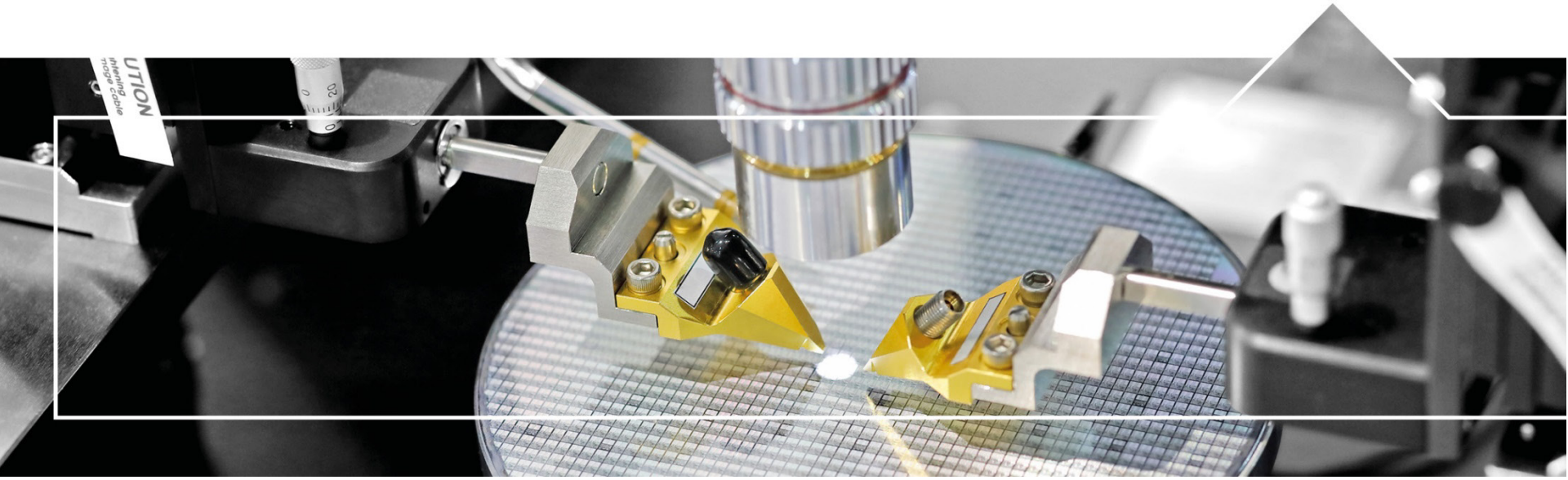
smart GasDetection Technologies

D-ReX®



Agenda

D-ReX features overview

New releases (accessories, sensors, software)

Review of all documentation released to date

Software Training

Bluetooth App Training

Webportal Training

D-ReX Concept

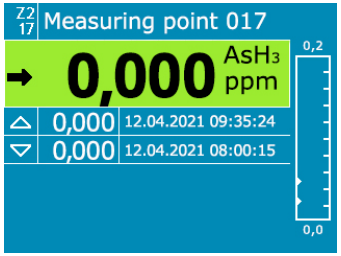
Versatility was the goal

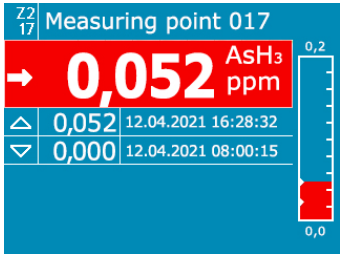
Depending on the requirements on site, you can choose the right D-ReX to suit your needs.

- **D**iffusion mode for ambient air monitoring with the D-ReX PoU (Point-of-Use)
- **R**emote detection up to 30 meters in diffusion mode utilizing the D-ReX PoI (Point-of-Installation)
- **eX**traction mode operation up to 30 meters using the D-ReX PoS (Point-of-Sampling)

Features:

- Sensors for more than 50 gases
- High-resolution, full-color 2.4” TFT display
- Hot-swappable smart sensor cartridge
- Reusable sensor cartridge
- Power over Ethernet (PoE) or 24 V DC
- Addressable via a web portal- Datalogging
- Bluetooth App with service capabilities
- Software configuration tool
- Interface: All Standard Now
  - analog 4–20 mA output
  - RS-485 (Modbus/RTU)
  - 0/100 Mbit Ethernet (Modbus/TCP)
  - PoE Ethernet Communication
  - 5 Relays
- LonWorks Option
- Pyrolyzer available now
- PID VOC sensor available





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* Electrochemical and catalytic combustion sensors

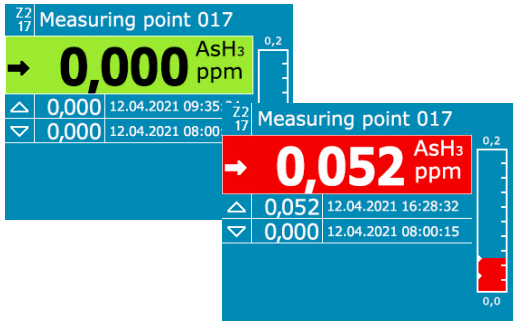
Designed for Versatility

There is no one device for all requirements, but there is one device series to fit all the application needs and communication requirements you might have: the *D-ReX*.

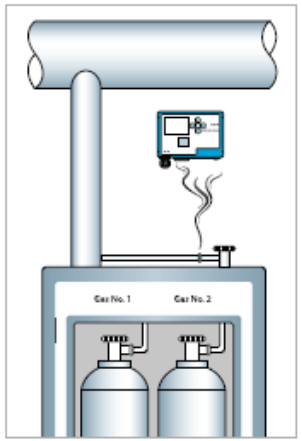
Diffusion Mode Gas Detection at the Point of Use (PoU)

USPs:

- High-resolution full-color display
- Plain text information



- Power over Ethernet (PoE) communication
- Bluetooth®
- 5x internal relays



Options:

- LonWorks®

D-ReX PoU

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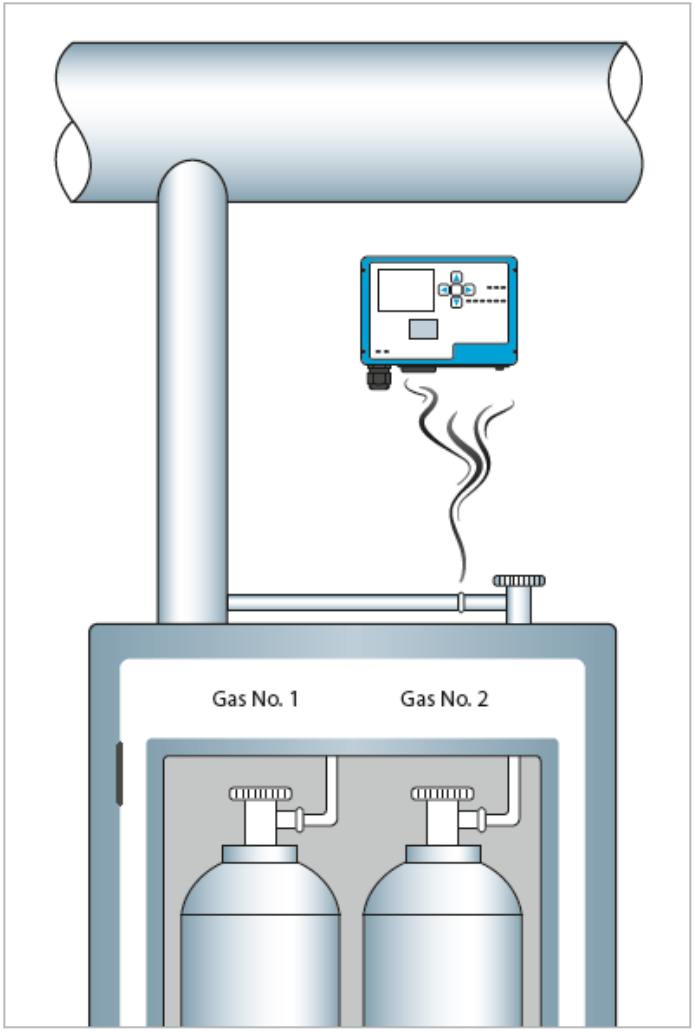
Features:

- Sensors for more than 40 gases
- Hot-swappable smart sensor cartridge
- Sensor cartridges for EC, CC, IR and PID sensors*
- Tool-free maintenance
- Addressable via a web portal
- Password protected menu
- Interface: All Standard Now
  - analog 4–20 mA output
  - RS-485 (Modbus/RTU)
  - 0/100 Mbit Ethernet (Modbus/TCP)
  - 5 Relays
- Bright status and alarm LEDs
- Data logger to review sensor history and alarms

* Electrochemical and catalytic combustion sensors



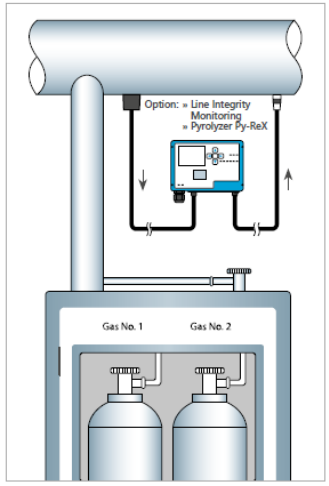
Remote Gas Detection at the Point of Installation (PoI)

USPs:

- Cable length up to 30 m / 100 ft
- Easy to install duct adapter
- High-resolution full-color display
- Plain text information
- Power over Ethernet (PoE) communication
- Bluetooth®
- Same sensor cartridge

Options:

- LonWorks®



D-ReX PoI

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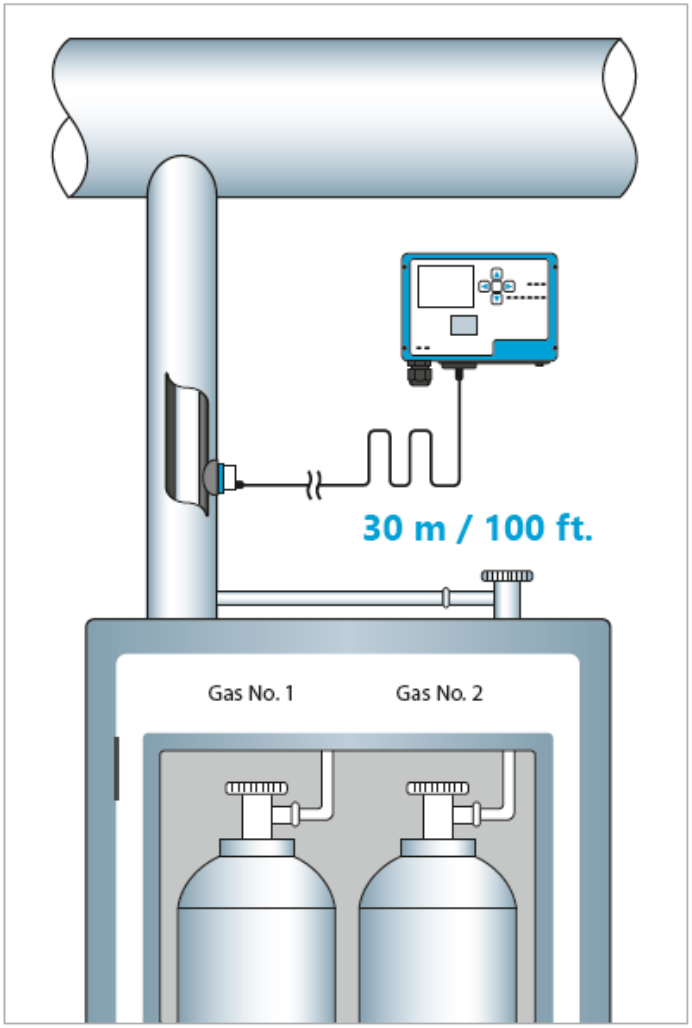
Features:

- Sensors for more than 30 gases
- Sensors manufactured in Germany by sensoriX the original manufacturer of Satellite XT sensors
- Sensor cartridges for EC and CC sensors*
- Hot-swappable smart sensor cartridges
- Tool-free maintenance
- Power over Ethernet (PoE) communication
- Addressable via a web portal
- Password protected menu
- Interface: All Standard Now
  - analog 4–20 mA output
  - RS-485 (Modbus/RTU)
  - 0/100 Mbit Ethernet (Modbus/TCP)
  - 5 relays
- Bright status and alarm LEDs
- Data logger to review sensor history and alarms

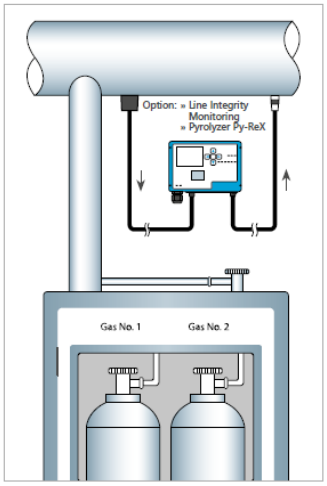


* Electrochemical and catalytic combustion sensors

eXtraction Mode Gas Detection at the Point of Sampling (PoS)

USPs:

- Tube length up to 30 m / 100 ft
- Internal pump is easy to replace (only mechanical component)
- High-resolution, full-color display
- Plain text information
- Bluetooth®
- Same sensor cartridge
- 5 internal relays



Options:

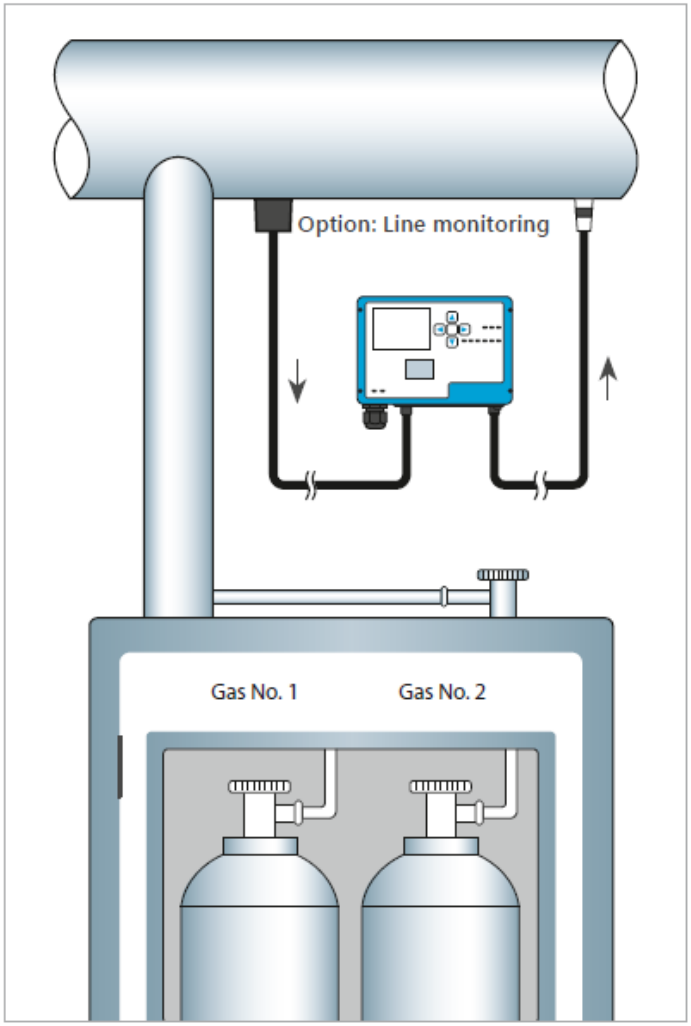
- LonWorks®
- Line Integrity Monitoring (LIM)
- Py-ReX pyrolyzer module

D-ReX PoS

smart GasDetection Technologies

Features:

- Line Integrity Monitoring (option)
- Sensors for more than 30 gases
- Sensors manufactured in Germany by sensoriX the original manufacturer of Satellite XT sensors
- Sensor cartridges for EC and CC sensors*
- Hot-swappable smart sensor cartridges
- Tool-free maintenance
- Power over Ethernet (PoE) communication
- Addressable via a web portal
- Password protected menu
- Interface: All Standard Now
  - analog 4–20 mA output
  - RS-485 (Modbus/RTU)
  - 0/100 Mbit Ethernet (Modbus/TCP)
  - 5 relays
- Bright status and alarm LEDs
- Data logger to review sensor history and alarms



* Electrochemical and catalytic combustion sensors

eXtraction Mode Gas Detection utilizing pyrolysis

USPs:

- Detect electrochemically inactive gases
- Tube length still up to 30 m / 100 ft
- Easy to replace internal pump
- High-resolution, full-color display
- Plain text information
- Bluetooth®
- Same sensor cartridge

Options:

- LonWorks®
- Line Integrity Monitoring (LIM)

eXtraction Mode Gas Detection utilizing pyrolysis

USPs:

- Detect electrochemically inactive gases
- Safe, tested and reliable technology
- No need for external pump
- No exposure to radiation

Options:

- Line Integrity Monitoring (LIM)

Requirement!

