TOSHIBA

Windows POS Terminal

TEC OPOS Control

Keylock OPOS Application Programmer's Guide for EKEY-STA10

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TOSHIBA TEC CORPORATION

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1. Keylock

1.1. ST-A10 Electronic Keylock Control ["STA10EKEY"]

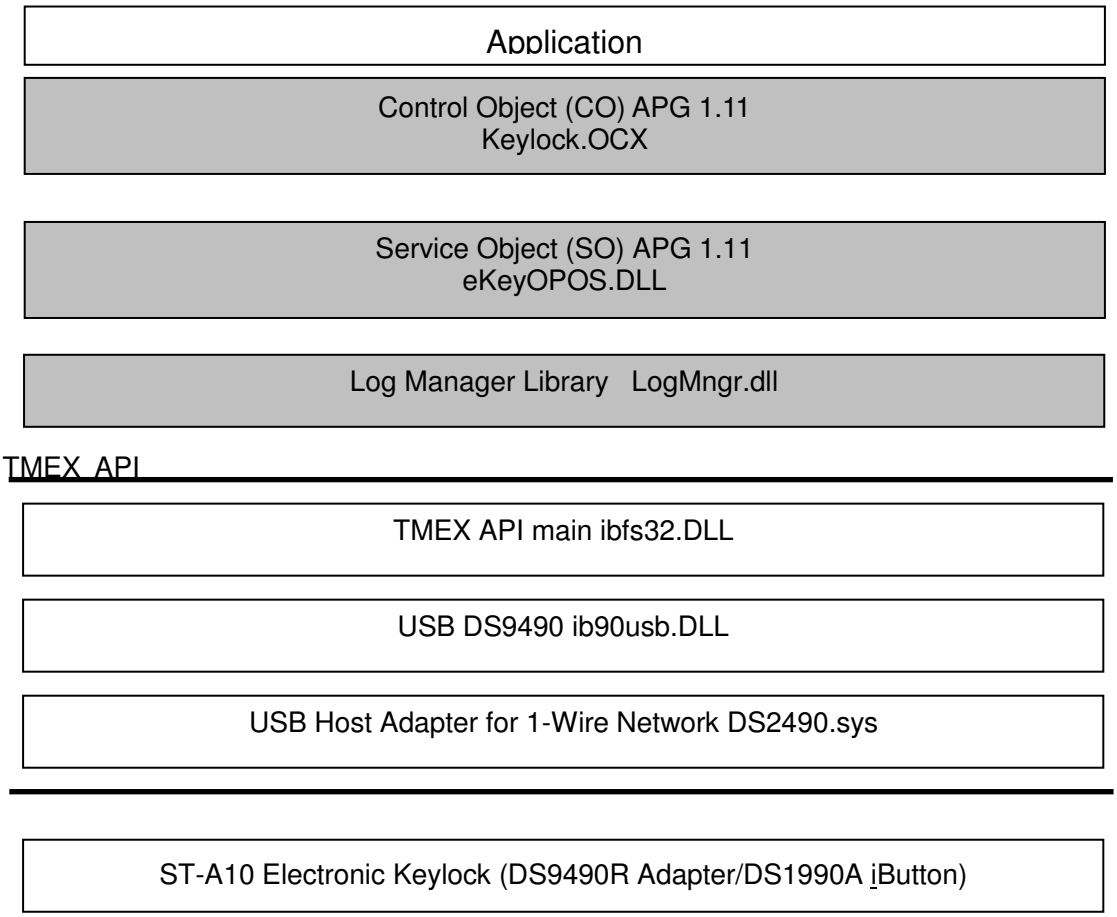
1.1.1. Applicable Models and Operating Systems

Model	Interface	Device Name (*1)
ST-A10 iButton	USB I/F	"STA10EKEY"
Operating System		
Windows Embedded for Point of Service(WEPOS) Windows Embedded POSReady 2009 Windows XP Professional Windows 2000 Windows 7 Windows Embedded POSReady 7		

(*1) Device names are used by the Open method.

