

Customer Display 8036

Operation Manuals

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Hardware Manual

INFORMATION

Model 8036

A. Standard package:

1. Display main unit

1 pc

2. Interface cable for computer

1 pc

B. Optional accessories(USB version not support):

1. Power supply adaptor DC 12V/120VAC

2. Power supply adaptor DC 12V/230VAC

3. Power plug cable for power source

4. Interface cable for printer

C. Model Classification

8036U – USB interface

8036R – RS232 interface

This device complies with Part 15 of the FCC . Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INTRODUCTION

8036 Customer Display is an artistic design POS system peripheral device. It is for use with ECR, POS system to display the purchased prices and the amount of change to customers. Also it is capable to display the advertising message.

The major features of 8036 are:

A. Displays up to 40 characters (20 columns x 2 lines).

B. Each character (5 x 3.5mm) is easy to read.

C. The vacuum fluorescent display (VFD) provides long life, high reliability and high display quality.

D. The blue-green display color is gentle to the eyes.

E. Provides good general utilities:

User-defined message can be downloaded.

International character sets.

Advertising message running.

F. Provides an interface based on RS-232C with baud rate selectable from 600 to 38400 BPS.

G. (USB version not support) Built-in connector with Serial POS-Printers. This means that you need only one com-port to control both display and printer.

INSTALLATION

RS232 version

A. If you could get the power source DC 12V from the computer(POS system), you might use the enclosed “Power Plug Cable” pack.

1. Turn off the power of the computer(POS system).
2. Connect the power plug cable with the power source(DC 12V) inside the computer(POS system) and secure the RCA jack bracket on the rear panel of the computer(POS system).
3. Connect the RCA jack with the DC power jack on the 8036 receptacle by using the RCA plug--DC plug adaptor cable.
4. Connect the DB9(female) connector to the computer(POS system).
5. Connect the DB9(male) connector with “Interface cable for printer”(optional) to the aux-device(printer) when you need this optional printer feature.
6. Turn on the power of the computer(POS system). The display will be ON.

B. If you are using the external power-supply adaptor DC 12V(Option).

1. Turn off the power of the computer(POS system).
2. Connect the D-sub 9 pin connector to the computer(POS system).
3. Connect the power supply unit with the DC power jack on the 8036 receptacle.
4. Connect the DB9(male) connector with “Interface cable for printer”(optional) to the aux-device(printer) when you need this optional printer feature.
5. Turn on the computer(POS system) and the power supply unit. The display will be ON.

USB version

Direct plug to USB port.

PIN ASSIGNMENT(RS232 version)

A. DB-9(female) pin

Pin#	Signal
2	RXD
3	TXD
5	GROUND

B. DC power jack

Pin#	Signal
Center	+12VDC
Outer	GROUND

CHARACTER TABLES

International character code tables

The symbols from character table are for reference only.

The font of all symbols/characters may be subjected to 8036 display.

Table 1(U.S.A.)

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		Ø	@	P	`	p	€	É	á	®	Ł	μ	α	≡
1	!	1	À	Q	a	q	ü	æ	í	⌘	±	τ	β	±
2	"	2	B	R	b	r	é	Æ	ó	■	τ	π	Γ	≥
3	#	3	C	S	c	s	à	ò	ú	ı	ı	μ	π	≤
4	\$	4	D	T	d	t	ä	ö	ø	ı	ı	ı	Σ	ı
5	%	5	E	U	e	u	à	ò	ø	ı	ı	ı	€	ı
6	&	6	F	V	f	v	à	ô	æ	ı	ı	ı	μ	÷
7	'	7	G	W	g	w	ç	ù	ö	ı	ı	ı	ı	ı
8	(	8	H	X	h	x	ê	ÿ	ı	ı	ı	ı	ı	ı
9	)	9	I	Y	i	y	ë	ö	ı	ı	ı	ı	ı	ı
A	*	:	J	Z	j	z	è	Ü	ı	ı	ı	ı	ı	ı
B	+	;	K	[	k	{	ï	ç	ı	ı	ı	ı	ı	ı
C	,	<	L	\	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı
D	-	=	M	]	m	}	ı	ı	ı	ı	ı	ı	ı	ı
E	.	>	N	^	n	~	ı	ı	ı	ı	ı	ı	ı	ı
F	/	?	O	_	o		ı	ı	ı	ı	ı	ı	ı	ı

Table 2 International character difference among countries, others are as the same as Table 1.

	Country name	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	U.S.A	#	\$	@	[	\	\]	^	`	(	|	)	~
1	France	#	\$	à	°	ç	ø	^	`	é	ù	è	"
2	Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
3	U.K.	£	\$	@	[	\	\]	^	`	(	|	)	~
4	Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
5	Sweden	#	Ö	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain	£	\$	@	í	ñ	¿	^	`	¨	ñ	}	~
8	Japan	#	\$	@	[	¥	]	^	`	(	|	)	~
9	Norway	#	Ö	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11	East Europe	#	\$	@	[	\	\]	^	`	(	|	)	~
12	Russian	#	\$	@	[	\	\]	^	`	(	|	)	~
13	Hebrew	#	\$	@	[	\	\]	^	`	(	|	)	~
14	Greek	#	\$	@	[	\	\]	^	`	(	|	)	~

Table 3(Japanese)

	8	9	A	B	C	D	E	F
0		」		一	夕	三	■	T
1	|	┐	。	ア	チ	△	■	一
2	一	■	┐	イ	ツ	△	一	一
3	|	■	」	ウ	テ	モ	■	一
4	一	■	、	エ	ト	フ	+	■
5	|	■	。	オ	ナ	ユ	ノ	■
6	一	/	ヲ	カ	ニ	ヨ	レ	■
7	|	\	ア	キ	ヌ	ラ	ナ	■
8	一	▼	イ	ク	ネ	リ	■	■
9	|	▲	ウ	ケ	ノ	ル	※	▲
A	一	┐	エ	コ	ハ	レ	上	▲
B	|	上	オ	サ	ヒ	ロ	←	＝
C	ト	下	ヤ	シ	フ	ワ	↑	||
D	一	ト	ユ	ズ	ハ	ン	→	レ
E	L	+	ヨ	セ	ホ	ッ	↓	ノ
F	7	×	ツ	ソ	マ	ロ	レ	レ

Table 4(Hebrew)

