	Ü	Ť	ť	Ł	×	
A_	á	í	ó	ú	Ą	ą	Ž	ž	Ę	ę	¬	ź	Č	ş	«	―
B_	░	▒	▓	│	┤	Á	Â	Ě	Ş	╣	║	╗	╝	Ż	ż	Ώ
C_	└	┴	┬	├	─	┼	Ă	ă	╚	╔	╩	╦	╠	═	╬	Ο
D_	đ	Đ	Ď	Ë	ď	Ň	Í	Î	ě	┘	┌	█	▄	Ţ	Ů	ί
E_	Ó	ß	Ô	Ń	ń	ň	Š	š	Ŕ	Ú	ŕ	Ű	ý	Ý	ţ´	ο

| F_ | - | ˝ | ¸ | ˇ | ˘ | § | ÷ | ¸ | ° | ¨ | · | ű | Ř | ř | ■ | |

Page19 PC858 (Multilingual Latin Ⅰ+Euro)

Code page 858															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	ƒ
A_	á	í	ó	ú	ñ	Ñ	a	o	¿	®	¬	½	¼	¡	«	»
B_	░	▒	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
C_	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
D_	ð	Ð	Ê	Ë	È	€	Í	Î	Ï	┘	┌	█	▄	¦	Ì	■
E_	Ó	ß	Ô	Ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
F_	-	±	_	¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	

Page20 Iran Ⅱ

Code page Iran Ⅱ															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	·	١	٢	٣	۴	۵	۶	٧	٨	٩	،	ـ	؟_F	آ	ئ	ء
9_	ا	ـل	ب	ب	پ	پ	ت	ت	ث	ﺚ	ج	ﺟ*	ﭺ_C*	چ	ح	ح
A_	خ	خ	د	ذ	ر	ز	ژ	س	س	ش	ش	ص	ص	ض	ض	ط
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗		┘	┘	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧

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D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	ظ	ع	ع	عـ	غ	غـ	غـ	ف	فـ	ق	قـ	ك	كـ	ك	گ	
F_	گ	ل	لا	ل	م	مـ	نـ	ن	و	ه	هـ	ه	ى	ى	يـ	

Page21 Latvian

		_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
Code page Latvian																	
8_		А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_		Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A_		а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_							A		ŋ						Ō		
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D_		Š		Č	č	Ī	╔	ġ	Ī	ī					ū	Ū	
E_		р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
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Page22 CP864 [Arabic]

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Code page 864																
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9_	β	∞	φ	±	½	¼	≈	«	»	أ	أ			لا	لا	
A_	NBSP	SHY	ٮ	£	¤	أ		€	ل	ب	ت	ث	،	ج	ح	خ
B_	·	١	٢	٣	٤	٥	٦	٧	٨	٩	ف	:	س	ش	ص	؟
C_	¢	ء	آ	أ	ؤ	ع	ئ	ا	ب	ة	ت	ث	ج	ح	خ	د

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
D_	ذ	ر	ز	س	ش	ص	ض	ط	ظ	ع	غ	ا	¬	÷	×	ع
E_	_	ف	ق	ك	ل	م	ن	ه	و	ى	ي	ض	ع	غ	غ	م
F_	□	ـ	ن	ه	ه	ى	ي	غ	ق	لآ	لآ	ل	ك	ي	■	

Page23 ISO-8859-1 [West Europe]

Code page 8859-1																
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8_																
9_																
A_	NBSP	¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	SHY	®	¯
B_	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C_	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D_	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
E_	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F_	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Page24 CP737 [Greek]

Code page 737																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π
9_	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	α	β	γ	δ	ε	ζ	η	θ
A_	ι	κ	λ	μ	ν	ξ	ο	π	ρ	σ	ς	τ	υ	φ	χ	ψ
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧

D_	⊥⊥	╤	╥	╙	╘	╞	╥	╫	╪	┘	┌	█	▄	▐	█
E_	ω	ά	έ	ή	ϊ	ί	ό	ύ	ϋ	ώ	Ά	Έ	Ή	Ί	Ό
F_	Ω	±	≥	≤	Ϊ	Ϋ	÷	≈	°	·	·	√	ⁿ	²	■

Page25 WCP1257 [Baltic]

Code page 1257															
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9_		`	'	"	"	•	–	—		™		›		¯	˛	
A_	NBSP		¢	£	¤		¦	§	Ø	©	Ŗ	«	¬	SHY	®	Æ
B_	°	±	²	³	´	µ	¶	·	ø	¹	ŗ	»	¼	½	¾	æ
C_	Ą	Į	Ā	Ć	Ä	Å	Ę	Ē	Č	É	Ź	Ė	Ģ	Ķ	Ī	Ļ
D_	Š	Ń	Ņ	Ó	Ō	Õ	Ö	×	Ų	Ł	Ś	Ū	Ü	Ż	Ž	ß
E_	ą	į	ā	ć	ä	å	ę	ē	č	é	ź	ė	ģ	ķ	ī	ļ
F_	š	ń	ņ	ó	ō	õ	ö	÷	ų	ł	ś	ū	ü	ż	ž	˙