1.1.2. Software Structure

The software structure of the ST-A10 Electronic Keylock Control is as shown below.



STA10EKEY Keylock Control – Software Structure

1.1.3. Functions

Functions supported	Functions not supported
Electronic key	Collection of statistics Reset of statistics Change of statistics Power notification Comparison of firmware versions Firmware update

STA10EKEY Keylock Control – Functions

Only the properties defined by the device are listed.

Common property	Value
ControlObjectDescription	"TEC OPOS Keylock Control Object"
ControlObjectVersion	"1011XXX" **(*1)**
ServiceObjectDescription	"TEC OPOS ST-A10 Electronic Keylock Service Object"
ServiceObjectVersion	"1011XXX" **(*1)**
DeviceDescription	"TEC ST-A10 Electronic Keylock"
DeviceName	"STA10EKEY"
CapCompareFirmwareVersion	FALSE
CapPowerReporting	OPOS_PR_NONE
CapStatisticsReporting	FALSE
CapUpdateStatistics	FALSE
CapUpdateFirmware	FALSE
PowerState	FALSE
Exclusive property	**Value**
CapKeylockType	LOCK_KT_ELECTRONIC
KeyPosition	0 **(*2)**
PositionCount	0 **(*2)**
ElectronicKeyValue	48-bit serial number

(*1) Build version is indicated as "XXX" because this document may not be revised every time the module is updated.
(*2) Always set to "0" because the keylock device is of electronic type.

STA10EKEY Keylock Control – Property Values (in part)

1.1.4. CheckHealth Method Specifications

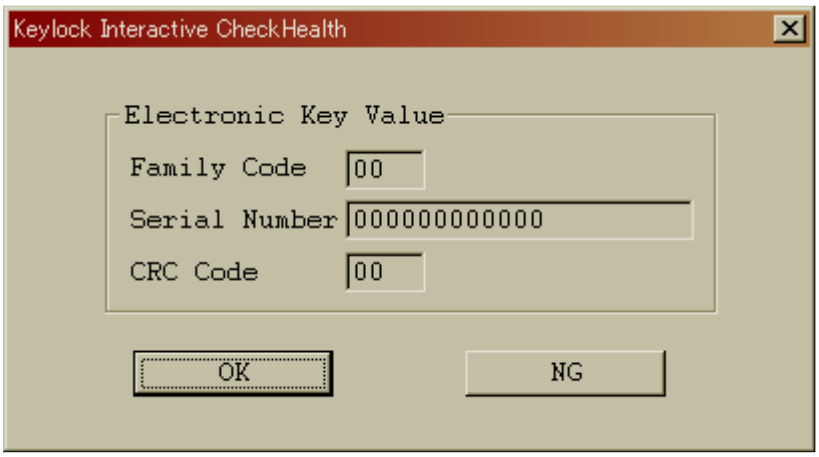
1) Internal Level (OPOS_CH_INTERNAL)

Value (ResultCode)	CheckHealthText	Meaning
OPOS_E_ILLEGAL	"Internal Hcheck:Illegal"	Not supported

2) External Level
This checks if the electronic key is connected.

Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"External HCheck: Successful"	The electronic key exists.
OPOS_E_FAILURE	"External HCheck: No Hardware"	The electronic key does not exist.
OPOS_E_ILLEGAL	"External HCheck:Driver Error"	Driver error
OPOS_E_DISABLED	"HCheck: Disabled"	"DeviceEnabled=TRUE" has not been executed.

3) Interactive Level (OPOS_CH_INTERACTIVE)
This displays the following dialog box.
Check that a value for Family Code, Serial Number, and CRC Code are displayed when the electronic key data is read.
Click on "OK" when values are properly displayed, and click on "NG" when not.



Value (ResultCode)	CheckHealthText	Meaning
OPOS_SUCCESS	"Interactive Hcheck: Successful"	Completed with the "OK" button
OPOS_E_FAILURE	"Interactive Hcheck: Error"	Completed with the "NG" button
OPOS_E_DISABLED	"HCheck: Disabled"	Disabled

Note: Close all other applications before executing CheckHealth because the keylock generates an event for all applications being opened.

