

Wireless Multi-Sensor Interface

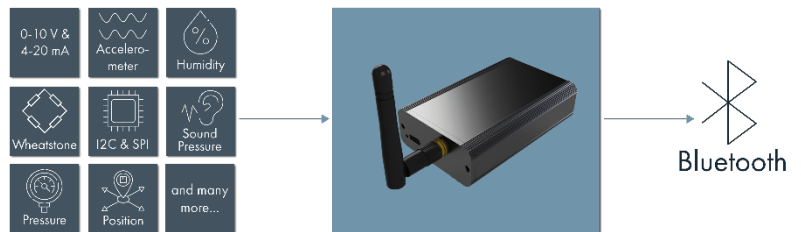
Features

- 2 channels for strain gauge bridges
- Wireless output via Bluetooth Low Energy
- Energy-efficient, battery or cable powered
- Integrated 3-axis accelerometer + gyroscope
- Integrated environmental temperature + humidity sensors
- Logs data directly to App or into internal memory
- Customizable to customers needs



Applications

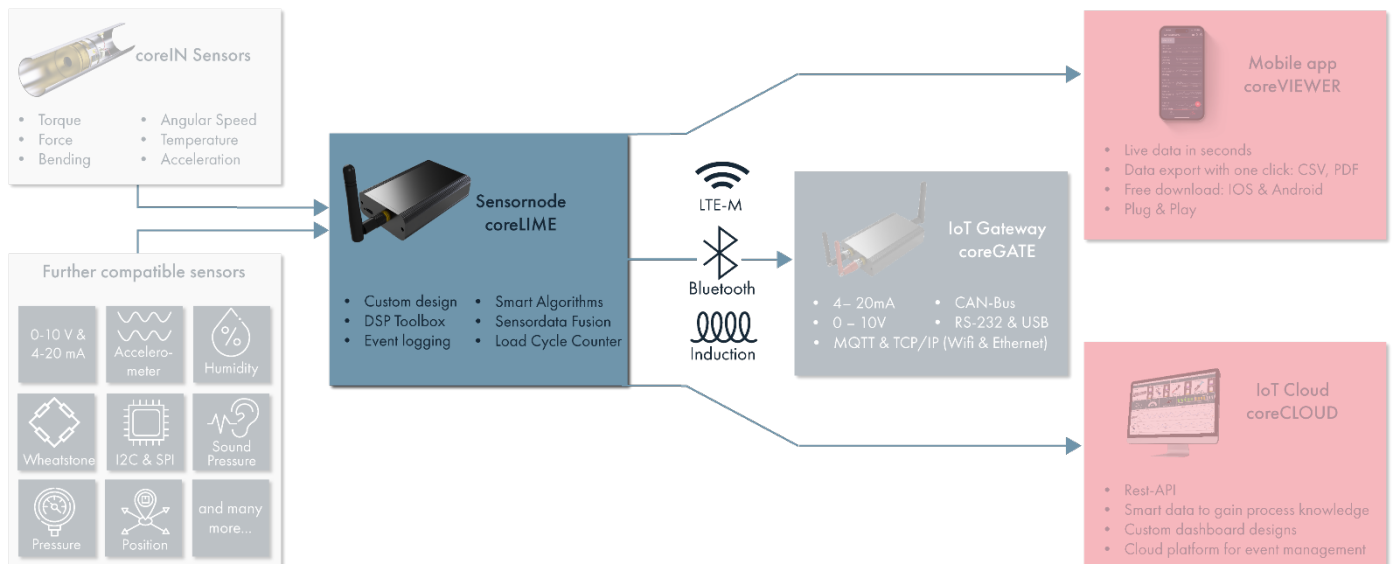
- Test & Measurement
- Predictive Maintenance
- Industrial machine surveillance
- Telemetry for Off-Site asset health monitoring
- Construction surveillance



Description

coreLIME is a wireless and battery-powered 2-channel amplifier and data logger for strain gauge full bridges. The sensor node coreLIME enables time-synchronous data transmission and storage of the two analog channels as well as the integrated IMU, temperature and humidity sensors. Measurement data is logged directly on the sensor node or transmitted to a mobile device (smartphone or tablet) or gateway.

core sensing ecosystem



Technical data

The following information applies to firmware version 5.4.4.

Analog inputs		
Number of full bridges	2	
Sensitivity (typ.)	0.1...3	mV/V
Bridge excitation voltage ²	3.3	V
Strain gauge resistance	120...5k	Ω
Resolution	24	Bit
Sampling rate (max.)	500	SPS

¹ Only in battery mode

² ratiometric

Rotational speed sensor		
Number of axes ¹	1	
Resolution	16	Bit
Measurement range	-660...660	rpm
Measurement uncertainty ²	0.5	%
Sampling rate (max.)	500	SPS

¹ Additional axes available upon request

² Relative to nominal value of 660 rpm

Acceleration Sensor		
Number of axes	3	
Resolution	16	Bit
Measurement range	-30...30	g
Measurement Uncertainty	0.5	%
Sampling rate (max.)	500	SPS

Internal Temperature Sensor ¹		
Accuracy	0.2	K
Resolution	14	Bit
Measurement range	0 ...60	°C
Sampling rate	0.2	SPS

Internal Humidity Sensor ¹		
Deviation (typ.) ²	2	%
Resolution	14	Bit
Measurement range of relative humidity	20 ...60	%
Sampling rate	0.2	SPS

¹ Upon request

² Temperature range 0-60°C

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Data Transmission		
Frequency band	2.45	Ghz
Bluetooth Version	Bluetooth Low Energy 4.2	
Transmission rate	1 ...500	Hz
Transmit power (max.)	4	dBm
Received Signal Strength	-95 ...4	dBm
Range (max.)	20	m

