



# amium



## gas analysis

catalog 05/2023

**gas analysis**

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# Gas analyzer for ammonia $\text{NH}_3$

## Type

Tunable Laser Diode Spectroscopy TDLS  
Laser Gas Detector LGD

## EU7

compact device for  $\text{NH}_3$  measurement for EURO 7

## All in one

integrated heated sampling system

## Plug and Play

quick setup, simple operation

## Calibration

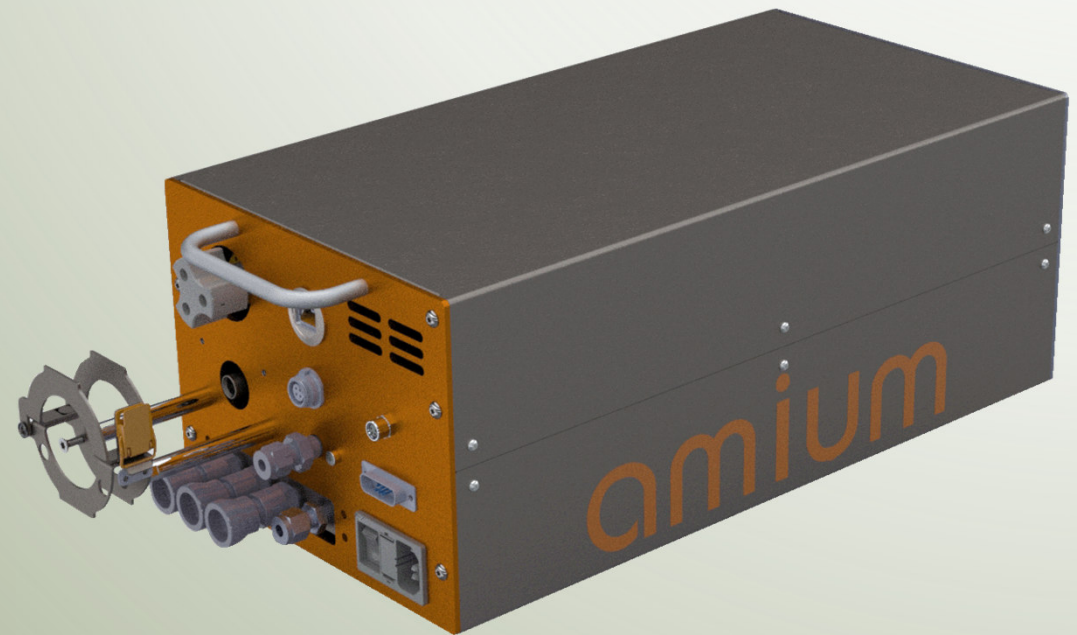
automatic quality checks according EU7  
with automatic generated protocol  
 $\text{NH}_3$  loss detection, T90, Hang-up, ANR...

## Flexible usage

stationary (Test bed) and mobile (PEMS)  
Standard interfaces: LAN (**AK**), CAN (**dbc**)

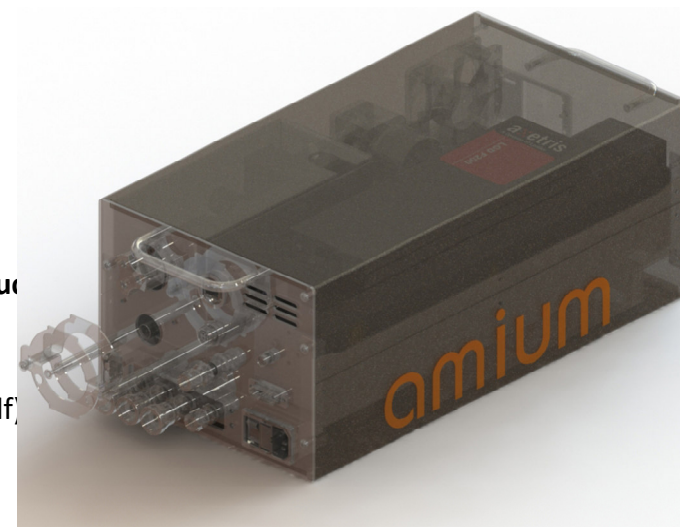
## Benefits

Low Hang-up-effects



## Features / description

- compact solution for ammonia measuring with filter and pump **for EU7**
- **stand alone operation** or integration in **automation system** (LAN/AK or CAN/dbc)
- measuring component ammonia gas with customized **ranges** up to 3000 ppm
- continuous heated sampling system up to 190 °C
- heated **filtration** with glass fiber surface
- all parts with contact to the sample gas are made of passivated stainless steel, PFA and FPM to **reduce**
- integrated zero gas and span gas switching module for automatic adjustment
- purge of gas cell with N<sub>2</sub> or ambient air at standby, flow <0.5 l/min
- comprehensive **quality checks** in touch with XCU (External Check Unit) with automatic **protocol** (pdf)
  - accuracy, noise, repeatability (ANR)
  - NH<sub>3</sub> Loss Detection
  - drift
  - leakage
  - response time
  - linearity
- integrated **temperature controller** for internal oven and one or two heated lines (24 V)
- cross-sensitivity to H<sub>2</sub>O included, no other cross-sensitivities
- measured values long-term stable
- manifold applications: test bench (230 VAC), mobile operation on the street (24 VDC)
- combinable with existing PEMS
- T20 OLED Display with touch key integrated



## Layouts

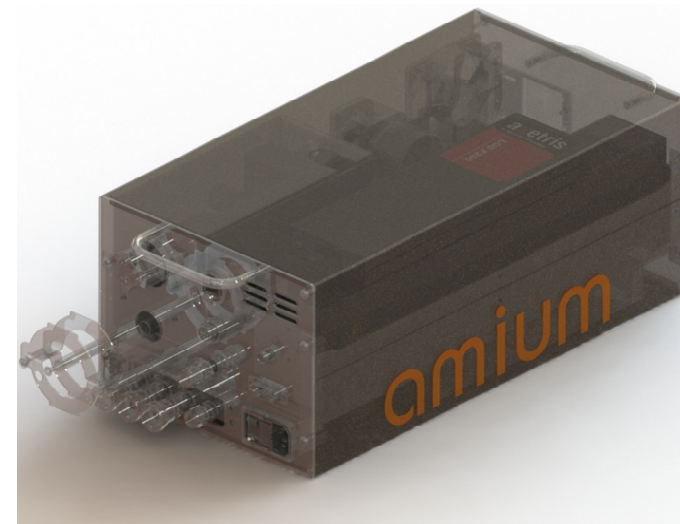
- A5235: with self-priming **membrane pump**, no compressed air necessary, flow range 2..3 l/min
- A5269: with additional integrated pressure regulator (6764-00847) for high inlet pressure up to 3 bar, pressure autonomous measuring inlet
- A5291: with **ejector** pump for quick response time, flow up to 8 l/min, pressure air necessary