Page26 Thai

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่	่	้	๊	๋	็	่	้	๊	๋	็	่	้	๊	๋	ไ
	ก	ข	ฃ	ค	ฅ	ฆ	ง	จ	ฉ	ช	ซ	ฌ	ญ	ฎ	ฏ
ฐ	ฑ	ฒ	ณ	ด	ต	ถ	ท	ธ	น	บ	ป	ผ	ฝ	พ	ฟ
ภ	ม	ย	ร	ฤ	ล	ฦ	ว	ศ	ษ	ส	ห	ฬ	อ	ฮ	ฯ
ะ	ั	า	ำ	ิ	ี	ึ	ื	่	้	๊		ุ	ู	ฺ	฿
เ	แ	โ	ใ	ไ	ฤ	ฦ		่	้	๊	๋	็	่	้	๋
๐	๑	๒	๓	๔	๕	๖	๗	๘	๙	฿	่	้	๊	๋	ฯ

Page27 CP720[Arabic]

Code page 720															
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8_			é	â		à		ç	ê	ë	è	ï	î			
9_		´	°	ô	¤	_	û	ù	ء	آ	أ	ؤ	£	إ	ئ	ا
A_	ب	ة	ت	ث	ج	ح	خ	د	ذ	ر	ز	س	ش	ص	«	»
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	ض	ط	ظ	ع	غ	ف	µ	ق	ك	ل	م	ن	ه	و	ى	ي
F_	≡	ّ	ْ	´	`	´	≈	°	∙	·	√	ⁿ	²		■	NBSP

Page28 CP855

Code page 855															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	ђ	Ђ	ѓ	Ѓ	ё	Ё	є	Є	ѕ	Ѕ	і	І	ї	Ї	ј	Ј
9_	љ	Љ	њ	Њ	ћ	Ћ	ќ	Ќ	ў	Ў	џ	Џ	ю	Ю	ъ	Ъ
A_	а	А	б	Б	ц	Ц	д	Д	е	Е	ф	Ф	г	Г	«	»
B_	▓	▓	▓	│	┤	х	Х	и	И	╣	║	╗	╝	й	Й	┐
C_	└	┴	┬	├	─	┼	к	К	╚	╔	╩	╦	╠	═	╬	¤
D_	л	Л	м	М	н	Н	о	О	п	╜	╓	█	▄	П	я	▀
E_	Я	р	Р	с	С	т	Т	у	У	ж	Ж	в	В	ь	Ь	№
F_	SHY	ы	Ы	з	З	ш	Ш	э	Э	щ	Щ	ч	Ч	§	■	NBSP

Page29 PC857[Turkish]

Code page 857															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
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9_	É	æ	Æ	ô	ö	ò	û	ù	İ	Ö	Ü	ø	£	Ø	Ş	ş
A_	á	í	ó	ú	ñ	Ñ	Ğ	ğ	¿	®	¬	½	¼	¡	«	»
B_	░	▒	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
C_	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
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Page30 WCP1250[Central Eurpoe]

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D_	Đ	Ń	Ň	Ó	Ô	Ő	Ö	×	Ř	Ů	Ú	Ű	Ü	Ý	Ţ	ß
E_	ŕ	á	â	ă	ä	Í	Ć	ç	č	é	ę	ë	ě	í	î	ď
F_	đ	ń	ň	ó	ô	ő	ö	÷	ř	ů	ú	ű	ü	ý	ţ	·

Page31 CP775

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C_	└	┴	┬	├	─	┼	Ų	Ū	╚	╔	╩	╦	╠	═	╬	Ž
D_	ą	č	ę	ė	į	š	ų	ū	ž	┘	┌	█	▄	▌	▐	▀

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Page32 WCP1254[Turkish]

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9_		`	´	"	"	•	–	—	˜	™	š	›	œ			Ÿ
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D_	Ğ	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	İ	Ş	ß
E_	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
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Page33 WCP1255[Hebrew]

Code page-1255															
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8_	€		‚	ƒ	„	…	†	‡		‰		‹				
9_		`	´	"	"	•	–	—	˜	™		›				
A_	NBSP	¡	¢	£	₪	¥	¦	§	¨	©	×	«	¬	SHY	®	¯
B_	°	±	²	³	´	µ	¶	·	¸	¹	÷	»	¼	½	¾	¿
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D_	׀	ֿ	ֽ	׃	װ	ױ	ײ	׳	״							

