

EMISSION PARTNER GMBH & CO. KG

EMI-LOG 2.0

Requirements and solution for secure compliance with the 44th BImSchV and VDMA Standard Sheet 6299

30 September 2024



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EMISSION PARTNER

Throughout Europe

- Development and service for catalysts, diesel particulate filter systems, emission measurements, SCR catalyst systems and special catalysts
- Many years of experience in emission reduction using special gases
- Exhaust gas aftertreatment for over 2,400 plants across Europe
- Catalyst production for the largest CHP engine manufacturers and CHP operators
- Municipal utilities, CHP packagers and plant operators trust in our competence and expertise

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WHAT IS THE 44TH BIMSCHV?

- The **44th BImSchV** is the national implementation of the European **MCP Directive** (dated 18.12.2015)
- The 44th BImSchV came into force on **20.06.2019**
- Applies to every engine with a **rated thermal input of ≥ 1 MW**
- Distinction between **new plants** (cut-off date 20.12.2018) and **existing plants**

Existing plants

Plants that were commissioned
before 20.12.2018

New plants

Plants that went into operation **on**
or after 20.12.2018

Bundesrat

Drucksache 181/19 (neu)

18.04.19

U

Verordnung
der Bundesregierung

Verordnung zur Einführung der Verordnung über mittelgroße Feuerungs-, Gasturbinen- und Verbrennungsmotoranlagen sowie zur Änderung der Verordnung über kleine und mittlere Feuerungsanlagen

A. Problem und Ziel

In den vergangenen 20 Jahren wurden in der Europäischen Union und in Deutschland

WHAT DOES THE 44TH BIMSCHV REQUIRE?

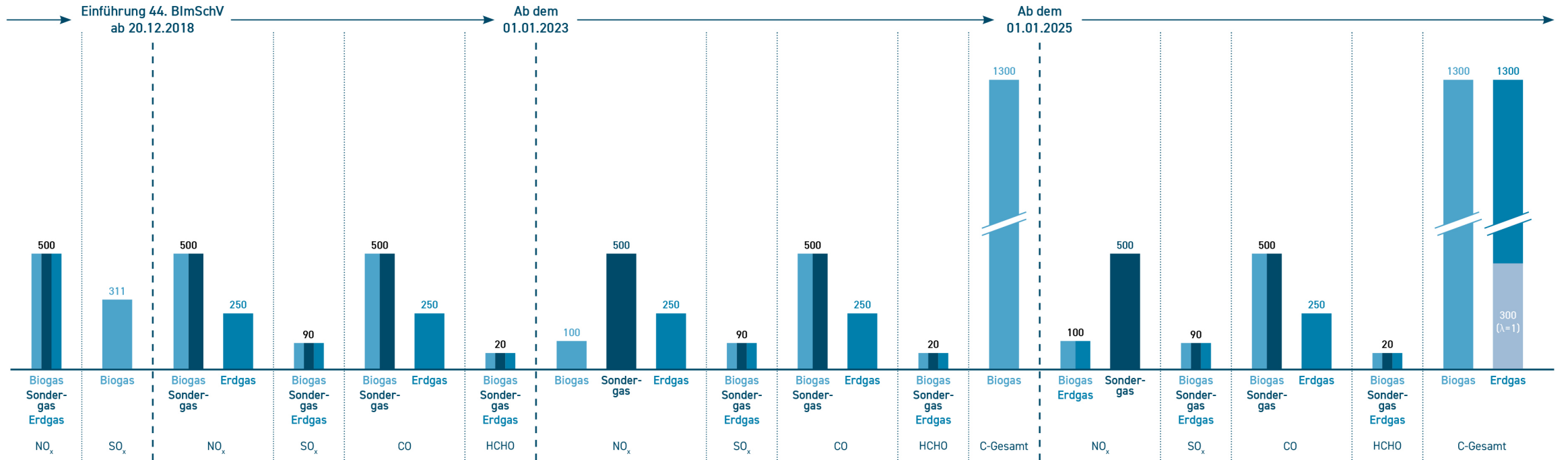
- **Change in** measurement requirements and **emission limits**
- Proof of **long-term compliance** with **nitrogen oxide emissions**
- Proof of **continuous effective operation** of **catalysts**
- **Registration** of plants with a thermal input exceeding 1 MW, approx. 400kW el.
- **Future operator obligations** (maximum 400 hours of downtime, troubleshooting after 25 hours, notification to the authorities after 48 hours)

Tightening of regulations through VDMA Standard Sheet 6299

All plants that **receive** the **emission reduction bonus** are affected.

