



CONSIBIO IoT BATTERY CONNECTOR

Battery-driven Industrial IoT gateway



Consibio IoT Battery Connector is an industrial IoT Gateway, that offers a secure link between various industrial, analog and digital signals used by a plethora of 3rd party sensors and Consibio Cloud - An end-to-end platform allowing real-time streaming of sensor data, datalogging, visualization, alarms and automatic control.

The Battery IoT Connector is the physical link between all these cloud-based features and the most used analog, industrial signal standards for sensors in the field and the plant floor.

How it works: The IoT Connector collects data from various sensors using digital busses, 4-20mA loops, 0-10V voltage signals or other and streams these to the cloud in real-time.



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PRODUCT SPECIFICATIONS

Parameter	Value	Parameter	Value
Battery Power supply	3x rechargeable Li-ion (3.6V) battery cells with total capacity of 10.5 Ah Battery lifetime 6-12 months in standard configuration but depends on measurement and online check-in interval. Standard configuration intervals: Online check-in: 1 hour Measurement: 1 min	Operating conditions	-20°C to +50°C 0-100% RH
Expected lifetime	5 years	Housing material	Polycarbonate (UV and weather resistant). All components used are at least IP67-rated
Guarantee	2 years	Dimensions	Length: 162 mm Width: 82 mm Height: 55 mm
Compliance	Made in compliance with Directive 2014/30/EU. Harmonized standard: DS_EN IEC 61326-1_2021	Connectivity	WiFi: 2.4GHz (802.11 b/g/n) Cellular: LTE Cat-M1 (SIM included)
		I/O terminals	16 spring clamp terminals. Wire gauge: 28-14 AWG = 0.08-2.08 mm ²

WIRING AND INTERFACING

Inside each IoT Connector, two blocks of each 8 spring clamp terminals provides a total of 16 terminals for various I/O possibilities.

POWER

IO symbol	Description
Bat+	Positive battery voltage. Varies from ≈ 4.3V to 2.5V with battery charge. Can be used to directly power external sensors.
GND	Backplane ground.
3V3	Regulated 3.3V output to power sensors. Max 500mA output.





I/O OPTIONS

IO symbol	Description
4-20mA in	4-20 mA current loop input. Loop return on GND . Can only be used with active 4-20mA inputs (ie. the loop cannot be powered from this device) Resolution: 25 μ A
AIN10	0-10 V analog voltage input. Cannot be used at the same time as the AIN5 input. Resolution: 10 mV
AIN5	0-5V analog voltage input. Cannot be used at the same time as the AIN10 input. Resolution: 5 mV
GPIO terminals: SDA/MISO, SCL/MOSI, CLK, CS and SW	General purpose I/O's (3.3V). Can be used individually or as part of the available serial busses (see next table), but not both at the same time.
OD1, OD2, OD3 and OD4	Open-drain / open-collector outputs. Can be used as simple outputs or to switch power to ie. sensors for power optimization (max. 100mA continuous).
TRIG	Discrete, digital input internally pulled up to 3.3V. Can be used to read state of external open-drain circuits or can be configured as a wake-up trigger to force the device online.

SERIAL BUSES

IO symbol	Description
TTL serial communication	Internal UART used to communicate with sensors over conventional TTL Serial with baud rates from 1200 to 115200 bps. Uses the CS (TX), SW (RX), 3V3 and GND terminals.
I²C	The connector can communicate with sensors over an I ² C bus via the SDA , SCL , 3V3 and GND terminals. Bus frequencies up to 400kHz.
SPI	The connector can communicate with sensors over an SPI bus via the MISO , MOSI , CS , CLK , 3V3 and GND terminals.

EXPANSION OPTIONS

The I/O capabilities of the Battery IoT Connector can be expanded via a range of expansion modules, that can be inserted directly in the spring clamp terminals. Available options are (and more coming soon):

Expansion	Description
SDI-12	The SDI-12 expansion allows the Battery IoT Connector to communicate with various environmental sensors via the SDI-12 protocol and powers the connector at the same time. Requires external 12VDC source such as a typical lead-acid battery.
Pt100 / Pt1000 RTD elements	Expansion option to connect Pt100 or Pt1000 temperature sensors directly in both 2, 3 and 4 wire configurations.

