Vodafone

MachineLink 3G Plus

Low Power Mode Configuration Guide

Please note: This document is subject to change without notice.

DOCUMENT VERSION	DATE
Initial document release	February 2016

Table 1 - Document Revision History

Note: Before performing the instructions in this guide, please ensure that you have the latest firmware version installed on your router. Visit http://vodafone.netcommwireless.com to download the latest firmware.

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Introduction

This document describes the power management features of the Vodafone MachineLink 3G Plus router.

Intended audience

The individual reading this document is assumed to have a good understanding of telecommunications technologies and electronics. This document is also intended for customers using the applicable devices in situations where reducing power consumption is of great importance such as when the router is running on solar power.

Power management

The MachineLink 3G Plus router can be configured to enter or return from a low power 'sleep' mode. You can configure this to occur automatically after a timer has expired, by the status of the ignition pin, a combination of timer and ignition pin status or by manually triggering sleep mode.

During the sleep state, the router is effectively powered off. That is, it has no ability to communicate wirelessly or process any information. When in sleep mode, it draws approximately 5mA current at 12V. When sleep state is triggered, the router takes approximately 30 seconds to enter low power mode. When the wake up sequence is initiated, the router takes approximately 2 minutes to return from the sleep state. This is because returning from sleep state involves a full boot up sequence.

Ignition pin

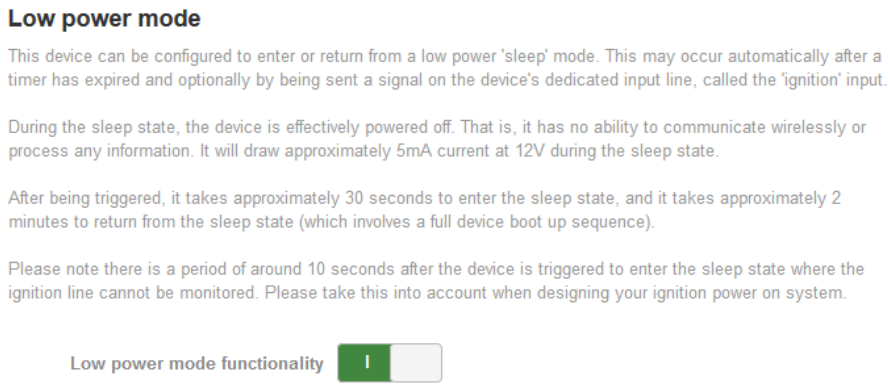
The MachineLink 3G Plus has a dedicated input called "Ignition". This input is intended for connection to an ignition switch in vehicular applications or where an input to switch the device to a sleep/wake mode is required.

The Ignition input threshold voltage is around 3V. The input responds to a high input state (above 3V). A signal below this level is considered as a low state. If the software is configured to activate in the low state, for example 0V, it must still have the high state above 3V to turn it off.

Note: There is a period of about 10 seconds after sleep state has been triggered where the ignition line cannot be monitored. Please take this into account when designing your ignition power on system.

Low power mode

To begin using Low power mode, set the **Low power mode functionality** toggle key to the **ON** position. Extra settings are displayed. These settings, including the enabling or disabling of Low power mode functionality, only take effect when you click the **Save** button.

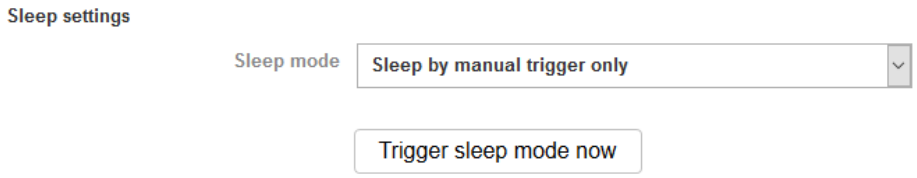


Sleep settings

Use the **Sleep mode** drop down list to select a condition under which the router should enter the sleep state.

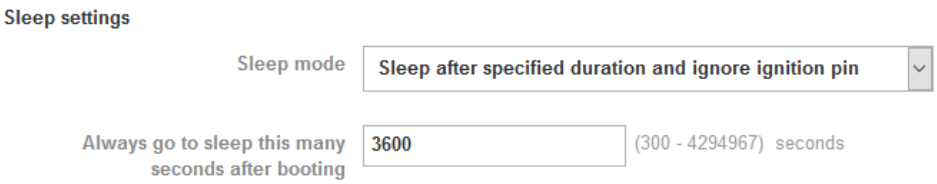
Sleep by manual trigger only

When this mode is selected, the router will only enter the sleep state when the **Trigger sleep mode now** button is pressed. The **Trigger sleep mode now** button is not available unless Low power functionality has been selected and the setting saved.



