

Prylada Core (IoT Sensor Hub ADH-02)

Datasheet

Version 1.0

17/05/2021

Revision History

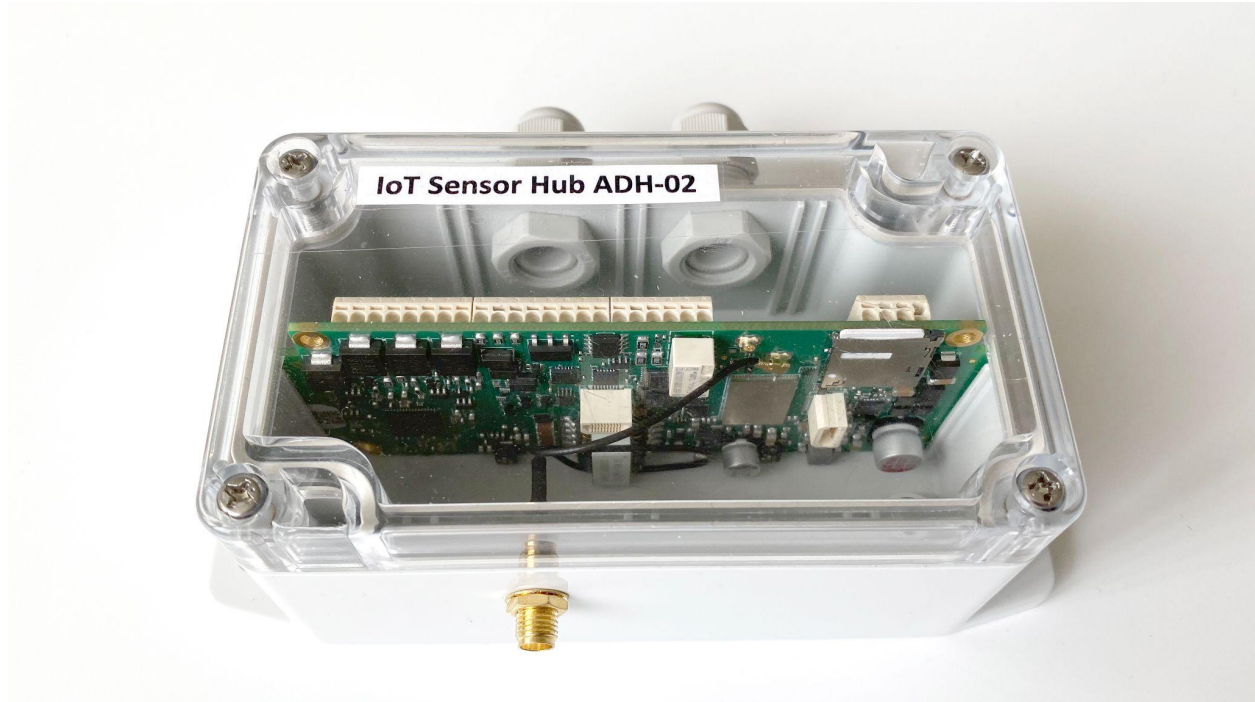
Version	Date	Notes	Contributors	Approver
1.0	17 May 2021	Initial version	Yury Tsybulka	

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1. Overview

Prylada core (ADH-02) is a data acquisition module with IoT gateway functionality. It can be used as a standalone data harvester as well as a proxy, linking a cloud with IoT mesh. ADH-2 has onboard a range of industrial interfaces that can be extended thanks to modular device architecture. It can be powered via dual-source prioritized power supply input that enables battery back-up functionality. The board requires external LTE and GNSS antennas connected with u.FI connectors.



