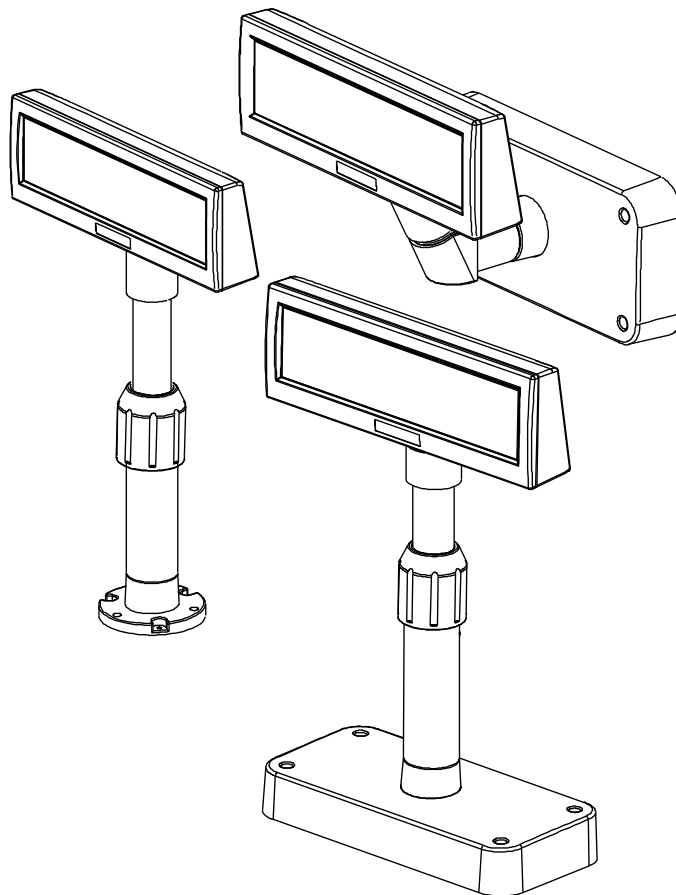




Application Programming Guide OPOS Driver

Rev. 2.05

**BCD-1000
BCD-1100**



<http://www.bixolon.com>

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1. Instruction

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>

2. Details of Setting

This section explains how to set and configure BIXOLON LineDisplay.

2-1 Device Information

DeviceDescription and DeviceName are defined as the below table.

Model	Interface	DeviceDescription	DeviceName
BCD-1000	S	BIXOLON BCD-1000 LineDisplay	BCD-1000
BCD-1100	U	BIXOLON BCD-1100 LineDisplay	BCD-1100

Interface type is defined as below

S: Supported Serial Interface
P: Supported Parallel Interface
U: Supported USB Interface

* BCD-1100 is supported USB Interface, but it is connected in Virtual COM through the USB.

2-2 Setting of DIP Switch / Hardware default setting

Setting of DIP Switch

No	Setting	Description	No	Setting	Description
1-1	OFF	Default Setting	2-1	OFF	Data Length
1-2	OFF	Reserved	2-2	OFF	Parity using
1-3	OFF	Display Viewing Side	2-3	OFF	Parity Selection
1-4	OFF	Self-test Execution	2-4	OFF	Baud-rate Selection
1-5	ON	Command Emulation	2-5	ON	Baudrate selection
1-6	OFF		2-6	OFF	
1-7	OFF		2-7	ON	
1-8	OFF		2-8	OFF	

The above are default values. If you change these values, you need to change also the communication configuration on “Setup utility”

* For more details, please refer to the user manual provided with the printer package.

2-3 Communication Configuration

Serial interface communication configuration

You can configure communication settings on Setup Utility.

List	Range
Baudrate	9600, 19200, 38400, 57600, 115200
Bit length	7 bits, 8bits
Parity	NONE, ODD, EVEN
Stop bit	1 bit
Handshake	DTR/DSR
Output buffer length	32~1024
Output interval time	0~9999

Default settings are as following;

List	Default
Baudrate	9600
Bit length	8 bits
Parity	NONE
Stop bit	1 bit
Handshake	DTR/DSR
Output buffer length	1024
Output interval time	500

3. Method

This section explains methods that support LineDisplay. For more details of UPOS, refer to the specifications for UPOS 1.7.