LIMIT VALUES AND INTERVALS

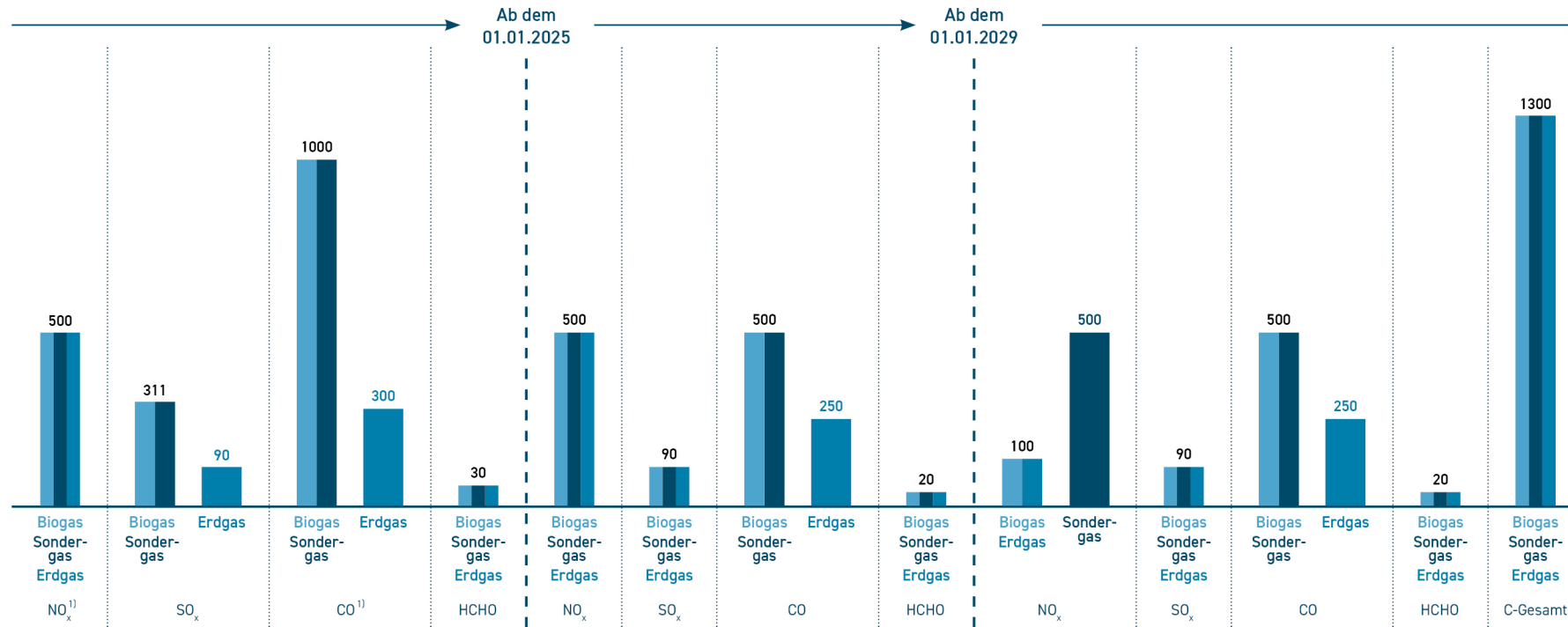
For new plants



Werte sind angegeben in mg/Nm³

LIMIT VALUES AND INTERVALS

For existing plants



1) Für Zündstrahlmotoren: 1000 mg/Nm³ NO_x, 2000 mg/Nm³ CO

Werte sind angegeben in mg/Nm³

LIMIT VALUES FOR THE USE OF DIFFERENT ENERGY SOURCES

NATURAL GAS AND BIOGAS ENGINES

NO_x reduction: SCR required

Total-C: Through engine reduction

Oxidation CO, formaldehyde: Oxidation catalyst

Lamda1-engine: 3-way catalyst

1 Requirements apply to new natural gas plants from 1 January 2025 and to existing natural gas plants from 1 January 2029. Previously: 250 for new natural gas plants, TA-Luft 2002 for existing plants. Requirements apply to new biogas plants from 1 January 2023 and to existing biogas plants from 1 January 2029. For requirements of 0.1 g/Nm³, 149 mg/Nm³ may also apply—check the approval notice accordingly!!! 2 Requirement applies to existing plants from 1 January 2025; until 31 December 2024, the emission value of TA-Luft 2002 applies. 3 Requirement applies from 1 January 2025. 4 New plants from 2020, new plants before that and old plants indefinitely: 30.— Attention biogas: emission reduction bonus then 205 Only when using SCR6 Specification 90 for biogas engines and 9 for natural gas engines ... converted to 5% O₂ and rounded up7 DVGW – German Technical and Scientific Association for Gas and Water

Mg/m ³ (5% O ₂)	Lean engines	Lamda-1- engines	Mg/m ³ (5% O ₂)
CO	500/250 ²	500/250 ²	500/250 ²
NO _x	0,1g/Nm ³ ¹	0,1g/Nm ³ ¹	0,1g/Nm ³ ¹
SO _x	90/9 oder DVGW ⁷ G260	90/9 oder DVGW ⁷ G260	90/9 oder DVGW ⁷ G260
Total-C	1300 ³	1300 ³	1300 ³
