PRODUCT INFORMATION

GMS800
MODULAR GAS ANALYZERS

TAILOR-MADE GAS ANALYSIS SOLUTIONS FOR PROCESS AND EMISSION MONITORING

Extractive Gas Analyzers

SICK
Sensor Intelligence.

Modular analyzer system – flexible configuration, options tailored for almost any application

Emission monitoring according to EN 15267

- Emission measurements of very low concentrations, e.g. in power plants, cement plants or waste incineration plants and in the pulp and paper industry
- With the analysis module DEFOR, the specialist for gas turbines due to measurement of very low SO_2, NO and NO_2 concentrations
- Monitoring of NO_x in denitrification plants by direct measurement of NO and NO_2 as well as compiling to NO_x in the analyzer
- Efficient measurement in denitrification plants
- QAL1 certificate available for plants requiring approval

Prozess gas measurements for more than 60 components

- Efficient process gas analysis in applications of the chemical and petrochemical industry – also in ex areas
- High H_2S contents in reactive or sour gases
- Reliable CO monitoring for explosion protection in coal mills and coal bunkers
- Furnace gas measurement of blast furnaces or coke ovens
- Quality audits in air separation plants and purity measurement of gases (e.g. 5 ppm CO concentration in H_2 in hydrogen production)

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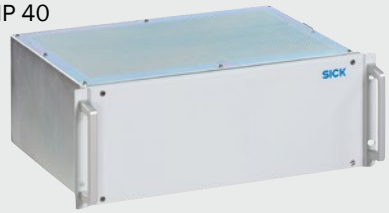
4 types of enclosures for easy integration at the installation location

Type GMS810:
19" rack housing with integrated control unit (BCU), 4 rack units, IP 40

Type GMS811:
19"rack housing with 4 rack units, IP 40



Type GMS815P:
Wall enclosure, IP 65 for use in rough industrial environment, optionally usable in explosion zones 1 and 2

Type GMS820P:
Flame-proof enclosure, IP 65, for use in explosion zone 1

6 Analyzer modules for more than 60 gases

DEFOR

Modern UV gas analyzer for simultaneous measurement of up to 3 gas components. Specialist for extremely selective NO measurement with small measuring ranges and an all-rounder for many other UV-active gases, e.g. SO_2, NO_2, NO, CS_2 and COS. As an option calibration cells are avaivalable.

UNOR

Highly selective NDIR analyzer for continuous measurement of almost any gas component which absorbs in the infra-red spectral range. Especially insensitive to building vibrations due to the variably adjustable chopper frequency. As an option calibration cells are avaivalable.

MULTOR

Multicomponent NDIR analyzer for continuous measurement of up to 3 IR-absorbing gases and H_2O for internal interference sensitivity correction. As an option calibration cells are avaivalable.

THERMOR

Precise heat conductivity analyzer for the determination of concentrations in binary or quasi-binary gas mixtures, e.g. H_2, He, CO_2 and Ar.

OXOR-P

Precise oxygen analyzer which operates according to the paramagnetic measuring principle. Also available as special model as especially solvent-resistant or corrosion-resistant version

OXOR-E

Determination of oxygen contents using an electrochemical cell.

TAILOR-MADE GAS ANALYSIS SOLUTIONS FOR PROCESS AND EMISSION MONITORING

Product description

The GMS800 is an innovative product familiy of extractive analyzers which can measure more than 60 different gas compounds. The GMS800 is characterized by its modular design: 7 analyzing modules, one gas module, I/O modules and an operating unit. Standardized 19" racks as well as system enclosures optimized for installation in cabinets can be used for economic system integration. Wall mounting enclosures with an ATEX approval for hazardous areas can be used in rough industrial environments. Equipped with modern software, the GMS800 comes with all required interfaces for remote control via networks through to the connection to a process control system.

At a glance

- 7 different analyzer modules: DEFOR (NDUV, UVRAS), FIDOR (FID), MULTOR (NDIR), OXOR-E (electrochemical O_2), OXOR-P (paramagnetic O_2), THERMOR (TC) and UNOR (NDIR)
- 4 different types of enclosures
- Gas module with sample gas pump and/or control sensors
- New enclosure type for easy and quick integration in analyzer cabinets
- Remote diagnosis via Ethernet with software SOPAS ET

Your benefits

- Approved according to EN 15267-3 and EN 14181
- Installations in Non-Ex-areas and Ex-areas (Zone 1 and 2 according to ATEX) possible
- Minimum service and maintenance work as well as easy reconditioning of existing installations due to modular design
- Adjustment without test gases via optional adjustment unit
- Minimal influence of ambient temperature through thermostatic controlled modules
- System solutions with turn-key analyzer cabinets
- Reliable measuring results by proven measurement technology
- Easy maintenance and repair due to replacement of complete assemblies or modules