3-1 CheckHealth

3-1-1 Internal Test

Running this function performs a communications inspection of the display and returns the results.

There is no content outputted to the display.

This function is conducted based on OPOS_CH_INTERNAL, and if successfully performed, the CheckHealthText properties are set as follows.

CheckHealthText: "Internal CheckHealth : Successful"

The returned value following execution of the CheckHealth method can be viewed, and if an error occurs, the CheckHealthText property is not set. Please refer to page 6 of this manual for information regarding errors.

3-1-2 External Test

Running this function results in text string output at the bottom of the display

CheckHealthExternal
Device : <Model Name>

Check to see if the outputted content is accurate.

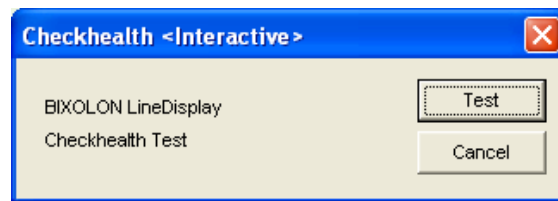
This function is conducted based on OPOS_CH_EXTERNAL, and if successfully performed, the CheckHealthText properties are set as follows.

CheckHealthText: "External CheckHealth : Successful"

The returned value following execution of the CheckHealth method can be viewed, and if an error occurs, the CheckHealthText property is not set. Please refer to page 6 of this manual for information regarding errors.

3-1-3 Interactive Test

Running this function results in the output of a text box identical to the one at the bottom of the display



Select the [Test] button to output a text string at the bottom of the display.

```
ChkHealthInteractive  
Device : <Model Name>
```

Check to see if the outputted content is accurate.

This function is conducted based on OPOS_CH_INTERACTIVE, and if successfully performed, the CheckHealthText properties are set as follows.

CheckHealthText : "InteractiveCheckHealth: Successful"

-> Press the [Test] button, and setting is done when data transmission is successfully completed.

CheckHealthText: "InteractiveCheckHealth : Canceled"

-> Setting is done when pressing the [Close] button without pressing the [Test] button.

The returned value following execution of the CheckHealth method can be viewed, and if an error occurs, the CheckHealthText property is not set. Please refer to page 6 of this manual for information regarding errors.

3-2 Property set value and default set value**3-2-1 Capability setting**

Capability Property	Value
CapBlink	DISP_CB_BLINKALL
CapBrightness	TRUE
CapCharacterSet	DISP_CS_ASCII
CapDescriptors	TRUE
CapHMarquee	TRUE
CapVMarquee	FALSE
CapICharWait	TRUE
CapPowerReporting	OPOS_PR_STANDARD
CapBlinkRate	TRUE
CapCursorType	DISP_CCT_NONE
CapCustomGlyph	TRUE
CapReadBack	FALSE
CapReverse	DISP_CR_REVERSEEACH
CapBitmap	FALSE
CapMapCharacterSet	FALSE
CapScreenMode	FALSE
CapStatisticsReporting	FALSE
CapUpdateStatistics	FALSE
CapCompareFirmwareVersion	FALSE
CapUpdateFirmware	FALSE

3-2-2 Property default value and range of values*** Brightness value range and default setting**

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

*** Code page setting value and default setting**

	Value
CharacterSetList	437 (*default), 850, 852, 858, 860, 863, 865, 866, 932, 988, 999, 1252, 254, 255

* Relationship between CharacterSet and setting value

CharacterSet	Page No. Value
437 (*default)	Page 0
850	Page 2
852	Page 18
858	Page 19
860	Page 3
863	Page 4
865	Page 5
866	Page 16
932	Page 1
988	Page 0
1252(999)	Page 16
254	Page 254
255	Page 255

