User's Guide

KeyGrabber MultiLogger

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Introduction

About the product

The *KeyGrabber MultiLogger* is a multiple channel keyboard and barcode scanner recorder. It can monitor up to 8 USB or PS/2 keyboard lines and store the recorded data to internal flash memory. Recorded data can be viewed at any time by switching the device to flash drive mode. Additionally, recorded data can be streamed in real-time over Ethernet to any chosen IP address. The *KeyGrabber MultiLogger* does not interfere with keyboard or barcode scanner operation, and does not require any drivers or software. Supports national keyboard layouts.

Features

- Records from 4 or 8 keyboards or barcode scanners simultaneously
- 4 Gigabytes internal memory, accessible as a USB flash drive
- Memory protected with strong 128-bit encryption
- Each channel can be independently configured as USB or PS/2
- Ethernet link (RJ-45), allowing data to be streamed in real-time
- Date and time-stamping
- Internal clock and battery with over 7 years lifetime guaranteed!
- No software or drivers required, Windows, Linux, and Mac compatible
- Transparent to computer operation, undetectable for security scanners
- Quick and easy national layout support

Requirements

- Compatible keyboard or barcode scanner:
  USB version: USB HID-compliant keyboard (Low-Speed, Full-Speed, or High-Speed)
  PS/2 version: PS/2 compliant keyboard
- Computer with standard USB 1.1 or 2.0 port
- Operating system with USB Mass-Storage device support

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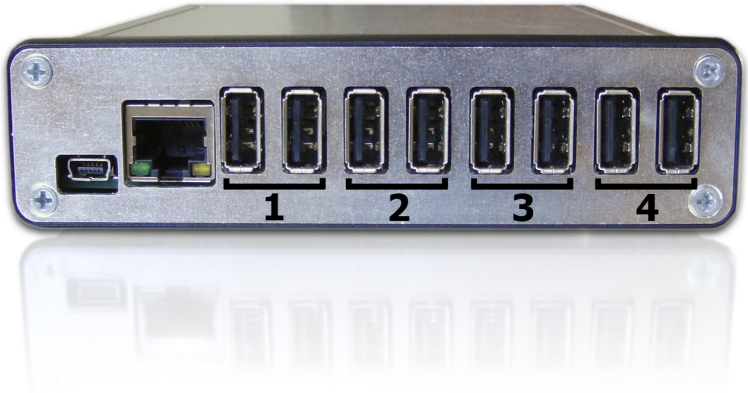
Quick start

The *KeyGrabber MultiLogger* comes as a 4-channel or 8-channel version.

The 4-channel version allows connecting up to 4 USB, PS/2 keyboards, or barcode scanners in the following configuration:



Each keyboard or barcode scanner has an associated socket pair (1…4). The socket pair is internally connected in parallel, allowing to connect the keyboard or barcode scanner to either socket. The second socket should be used to connect the host computer. A USB to PS/2 adapter has to be used to for PS/2 devices.

The 8-channel version allows connecting up to 8 USB, PS/2 keyboards, or barcode scanners in the following configuration:

Each keyboard or barcode scanner has a single associated socket (1…8). A special splitter cable has to be used, allowing to connect the keyboard or barcode scanner and host computer. Both USB and PS/2 splitter cables are available, as seen on the picture below.

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Finally, a 5V power supply should be connected to the rear panel, as seen on the image above.

The *KeyGrabber MultiLogger* can be configured with a single text file named CONFIG.TXT. Use any text editor (such as *Notepad*) to prepare such file. The basic configuration involves defining what type of keyboards are connected to the ports. The following example demonstrates how to configure each channel:

```
Ch1Type=USB
Ch1Header=LogitechKeyboard
Ch2Type=PS2
Ch2Header=Second Keyboard
Ch3Type=PS2
Ch3Header=Noname
Ch4Type=USB
Ch4Header=Hp
...
```

The channel type (USB or PS2) should match the keyboard type on the corresponding port. The header is an arbitrary string describing the keyboard connected to a particular channel. If defined, the channel header will be added to the log each time the active device changes.

To enable time-stamping, add the following line to CONFIG.TXT:

```
Timestamping=Yes
```

Then, follow section **Clock configuration** to learn how to set the time in the built-in Real Time Clock.

