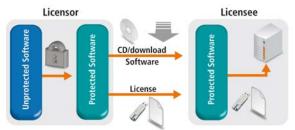






An age-old principle

Even 3,500 years ago, encryption was used to protect trade secrets. Back then, seemingly meaningless characters were used as a cipher to protect the recipe for a custom clay glaze. The methods may have changed, but the principle is the same today when protecting your software.



You encrypt your software and transfer the key to the authorized recipient who can then use the key to run the software. The only requirements are a secure encryption algorithm, and a method to securely transfer the key to the user.

However, the user has little motivation to keep the key a secret. This means, you also have to ensure that even authorized users do not pass the software, and are not able to copy the key. This requires you (1) to safely store the key, and (2) to prevent an unprotected version of the key from getting extracted from your protected software.

With CodeMeter we offer you a solution where the key is safely stored in a dongle – the CodeMeter Stick. In our purely software-based solution CodeMeterAct – which is a part of CodeMeter – the key is encrypted in a way that it can only to be decrypted on the PC of the licensed user.

With AxProtector and IxProtector we offer you a technology which dynamically decrypts and re-encrypts your software at runtime, and thus protects it against extracting an unprotected version of the key.

CodeMeter offers you:

- state-of-the-art encryption algorithms
- standardized solution (dongle and activation)
- technologies and tools for protecting your software

WibuKey our time-tested product, available since 1989, is based on the same principles and provides you with most of the CodeMeter functionalities.

The license entry

You don't have to become an expert in cryptography to use CodeMeter. You just have to program a license entry into a CodeMeter Stick, or into a CodeMeter license file. This entry consists of two numbers, the Firm Code and the Product Code, and can also contain additional "option" parameters.

The Firm Code is assigned to you by WIBU-SYSTEMS. You get a master key, the Firm Security Box, together with your Firm Code. Only you can program your license entries because the Firm Code is unique.

You are free to choose the Product Code. If you want to protect more than one product, you can assign a different Product Code to each one. The Product Code is a 32-bit value, allowing you to define up to 4 billion different products.

Firm Code, Product Code and further options (Product Item Options) represent the visible part of a license entry. Out of these parameters, together with other invisible parts, the

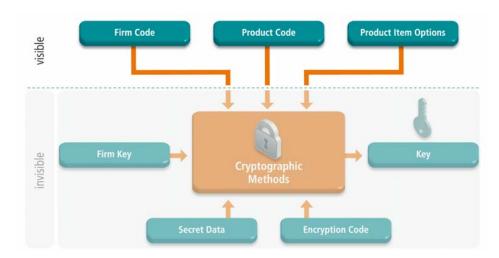
At runtime you modify the encryption using the Encryption Code. We call this "polymorph encryption". Quite unspectacular on first examination, but understand that by simply modifying the Encryption Code you get 4 billion alternating keys for every Product Code! Now that's security!

Top security

The software protection of WIBU-SYSTEMS has been successfully tested against the international hacker community. In our Hacker's Contests, more than 1,000 global participants found our security a tough nut to crack.

All three levels of our system have proven their strength: the secure hardware as a foundation, the encrypted communication between hardware and software, and, finally, the technology to modify the software in the PC memory.

When your CodeMeter protected software detects cracking attacks, the CodeMeter Stick can be locked to prevent further cracking attempts. Why to give a hacker a second chance to analyze your software?



effective key to protect your software is calculated inside the CodeMeter Stick, or the CodeMeterAct module.

More than a key

The unique secret data you store in every CodeMeter Stick provides the security that prevents the CodeMeter hardware from being copied outside of WIBU-SYSTEMS.

The Firm Key enables you to store a "secret key" in the hardware, known only to you. This guarantees that even WIBU-SYSTEMS can't reprogram your dongles.

When looking for copy protection hardware, you need to make sure that a system is: (1) Easy to implement. (2) Uses advanced encryption algorithms to protect your code. (3) Ensures that the decryption key is easily transferred to your customer in such a manner that they are unable to transfer it to others illegally. (4) Can detect cracking attempts and provide "on the fly" counter measures. And finally... (5) It wouldn't hurt your pocketbook if you could share the cost of the dongle with other developers. You really should not settle for less when it is about securely and economically protecting your software.