Formaldehyde	20 ⁴	5	20 ⁴
NH ₃	30 ⁵	-	30 ⁵

SEWAGE GAS AND MINE GAS ENGINES

NO_x: Through engine reduction

Total-C: Engine reduction

Oxidation CO, formaldehyde: Oxidation catalyst

Dust: Engine reduction

1 Requirement applies to existing plants from 1 January 2025; until 31 December 2024, the emission value of TA-Luft 2002 applies.2 Requirement applies to existing plants from 1 January 2025; until 31 December 2024, the emission value of TA-Luft 2002 applies. 3 Requirement applies from 1 January 2025. 4 New plants from 2020, new plants before that and old plants indefinitely: 30.5 Interpretation question as to whether § 16 (3) applies to spark ignition engines; 20 mg/m³ there.

Mg/m ³ (5% O ₂)	Lean engines	Lamda-1- engines
CO	500 ¹	500 ¹
NO _x	500 ²	500 ²
SO _x	89	31
Total-C	1300 ³	1300 ³
Formaldehyde	20 ⁴	20 ⁴
Dust	-	9

GRENZWERTE BEI EINSATZ VERSCHIEDENER ENERGIETRÄGER

LANDFILL GAS ENGINES

NO_x: SCR required

Total-Engine reduction

Oxidation CO, formaldehyde: Oxidation catalyst

1 Existing plants <5 MW: From 1 January 2030, existing plants from 5 MW: From 1 January 2025, 310 previously (TA Luft 2002). 2 Existing plants from 2025, previously: 60.

ENGINE FUEL OIL EL, DIESEL AND EMERGENCY OPERATION

NO_x: SCR (normal operation), otherwise engine reduction

CO, formaldehyde: Oxidation catalyst

(except emergency operation)

Dust: soot filter (emergency operation exceptions possible)

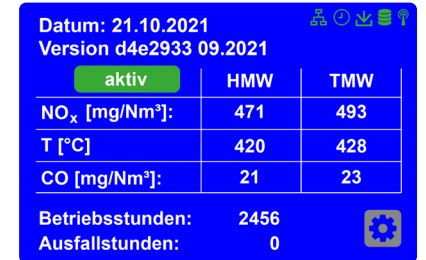
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Mg/m ³ (5% O ₂)	Ab 1 MW	< 1 MW
CO	650	650
NO _x	500	500
SO _x	31 ¹	310
Total-C	-	-
Formaldehyde	40 ²	40 ²
Dust	4	4