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
E_	א	ב	ג	ד	ה	ו	ז	ח	ט	י	ך	כ	ל	ם	מ	ן
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Page34 WCP1256[Arabic]

Code page-1256															
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8_	€	پ	‚	ƒ	„	…	†	‡	ˆ	‰	ٹ	‹	Œ	چ	ژ	ڈ
9_	گ	`	'	"	"	•	–	—	ک	™	ڑ	›	œ	ZWNJ	ZWJ	ں
A_	NBSP	،	¢	£	¤	¥	¦	§	¨	©	ھ	«	¬	SHY	®	¯
B_	°	±	²	³	´	µ	¶	·	¸	¹	؛	»	¼	½	¾	؟
C_	ہ	ء	آ	أ	ؤ	إ	ئ	ا	ب	ة	ت	ث	ج	ح	خ	د
D_	ذ	ر	ز	س	ش	ص	ض	×	ط	ظ	ع	غ	ـ	ف	ق	ك
E_	à	ل	â	م	ن	ه	و	ç	è	é	ê	ë	ى	ي	î	ï
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Page35 WCP1258[Vietnam]

Code page-1258															
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8_	€		‚	ƒ	„	…	†	‡	ˆ	‰		‹	Œ			
9_		`	'	"	"	•	–	—	˜	™		›	œ			Ÿ
A_	NBSP	¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	SHY	®	¯
B_	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C_	À	Á	Â	Ă	Ä	Å	Æ	Ç	È	É	Ê	Ë	`	Í	Î	Ï

D_	Ð	Ñ	˒	Ó	Ô	Ơ	Ö	×	Ø	Ù	Ú	Û	Ü	Ư	˜	ß
E_	à	á	â	ă	ä	å	æ	ç	è	é	ê	ë	´	í	î	ï
F_	đ	ñ	.	ó	ô	ơ	ö	÷	ø	ù	ú	û	ü	ư	đ̲	ÿ

Page36 ISO-8859-2 [Latin 2]

Code page-8859-2															
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8_																
9_																
A_	NBSP	Ą	˘	Ł	¤	Ľ	Ś	§	¨	Š	Ş	Ť	Ź	SHY	Ž	Ż
B_	°	ą	˛	ł	´	ľ	ś	ˇ	¸	š	ş	ť	ź	˝	ž	ż
C_	Ŕ	Á	Â	Ă	Ä	Ĺ	Ć	Ç	Č	É	Ę	Ë	Ě	Í	Î	Ď
D_	Đ	Ń	Ň	Ó	Ô	Ő	Ö	×	Ř	Ů	Ú	Ű	Ü	Ý	Ţ	ß
E_	ŕ	á	â	ă	ä	ĺ	ć	ç	č	é	ę	ë	ě	í	î	ď
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Page37 ISO-8859-3 [Latin 3]

Code page-8859-3															
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9_																
A_	NBSP	Ħ	˘	£	¤		Ĥ	§	¨	İ	Ş	Ğ	Ĵ	SHY		Ż
B_	°	ħ	²	³	´	µ	ĥ	·	¸	ı	ş	ğ	ĵ	½		ż
C_	À	Á	Â		Ä	Ċ	Ĉ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D_		Ñ	Ò	Ó	Ô	Ġ	Ö	×	Ĝ	Ù	Ú	Û	Ü	Ŭ	Ŝ	ß
E_	à	á	â		ä	ċ	ĉ	ç	è	é	ê	ë	ì	í	î	ï

| F_ | | ñ | ò | ó | ô | ġ | ö | ÷ | ĝ | ù | ú | û | ü | ŭ | ŝ | · |

Page38 ISO-8859-4[Baltic]

Code page-8859-4																
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9_																
A_	NBSP	Ą	ĸ	Ŗ	¤	Ĩ	Ļ	§	¨	Š	Ē	Ģ	Ŧ	SHY	Ž	‾
B_	°	ą	˛	ŗ	´	ĩ	ļ	ˇ	¸	š	ē	ġ	ŧ	Ŋ	ž	ŋ
C_	Ā	Á	Â	Ã	Ä	Å	Æ	Į	Č	É	Ę	Ë	Ė	Í	Î	Ī
D_	Đ	Ņ	Ō	Ķ	Ô	Õ	Ö	×	Ø	Ų	Ú	Û	Ü	Ũ	Ū	ß
E_	ā	á	â	ã	ä	å	æ	į	č	é	ę	ë	ė	í	î	ī
F_	đ	ņ	ō	ķ	ô	õ	ö	÷	ø	ų	ú	û	ü	ũ	ū	·

Page39 ISO-8859-5[**Cyrillic**]

Code page-8859-5																
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_	NBSP	Ё	Ђ	Ѓ	Є	Ѕ	І	Ї	Ј	Љ	Њ	Ћ	Ќ	SHY	Ў	Џ
B_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
C_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
D_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
E_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я