1.1.5. DirectIO Specifications

This Control supports no functions using the DirectIO method.

1.1.6. OPOS Registry

The ST-A10 contains the following configuration information:

HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\Keylock

General	"TEC.STA10EKEY
Service	"C:\OPOS\TEC\eKeyOPOS.DLL"
Description	"TEC Electronic Keylock"
Version	"1.11"
DebugLogLevel	"0" | "1" | "2"
DebugLogFile	"C:\TEC\OPOS\LOG\eKeyOPOS.LOG"
ElectronicKeyValueType	"64bit" | "48bit"

Service	Filename of Service Object
Description	Brief explanation of Service Object
Version	Version number of Service Object
DebugLogLevel	Specifies a level for recording a log in a file specified by DebugLogFile. 0: Log is not output. 1: Level where a log is recorded mainly at a time of error 2: Level where OPOS operations can be traced using a log.
DebugLogFile	Specifies a log file with path which records OPOS operations. If a folder does not exist, no log is kept.
ElectronicKeyValueType	The number of bits for data to be set by ElectronicKeyValue 64bit: 64-bit data including FamilyCode and CRC is set. 48bit: Only serial number is set as a 48-bit data. 64bit: When the bit number is the one other than 48 bit, the data is set as a 64-bit data.

STA10EKEY Keylock Control – Registries

1.1.7. Limitations and Precautions

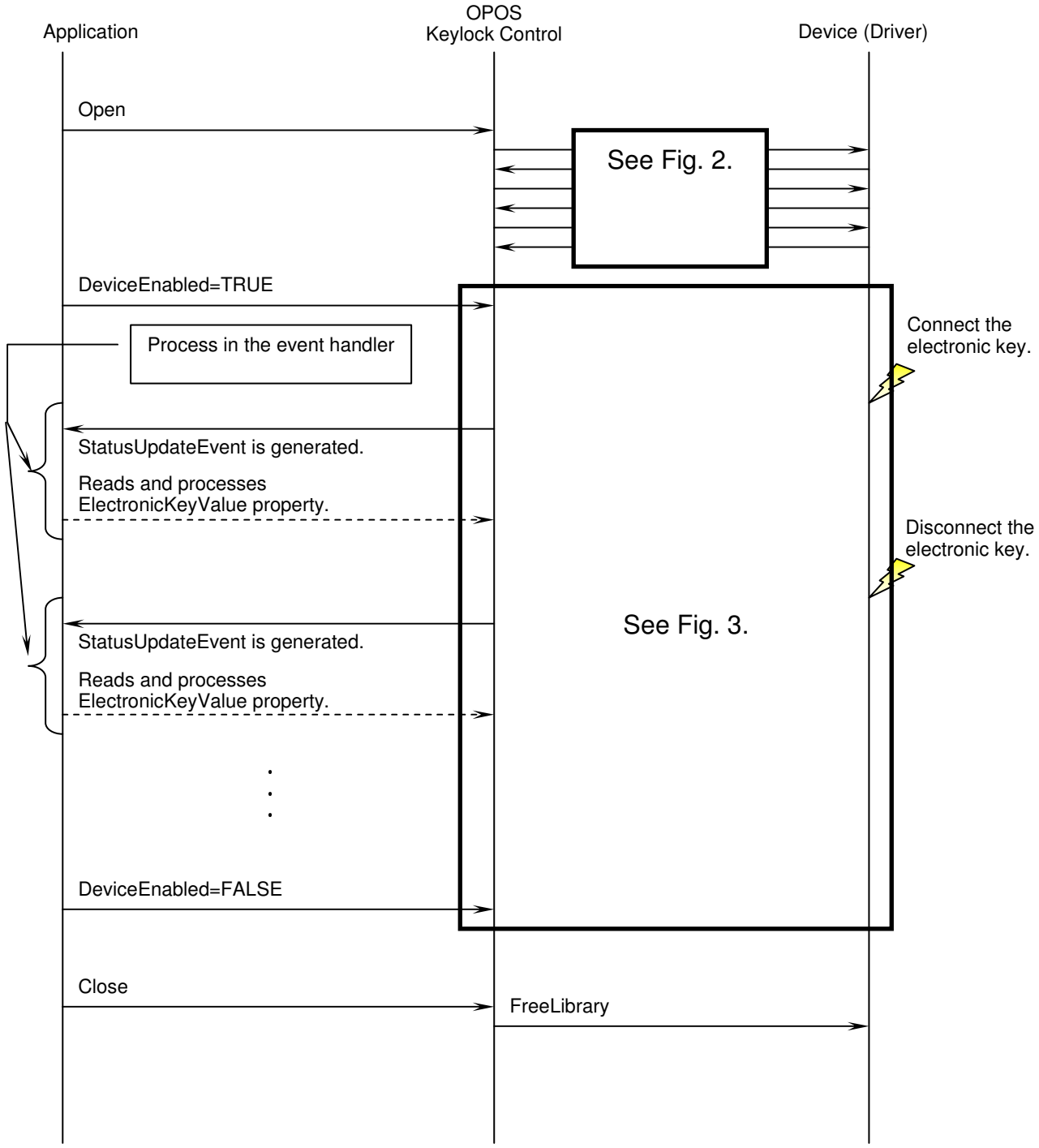
1) Plug-and-Play for USB Keyboard in Operation
An electronic key device is a plug-and-play device, but it is not recommended to remove a connector in operation and insert it again.