Mg/m ³ (5% O ₂)	Regular operation	peak load <300 h/a	emergency operation
CO	300	XX ³	XX ³
NO _x	0,14 g/m ²	XX ³	XX ³
SO _x	Only heating oils in accordance with DIN 51603 Part 1, DIN SPEC 51603 Part 6, diesel fuels with S content in accordance with 10. BImSchV		
Formaldehyde	20	20	60
Dust	20	State-of-the-art particulate filter, test certificate for 5 mg/Nm ³	

EMI-LOG – CONTINUOUS MONITORING

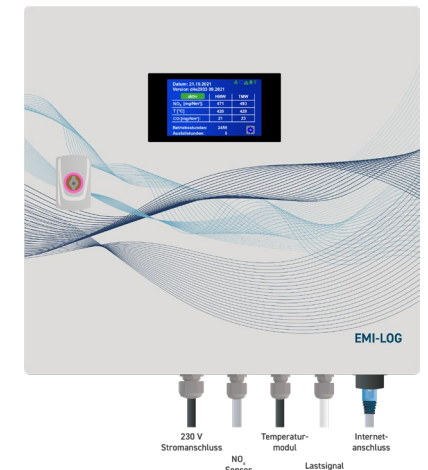
- **Compliance with the legal requirements** of the 44th BImSchV and VDMA Standard Sheet 6299
- Continuous **NO_x measurement**
- Continuous **temperature measurement**
- **Optional:** Monitoring of effective continuous operation by a CO sensor
- **Display:**
 - Last daily average and current half-hourly average (NO_x and temperature values)
 - Downtime hours of the emission reduction system via the daily average values
 - Operating hours
- **Local storage** of daily average values and downtime (6 years) plus redundant **online storage** (GDPR-compliant)
- **Power connection** and **internet access** must be **provided by the operator**



Datum: 21.10.2021
Version d4e2933 09.2021

aktiv	HMW	TMW
NO _x [mg/Nm ³]:	471	493
T [°C]	420	428
CO [mg/Nm ³]:	21	23

Betriebsstunden: 2456
Ausfallstunden: 0



DIGITAL MEASUREMENT REPORT FROM EMI-LOG

Documentation of EMI-LOG measurement data in text and image form for submission to authorities
(44. BImSchV)

- **Monthly measurement reports as PDF files** on daily average values, operating times and total downtimes of the emission reduction system for a calendar year
- **Annual report as a PDF file on daily average values**, operating times and total downtimes of the emission reduction system
- Available **online at any time**

EMI-LOG ANNUAL REPORT

Also available as a monthly report and measurement report

Berichtsdatum: 8.4.2024
Seriennummer: 8CCE4EB2521B



Jahresbericht

zum Nachweis des kontinuierlichen Betriebes der Katalysatoranlage und der Einhaltung des Stickoxidgrenzwertes gemäß § 24 Abs. 6 und 7 der 44. BImSchV sowie VDMA 6299

Seriennummer: 8CCE4EB2521B
Motorennummer: 212 E2007BMK0381 / BHKW 1
Messzeitraum: 01.01.2024 - 31.12.2024
Art der Messung: Kontinuierliche Katalysatorüberwachung sowie Nachweis der Einhaltung der Stickoxidgrenzwerte gemäß § 24 Abs. 6 und 7 der 44. BImSchV
Anlagen: Aufstellung Mess- und Rechenwerte Messwertdiagramm
Seitenzahl: 10

