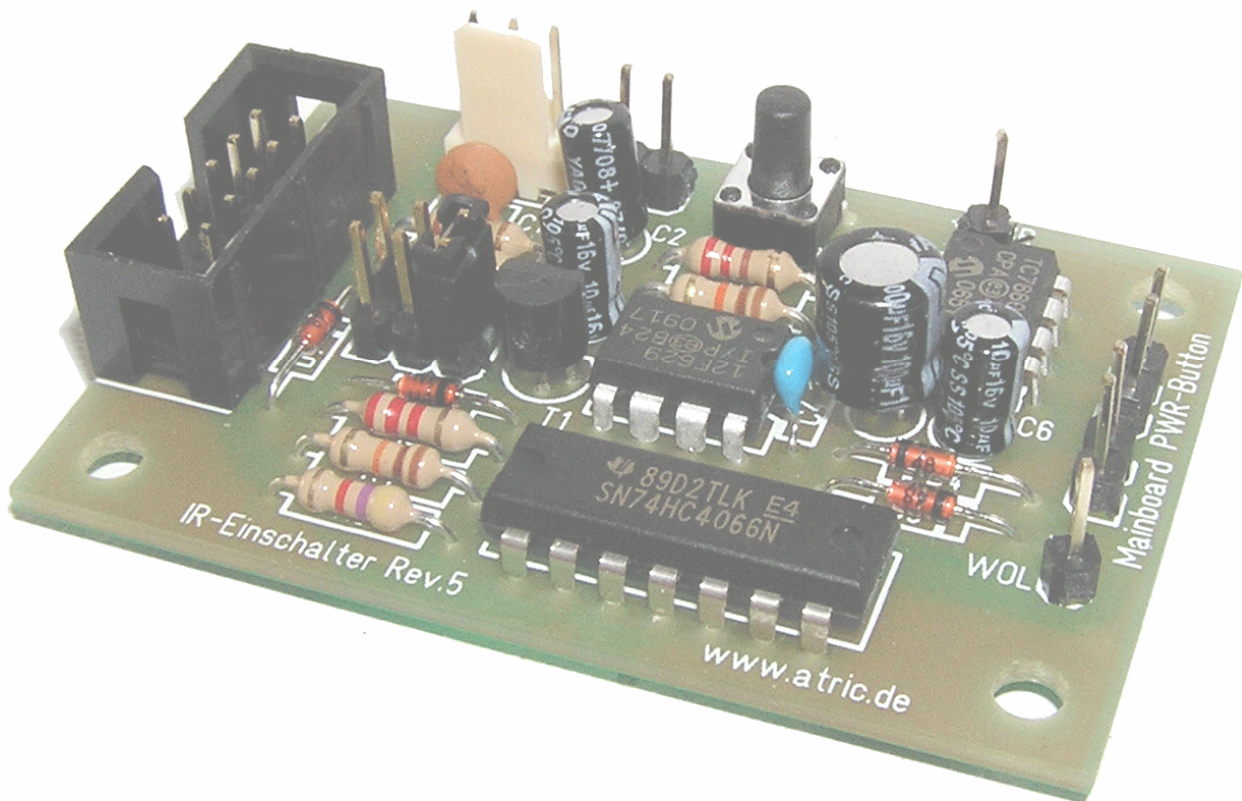


# IR-WAKE-UP-SWITCH REV.5

## Installation and operating instructions



### **Important Note!**

Please read this instructions exactly before you start with the installation of the receiver to avoid damages to your computer!

This device was very carefully developed. We nevertheless cannot assume any liability for damages which result from the installation into your computer.

## Table of contents

1. Introduction .....	3
2. Contents of the delivery .....	3
3. Function description .....	4
3.1 important innovations opposite the predecessor version .....	4
3.2 Indications of the LED .....	4
4. Installation instructions .....	5
4.1 Connection to the serial interface.....	5
4.1.1 Internal serial connection.....	5
4.1.1.1 The different pin-assignments of the internal serial interface.....	6
4.1.2 External serial connection.....	6
4.1.3 Connection without a serial interface.....	6
4.2 Wakeup variants .....	7
4.2.1 Connection to the power button .....	7
4.2.2 Connection to the WOR connector (Wake On Ring) .....	7
4.2.3 Connection to the WOL connector (Wake On LAN) .....	8
4.3 Connection to the standby power supply .....	8
4.3.1 internal PS/2 connector .....	8
4.3.2 Wake On LAN connector .....	8
4.3.3 internal USB connector.....	9
4.3.4 USB power jumper .....	9
4.3.5 ATX power cable connector .....	9
4.3.5.1 Layout of the ATX power cable connector .....	9
5. Programming of the receiver (setup mode) .....	10
5.1 Operation of the setup menu .....	10
5.2 Structure of the menu .....	10
5.2.1 Example for the operation .....	11
5.2.2 Turn on/off behaviour.....	11
5.3 Training the remote control .....	12
6. Use of an IR control software .....	13
6.1 Jumper JP1: choose the input Pin for the infrared signal.....	13
Appendix .....	14
Layout of the connectors .....	14
Con1: IR receiver connector .....	14
Con2: LED connector .....	14
Con3: Stand-by voltage connector .....	14
Con4: Connector for the power button.....	14
Con5: Connector for the mainboard's power button connection .....	15
Con6: Wake On LAN connector.....	15
Con7: Connector for the serial interface (COM port) .....	15
Important notes for using the internal serial interface connector.....	16
Link collection .....	17

## **1. Introduction**

Congratulations on purchasing the IR-Wake-Up-Switch.