2) Electronic Key That Can Be Acknowledged
This OPOS acknowledges only one electronic key, DS1990A-F5(64BitID-5mmType). When an electronic key other than DS1990A-F5 is connected, the electronic key is not acknowledged and a status becomes "not connected".

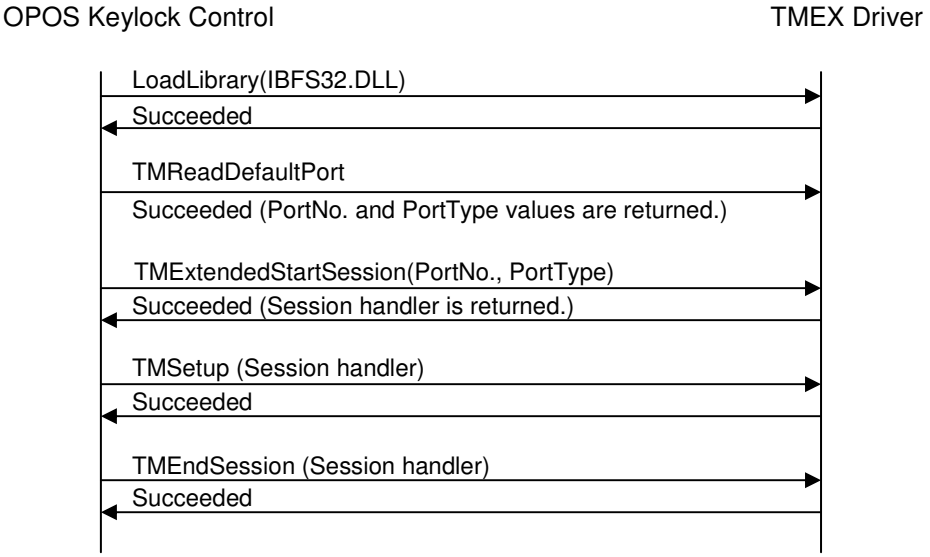
3) Device Driver
This Control operates only when an iButton driver is installed. Install the 1-Wire driver beforehand.

