

Portable THC Analyzer TVOC Heated FID 3-200

Transportable heated gas emission analyzer for the continuous determination of the mass concentration of total gaseous organic carbon using the Flame Ionization Detector Method. Non Methane Hydrocarbon Option available

Throughout the EU the 3-200 fully complies with QAL1 (EN 14181-EN ISO 14659), with EN 12619:2013 and in the USA with EPA Method 25A and Method 503.



****Low cost of ownership. **Low fuel gas consumption.**
****The combustion air supply for the FID-detector built in.**
No external cylinder for synthetic air needed. **The available, safe, low pressure unit stores Hydrogen as solid metal hydride powder, not as a compressed gas. Stored fuel gas is 5.0 quality and sufficient to operate the FID for over 45 hours continuously. Refill from a master cylinder is safe and easy with a standard cylinder regulator output of 25 bar.

General:

Confirmed by TÜV-Nord to comply with EN 14181 and EN ISO 14956 (EU). Fully complies with EN 12619:2013 (EU) and EPA Method 25A and Method 503 (USA)

While several thousands of analyzers sold, the 3-200 is a very widely distributed portable heated FID Analyzer. It is a very forgiving, very robust and cost effective heated FID analyzer, mostly used in stack certification, temporary source and stack compliance testing. Very good for difficult to reach testing locations. The **most typical use of the 3-200** is the employment by stack testing laboratories/companies and OEM's to optimize emissions treatment systems.

The Model 3-200 is time proven in over 38 years as the identical but portable version of our rack mount analyzers; The 3-200, VE7 and 3-300A are identical analyzers and are TÜV confirmed to fully comply. The 3-200 is a highly reliable and outstandingly forgiving and rugged transportable heated total hydrocarbon (total gaseous organic carbon) FID analyzer. Built for low drift, high accuracy, high sensitivity and stability. The 3-200 uses our proprietary hydrogen flame ionization detector (FID) in a heated oven to prevent the loss of high molecular weight hydrocarbons and to provide reliable performance in the analysis of high concentrations down to very low trace concentration levels of gaseous organic carbon contaminants in emissions, air, other gases and high purity gases. All sample containing parts and components are discretely integrated into an easy to maintain heated chamber. The permanent heated sample filter is cleaned by back purging with compressed air or nitrogen. This feature allows nearly uninterrupted measurements during cleaning the sample filter. While back purging the sample filter, the connected heated sample line and sample probe are also cleaned. This is a very unique feature which makes separate cleaning of the sample line unnecessary. The use of a stack probe filter is not necessary when the 3-200 FID is used in a stand alone mode. The combustion air supply for the detector is built in. No expensive air generator or external cylinder for synthetic air is needed. Lower price version with disposable sample filter available. See options list.

The 3-200 is a standard analyzer and therefore optimized in accordance with the European EN-12619:2013 specifications. For numerous other applications different target optimizations are available for “non EN-12619:20136” applications are available. Please contact us!



Analyzer Features

- Made in Germany
- **1st Sampling Filter Choice:** Maintenance free, permanently installed sample filter back purge system allows filter to be cleaned without dismantling. Does not interrupt analyzing (automatic back purge optional)
- **2nd Sampling Filter Choice:** Disposable sample filter which is easily accessible in the rear panel without special tools. This optional available feature reflects an approx. 20% price advantage.
- All components in contact with sample are fully heated and digitally maintained at 190°C
- Built-In sample pump
- Built-in combustion air supply, no extra burner air bottle needed
- Permanent 2 micron stainless mesh sample filter or 2 micron disposable sample filter
- "Overflow" calibration system for safe zero and span calibration
- Automatic flame out alarm contact and optional available fuel shut off valve
- Fast response less than 1 second @ sample inlet
- Low fuel consumption @ 100% or 40/60 mixed fuel gases
- Microprocessor PID type temperature controller
- Remote control for sample, zero gas, span gas and back purge is standard
- Automatic or remote range change optional