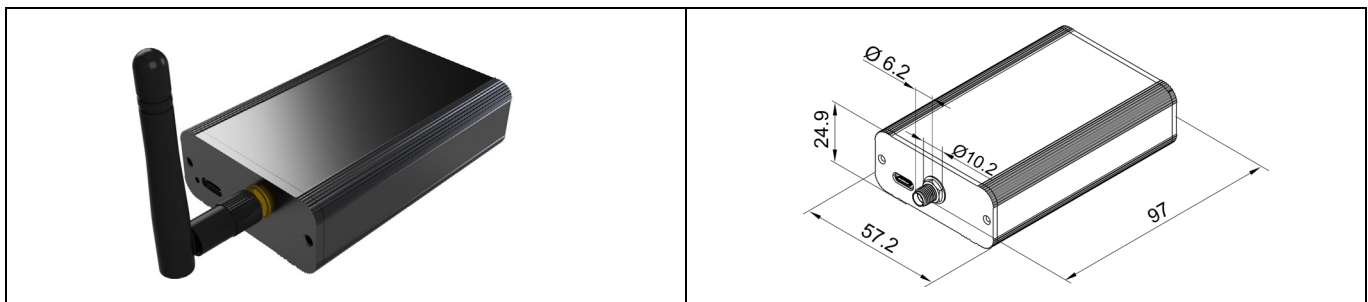
Power Supply		
Energy storage	Li-Ion battery	
Capacity	2350	mAh
Battery voltage (nominal)	3.7	V
Charging voltage via USB-C port	5	V
Power consumption (typ.)	21	mA
Operating time (typ.)	110	h
Standby duration ² (typ.)	1	Year

¹ With a permanent 500Hz transmission rate and connection of two strain gauge full bridges with 1k Ω .

² Visible in coreVIEWER, no measurement data

Operation		
Temperature range	-20 ...60	°C
ESD	4	kV
Weight	130	g

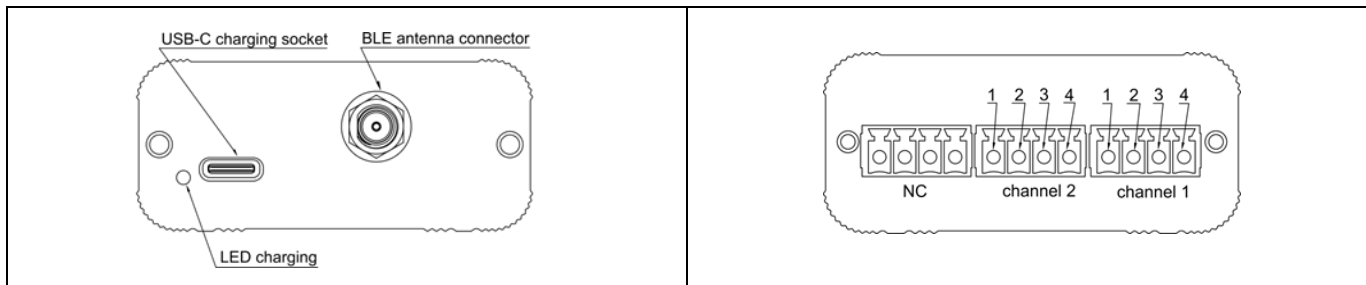
coreLIME



Left: coreLIME as a sensor node including antenna, Li-Ion battery in a case ready for experiments and measurements Right: Dimensions in mm.

Wireless Multi-Sensor Interface

Connections coreLIME



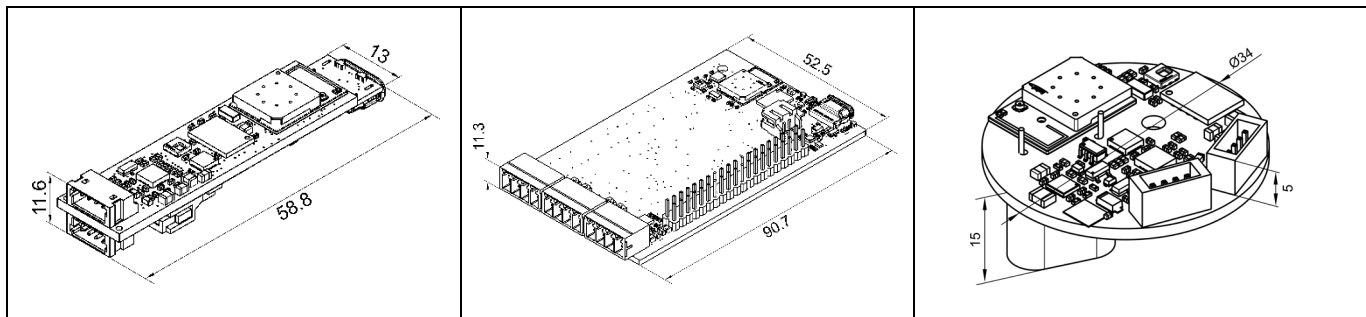
Left: Front view with USB-C port and BLE antenna connector (Type: SMA female),
Right: Rear view with pinout: 1) AVDD, 2) Ain-, 3) Ain+, - 4) GND (Type: Molex 39502-1004); NC: not connected.

Included accessories coreLIME

Quantity	Article	Type
3	Connectors	Molex, 39500-0004
1	Charging cable	USB-C zu USB-C
1	BLE antenna	TE Connectivity, SMA male, 2.4GHz

Other versions

Versions of the sensor electronics are available upon request. Battery, cables and antennas can be freely configured and the electronics can be integrated into an individual application.



Examples of Individual OEM Variants with Dimensions in mm

Change log

Versions	Change	Release
Version 0.0	Initial release	26.06.2024