## Technical data

- measure component NH<sub>3</sub> / H<sub>2</sub>O
- sampling rate 1 Hz or special edition 10 Hz
- lower detection limit 0.5 ppm, corresponding to EURO 7
- cross-sensitivity <2 % at measuring point to H<sub>2</sub>O, no other cross-sensitivities
- accuracy NH<sub>3</sub> <2 % rel. deviation at measuring point
- lower detection limit 0.5 ppm, corresponding to **EURO 7**
- repeatability <0.35 % at measuring point
- drift <1,5 % of range per 24 hours (range 100 ppm or higher)
- linearity <2 % at measuring point
- response time T90 1..2 sec dependent on flow
- volume measure cell 15 ml (1 Hz @ 0,9 l/min)
- laser path length 400 mm
- interfaces LAN (**AK**) and CAN (**dbc**, INCA, CANalyzer, Vector)
- internal valve switching for test gas and zero gas with Quick Connect plugs
- quality checks in touch with XCU (External Check Unit)
- T20 OLED Display with touch key integrated
- power supply 22..28 VDC or 115 / 230 VAC, 50 / 60 Hz, uninterruptible change between DC and AC
- power consumption typical 120 VA, max. 300 VA while heat-up
- compact dimensions W 241 (half 19") x D 400 x H 178 mm (4 RU), weight 8.4 kg

## Accessories

- **XCU** External Check Unit for quality checks
- **qbook** software for visualization, control and quality checks
- **XERO** software for visualization and control
- VEX:gui **display** with control buttons and graphic
- **analog out** for measuring values
- MGL heated sample tube, 24 V, PFA, length 1 m / 1,5 m / 2 m
- special passivated NH<sub>3</sub> sample probe



## Service, maintenance and repair of LGD and other Amium devices

- directly from the manufacturer Amium
- service done by qualified service technicians and engineers from Amium
- fast troubleshooting and support from the product developers and programmers

## Key aspect of Amium service

- free of charge telephone support during normal business hours
- free of charge online remote access
  - fast error diagnosis and if possible troubleshooting
  - software support and updates
- short response times from our headquarter in Walchsee, Austria and from the branch office in Besigheim, Germany
  - fault diagnosis
  - repairs
  - fast device replacement to minimize downtimes
- frequently service presence on site
  - highly motivated and flexible team
  - planned maintenance by qualified employees
  - short-term repairs and troubleshooting with quick response time
- resident service
  - if needed resident service on site
  - flexibly or daily, depending on requirements
- maintenance contracts and framework agreements
  - definition of maintenance scopes
  - defined maintenance plans for regular maintenance
  - prices and conditions for work and spare parts could be defined in framework agreements for easy commissioning



# Gas analyzer for THC

## Type

Flame Ionization Detector FID for THC

## EU7

compact device for THC measurement for EURO 7

## All in one

integrated heated sampling system  
inlet pressure insensible  
self-priming pump

## Plug and Play

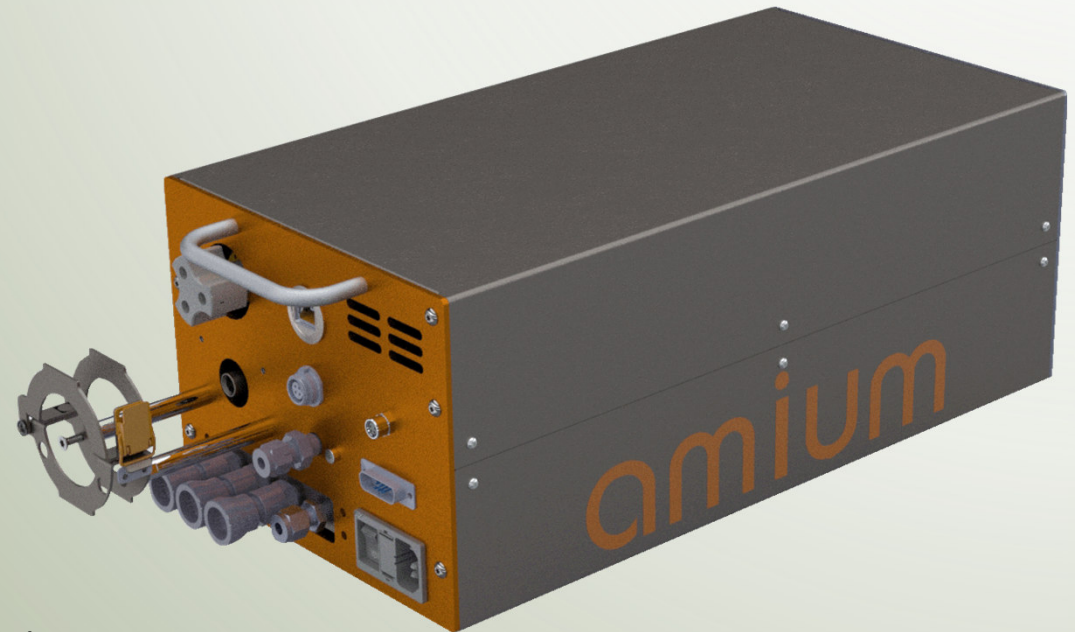
quick setup, simple operation

## Flexible usage

A5064: automotive, integrated in sampling system, heated  
A5039: stand alone, display, for ambient air monitoring (MAC)  
A5092: low detection limit for SHED  
A5006: portable, unheated for chemical industries  
A5022: stand alone, mobile, heated  
Standard interfaces: LAN (**AK**), CAN (**dbc**)

## Benefits

Long term stable and linear



## Features / description

- compact solution for measuring THC (total hydrocarbon)
- monitoring of chemical production processes
- quality control of final products
- monitoring of environmentally relevant pollutants in the air
- monitoring of the MAC values (maximum allowable concentration)

## Technical data

- measuring range 0..10.000 ppm C1 / C3, other ranges on demand,  
smallest measuring range: 0..10 ppm C1 (CH4)
- inlet pressure sample gas -50..500 mbar rel., special edition: -200..500 mbar rel.
- sample pressure 200 mbar
- sample flow 1 nl/min ( $\pm 0,2$  nl/min)
- drift  $< 1$  % of range per 24 hours
- linearity  $\leq 1$  % at measuring point at 50..100% of range  
 $\leq 2$  % at measuring point at 15..50% of range  
 $\leq 3$  ‰ of range up to 15% of range
- lower detection limit  $\pm 1$  % of range
- T90-time  $< 1$  sec.
- repeatability  $\pm 1$  % of range
- O<sub>2</sub>-cross-sensitivity  $\pm 2$  % of 0..21 Vol.-% O<sub>2</sub> at He/H<sub>2</sub>-devices
- adjustment via sample gas circuit or check gas circuit
- check gas zero gas and check gas inlets for automatic adjustment  
inlet pressure 1,5..2,5 bar
- burner gas standard: helium/hydrogen (60%/40%): 80 ml/min  
special edition: hydrogen 10 ml/min with pureness 5.0
- burner air 200 ml/min (synthetic air or conditioned pressure air)
- heated oven 190 °C
- electronic pressure regulation with 1000 Hz
- constant tempered housing interior, tempered measuring amplifier
- interfaces AK (LAN), CAN (Service, Lemo LM4)
- operating temperature +10..+40 °C
- power supply 115 / 230 VAC, 50 / 60 Hz
- dimensions A5064: W 241 x D 400 x H 178 mm, weight 12 kg  
A5039: W 483 x D 400 x H 178 mm, weight 15 kg