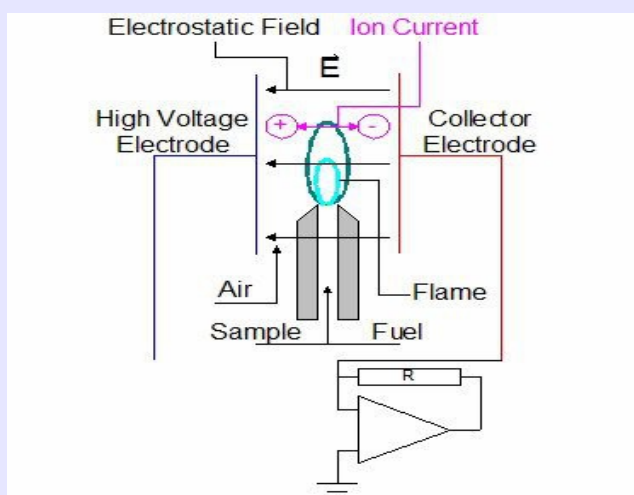
Applications

- Compliance monitoring of source hydrocarbons following European **EN 14181/ EN ISO 14659, EN 12619:2013, USA EPA regulations: Method 25A and Method 503**
- Stack gas hydrocarbon emissions monitoring
- Spray paint booth TVOC monitoring
- Fence line (perimeter) monitoring
- Solvent recovery monitor for carbon bed break through
- Catalytic converter and thermal combustion testing
- Carbon adsorption regeneration control
- Measuring engine combustion efficiency
- Raw exhaust vehicle emissions analysis
- Hydrocarbon contamination monitoring in air and other gases
- Detection of trace hydrocarbons in high purity gases used in the semi conductor industry
- LEL monitor of solvent laden air (Spray paint Booth, Paint Manufacturing, Decrease of metal parts, Printing and coating industry and many more)