- Py-ReX pyrolyzers are designed for the detection of a specific gas!

New enclosure options for PoI and PoS

Accessories

- Stainless steel knurled screws since 03.2024
- Push-pull hose plug-in adapter from ¼”OD to 6mm for D-ReX and Py-ReX
- Particle filter 1 with one-sided connection for 6mm hose
- Particle filter 2 with connections on both sides for 6mm hoses
- Replacement filter elements for particle filter 2
- Particle filter PTFE with connections on both sides for 6mm or ¼” hoses
- Touch protection insert for D-ReX Sensors

EC Sensors

- MK487-10 GeH_4- Germanium Hydrogen
- MK486-10 N_2H_4- Hydrazine
- MK485-10 H_2Se- Hydrogen Selenide
- MK481-11 TMB- Trimethyl Borate
- MK401-10 H_2 ppm
- MK407-10 H_2 Vol%
- MK349-10 $COCl_2$- Phosgene

PID Sensors- VOCs

- MK463-10 iC_4H_8 and others

IR Sensors

- MK252-10 CO_2 25(50) Vol%

D-ReX Firmware

- Internal Data logger (access via WEB-Interface)
- Online Test for the Iout 4-20mA output (via DReX-Config software)
- GMA400 Controller compatibility-Modbus
- Additional functions and more safety for the DReX-App
- Login for DReX-Config software and DReX-App
- Optimization of the configuration via Modbus and LonWorks
- Optimization of the WEB-Interface
- Optimization of fault and service request messages
- Optimization of displays in the service menu and info screens
- Electrical EC sensor tests- Reflex- Every 16 hours

Released Documents

Sensor Table

Manuals for PoU and PoI- PoS by end of September

Modbus Manual

LonWorks Manual

Bluetooth App Manual

Configuration Software installation guide

(no configuration manual released yet)

Individual Sensor Datasheets- 10 released to date

(if you need a specific one let us know and SensoriX will put it together)

D-ReX - Detectable Gases

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Smart Sensors (EC)		
Gas Name	**Formula**	**Measuring Range**
Ammonia	NH_3	0-100 ppm
Ammonia	NH_3	0-1000 ppm
Ammonia	NH_3	5-5000 ppm
Arsine	AsH_3	0-1 ppm
Arsine	AsH_3	0-1 ppm
Bromine	Br_2	0-5 ppm
Carbon monoxide	CO	0-500 ppm
Chlorine	Cl_2	0-10 ppm
Chlorine dioxide	ClO_2	0-2 ppm
Chlorine trifluoride	ClF_3	0-1 ppm
Diborane	B_2H_6	0-1 ppm
Ethylene oxide	ETO	2-20 ppm
Fluorine	F_2	0-5 ppm
Germanium hydrogen	GeH_4	0-5 ppm
Hexamethyldisilazane	HMDS	0-0.5 vol %
Hydrazine	N_2H_4	0-1 ppm
Hydrogen	H_2	20-2000 ppm
Hydrogen	H_2	0-1 vol %

Smart Sensors (EC)		
Gas Name	**Formula**	**Measuring Range**
Hydrogen	H_2	0-4 vol %
Hydrogen bromide	HBr	1-30 ppm
Hydrogen chloride	HCl	0-30 ppm
Hydrogen cyanide	HCN	0-30 ppm
Hydrogen fluoride	HF	0-10 ppm
Hydrogen selenide	H_2Se	0-5 ppm
Hydrogen sulfide	H_2S	0-100 ppm
Nitrogen dioxide	NO_2	0-30 ppm
Nitrogen monoxide	NO	2-100 ppm
Oxygen	O_2	0-25 vol %
Ozone	O_3	0-1 ppm
Ozone	O_3	0-5 ppm
Phosgene	$COCl_2$	0-1 ppm
Phosphine	PH_3	0-1 ppm
Silane	SiH_4	0-50 ppm
Sulfur dioxide	SO_2	0-20 ppm
Tetraethyl orthosilicate	TEOS	0-100 ppm
Trimethyl borate	TMB	5-500 ppm

Smart Sensors (CC)		
Gas Name	**Formula**	**Measuring Range**
flammable gases*	LEL	2,5-100 % LEL

Smart Sensors (IR)		
Gas Name	**Formula**	**Measuring Range**
Carbon dioxide	CO_2	0-5 vol %
Carbon dioxide	CO_2	0-1 vol %
Methane	CH_4	0-5 vol %
Nitrous Oxide	N_2O	100-1000 ppm
Nitrous Oxide	N_2O	0-1 vol %
Propane	C_3H_8	0-2 vol %

Smart Sensors (EC for use with a Pyrolyzer) *		
Gas Name	**Formula**	**Measuring Range**
Fluoromethane	CH_3F	0-120 ppm
Hexafluorobutadiene	C_4F_6	0-40 ppm
Nitrogen trifluoride	NF_3	0-40 ppm
Octafluorocyclopentene	C_5F_8	0-40 ppm
Sulfur hexafluoride	SF_6	0–0,5 vol %

* Available as soon as the corresponding pyrolyzer is available.

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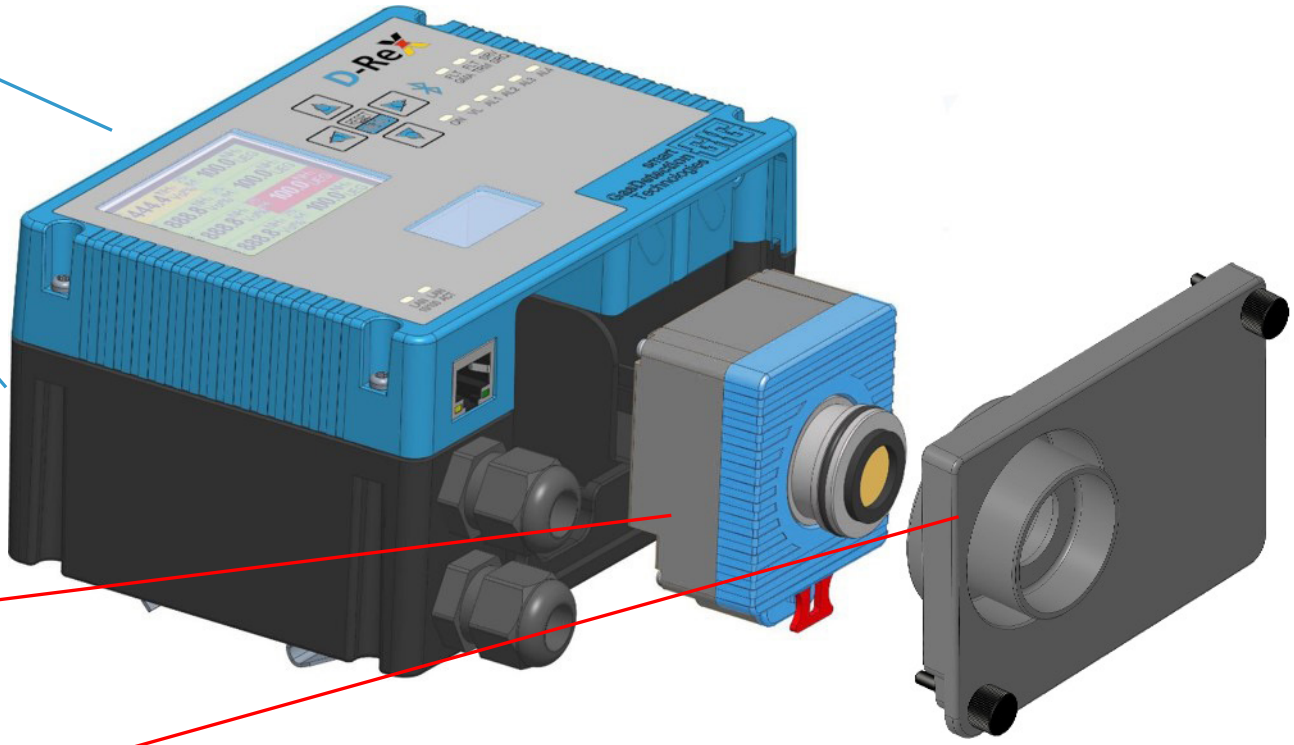
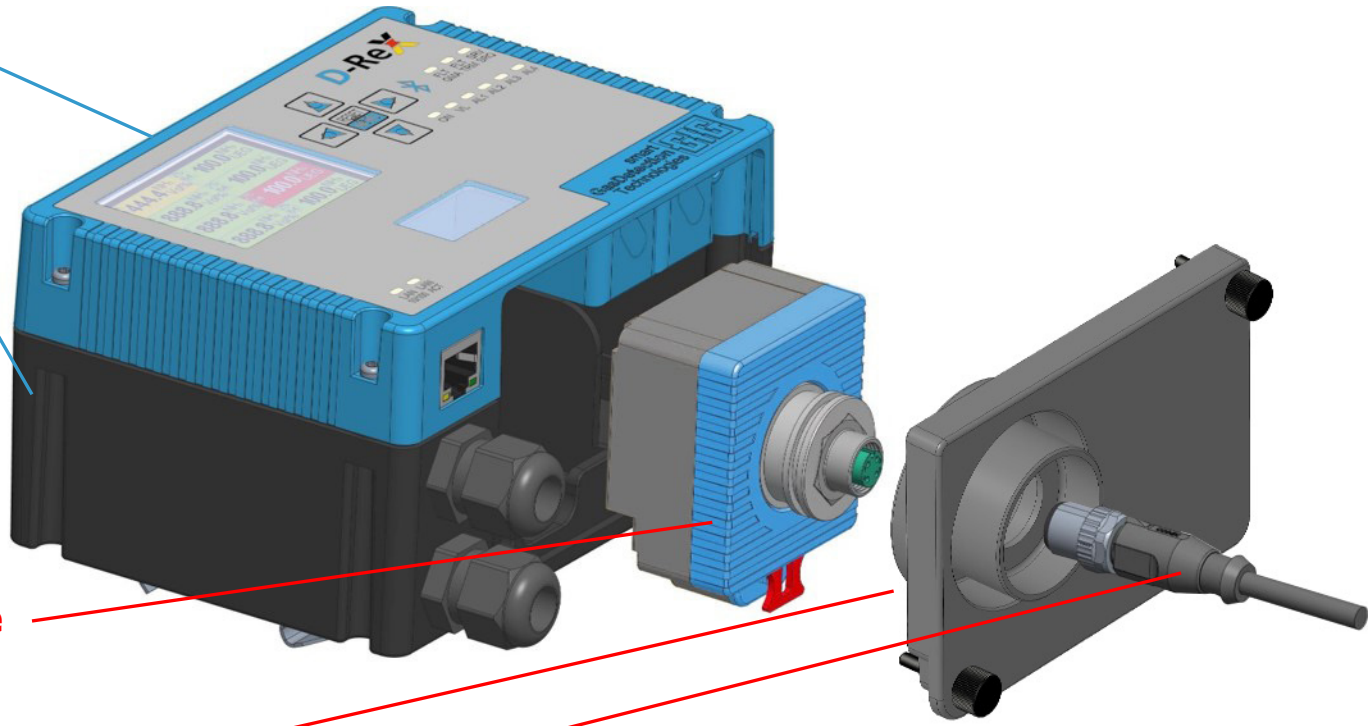
Assemblies PoU