A5064 automotive

A5039 chemical industries (MAC)  
A5092 automotive (SHED)

A5006 portable, ambient





# Gas analyzer for multiple gases

## Type

FTIR Fourier transform infrared spectroscopy  
with liquid nitrogen LN2  
for up to 40 gas components  
including  $\text{NH}_3$  /  $\text{N}_2\text{O}$  /  $\text{CH}_4$  for EU7

## EU7

gas measurement for EURO 7

## Plug and Play

quick setup, simple operation

## Flexible usage

Standard interfaces: LAN (AK)

## Benefits

various setup configuration  
combined with other analyzers  
1 Hz / 5 Hz / 10 Hz



## Features / description

- gas measuring **for EU7**
- FTIR for up to 40 components including  $\text{NH}_3$  /  $\text{N}_2\text{O}$  /  $\text{CH}_4$  for EU7
- with liquid nitrogen LN2 with automatic filling for long-term usage

## Configurations

- **REA**, FTIR combined with O<sub>2</sub> / THC, gas supply included
- **REA compact**, with included or external sampling system
- **FTIR** stand alone

## Technical data

- |                       |   |
|-----------------------|---|
| - type                | MultiGas 2030 Rev-G   |
| - sample rate         | 1 Hz / 5 Hz / 10 Hz   |
| - sample cell         | 70 ml, 5 Hz @ ca. 21 l/min, stainless steel with Dursan coating |
| - windows             | ZnSe  |
| - operating resources | LN2 / N2 or conditioned air                                     |
| - interfaces          | LAN ( <b>AK</b> ) , CAN ( <b>dbc</b> )                          |
| - power supply        | 115 / 230 VAC, 50 / 60 Hz                                       |

REA measuring system



REA compact



FTIR stand alone



# Customized PEMS solution

## Type

customized mobile PEMS, RDE PEMS  
PEMS Cube

## EU7

compact and mobile device for EU7

## Plug and Play

quick setup, simple operation

## Flexible usage

flexible construction kits for individual needs  
standard interfaces: Wifi (Cellular), LAN (AK), CAN (dbc)

## Benefits

low weight, compact housing  
high quality measurement  
multiple configuration and components:  
THC / NO / NO<sub>2</sub> / NH<sub>3</sub> / CH<sub>4</sub> / N<sub>2</sub>O / CO / CO<sub>2</sub> / EFM / OBD / GPS...



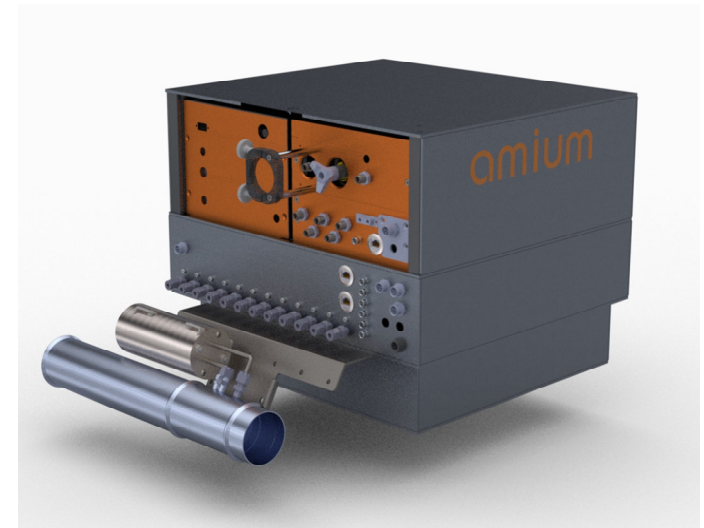
## Features / description

- compact PEMS with individual configuration
- customized combination of construction kits:
  - FID (THC)
  - UVD (NO / NO<sub>2</sub>)
  - LGD (NH<sub>3</sub>)
  - IRD (CH<sub>4</sub> / N<sub>2</sub>O / CO / CO<sub>2</sub>)

## Technical data

- Base controller with CPU for device control, data control
- unit size e. g. FID (HW), UVD (RT, room temperature), LGD
- double unit e. g. IRD with cooler
- integrated cooler for gas drying
- integration of additional modules, e. g. EFM (flow meter), GPS, OBD...
- customized mounting: attachment for trailer hitch, mounting plate, ...
- compact design
- extendible battery pack for mobile operation
- interfaces Wifi, Cellular
- power supply 22..28 VDC or 115 / 230 VAC, 50 / 60 Hz
- dimensions W 490 x D 440 x H 400 mm without attachment for trailer hitch
- weight FID 12 kg, UVD 12 kg, EFM 11 kg, LGD 9 kg, base unit 14.5 kg

PEMS Cube with FID, UVD, EFM



PEMS Cube basic





# Gas analyzer for CH<sub>4</sub> / N<sub>2</sub>O / CO / CO<sub>2</sub>

## Type

IRD Infrared detektor

## EU7

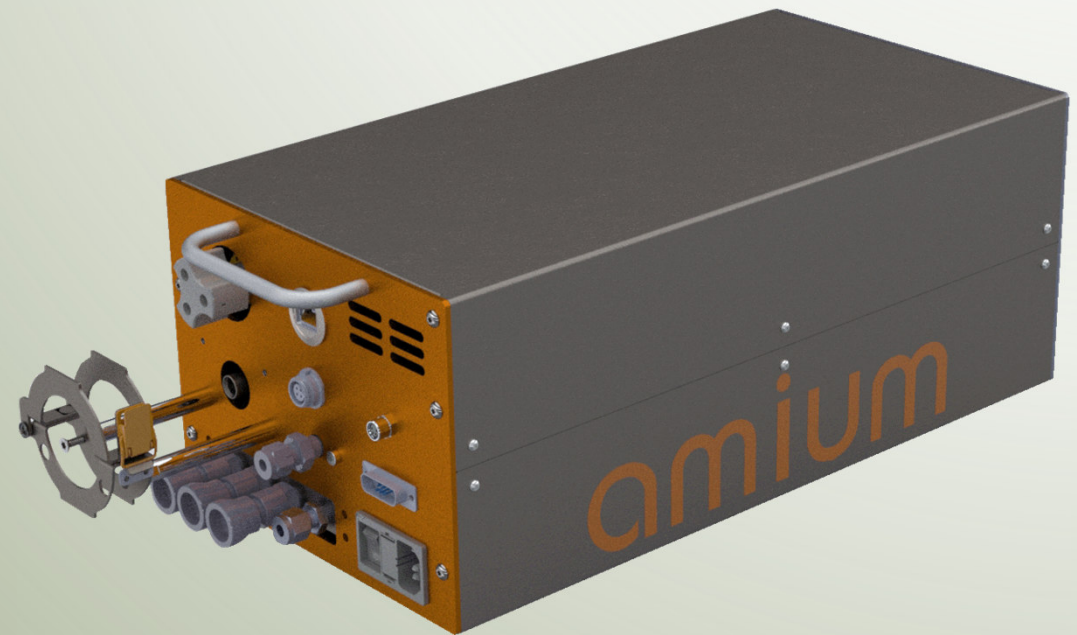
compact analyzer for CH<sub>4</sub> / N<sub>2</sub>O / CO / CO<sub>2</sub> for EURO 7