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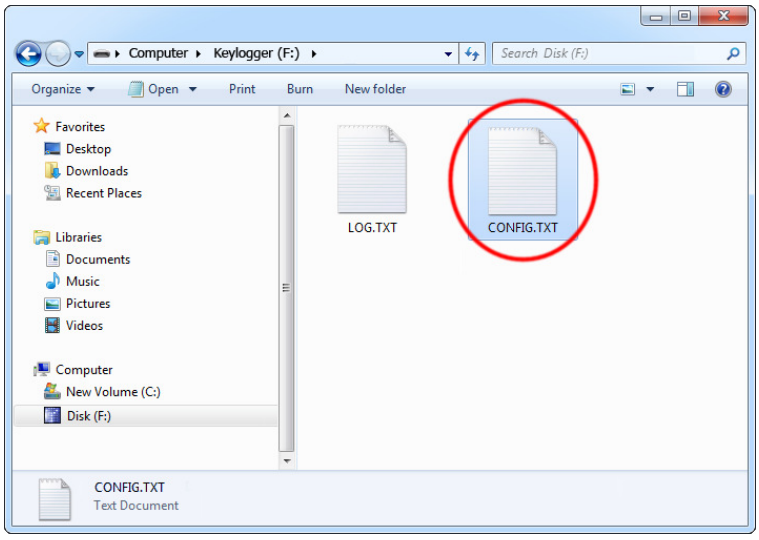
If the networking streaming functionality is to be used, add the following lines to CONFIG.TXT:

```
DisableEthernet=No
IpAddress=192.168.1.100
NetMask=255.255.255.0
Gateway=192.168.1.1
UdpPort=25998
```

The static IP data should match the network environment in which the device is to work.

Finally, the saved CONFIG.TXT file needs to be stored to the device. Use a mini-USB to USB-A cable to connect the device to a PC and apply power.

After a few seconds, the *KeyGrabber MultiLogger* will pop up as a removable drive. Copy CONFIG.TXT to the drive:



Then safely disconnect the removable device, and disconnect the USB cable. The new configuration will be applied on next power up.

Data logging will start immediately after power-up. Recorded keystroke data will be stored in the file LOG.TXT. This file may be accessed through USB flash drive mode, by connecting to a PC with the mini-USB socket.

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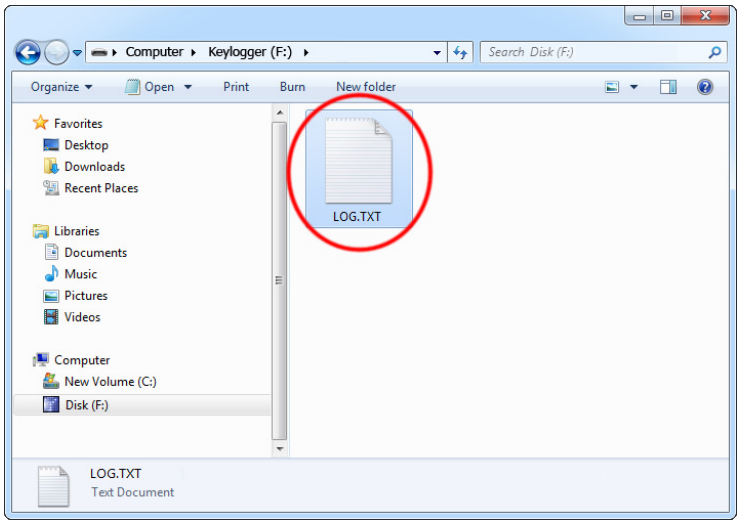

Parallel to recording data to LOG.TXT, acquired keystroke data may be streamed over Ethernet using the UDP protocol. Refer to section **Network communication** for more information.