1.1.8. Usage Example

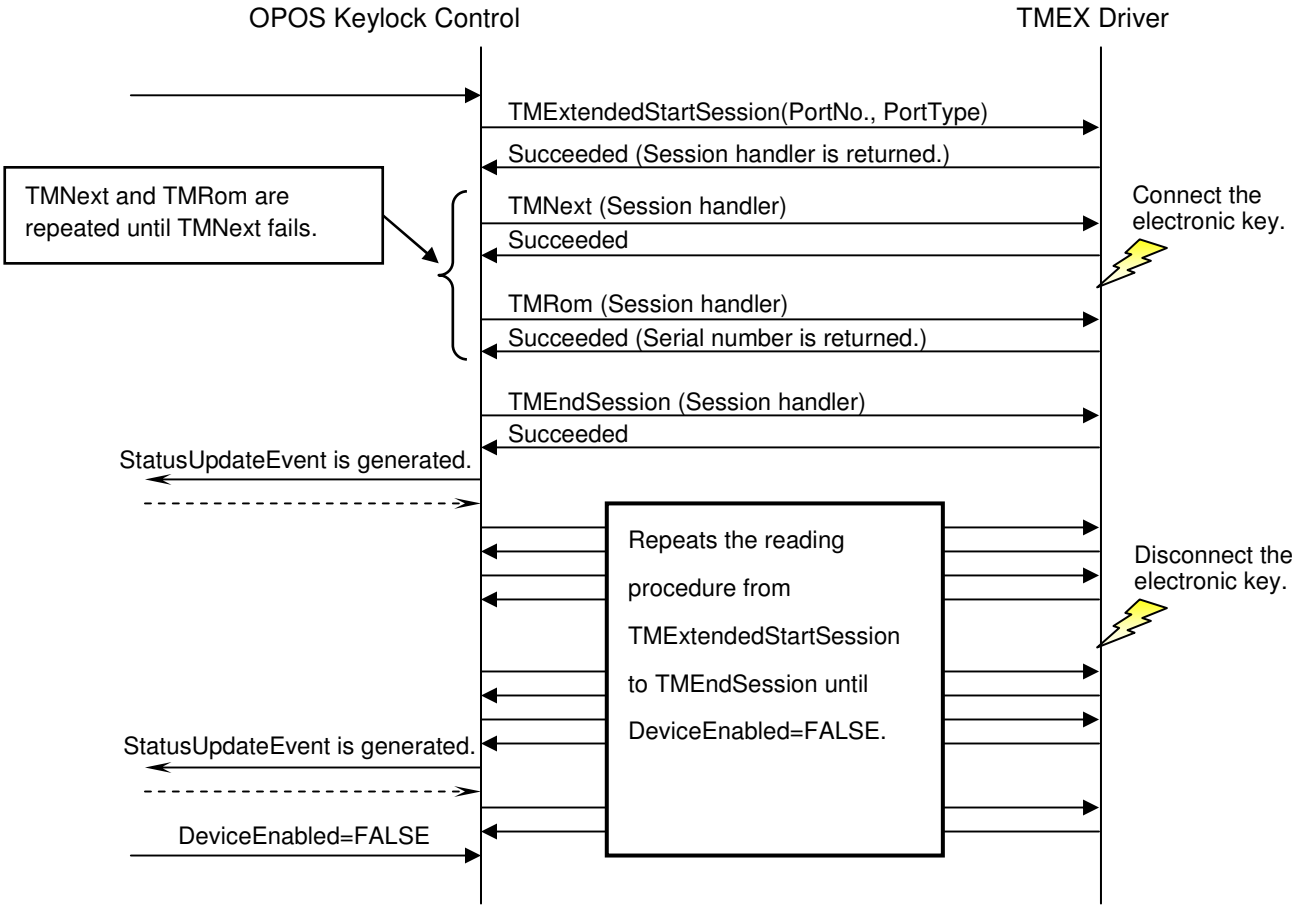
This section gives a sequence diagram to show an operation flow from opening of the OPOS Keylock Control and reading an electronic key data to a close operation.



STA10EKEY Keylock Control – Usage Example



Interface between OPOS and TMEX Driver at Open



Interface between OPOS and TMEX Driver from DeviceEnabled=TRUE to DeviceEnabled=FALSE

1.1.9. Log

A log for this Control is not disclosed.

1.1.10. Result When Property/Method is Executed

The OPOS Control notifies the user of a result when a property/method is executed.

The table below shows the ResultCode Property values and OpenResult Property values described in this document.