One form factor for all options

A license entry consists of your Firm Code, the freely chosen Product Code, and additional Product Item Options. These options are available without restrictions for all CodeMeter Sticks and CodeMeterAct license files, and combinable anyway you like.

The memory giant – up to 6,000 license entries

Every CodeMeter Stick contains a SmartCard chip with 60 / 384 kByte of free memory for license entries. You are able to program up to 6,000 licenses in a single CodeMeter Stick.

License Quantity in the network

Each CodeMeter Stick can be used in a network. By default, each license entry is a network floating license. Do you want to sell a single-user license? Then just program "zero" for the license quantity. Or do you want to sell multiple network licenses? That is also easily done, just set the license quantity to the desired value. As you can see; we have no extra charge for "network" dongles.

Secure Expiration Time with a real-time clock

Every license entry may hold an Activation and an Expiration Time. This allows you to define the temporary use of your license. Both times are checked against the internal clock in the CodeMeter Stick. Thus hacking the PC system time does not extend the validity of the license.



CodeMeter License Server

By combining an Expiration Time and License Quantity, you can even realize complex licensing models. For example: eight permanent licenses plus two "alive" for the next four weeks. No problem at all!

Usage Period

While you know exactly the license validity in the case of an Expiration Time, there are use cases, where the usage period is to begin at a variable point in time. For example, pre-program demo versions for your distribution partner, or create standby dongles to replace a failed dongle for a limited time.

These scenarios can be accomplished with the Usage Period option. Here, the usage period automatically starts with the first use of the license entry.

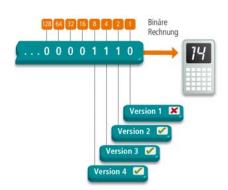
Pay-per-use counter

Do you want to bill your software by use, e.g. per print job? Then just use one of the up to 6,000 independent counters inside the CodeMeter Stick. You define for yourself which action in your software decrements the counter by which number of units.

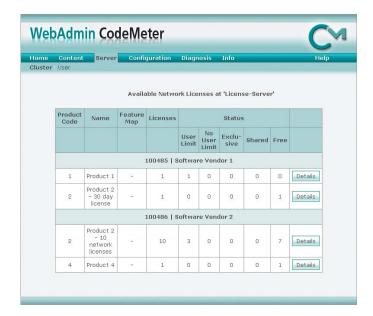
Feature map

One of the most powerful CodeMeter features is the Feature Map. It is a 32 bit value for bitwise use.

You can enable a differing number of multiple modules using a Feature Map while only one license entry is allocated.



An additional use case is managing versions of your software. Every new major version is coded by one bit. When your customer is authorized to use multiple versions, just set the corresponding bits. In combination with the option License Quantity you also realize downgrade scenarios in a network. Then your customer may use the current version, or (enabled) previous versions up to the specfied License Quantity. But in total never more than the License Quantity you programmed.



Clear display

Your customer easily sees license entry information on the CodeMeter Stick at a glance when you add a Text option to the entry. This Text is not security relevant but increases clearness.

Data types

In addition to the data types mentioned above, for the CodeMeter Stick or the CodeMeterAct license file further options exist with differing read and write access states:

Product Item Option	Read	Write	Encryption
License Quantity	yes	with FSB	no
Expiration Time	yes	with FSB	yes
Activation Time	yes	with FSB	yes
Usage Period	yes	initially, at first start	yes
Unit Counter	yes	decrement, set with FSB	yes
Feature Map	yes	with FSB	yes
Text	yes	yes	no
Customer Owned License Information	yes	with FSB	no
Protected Data	yes	with FSB	no
User Data	yes	yes	no
Hidden Data	with password	with FSB	used as key
Secret Data	no	with FSB	used as key



The most important aspect of sound and effective software protection is the integration into the application to be protected. Even the best encryption algorithm provides no protection, if a license check is reduced to a simple yes or no query.

