

BIXOLON

Application Programming Guide

OPOS Driver

Ver. 3.01

BCD-1000 / BCD-1100

BCD-2000 / BCD-3000

<http://www.bixolon.com>

Introduction

This manual is a manual about how to set and configure device and to develop applications to use BIXOLON LineDisplay with BIXOLON OPOS driver.

Before use BIXOLON LineDisplay, set and configure LineDisplay by using BIXOLON OPOS driver Setup Utility.

Throughout this manual, "OLE for Retail POS" is called "OPOS".

Throughout this manual, "Unified for Retail POS" is called "UPOS".

Further Source

OLE for Retail POS committee available from <http://monroecs.com/opos.htm>

Driver Update from <http://www.bixolon.com>

We at BIXOLON maintain ongoing efforts to enhance and upgrade the functions and quality of all our products. In following, product specifications and/or user manual content may be changed without prior notice.

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1. Development environment

1-1 Communication Configuration

- Communication Configuration for serial interface.

Display Model	Baud Rate	rows	columns
BCD-1000	9600/19200/38400/57600/115200	2	20
BCD-1100	USB to Serial	2	20
BCD-2000	9600/19200/38400/57600/115200	4	30
BCD-3000	USB to Serial	2	20

**Caution or
Warning**

- Check the default communication settings for each product.
For details, refer to the user manual.

2. Properties / Methods

- This section describes the properties and methods supported by the LineDisplay device.
For more details on UPOS, refer to the UPOS 1.13 agreement.

2-1 Properties Range / Default Value

2-1-1 Capability properties setting value

Capability Property	BCD-1000/1100	BCD-2000/3000
CapBlink	DISP_CB_BLINKALL	DISP_CB_BLINKALL
CapBrightness	TRUE	FALSE
CapCharacterSet	DISP_CCS_ASCII	DISP_CCS_ASCII
CapDescriptors	TRUE	TRUE
CapHMarquee	TRUE	TRUE
CapVMarquee	FALSE	FALSE
CapICharWait	TRUE	TRUE
CapPowerReporting	OPOS_PR_STANDARD	OPOS_PR_STANDARD
CapBlinkRate	TRUE	TRUE
CapCursorType	DISP_CCT_UNDERLINE	DISP_CCT_UNDERLINE
CapCustomGlyph	TRUE	TRUE
CapReadBack	FALSE	FALSE
CapReverse	DISP_CR_REVERSEEACH	DISP_CR_REVERSEEACH
CapBitmap	FALSE	TRUE
CapMapCharacterSet	FALSE	FALSE
CapScreenMode	FALSE	FALSE
CapStatisticsReporting	FALSE	FALSE
CapUpdateStatistics	FALSE	FALSE
CapCompareFirmwareVersion	FALSE	FALSE
CapUpdateFirmware	FALSE	FALSE

2-1-2 Properties default value / range

* Brightness value range and default setting(BCD-1000/1100)

Value	Device Brightness
0~19	0%
20~39	20%
40~59	40%
60~79	60%
80-100	100% (*default)

* CharacterSetList(Code page) setting value and default setting

Model	Property Value
BCD-1000 BCD-1100	437, 850, 852, 858, 860, 863, 865, 866, 932, 988, 999, 1252, 254, 255
BCD-2000 BCD-3000	437,866,852,20(Farsi),864,857

* Other properties setting value

Property Name	BCD-1000/1100	BCD-2000	BCD-3000
DeviceWindow	4	4	4
DeviceRows	2	4	2
DeviceColumns	20	30	20
DeviceDescriptors	20	20	20
GustomGlyphList	20-7E	20-7E	20-7E
GlyphHeight	7	16	16
GlyphWidth	5	8	8
MapCharacterSet	FALSE	FALSE	FALSE
MaximumX	100	240	160
MaximumY	14	64	32
ScreenMode	0	0	0
ScreenModeList	"2x20"	"4x30"	"2x20"

3. Extended Method

- This section is to explain DirectIO method.

3-1 DirectIO Method

Parameter	Explanation	Type
Command	Output format	Long
PData	Number of output data /Output data command	Long
PString	Output data	String

3-1-1 BIXOLON OPOS DirectIO Commands Description

Command	Description
DISP_DI_OUTPUT	Print defined pString
DISP_DI_INTERNATIONAL_CHAR	Define International character set

* Command constants can be changed in the product model name inf file in the BIXOLON

OPOS Driver installation folder.

3-2 DirectIO Command

3-2-1 Direct Output

Argument	Command	DISP_DI_OUTPUT
	PData	Size of Output data
	PString	Output data
Description	Sends data without any process after checking LineDisplay status. “pString” is not affected by “BinaryConversion”	
Return Value	Result Code	ResultCodeExtended
	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_BUSY	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	0

3-2-2 International charset setting

Argument	Command	DISP_DI_INTERNATIONAL_CHAR
	PData	One of the commands: DISP_DI_CHAR_USA DISP_DI_CHAR_FRANCE DISP_DI_CHAR_GERMANY DISP_DI_CHAR_UK DISP_DI_CHAR_DENMARK1 DISP_DI_CHAR_SWEDEN DISP_DI_CHAR_ITALY DISP_DI_CHAR_SPAIN1 DISP_DI_CHAR_NORWAY DISP_DI_CHAR_DENMARK2
	PString	N/A
Description	Sets International character set. If CharacterSet property value is changed, International character set will be reset.	
Return	Result Code	ResultCodeExtended
	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_BUSY	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	0

3-3 DirectIOEvent

- Not used.

4. Error Information

- This section contains information about the return results when using the properties and methods related to LineDisplay.