- Housing lid
- Housing
- Sensor cartridge
- Lower housing cover



Assemblies PoI

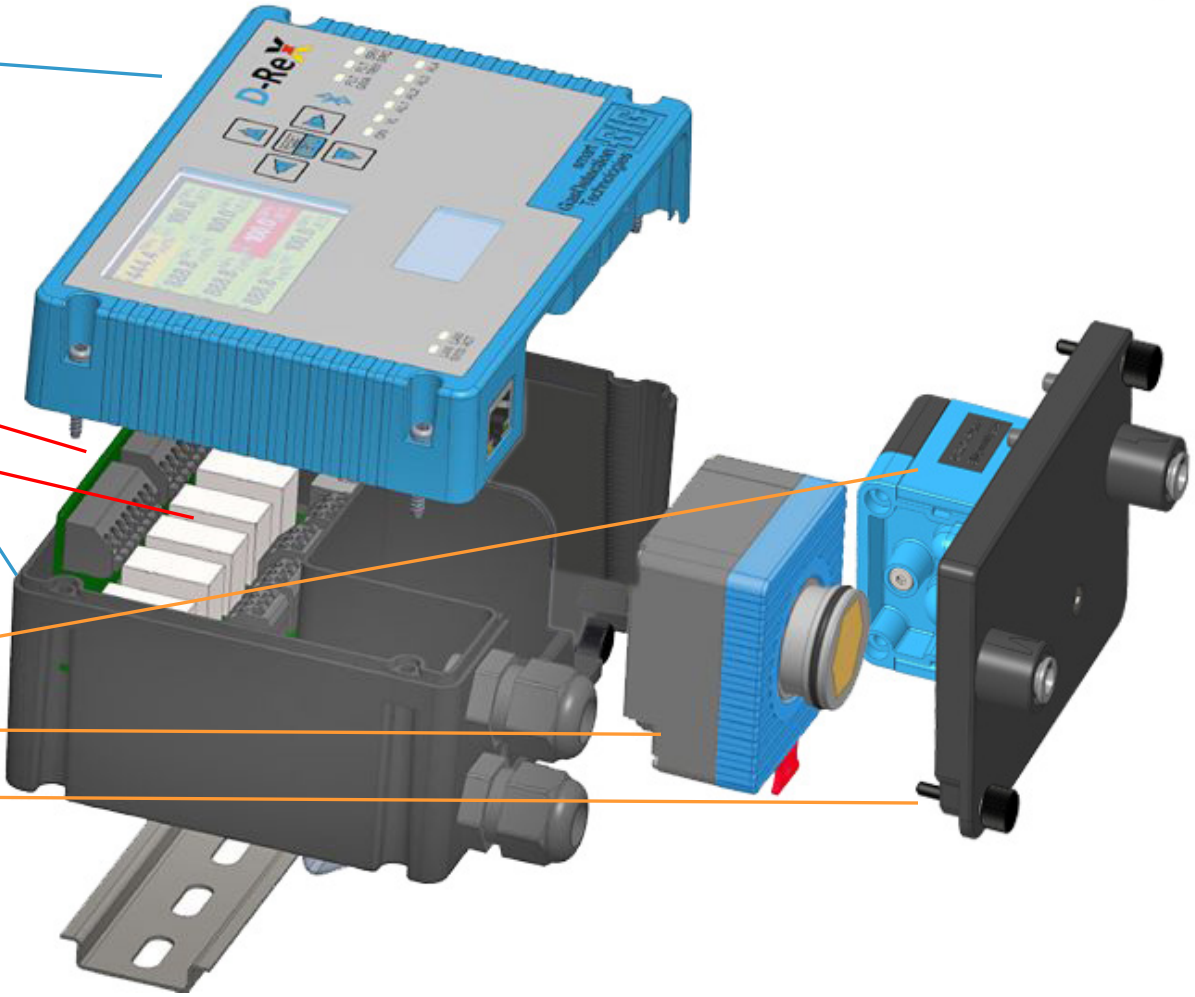
- Housing lid
- Housing



- **Connector cartridge**
- Lower housing cover
- Cable to remote sensor

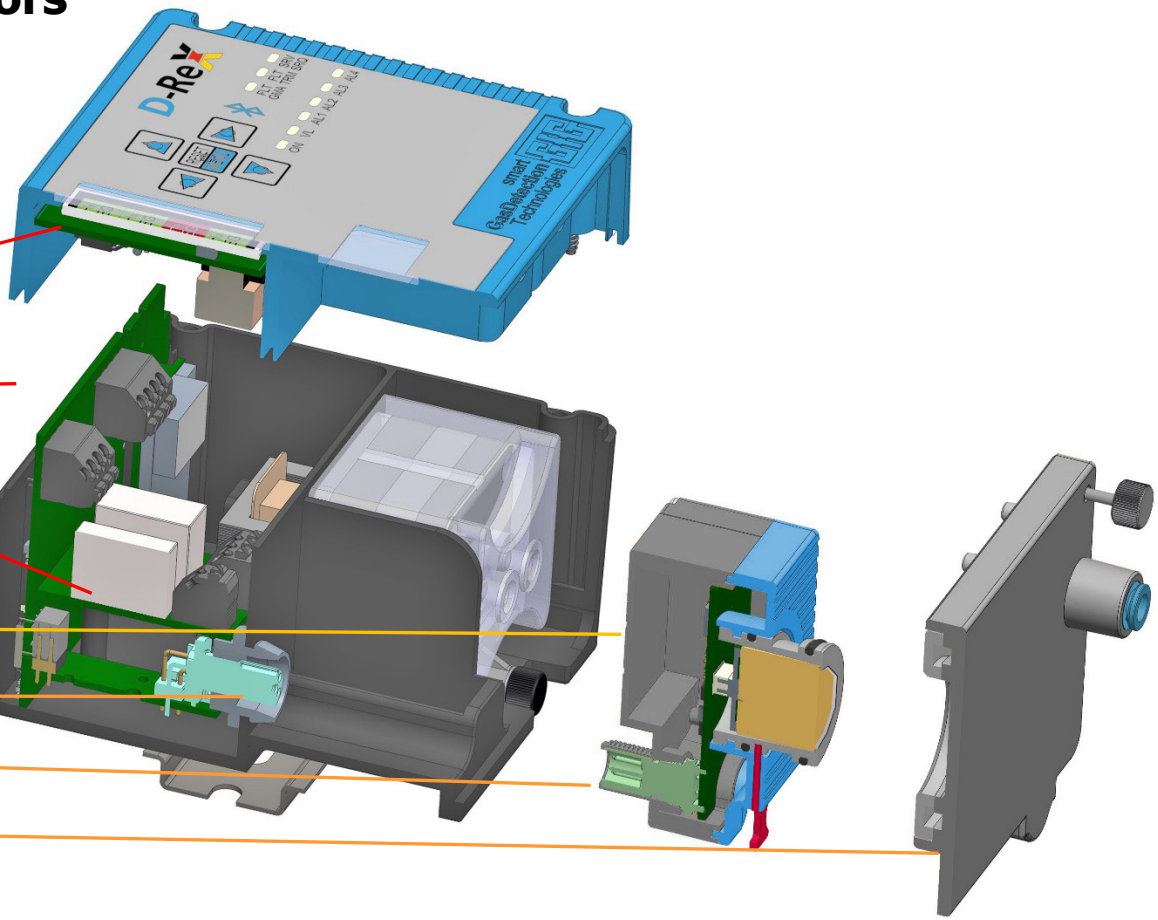
Assemblies PoS

- Housing lid
- Housing
- Connector PCB
- Relay PCB
- Pump
- Sensor cartridge
- Lower housing cover



Assemblies and connectors

- Housing lid
- Housing
- Main PCB
- Connector PCB
- Relay PCB
- Pump
- Sensor cartridge
- M12 connector (female)
- M12 connector (male)
- Lower housing cover with gas channel

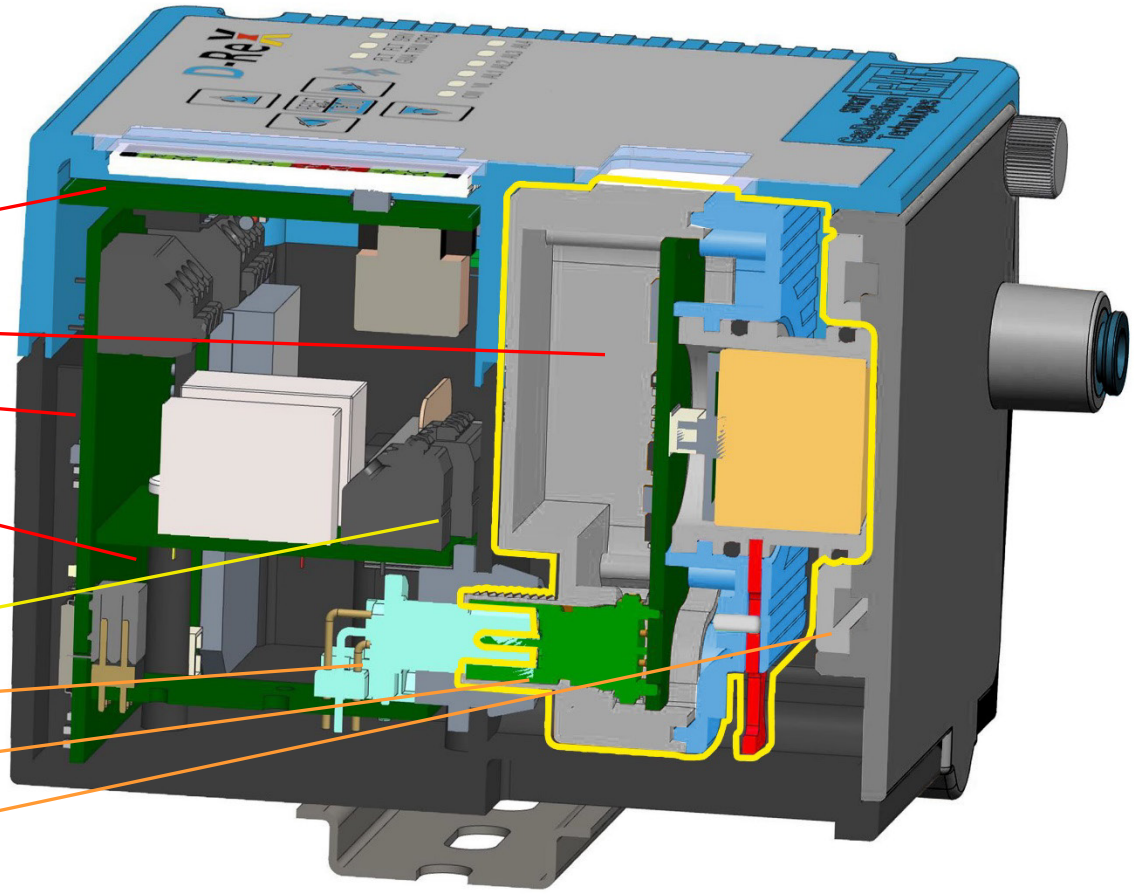


Longitudinal section

- Housing lid
- Housing

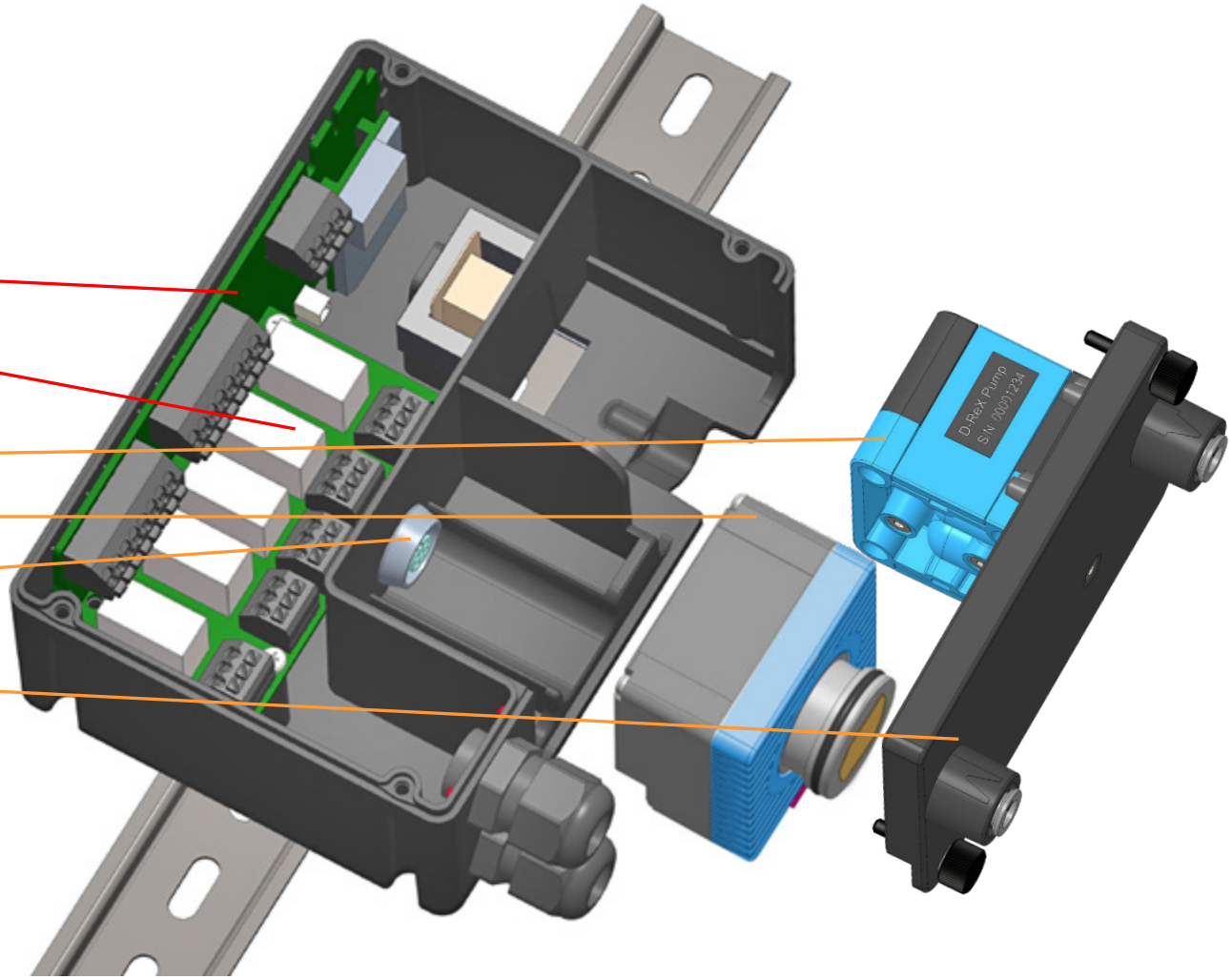
- Main PCB
- Sensor PCB
- Connector PCB
- Relay PCB

- Sensor Cartridge
- M12 Connector (female)
- M12 Connector (male)
- Lower housing cover with gas channel