ResultCode	Value
OPOS_SUCCESS	0
OPOS_E_CLOSED	101
OPOS_E_NOSERVICE	104
OPOS_E_DISABLED	105
OPOS_E_ILLEGAL	106
OPOS_E_FAILURE	111
OPOS_E_TIMEOUT	112

OpenResult	Value
OPOS_OR_ALREADYOPEN	301
OPOS_OR_REGBADNAM	302
OPOS_OR_REGPROGID	303
OPOS_OR_CREATE	304
OPOS_OR_BADIF	305
OPOS_OR_FAILEDOPEN	306
OPOS_OR_BADVERSION	307
OPOS_ORS_CONFIG	403
OPOS_ORS_BADCO	451
OPOS_ORS_RESOURCEFAIL	452

1) Results When Property is Executed
The table below gives the results common to all available properties and those unique to certain property.

Property	ResultCode	Meaning	Error Handling
Common properties	OPOS_SUCCESS	Property setting was completed successfully.	–
	OPOS_E_CLOSED	The device is closed.	Open the device using the Open method, then perform a setting again.
BinaryConversion	OPOS_E_ILLEGAL	An invalid parameter value was specified.	Specify a valid parameter value.
DeviceEnabled	OPOS_E_ILLEGAL	Initialization of the device failed.	Make sure the device is connected and its power is on, then perform a setting again. If the error occurs again, install the OPOS control and the driver again. If the error still persists, then investigate the error.
	OPOS_E_FAILURE	Creation of a resource to serialize the events and startup of the thread failed.	Investigate the error.
FreezeEvents	–	–	–
PowerNotify	OPOS_E_ILLEGAL	No power notification functions are supported.	This device does not support a power notification function.

2) Results When Open Method is Executed
The Open method differs from other methods and is separately described.

Value	ResultCode	OpenResult	Meaning	Error Handling
OPOS_SUCCESS	OPOS_SUCCESS	OPOS_SUCCESS	The device was successfully opened.	−
OPOS_E_ILLEGAL	−	OPOS_OR_ALREADYOPEN	The control object has been open.	Make sure the name of the device to be opened is correct.
OPOS_E_FAILURE	OPOS_E_CLOSED	OPOS_ORS_RESOURCEFAIL	Creation of a resource to serialize the events failed. Creation of a window to process the events failed. Creation of a thread failed.	Investigate the error.
OPOS_E_NOEXIST	OPOS_E_CLOSED	OPOS_OR_REGBADNAME	A specified device name does not exist in the registry.	Make sure the name of the device to be opened is correct.
OPOS_E_NOSERVICE	OPOS_E_CLOSED	OPOS_OR_CREATE	The service object is not correctly registered.	Register the driver or service object again.
		OPOS_OR_REGPROGID	The service object is not correctly registered.	Register the driver or service object again.
		OPOS_OR_BADIF	The service object does not support the methods required.	Register the service object again.
		OPOS_OR_FAILEDOPEN	An error occurred in the service object, but the service object does not support the OpenResult property.	Register the service object again and add the registry again.
		OPOS_OR_BADVERSION	The version of the service object is invalid.	Register the service object again.
		OPOS_ORS_CONFIG	The specified OPOS registry for the keylock does not exist or is not correct.	Register the service object again and add the registry again. If the registry has been correctly registered, then investigate the error.
		OPOS_ORS_BADCO	The control object does not support the methods required.	Register a correct control object again.

3) Results When a Method Is Executed

The table below describes the result when each method other than the Open method is executed.