4-1 ResultCode List

4-1-1 Properties

Property Name	ResultCode	ResultCodeExtended	Description
BinaryConversion	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Set value is illegal
DeviceEnabled	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_NOTCLAIMED	0	Refer to UPOS Specification
FreezeEvent	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
PowerNotify	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	0	Refer to UPOS Specification
		OPOS_EXX_INCAPABLE	The function cannot be used
		OPOS_EXX_BADARGUMENT	Set Value is illegal
DeviceBrightness	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_NOTCLAIMED	0	Refer to UPOS Specification
	OPOS_E_DISABLED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	0	Refer to UPOS Specification
		OPOS_EXX_INVALIDMODE	Marquee is under execution
		OPOS_EXX_DEVBUSY	The device is busy
		OPOS_EXX_TIMEOUT	Output result is not returned within the timeout period
		OPOS_EXX_INCAPABLE	The function cannot be used

Property Name	ResultCode	ResultCodeExtended	Description
CharacterSet	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_NOTCLAIMED	0	Refer to UPOS Specification
	OPOS_E_DISABLED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	0	Refer to UPOS Specification
		OPOS_EXX_BADARGUMENT	Illegal value
CurrentWindow	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Illegal value
CursorRow	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Illegal value
CursorColumn	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Illegal value
CursorUpdate	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
MarqueeType	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Illegal value
		OPOS_EXX_INCAPABLE	The function cannot be used
MarqueeFormat	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Illegal value
MarqueRepeatWait	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Illegal value
InterCaracterWait	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Set value is illegal

Property Name	ResultCode	ResultCodeExtended	Description
BlinkRate	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_INCAPABLE	The function cannot be used
CursorType	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_INCAPABLE	The function cannot be used
MapCharacterSet	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_INCAPABLE	The function cannot be used
ScreenMode	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_INCAPABLE	The function cannot be used

4-1-2 Methods

Method Name	ResultCode	ResultCodeExtended	Description
ClaimDevice	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_E_TIMEOUT	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Set value is illegal
		OPOS_EXX_DEVBUSY	The device is busy
		OPOS_EXX_PORTUSED	Port number is illegal
CheckHealth	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_NOTCLAIMED	0	Refer to UPOS Specification
	OPOS_E_DISABLED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Set value is illegal
		OPOS_EXX_DEVBUSY	The device is busy
		OPOS_EXX_INVALIDMODE	Marquee is under execution
		OPOS_EXX_TIMEOUT	Output result is not returned within the timeout
	OPOS_E_BUSY	0	Refer to UPOS Specification
DirectIO	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_NOTCLAIMED	0	Refer to UPOS Specification
	OPOS_E_DISABLED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Set value is illegal
		OPOS_EXX_DEVBUSY	The device is busy
		OPOS_EXX_INVALIDMODE	Marquee is under execution
		OPOS_EXX_TIMEOUT	Output result is not returned within the timeout

Method	ResultCode	ResultCodeExtended	Description
DisplayText DisplayTextAt ClearText CreateWindow RefreshWindow ScrollText	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_NOTCLAIMED	0	Refer to UPOS Specification
	OPOS_E_DISABLED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Set value is illegal
		OPOS_EXX_DEVBUSY	The device is busy
		OPOS_EXX_INVALIDMODE	Marquee is under execution
		OPOS_EXX_TIMEOUT	Output result is not returned within the timeout
DestroyWindow	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_NOTCLAIMED	0	Refer to UPOS Specification
	OPOS_E_DISABLED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_DEVBUSY	The device is busy
		OPOS_EXX_INVALIDMODE	Marquee is under execution
		OPOS_EXX_TIMEOUT	Output result is not returned within the timeout
SetDescriptor	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_NOTCLAIMED	0	Refer to UPOS Specification
	OPOS_E_DISABLED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Set value is illegal
		OPOS_EXX_DEVBUSY	The device is busy
		OPOS_EXX_INVALIDMODE	Marquee is under execution
		OPOS_EXX_TIMEOUT	Output result is not returned within the timeout
		OPOS_EXX_INCAPABLE	CapDescriptors is False

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Method	ResultCode	ResultCodeExtended	Description
ClearDescriptors	OPOS_SUCCESS	0	Refer to UPOS Specification
	OPOS_E_CLOSED	0	Refer to UPOS Specification
	OPOS_NOTCLAIMED	0	Refer to UPOS Specification
	OPOS_E_DISABLED	0	Refer to UPOS Specification
	OPOS_E_ILLEGAL	OPOS_EXX_BADARGUMENT	Set value is illegal
		OPOS_EXX_DEVBUSY	The device is busy
		OPOS_EXX_INVALIDMODE	Marquee is under execution
		OPOS_EXX_TIMEOUT	Output result is not returned within the timeout

4-2 Added error information

ResultCodeExtended	Description
OPOS_EXX_BADARGUMENT	Parameters for Method are out of range or have logical error.
OPOS_EXX_INCAPABLE	Not supported by LineDisplay
OPOS_EXX_TIMEOUT	OPOS driver failed to send data to LineDisplay during the period of default time out value.
OPOS_EXX_INVALIDMODE	Linedisplay is in marquee mode.
OPOS_EXX_DEVBUSY	Other application is occupying LineDisplay or LineDisplay is processing other requests.
OPOS_EXX_PORTUSED	Other device or application program occupies the current port.

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Warning - U.S.A

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice - Canada

This Apparatus complies with class "A" limits for radio interference as specified in the Canadian department of communications radio interference regulations. Get appareil est conforme aux normes class "A" d'interference radio tel que specifier par ministre canadien des communications dans les reglements d'interference radio.

Caution

Some semiconductor devices are easily damaged by static electricity. You should turn the printer "OFF", before you connect or remove the cables on the rear side, in order to guard the printer against the static electricity. If the printer is damaged by the static electricity, you should turn the printer "OFF".

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Revision history

[illegible]