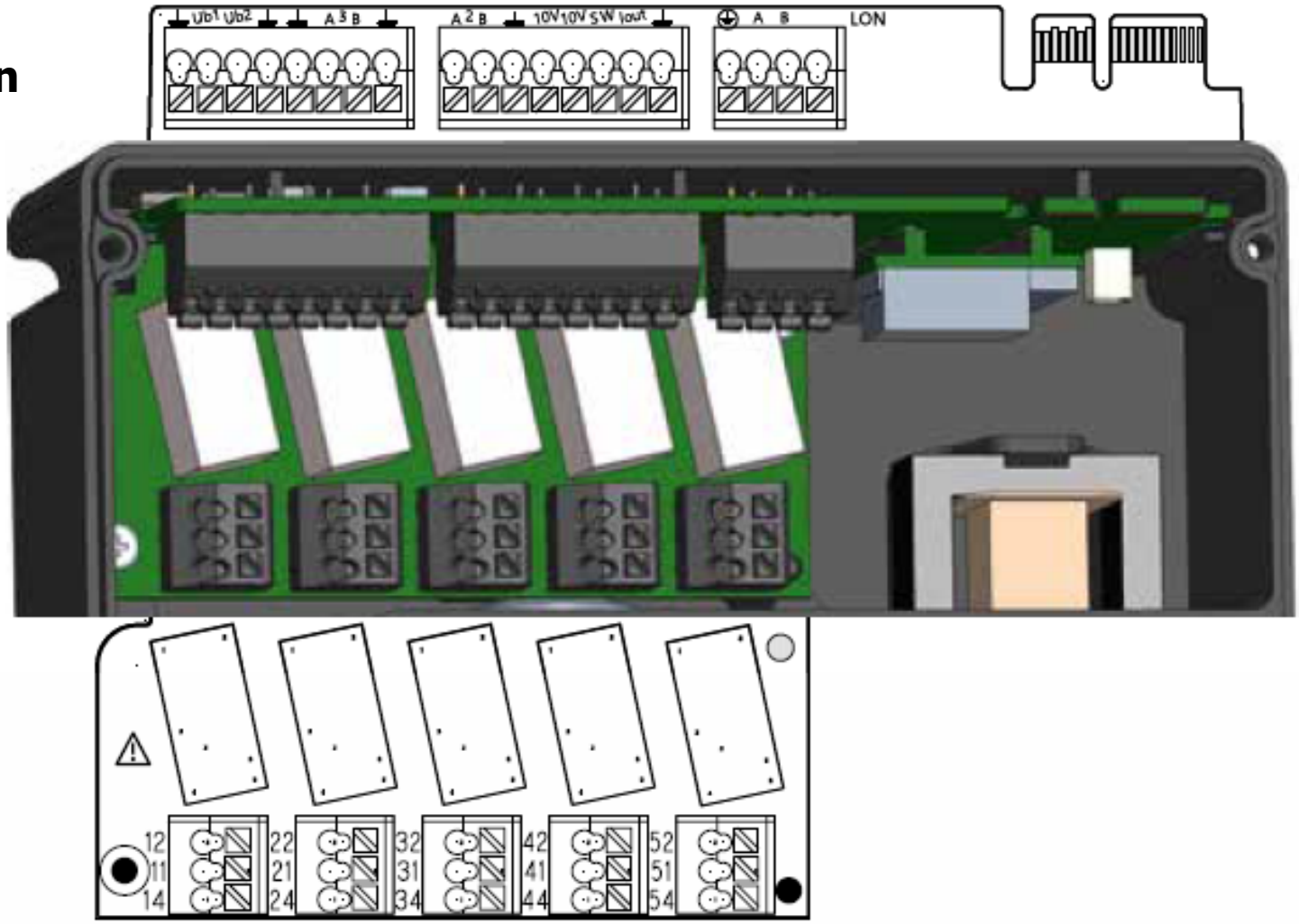


Horizontal Section

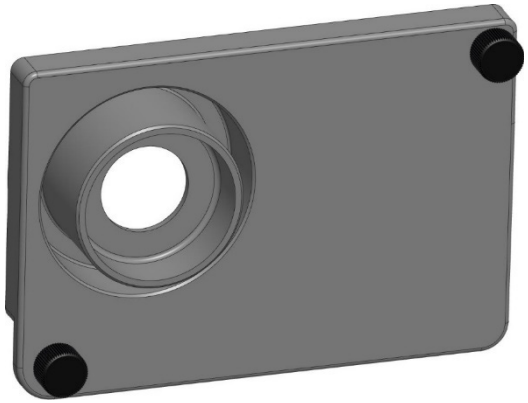
- Housing
- Connector PCB
- Relay PCB
- Pump
- Sensor cartridge
- M12 Connector (female)
- Lower housing cover with gas channel

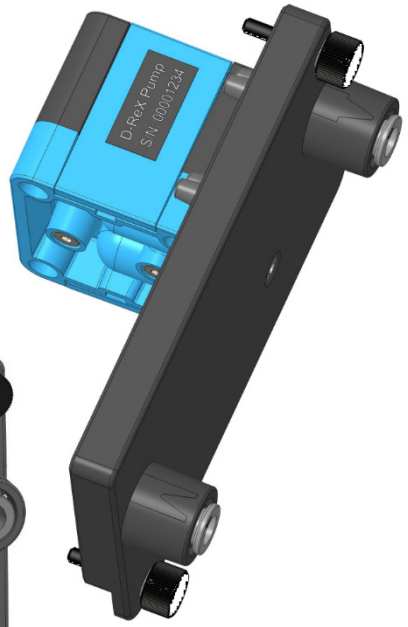


Terminal allocation



Lower housing covers



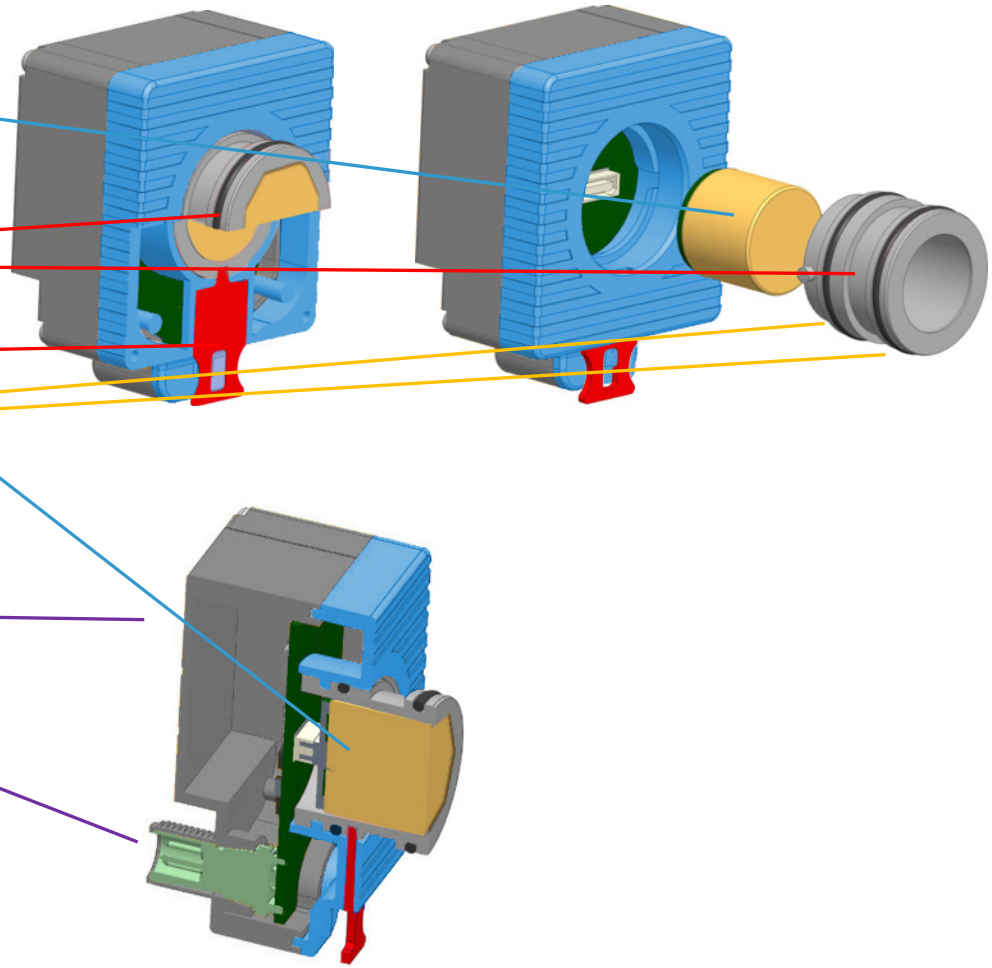


Diffusion mode and remote sensor

Extraction mode

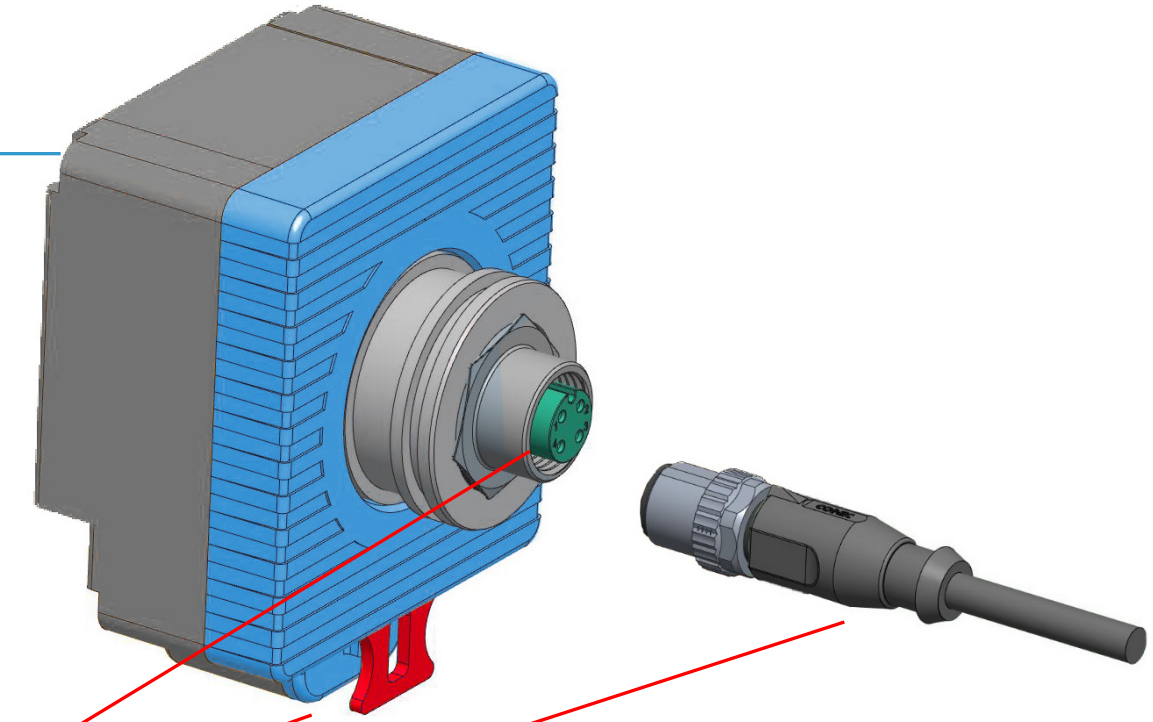
Sensor Cartridge

- Sensor
- Pipe flange adapter (bayonet lock, removable)
- Lock pin of bayonet lock
- O-ring
- Sensor cartridge
- M12 connector (male)



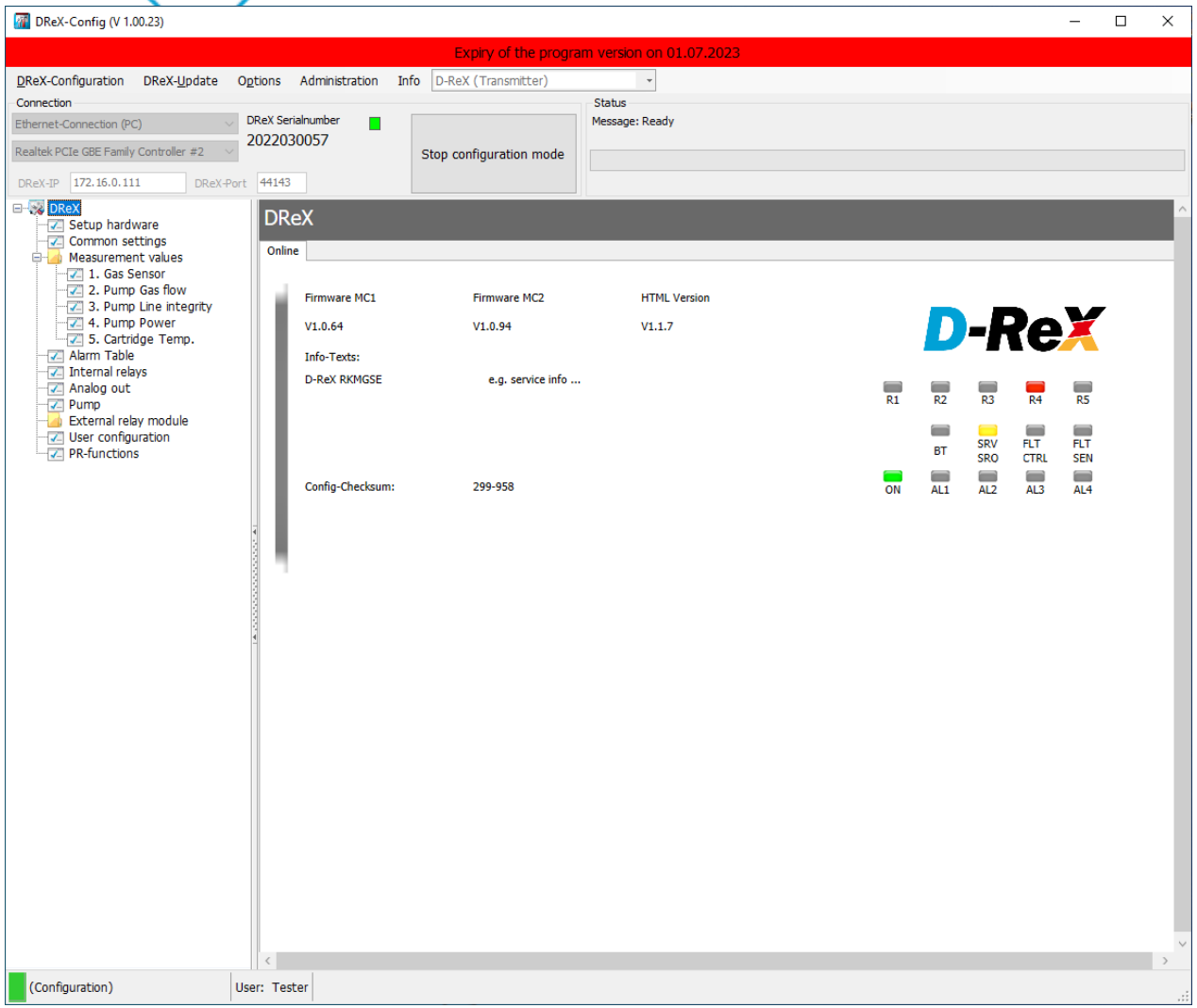
Connector cartridge

- Connector cartridge



- M12 connector (female)
- Lock pin of bayonet lock
- Cable with M12 connector (male)

D-ReX-Config



Home:

Real-time information on the D-ReX currently connected to the computer

D-ReX-Config

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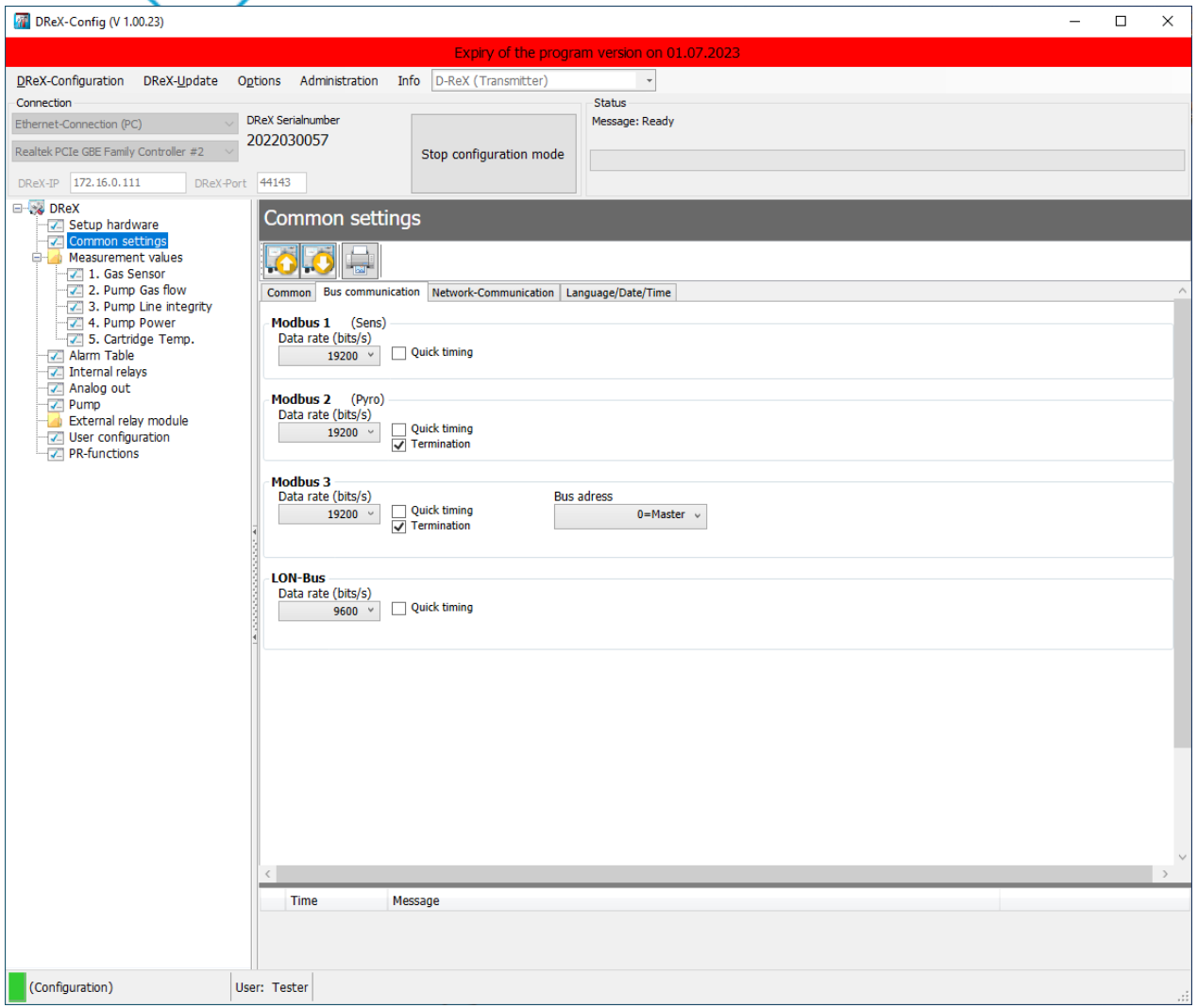

Common settings

e.g. bus and connection settings…

D-ReX-Config

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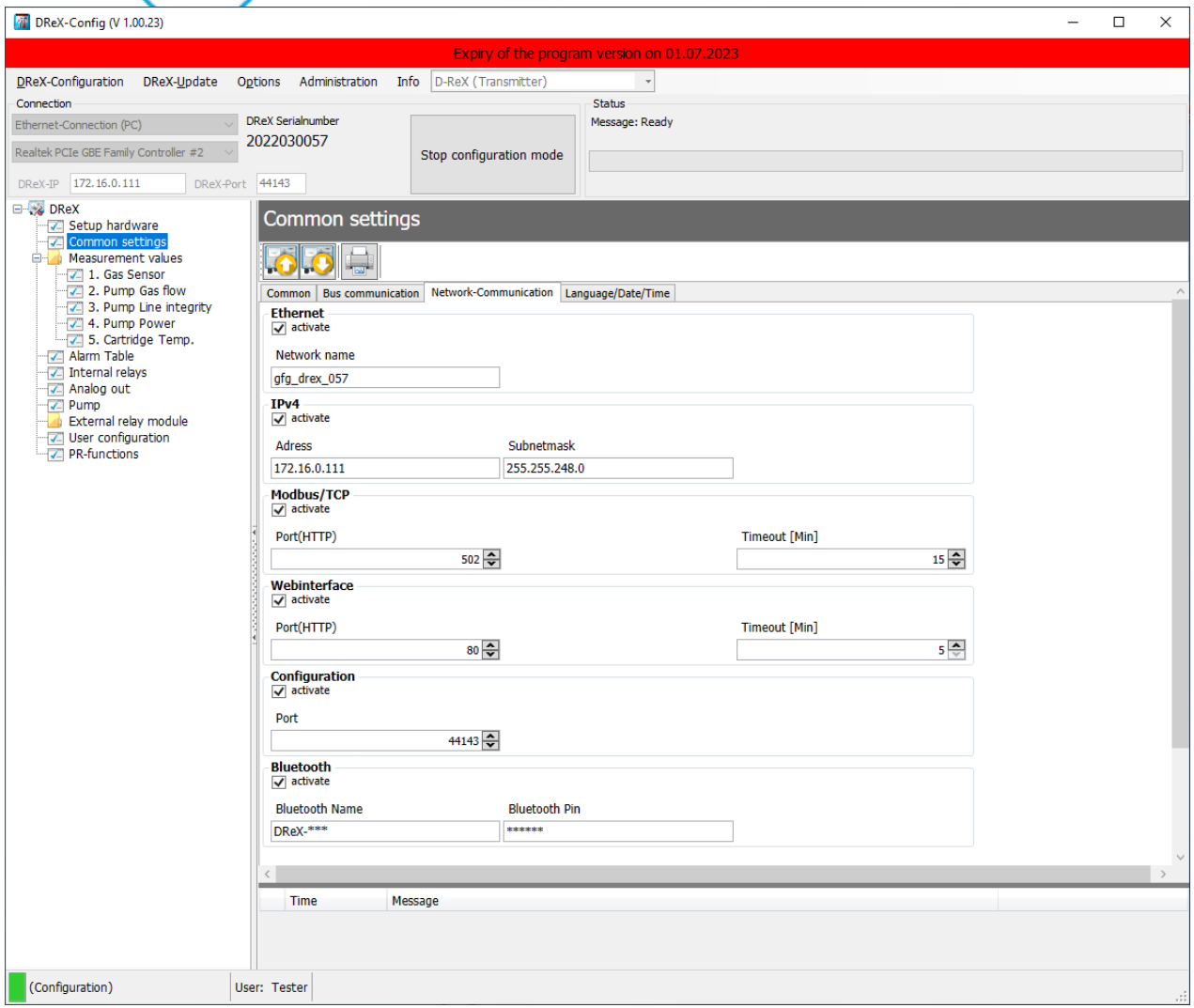
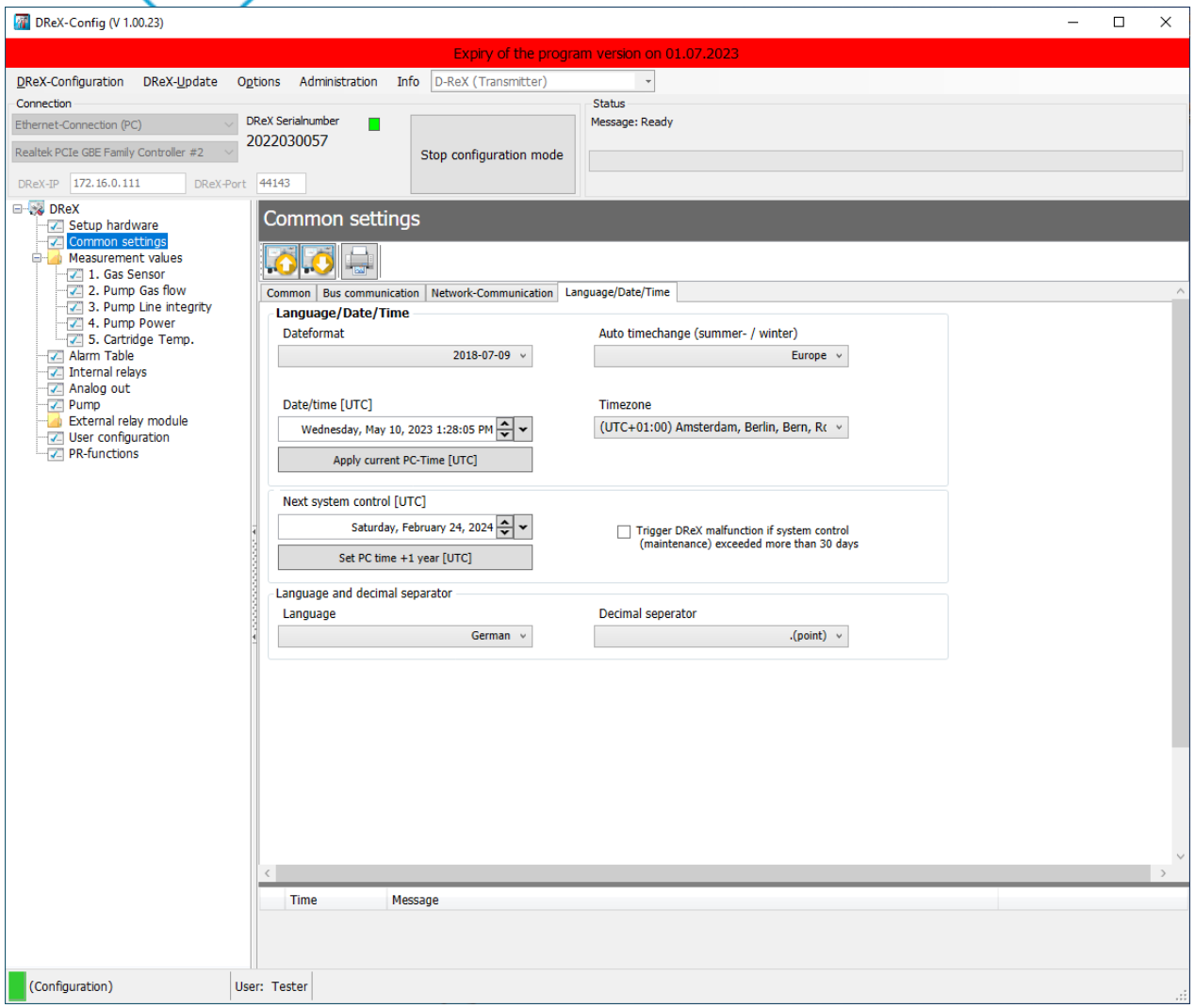


… the network communication …

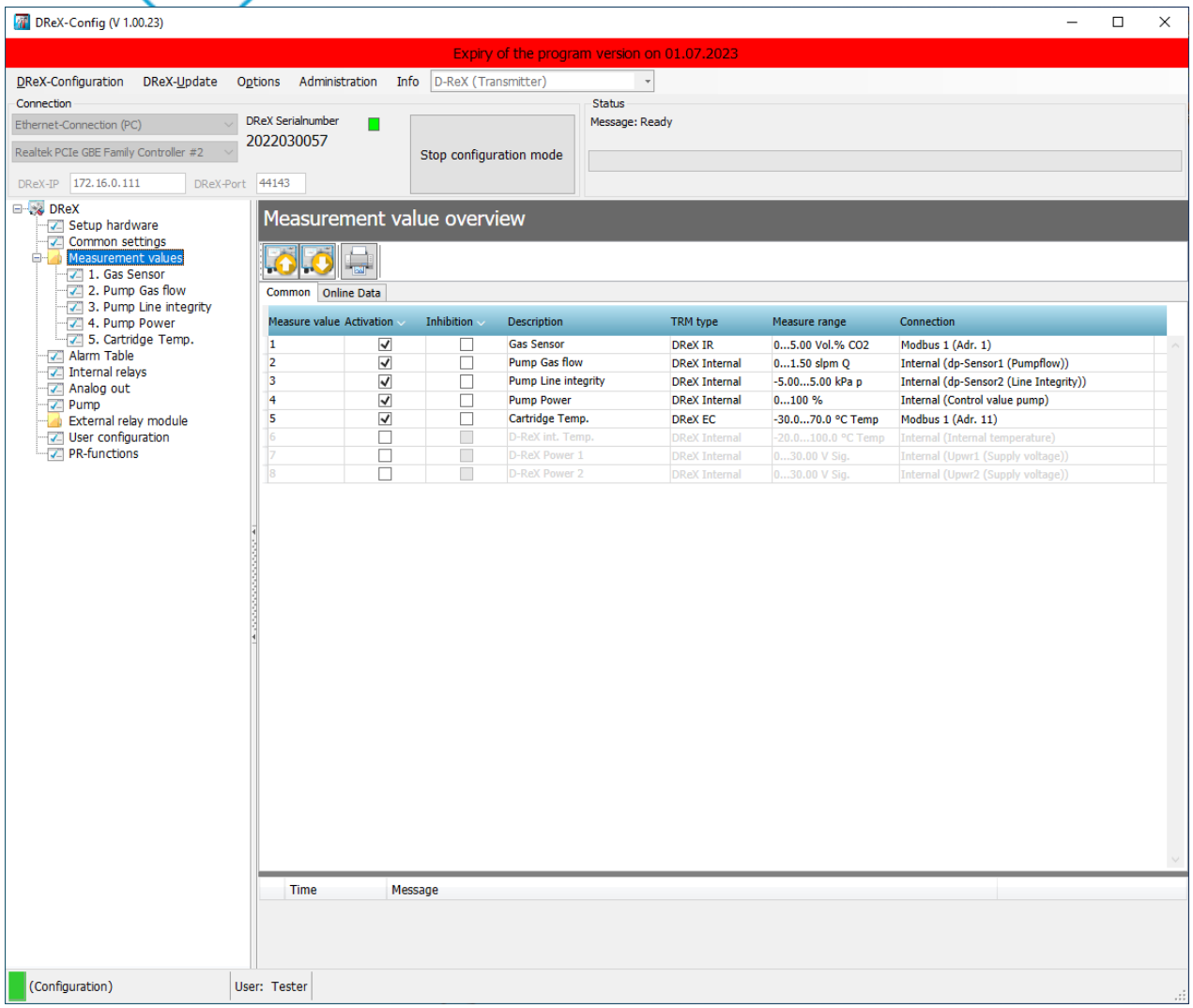
D-ReX-Config



… and the language and date/time settings.