	8	9	A	B	C	D	E	F
0	⌘	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	α	≡
1	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	β	±
2	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	Γ	≥
3	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	π	≤
4	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	Σ	Ⓜ
5	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	Ⓒ	Ⓜ
6	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	μ	÷
7	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	τ	Ⓢ
8	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	φ	Ⓢ
9	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	θ	.
A	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	Ω	.
B	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	Ⓢ	Ⓜ
C	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	Ⓢ	Ⓜ
D	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	Ⓢ	Ⓜ
E	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	Ⓢ	Ⓜ
F	Ⓛ	Ⓜ	Ⓐ	Ⓢ	Ⓛ	Ⓜ	Ⓢ	Ⓜ

Table 5 CodePage852 (East Europe)

	8	9	A	B	C	D	E	F
0	Š	Ć	Š	Ž	Ł	đ	ó	€
1	ü	Ł	ı	Ž	Ł	đ	ß	ˆ
2	é	ı	ó	■	τ	Đ	ó	.
3	š	š	ú	ı	ı	É	N	ˆ
4	ä	ö	Ä	ı	ı	ä	ñ	ˆ
5	ù	Ł	š	Ä	ı	N	ñ	š
6	č	ı	ž	Ä	Ä	ı	š	÷
7	š	š	ž	É	ä	ı	š	.
8	ž	š	É	š	Ł	é	Ř	ó
9	ë	ö	é	ı	ı	ı	ú	ˆ
A	ö	ü	ı	ı	ı	ı	ř	.
B	ö	ı	ž	ı	ı	■	Ö	Ü
C	ı	é	č	ı	ı	■	ý	Ř
D	ž	ı	š	ž	=	ı	ý	ř
E	Ä	×	×	ž	#	ú	ı	ı
F	č	č	×	ı	ı	■	ı	ı

Table 6(Russian)

	8	9	A	B	C	D	E	F
0	À	Á	à	⌘	Ⓕ	Ⓖ	ℙ	≡
1	Б	С	б	⌘	Ⓕ	Ⓖ	С	±
2	В	Т	в	■	τ	π	Т	≥
3	Г	У	г	Ⓕ	Ⓕ	Ⓖ	У	≤
4	Д	Ф	д	Ⓕ	Ⓕ	Ⓖ	Ф	ℙ
5	Е	Х	е	Ⓕ	Ⓕ	Ⓖ	Х	ℙ
6	Ж	Ц	ж	Ⓕ	Ⓕ	Ⓖ	Ц	÷
7	З	Ч	з	Ⓕ	Ⓕ	Ⓖ	Ч	⌘
8	И	Ш	и	Ⓕ	Ⓕ	Ⓖ	Ш	°
9	Й	Щ	й	Ⓕ	Ⓕ	Ⓖ	Щ	.
A	К	Ъ	к	Ⓕ	Ⓕ	Ⓖ	Ъ	.
B	Л	Ы	л	Ⓕ	Ⓕ	Ⓖ	Ы	ℙ
C	М	Ь	м	Ⓕ	Ⓕ	Ⓖ	Ь	ℙ
D	Н	Э	н	Ⓕ	Ⓕ	Ⓖ	Э	2
E	О	Ю	о	Ⓕ	Ⓕ	Ⓖ	Ю	.
F	П	Я	п	Ⓕ	Ⓕ	Ⓖ	Я	

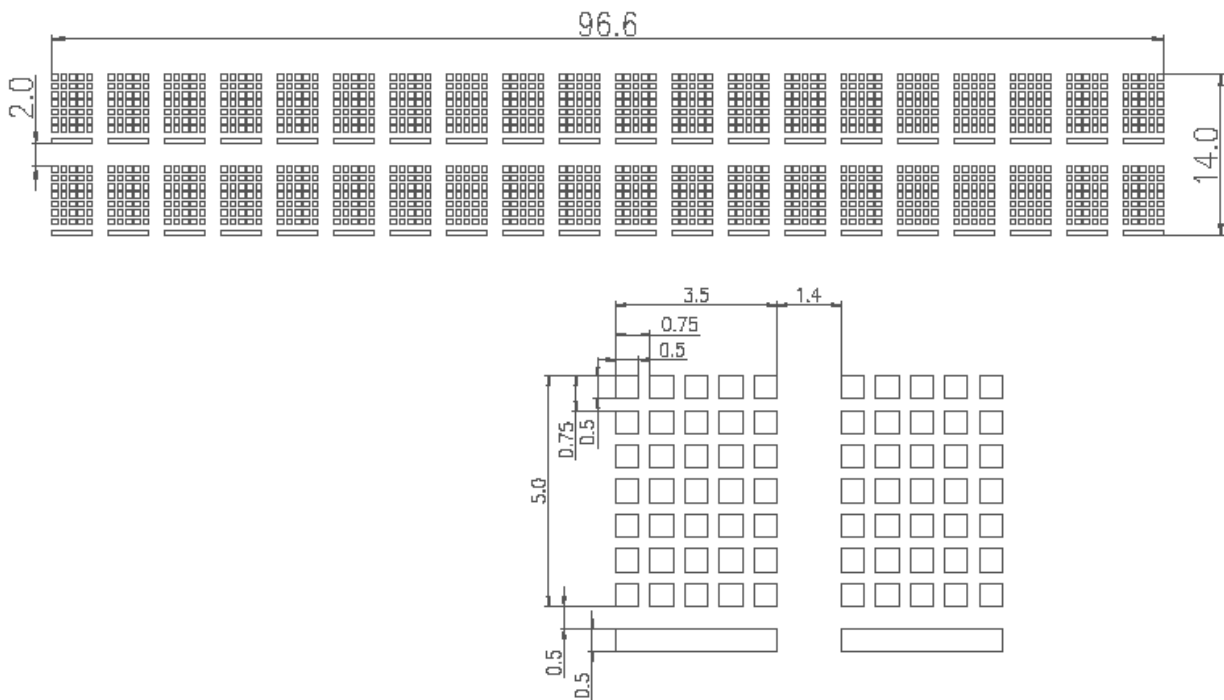
Table 7 Greek

	8	9	A	B	C	D	E	F
0	À	Á	Â	Ã	Ä	Å	Æ	Ç
1	È	É	Ê	Ë	Ì	Í	Î	Ï
2	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø
3	Ù	Ú	Û	Ü	Ý	Þ	ß	à
4	é	ê	ë	ì	í	î	ï	ð
5	ñ	ò	ó	ô	õ	ö	÷	ø
6	ù	ú	û	ü	ý	þ	ß	à
7	á	â	ã	ä	å	æ	ç	è
8	é	ê	ë	ì	í	î	ï	ð
9	ñ	ò	ó	ô	õ	ö	÷	ø
A	ù	ú	û	ü	ý	þ	ß	à
B	á	â	ã	ä	å	æ	ç	è
C	é	ê	ë	ì	í	î	ï	ð
D	ñ	ò	ó	ô	õ	ö	÷	ø
E	ù	ú	û	ü	ý	þ	ß	à
F	á	â	ã	ä	å	æ	ç	è