Method	Value/ResultCode	ResultCodeExtended	Meaning	Error Handling
Close	OPOS_SUCCESS	–	The device was successfully closed.	–
	OPOS_E_CLOSED	–	The device has been closed.	–
Claim ClaimDevice	OPOS_E_CLOSED	–	The device has been closed.	Open the device using the Open method, and then execute the method again.
	OPOS_E_ILLEGAL	–	The device does not execute exclusive control.	The device does not have to execute Claim and ClaimDevice.
Release ReleaseDevice	OPOS_E_CLOSED	–	The device has been closed.	–
	OPOS_E_ILLEGAL	–	The device does not execute exclusive control.	The device does not have to execute Claim and ClaimDevice for exclusive control, thus does not have to execute Release and ReleaseDevice.
CheckHealth	OPOS_SUCCESS	–	If a level is external level, the electronic key is connected.	–
			If a level is interactive level, this indicates the result of a user's visual check.	–
	OPOS_E_CLOSED	–	The device has been closed.	Open the device using the Open method, and then execute the method again.
	OPOS_E_DISABLED	–	The device is disabled.	Set the DeviceEnabled property to TRUE, and then execute the method again.
	OPOS_E_ILLEGAL	–	Unsupported health check level was specified.	Check the health check level.
			Unexpected result was returned from the driver	Make sure the device is connected and the power is on, then perform a setting again. If the error occurs again, then install the OPOS control and the driver again. If the error still persists, then investigate the error.
	OPOS_E_FAILURE	–	If a level is external level, the electronic key is not connected.	–
			If a level is interactive level, this indicates the result of a user's visual check.	–

Method	Value/ResultCode	ResultCodeExtended	Meaning	Error Handling
ResetStatistics	OPOS_E_CLOSED	—	The device has been closed.	Open the device using the Open method, and then execute the method again.
	OPOS_E_ILLEGAL	—	Not supported.	The device does not support ResetStatistics.
	OPOS_E_NOSERVICE	—	The version of the service object is old and the method is not supported.	Install the latest service object.
RetreiveStatistics	OPOS_E_CLOSED	—	The device has been closed.	Open the device using the Open method, and then execute the method again.
	OPOS_E_ILLEGAL	—	Not supported.	The device does not support RetreiveStatistics.
	OPOS_E_NOSERVICE	—	The version of the service object is old and the method is not supported.	Install the latest service object.
UpdateStatistics	OPOS_E_CLOSED	—	The device has been closed.	Open the device using the Open method, and then execute the method again.
	OPOS_E_ILLEGAL	—	Not supported.	The device does not support UpdateStatistics.
	OPOS_E_NOSERVICE	—	The version of the service object is old and the method is not supported.	Install the latest service object.
DirectIO	OPOS_E_CLOSED	—	The device has been closed.	Open the device using the Open method, and then execute the method again.
	OPOS_E_ILLEGAL	—	Not supported.	The device does not support DirectIO.
CompareFirmwareVersion	OPOS_E_CLOSED	—	The device has been closed.	Open the device using the Open method, and then execute the method again.
	OPOS_E_DISABLED	—	The device is disabled.	Set the DeviceEnabled property to TRUE, and then execute the method again.
	OPOS_E_ILLEGAL	—	Not supported.	The device does not support CompareFirmwareVersion.
UpdateFirmware	OPOS_E_CLOSED	—	The device has been closed.	Open the device using the Open method, and then execute the method again.
	OPOS_E_DISABLED	—	The device is disabled.	Set the DeviceEnabled property to TRUE, and then execute the method again.
	OPOS_E_ILLEGAL	—	Not supported.	The device does not support UpdateFirmware.

Method	Value/ResultCode	ResultCodeExtended	Meaning	Error Handling
WaitForKeylockChange	OPOS_SUCCESS	–	A change in keylock positioning occurred.	–
	OPOS_E_CLOSED	–	The device has been closed.	Open the device using the Open method, and then execute the method again.
	OPOS_E_DISABLED	–	The device is disabled.	Set the DeviceEnabled property to TRUE, and then execute the method again.
	OPOS_E_TIMEOUT	–	No change in keylock positioning occurred within a specified time of period.	–
	OPOS_E_FAILURE	–	The device cannot perform the requested procedure.	Set the FreezeEvents property to FALSE, and then execute the method again.
	OPOS_E_ILLEGAL	–	An invalid parameter was specified.	Make sure the specified parameter is correct, and then execute the method again. KeyPosition: Only LOCK_KP_ANY(0) is valid. Timeout: -1,0, and positive values are valid.