## Plug and Play

quick setup, simple operation

## Flexible usage

Standard interfaces: LAN (**AK**), CAN (**dbc**)





## Features / description

- compact solution for CH<sub>4</sub> / N<sub>2</sub>O / CO / CO<sub>2</sub> measuring **for EU7**
- **stand alone operation** or integration in **automation system** (LAN/AK or CAN/dbc)
- customized **ranges** for all components

## Technical data

- compact design
- measure component CH<sub>4</sub> / N<sub>2</sub>O / CO / CO<sub>2</sub>
- sample flow 40..100 l/h
- sampling rate 1 Hz
- linearity / accuracy <2 % rel. deviation at measuring point
- response time T90 <3 sec at 60 l/h
- adjustment zero gas and span gas
- interfaces LAN (**AK**) and CAN (**dbc**, INCA, CANalyzer, Vector)
- power supply 24 VDC
- dimensions W 241 x D 400 x H 178 mm



# Gas analyzer for NO / NO<sub>2</sub>

## Type

UV Process Photometer, UV detector (UVD)  
UV-RAS resonance absorption spectroscopy for NO  
NDUV interference filter correlation for NO<sub>2</sub>

## EU7

compact device for NO / NO<sub>2</sub> measurement for EURO 7

## Plug and Play

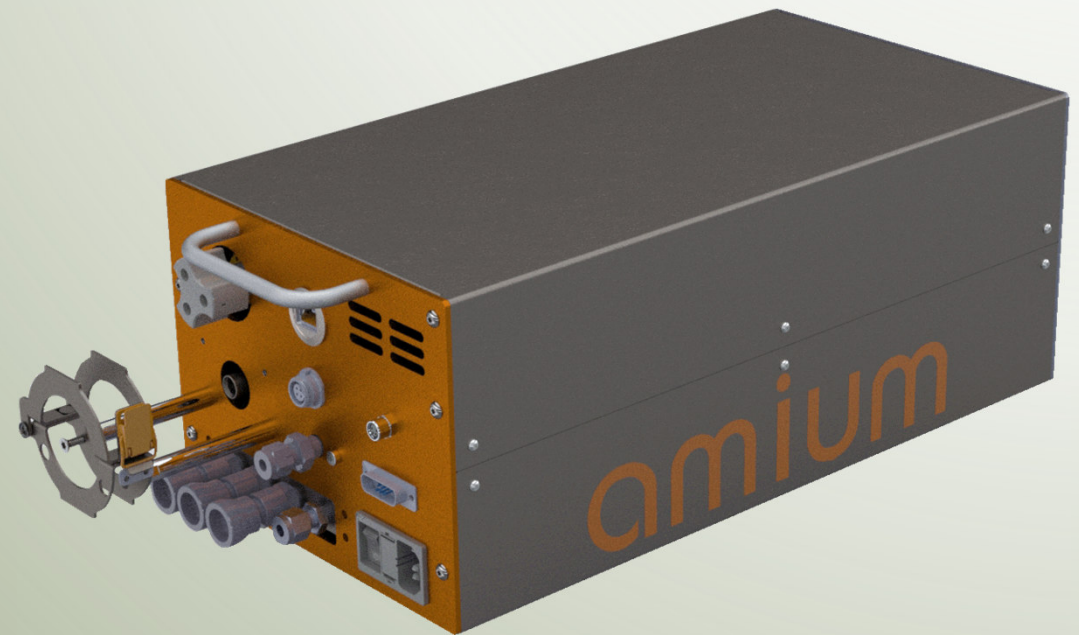
quick setup, simple operation

## Flexible usage

Standard interfaces: LAN (AK), CAN (dbc)

## Benefits

no converter needed  
heated, 80°C or 190°C



## Features / description

- compact solution for NO / NO<sub>2</sub> measuring **for EU7**
- **stand alone operation** or integration in **automation system** (LAN/AK or CAN/dbc)
- customized **ranges** for NO / NO<sub>2</sub>
- heated up to 80°C or 190°C

## Technical data

- measure component NO / NO<sub>2</sub>
- sampling rate 1 Hz
- lower detection limit 1 ppm NO, 2 ppm NO<sub>2</sub>
- response time T90 <3 sec
- adjustment integrated calibration cells, no external span gas needed
- interfaces LAN (**AK**) and CAN (**dbc**, INCA, CANalyzer, Vector)
- power supply 24 VDC
- dimensions W 241 x D 400 x H 178 mm