SPECIFICATIONS

A. Display

- Vacuum fluorescent display (VFD).
- Number of characters: 40 (20 columns x 2 lines).
- Display color: Blue-green.
- Character font: 5 x 7 dot matrix.
- Character size: H5 x W3.5 mm.
- Character type: Alpha numeric: 95
International characters: 32
Graphic characters: 128
- Power consumption: 200mA Max. 12VDC(RS232 version)
500mA Max. 5VDC(USB version)



B. Dimension

- Unit: **H240 * W175 * D35mm**.
- Weight: Approx. 875 grams.

C. Parallel interface for printer (RS232 version only)

- Display interface: RS-232C.
- Data transmission method: Serial

D. Reliability: MTBF 20,000 hours (power on hour)

E. Operating environment

- Temperature: 5 to 45 degree C.
- Humidity: 10 to 85% relative

F. Storage environment

- Temperature: -10 to 50 degree C.
- Humidity: 10 to 90% relative.

Firmware Manual

SOFTWARE CONTROL: COMMAND GROUP

Command symbols definitions are as below:

EOT	04H
SOH	01H
ETB	17H
ESC	1BH
US	1FH
ACK	06H
NACK	15H

8036 supports two command groups – Command group (Group A) and ESC command group (Group B). The two command groups can't be used together. The default setting is Command Group A. When power on, 8036 will follow the command group you used last time. During operation, you can use command, ESC-Z to switch to another command set. Then the command group setting will be changed since next power on.

Group A. (command sets)

A1. Package Command Format

EOT	SOH	COMMAND	ETB
------------	------------	----------------	------------

Command List

Command	Hexadecimal	Description
B	42H	Set baud rate and parity
I	49H	Select international character set
S	53H	Save the current view message
P	50H	Set cursor position
C	43H	Clear display message
D	44H	Display the saved DEMO message
T	54H	Transmit the current view message to computer
V	56H	Query the version of firmware
O	4FH	Set stay-message or running-message on display

Note: 8036 will reply, after receive these commands.

A2. ESC Command Format

ESC	COMMAND
-----	---------

Command List

Command	Hexadecimal	Description
G	47H	Enable AUX-DEVICE (Printer)
S	53H	Disable AUX-DEVICE (Printer)
Z	5AH	Switch to command GROUP B

Group B.

B1. ESC Command Format

ESC	COMMAND
-----	---------

Command List

Command	Hexadecimal	Description
=	3DH	Selection of peripheral device
@	40H	Initialization of a display
R	52H	Selection of an international character set
t	74H	Selection of a character code table
Z	5AH	Switch to Command GROUP B

B2. US Command Format

US	COMMAND
----	---------

Command List

Command	Hexadecimal	Description
MD1	01H	Specify over-write mode
MD2	02H	Specify vertical scroll mode
MD3	03H	Specify horizontal scroll mode
C	43H	Specify / Release of a cursor Display
E	45H	Blink display screen
r	72H	Reversed character setting / cancel
@	40H	Execute self-test
LF	0AH	Move cursor up
CR	0DH	Move cursor to right-most position
B	42H	Move cursor to bottom position
\$	24H	Move cursor to specified position

B3. Control Command Format

Command List

Symbol	Hexadecimal	Description
BS	08H	Move cursor left
HT	09H	Move cursor right
LF	0AH	Move cursor down
HOM	0BH	Move cursor to home position
CR	0DH	Move cursor to left-most position
CLR	0CH	Clear screen
CAN	18H	Clear cursor line

A. Group A Command Instructions (command sets)

A1-1. Set Communication Baud-Rate & Parity

ASCII	EOT	SOH	B	baudrate	parity	ETB
HEX	04H	01H	42H	n	p	17H

[Description]

You can set communication parameter by this command.

[Parameter]

baudrate	38400	600	1200	2400	4800	9600	19200
n	36H	35H	34H	33H	32H	31H	30H

p='N' means "non-parity, 8 data bits, 1 stop bit"

p='O' means "odd-parity, 7 data bits, 1 stop bit"

p='E' means "even-parity, 7 data its, 1 stop bit"

p='o' means "odd-parity, 8 data bits, 1 stop bit"

p='e' means "even-parity, 8 data its, 1 stop bit"

[Reply] 8036 reply **ACK**(06H) when correct or **NACK**(15H) when failed.

[Default] **baudrate**=19200, **non**-parity, **8** data bits, **1** stop bit.

A1-2. Select international code table

ASCII	EOT	SOH	I	country	ETB
HEX	04H	01H	49H	n	17H

[Description]

You can set one of international code table as character table for displaying. The same position in different international code table may be different. So, please refer **6. CHARACTER TABLES** to select correct code table.

[Parameters]

country	U.S.A.	France	Germany	U.K.	Denmark I	Sweden	Italy	Spain
n	30H	31H	32H	33H	34H	35H	36H	37H
country	Japan	Norway	Denmark II	East Europe	Russian	Hebrew	Greek	
n	38H	39H	3AH	3BH	3CH	3DH	3EH	

[Reply] 8036 reply **ACK**(06H) when correct or **NACK**(15H) when failed.

[Default] **country**=U.S.A.

A1-3. Save the current view-message as advertising message

ASCII	EOT	SOH	S	layer	ETB
HEX	04H	01H	53H	$31H \leq n \leq 33H$	17H

[Description]

8036 is capable to save 3 layers of advertising messages. Each layer can have 40 characters. This commands save the current view-message as one of 3 layers. 8036 demonstrate these layer-messages when execute **A1-6** command.

[Parameters]

n=31H, means the current view-message saved to layer1 advertising message

n=32H, means the current view-message saved to layer2 advertising message

n=33H, means the current view-message saved to layer3 advertising message

[Reply] 8036 reply **ACK**(06H) when correct or **NACK**(15H) when failed.