AxProtector – integration with no programming skills required

AxProtector is a tool from WIBU-SYSTEMS for easy, but secure, integration of CodeMeter, CodeMeterAct or Wibu-Key into your application. Using AxProtector requires no changes to your source code.

PE Header

Code Section

Code Section

Code Section

Data Section

Data Section

Definition

Of Licenses

and Function

Definition

Definition

Definition

Definition

Definition

Of Licenses

and Function

You simply specify the executable file to be protected, and the license entry to be used (Firm Code and Product Code), and your application is protected.

With AxProtector, you can decide when programming the CodeMeter Stick or the CodeMeterAct license file, whether your software runs in a network or as single-user version, which time-restrictions apply, or which pay-per-use counter are implemented.

By using on-demand-encryption – parts of your application are decrypted only when accessed – AxProtector provides an unprecedented security standard.

Maximum Flexibility

Additional options in AxProtector allow you to customize the level of protection to meet your individual requirements.

- time interval for license check at runtime
- automatic encryption of data files
- license locking in the case of hacker attacks
- exception handling

Customizable error messages

Your software runs without a graphical user interface? In this case, instead of an error message "License not found" you may create an error log, shut down the application, or rescan for the license.

On the other hand, you are also able to generate custom error messages motivating your customer to buy the software.

AxProtector for:

- Windows 32-bit executables and dll files
- Windows 64-bit executables and dll files
- Mac OS X executables
- Java executables
- NET 1.1, 2.0, 3.0 and 3.5 assemblies

Individual integration

With AxProtector you are able to protect your software quickly and securely. Then why to use an API? Here Wibu Universal Protection Interface (WUPI) and IxProtector offer you the following advantages:

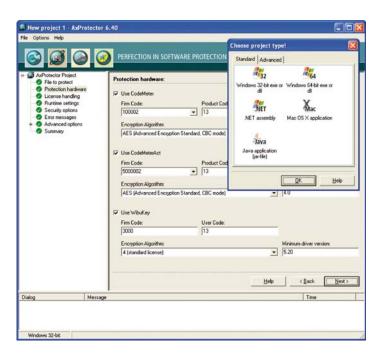
- individually increased security
- protection of single modules within one executable file
- individual decrement of a pay-per-use counter

WUPI provides easy functions to check licenses (WupiCheckLicense), and the option to decrypt and re-encrypt code segments of your software at runtime. In this way, your application is never completely decrypted in the PC memory, which increases security. In addition, by calling the WUPI function you decide yourself when the decryption is executed. This allows you to define the runtime behaviour of your application.

IxProtector finds the code segments and encrypts them before AxProtector wraps a protection envelope around your application. In IxProtector you specify the Firm Code and the Product Code used to encrypt the single code segments. IxProtector is integrated into AxProtector and may be used alternatively or additionally together with AxProtector.

Static linking

As well as encrypting code segments, IxProtector replaces the dynamically linked library with a static library. This increases security and reduces the size of your appli-



cation since IxProtector and AxProtector use the same static library.

At the same time, IxProtector implements up-to-date cryptographic methods at the place from where you call the easy WUPI functions (WupiCheckLicense). This way you get top-security without having to be an encryption expert.

Standard interface for CodeMeter, CodeMeterAct and WibuKey

WUPI not only provides on-demand-encryption for executable code but, at the same time, represents a standardized, easy-to-use interface for all WIBU-SYSTEMS protection technologies: WibuKey, CodeMeter, and CodeMeterAct.

You define a license, simultaneously used by WibuKey, CodeMeter or CodeMeterAct, and the rest will WUPI do for you. Then you can decide later whether to deliver your customer a CodeMeter Stick, or bind the license to a customer PC using a CodeMeterAct license file.

Customers, who have chosen WibuKey years ago, are able to use CodeMeter or CodeMeterAct today, without replacing existing WibuBoxes. That is how we spell ROI at WIBU-SYSTEMS!