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Network communication

To enable real-time streaming over UDP, the *KeyGrabber MultiLogger* has to be correctly configured for the existing network environment. This can be done by adding the following lines to CONFIG.TXT:

```
DisableEthernet=No
IpAddress=192.168.1.100
NetMask=255.255.255.0
Gateway=192.168.1.1
UdpPort=25998
```

The static IP data should match the network environment in which the device is to work. Connect the device to the network with a standard UTP cable inserted into the RJ45 connector:

Upon startup, the *KeyGrabber MultiLogger* will attempt to connect the Local Area Network. The following command set is then available over UDP:

Command	Length in bytes	Contents	Description
OPEN	1	0x01	Opens the device for streaming. The keystroke data will only be streamed to the host which opened the device.
OPEN ACK	1	0x11	Device response to the OPEN command.
CLOSE	1	0x02	Closes the device. Keystroke data will no longer be streamed.
CLOSE ACK	1	0x12	Device response to the CLOSE command.
KEEP ALIVE	1	0x00	Requests a KEEP ALIVE ACK response to check whether the device is responsive.
KEEP ALIVE ACK	1	0x10	Device response to the KEEP ALIVE command.
CHANNEL	1	0x04	Requests a CHANNEL ACK response to get the current active channel.
CHANNEL ACK	1	Channel	Device response to the CHANNEL command, containing the current active channel. The valid range is 0x01 to 0x08 and 0xFF in case no data has been acquired yet.
RESTART	1	0xAA	Requests an immediate device reset. Useful for re-reading the configuration data.

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Once opened using the OPEN command, the *KeyGrabber MultiLogger* will stream all acquired keystroke data to the IP address of the host that opened it. The UDP protocol will be used with the configured port number. The data will be formatted using the currently selected keyboard layout. Data will be interleaved with the current channel header (if configured for a certain channel) and timestamping information. Refer to section **Configuration options** for more information.

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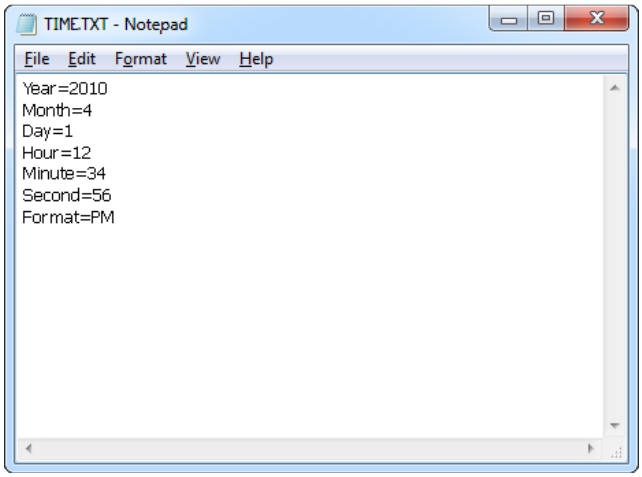
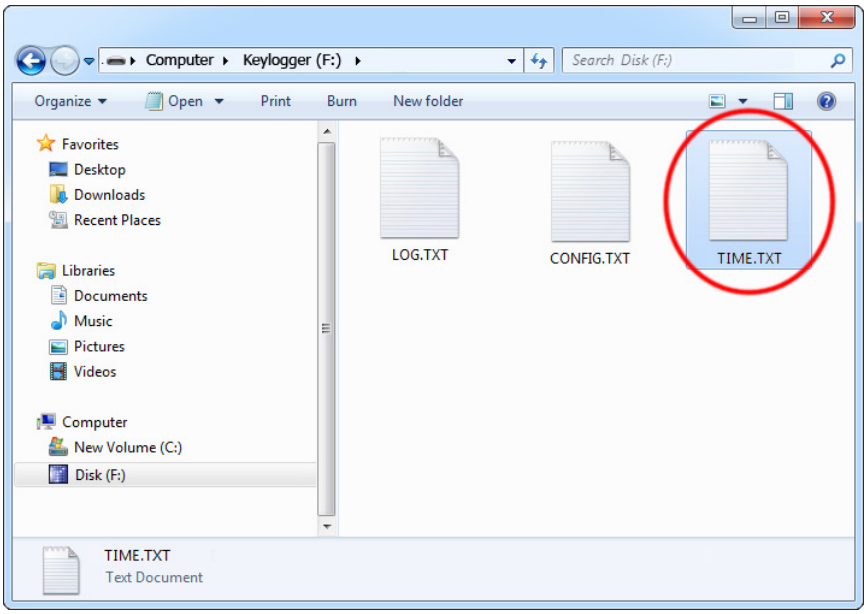
Clock configuration

It is necessary to configure the built-in clock module for getting correct date and time-stamps. To do this, a text file named TIME.TXT should be prepared with the following format:

```
Year=2010
Month=4
Day=1
Hour=12
Minute=34
Second=56
Format=PM
```



The fields should contain the current time and date. The field *Format* allows distinguishing between A.M., P.M., and 24-hour time (use the value *AM*, *PM*, or *24*). After the file has been prepared, switch to flash drive mode and copy the file TIME.TXT to the root folder of the flash disk.