A1-4. Set cursor position

ASCII	EOT	SOH	P	position	ETB
HEX	04H	01H	50H	$31H \leq p \leq 58H$	17H

[Description]

You can locate cursor by this command. The position is regarded as linear.

[Parameters] The cursor can be set to the position from 1 to 40.

Position 1(**p=31H**) means the upper-left corner position.

Position 20(**p=44H**) means the upper-right corner position.

Position 21(**p=45H**) means the lower-left corner position.

Position 40(**p=58H**) means the lower-right corner position.

[Reply] 8036 reply **ACK**(06H) when correct or **NACK**(15H) when failed.

A1-5. Clear specific display area

ASCII	EOT	SOH	C	start position	end position	ETB
HEX	04H	01H	43H	$31H \leq p1 \leq 58H$	$31H \leq p2 \leq 58H$	17H

[Description]

Specific part of the current view messages can be cleared by this command.

[Parameters] **p1** and **p2** range same as **A1-4 Parameters**.

[Reply] 8036 reply **ACK**(06H) when correct or **NACK**(15H) when failed.

A1-6. DEMO the saved advertising message

ASCII	EOT	SOH	D	layer	mode	ETB
HEX	04H	01H	44H	$31H \leq l \leq 37H$	$31H \leq m \leq 37H$	17H

[Description]

1. There are three layers of saved advertising messages as described on **A1-3**.
2. There are three modes of display.
mode1 is running the saved messages from right to left, which is a horizontal scroll mode.
mode2 is running the saved messages from the lower line to the upper line, which is a vertical scroll mode.
mode3 is displaying the saved messages with blinking.
3. For display layers,
l=31 H means display the message saved on layer1.
l=32H means display the message saved on layer2.

l=33H means display the message saved on layer3.

l=34H means display the two messages saved on layer1 + layer2.

l=35H means display the two messages saved on layer1 + layer3.

l=36H means display the two messages saved on layer2 + layer3.

l=37H means display all the three messages saved on layer1+layer2+ layer3.

4. For display modes,

m=31 H means display the message with mode1. (horizontal scroll mode)

m=32H means display the message with mode2. (vertical scroll mode)

m=33H means display the message with mode3. (blinking mode).

m=34H means display the message with both mode1 + mode2.

m=35H means display the message with both mode1 + mode3.

m=36H means display the message with both mode2 + mode3.

m=37H means display the message with all modes, mode1+mode2+mode3. For this Demo display function, you must have saved the messages by “save the current view message” previously. For example, **l=37H** for displaying layers and **m=34H** for displaying modes, 8036 would display all the three messages saved on layer1 + layer2 + layer3 with both mode1 + mode2 displaying modes.

5. Any new message from the computer would stop this Demo display function and 8036 would display that new message from the computer.

[Reply] 8036 reply **ACK(06H)** when correct or **NACK(15H)** when failed.

A1-7. Transmit the current view message to computer

ASCII	EOT	SOH	T	ETB
HEX	04H	01H	54H	17H

[Description]

You can get the current view message (40 characters) from 8036.

[Reply] The 8036 reply current view message by following format

ASCII	SOH	current view message	ETB
HEX	01H	XXXX(40 characters)	17H

or **NACK(15H)** when fail.

A1-8. Query the version of firmware

ASCII	EOT	SOH	V	ETB
HEX	04H	01H	54H	17H

[Description] You can get the version of firmware.

[Reply] The 8036 reply current version of firmware

A1-9. Set stay-message or running-message on display

ASCII	EOT	SOH	O	n	ETB
-------	-----	-----	---	---	-----

HEX	04H	01H	4FH	30H/31H	17H
------------	-----	-----	-----	---------	-----

[Description] **n**=30H, The 8036 will display stay-message from saved layer after you power on.

n=31H, The 8036 will display running-message from saved layer after you power on.

[Reply] 8036 reply **ACK**(06H) when correct or **NACK**(15H) when failed.

A2-1. Enable AUX-DEVICE (printer)

ASCII	ESC	G
HEX	1BH	47H

[Description]

You can enable the aux-device (printer). After execute this command, all messages will pass through aux-device, and 8036 doesn't care it. Besides **B1-1 & B1-2**.

A2-2. Disable AUX-DEVICE (printer)

ASCII	ESC	S
HEX	1BH	53H

[Description]

You can disable the aux-device (printer). After execute this command, all messages will not pass through aux-device

A2-3. Switch to command GROUP B

ASCII	ESC	S	1
HEX	1BH	5AH	31H

[Description]

The above command format is required to switch Command Group A to Group B.

B. Group B Command Instructions

B1-1. Selection of peripheral device(Aux-device)

ASCII	ESC	=	peripheral
HEX	1BH	3DH	n

[Description]

1. When the aux-device(printer) is selected, all the data from the host computer is transmitted to the aux-device via the display.
2. When the display is selected, all the data from the host computer is processed internally in the display. And no data is transmitted to the aux-device.
3. When both the aux-device and display are selected, all the data from the host computer is processed internally in the display and transmitted to the aux-device simultaneously.
4. Whether or not the value of n is within range, a command code is sent to the aux-device. Therefore, when display is selected by <ESC=2>, this command sends <1BH> <3DH> <02H> to the aux-device and stops transmitting data to aux-device. Later, when the aux-device is selected by <ESC=1>, this command sends command code <1BH> <3DH> <01H> to the aux-device and starts transmitting data to the aux-device.
5. The same procedure is performed for <ESC=3> after executing <ESC=2>.
6. If <ESC=2> is received again after selecting display by executing <ESC=2>, the 3-byte data is executed only inside of the display, and nothing is sent to aux-device.
7. If the value n in <ESC=n> after executing <ESC=2> is out of range, nothing is sent to the aux-device.

[Parameters]

n	aux-device	display
1	ON	OFF
2	OFF	ON
3	ON	ON

n	peripheral device	1	0
Bit0	aux-device (printer)	selected	cancelled
Bit1	Display	selected	cancelled
Bit2~Bit7	Reserved	X	X

B1-2. Initialization of a display

ASCII	ESC	@
HEX	1BH	40H

[Description] After execute this command, 8036 will be initialized, the cursor moves to the home position.

B1-3. Selection of an international character set

ASCII	ESC	R	country
HEX	1BH	52H	00H ≤ n ≤ 0EH

[Description] please see **A1-2** command.

