

# Template:FMB2 Sleep modes

There are three sleep modes: GPS sleep, Deep sleep and Online sleep mode.

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## GPS Sleep mode

FMB20X is able to go to GPS sleep mode if such mode is enabled.

Sleep mode timeout starts counting when device is in STOP mode. After timeout is reached and all conditions for GPS sleep mode are met, device goes to sleep mode. While in GPS sleep mode, FMB20X turns GPS module off and is still making new periodic records. As a result power usage decreases, in turn saving vehicle battery.

FMB20X will enter GPS sleep mode if ALL of these conditions are met:

- FMB20X has to be configured to work in GPS Sleep mode and sleep timeout is reached;
- Device must have time synchronized with GNSS satellites and have GPS fix;
- No movement by configured movement source or movement sensor is detected;
- Ignition (configured ignition source) is off;
- Forced wakeup is not set;
- There are no SMS messages being received.

FMB20X exits GPS sleep mode if ONE of following conditions is true:

- Movement by movement source or movement sensor is detected;
- Ignition (configured ignition source) is turned on.

## Deep Sleep mode

While in deep sleep mode, FMB20X sets GNSS receiver to sleep mode and turns off GSM/GPRS module (it is not possible to wake up device via SMS). Despite records with last known coordinate being saved and sent to AVL server (GSM/GPRS module is turned on to send data and then it is turned off), power usage is decreased to save vehicle's battery. Note, that power saving depends on two configurable parameters: send period and minimum record saving period in "X on Stop Mode". When records are sent successfully in deep sleep mode, open link timeout counter will be skipped and FMB20X will enter deep sleep mode immediately.

Because a lot of functions are disabled in deep sleep mode 13 I/O elements are disabled from records that are generated in this mode: GSM Signal, GNSS Status, GNSS PDOP, GNSS HDOP, Speed, GSM CellID, GSM Area Code, Fuel rate GPS, Active GSM Operator, Trip Odometer, Total

Odometer, Fuel Used GPS and ICCID. FMB20X can enter deep sleep mode if ALL of these conditions are met:

- FMB20X has to be configured in Deep Sleep Mode and Sleep Timeout is reached;
- Device must have time synchronized with GNSS satellites and have GPS fix;
- Ignition (configured ignition source) is off;
- Movement is not detected by accelerometer or configured movement source;
- *Min. Record Saving Period* ([Data Acquisition Mode settings](#)) must be larger than *Open Link Timeout* parameter, so that FMB20X could close GPRS link;
- The difference between *Send Period* ([Data Acquisition Mode settings](#)) and *Open Link Timeout* must be more than 90 seconds, so that FMB20X could close GPRS link within at least 90 seconds;
- Forced wakeup is not set;
- There are no SMS messages being received;
- Data socket(s) are closed;
- Data sending is not in progress;
- FOTA is not in progress.

FMB20X exits deep sleep mode if ONE of the following conditions is true:

- Movement by accelerometer or configured movement source is detected;
- Ignition (configured ignition source) is turned on.

## Online Deep Sleep mode

In this mode the device works as in Deep Sleep mode, but without deregistering from GSM network. GSM part stays powered, so this increases power consumption. In this mode, device should send/receive SMS and make/accept calls. It does not close GPRS context if one was previously opened. Conditions to enter Online Deep Sleep mode are the same as entering Deep Sleep mode. FMB20X exits Online Sleep mode if ONE of following conditions are true:

- Movement by accelerometer or configured movement source is detected;
- Ignition (configured Ignition Source) is turned on.

## Ultra Deep Sleep mode

Ultra battery saving mode, where GPS and GSM modem are turned off and device functions are suspended for maximum battery saving.

Conditions to enter Ultra Deep Sleep mode are the same as entering Deep Sleep mode.

FMB20X exits Ultra Deep Sleep mode only when DIN1 and movement are detected by accelerometer. Movement source and Ignition source configuration is not taken into account in this case.