Additional information

→ www.mysick.com/en/GMS800

For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

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Fields of application

- Emission monitoring according to EN 15267 and process gas measurements
- Emission monitoring of very low concentrations
- Measurement of smallest concentrations of NO, NO_2 and SO_2
- NO_x monitoring by direct measurement of NO and NO_2
- Measurement of sulfur compounds in process gases
- CO monitoring for Ex protection
- Measurement of smallest concentrations in hydrogen or hydrocarbons
- VOC monitoring

Detailed technical data

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

GMS800 system

Gas flow rate	30 l/h ... 60 l/h
Sample gas temperature	Analyzer inlet: 0 °C ... +45 °C
Process pressure	Hosed gas lines: –200 hPa ... 300 hPa Tubed gas lines: –200 hPa ... 1,000 hPa
Process gas humidity	Non-condensing
Dust load	Free of dust and aerosols
Ambient temperature	+5 °C ... +45 °C
Storage temperature	–20 °C ... +70 °C
Ambient pressure	700 hPa ... 1,200 hPa
Geographical altitude	2,500 m (above mean sea level)
Ambient humidity	20 % ... 90 % Relative humidity; non-condensing
Electrical safety	CE

GMS810 design

Description	19'' rack enclosure with 4 rack units, for integration in cabinets
Enclosure rating	IP 40
Dimensions (W x H x D)	483 mm x 178 mm x 388 mm
Weight	± 9 kg ... ± 20 kg Depending on configuration
Power supply	
Voltage	93 ... 132 V AC / 186 ... 264 V AC / 210 ... 370 V AC
Frequency	47 ... 63 Hz
Power consumption	≤ 300 W
Sample connections	PVDF bulkhead fitting For hose 6 x 1 mm
Auxiliary connections	For purge gas or flowing reference gas Option
Options	Gas connections: Swagelok 6 mm or Swagelok 1/4''

GMS811 design

Description	19'' rack enclosure with 4 rack units, for usage with separate control unit (BCU), for integration in cabinets
Enclosure rating	IP 40
Dimensions (W x H x D)	483 mm x 178 mm x 388 mm
Weight	± 9 kg ... ± 20 kg Depending on configuration
Power supply	
Voltage	93 ... 132 V AC / 186 ... 264 V AC / 210 ... 370 V AC
Frequency	47 ... 63 Hz
Power consumption	≤ 300 W
Sample connections	PVDF bulkhead fitting For hose 6 x 1 mm
Auxiliary connections	For purge gas or flowing reference gas Option
Options	Gas connections: Swagelok 6 mm or Swagelok 1/4''

GMS815P design

Description	Wall-mounting enclosure with gas-tight separated analyzing and electronic units, purgable separately
Ex-approvals	
ATEX	II 3G Ex nR II T6 II 3G Ex pz II T6 In combination with an external, approved monitoring unit (option) II 2G Ex px II T6 In combination with an external, approved monitoring unit (option)
Enclosure rating	IP 65 / NEMA 4x
Dimensions (W x H x D)	550 mm x 740 mm x 289 mm
Weight	± 20 kg ... ± 57 kg Depending on configuration
Power supply	
Voltage	93 ... 132 V AC / 186 ... 264 V Not for pressurized enclosure: 210 ... 370 V
Frequency	47 ... 63 Hz
Power consumption	≤ 300 W
Sample connections	PVDF bulkhead fitting For hose 6 x 1 mm
Auxiliary connections	For purge gas or flowing reference gas Option
Options	Gas connections: Swagelok 6 mm or Swagelok 1/4'' Integrated flame arrestors for gas inlet and outlet Intrinsically safe outputs for measured values

GMS820P design

Description	Flame-proof enclosure for use in Ex-zone 1 areas
Ex-approvals	
ATEX	II 2G Ex d II T6
Enclosure rating	IP 65
Dimensions (W x H x D)	790 mm x 590 mm x 353 mm
Weight	± 140 kg ... ± 150 kg Depending on configuration
Power supply	
Voltage	93 ... 132 V AC / 186 ... 264 V AC / 210 ... 370 V AC

8013768/2014-12

Frequency	47 ... 63 Hz
Power consumption	≤ 300 W
Sample connections	Inside thread G1/4″
Auxiliary connections	For purge gas or flowing reference gas Option
Options	Gas connections: Swagelok 6 mm or Swagelok 1/4''