[Parameters]

country	U.S.A.	France	Germany	U.K.	Denmark I	Sweden	Italy	Spain
n	00H	01H	02H	03H	04H	05H	06H	07H
country	Japan	Norway	Denmark II	SpainII	Latin America	Korea		
n	08H	09H	0AH	0BH	0CH	0DH		

B1-4. Selection of a character code table

ASCII	ESC	t	Page
HEX	1BH	74H	n

[Description]

This command selects a **Page n** from the character code table as below. The alphanumeric characters (20H to 7FH) are the same for each page. But the graphic characters (80H to FFH) are different on each page. The default setting is **Page 0**.

[Parameters]

n	Character code table
0	Page 0 (PC437 (U.S.A., standard Europe)) (see Table1)
1	Page 1 (Katakana) (see Table 3)
14	Page 14 (Greek) (see Table 7)

Others of **Page n** are the same as **Page 0**.

B1-5. Switch to command GROUP A

ASCII	ESC	S	0
HEX	1BH	5AH	30H

[Description]

The above command format is required to switch command Group B to Group A.

B2-1. Specify over-writing mode

ASCII	US	MD1
HEX	1FH	01H

[Description] Specify the overwrite mode as the screen display mode.

B2-2. Specify vertical scroll mode

ASCII	US	MD2
HEX	1FH	02H

[Description] Specify the vertical scroll mode as the screen display mode.

B2-3. Specify horizontal scroll mode

ASCII	US	MD3
HEX	1FH	03H

[Description] Specify horizontal scroll mode as the screen display mode.

B2-4. Specify and release of a cursor displaying

ASCII	US	C	value
HEX	1FH	43H	n

[Description] Specify a cursor displaying or release.

A cursor displaying is specified if **n**= 01H or 31H.

A cursor displaying is cancelled if **n**= 00H or 30H.

B2-5. Blink display screen

ASCII	US	E	value
HEX	1FH	45H	n

[Description]

You can control blink speed by this command. The blink time is the shortest if n=01H, and the longest if n=FEH. The 8036 will stop blinking if n=00H. The 8036 will switch the screen off if n=FFH.

B2-6. Specify and release of a reverse character

ASCII	US	r	value
HEX	1FH	72H	n

[Description]

Execute reversed character if **n**=01H or 31H or cancel if **n**=00H or 30H.

B2-7. Self Test

ASCII	US	@
HEX	1FH	40H

[Description]

8036 will execute self-test by this command. When self-test completed, cursor moves to home position and display is cleared.

B2-8. The cursor moves up

ASCII	US	LF
HEX	1FH	0AH

[Description]

The cursor moves up by one line.

When the cursor is on the upper line, this command operates differently depending on the display mode.

1. Overwrite mode:

The cursor is moved to the same column on the lower line.

2. Vertical scroll mode:

The characters displayed on the upper line are scrolled to the lower line, and the upper line is cleared. The cursor remains at the same position.

3. Horizontal scroll mode:

The cursor is not moved.

B2-9. The cursor moves to right-most position

ASCII	US	CR
HEX	1FH	0DH

[Description] The cursor moves to the right end on the same line.

B2-10. The cursor moves to bottom position

ASCII	US	B
HEX	1FH	42H

[Description]

The cursor moves to the right-end position on the lower line(bottom position).

B2-11. The cursor moves to specified position

ASCII	US	\$	column	row
HEX	1FH	24H	$01H \leq n \leq 14H$	$m=01H \text{ or } 02H$

[Description]

The cursor moves to **n**th column and **m**th row position. 8036 will ignore this command and keep same cursor position, if **n** or **m** is over the range of the screen.

B3-1. Moves cursor left

ASCII	BS
HEX	08H

[Description] The cursor moves to left position by one character.

B3-2. Moves cursor right

ASCII	HT
HEX	09H

[Description] The cursor moves to right position by one character.

B3-3. The cursor moves down

ASCII	LF
HEX	0AH

[Description]

The cursor moves down by one line.

When the cursor is on the lower line, this command operates differently depending on the display mode.

1. Overwrite mode:

The cursor is moved to the same column on the upper line.

2. Vertical scroll mode:

The characters displayed on the lower line are scrolled to the upper line, and the lower line is cleared. The cursor remains at the same position.

3. Horizontal scroll mode:

The cursor is not moved.

B3-4. The cursor moves to home position

ASCII	HOM
HEX	0BH

[Description] The cursor moves to Home position.

B3-5. The cursor moves to left-most position

ASCII	CR
HEX	0DH

[Description] The cursor moves to left end of the same line.

B3-6. Clear screen

ASCII	CLR
HEX	0CH

[Description]

Display screen is cleared. After execution command, the cursor moves to Home position.