# Exhaust Flow Meter

## Type

Exhaust Flow Meter EFM, venturi principle  
C151: 550 kg/h, C152: 950 kg/h

## Use case

Measurement of the current mass flow  
of hot exhaust gases for

- PEMS applications
- Real Driving Emissions RDE
- EURO 7

## Plug and Play

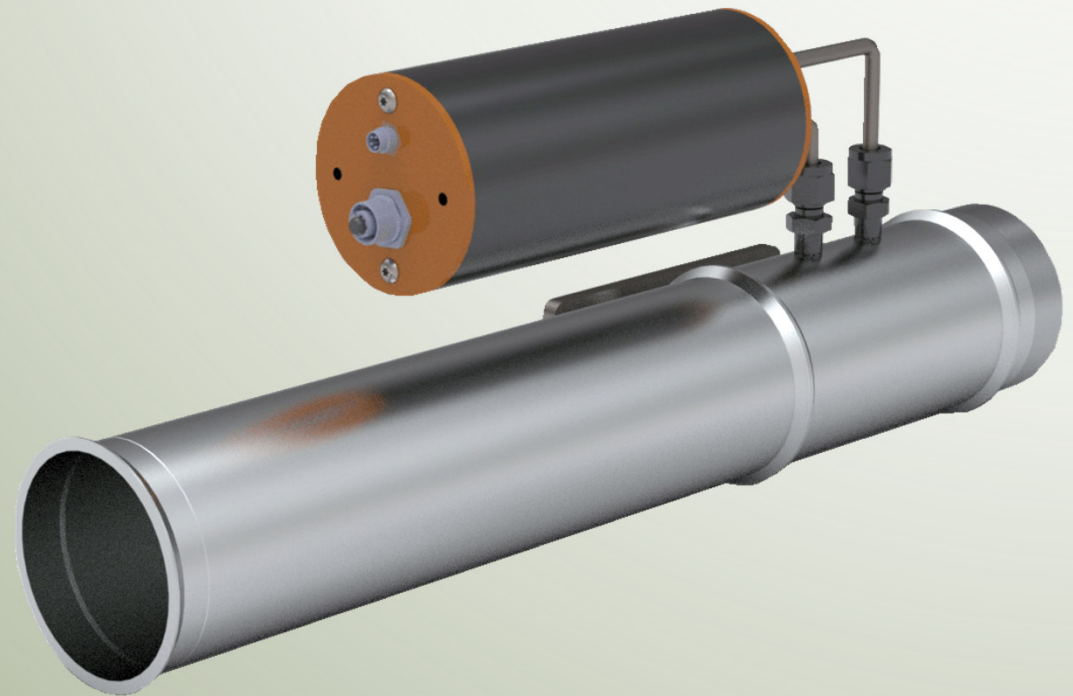
quick setup, simple operation

## Flexible usage

stationary (Test bed) and mobile (PEMS)  
Standard interfaces: LAN (**AK**), CAN (**dbc**)

## Benefits

venturi: low pressure drop

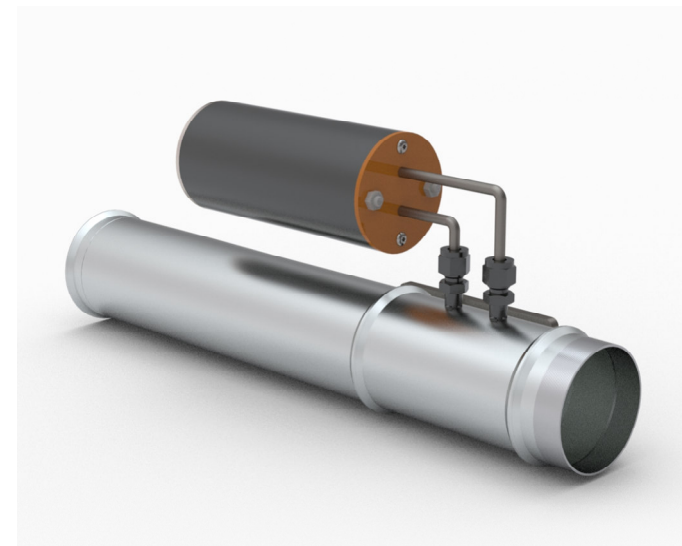


## Features / description

- Exhaust Flow Meter EFM, venturi nozzle
- C151: 550 kg/h @ 400°C
- C152: 950 kg/h @ 400°C
- measurement of the current mass flow of hot exhaust gases
- for PEMS applications, Real Driving Emissions RDE, Euro 7

## Technical data

- up to 800°C exhaust temperature
- stainless steel tube with venturi nozzle
- output rate (flow) 10 Hz .. 100 Hz
- industrial flange DN65, for fast exhaust pipe connection
- inlet path 600 mm
- measuring section 250 mm, venturi nozzle
- outflow zone 150 mm
- total pressure drop 18.6 mbar at 800 kg/h, 400°C
- interfaces LAN (**AK**), CAN (**dbc**): exhaust flow, exhaust temperature, pressure
- sensors for pressure difference, absolute pressure, exhaust gas temperature
- sampling connector / Swagelok for gas measurement
- including basic calibration sheet (10 calibration points)
- venturi principle: very low setup compared to a Pitot tube
- optional: attachment for tailer hitch
- power supply 24 VDC
- dimensions diameter 65 mm, length 1000 mm @ 600 kg/h
- weight 11 kg @ 600 kg/h





# Particle measurement

## Type

particle number detector PND  
diffusion charger (DC)

## All in one

integrated sample pump  
integrated zero point adjustment

## Wide range

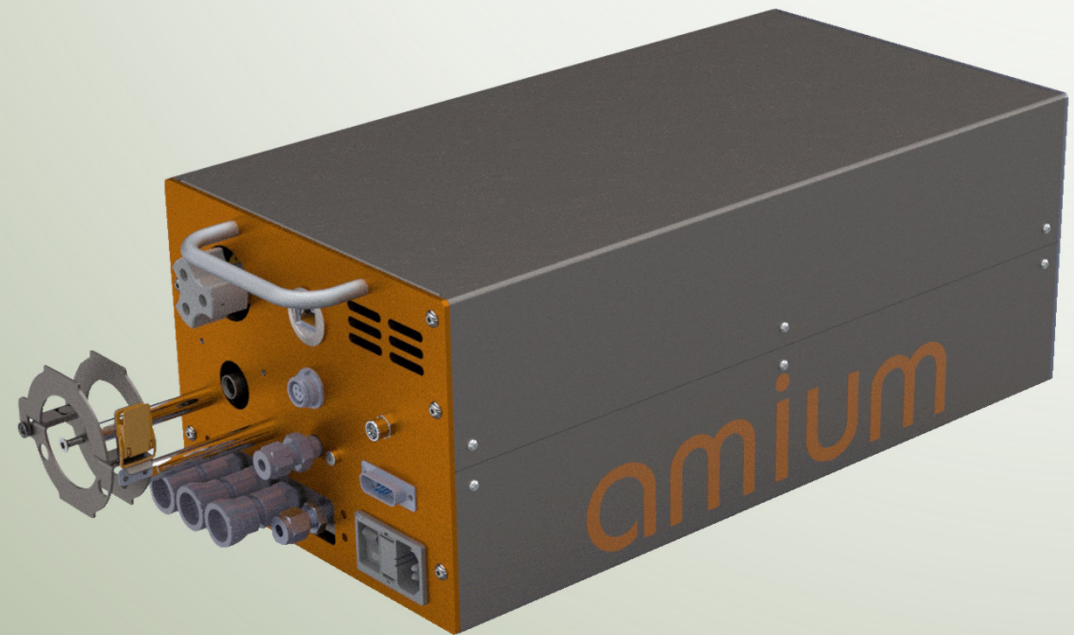
10 nm .. 1  $\mu$ m

## Plug and Play

quick setup, simple operation  
compact device

## Flexible usage

mobile, manual or integrated usage  
standard interfaces: LAN (AK), CAN (dbc)



## Features / description

- particle measurement
- particle number detector PND
- measuring principle: diffusion charger (DC)

## Technical data

- compact design
- integrated sample pump
- integrated zero point adjustment
- integrated volatile particle remover (VPR)
- no operating resources necessary  
(in contrast to CPC principle)
- prepared connection for dilution unit (available separately)
- detected particle size 10 nm .. 1 µm
- sample flow 1 / 2.5 / 5 l/min
- interfaces LAN (**AK**) and CAN (**dbc**)
- power supply 24 VDC



# Gas divider

## Type

Reference gas calibrator  
Gas divider GD A8677  
with Massflow-Controller

## High accuracy

deviation less than 0.5% at measuring point  
200 steps

## Plug and Play

quick setup, simple operation  
compact device

## Calibration

calibrated according ISO 17025 / DAkkS

## Flexible usage

mobile, manual or integrated usage  
standard interfaces: LAN (**AK**), CAN (**dbc**)