After copying the file, safely remove the flash drive. The new clock configuration will be loaded during the next power-up.

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The clock configuration file must be named TIME.TXT and must be placed in the root folder. Variable and value strings are case insensitive, however they must match the options listed below.

- *Year* sets the clock year value. Valid range is from 2000 to 2099.
- *Month* sets the clock month value. Valid range is from 1 (January) to 12 (December).
- *Day* sets the clock day value. Valid range is from 1 to 31. If the specified day exceeds the maximum number of days in the specified month, the next valid day value will be chosen.
- *Hour* sets the clock hour value. Valid range is from 1 to 12 for 12-hour time (A.M./P.M.), and 0 to 23 for 24-hour time.
- *Minute* sets the clock minute value. Valid range is from 0 to 59.
- *Second* sets the clock second value. Valid range is from 0 to 59.
- *Format* sets the time format. Valid values are *AM*, *PM*, and *24*. If *AM* is chosen, the 12-hour format is selected and the specified hour is treated as before noon. If *PM* is chosen, the 12-hour format is selected and the specified hour is treated as after noon. If *24* is chosen, the 24-hour format is selected and the specified hour is treated as 24-hour format.

Sample TIME.TXT for 12-hour time:

```
Year=2010
Month=10
Day=25
Hour=5
Minute=51
Second=43
Format=PM
```

Sample TIME.TXT for 24-hour time:

```
Year=2010
Month=10
Day=25
Hour=17
Minute=51
Second=43
Format=24
```


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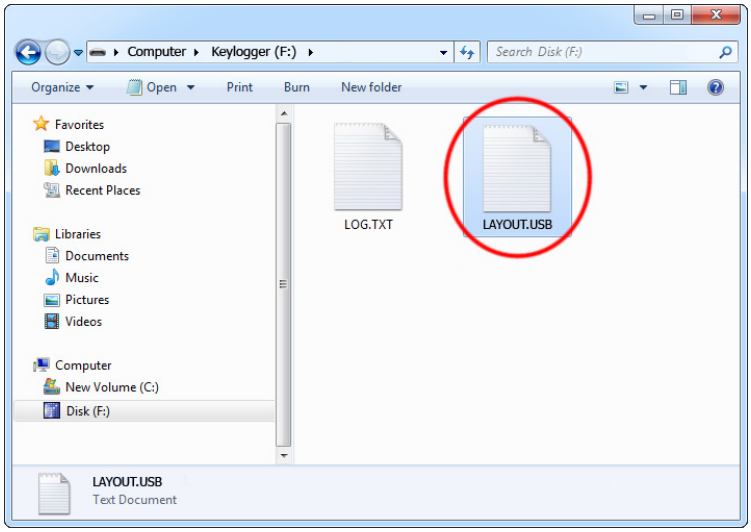
National keyboard layouts

It is possible to enable a national layout for language-adapted keyboards, such as French, German etc. This will allow national characters to get logged properly (including those with Alt Gr), such as ö, æ, ß, ó etc. The following example demonstrates the advantages of applying the German national layout.

Text logged without layout	Text logged with layout
Kezlogger)PS-2 / USB=	*KeyLogger (PS/2 & USB)*

To enable a national layout, the appropriate layout file named LAYOUT.USB must be placed on the flash disks root folder. The file must be copied in flash drive mode. Layout files may be obtained from the CD-ROM attached with the device.



To enable the layout, safely remove the flash disk. On power-up, the layout file will be loaded automatically.