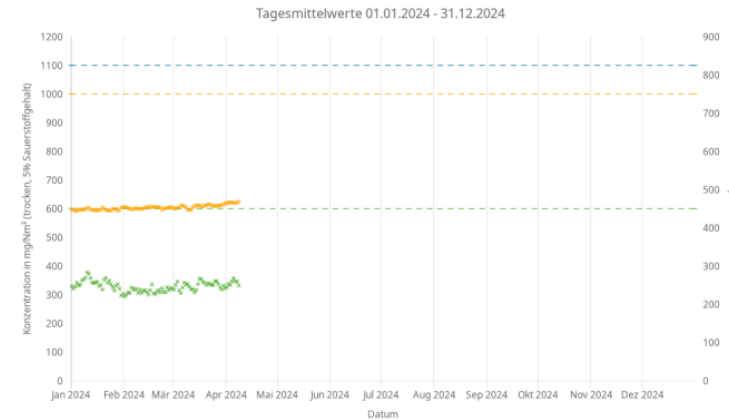
Berichtsdatum: 8.4.2024
Seriennummer: 8CCE4EB2521B



Zusammenfassung

BHKW
Betriebsstunden: 1876 h
Ausfallzeiten: 0 h

Messkomponente	Einheit	Emissionsbegrenzung	Emissionsbegrenzung inkl. Toleranz
Stickstoffoxide NO _x	mg/Nm ³	500	600
Kohlenmonoxid CO	mg/Nm ³	1000	1100
Temperatur T	°C	360-550	750



× Tagesmittelwert NO_x ○ Tagesmittelwert CO × Tagesmittelwert Temperatur – Grenzwert NO_x – Grenzwert CO
– Grenzwert Temperatur

Berichtsdatum: 8.4.2024
Seriennummer: 8CCE4EB2521B



Klassierung

Betriebsstunden: 1876 h
Ausfallzeiten: 0 h
Betriebsart: Biogas
Zeitraum: 01.01.2024 - 31.12.2024
Betriebstage: 99

Klasse	NO _x	CO	Temperatur
S1	99	0	99
S2	0	0	0
S3	0	0	0
S4	0	0	0
Störungen	0	0	0
Alarmer	0	0	0

S1 - Gültiger TMW: Einhaltung Grenzwert
S2 - Gültiger TMW: Keine Einhaltung Grenzwert / Einhaltung Toleranz
S3 - Ungültiger TMW: Überschreitung TMW
S4 - Gültiger TMW: Aus Ersatzwerten gebildet

Dieser Bericht wurde elektronisch erstellt und ist auch ohne Unterschrift gültig. Die Erstellung und Ausgabe des Berichts erfolgt durch die Emission Partner GmbH & Co. KG.