D-ReX-Config

smart GasDetection Technologies



Overview of all measuring points with sub-menu to configure each one individually.

D-ReX-Config

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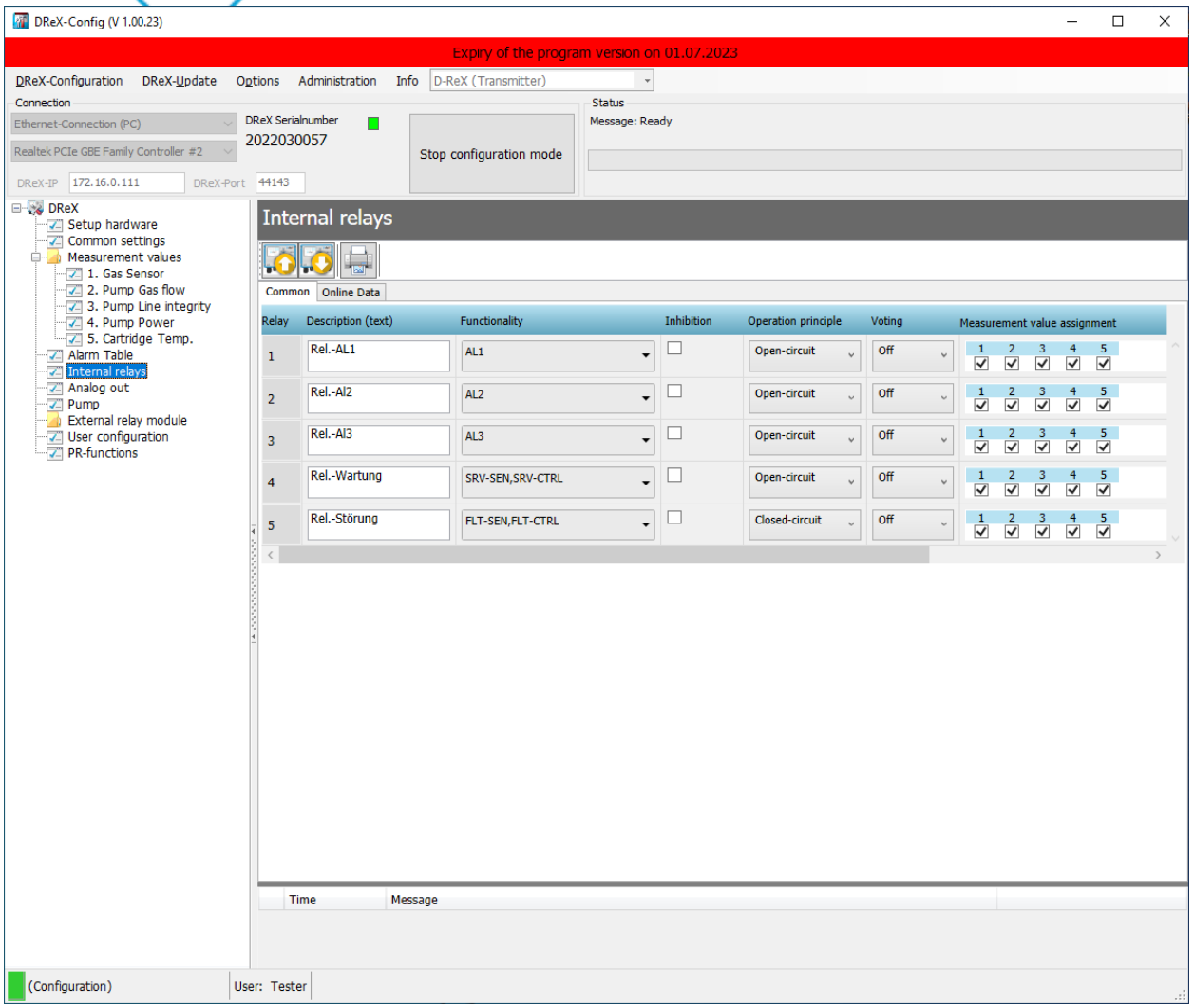
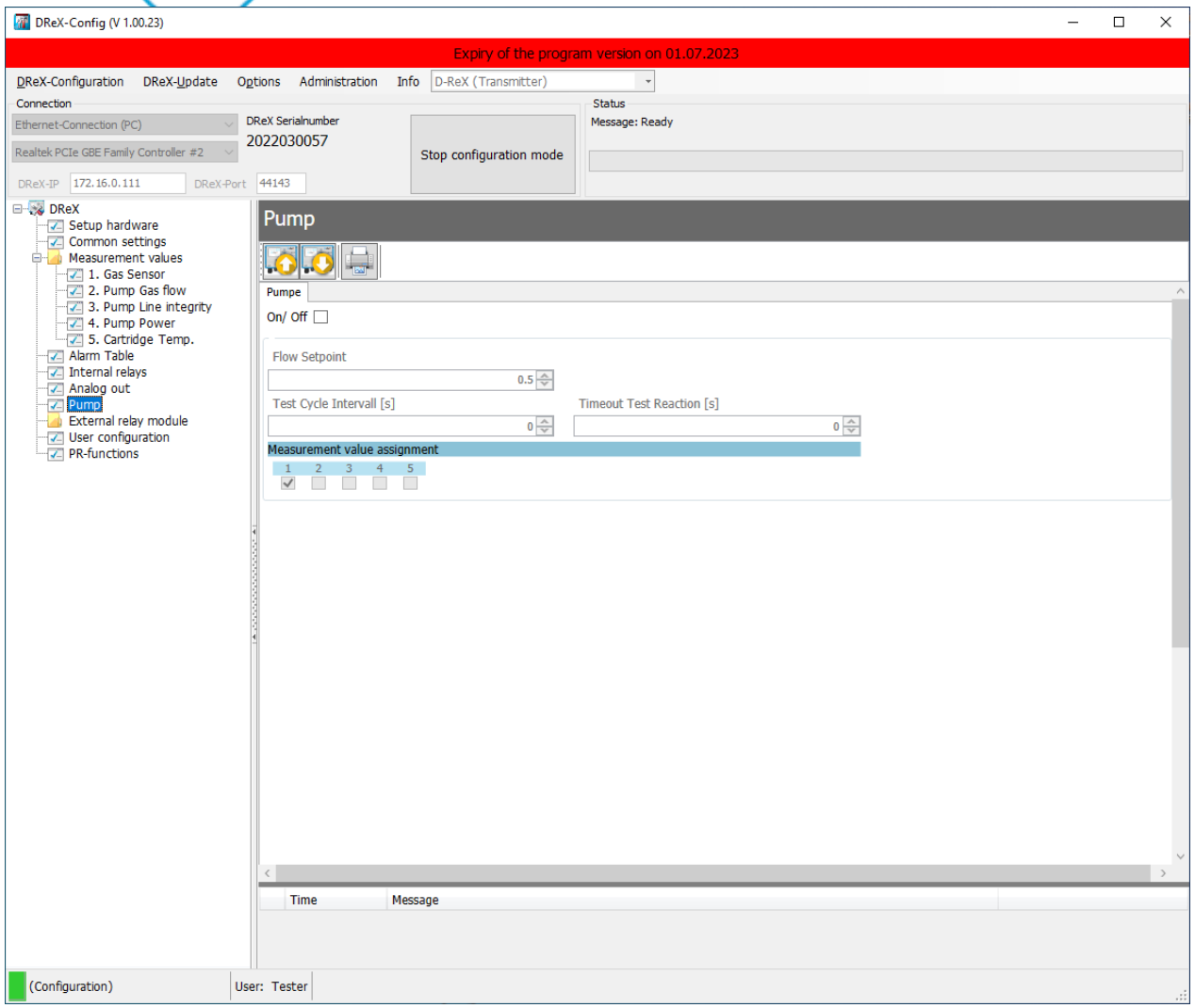


Menu for configuring and assigning the internal relays.