It is nothing new that one can steer a computer with a remote control.

It is only a pity that you can't switch on the computer with normal IR receivers because the receiver is active only after the start-up of the computer. Therefore we have developed the IR-Wake-Up-Switch for you with which you can switch on your computer with every customary remote control.

Frequent application areas for this are living room computers, like HTPC (home theatre pc) or VDR (video disc recorder). However, you can use the IR-Wake-Up-Switch also with your ordinary computer.

In addition the IR-Wake-Up-Switch is also an IR receiver.

This means you can control your computer also with your remote control without needing an additional receiver. For this you need a corresponding IR control software, such as LIRC.

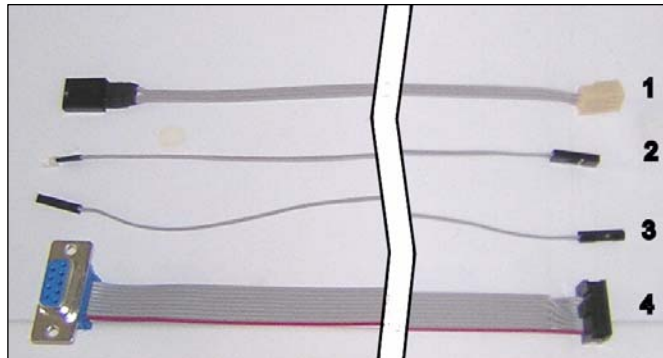
Unlike other available infrared power on solutions which work only with RC5 remote controls, our device is compatible with almost all customary remote controls.

### **Notice:**

This device is not suitable for data exchange with a mobile phone or PDA.

## **2. Contents of the delivery**

- circuit board which is completely built up and tested
- (# 1) IR receiver chip with connection cable
- (# 2) bichromatic LED with connection cable
- (# 3) 3 x single-wired connection cable for power supply, power button or WOL connection
- (# 4) serial connection cable for the internal or external COM port



### **3. Function description**

The IR-Wake-Up-Switch Rev.5 is a further development of the popular and successful IR-Wake-Up-Switch Rev.4.

You can switch on and also turn off alternatively your computer with the IR-Wake-Up-Switch with every customary infrared remote control.

To this the IR-Wake-Up-Switch is attached to the stand-by power supply of the computer.

The IR-Wake-Up-Switch receives arriving infrared signals and compares these with the stored code.

If the code agrees, a switching impulse is sent to the computer and this switches himself on or turns off.

The IR-Wake-Up-Switch can be trained through a built-in setup mode on the used remote control.

This means the received code is stored and is compared with the arriving codes later.

By this training mode it is possible to use almost every customary infrared remote control.

In addition, the IR-Wake-Up-Switch transmits the received signals to pin 1 (DCD) of the serial interface.

Through this it is possible to control the computer by using a corresponding control software (e.g. LIRC, WinLIRC, Girder, IR assistant etc.).

LinVDR also supports the IR-Wake-Up-Switch if you register this as a "Homebrew" receiver.

#### **3.1 Important innovations opposite the predecessor version:**

- Decoupling of the IR-receiver from the serial port via an analogue switch.  
Now the switch is compatible with problem motherboards, where the current flow through the serial port was too high.
- The level of the infrared signal was increased to approximately 9V  
(for better compliance to the RS232 specification)
- It is selectable now by a jumper, to which pin of the serial port the IR signal is connected.  
Thus the IR switch is compatible now with Miri-Server (Miriam) and the IgorPlugXP for Girder.
- Advanced filter circuit for smoothing voltage and suppression of disturbances on the IR signal

#### **3.2 Indications of the LED**

- The LED is green for approx. ½ second for confirmation directly after the circuit was connected to the power supply.
- As long as the computer is off, the LED does not react to any keystroke apart from the programmed power-on key.
- If the programmed power-on key is pressed, the computer switches on itself and the LED indicates green until the computer has started (indicating also can be switched off in the setup mode)
- If the computer already is running, the LED indicates fast green at every keystroke of the programmed remote control. (also can be switched off in the setup mode)
- The IR switch should not react on keys of another remote control. (can occur in exceptions if a similar code is used)
- If the programmed key is pressed during the computer is switched on, the LED indicates red and a power off impulse is sent.  
If turning off is deactivated, the LED indicates fast green as in the case of every other key.
- The power off impulse is active until you hold down the key.  
By this you can turn off the computer after a crash by pressing the programmed key for more than four seconds. (This is only possible if the IR-Wake-Up-Switch is connected to the power button).

In the setup mode the LED has another meaning. Look at the chapter "setup mode" later.

## **4. Installation instruction**

Disconnect the computer from the main power absolutely before opening the system case!

**Remove main plug - Turning off doesn't suffice!!!**

Because the computer still is supplied with power in the stand-by mode, parts falling in (screws etc.) can cause irreparable damages to your computer!

Before you fasten the circuit board, you have to choose a suitable space in the system case from which you can connect all cables with the associated connectors without problems.

