

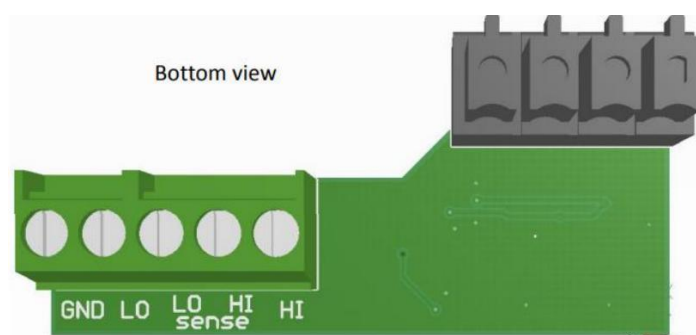
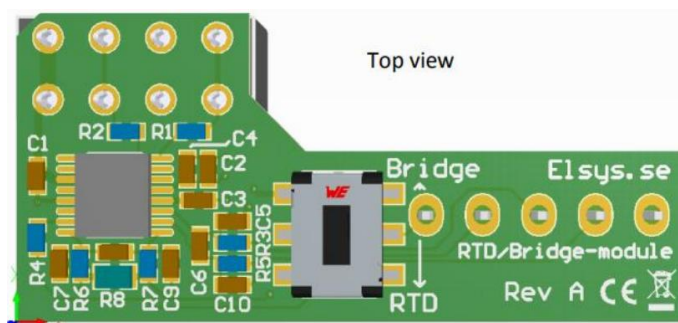
Technical Manual

ADC module

The ADC-module is a module that fits inside the ELT LoRa and is intended for connecting PT1000 platinum sensors or use as a general purpose bridge amplifier (e.g. load cell).

Features

- Easy use with PT-1000 (RTD platinum sensor)
- 2- or 4-wire connection
- Measures -200 to 790 °C
- General high resolution bridge amplifier
- Fits inside the ELT LoRa box
- Powered by the ELT LoRa internal battery
- Very low energy consumption
- Terminal block for easy connection

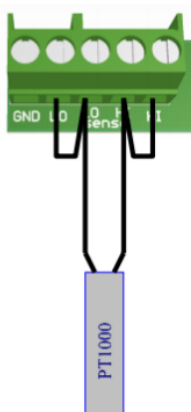


Accuracy (RTD)

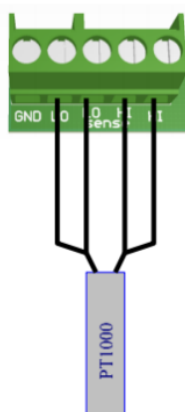
± 0.1 °C (-40 to 200°C) + sensor deviation.

± 0.5 °C (full span) + sensor deviation.

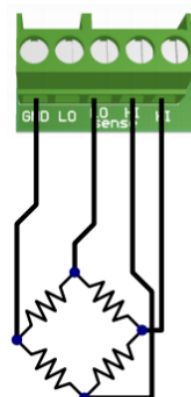
2-wire RTD connection



4-wire RTD connection



Bridge connection





Using the ADC module with a PT1000 RTD

- Set the switch on the module to "RTD"
- Set external sensor in the ELT LoRa to "PT1000"
- Read temperature value in degrees Celsius with data type "External temperature" (0x0C)

Using the ADC module with a load cell/measurement bridge

- Set the switch on the module to "Bridge"
- Set external sensor in the ELT LoRa to "Load cell"
- Read voltage from measurement in micro-volt with data type "External analog (uV)" (0x1B)
- To calculate deflexion of a load cell, also read internal battery voltage (0x07), multiply the 2 voltage measurements to get a value that can be compared to the load cell full scale output.

Calculation example for load cell:

- Load cell full scale is 2 mV/V @ 50 kg
- External analog reads 1274 uV from payload (0x1B)
- Internal battery reads 3628 mV from payload (0x07)

Full scale voltage is calculated to $2\text{mV/V} \times 3628\text{ mV} = 7256\text{ uV}$

Bridge voltage is then $1274/7256$ of full scale, thus weight is $1274/7256 \times 50\text{ kg} = 8,78\text{ kg}$.

Note that maximum reading from ADC module is +- 28,000 uV (+- 28 mV)