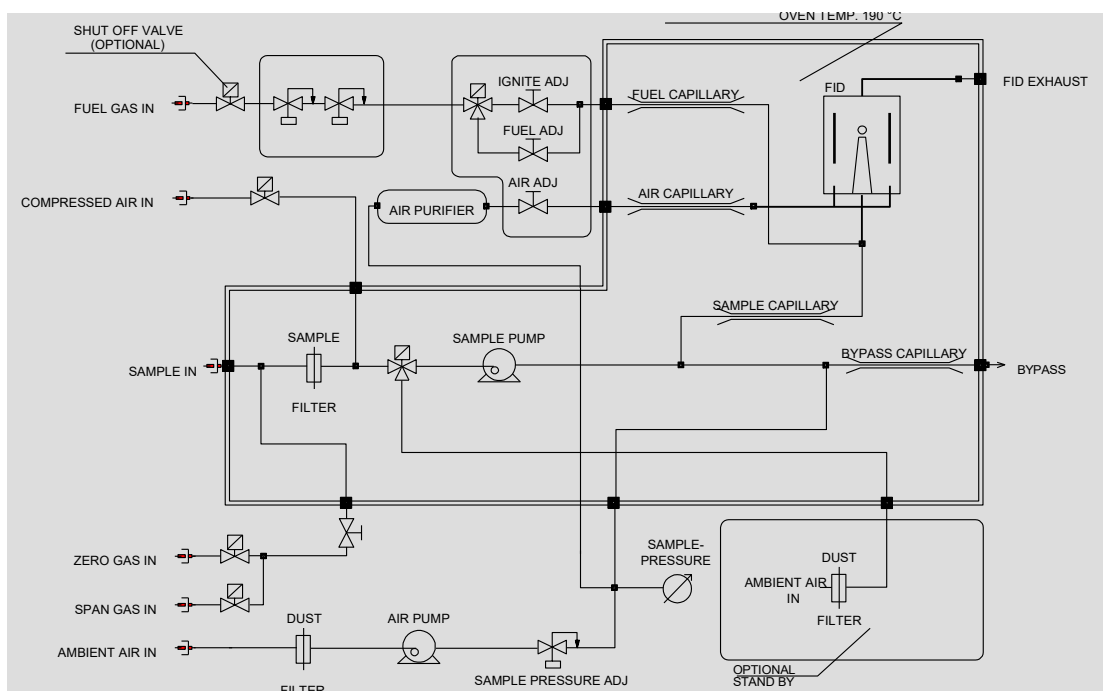
Principle of Operation

The Heated Flame Ionization Detection (HFID) method is used to determine the presence of total hydrocarbon concentrations in gaseous samples. Burning hydrocarbon-free hydrogen in hydrocarbon-free air produces a negligible number of ions in the detector. Once a sample which contains any organic carbon matter is introduced into this flame, a very complex ionization process is started. This process creates a large number of ions. A high polarizing voltage is applied between the two electrodes around the burner nozzle and produces an electrostatic field. Now negative carbon ions migrate to the collector electrode and positive hydrogen ions migrate to the high voltage electrode. The so generated ionization current between the two electrodes is directly proportional to the hydrocarbon concentration in the sample that is burned by the flame. This signal is measured and amplified by a highly sensitive and stable electro-meter-amplifier unit.

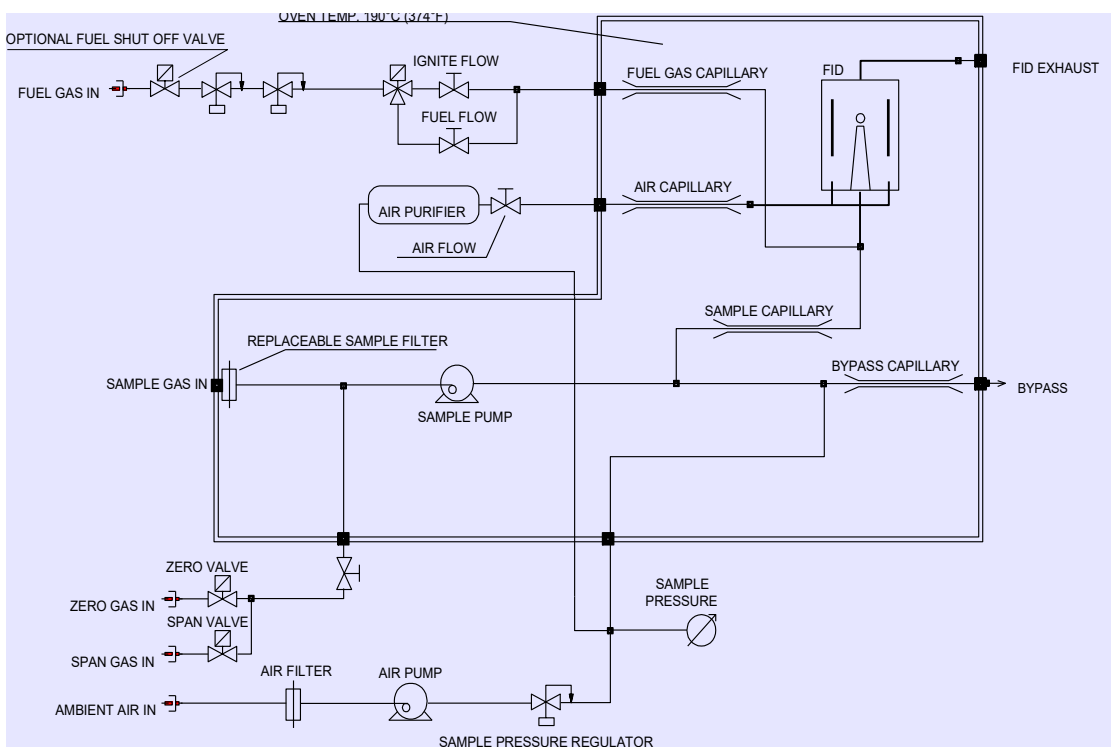
Our proprietary sample pressure regulator provides a controlled sample pressure and flow which gives admittance of a constant sample flow rate to the FID burner. This technique of using our non sample contact regulator is time proven for over 40 years by J.U.M. Engineering to provide the highest possible sample low flow rate stability at the lowest maintenance. Our compactly designed flow control module for fuel, ignition and air flow rates via low thermal mass needle valves use high precision pressure regulators. The needle valves are factory adjusted and sealed to ensure the optimization of the burner.