Please also consider that the receiver chip must be installed at a special place inside the system case so that the signals of the remote control can reach it. (e.g. behind a small opening in the front panel).

The chip can alternatively be led out at the back of the system case and fastened to the side with a double-sided adhesive tape. The receiver works in many cases too, if you install it at the back the computer, because the reflected light of the remote control still suffices to control the receiver.

If you want to use the LED as a receiving confirmation, you must put it in the front of the computer.. Otherwise you need the LED only during the setup process. After that you can disconnect the LED.

If you have found a suitable space for installing the circuit board, it can be fastened by using the four fastening holes inside the system case. Take absolutely care that no short circuit results from metal parts being under the solder side of the circuit board! (Use perhaps suitable spacers!)

Connect the connection cables now.

Please use the pin assignment description in the appendix to make the correct connections.

Which cables must be attached, depends from the method how the computer should wake up.

Notice the chapter "Wakeup variants" in this document.

### **4.1 Connection to the serial interface**

Connect the IR-Wake-Up-Switch to the serial port first.

Plug the enclosed flat ribbon cable to **Con7** of the IR-Wake-Up-Switch and plug the other end to the serial port of your computer.

**If you use the internal connector, please make sure that you have the pin-1 side of the cable (red wire) matched with the pin-1 side of the connector.**

Please take a look into the manual of your mainboard for information of the pin assignment.

#### **4.1.1 internal serial connection**

Many motherboards have an internal connection for the serial interface.

If you have an internal connector, it makes sense to use them.

Sometimes (e.g. ASUS Pundit) the external interface is internally attached to a connector.

In this case you can disconnect the external interface and instead connect the IR-Switch to this internal socket.

Thus the external interface is without function.

If your motherboard does not have an internal connector, you must use the external serial port.

Read for this the chapter **4.1.2 "external serial connection"**

If your motherboard doesn't have a serial interface, you can connect the IR-Wakeup-Switch to your PC anyway.

In this case you can only turn on/off your computer; software-controlling is not possible.

For this connection read the chapter **4.1.3 "Connection without a serial interface"**

#### 4.1.1.1 The different pin-assignments of the internal serial interface

##### Important!

There are different pin assignments for the internal serial connector depending on the manufacturer of the motherboard. It is absolutely necessary that you are sure, what pin assignment has your motherboard.

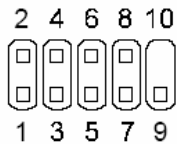
**Use only the appropriate serial cable!** If you connect the IR-Wakeup-Switch with a wrong cable, the IR-Wakeup-Switch can be destroyed – In every case the device would not work correctly.

There are two different pin assignments:

**Type-5:** Pin 5 is connected to GND

**Type-9:** Pin 9 is connected to GND

The pinout corresponds to the following illustration:



The information about the pin assignment of your serial port mostly you can find in the manual of your motherboard. Some manufacturers (e.g. ASUS) do not print a pin assignment of the serial interface. In this case please look to the appendix – chapter „*Important notes for using the internal serial interface*“.

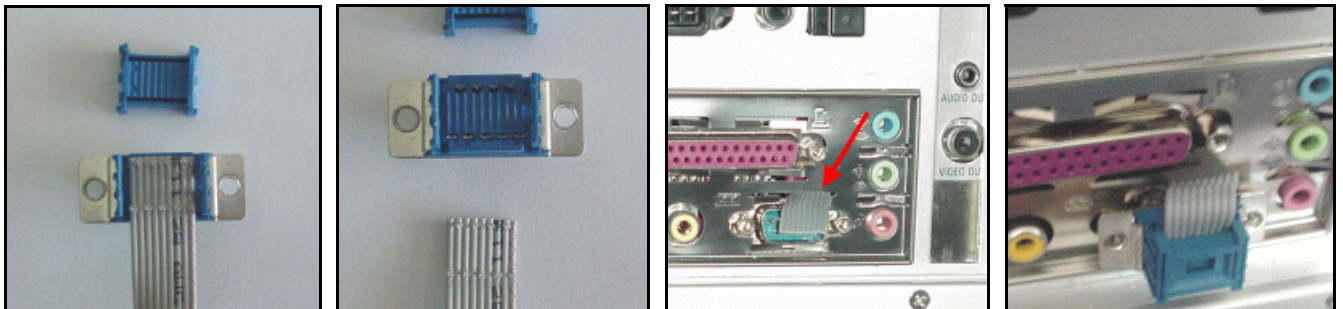
#### 4.1.2 External serial connection

The external serial connector is standardised and always has the same pin assignment.

##### Tip for using the external serial port:

Because in this case you must lead the cable out from the system case, you can detach the plug from the cable carefully and lead the cable through the narrow slit over the COM port connector to the outside.

Connect the plug with the cable again now (pay attention to the correct seat of the individual wires) and plug it into the COM port connector.



#### 4.1.3 Connection without a serial interface

If your motherboard doesn't have a serial interface, you can connect the IR-Wakeup-Switch to your PC anyway. In this case you can only turn on/off your computer; software-controlling is not possible.