DEFOR analyzer module

Description	UV gas analyzer for simultaneous measurement of up to 3 gas components
Measurement principles	NDUV spectroscopy, UVRA spectroscopy
Measuring ranges	
Cl_2	0 ... 125 ppm / 0 ... 100 Vol.-%
COS	0 ... 250 ppm / 0 ... 100 Vol.-%
CS_2	0 ... 50 ppm / 0 ... 30 Vol.-%
H_2S	0 ... 25 ppm / 0 ... 100 Vol.-%
NH_3	0 ... 50 ppm / 0 ... 100 Vol.-%
NO	0 ... 10 ppm / 0 ... 100 Vol.-%
NO_2	0 ... 50 ppm / 0 ... 100 Vol.-%
$NO_2^{(*)}$	0 ... 10 ppm / 0 ... 100 Vol.-%
SO_2	0 ... 25 ppm / 0 ... 100 Vol.-%
$SO_2^{(*)}$	0 ... 10 ppm / 0 ... 100 Vol.-%
	(*) NO_2, SO_2: smallest measuring range with daily adjustment of zero point and operation in air-conditioned ambiance with a temperature stability of ±2 °C
Certified measuring ranges	
NO	0 ... 50 mg/m³ / 0 ... 1,000 mg/m³ / 0 ... 2,000 mg/m³
NO_2	0 ... 50 mg/m³ / 0 ... 500 mg/m³
SO_2	0 ... 75 mg/m³ / 0 ... 287 mg/m³ / 0 ... 2,000 mg/m³
Response time	4 s Typical at 60 l/h, depending on cell length and gas flow
Sensitivity drift	≤ 1 % of measuring range full scale per week
Zero point drift	≤ 1 % of measuring range full scale per week Measuring ranges smaller than 2 x smallest measuring range: ≤ 2 % of measuring range full scale per week NO, NO_2, SO_2: ≤ 1 % of smallest measuring range per day
Conformities	EN 15267 EN 14181 2000/76/EC 2001/80/EC 27. BImSchV
Corrective functions	Manual or automatic adjustment with test gases or adjustment cuvette
Test functions	Self test and fault diagnosis

MULTOR analyzer module

Description	Multi-component NDIR analyzer for continuous measurement of up to 3 IR-absorbing gases and H_2O for internal interference sensitivity correction
Measurement principles	NDIR spectroscopy
Measuring ranges	
CH_4	0 ... 400 ppm / 0 ... 100 Vol.-%
CO	0 ... 160 ppm / 0 ... 100 Vol.-%
CO_2	0 ... 100 ppm / 0 ... 100 Vol.-%
NO	0 ... 190 ppm / 0 ... 100 Vol.-%
SO_2	0 ... 90 ppm / 0 ... 100 Vol.-%
Certified measuring ranges	
CH_4	0 ... 286 mg/m³ / 0 ... 500 mg/m³
CO	0 ... 200 mg/m³ / 0 ... 2,000 mg/m³
CO_2	0 ... 25 Vol.-%
NO	0 ... 250 mg/m³ / 0 ... 2,500 mg/m³
SO_2	0 ... 250 mg/m³ / 0 ... 2,000 mg/m³
Response time	≤ 25 s At 60 l/h, depending on cuvette length, gas flow and number of measuring components
Sensitivity drift	≤ 1 % of measuring range full scale per week
Zero point drift	≤ 1 % of smallest measuring range per week Measuring ranges smaller than 2 x smallest measuring range: ≤ 2 % of smallest measuring range per week
Conformities	EN 15267 EN 14181 2000/76/EC 2001/80/EC 27. BImSchV
Corrective functions	Manual or automatic adjustment with test gases or adjustment cuvette
Test functions	Self test and fault diagnosis

OXOR-E analyzer module

Description	Determination of oxygen contents using an electrochemical cell
Measurement principles	Electrochemical cell
Measuring ranges	
O_2	0 ... 10 Vol.-% / 0 ... 25 Vol.-%
Certified measuring ranges	
O_2	0 ... 25 Vol.-%
Response time	20 s Typical at 60 l/h, depending on gas flow
Sensitivity drift	≤ 2 % of measuring range full scale per week
Zero point drift	≤ 2 % of smallest measuring range per month
Conformities	EN 15267 EN 14181 2000/76/EC 2001/80/EC 27. BImSchV
Corrective functions	Manual or automatic adjustment with test gases
Test functions	Self test and fault diagnosis

8013768/2014-12

OXOR-P analyzer module

Description	Accurate oxygen analyzer which operates according to the paramagnetic measuring principle
Measurement principles	Paramagnetic dumbbell principle
Measuring ranges	
O_2	0 ... 3 Vol.-% / 0 ... 100 Vol.-% Optional: smallest measuring range 0 ... 1 vol%
Certified measuring ranges	
O_2	0 ... 25 Vol.-%
Response time	≤ 4 s At a gas flow of 60 l/h
Sensitivity drift	≤ 1 % of measuring range full scale per week
Zero point drift	≤ 1 % of smallest measuring range per week Measuring ranges smaller 5 vol%: ≤ 0.05 Vol.-% per week
Conformities	EN 15267 EN 14181 2000/76/EC 2001/80/EC 27. BImSchV
Corrective functions	Manual or automatic adjustment with test gases
Test functions	Self test and fault diagnosis
Remark	Special versions with highly solvent-resistant or highly corrosion-resistant measuring cells available