D-ReX-Config

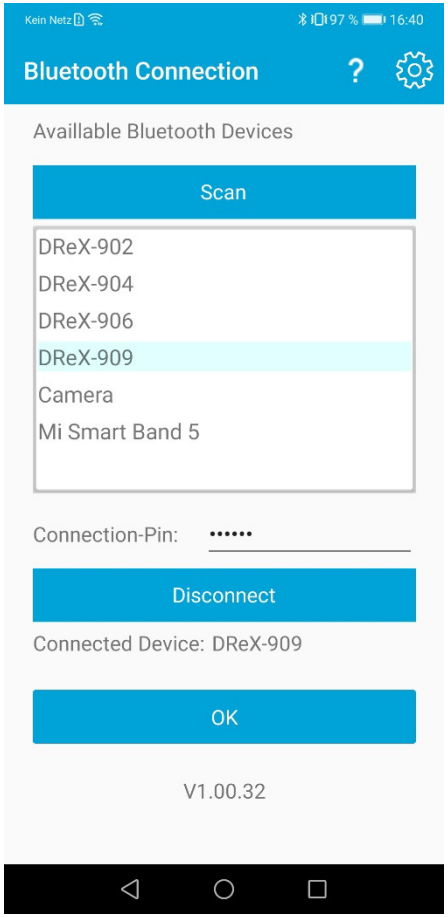
smart GasDetection Technologies



Pump configuration

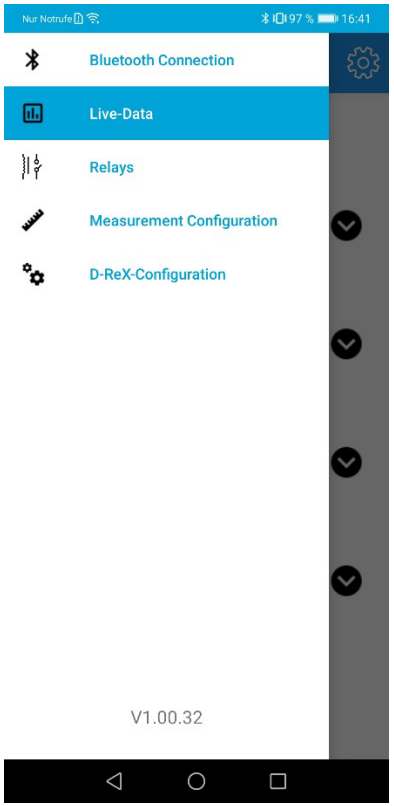
Bluetooth

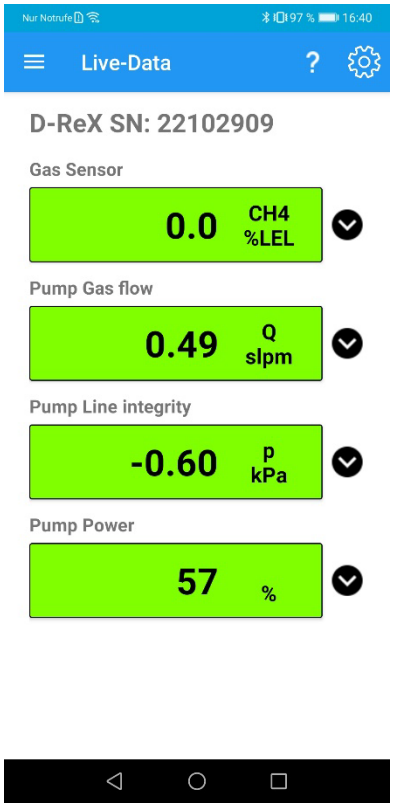
- Device Connection



Live data

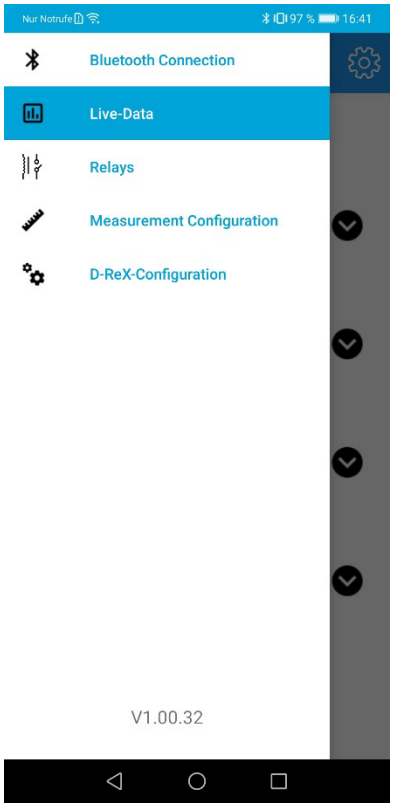
- Measurement values

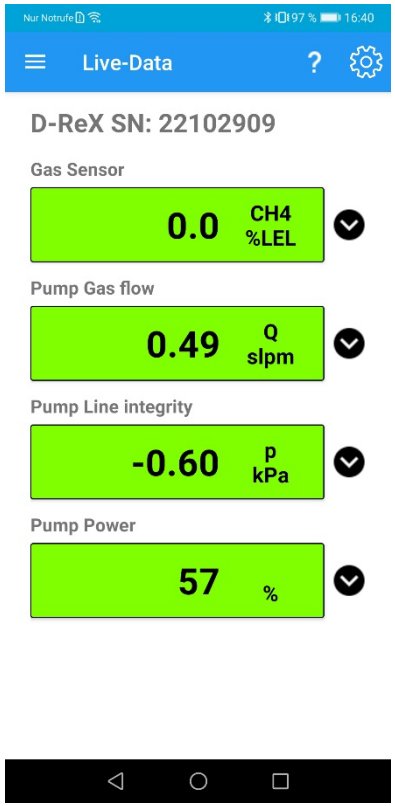


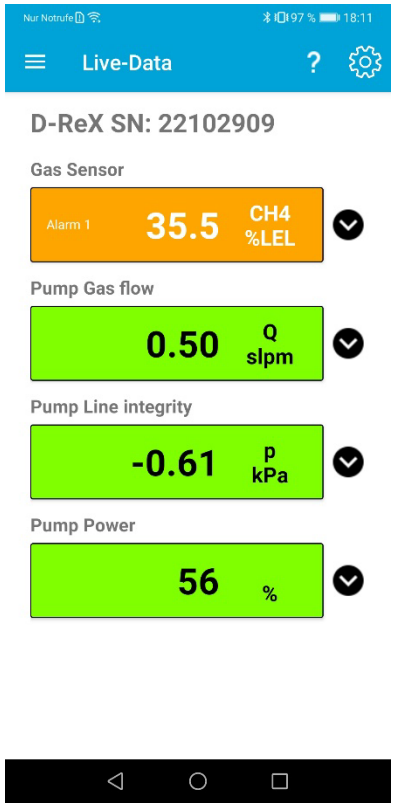


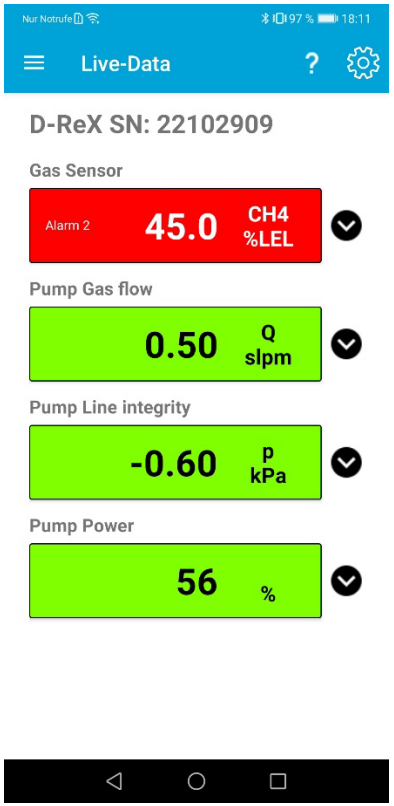
Live data

- Measurement values



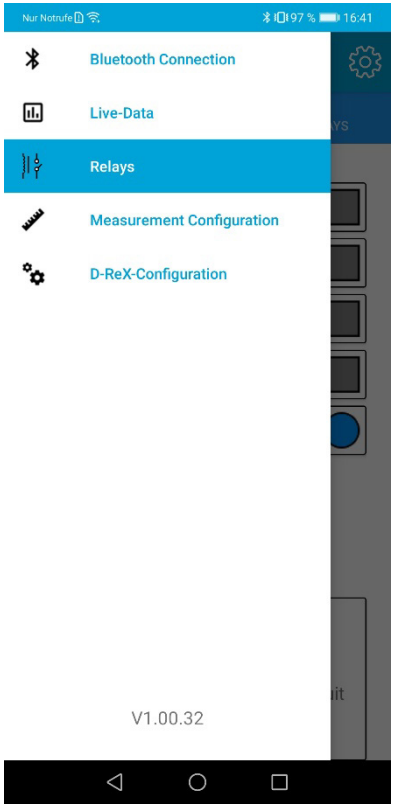


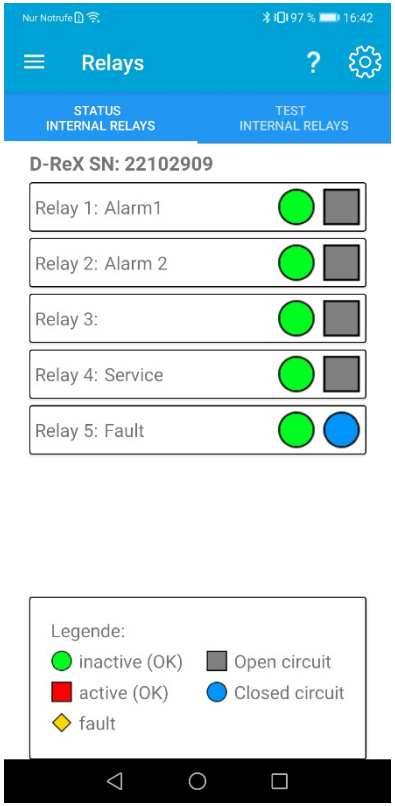


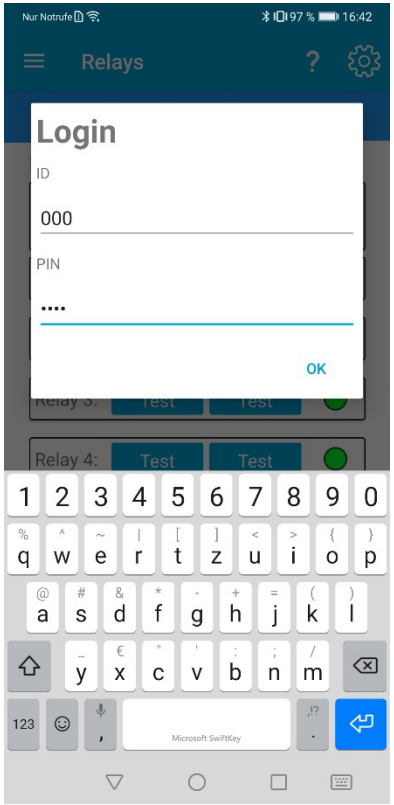


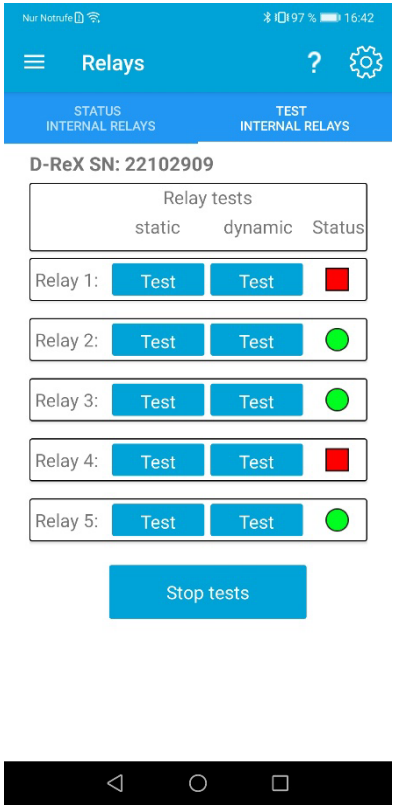
Relays

- Status and tests



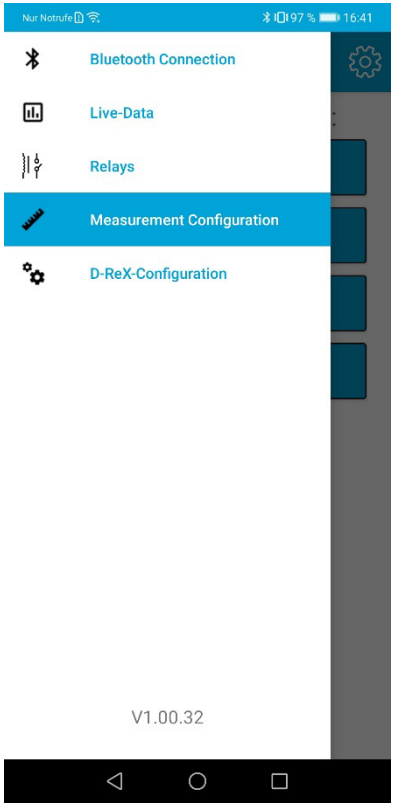


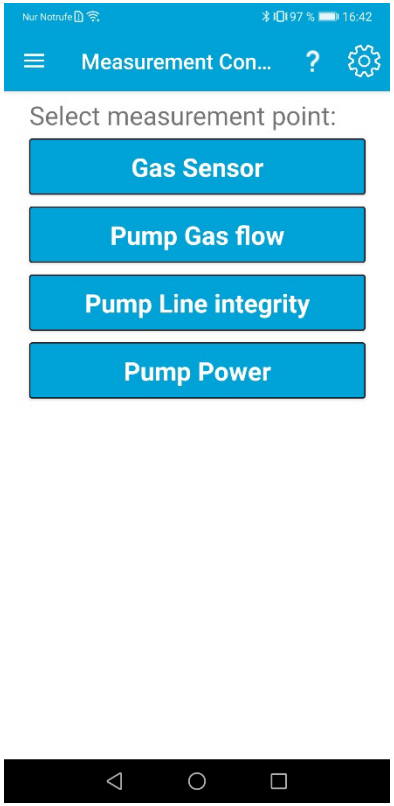


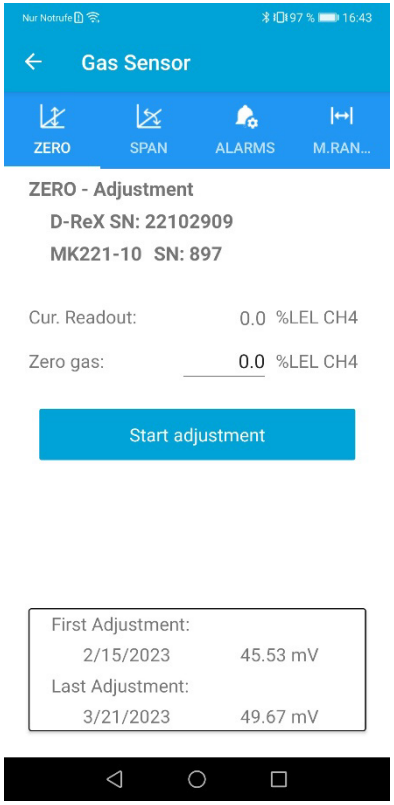


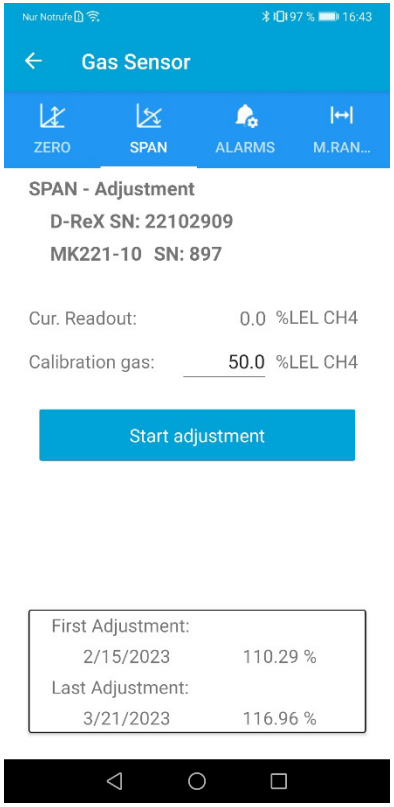
Measurement configuration

- ZERO and SPAN



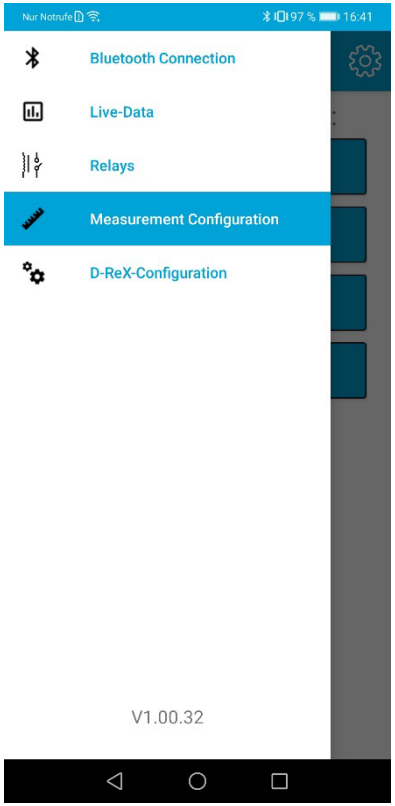


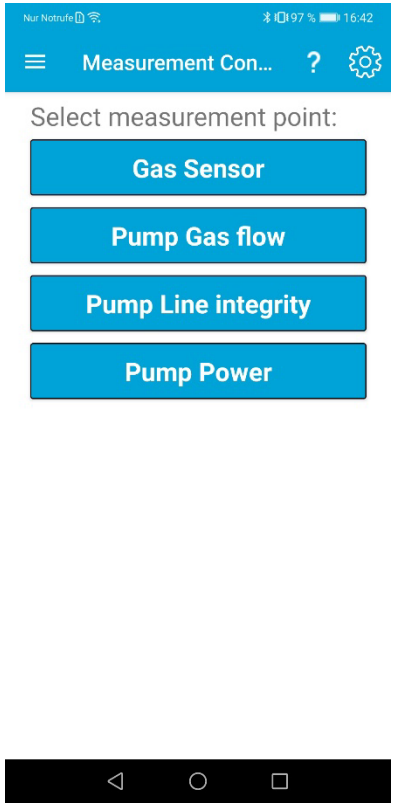


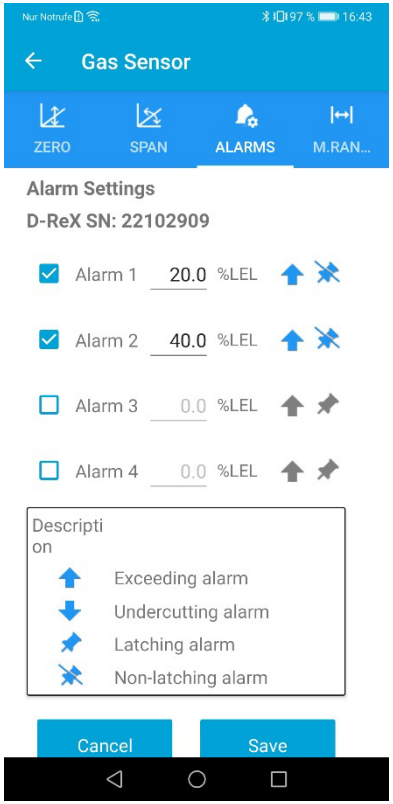


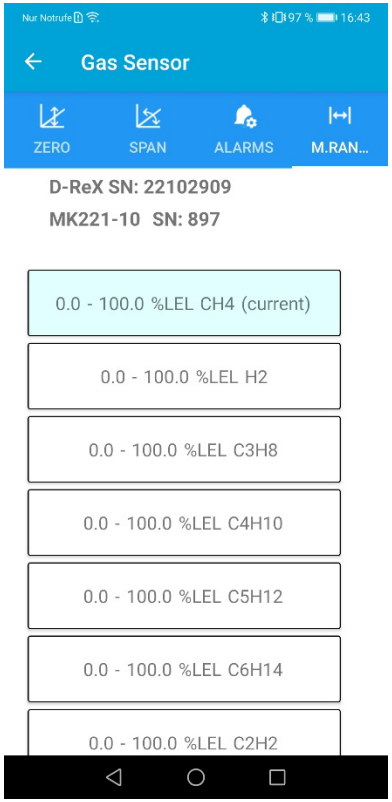
Measurement configuration

- Alarms and measurement ranges



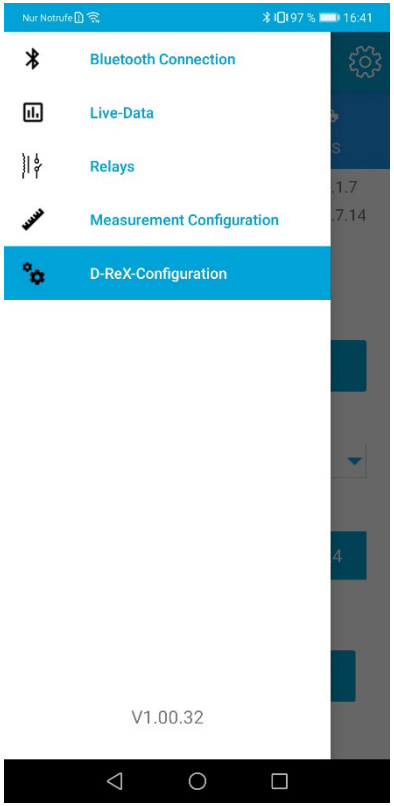


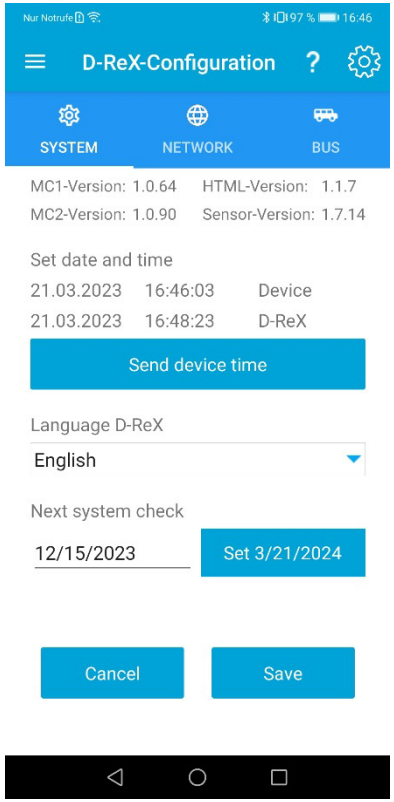


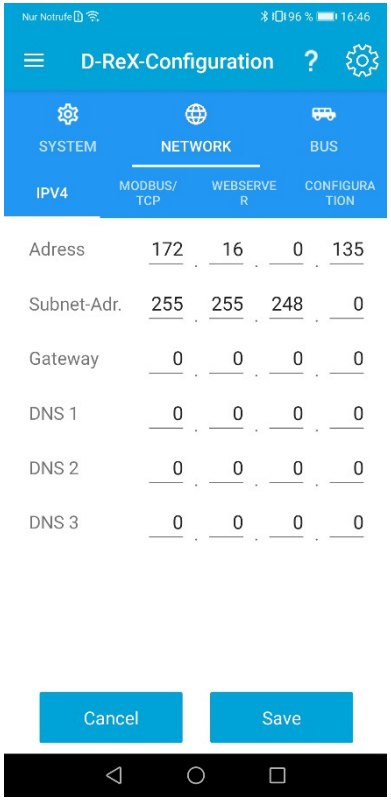


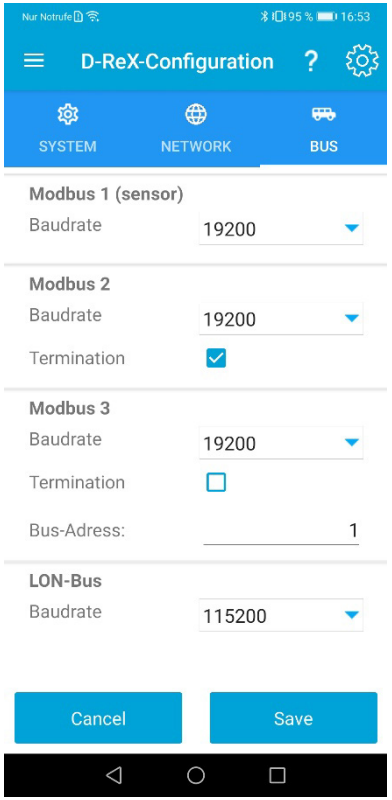
D-ReX Configuration

- System, network and bus settings



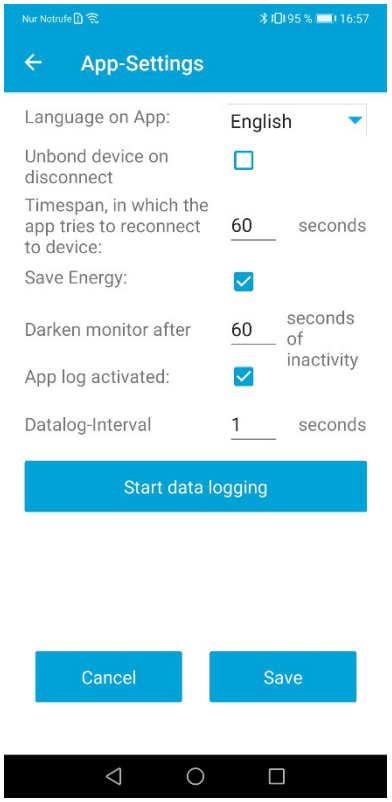


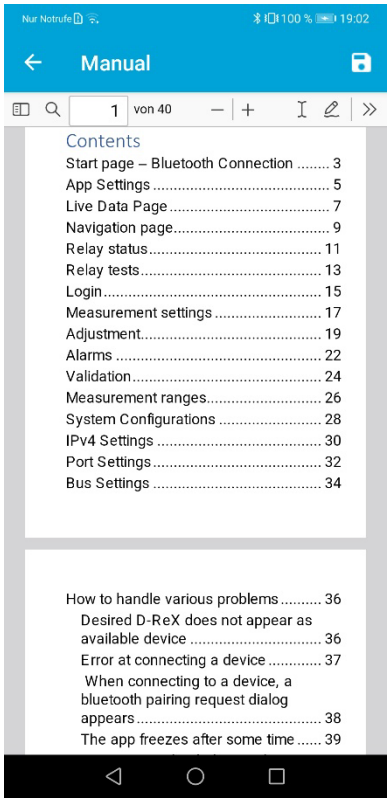




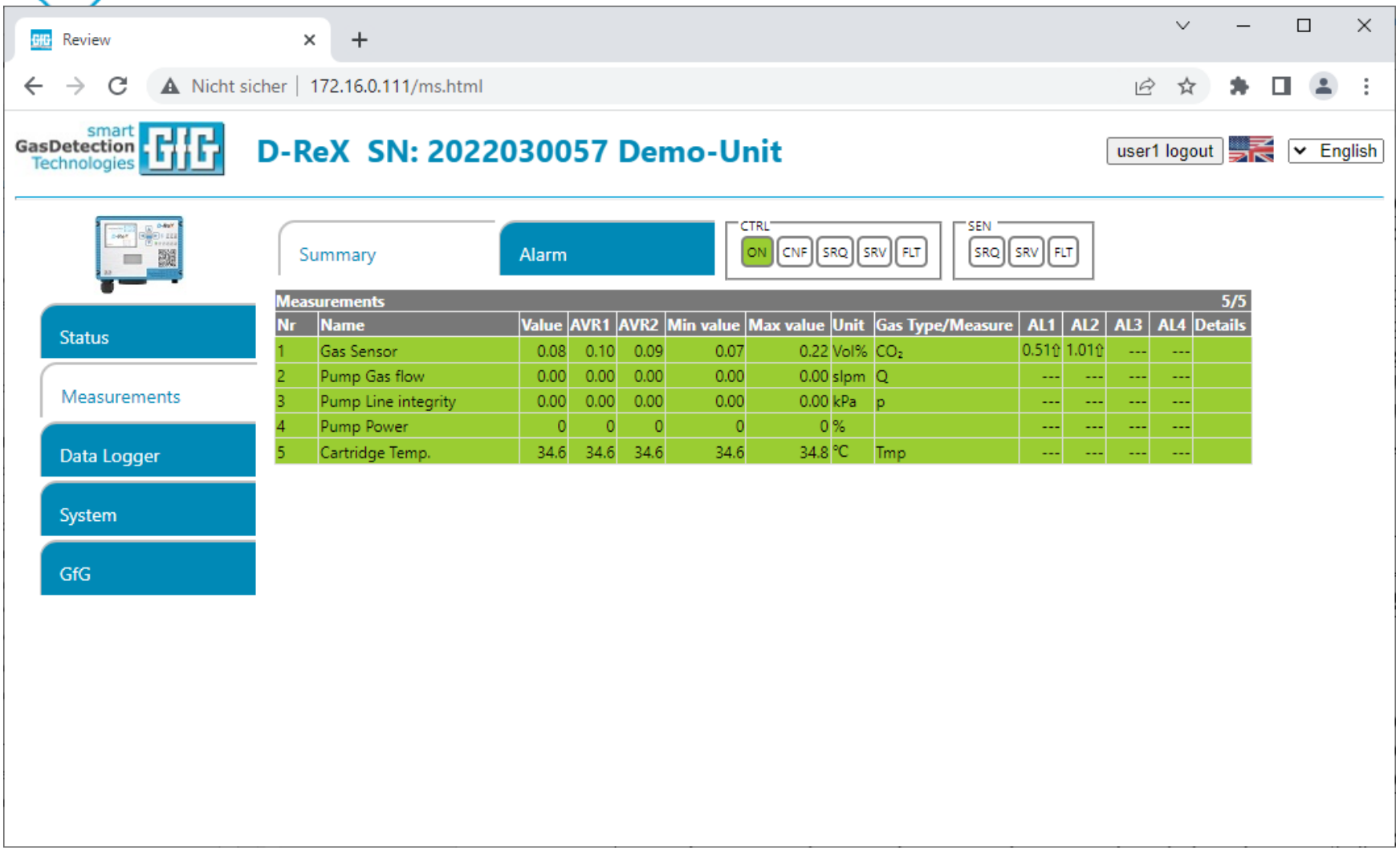
App

- Settings and manual

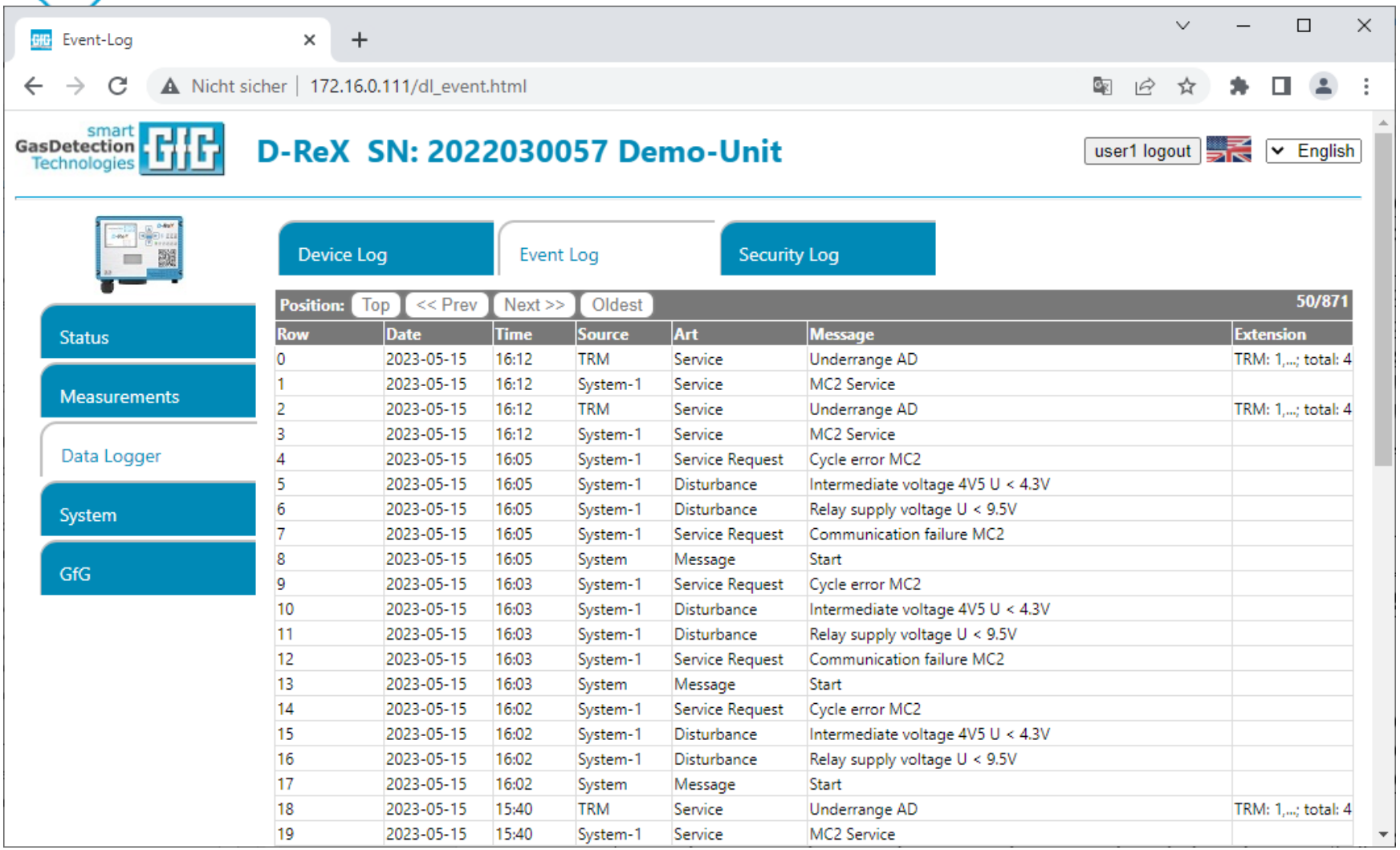




