

insigh.io board is a generic and affordable board for accelerating IoT adoption by companies, makers and non-experts.

Out of the box features:

- programmable microprocessor
- hardware watchdog
- multiple power supply options
- on-board temperature & humidity sensor
- ports for attaching external analogue or digital sensors for functionality expansion
- device management via USB port
- configurable via WiFi through Web UI
- Ready to fit in IP-rated enclosure

Build to last for years:

- ultra-low power design
- energy consumption profiling
- automatic power management



Connectivity

- WiFi
- NBloT
- LoRaWAN
- Bluetooth

Energy sources

- Battery
- Solar harvesting
- USB

Sensors

- Analog
- OneWire
- I2C
- SDI-12

Scenarios

- Agriculture
- Cities
- Industries
- Home

Specifications

General Information	
Dimensions (L x W x H)	78 x 57.2 x 13 mm
Weight	25 g
Enclosure	IP65/67

Operating Conditions	
Operational Temperature	0 – 60°C
Charging Current Limit	500 mA
Maximum Drawn Current	500 mA
Charging Temperature	0 – 60°C

insigh.io IoT board

Datasheet



Power Supply						
USB	Port	Input Voltage				
	Micro USB	Min. 4.5	Typ. 5	Max. 5.5	Units V	
Battery	Port	Nominal Characteristics				
	JST PH 2.0	1 x Rechargeable LiPo 1S1C 3.7-4.2 V				
Solar Panel	Port	Input Voltage				
	Fixed Terminal Block with push-in connection (no tools required)	Min. 5.5	Typ. 6	Max. 6.5	Units V	
Communication						
Wireless technologies	WiFi, Bluetooth, LoRaWAN, NB-IoT/LTE-M					
IP-based protocols	TCP/UDP over IPv4/IPv6, MQTT, CoAP					
Switches						
S1	Controls power supply to the micro-controller (the battery charging process is not affected)					
S2	Tactile switch for activating the micro-controller's bootloader (needed only for fw upgrade)					
SNSR	Software-controlled switch for enabling/disabling power supply to sensors on-demand					
Sensors Support (Hardware & Software)						
On-board Sensors	1 x Temperature/Humidity Sensor (based on the SI7021 chip)					
Number of External Sensors	Up to 4 (simultaneously)					
External Sensor Interfaces	Analogue @ 3.3V Digital: 1-wire @ 3.3V, I2C @ 3.3V, SDI-12 @ 12V					
Low energy operation	Software-controlled					
Sensor models with build-in software support <i>(new sensors can be supported through firmware updates)</i>	Analogue: Meter's EC5 (Soil), Pino-Tech's Soil Watch 10 (Soil) 1-wire: DS18B20 (Outdoor Temperature) I2C: SI7021 (Temp/Humidity), BME680 (Environmental), TSL2561 (Luminosity) SDI-12: Meter's Teros-12 (Soil), Acclima's TDR-315H (Soil), EnviroPro EP100G Series					
Hardware Watchdog			Charging State Indication (LEDs)			
Operation	Force a power-off/on cycle of the microcontroller after an inactivity period		Charge cycle state	LCO	LCG	LCR
Control	Software-based timer reset using a GPIO pin (to avoid power cycle, if needed)		Shutdown state 1	OFF	OFF	OFF
Inactivity Period	Pre-programmed (on demand), from 30 seconds to 30 hours		Shutdown state 2	OFF	OFF	ON
Energy Consumption Profiling			Preconditioning	ON	OFF	ON
Battery Voltage	Accurate Measurement of battery voltage even at charging state		Constant current	ON	OFF	ON
Current	Measurement of drawn current at any state (idle, sensor reading, communication)		Constant voltage	ON	OFF	ON
External components required/recommended			Charge complete-standby	OFF	ON	ON
Microcontroller	Pycom WiPy 3.0 or LoPy4 or GPy or FiPy (depending on communication needs)		Temperature fault	ON	ON	ON
Battery	1200 mAh		Timer fault	ON	ON	ON
Solar Panel	6V/1W		Low battery	ON	OFF	OFF
			No battery	OFF	OFF	ON
			No input	OFF	OFF	OFF
			Marking			
			CE, FCC, RoHS	Under way		