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Configuration options

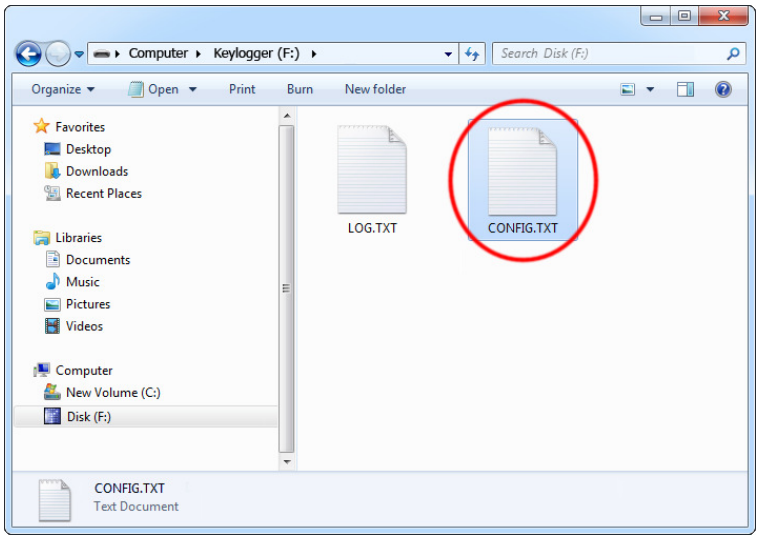
The *KeyGrabber MultiLogger* is configured via two text files placed on the internal flash drive:

- CONFIG.TXT (configures key-logging parameters)
- TIME.TXT (configures the internal clock for time-stamping)

These files should contain configuration parameters, placed in successive lines in the following format:

```
Parameter1=Value
Parameter2=Value
Parameter3=Value
...
```

These configuration files must be placed in the device internal memory using flash drive mode.



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CONFIG.TXT

The file CONFIG.TXT is responsible for configuring keystroke-logging parameters and network configuration.

Basic parameter list

Parameter	Values	Example	Description
Ch[N]Type	None (default) USB PS2	Ch2Type=USB	Configures the channel N (1…4 or 1…8) to a specific keyboard or barcode scanner type. The selected type should match the hardware.
Ch[N]Header	Header string (no default)	Ch1Header=MyKeyboard	Defines a string associated with channel N (1…4 or 1…8), which is used to identify the channel in the logged data.
Header	Header string (no default)	Header=MyDevice	Defines a string which is used to identify the device in network traffic.
DisableLogging	Yes No (default)	DisableLogging=Yes	Keystroke logging disable flag.
LogSpecialKeys	None Medium (default) Full	LogSpecialKeys=Full	Special key logging level.
DisableLayout	Yes No (default)	DisableLayout=Yes	National layout disable flag (see section **National keyboard layouts**).
Timestamping	Yes (default) No	Timestamping=No	Time-stamping disable flag.
IpAddress	IP address string (no default)	IpAddress=192.168.0.100	Static IP address of device.
NetMask	Network mask string (no default)	NetMask=255.255.255.0	Network mask of device.
Gateway	Gateway address string (no default)	Gateway=192.168.0.1	Default gateway.
DisableEthernet	Yes No (default)	DisableEthernet=Yes	Network disable flag.
DisableUdp	Yes No (default)	DisableUdp=Yes	UDP disable flag.
UdpPort	Port value (0…65535, default 25998)	UdpPort=23456	UDP communication port.

Advanced parameter list (use only when you know what you're doing!)

Parameter	Values	Example	Description
Encryption	Yes No (default)	Encryption=No	Flash drive encryption setting (caution: changing this value will re-format the flash drive).
Ch[N]FrameFilter	Filter value (range 0…255, default 98)	Ch1FrameFilter=226	Frame filter value for a specific channel (USB channels only).
BufferSize	UDP buffer size	BufferSize=256	The maximum buffer size used for

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	in bytes (default 128) Mixed		transferring UDP datagrams.
SingleCharMode	Yes No (default)	SingleCharMode =Yes	Enables a special network mode, where a separate datagram is used for transferring each acquired keystroke.

TIME.TXT

The file TIME.TXT is responsible for configuring the built-in real-time clock.