Sleep after specified duration and ignore ignition pin

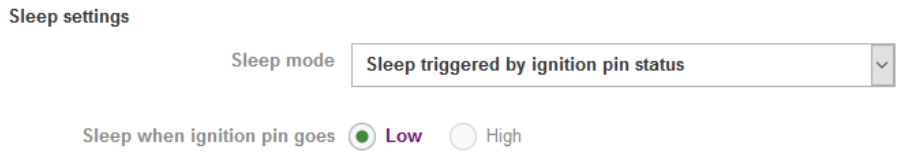
When this mode is selected, the router goes to sleep after the specified time period regardless of the state of the ignition pin.



Enter the time in seconds to wait before entering sleep state in the **Always go to sleep this many seconds after booting** field. A setting of 0 means that the router will never enter sleep state.

Sleep triggered by ignition pin status

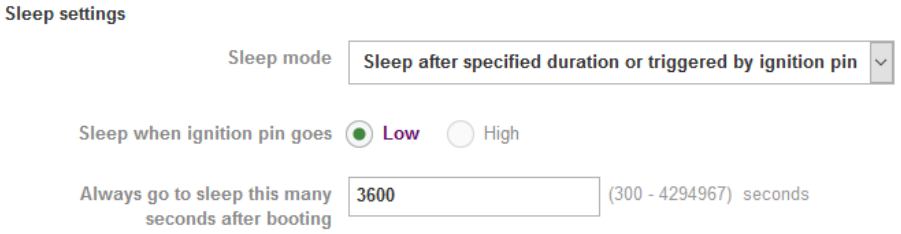
This mode sets the router to enter sleep state when the signal on the ignition pin reaches the specified value.



Use the **Sleep when ignition pin goes** setting to select **Low** or **High**. By default, this is set to **Low.**

Sleep after specified duration or triggered by ignition pin

This option sets the router to go to the sleep state on one of two conditions, depending on which condition is reached first. These conditions are based on the state of the ignition pin and a timer. For example, based on the configuration in the screenshot below, the router will go to sleep state when the ignition pin goes low or after 3600 seconds (1 hour), depending on which condition occurs first.

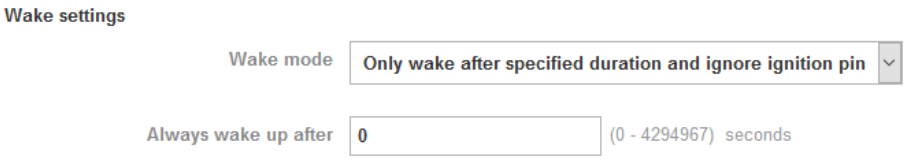


Wake settings

Use the **Wake mode** drop down list to select a condition under which the router should return from the sleep state.

Only wake after specified duration and ignore ignition pin

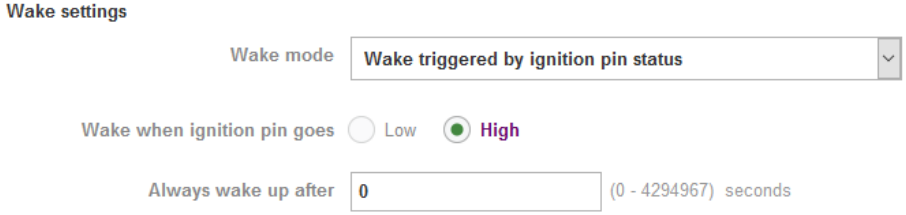
When this mode is selected, the router wakes up after the specified time period regardless of the state of the ignition pin.



Enter the time in seconds to wait before returning from sleep state in the **Always wake up after** field. A setting of 0 means that the router will automatically wake from sleep state immediately.

Wake triggered by ignition pin status

This mode sets the router to wake up when the signal on the ignition pin reaches the specified value.