D-ReX Web interface



D-ReX Web interface



Row	Date	Time	Source	Art	Message	Extension
0	2023-05-15	16:12	TRM	Service	Underrange AD	TRM: 1,...; total: 4
1	2023-05-15	16:12	System-1	Service	MC2 Service	
2	2023-05-15	16:12	TRM	Service	Underrange AD	TRM: 1,...; total: 4
3	2023-05-15	16:12	System-1	Service	MC2 Service	
4	2023-05-15	16:05	System-1	Service Request	Cycle error MC2	
5	2023-05-15	16:05	System-1	Disturbance	Intermediate voltage 4V5 U < 4.3V	
6	2023-05-15	16:05	System-1	Disturbance	Relay supply voltage U < 9.5V	
7	2023-05-15	16:05	System-1	Service Request	Communication failure MC2	
8	2023-05-15	16:05	System	Message	Start	
9	2023-05-15	16:03	System-1	Service Request	Cycle error MC2	
10	2023-05-15	16:03	System-1	Disturbance	Intermediate voltage 4V5 U < 4.3V	
11	2023-05-15	16:03	System-1	Disturbance	Relay supply voltage U < 9.5V	
12	2023-05-15	16:03	System-1	Service Request	Communication failure MC2	
13	2023-05-15	16:03	System	Message	Start	
14	2023-05-15	16:02	System-1	Service Request	Cycle error MC2	
15	2023-05-15	16:02	System-1	Disturbance	Intermediate voltage 4V5 U < 4.3V	
16	2023-05-15	16:02	System-1	Disturbance	Relay supply voltage U < 9.5V	
17	2023-05-15	16:02	System	Message	Start	
18	2023-05-15	15:40	TRM	Service	Underrange AD	TRM: 1,...; total: 4
19	2023-05-15	15:40	System-1	Service	MC2 Service	

D-ReX

smart GasDetection Technologies

Thank you for your attention

GfG – Gesellschaft für Gerätebau mbH
Klönnestraße 99
44143 Dortmund, Germany

Phone: +49 231 56400-0
E-Mail: info@gfg-mbh.com