Berichtsdatum: 27.02.2022
Seriennummer: 4C11AEG1058C

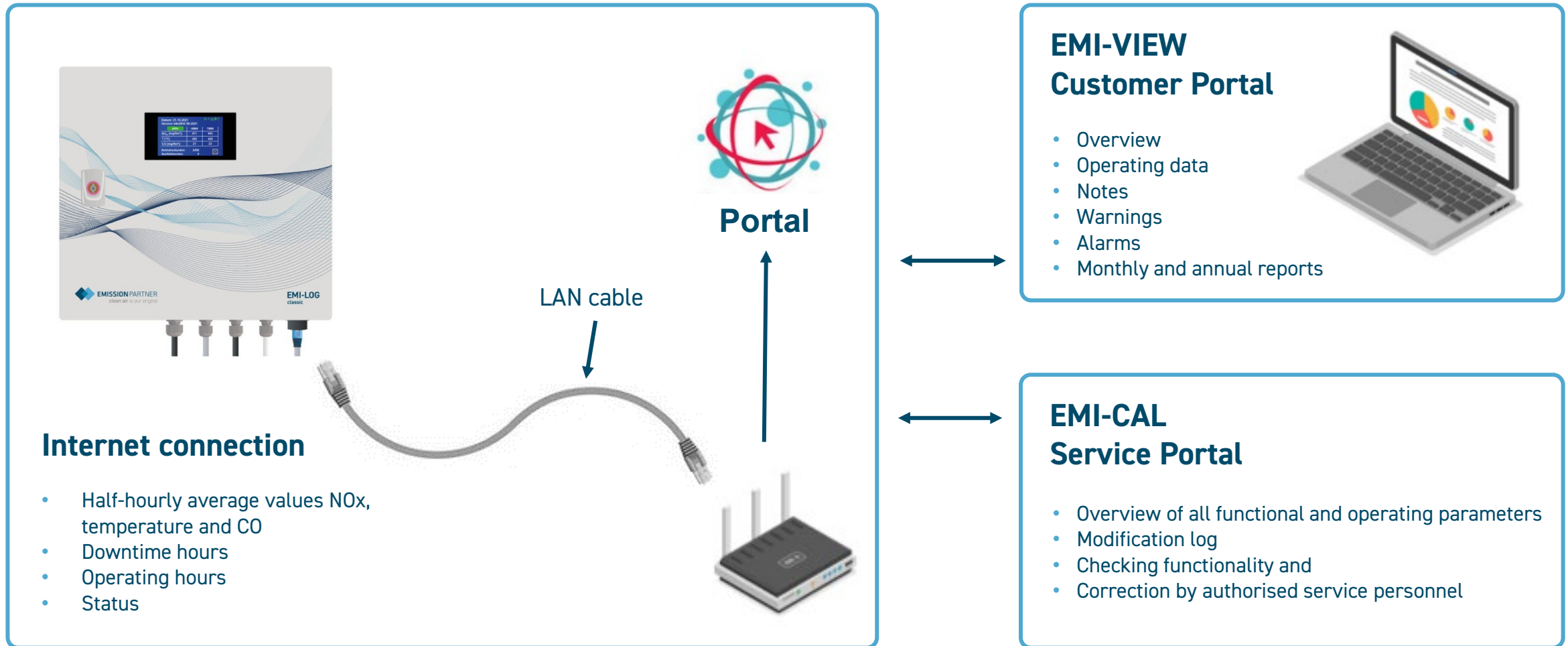


Anhang

Alarmmeldungen

28.04.2021, 00:00	NO _x	Alarm
16.08.2021, 00:00	NO _x	Alarm
23.12.2021, 00:00	NO _x	Alarm

TRANSPARENCY FOR CUSTOMERS AND AUTHORITIES



EMI-LOG CUSTOMER PORTAL

EMI-VIEW Kundenportal



Suche EMI-LOG hinzufügen (+)

Seriennummer	Bezeichnung	Status ↑	Live NO _x in mg/Nm ³ *	HMW CO in mg/Nm ³ *	Live Temperatur in °C	Betriebsstd.	Ausfallstd.	CSV	Bericht
▼		Aktiv	447	0	487	1455	0	↓	↓
▼		Aktiv	496	0	429	1497	72	↓	↓
▼		Aktiv		3	497	1476	0	↓	↓
▼		Aktiv		7	469	1479	0	↓	↓
▲		Aktiv	490	17	459	1491	0	↓	↓

Bericht herunterladen

ÜBERSICHT TMW | CO | NO_x | TEMPERATUR | 30 Tage ▾

Konzentration in mg/Nm³ (Trocken, 5% Sauerstoffgehalt)

Konzentration in mg/Nm³ (Trocken, 5% Sauerstoffgehalt)

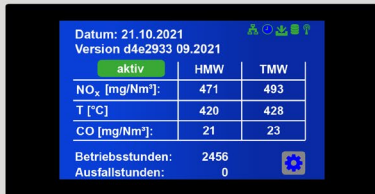
● TMW NO_x — Grenzwert NO_x

Temperatur in °C

● TMW Temperatur — Grenzwert Temperatur

CONTINUOUS MONITORING

- Compliance with the requirements of the 44th BImSchV and VMDA standard sheet 6299
- Continuous emission monitoring 'EMI-LOG'
- A well-established network of service partners and our own service team are at your disposal for installation, operation and maintenance



aktiv	HMW	TMW
NO _x [mg/Nm ³]:	471	493
T [°C]	420	428
CO [mg/Nm ³]:	21	23

Datum: 21.10.2021
Version d4a2933 09.2021

Betriebsstunden: 2456
Ausfallstunden: 0



Suitable for **all engine types**
and **easy to retrofit**



Order now and install within
a **few days**



Automated documentation of
measurement data and downtime

Further information can be found at:

www.emission-partner.de/emissionsueberwachung



EMISSION PARTNER

THANK YOU VERY MUCH FOR YOUR ATTENTION!

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