Scalable solution – dongle and activation

CodeMeterAct is based on the CodeMeter Licensing System, which has now been proven in field-tests since 2004. However, unlike the traditional CodeMeter System, where the licenses are stored in a dongle i.e. the CodeMeter Stick, licenses created for CodeMeterAct consist of computer-bound license files requiring "activation".

Universal License Server

The CodeMeter License Server (CodeMeter.exe) at the heart of CodeMeter and CodeMeterAct is a universal license manager currently available for Windows, Mac OS X, Linux, and Sun Solaris. (You need another OS, let us know.)

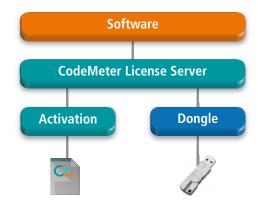
The CodeMeter License Server handles your licenses whether they are stored in a CodeMeter Stick, or saved to a license file. For you, as a software vendor, accessing a CodeMeterAct license is as simple as accessing a CodeMeter license. the Software Protection API is identical.

CodeMeterAct license files are displayed as a virtual CodeMeter Stick. And automatically all license management features of CodeMeter are also available for Code-

MeterAct: single-user licenses, floating network licenses, time-limited licenses, hot or cold standby licenses, and many more you might find useful.

Details make the difference

Naturally, CodeMeter and CodeMeterAct are not 100% identical. Differences include a separate Firm Code range; differing cryptographic keys; and for security purposes, we also changed internal cryptographic methods.



Hardware advantages

Using a dongle provides the following advantages:

- firmware runs protected in the hardware
- hardware is able to be locked, preventing brute force hacks
- counters cannot be reset through a backup/restore hack
- deleted licenses cannot be reset through a backup/ restore hack
- Expiration Time and Usage Period are checked against a clock inside the dongle
- easy license portability to another PC
- security against code tampering and license loss by viruses or other malware

One executable for delivery

Do you want to deliver an application and decide later for each user whether he receives a CodeMeter Stick or a license file? Then simultaneously protect your executable with CodeMeter and CodeMeterAct. AxProtector and IxProtector can automatically do this for you. You simply specify both license schemes.

Hardware binding

Licenses in a CodeMeterAct license file are bound to the user's PC. The following four hardware properties are available:

Name	Description
Network-Adapter (N)	Information on the network card (MAC Address)
Disk (D)	Information found on the hard disk (real serial number)
CPU (C)	Information found on the main processor (processor type)
Bios (B)	Information found in the PC BIOS (serial number)

By altering the combination of properties and by changing how many properties need to remain unchanged, you can control how restrictive to make this binding scheme. For example, a scheme combining all four properties, where only one element is allowed to change, is possible. As long as three elements remain unchanged, an activated license remains valid. This scheme is identified as DCBN:3.

Configuration binding

As an alternative to the hardware properties of a PC, you may bind a license to the following configuration data: These schemes provide less protection but higher flexibility,

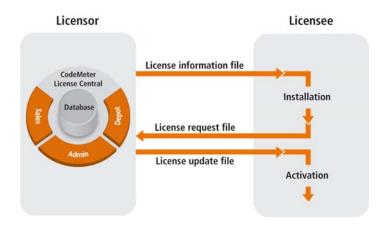
Name	Description
IP-Address (IP)	The IP-Address of the PC
Machine-SID (MID)	The Windows Machine-SID and the Domain-SID
None (Non)	No binding, i.e. this license is transferrable to another PC.
Serial (Ser)	Binding to your own serial number.

especially with big enterprise customers. Of course you are able to select different binding schemes and licensing system for each customer, e.g. big enterprise customers receive licenses bound only to IP-Address, individual consumers in the U.S. get DCBN:3, all other customers receive a CodeMeter Stick.

Activation

In the case of CodeMeterAct, instead of a CodeMeter Stick, the customer receives a license information file. This file is comparable to an empty CodeMeter Stick, and holds the information of the CodeMeterAct binding scheme. In order to make a license usable it is activated either via phone (manually) or via the Internet (automatically).