Connect the Pin5 of the Connector "Con7" with ground (GND). For this you can use one of the single-pole cables. Put the wire at the motherboard on a pin that is denoted with "GND". (e.g. unused fan connector)

So that the IR-Wakeup-Switch can recognize whether the PC is switched on or off, you must connect additionally the Pin7 of "Con7" with +5V or +12V.

For this you can likewise use a free fan connector, these have mostly a 12V output

Alternatively you can get the 5V from a disk drive power cable.

## 4.2 Wakeup variants

Now you can choose between 3 different variants, how your computer shall be switched on.

- connect the switch with the wire between the system case power button and the motherboard
- Wake On Ring (WOR) – *only if your motherboard supports this feature.*
- Wake On LAN (WOL) – *only if your motherboard supports this feature.*

Which variant you use primarily depends from what your motherboard supports.

The safest variant is still the connection with the power button to switch on the computer.

This is difficult if the power button is soldered tightly with the motherboard (e.g. ASUS Pundit), unless you solder a cable to the soldering lands of the button yourself. (You will lose the guarantee)

There are the two possibilities „Wake On Ring“ or „Wake On LAN“ for it.

For this the motherboard must support at least one of these features and the feature also must be enabled in the BIOS setup utility.

Please gather from the manual of your motherboard, which option is supported.

Note:

With most motherboards WOR / WOL works only if the computer was cleanly shut down before.  
Probably it doesn't work after switching off the main power or any power failure.

### 4.2.1 Connecting to the power button

If you want to use this variant, pull off the cable at the motherboard that is connected to the system case power button. (Remember the position at which the plug was)

Plug this cable on **Con4** of the IR-Wake-Up-Switch instead.

Connect two of the enclosed unipolar cables with the motherboard at the connector where the cable of the system case power button was connected before.

Plug in the other ends of these cables at Con5 of the IR-Wake-Up-Switch.

The polarity of the two cables doesn't matter.

If you use this variant, you should set the option "Power Off By Power Button" at the BIOS setup to "4 Sec Delay", so that the computer does not immediately turn off itself, when you press the programmed key of your remote control by mistake. Mostly you find this option in the section "Power Management Setup" of the BIOS setup utility.

If you liked to turn your computer off (e.g. after a system crash), you simply hold down the programmed key of the remote control (or the power button at the system case) for at least 4 seconds.

The IR-Wake-Up-Switch recognizes whether the computer is running or not.

You can therefore configure the IR contactor in such a way that it sends only a power-on impulse but sends no power-off impulse.

Look to this at the chapter "**setup mode**" later.

Continue now with chapter 4.3 (Connection to the stand-by power supply).

### 4.2.2 Connection to the WOR connector (Wake On Ring)

If you want to turn on your computer by WOR, you don't need to connect further cables.

The IR-Wake-Up-Switch sends a "ring impulse" to the serial interface (COM port) of the computer.

If the motherboard supports this option, the computer switches on itself at this impulse.

To use this feature the option "**Wake On Ring**" in the BIOS setup must be enabled.

(Look at your BIOS setup description)

The Wake On Ring feature doesn't work after switching off the computer by power switch or any power failure.

In this case you must turn on your computer by the system case power button. The WOR feature should work again after the next shutdown.

Continue now with chapter 4.3 (Connection to the stand-by power supply).

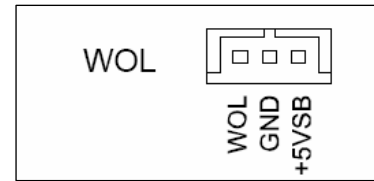


### 4.2.3 Connection to the WOL connector (Wake On LAN)

If you want to turn on your computer by WOL, connect one of the enclosed unipolar cables with **Con6** of the IR-Wake-Up-Switch and plug the other end on Pin1 of the WOL connector on your motherboard.

The WOL connector is a small three-pole white plug, similar the compact disc drive audio connector of older sound cards.

To this, look also to your motherboard description. The pin in question is mostly marked by "WOL".



The option „Wake On LAN“ must be enabled in the BIOS setup so that the computer can switch on itself. Look to this in your BIOS description.

The Wake On LAN feature doesn't work after switching off the computer by power switch or any power failure. In this case you must turn on your computer by the system case power button. The WOL feature should work again after the next shutdown.

Continue now with chapter 4.3 (Connection to the stand-by power supply).

### 4.3 Connection to the stand-by power supply

The IR-Wakeup-Switch must be connected to the standby power supply of the computer, so that the IR-Wakeup-Switch remains ready to receive a signal, when the computer has been shut down. The Standby Power is called in the following only **+5VSB**.

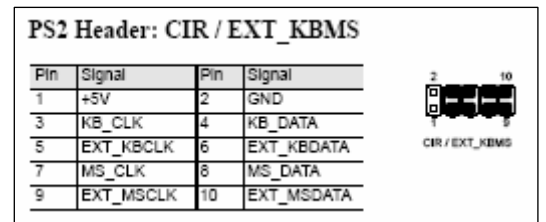
Use one of the three unipolar connection cables and plug it on **Con3** of the receiver module. The other end must be connected with +5VSB. There are several possibilities for it. It depends on the used motherboard which possibility exists. Also look at the manual of your motherboard to determine the possibilities. The standby power is marked by +5VSB most. Look for a free Pin with the name **+5VSB**.