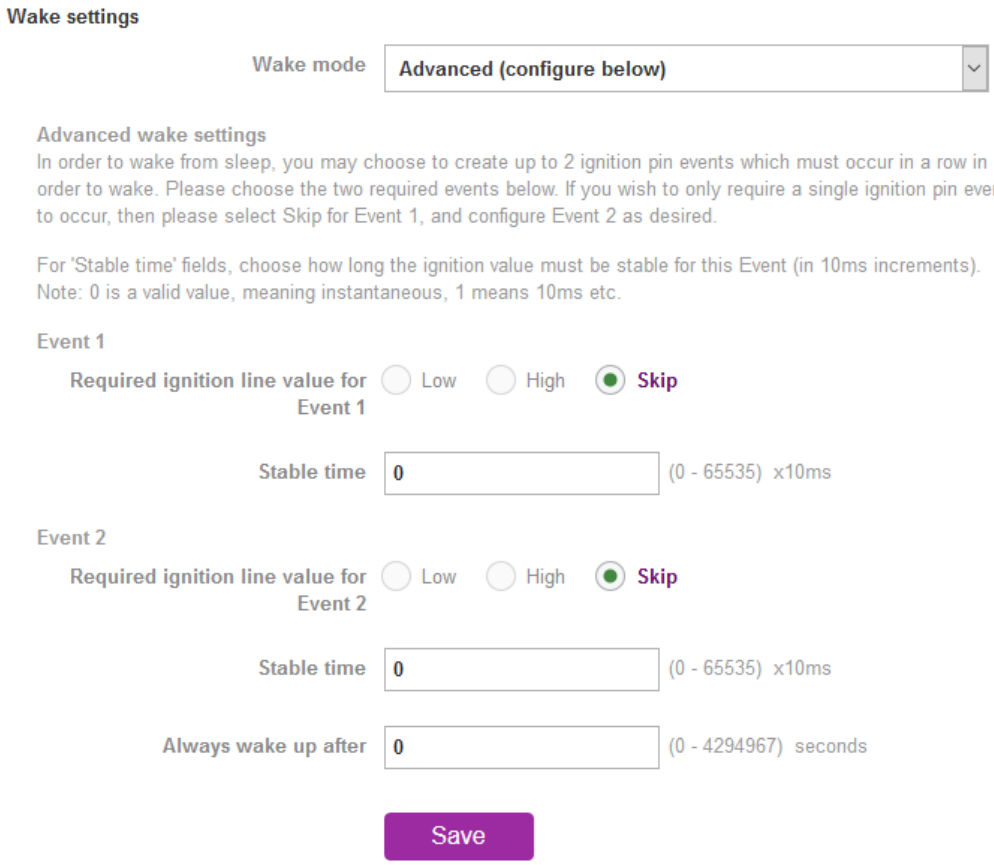
Use the **Sleep when ignition pin goes** setting to select **Low** or **High**. By default, this is set to **Low.**

Advanced wake settings

The advanced wake settings screen gives you finer control over the events causing the router to wake up. In advanced wake mode, you can configure the router to monitor for up to 2 changes in the status of the ignition pin along with how long those status changes should last for to trigger a single wake up event. When selected, Event 1 and Event 2 must happen consecutively in that order to satisfy each condition.

Note: If you do not wish to specify 2 events you should select to skip Event 1, in which case the router will only monitor Event 2 to trigger a wake up.

There is also a provision to reboot the router after a specified period of time, regardless of whether the conditions of Events 1 and/or 2 are met. This can be viewed as a fall back option in the case that those Events are missed.



To configure advanced wake settings:

1. Set **Wake mode** to **Advanced (configure below)**.
2. Under **Event 1**, select whether you want the ignition pin value to be **Low** or **High.** If you want to skip this event, select the **Skip** option.
3. In the Event 1 **Stable time** field, enter the length of time expressed in milliseconds that the value of the ignition line should remain low or high. For example, to specify 10 seconds, enter a value of 1000.
4. Under **Event 2**, select whether you want the ignition pin value to be **Low** or **High.** If you want to skip this event, select the **Skip** option.
5. In the Event 2 **Stable time** field, enter the length of time expressed in milliseconds that the value of the ignition line should remain low or high.
6. In the **Always wake up after** field, enter the time in seconds after which the router should wake up, regardless of whether Event 1 or 2 has occurred.

When in low power mode and Advanced wake mode is configured, the router waits for Event 1 to occur, then it monitors for Event 2. If Event 2 occurs before Event 1, it will not trigger the condition for either event to have occurred. If Event 1 occurs and then Events 2 occurs, the router wakes up. Alternatively, if neither or only one of the events occurs, the router waits for the time specified in the **Always wake up after** field and then wakes up when that time has been reached.