F_	№	ё	ђ	ѓ	є	ѕ	і	ї	ј	љ	њ	ћ	ќ	§	ў	џ

Page40 ISO-8859-6[Arabic]

Code page-8859-6																
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8_																
9_																
A_	NBSP				¤									،	SHY	
B_												؛				؟
C_		ء	آ	أ	ؤ	إ	ئ	ا	ب	ة	ت	ث	ج	ح	خ	د
D_	ذ	ر	ز	س	ش	ص	ض	ط	ظ	ع	غ					
E_	ـ	ف	ق	ك	ل	م	ن	ه	و	ى	ي	◌ً	◌ٌ	◌ٍ	◌َ	◌ُ
F_	◌ِ	◌ّ	◌ْ													

Page41 ISO-8859-7[Greek]

Code page-8859-7																
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8_																
9_																
A_	NBSP	‘	’	£	€	₯	¦	§	¨	©	ͺ	«	¬	SHY		―
B_	°	±	²	³	΄	΅	Ά	·	Έ	Ή	Ί	»	Ό	½	Ύ	Ώ
C_	ΐ	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
D_	Π	Ρ		Σ	Τ	Υ	Φ	Χ	Ψ	Ω	Ϊ	Ϋ	ά	έ	ή	ί
E_	ΰ	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
F_	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ϊ	ϋ	ό	ύ	ώ	

Page42ISO-8859-8〔**Hebrew**〕

Code page-8859-8															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_	NBSP		¢	£	¤	¥	¦	§	¨	©	×	≪	¬	SHY	®	‾
B_	°	±	2	3	´	µ	¶	·	¸	1	÷	≫	¼	½	¾	
C_																
D_																═
E_	א	ב	ג	ד	ה	ו	ז	ח	ט	י	ך	כ	ל	ם	מ	ן
F_	נ	ס	ע	ף	פ	ץ	צ	ק	ר	ש	ת			LRM	RLM	

Page43 ISO-8859-9〔**Turkish**〕

Code page-8859-9															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_	NBSP	¡	¢	£	¤	¥	¦	§	¨	©	ª	≪	¬	SHY	®	‾
B_	°	±	2	3	´	µ	¶	·	¸	1	º	≫	¼	½	¾	¿
C_	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D_	Ğ	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	İ	Ş	ß
E_	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F_	ğ	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ı	ş	ÿ

Page44 ISO-8859-15 **[Latin 3]**

Code page-8859-15															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_																
9_																
A_	NBSP	¡	¢	£	€	¥	Š	§	š	©	ª	«	¬	SHY	®	‾
B_	°	±	²	³	Ž	µ	¶	·	ž	¹	º	»	Œ	œ	Ÿ	¿
C_	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D_	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
E_	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F_	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Page45 Thai2

Page46 CP856()

Code page 856															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
C_	└	┴	┬	├	─	┼	╡	║	╚	╔	╩	╦	╠	═	╬	┐
D_	░	▒	▓	│	┤	№	§	╗	╝	┘	┌	█	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	·	√	ⁿ	²	■	NBSP

Page47 Cp874

Code page 874															
	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	€					…										
9_		'	'	"	"	•	–	—								
A_		ก	ข	ฃ	ค	ฅ	ฆ	ง	จ	ฉ	ช	ซ	ฌ	ญ	ฎ	ฏ
B_	ฐ	ฑ	ฒ	ณ	ด	ต	ถ	ท	ธ	น	บ	ป	ผ	ฝ	พ	ฟ
C_	ภ	ม	ย	ร	ฤ	ล	ฦ	ว	ศ	ษ	ส	ห	ฬ	อ	ฮ	ฯ
D_	ะ	ั	า	ำ	ิ	ี	ึ	ื	ุ	ู	ฺ					฿
E_	เ	แ	โ	ใ	ไ	ๅ	ๆ	็	่	้	๊	๋	์	ํ	๎	๏
F_	๐	๑	๒	๓	๔	๕	๖	๗	๘	๙	๚	๛				NBSP

International character set:

County	ASCII Code(Hex)											
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A.	#	$	@	[	\	]	^	`	{	|	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
U.K.	£	$	@	[	\	]	^	`	{	|	}	~
Denmark Ⅰ	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain Ⅰ	Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
Japan	#	$	@	[	¥	]	^	`	{	|	}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark Ⅱ	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain Ⅱ	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú
Latin	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
Korea	#	$	@	[	₩	]	^	`	{	|	}	~
Slovenia/Croatia	#	$	Ž	Š	Đ	Ć	Č	ž	š	đ	ć	č
China	#	¥	@	[	\	]	^	`	{	|	}	~