## Features / description

- Reference gas calibrator
- gas divider with 3 Massflow-Controller: 1x zero gas (N2 or synthetic air), 2x span gas
- type: A8677
- integrated display for manual usage

## Technical data

- compact design
- sample flow 0.5 .. 5 l/min
- accuracy <0.5 % rel. deviation at measuring point
- repeatability <0.35 % at measuring point
- delution range 1% .. 100%
- calibration ISO 17025 / DAkkS
- interfaces LAN (**AK**) and CAN (**dbc**)
- test gas and zero gas inlets with Quick Connect plugs, internal valve switching
- outlet with Quick Connect plug
- power supply 115 / 230 VAC, 50 / 60 Hz





# Environment Data Logger

## Type

Data Logger for temperature, pressure, humidity  
Environment Data Logger mobile EDM

## Plug and Play

quick setup, simple operation

## Calibration

for digital multi sensor, calibrated according ISO 17025

## Flexible usage

stationary (EDS) and mobile (EDM) devices  
interface: WLAN or LAN

## Benefits

uninterruptible data storage  
1 Hz data logging





## Features / description

- data logger for temperature, pressure, humidity
- serial interface (RS232, RS485, CAN) for digital, calibrated sensors
- up to 3 sensors

## Technical data

- display display of time, actual temperature, different average values, maximum and minimum of temperature
- interface WLAN, LAN
- wheel encoder
- connector for external thermocouple (Type T)
- battery for up to 30 days
- Qi charging with additional charging station
- datastorage (Flashdisk, SDcard)
- simple user integration in VEX Database (VEXdb)
- optimized battery management, more than 2 weeks runtime



# Mini-PEMS / Sensor

## Type

Mini-PEMS / Sensor  
Sensor interface, Sensor PEMS  
VEX G2 Controller PEMS

## EU7

compact device for NO<sub>x</sub> or NH<sub>3</sub> sensors

## Plug and Play

quick setup, simple operation

## Flexible usage

standard interface: CAN (dbc, INCA)

## Benefits

CAN multiplexer: 4+2 CAN



## Features / description

- sensor interface for NO<sub>x</sub> / NH<sub>3</sub> sensors
- CAN multiplexer: 4+2 CAN
- integrated display
- available with all accessories: sensors, cables, battery...

## Technical data

- display 4x20 signs, user terminal, display of measured values, configuration
- connections 2x CAN (4+2), universal IO - Lemo Push/Pull connectors  
4x CAN, via Gateway/Multiplexer (configuration via UAB)
- gateway-CAN routing table, ID-switch, thinning, baudrate-switching
- sensor triggering according to customer's specifications (e. g. dew point NOX, NH3 etc.)
- speed frequency monitoring via OBD 2 interface (CAN 2, dew point release)
- interfaces CAN (**dbc**, **INCA**, **CANalyzer**),  
LAN/HOST-interface for remote IO, updates, data exchange,  
automation, logging, settings
- CAN modification of CAN messages according customer's needs
- USB storage configuration data (gateway), log data (e. g. CAN monitoring)
- status LED
- power supply 12 VDC
- dimensions 172 x 85 x 38 mm