A license request file is created according to the binding schemes in the license information file, which the user then sends to you. You create a license activation file, that gets sent back to the user and the license is activated for the corresponding PC. The creation of the license activation file can be done manually, or automatically in CodeMeter License Central.



Get the extra — advantages of the CodeMeter Stick

All drivers on board

The CodeMeter Stick is a dongle with its own secure SmartCard chip. However, the operating system handles it as a mass storage device, i.e. as an USB memory stick. The advantage for you: CodeMeter does not require a proprietary driver. The driver comes with the operating system. This means fewer help desk calls for you.

Additional flash memory

In addition to the reasonably-priced version, CodeMeter is also available with additional flash memory. Then CodeMeter is both: dongle and storage device. This opens many new options for you. You are able to deliver your software directly on the CodeMeter Stick. Since the dongle component is accessed via the mass storage device driver, your software can start directly from the CodeMeter Stick.

CodeMeter uses the SLC memory (Single Level Cell) suiting industrial needs. It is faster, more durable and more robust against data loss compared to the MLC memory (Multi Level Cell) used in the end user segment.

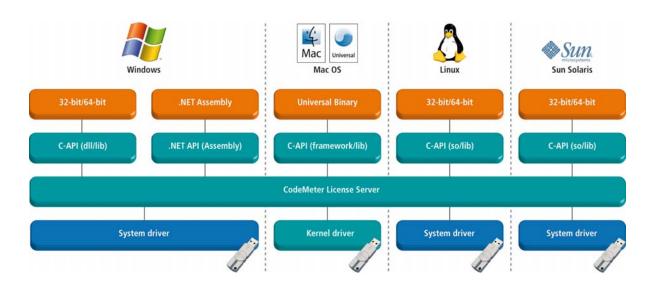
Mobile applications

When run from the dongle, your application does not leave traces on the operating system. CodeMeter adapts and on starting its own runtime leaves no trace on the PC; simply perfect for mobile applications.

One-of-a-kind architecture

The CodeMeter runtime is available for many different platforms. The central component is the CodeMeter License Server. This service runs in the background and communicates both with the CodeMeter Stick using an operating system internal USB or mass storage driver, and with the interface to the CodeMeter APIs.

Optionally, the CodeMeter License Server can act as a network license server. We provide simple tools, like a web interface and the CodeMeter Control Center, that allow you to easily configure and manage allocated network licenses in an interactive environment. The complete communication from and to CodeMeter License Server is securely encrypted using AES encryption. CodeMeter even utilizes ECC (Elliptical Curve Cryptography) to manage key length.



Share Your Key – Share Your Costs

Win-win situation

Every CodeMeter Stick is able to manage up to 6,000 vendor-independent licenses. All parties benefit in the value-added chain.

For several products — even from different vendors — the user only needs a single CodeMeter Stick instead of multiple dongles, as is the case with dongle systems from other vendors.

As a software vendor you are able to share a Code Meter Stick with other vendors. This involves the following advantages:

- no cost for the hardware
- no cost and effort for shipping
- no delay due to physical delivery

Separate Firm Codes

You as a software vendor get a Firm Security Box which defines your own individual Firm Code. This Firm Code is unique and separately assigned by WIBU-SYSTEMS to each vendor.

Each CodeMeter Stick is shipped blank. You as a software vendor first create a license container, your Firm Item holding your Firm Code. Using the Firm Security Box authentifies you as the owner of the Firm Code authorized to create your Firm Item.

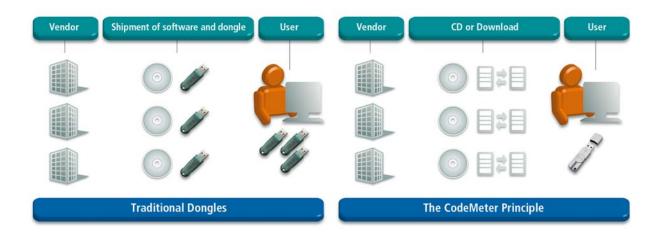
Each CodeMeter Stick can hold several different Firm Items with separate Firm Codes. Thus each vendor has its own area in a CodeMeter Stick.

