# SkyMote TLB (Temp, Light, Bump)

SkyMote TLB, TLB-RH

SM-TLB, SM-TLB-RH

TLB is for temperature, light, and bump. This mote also has a microphone that can do some limited sound level measurements. The TLB-RH adds a humidity sensor.

802.15.4 end-device with 4 built-in sensors for temperature, light, motion, and sound.

Housed in a weather-resistant wall-mountable enclosure designed for indoor or outdoor use. No external connections. 3 AA batteries power the mote, and battery life is multiple years in typical use.

From Wikipedia: Motes - Small, battery-operated sensor nodes operating as part of a Wireless Sensor Network.
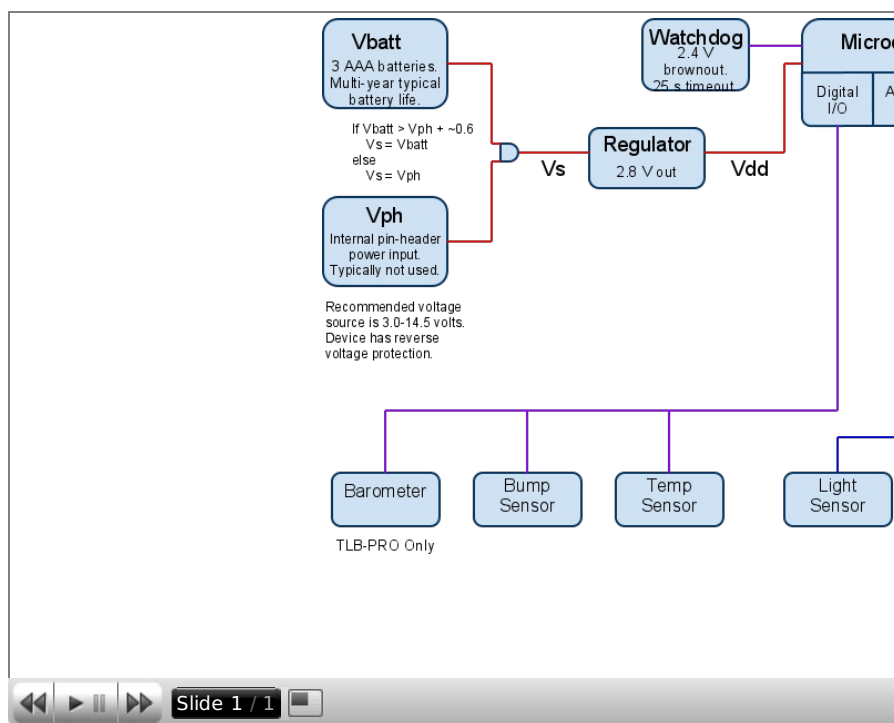
Temperature: Sensor is accurate to 0.5 deg C max from -20 to +85 deg C, and 1.0 deg C max from -40 to +85 deg C (note that operating temperature of the mote is likely limited by the batteries).

Light: Sensor range is 3 to 70k lux, although actual response might be limited and altered by the enclosure. One reading consists of the average of many samples collected over 1/60th of a second (or 1/50th if in 50 Hz mode).

Bump: Sensor is binary (true/false) and detects movement of the mote itself with a threshold of 50-500 mG. When this sensor is read, you get 1 count if there has been any detected movement since the last read.

Sound: One reading consists of the average of many samples collected over 1/60th of a second (or 1/50th if in 50 Hz mode). Performance is TBD, but the idea is to detect a substantial increase in sound level if it happens during a read.

Relative Humidity: TBD.

MMA stands for maximum/minimum/average.

Check-In Report: Status ?, RX LQI (1), Vbatt (4), Bump Count (2), # MMA Samples (2), Temp (4 or 12), Light (4 or 12), Sound (4 or 12), RH (4 or 12), Reserved (4 or 12).

Status: Errors?, 4 bits to tell if L/S/RH/Reserved are disabled.

All times specified in milliseconds (ms).

Process Interval: 100-15000 ms, 30 s, 45 s, or 60 s. Default = 5 s. Interval at which device wakes up and takes readings from all enabled sensors.

Check-In Interval: 100-15000 ms, 30 s, 45 s, or 60 s. Default = 60 s. This must be a multiple of Process Interval. Sends the Check-In Report, then polls to see if there are any commands waiting.

Rapid Check-In Interval: Default = 2 s. This is a temporary mode the device enters where the check-in interval is changed to something else (typically faster). Device enters this mode on initial power-up and when commanded.

Rapid Timeout: Default = 60 s. A value of 0 disables rapid mode. Device will exit rapid mode if it does not receive any commands within this time.

Line Frequency: 1=60 Hz, 2=50 Hz. Determines the period over which light and sound readings are collected.

Disable Light/Sound/RH/Reserved/MM: These parameters disable certain sensors and turn off the Max/Min feature for all applicable sensors. This can reduce power because the sensor is not used, and by bringing the size of the Check-In Report to within 1 packet. If disable MM is true, no Max & Min is done, and only the average of readings is calculated and transmitted.

Events: If x op y, do something. "x" is something like "current reading". "op" is >, <, or delta. "y" is constant or last sent value (max, min, or avg). "do something" is send report.

If the Check-In Interval is greater than 7 seconds, command must be sent to the mote 0-7 seconds before a Check-In occurs. If a command is sent to a mote, and the mote does not wake up and poll for the command within 7 seconds, that command will fail, and if such a failure happens 5 times without success the mote will unjoin from the network. It will try to rejoin later, but that uses extra energy.

FCC PART 15 STATEMENTS

Source URL: http://labjack.com/support/skymote/sm-tlb