THERMOR analyzer module

Description	Heat conductivity analyzer for the determination of concentrations in binary or quasi-binary gas mixtures
Measurement principles	Thermal conductivity measurement
Measuring ranges	
Ar in N_2	0 ... 10 Vol.-% / 0 ... 100 Vol.-%
Ar in O_2	0 ... 10 Vol.-% / 0 ... 100 Vol.-%
CH_4 in biogas	0 ... 60 Vol.-% / 0 ... 100 Vol.-%
CO_2 in air	0 ... 10 Vol.-% / 0 ... 100 Vol.-%
H_2 in Ar	0 ... 1 Vol.-% / 0 ... 100 Vol.-%
H_2 in CH_4	0 ... 1 Vol.-% / 0 ... 100 Vol.-%
H_2 in CO_2	0 ... 1 Vol.-% / 0 ... 100 Vol.-%
H_2 in blast furnace gas	0 ... 1 Vol.-% / 0 ... 100 Vol.-%
H_2 in N_2	0 ... 1 Vol.-% / 0 ... 100 Vol.-%
He in N_2	0 ... 2 Vol.-% / 0 ... 100 Vol.-%
NH_3 in CO_2	0 ... 15 Vol.-% / 0 ... 100 Vol.-%
NH_3 in air	0 ... 15 Vol.-% / 0 ... 100 Vol.-%
Response time	≤ 20 s At a gas flow of 60 l/h
Sensitivity drift	≤ 1 % of measuring range full scale per week
Zero point drift	≤ 1 % of smallest measuring range per week Measuring ranges smaller than 2 x smallest measuring range: ≤ 2 % of smallest measuring range per week
Corrective functions	Manual or automatic adjustment with test gases
Test functions	Self test and fault diagnosis

UNOR analyzer module

Description	Highly selective NDIR analyzer for continuous measurement of almost any gas component which absorbs in the infra-red spectral range
Measurement principles	NDIR spectroscopy
Measuring ranges	
C_2H_2	0 ... 300 ppm / 0 ... 100 Vol.-%
$C_2H_2F_4$	0 ... 100 ppm / 0 ... 100 Vol.-%
C_2H_4	0 ... 300 ppm / 0 ... 100 Vol.-%
C_3H_6	0 ... 300 ppm / 0 ... 100 Vol.-%
C_3H_8	0 ... 100 ppm / 0 ... 100 Vol.-%
C_4H_6	0 ... 5,000 ppm / 0 ... 20 Vol.-%
CH_4	0 ... 70 ppm / 0 ... 100 Vol.-%
CH_3OH	0 ... 150 ppm / 0 ... 10 Vol.-%
CO	0 ... 20 ppm / 0 ... 100 Vol.-%
$CO+CO_2$	0 ... 50 ppm / 0 ... 100 Vol.-%
CO_2	0 ... 10 ppm / 0 ... 100 Vol.-%
$COCl_2$	0 ... 200 ppm / 0 ... 10 Vol.-%
N_2O	0 ... 25 ppm / 0 ... 100 Vol.-%
NO	0 ... 75 ppm / 0 ... 100 Vol.-%
NH_3	0 ... 300 ppm / 0 ... 100 Vol.-%
SF_6	0 ... 50 ppm / 0 ... 100 Vol.-%
SO_2	0 ... 26 ppm / 0 ... 100 Vol.-%
	More than 60 measuring components available
Certified measuring ranges	
CO	0 ... 75 mg/m³ / 0 ... 750 mg/m³ / 0 ... 3,000 mg/m³
CO_2	0 ... 25 Vol.-%
N_2O	0 ... 50 mg/m³ / 0 ... 500 mg/m³
NO	0 ... 100 mg/m³ / 0 ... 1,000 mg/m³
SO_2	0 ... 75 mg/m³ / 0 ... 287 mg/m³ / 0 ... 2,000 mg/m³
NO_x	0 ... 100 mg/m³ / 0 ... 1,000 mg/m³ / 0 ... 2,000 mg/m³
CH_4	0 ... 50 mg/m³ / 0 ... 500 mg/m³
Response time	3 s Typical at 60 l/h, depending on cell length and gas flow
Sensitivity drift	≤ 1 % of measuring range full scale per week
Zero point drift	≤ 1 % of smallest measuring range per week Measuring ranges smaller than 2 x smallest measuring range: ≤ 2 % of smallest measuring range per week
Conformities	EN 15267 EN 14181 2000/76/EC 2001/80/EC 27. BImSchV
Corrective functions	Manual or automatic adjustment with test gases or adjustment cuvette
Test functions	Self test and fault diagnosis

BCU control unit

Interfaces	Ethernet RS-485
Bus protocol	Modbus RTU OPC

8013768/2014-12

Indication	Status LEDs: “Power”, “Maintenance” and “Failure” LC display
Operation	Via LC display and membrane keyboard