2. Key Features

2.1. Wireless connectivity

2.1.1. LTE

- nRF9160 based
- 3GPP LTE release 13 Cat-M1 and Cat-NB1 compliant
 - 3GPP release 13 coverage enhancement
- 3GPP LTE release 14 Cat-NB2 compliant
- GPS receiver
 - GPS L1 C/A supported
- RF transceiver for global coverage

- Up to 23 dBm output power
- -108 dBm sensitivity (LTE-M) for low band, -107 dBm for mid band
- Single 50 Ω antenna interface
- LTE band support in hardware:
 - Cat-M1: B1, B2, B3, B4, B5, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B66
 - Cat-NB1/NB2: B1, B2, B3, B4, B5, B8, B12, B13, B17, B19, B20, B25, B26, B28, B66
- External antennas for LTE and GPS are required, connected via u.FI connectors
- Micro SIM card slot

2.2. Interfaces

2.2.1. 4 isolated on-the-fly software programmable inputs/outputs perform one of the following functions (based on HART compatible ad74413):

- Analog input 4-20 mA
- Analog input 0-10V
- Analog output 4-20 mA
- Analog output 0-10V
- Digital input (on-the-fly configurable)
 - Type I, Type II, and Type III of the IEC 61131-2 compatible with programmable sink current and threshold. Debounce and counter functionality
 - Loop powered mode digital input (“dry contact”)
- RTD measurement

2.2.2. 3 digital inputs

- Simple (no counting) 20V compatible digital inputs.
- 1.25 V threshold

2.2.3. Digital outputs

- 1 high-side switch and 1 low-side switch
- High-side switch characteristics
 - Overload protection
 - Current limitation
 - Short circuit protection
 - Thermal shutdown with the restart
 - Overvoltage protection (including load dump) 41V
 - Fast demagnetization of inductive loads
 - Operating voltage 5-34V
 - Current limitation (0.7 A)

- On-state resistance 60 mΩ
- Nominal load current 2.6A
- Low-side switch characteristics
 - Thermal shutdown with auto restart
 - Overload protection
 - Short circuit protection
 - Overvoltage protection (60V)
 - Current limitation (0.7 A)
 - On-state resistance 550 mΩ
 - All kinds of resistive, inductive, and capacitive loads in switching applications are possible
 - For 12 V, 24V DC applications and for 42 Volt Powernet

2.2.4. 1 bistable relay

- Maximum voltage rating - 220V
- Maximum current rating - 2A

2.2.5 3.3V 300mA power output

2.3. Power supply

- dual prioritized inputs 5-25V
- power consumption – up to 10W, depending on connected sensors.

2.4. Dimensions

- 145x65x55mm (with flanges) or 115x65x55mm (without flanges)
- 201x121x55mm (with batteries and with flanges) or 171x121x55mm (with batteries and without flanges)