Indication for testing, whether power is on:

As soon as the switch is supplied with power, the LED indicates green for approx. 1/2 second. The receiver is operational now. To this the serial cable must be connected to the COM port. In addition, the mains plug must be plugged in. **(After testing plug off the mains plug!)**

#### 4.3.1 Internal PS/2 – Connector (or CIR – Consumer Infrared Module Connector)

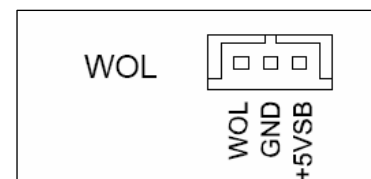
The standby power is available at the internal PS/2 connector at the pin 1. If this connector is available at your mainboard, plug the cable on this pin.



#### 4.3.2 Wake On LAN connector

Many motherboards have a WOL connector. The +5VSB is available at pin 3 of this connector. Plug the cable onto this pin.

The LED indicates green briefly, if the module is operational.





### 4.3.3 Internal USB connector

Many newer motherboards supports the function "USB-Resume" and for this reason this motherboards provides the standby power at the USB port. But this is mostly marked by "VCC" or "+5V" only. The "+5VSB" is usually the Pin1 of the internal USB connector.

Here helps only to try out, whether the stand-by voltage is available also when the computer is turned off. Most simply is that you connect the IR-Wake-Up-Switch to the pin in question and then plug in the mains plug. The LED will indicate green once if voltage is available.

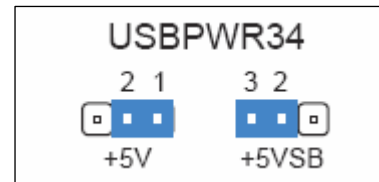
**Important!** Before you continue with the installation, absolutely remove the mains plug again!

Perhaps the option "USB-Resume" must also be activated in the BIOS to switch on the standby voltage.

### 4.3.4 USB power jumper (USB Device Wake Up)

Some motherboards (e.g. the "P4S8L" in the "ASUS Pundit") have a jumper to select, whether the "+5V" or the "+5VSB" shall be available at the USB port.

Place the jumper cap so that the option "+5V" is selected and connect the IR-Wake-Up-Switch with the free pin ("+5VSB"). (e.g. Pin3 in the illustration)



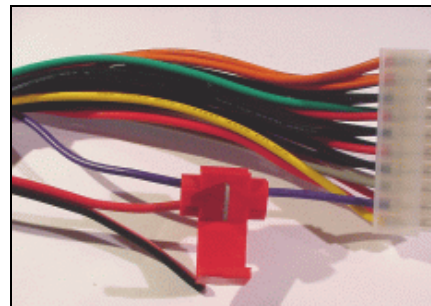
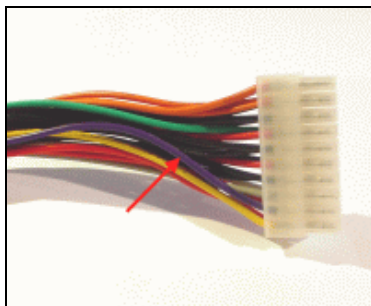
### 4.3.5 Connecting to the ATX power cable connector

If there should be no possibility at your motherboard to get the "+5VSB", it still remains the possibility of getting the standby voltage directly at the ATX power cable connector.

To this connect the cable with the wire that is connected to Pin9 of the ATX plug (**mostly purple**).

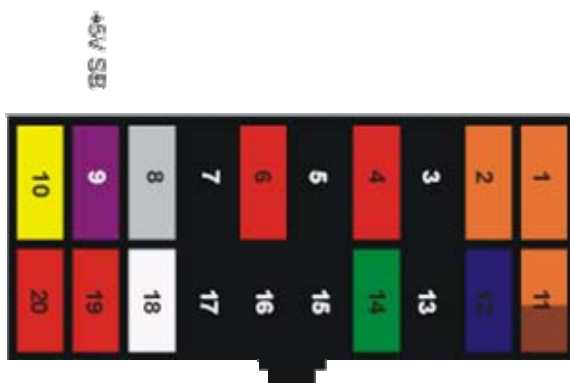
So that you don't have to cut the wire, we recommend the use of a cable branching clamp.

The clamp isn't provided by us, but you can get it at electrical-, home improvement- or car part-markets.



You put the clamp around the purple wire, lead the end of the wire that is to be connected into the opening and then you turn the latch down. Shut the clamp firmly. (It goes very heavily - perhaps use a pliers)

#### 4.3.5.1 Pin assignment of the ATX power cable connector



**Please look also to your motherboard description!**  
You have to use +5V standby. (+5V SB)

If you should have doubt, please check the voltage before you connect the circuit board.  
**For damages which result from a wrong connection, we cannot assume any liability!**

If the IR-Wakeup-Switch is provided with the voltage correctly, the LED indicates green for approx. 1/2 second. To this, however, the serial cable must be connected to the COM port (Ground is obtained from it). In addition, the mains plug must be plugged in. Remove the mains plug again before you continue with the connection of the other cables or assembling your computer.

**Before you close your system case, you still must program the receiver.**

## **5. Programming of the receiver (setup mode)**

The new version of the IR-Wake-Up-Switch has a setup mode now. This allows you to adapt the operation of the IR-Wake-Up-Switch to your needs.