NO<sub>x</sub> / NH<sub>3</sub> sensor with controller unit





# UDL Electric mobility

## Balancer / Cyclers

### Type

Balancer BBE - C1041 for batteries

Cycler brick CBE - C51 / C101

### Plug and Play

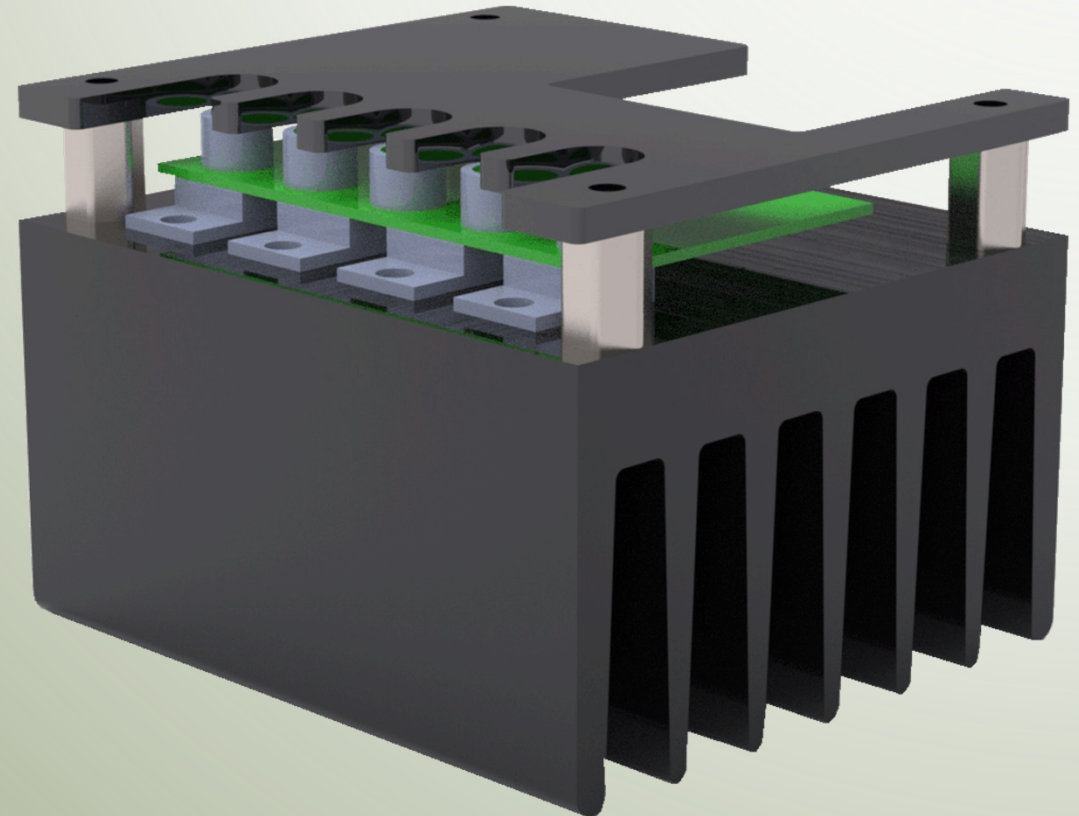
quick setup, simple operation

compact devices

### Benefits

balancer for up to 128 battery cells

cycler for charging and discharging up to 100 A

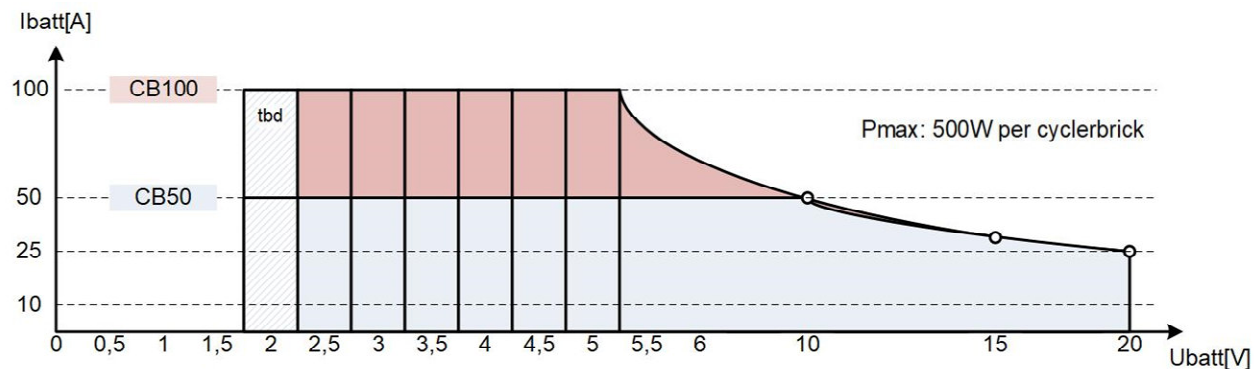


**Balancer BBE**

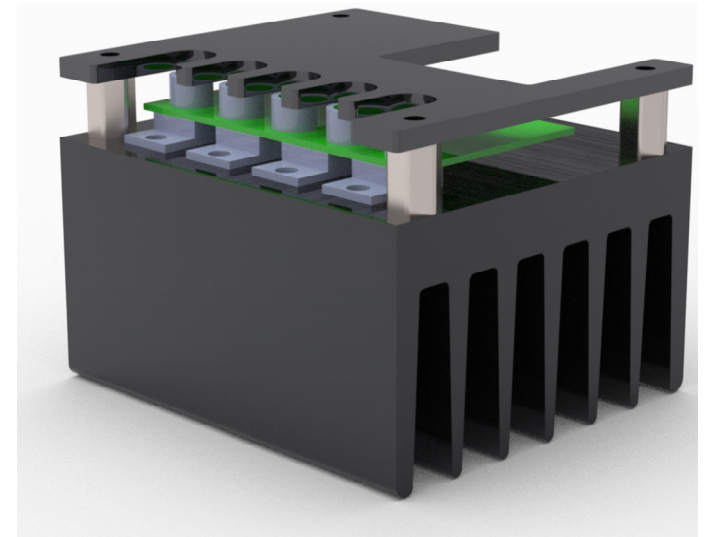
- type: C1041, 4 channels
- balancer for batterie management
- equable electric charge distribution
- compact design, automatic configuration
- CAN (dbc), UDL interface for automation
- 4A or 8A per channel, 1 Ohm
- scalable, up to 32 units (128 channels)

**Cycler Brick CBE**

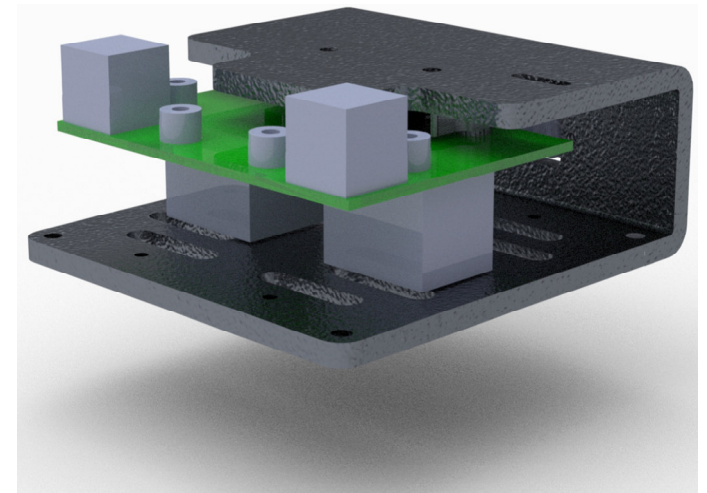
- C51 Cycler brick 50 A
- C101 Cycler brick 100 A
- compact design
- rail currency 48 VDC, CPS (regenerative power supply, single-phase 2 kW, three-phase 10 kW)
- cell charging up to 50 ADC
- cell discharging up to 50 ADC
- cell currency 0..20 VDC
- connector for sensor wire (currency measuring)
- settings via CAN Bus (UDL, dbc file)
- integrated security SPS: undervoltage and overvoltage protection, temperature protection
- interface for sensor module (temperature, piezo, pressure, VOC...)
- resolution measure / regulation current: +/- 10mA
- resolution measure / regulation voltage: +/- 1mV
- constant current regulation 50 A or 100 A
- characteristic curve:



Balancer B4



Cycler brick CB50 / CB100





# Automation software

## Type

universal control and automation software  
qbook

## Plug and Play

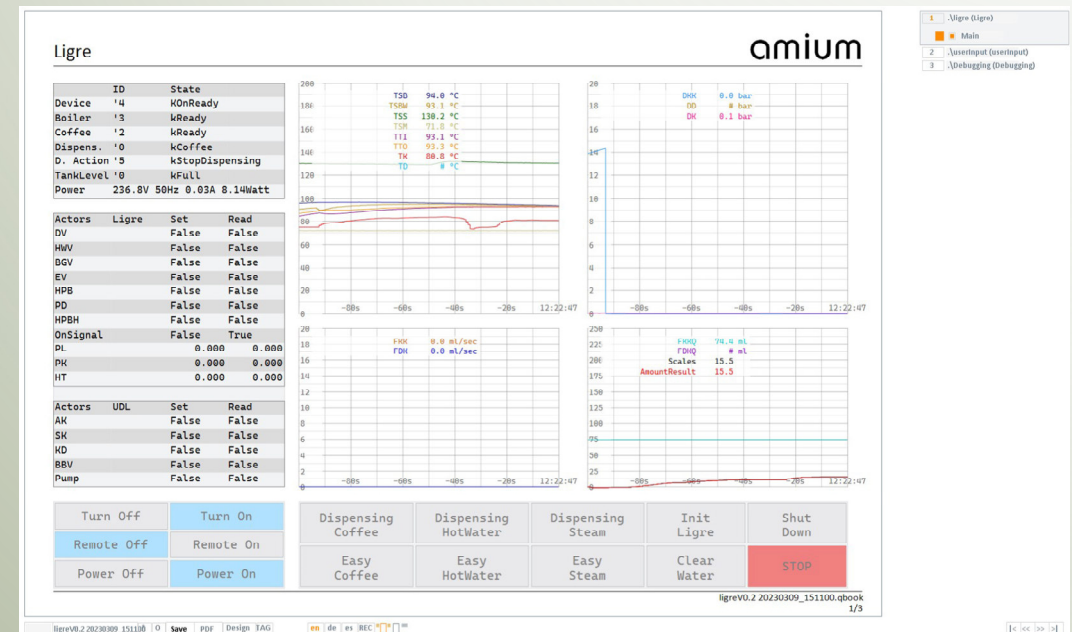
simple handling

## Flexible usage

automation  
documentation  
presentation

## Benefits

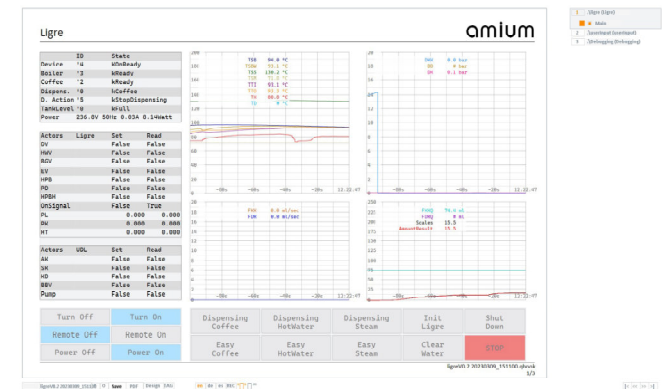
wireless connectivity  
modifiable by customer



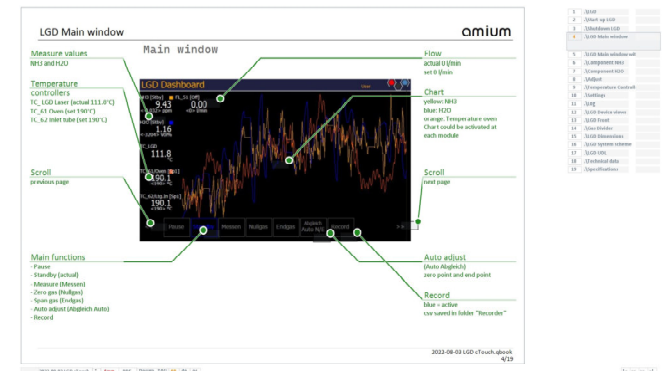
## Features / description

- universal control and automation software
- endless possibilities: automation, documentation, presentation
- simple handling
- control off subdevices and unit
- no installation necessary
- low memory requirements
- could be modified and individualized by user: C# / Python
- wireless connectivity: Wifi / Cellular

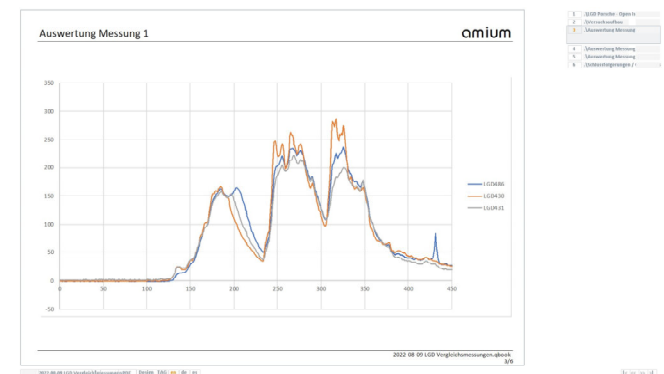
## automation

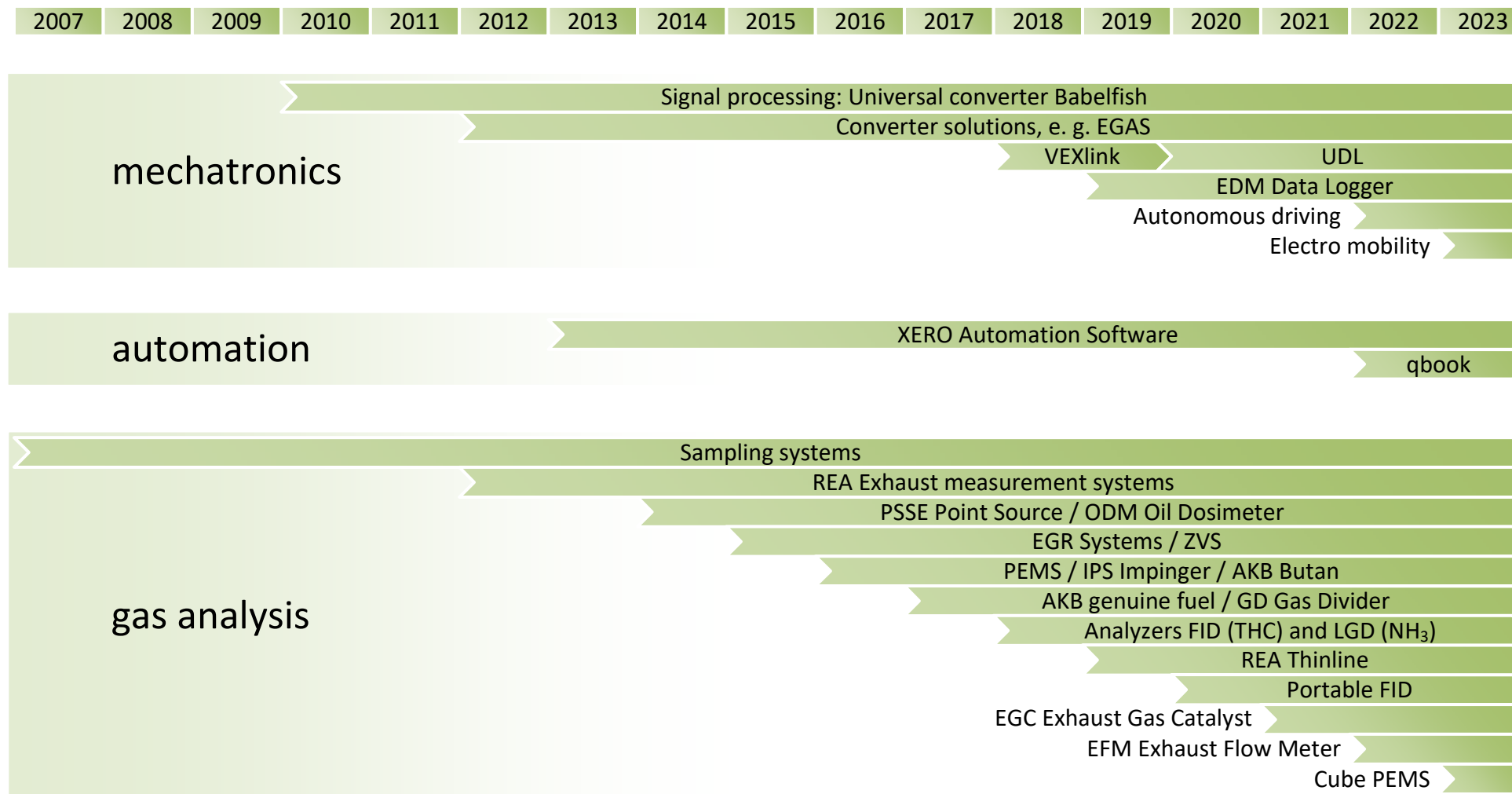


## documentation



## presentation





# amium



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