Parameter list

Parameter	Values	Example	Description
Year	Year value (range 2000…2099, default 2010)	Year=2010	Year setting (range 2000 to 2099).
Month	Month value (range 1…12, default 1)	Month=10	Month setting (1 is January, 12 is December).
Day	Day value (range 1…31, default 1)	Day=15	Day setting (range 1 to 31).
Hour	Hour value (range 1…12 or 0…23, default 1)	Hour=6	Hour setting (range 1 to 12 for A.M./P.M. format and 0 to 23 for 24-hour time).
Minute	Minute value (range 0…59, default 0)	Minute=37	Minute setting (range 0 to 59).
Second	Second value (range 0…59, default 0)	Second=49	Second setting (range 0 to 59).
Format	AM PM (default) 24	Format=24	Time format setting. If AM is chosen, the 12-hour format is selected and the specified hour is treated as before noon. If PM is chosen, the 12-hour format is selected and the specified hour is treated as after noon. If 24 is chosen, the 24-hour format is selected and the specified hour is treated as 24-hour format.

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Specifications

	KeyGrabber MultiLogger 4-channel	KeyGrabber MultiLogger 8-channel
Power supply	5.0 V – 6.0 V DC	
Max. power consumption	800 mA	1000 mA
Maximum burst log speed per channel (approx.)	500 byte/s	
Maximum continuous log speed per channel (approx.)	100 byte/s	
Memory capacity	4 GB	
Data retention	100 years	
Number of channels	4	8
Keyboard support	USB HID-compatible keyboards (Low-speed, Full-speed, High-speed) and PS/2-compatible keyboards	
Dimensions including connectors (L x W x H)	162 mm x 125 mm x 30 mm (6.4" x 4.9" x 1.2")	

All KeyGrabber products come with 1 year warranty against manufacturer defects. Defect products must be shipped by the customer. All warranty repairs and delivery to the customer will be paid by the manufacturer.

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List of special keys

[Esc]	-	Escape
[F1]	-	F1
[F2]	-	F2
[F3]	-	F3
[F4]	-	F4
[F5]	-	F5
[F6]	-	F6
[F7]	-	F7
[F8]	-	F8
[F9]	-	F9
[F10]	-	F10
[F11]	-	F11
[F12]	-	F12
[Ctl]	-	Control
[Alt]	-	Alt
[Ins]	-	Insert
[Hom]	-	Home
[PUp]	-	Page Up
[PDn]	-	Page Down
[Del]	-	Delete
[Win]	-	Win
[Aps]	-	Apps
[Cap]	-	Caps Lock
[Ent]	-	Enter
[Bck]	-	Backspace
[Tab]	-	Tab
[Prn]	-	Print Screen
[End]	-	End
[Scr]	-	Scroll Lock
[Up]	-	Up
[Dwn]	-	Down
[Lft]	-	Left
[Rgh]	-	Right
[Num]	-	Num Lock
[-N]	-	- (num)
[+N]	-	+ (num)
[.N]	-	. / Delete (num)
[/N]	-	/ (num)
[*N]	-	* (num)
[0N]	-	0 / Insert (num)
[1N]	-	1 / End (num)
[2N]	-	2 / Down (num)
[3N]	-	3 / Page Down (num)
[4N]	-	4 / Left(num)
[5N]	-	5 (num)
[6N]	-	6 / Right (num)
[7N]	-	7 / Home (num)
[8N]	-	8 / Up (num)
[9N]	-	9 / Page Up (num)
[Pwr]	-	Power
[Slp]	-	Sleep
[Wke]	-	Wake

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Legal disclaimer

KeyGrabber does not take responsibility for any damage, harm or legal actions caused by misuse of its products. The user should follow the guidelines contained in this document, otherwise no liability will be assumed. It is the user's responsibility to obey all effective laws in his/her country, which may prohibit usage of KeyGrabber products. Please also consider, that not knowing the law does not allow to not obeying it. A good example is the U.S. Department of Justice Letter on Keystroke Monitoring and Login Banners, according to which a clear notice should be displayed, warning that user keystrokes may be logged. Please check with your legal representative for logging requirements in your country.

For more information on KeyGrabber products, visit our website:

http://www.keydemon.com/

You should not use this device to intercept data you are not authorized to possess, especially passwords, banking data, confidential correspondence etc. Most countries recognize this as a crime. Please consult a legal representative for logging requirements in your country.

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Notes:

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