This provides that locking a dongle and importing updates for each vendor is done separately and independent from license entries of other vendors. The memory area in the CodeMeter Stick for your Firm Item is automatically managed.

User-defined Product Codes

In a second step, in your Firm Item you create the actual license entries called Product Items.

Each Product Item features a Product Code and provides several options to define a license in greater detail. Also programming the Product Items is safeguarded by the authorized use of the Firm Security Box.





Along with securely protecting software against pirate copies; license management has become increasingly important for growing revenue. CodeMeter and CodeMeterAct provide for both: protection and management.

An all-purpose application

For creating and managing licenses you have several options with the CodeMeter System. Gain the power and flexibility of a database-supported solution with CodeMeter License Central. CodeMeter License Central, Enterprise Version, allows your customers to activate via the Internet, and provides for automated integration into your sales and support processes. CodeMeter License Central Enterprise includes many interfaces like: Internet gateways for customers, connectors to ERP/CRM systems, and connectors to online shops.

The Desktop Version of CodeMeter License Central features an easy start for internal license management and is completely scalable up to the Enterprise Version.

Specifically, during the development and test phase, you

may use a graphical tool (CodeMeter License Editor) which lets you create licenses — quickly and easily. Or, you can use a command line tool (CmBoxPgm) to create a license within an automated batch process.

If your business model includes scenarios not anticipated by our creation and management tools, then you can use our basic Programming API, or let our Professional Services Team support you.

Remote programming

License programming is done either locally (you program the CodeMeter Stick before delivery), or by remote pro-



gramming. In the case of software-based protection with CodeMeterAct, the activation generally takes place through remote programming. Regardless of when and how you programmed a CodeMeter or a CodeMeterAct license, CodeMeter License Central provides you a comprehensive overview of all licenses. Since remote programming is based on file transfer, it is also possible to create or update a license even if the PC is not directly connected to the Internet.

When the PC to which the CodeMeter Stick is connected, or to which the CodeMeterAct license is bound, has a direct connection to the Internet, the file transfer is a background-automated process between CodeMeter License Central and user. All the user has to do is to click the "transfer license" button.

Redundant data management avoided

CodeMeter License Central manages all CodeMeter and CodeMeterAct specific settings. Within CodeMeter License Central you can manage the mapping between your item numbers and the related Firm Codes, Product Codes and any other attributes you desire. This means, your ERP system does not have to know CodeMeter specific data.

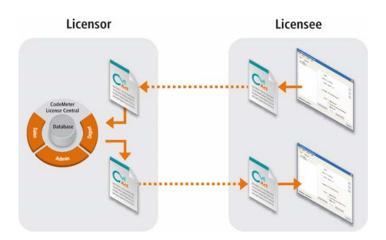
On the other hand, CodeMeter License Central does not manage customer data. Only references to customer and order number are managed. This avoids data redundancy and minimizes integration efforts.

Functional principle - ticket system

Think of CodeMeter License Central as a simple ticket system. You enter the order, customer and item number. CodeMeter License Central generates a matching ticket that you are able to print on an invoice, or send to the customer by e-mail. The order entry clerk does not have to learn CodeMeter terminology but works with the one he or she is used to.

You can use the ticket in production if, for example, you need to create a customer-specific CodeMeter Stick. Or you might want to deliver the ticket to the customer. Then the customer uses this ticket in CodeMeter License Central Enterprise directly via the Internet. The ticket is not bound to a specific CodeMeter Stick but is flexibly collectable. This eases logistics.

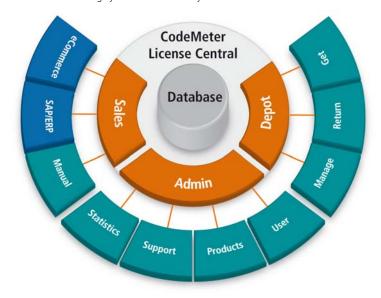
Do you prefer a less flexible solution? Then define a rule type and arrange for your customized license collecting.