The setup mode contains the following functions:

- Choice of the coding of the used remote control
- Training the power-on code of the remote control
- Choice, whether an switch-off impulse will send or not
- Choice, whether the LED indicates during the start-up of the computer
- Choice, whether the LED flashes at every keystroke at the remote control

### **5.1 Operation of the setup menu:**

For the simpler operation of the setup mode, a button was integrated on the new IR-Wake-Up-Switch

Because no display or navigation possibility exists, the desired menu item is selected by the number of keystrokes corresponding to it.

The LED always gives a confirmation for the chosen point by indicating green as often as the number of the menu item is.

When you are at the desired menu item, you also choose the desired option by the corresponding number of keystrokes. The LED reports the success of the setting by indicating green quickly. After that the setup mode is exited automatically.

If the button was pressed more often than menu items or options are available, the LED indicates red. The setup mode is exited.

Whenever you push the button, don't push it too short and not too fast successively to ensure a correct recognition by the firmware!  
You have approx. 1/2 second between the individual keystrokes to push the button once more before the corresponding menu item is activated.

All settings remain unaffected, also after a main power disconnection or a power failure.

### **5.2 Structure of the Menu**

	1 – teaching RC	2 – Turn on/off behavior	3 – Indication on start-up	4 – Indication on keystroke	5 – Turn of after power fail
1	Automatic detection	Only turn on	LED blinks	LED blinks*	Don't turn on*
2	„RC5“ code	Turn on and off*	LED doesn't blink*	LED doesn't blink	Turn on
3	„space-encoded“ code	-	-	-	-
4	„Thomson“ code	-	-	-	-

The options marked with \* are the default settings at the delivery status.

### 5.2.1 Example for the operation

You would like to setup the IR-Wake-Up-Switch so that the LED does not indicate at the start-up (menu item 3, option 2)

- Push the button so often as the number of the desired menu item. In our case **3 times**.
- Wait briefly now, the chosen menu item is confirmed by the LED by blinking green (also 3 times).
- Push the button now according to the desired option. In this case **2 times**.
- The LED indicates for the confirmation now as often as the number of the chosen setting. After that the LED blinks green three times fast to show that the setting was saved.

For the other points you proceed simply analogously to this example.

If the settings could not be saved, because e.g. the button was pushed more often than options are available, the LED indicates three times fast red. The old settings remain unchanged and the setup mode is exited.

### 5.2.2 Turn on/off behaviour

By default the IR-Wakeup-Switch is configured to send both a turn-on and turn-off impulse when the programmed button of the remote control is pressed.

With some motherboards it can happen, that the PC is switching off immediately when the PC is running and you press the programmed button of your remote control.

Normally this can be prevented by setting the BIOS option "Power Off by Powerbutton" to "4 sec delay".

In this case the computer is only switching off, if you press the button of the remote control longer than 4 seconds.

On appropriate setting, it can also happen that the PC is starting shutdown, as soon as the button was pressed.

In both cases it helps, to disable the turn-off impulse completely.

Notice:

So that the IR-Wakeup-Switch can detect, that the PC is switched on, a control-software (LIRC, Girdler, etc.) must be started. Otherwise the IR-Wakeup-Switch sends a turn-on impulse also when the PC is already running. Thereby the PC is then turning-off by mistake.

### 5.3 Training the remote control

So that the IR-Wake-Up-Switch can evaluate the signals of your remote control, you have to train it first, what code the used remote control is sending.

To reach the learning mode, you enter the set-up mode (menu item 1), how described above, by pushing the programming button once. (The LED indicates once green for confirmation.)

Then push the button once again to reach the automatic detection mode.

The LED indicates green for the confirmation once again. Now the receiver waits for an infrared signal.

Go away at least 1 meter from the receiver and press the desired button of your remote control.

If the code was detected, the LED indicates green three times fast - the code was stored.

If the code could not be detected obviously, the LED indicates red.

In this case you must press the button once more and if necessary, change the distance to the receiver.

Please note that you press the button only briefly and hold the remote control into the direction of the receiver.

You can repeat this process until the signal was detected correctly. (LED is indicating green)

If all attempts remain unsuccessful, you can stop the process by pushing the programming button.

In this case, the LED indicates red three times fast, and the previous code remains unchanged.

If problems should occur at the learning procedure (coding is not detected), you also can give a way of coding. Possible initial settings are in this case "RC5", "Thomson" or "space encoded".

The latter one recognizes all possible kinds of coding where the individual bits are coded through the different lengths of the spaces between the pulses of the IR signal.

With this mode almost all remote controls should work, that don't use a biphas-code (RC5,RC6, NRC17).

If you are sure, that you use a RC5 remote control, you can choose the RC5 code also directly by pushing the button twice. However RC5 is usually detected reliably.

On the other hand, if you are sure to use no RC5 remote control, you can select "space-encoded" directly by pushing the button three times.

If you use a Thomson remote control, you should select the "Thomson" code directly so that the toggle bit is recognized correctly.

If the code was detected correctly (LED has indicated green) the IR-Wakeup-Switch is ready to receive and should turn on the computer when the programmed button is pushed. (Or turn off if the computer is already running and switch-off is activated).