* Other properties setting values

Property	Value
DeviceWindow	4
DeviceRows	2
DeviceColumns	20
DeviceDescriptors	20
GustomGlyphList	20-7E
GlyphHeight	7
GlyphWidth	5
MapCharacterSet	FALSE
MaximumX	0
MaximumY	0
ScreenMode	0
ScreenModeList	"2x20"

3-3 Restriction on Parameters for Methods

Method	Parameter	Max
CreateWindow	WindowHeight	512
	WindowWidth	512

3-4 Additional Description**3-4-1 CheckHealth Method Execution Condition**

The execution condition of the CheckHealth method is MarqueeType=DISP_MT_NONE, and it operates when InterCharacterWait = 0. If this condition is not satisfied, OPOS_E_BUSY is returned.

3-4-2 When the ReleaseDevice method is run while the Marquee function is operating

Operation ceases when ReleaseDevice is run while marquee is activated. When the ClaimDevice method is run, the display resumes continued activation of marquee operation. If the DeviceEnabled property is set to TRUE, marquee starts again. When editing the MarqueeType property in disable condition and/or ReleaseDevice state, the edited values are operated when the ClaimDevice method and DeviceEnabled property is TRUE.

3-4-3 Teletype Output

Text is outputted within a teletyped viewport. In a logical window, the data outside the viewport is not identical to internal settings like InterCharacterWait, and is thus processed instantly.

[Example] A significantly wide window

Assumptions include a viewport defined as 2x5, a window defined as 2x8, "1234567890123" data outputted in Teletype, and an InterCharacterWait property of 1000msec.

During the first five seconds, each text character within the viewport is outputted one at a time.

1	2	3	4	5			

Afterward, up to '8' is run without application of the internal standby time.

1	2	3	4	5	6	7	8

From '9' onward, the standby time is once again applied during output. Thus, the data subject to time delay are "1, 2, 3, 4, 5, 9, 0, 1, 2, 3".

1	2	3	4	5	6	7	8
9	0	1	2	3			

* The same operation applies for a window of the same width but higher height.

3-4-4 When the ClearText method is called for during Teletyped output

If a call is made when the ClearText method is operating in Teletype mode, only the outputted data is deleted, and the buffering data is maintained.

4. Extended Functions

This section explains extended functions for LineDisplay.

4-1 DirectIO Method

4-1-1 DirectIO Command

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

BIXOLON OPOS DirectIO Commands

Command	Description
DISP_DI_OUTPUT	Print defined pString
DISP_DI_INTERNATIONAL_CHAR	Define International charsetset

DISP_DI_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	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

DISP_DI_INTERNATIONAL_CHAR		
Argument	Command	DISP_DI_INTERNATIONAL_CHAR
	PData	One of the commands: PRN_DI_CHAR_USA PRN_DI_CHAR_FRANCE PRN_DI_CHAR_GERMANY PRN_DI_CHAR_UK PRN_DI_CHAR_DENMARK1 PRN_DI_CHAR_SWEDEN PRN_DI_CHAR_ITALY PRN_DI_CHAR_SPAIN1 PRN_DI_CHAR_NORWAY PRN_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

4-1-2 DirectIOEvent Event

Not Used

5. Error Information

This section explains returned value of ResultCode and ResultCodeExtended when you use properties and methods related to LineDisplay.

5-1 ResultCode List

5-1-1 Property

Property	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	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	Set value is illegal
CurrentWindow	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
CursorRow	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
CursorColumn	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
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	Set value is illegal
		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	Set value is illegal
MarqueRepeatWait	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	ResultCode	ResultCodeExtended	Description
InterCharacterWait	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
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

5-1-2 Method

Method	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

Method	ResultCode	ResultCodeExtended	Description
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
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
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

Method	ResultCode	ResultCodeExtended	Description
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
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

5-2 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.

6. Warning

To use DirectIO, you have to use the commands mentioned in this manual.