Process integration

Orders placed in your online shop, or recorded in the ERP system through manual order processing, may be automatically transferred to CodeMeter License Central. WIBU-SYSTEMS provides corresponding connectors for many different systems. The data transfer is based on SOAP (XML based). Only small adjustments to the online shop or the ERP system are required. In most cases existing license generators or customer-specific order fields can be used without modification. The activation process is also automated on the customers side.

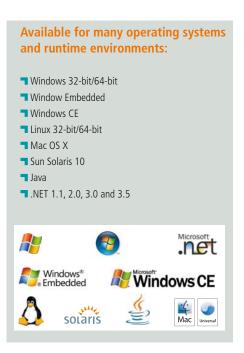
With a wide assortment of possibilities, ranging from the automated integration into your software; integration into your customized Internet page (optionally with Java, ActiveX, or browser extension); to the manual activation by file transfer: everyone should be able to find an existing solution with the highly secure CodeMeter System.



Use it everywhere - form factors and operating systems

Form factors CodeMeter:







WibuKey and CodeMeter adhere to all important international standards like FCC, VCCI, CE and they are certified and listed with Underwriter Laboratories (UL for Canada and USA) and VDE. All our products are RoHS compliant.

WIBU-SYSTEMS is certified according to ISO 9001:2008.













WibuKey: the classic alternative

WibuKey is based on the same security principle as CodeMeter. While CodeMeter offers more license options on the hardware side, WibuKey is more adaptable to non-standard operating systems.

- WibuBox/ST for asynchronous serial interfaces of any operating system with available driver software in C source code.
- WibuBox/P for the parallel interface, and for WindowsNT and Windows 95, or DOS operating systems.

■ WibuKey-ASIC for integration into your own embedded hardware application.

WibuKey has been continuously improved since 1989, always staying 100% backwards-compatible, and has been field-proven over a million times. The solution is available in a standard version holding 10 entries, and a Lite version with a single entry.

The most important functions at a glance

Feature	WibuKey	CodeMeter	CodeMeterAct
Single-user Network License Borrowing	+ + -	+ + +	+ + +
Entries	up to 10	< 6,000	unlimited
Modules per key	up to 240	< 100,000	unlimited
USB PC Card Express Card	+ + -	+ + +	n.a.
SD Card µSD Card CF Card	- - -	+ + +	n.a.
LPT COM ASIC	+ + +	- - +	n.a.
Expiration Time Internal realtime-clock	+ -	+ +	+ n.a.
License memory	16 kByte	60 / 384 kByte	unlimited
Option: additional flash memory	-	up to 8 GByte	n.a.
Combinable options	limited	+	+
Updateable firmware	-	+	n.a.
Windows (32-bit, 64-bit) API Wrapper	+ +	+ +	+ +
Linux (32-bit, 64-bit) API Wrapper	+ -	+ -	+ -
Mac OS X API Wrapper	+ +	+ +	+ +
Sun Solaris 10 API Wrapper	+* -	+ -	+ -
Java API Wrapper	+ +	+ +	+ +
.NET (1.1, 2.0, 3.0, 3.5) API Wrapper	+ +	+ +	+ +
No kernel driver	-	+	n.a.
Remote update file Internet License Central	+ + -	+ + +	+ + +
Encryption algorithms	FEAL	AES, RSA, ECC	AES, RSA, ECC
Encrypted communication	-	+	+
Certificates	UL, VDE, FCC, VCCI, CE	UL, VDE, FCC, VCCI, CE	n.a.
Individual color imprint	+	+	n.a.
Precious metal casing	-	optional	n.a.
Prices (net at 100 pcs.)	49.00 € / 30.00 €	56.90 €	on inquiry

^{*}Driver in C source code enables implementation on any operating system, i.e. HP UX, AIX, Windows CE, realtime operating systems, limited functionality, available for WibuBox /ST

Interested in our Products? Call us!

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