If you use "Wake On Ring" or "Wake On LAN" it is possible that the computer does not switch on itself.

With most motherboards WOR / WOL works only if the computer was cleanly shut down before.

Probably it doesn't work after switching off the main power or any power failure.

## 6. Use of an IR control software

The IR-Wake-Up-Switch is designed to use your remote control to control your computer in addition. To this it is necessary to install corresponding control software. Programs like LIRC, WinLIRC, Girder or IRAssistant are suitable to this. You can find a link collection to corresponding software in the appendix.

Please gather indications for the installation and the setting of the receiver software from the information of the respective manufacturer.

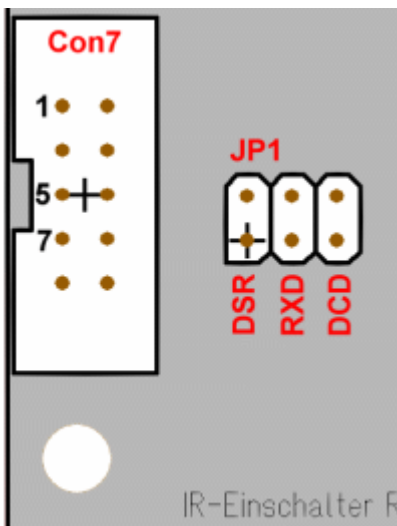
### 6.1 Jumper JP1: choose the input Pin for the infrared signal

Most control programs expect the IR signal at Pin1 (DCD) of the COM port, but there are also some exceptions.

First try out whether a signal is reaching your software with JP1 in position “**DCD**”. If no signal should arrive, you can try out also the two other positions.

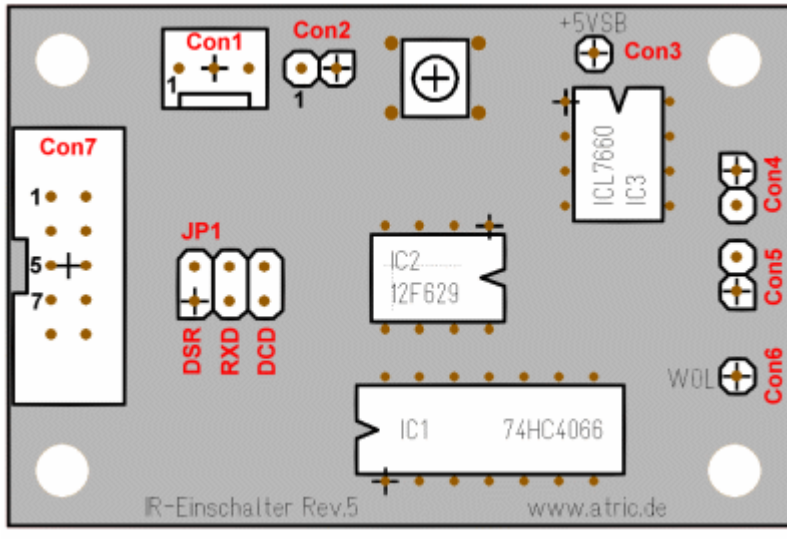
For the program “**Miri-Server**” you must set JP1 to the position “**RXD**”.

If you want to use the program “**Girder**” with the “**IgorPlugXP**”, you must set JP1 to the position “**DSR**”.



# Appendix

## Connector assignment



### Con1: IR receiver connector

Pin	Signal
1	IR signal
2	Vcc
3	Ground

The IR receiver chip is connected here.

### Con2: LED connector

Pin	Signal
1	anode red / cathode green
2	anode green / cathode red

A bichromatic LED will be connected here. The colour is dependent on the polarity. When you switch on the device the LED indicates green briefly. If the LED indicates red instead, plug the cable in opposite direction onto the connector.

### Con3: Stand-by voltage connector

Connect the +5V stand-by voltage supply with this connector. Use one of the unipolar wires and connect this to a free +5VSB connector at your motherboard. Look to this at chapter 4.3.

### Con4: Connector for the system case power button

Connect the system case power button here.

**Note:**

*This connection is only used if the IR-Wake-Up-Switch shall switch on your computer by the motherboard's power button connection.*

*If you use Wake On Ring or Wake On LAN to switch on the computer instead, connect the power button directly at the motherboard. In this case **Con4** and **Con5** are not connected.*

### Con5: Connector for the motherboard's power button connection

Connect this connector with the motherboard's power button connector.

For this use two of the enclosed unipolar cables. The order of the connection is all the same.

**Note:**

*This connection is only used if the IR-Wake-Up-Switch shall switch on your computer over the motherboard's power button connection. (look also **Con4**)*

### Con6: Wake On LAN connector

If you want to switch on your computer by Wake On LAN, you connect one of the unipolar cables here and connect the other end with the WOL-Pin of the WOL connector on the motherboard.