B3-7. Clear cursor line

ASCII	CAN
HEX	18H

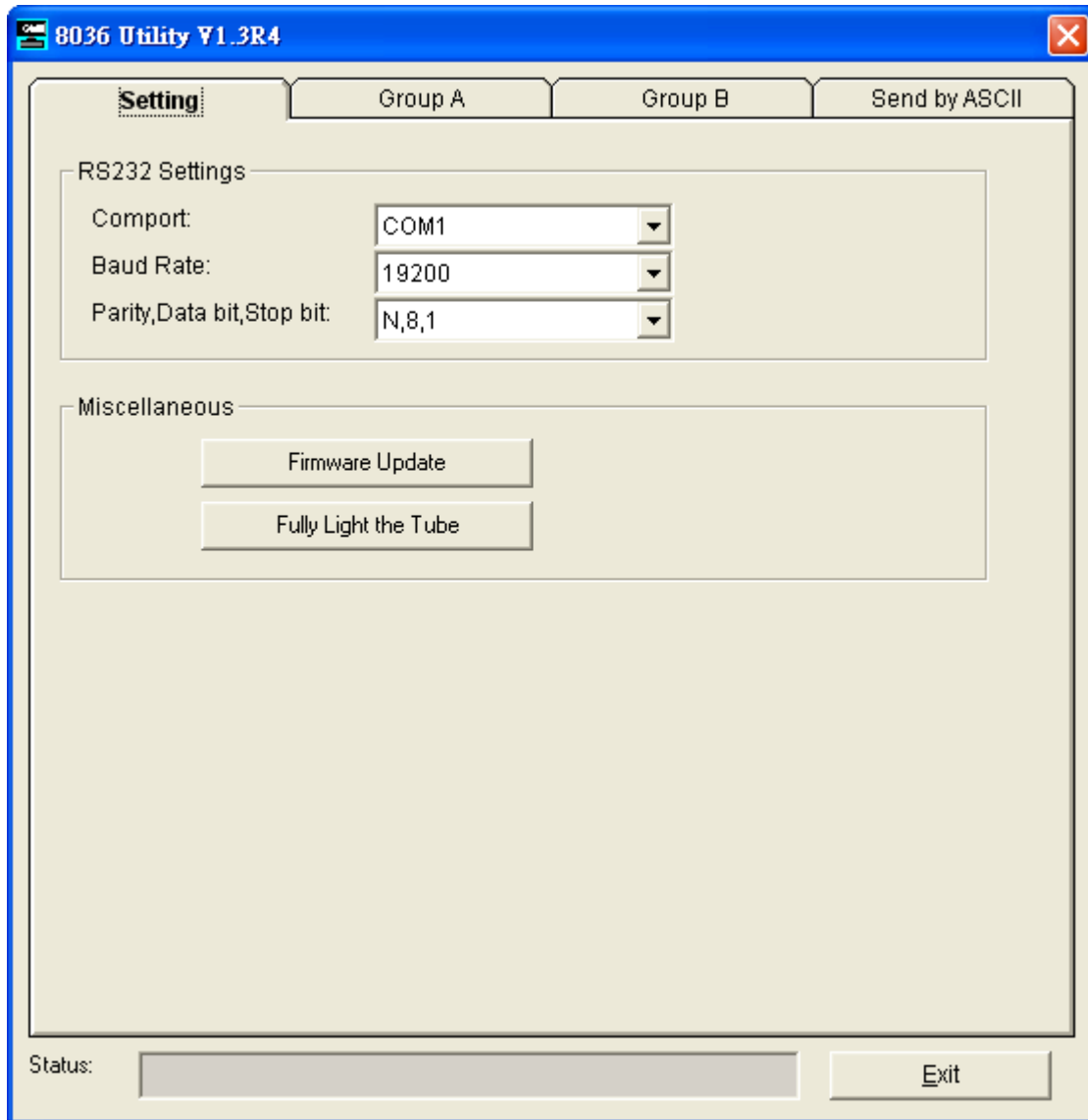
[Description]

Clear the line containing the cursor. After executing this command, the cursor moves to the left-end position of the line.

Software Manual

Instruction of Demo Software

- A. Please put demo disc and install the demo software as instruction.
- B. After installation, you can run program under your specified program group.
- C. While you execute it, the first page show as the below figure.



Please check the "RS232 Settings", these communication parameters must be same as the 8036 parameters. If anyone is different, 8036 will not display correctly.

- D. When 8036 communication parameters are as the same as your computer, you can control the 8036 via your computer. So, please select the “Group A” tabbed page. You will see the window as the below figure. Please refer command Group A. It shows all on this page

The screenshot shows the '8036 Utility V1.3R4' window with the 'Group A' tab selected. The window contains various settings for controlling the 8036 device. The settings are organized into a grid with labels on the left and controls on the right. The controls include text boxes, dropdown menus, and buttons. The 'Status' bar at the bottom is empty, and the 'Exit' button is visible.

Setting	Group A	Group B	Send by ASCII
Firmware Version :	<input type="text"/>		<input type="button" value="GetVersion"/>
Change the DSP Baud-Rate & Parity,Data bit,Stop bit:	<input type="text" value="38400"/> <input type="text" value="N,8,1"/>		<input type="button" value="Set"/>
International Code:	<input type="text" value="30- U.S.A"/>		<input type="button" value="Set"/>
Save the Current View Message (Layer):	<input type="text" value="1"/>		<input type="button" value="Set"/>
Set Cursor	<input type="text" value="1"/>		<input type="button" value="Set"/>
Clear Display	From: <input type="text" value="1"/> To: <input type="text" value="1"/>		<input type="button" value="Set"/>
Display the Saved Demo	Layer: <input type="text" value="Layer 1"/> Mode: <input type="text" value="Mode 1 (Horizontal Scroll)"/>		<input type="button" value="Set"/>
Show Saved Message after Reboot Mode :	<input type="text" value="Stay"/>		<input type="button" value="Set"/>
Peripheral Device:	<input type="text" value="Printer ON"/>		<input type="button" value="Set"/>
Get/Send Message:	<input type="text"/>		<input type="button" value="Send"/> <input type="button" value="Get"/>
			<input type="button" value="Switch to Group B Command"/>

Status:

E. The Group B tab implements the Group B command set.

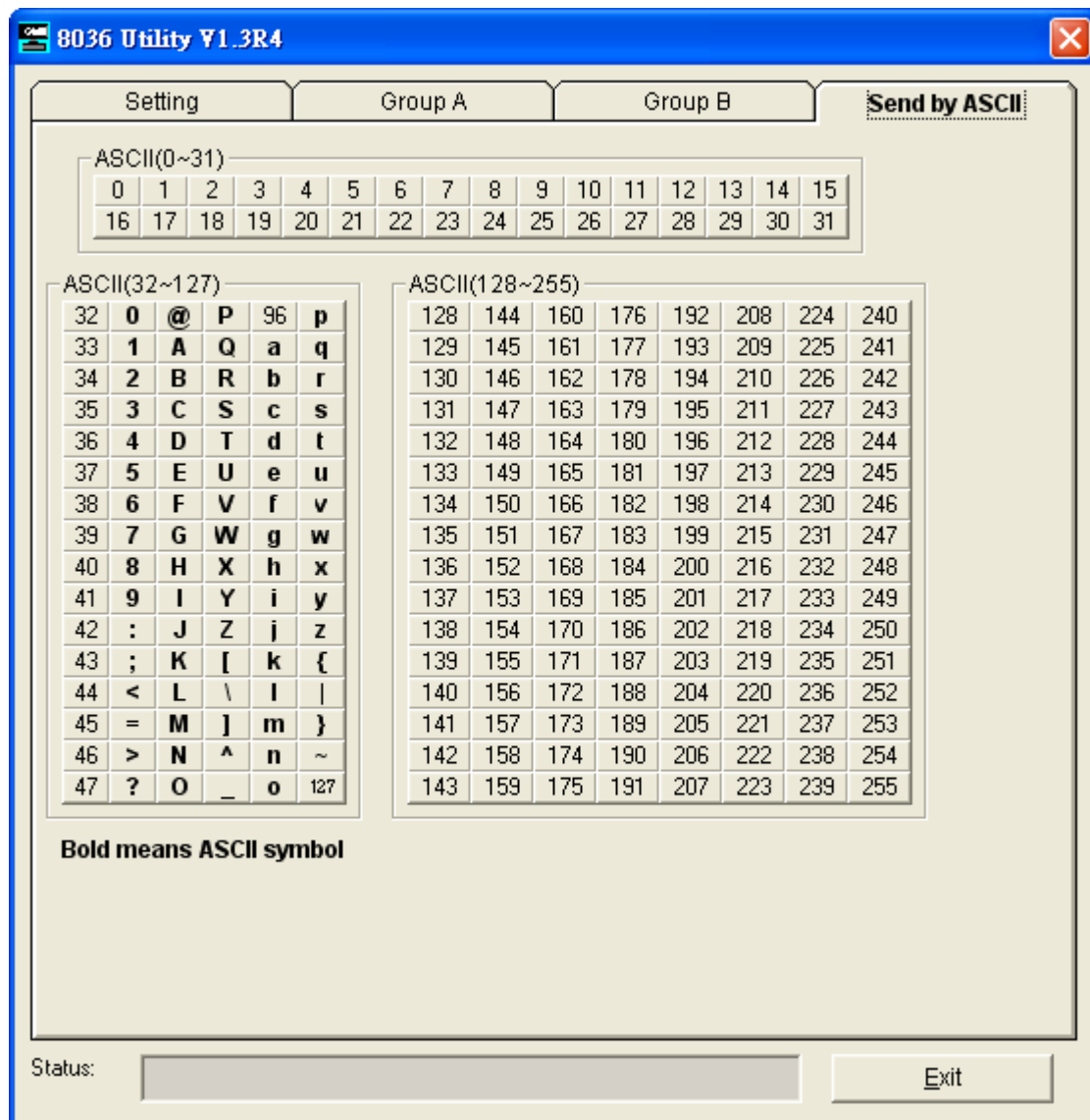
The screenshot displays the '8036 Utility V1.3R4' window with the 'Group B' tab selected. The interface is divided into several sections:

- Setting**: Includes tabs for 'Setting', 'Group A', 'Group B' (active), and 'Send by ASCII'.
- Operation**: Contains dropdown menus for 'Mode' (set to 'over-write'), 'National' (set to 'U.S.A'), and 'Expand' (set to 'ignore Expand'). Each dropdown has a 'Set' button. There is also a 'Blink' checkbox and a 'Set' button.
- Cursor control**: Features a home icon, 'CR' and 'US B' buttons, and a directional pad. Below this is a 'Set Position(coordinate)' section with 'row' and 'column' dropdowns (both set to '1') and a 'Position' button.
- Message**: A text input field with a 'Send' button.
- Peripheral**: A 'Device' dropdown menu set to 'display'.
- Buttons**: A grid of buttons including 'Initialize', 'reverse', 'CLR', 'SelfTest', 'cursor on', and 'CAN'.
- Footer**: A 'Status:' label followed by a status bar and an 'Exit' button.

A 'Switch to Group A Command' button is located at the bottom center of the main panel.

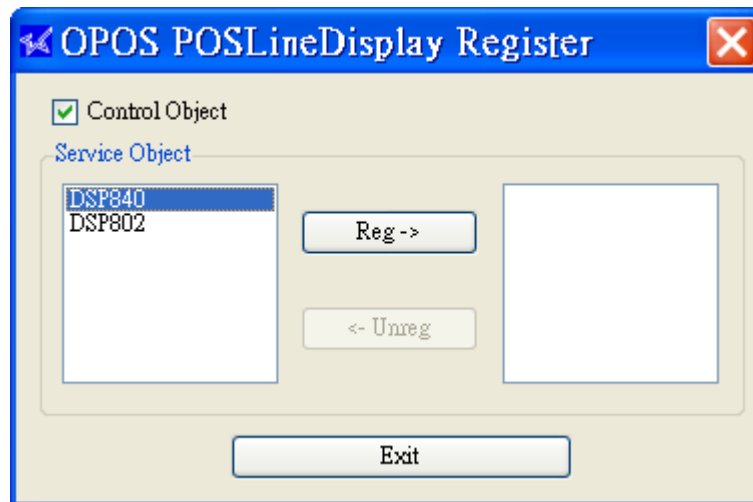
F. You can press ASCII code on the “Send by ASCII” tabbed page

This function let you try the command set directly.

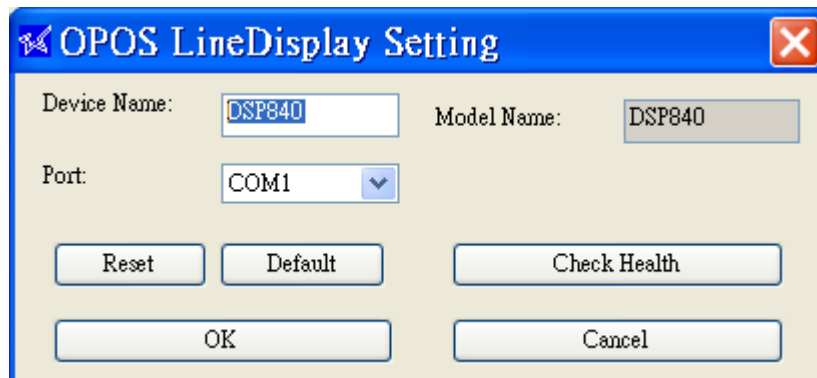


OPOS Register

- A. Execute the “OPOS POSLineDisplay Register” Software.
- B. If you want execute “POSLineDisplayTest” Software, the “Control Object” must be selected.
- C. Select a device model form model name list (left list).



- D. Press the “Reg - >” button to show the OPOS Line Display Setting window.