I/O module

Description	Closed module with top-hat rail adapter or module for integration into enclosures
Analog outputs	4 outputs: 0/2/4 ... 20 mA, 500 Ω Electrically isolated
Analog inputs	2 inputs: 0/4 ... 20 mA Not electrically isolated
Digital outputs	8 outputs: 34 V AC, 500 mA / 48 V DC, 500 mA
Digital inputs	8 inputs: 42 V All inlets with common reference potential

Gas module

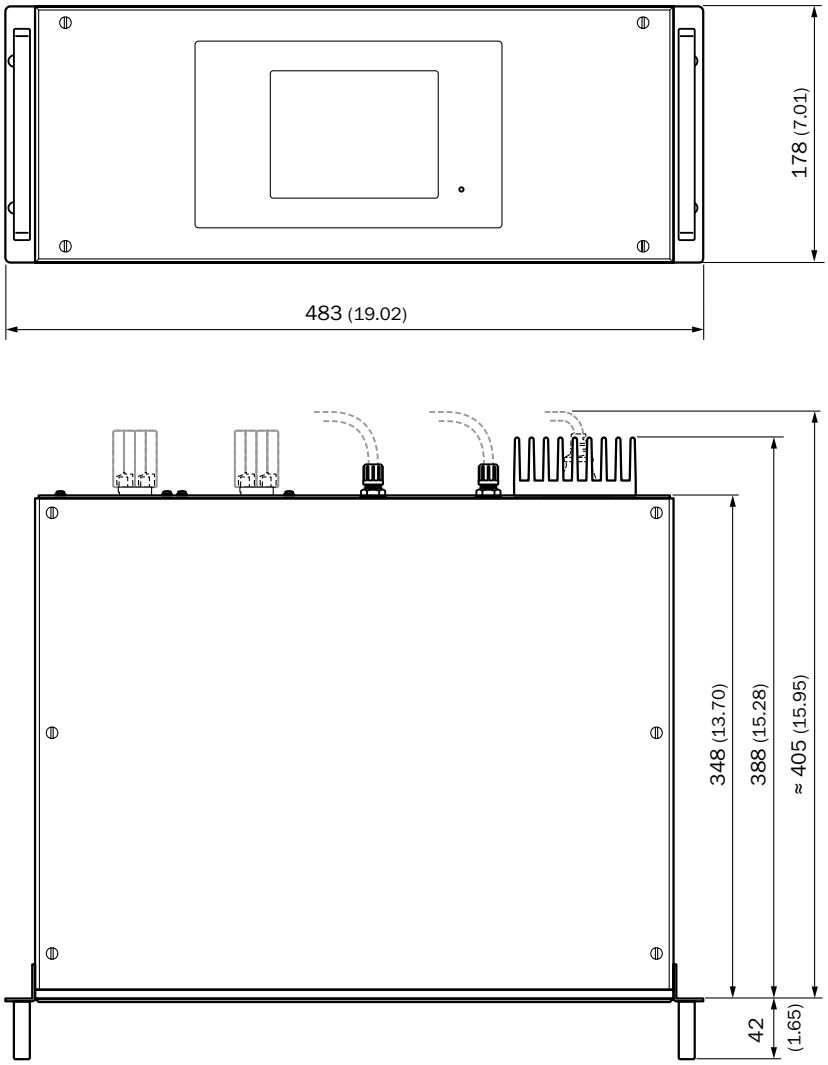
Sample connections	PVDF compression fitting For hose 6 x 1 mm Swagelok 6 mm Stainless steel, for metal tube Swagelok 1/4’’ Stainless steel, for metal tube
Options	Magnetic piston pump (0 ... 60 l/h at 100 hPa low pressure) Humidity sensor Pressure sensor (500 ... 1500 hPa) Flow sensor (0 ... 100 l/h, ±20%)

Ordering information

Our regional sales organization will help you to select the optimum device configuration.

Dimensional drawings (Dimensions in mm (inch))

