LPWAN SDI-12/ModBus Advanced Cloud Logger

The LPWAN SDI-12/ModBus Cloud Logger has been designed as multipurpose device for projects covering area of smart agriculture. The device is equipped with SDI-12 and RTU ModBus interfaces which are mostly present on various agricultural probes. With single device and universal FW, user can cover many different demands for measuring various combination of values on the field. There is up to 8 physical connectors slots for SDI-12 and ModBus probes which allows to achieve indeed very comprehensive combinations of important data collection. The device is dedicated to NBIoT network and is capable to send relatively large amount of data within one message – up to 400B. LoRaWAN version is available too, however the performance of entire device is limited by the network capability and maximum 36 bytes can be transferred over single message.

Advanced version features

- SDI-12 interface
- RTU ModBus interface
- Selectable probe voltage: 5V, 9V, 12V
- I2C interface for T/RH/P probe
- Pulse interfaces for rain gauge and wind speed
- Analogue interfaces fir leaf moisture and wind direction
- IP68 protection
- Goretex pressure balancer
- Simple configuration over UART or downlink
- Battery operated – 17000mAh battery
- 2 selectable form factors
- Optional external probe power
- Continuous or switching power possible
- Uplink with acknowledgement and transmission repetition
- Real time transmission synchronization

Usage

- Smart agricultural
- General interface for SDI-12 and RTU ModBus devices
- Scalable weather station

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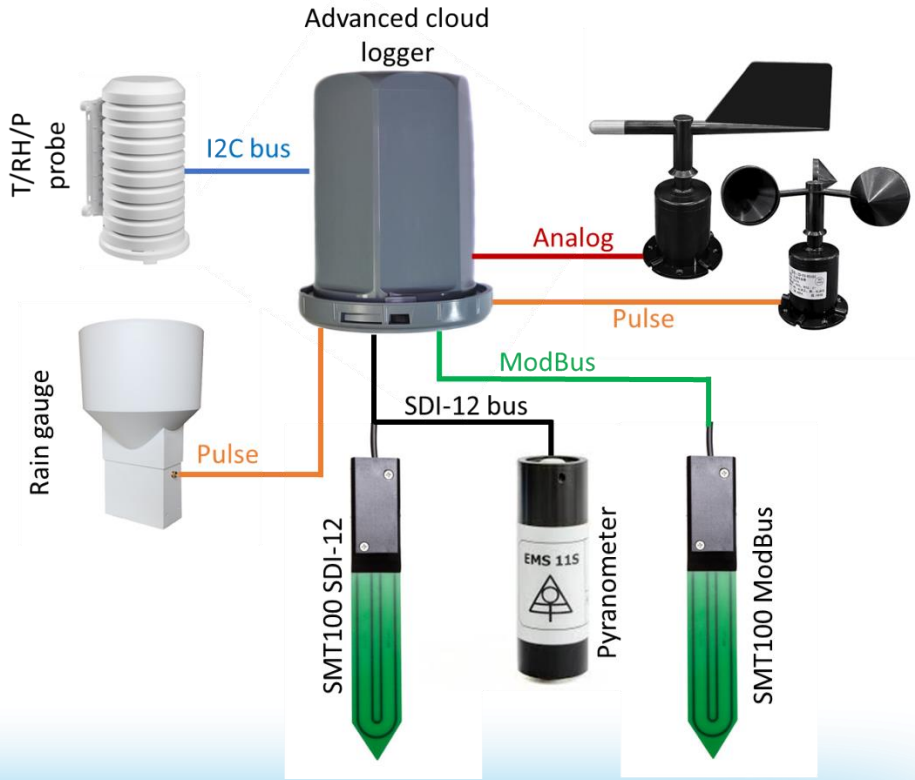
NBIoT Advance cloud logger	Parameter
Protection	IP68 Wagobox or IP67 CamdenBoss box
Power supply	1 x LS33600 17Ah or 2 x ER14500 total 5.2Ah for WAGOBOX ver. Or 1 x LiFePO4 accumulator 12V/12Ah for Camdenboss ver.
Power consumption	<8uA in deep sleep mode, up to 200mA in transmission
Battery lifetime	From 1 year to 5 years, depends on number of connected probes and their power demands
Supported LPWAN standards	NBIoT in PSM mode or LoRaWAN class A, one of the type selectable upon order
Dimensions standard/radiation shield	Wagobox: 122 x 85mm, CamdenBoss:138 x 185 x 85 mm
Wagobox weight incl. battery	360g
CamdenBoss wight incl. 12V accu/12Ah	1200g
Interfaces	• SDI-12 (M! and C! commands supported) • RTU ModBus • I2C for SHT31/BMP180 chips supported • 2x pulse – rain gauge with minimum pulse length 20ms or mechanical anemometer • 2 x analogue resistivity measurement
Inputs	• Multi hole metal glands – default 2 x 3 holes glands – other configuration possible upon request • Goretex pressure balancer against condensation
Antenna	Helical antenna with the gain of 2.5dBi or external with various gain on SMA connectors (for CamdenBoss only)

Weather station example



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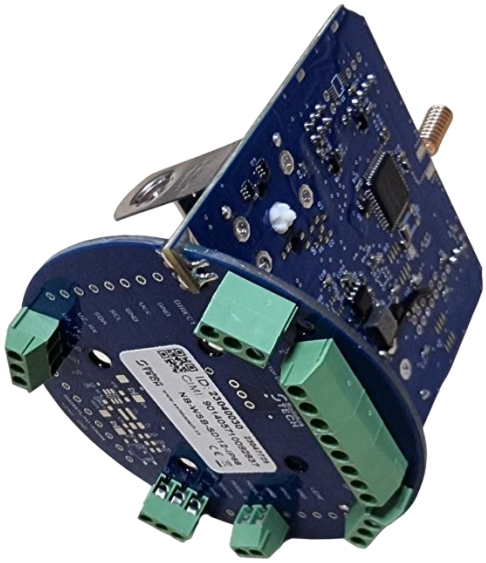
Details of Wagobox form factor



Black or gray color available. For underground installation the Goretex pressure balancer can be omitted. Plastic glands instead of metal one can be assembled. External antenna is possible upon request.

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Details of CamdenBoss form factor:

Note: This solution has been especially designed for high power probes demanding where stepping up from the battery voltage 3.6V to required 12V is not efficient enough. Whole unit is powered from a single large LiFePO4 accumulator with capacity of 12Ah and power for associated SDI-12 or ModBus sensor is switched only, so the energy efficiency for powering the sensors is 100%. Typical application is sap flow sensors combination where measurement interval is relatively long (up to 95s) and lot of data from the field are required which demands lot of energy.

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