### Con7: Connector for the serial interface

Pin	Signal
1	<b>DCD (infrared input)</b>
2	<b>RXD (infrared input)</b>
3	Not used
4	Not used
5	<b>Ground</b>
6	<b>DSR (infrared input)</b>
7	<b>RTS (on/off detection)</b>
8	Not used
9	<b>RI (ring indicator)</b>
10	Not connected

Connect this connector with the serial interface port of your computer. Use the enclosed serial cable for this. Please make sure, what assignment has your serial interface. (see chapter 4.1.1.1)

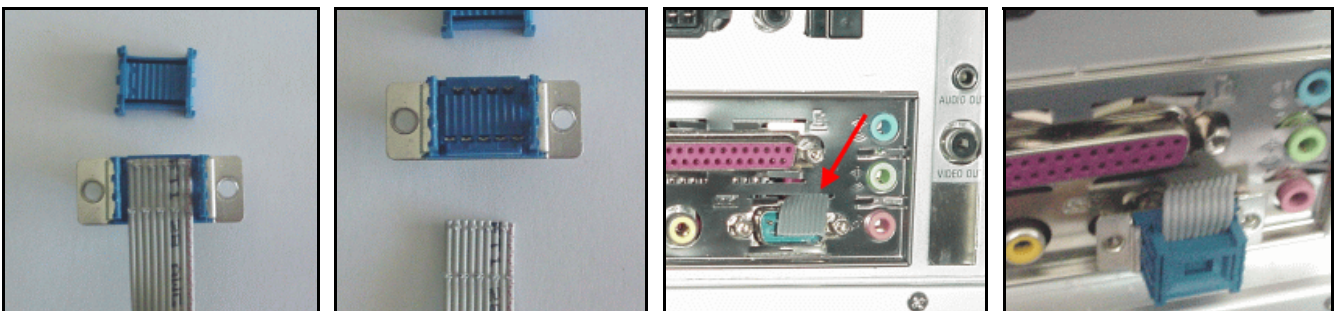
Use only a connecting cable that is suitable for the pin assignment of your motherboard. The use of a wrong cable can destroy the IR-Wake-Up-Switch.

If you have doubt, you can compare your pin assignment with the assignment shown on the left side.

If your motherboard has no serial interface, you can connect Pin5 with Ground and Pin7 with +5V, so that the IR-Wakeup-Switch works. (see chapter 4.1.3)

Tip for using the external serial port:

Because in this case you must lead the cable out from the system case, you can detach the plug from the cable carefully and lead the cable through the narrow slit over the COM port connector to the outside. Connect the plug with the cable again now (pay attention to the correct seat of the individual wires) and plug it into the COM port connector.





## Important notes for using the internal serial interface connector

Because the different motherboard manufacturers cannot agree apparently on a standard, it is necessary that you inform about the pin assignment used with your motherboard!

The wrong connection of the IR-Wakeup-Switch can perhaps destroy this!!

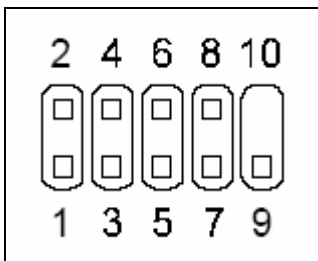
In principle there are two different types:

### 1. Type-5 assignment

It is called type-5 because Ground is connected to Pin 5.  
This is the most frequently used pin assignment.

### 2. Type-9 assignment

It is called type-9 because Ground is connected to Pin 9.  
This assignment is used by some manufacturers (e.g. Jetway), because it makes possible a straight wiring of the external COM port connector.



Pin #	Typ-5	Typ-9
1	DCD	DCD
2	RXD	DSR
3	TXD	RXD
4	DTR	RTS
5	GND	TXD
6	DSR	CTS
7	RTS	DTR
8	CTS	RI
9	RI	GND

CTS	Clear to Send
DCD	Data Carrier Detect
DSR	Data Set Ready
DTR	Data Terminal Ready
GND	Ground / Masse
RI	Ring Indicator
RTS	Request to Send
RxD	Receive Data
TxD	Transmission Data

ASUS does not publish a pin assignment in the manuals.

ASUS uses for the internal connector – if available – always the type-5 assignment.

If you should not find information about the pin assignment of the serial interface in your manual, you can help yourselves, by identifying the ground connection by measurement.

For the measurement you need an ohmmeter (circuit analyzer) and something measurement experience.

Measure now the resistance between Pin 5 or Pin 9 against ground (PC case).

If the ohmmeter shows a resistance of 0 ohms, you have found the ground pin.

**The resistance measurement must always take without tension, therefore turn of the PC before you take any measurement!**

Alternatively (or to make sure) you can measure also the tension between Pin 5 and ground (PC case).

If you measure here 0V, it is a type-5 assignment.

If you measure a positive or negative tension (up to +/-12V), it is a type-9 assignment.

**The PC must be naturally switched on during the measurement.**

**Make sure that you affect no surrounding parts with the probe tip and produce a short-circuit.**

## Link collection

- **IR-Wake-Up-Switch homepage** <http://www.atric.de/IR-Einschalter>  
References for the IR-Wake-Up-Switch, firmware update,  
programming software, current version of this manual, FAQ  
*Only in German at this time*
- **LIRC – homepage** <http://www.lirc.org>  
IR receiver software for Linux
- **WinLIRC** <http://winlirc.sourceforge.net>  
LIRC version for Windows
- **Girder** <http://www.girder.de>  
IR control software for Windows
- **IR-Assistant** <http://www.irassistant.com>  
IR control software for Windows
- **ulce** <http://www.mediatexx.com>  
IR control software for Windows