GMS810 design



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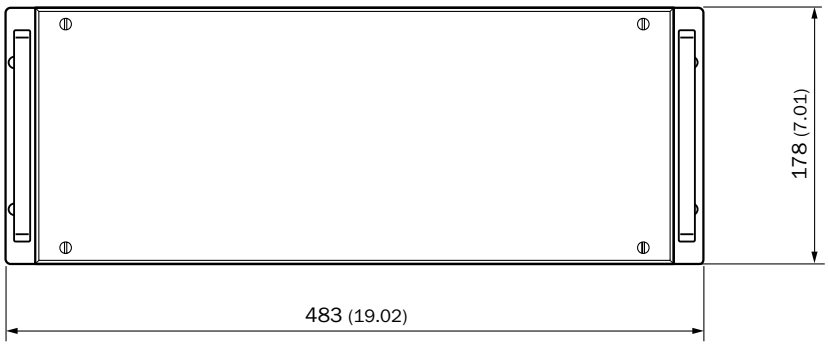
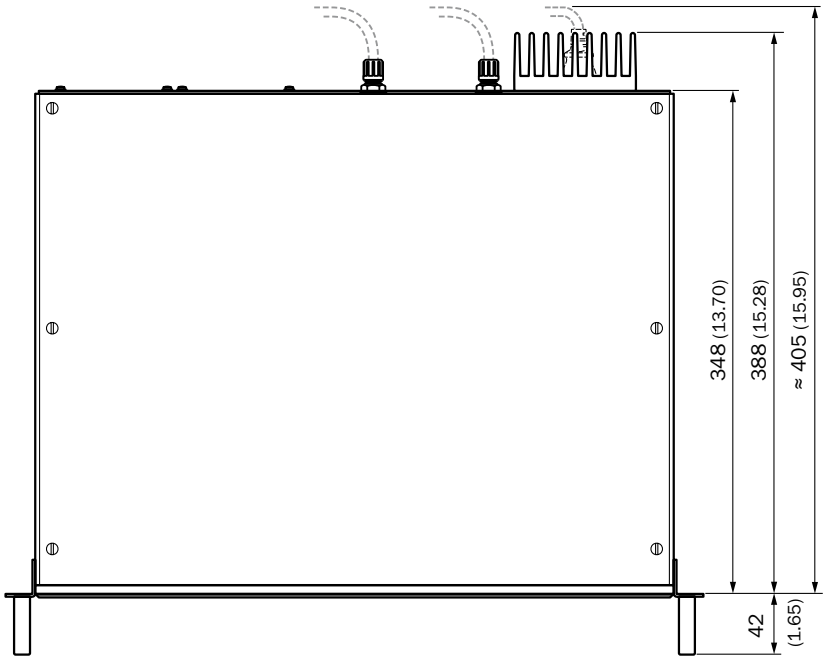
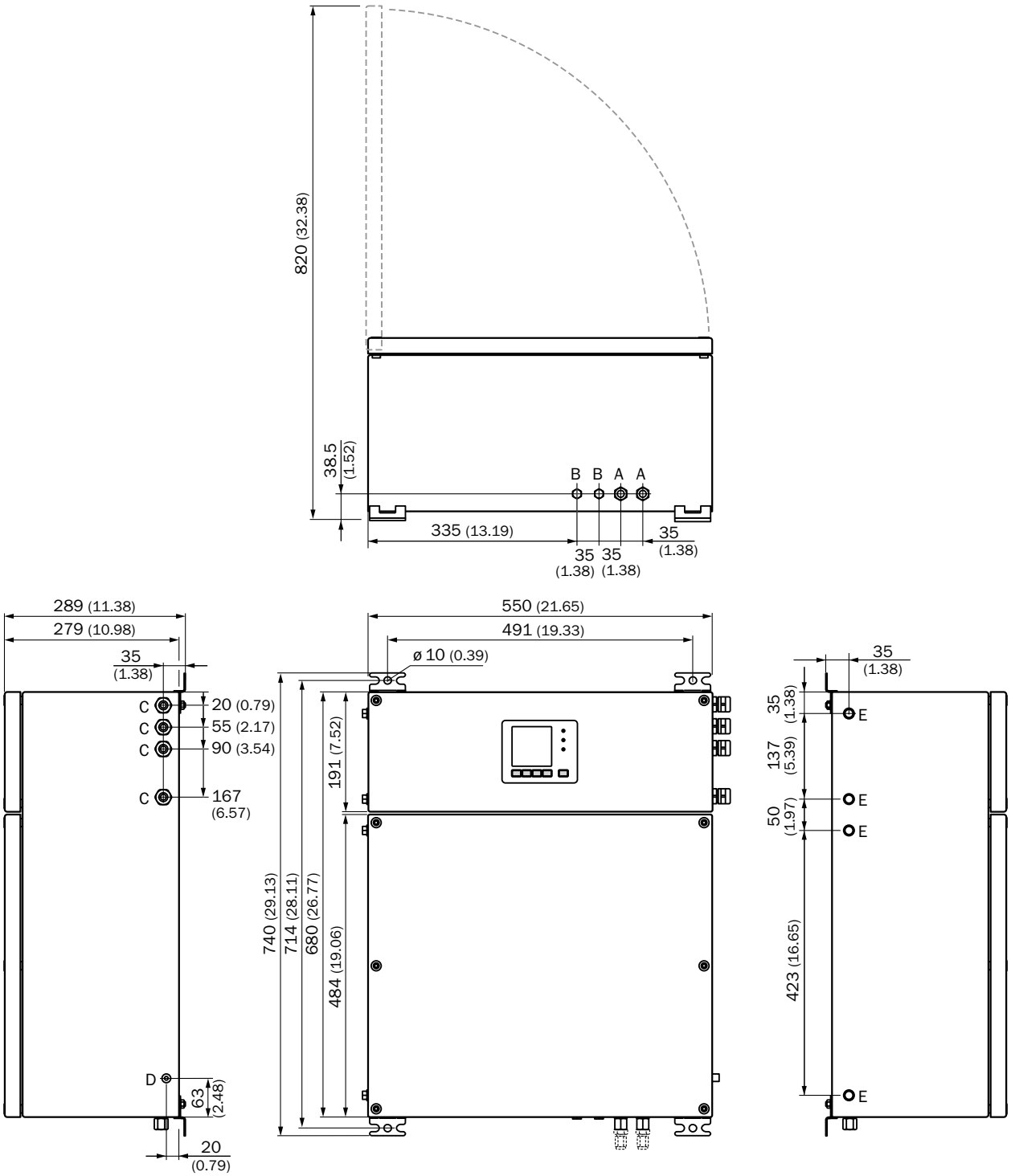
GMS811 design