2.5. Operating temperature

- -30...+85

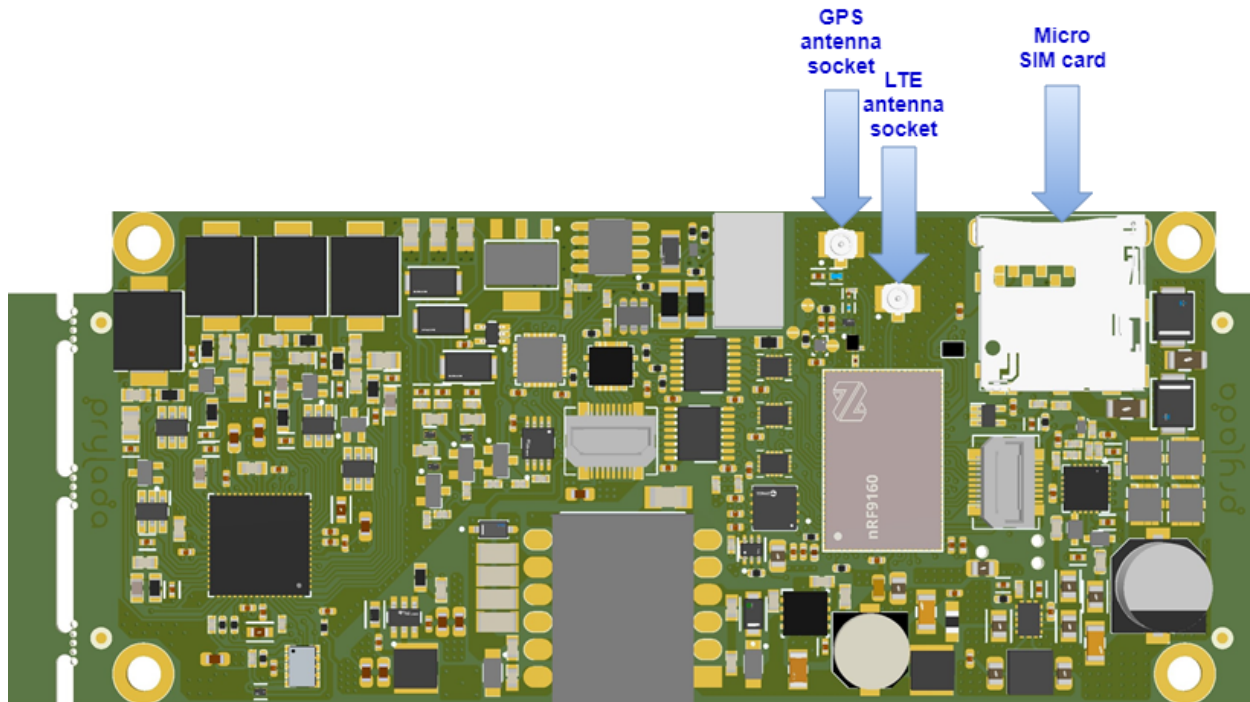
2.6. Applications

- Logistics and asset tracking
- Sensors networks
- Smart energy
- Smart building automation
- Smart agriculture

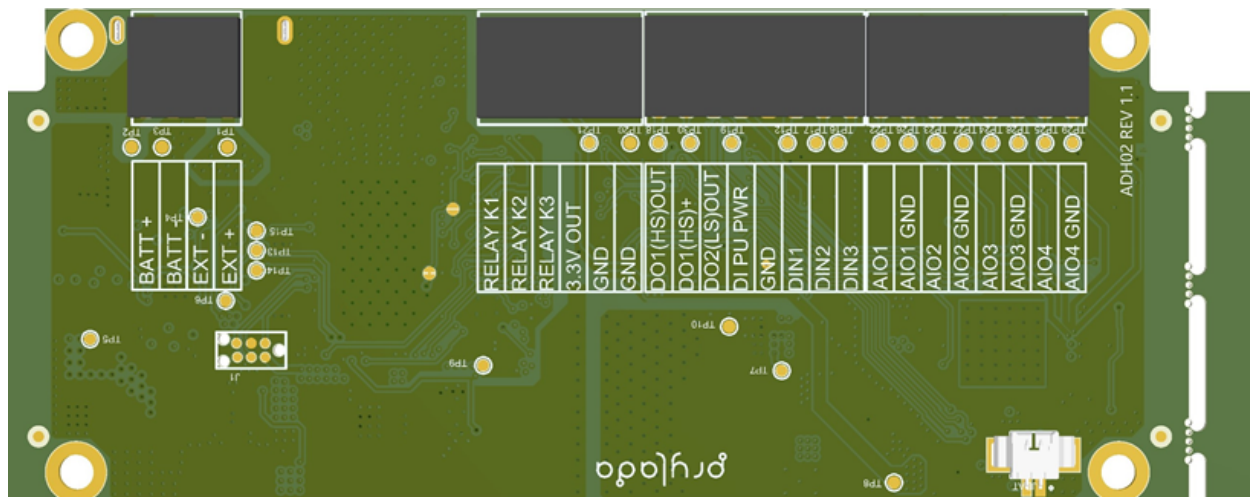
- Predictive maintenance
- Factory automation
- Retail and monitor devices
- Medical devices
- Wearables

3. Connectors description

3.1. Top view



3.2. Bottom view



4. Architecture overview