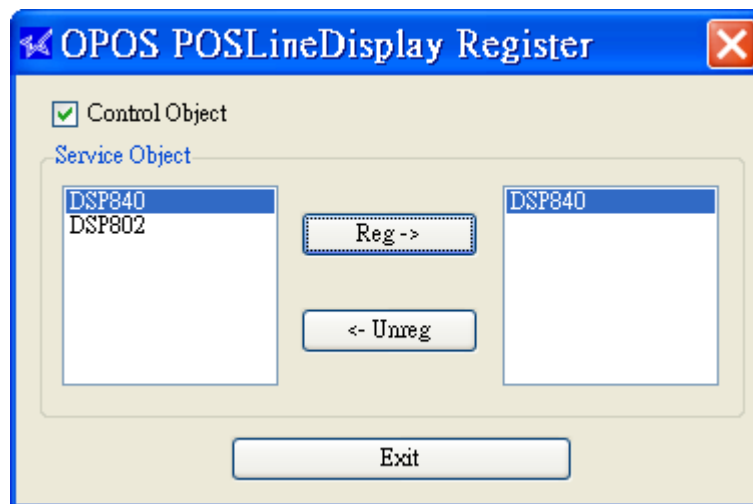
- E. The device name can define by user.
- F. Select a com port used to connect the device to the computer.
- G. Press the “Reset” button, the device name and port can reset value.
- H. Press the “Default” button, the device name and port can set default value.
- I. Press the “Check Health” button, made check health status of the device to connect with computer.
 - The SUCCESS message dialog will be display, when connection is health.



- The ERR_TIMEOUT message dialog will be display, when connection is failure.



- J. Press "Cancel" button, cancel the device register.
- K. Press "OK" button, the device register is completed.
- L. You could also double click device name from device name list (right list), then modify device register setting.
- M. Press "Exit" button, close "OPOS POSLineDisplay Register".



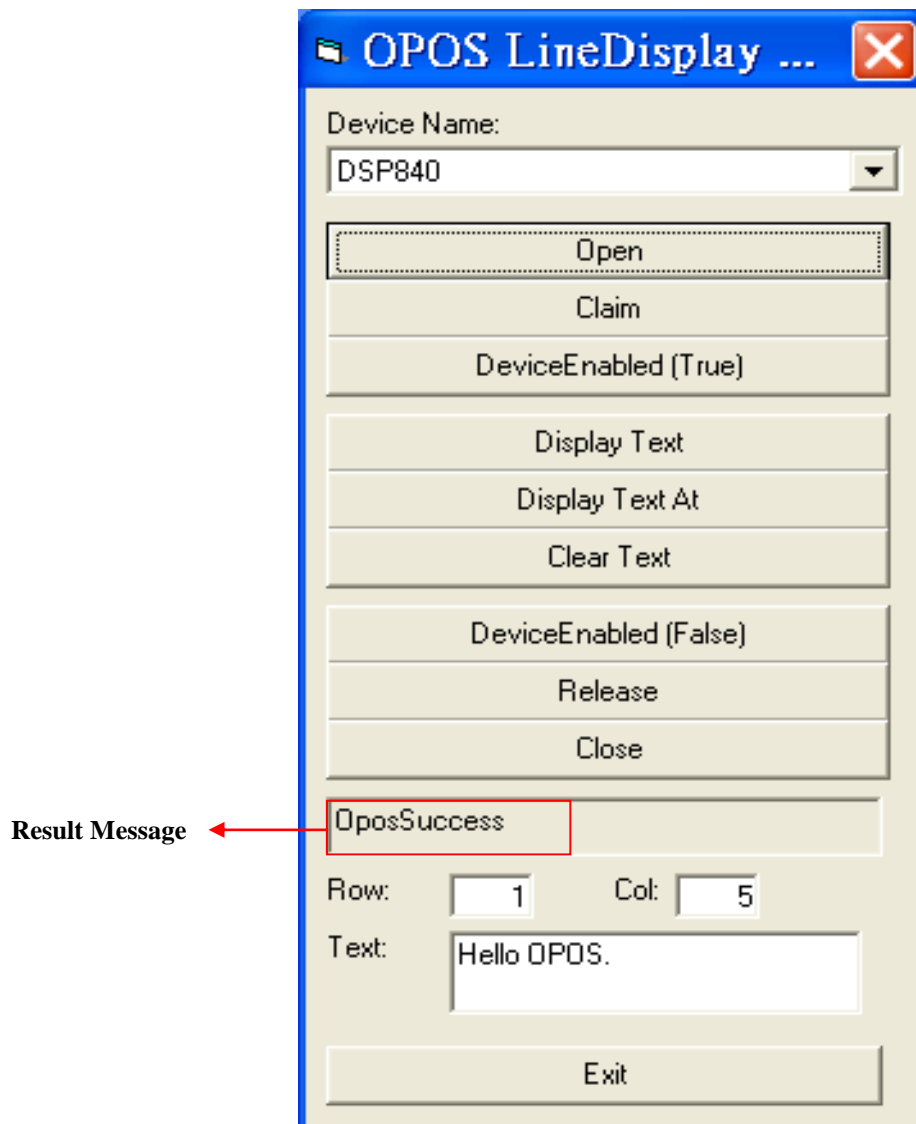
OPOS Tester

- A. Execute the “POSLineDisplayTest” Software.
- B. Select a Device Name.

The screenshot shows a Windows-style application window titled "OPOS LineDisplay ...". The interface is organized into several sections. At the top, there is a "Device Name:" label followed by a dropdown menu currently displaying "DSP840". Below this, there are three buttons: "Open", "Claim", and "DeviceEnabled (True)". The next section contains three buttons: "Display Text", "Display Text At", and "Clear Text". This is followed by another set of three buttons: "DeviceEnabled (False)", "Release", and "Close". Below these buttons is a large, empty rectangular text area. At the bottom of the window, there are two small input fields labeled "Row:" (containing the number 1) and "Col:" (containing the number 5). Below these is a larger text input field labeled "Text:" containing the text "Hello OPOS.". Finally, at the very bottom, there is an "Exit" button.

C. Start OPOS Test.

- step1. Press “Open” button, Open Control Object.
- step2. Press “Claim” button, Exclusive access to device.
- step3. Press “DeviceEnabled(True)” button, Device will be put into operational state.



D. Operation “POSLineDisplayTest”

- Press “Display Text” button, Transmit the current Text message to display.
- Press “Display Text At” button, Transmit the current Text message to Row and Col position in display.
- Press “Clear Text” button, Clear specific display area.

E. Close “POSLineDisplayTest”

- step1. Press “DeviceEnabled(False)” button, Device will be put into non- operational state.
- step2. Press “Release” button, Release the device to share it with another device control object.
- step3. Press “Close” button, if application finishes using the device, it should call the close.