GMS815P design



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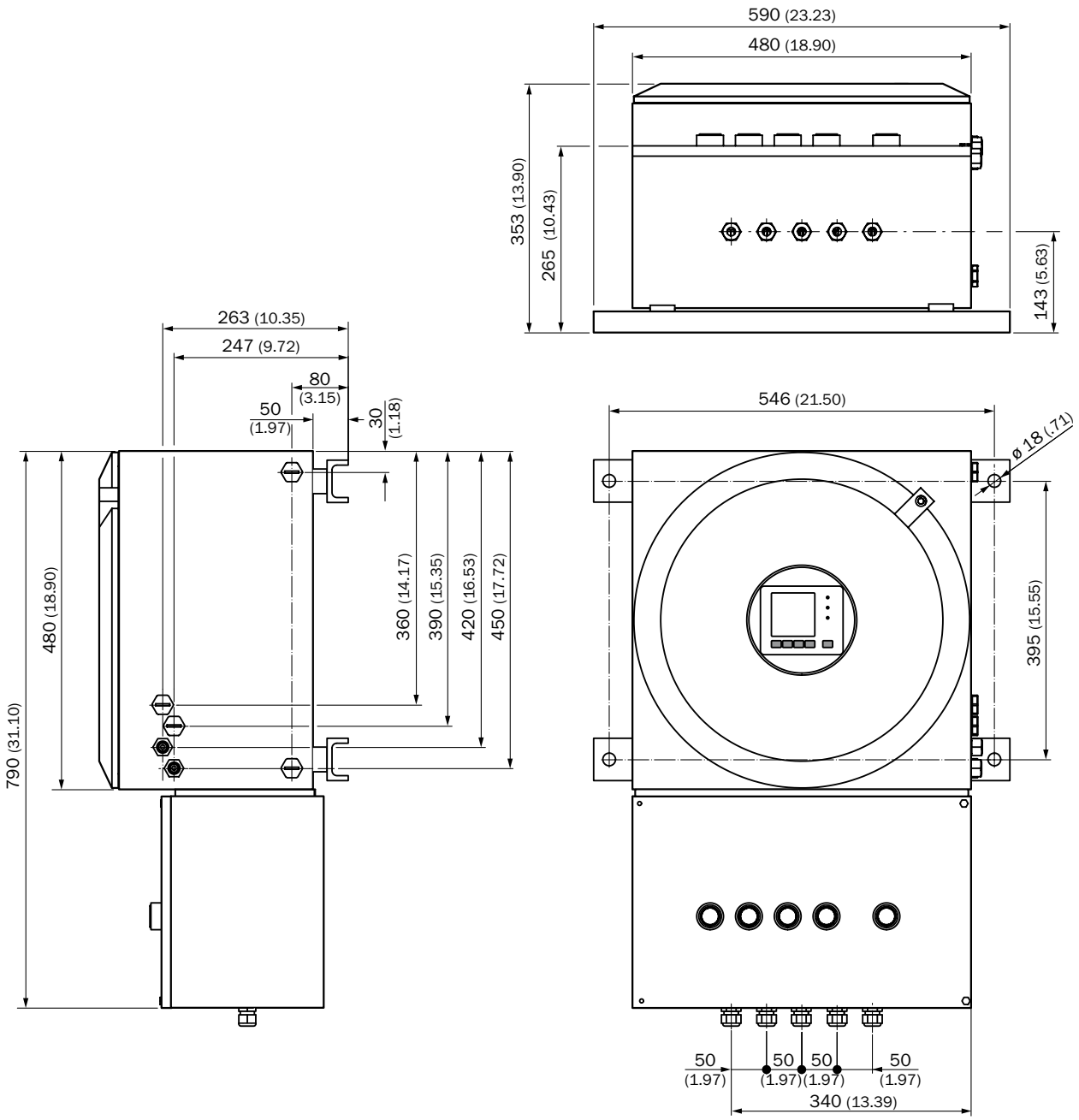
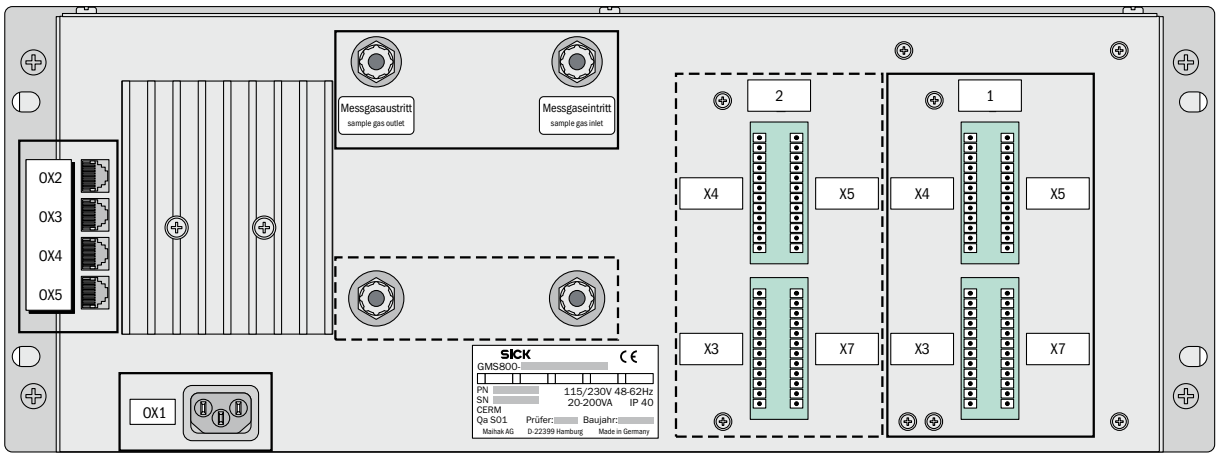
GMS820P design

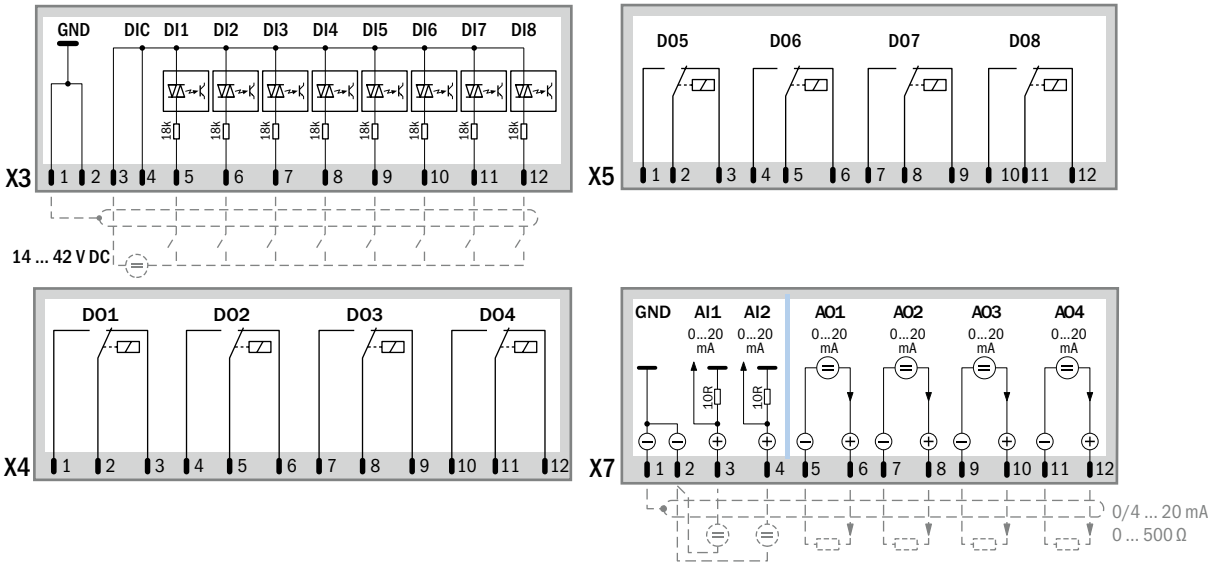


Connection types

GMS810 design



GMS800 I/O module



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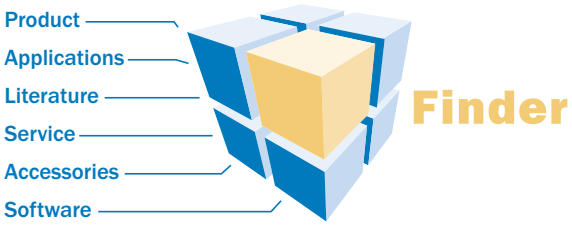

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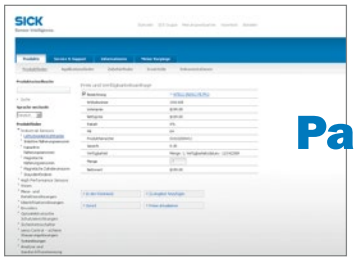

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SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 6,500 employees and over 50 subsidiaries and equity investments as well as numerous representative offices worldwide, we are always close to our customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

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