3-200 HFID Total Gaseous Organic Carbon Analyzer



Complete flow diagram shown with standard back purge sample filter



Complete flow diagram shown with OVE 32 option; Disposable sample filter

Technical Specifications

Method	Heated Flame Ionization Detector (HFID)
Sensitivity	Max. 1 ppm CH ₄ full scale (100 ppb lowest detectable)
Response time	@ sample inlet <0.2 seconds
t ₉₀ time	@ sample inlet <1.2 seconds
t ₉₀ time including 4X6mm sample line	Including heated sample line (7.5m) and sample probe filter filter: less than 8 seconds
Zero drift	<2% full scale / 24h
Span drift	<2% full scale / 24h
Linearity	Up to 10.000 ppm full scale within 1.5%
Oxygen synergism	< 2% FSD
Measuring ranges (ppm)	0-10, 100, 1,000, 10,000, 100,000, others on request. Front panel turn switch, automatic or remote optional, and
Signal outputs	0-10 VDC, 4-20 mA, including RS-232 data output
Display	6- digit direct reading ppm units capability to measure 3 overlapping ranges without range change
Total sample flow through Sample filter	2.5 to 2.8 l/min capacity @ operating temp. Permanent 2 micron mesh filter, cleaned by back purge with compressed dry air or N2 standard. Alternatively disposable change filter in rear panel. Option OVE 32
Zero and Span gas	Front panel switch selectable and remote control, gas inlets on rear panel
Zero and span adjust	Manual duo dial on front panel
Fuel gas choice	1. Standard 100% H ₂ , consumption approx. 20 ml/min 2. Optional 40%H ₂ /60%He, consumption approximately 90 ml/min 3. Optional 40%N ₂ /60%He, consumption approximately 90 ml/min
Burner air consumption	Built in burner air supply. No external cylinder air needed. consumption approximately 130 ml/min, all mixed fuel gases approx. 220 ml/min
Oven temperature	190°C (374°F)
Temperature control	micro-processor PID controller
Power requirements	230VAC/50Hz, 850 W. 120 VAC/60Hz optional
Ambient temperature	5-43°C (41-110°F)
Dimensions (W x D x H)	300 mm x 580 mm x 204 mm
Weight	approx. 18 kg (39 lbs)

3-200 HFID Total Gaseous Organic Carbon Analyzer

Available Options

OVE 32	Quick change disposable 2 micron sample filter housed in the heated oven instead of back purge sample filter <u>(A 20% price advantage)</u>
AMU 32	Automatic controlled range change with range identification
APO 32	Automatic sample filter pack purge; EXTERNAL, easily programmable back purge timing system for back purge time and purge sequence sequence. (Does not work with OVE 32)
AZM 32	Automatic flame ignition and re-ignition
ENGA 32	6-digit engineering units display 0-100.000 ppm (or other units) with RS232 data output. 24 bit resolution allows to digitally measure throughout 2 to 3 measuring ranges without range change
FOAS 32	Flame out control with automatic fuel shut off valve
ICM 32 *	Built-in NMHC Cutter, measure either THC or Methane-Only concentrations with one analyzer
PDA 32	Sample pressure monitor with alarm
RCA 32	0-20mA analog output instead of 4-20mA
RCI0 32	0-20 mA analog output, galvanic isolated
RCI4 33	4-20 mA analog output, galvanic isolated
TPR 32	Built in temperature controller for J.U.M. heated sample lines Model TJ 100 or other lines with "J" type thermocouple
FSS 32:	Low pressure, 50 liter metal hydride hydrogen fuel Storage cartridge including mounted pressure regulator and pressure gauge on female 1/4" Swagelok quick connector. Refill from large cylinder is safe and can be made with standard 0 to 30 bar gas cylinder regulator. See inserted picture on 1st page of our data sheet
UFS 32	Hydrogen Recharging Set; Pressure regulator for high pressure hydrogen cylinder equipped with Swagelok® flow through quick connector
TJ 100	Heated Sample Line: 1, 3, 5 and 10 Meters of Length. Ask for data sheet!
Important!	<ol style="list-style-type: none">1. ** ICM cannot be combined with LTO2. *** TPR cannot be combined with ICM



Low Pressure Metal 50 Liter Metal Hydride Fuel Gas Storage
See Questions & Answers Next Page:

Questions and Answers About the Low pressure Hydrogen Storage System

Q: Is the new fuel gas storage a high pressure cylinder?

A: Actually no, it is not! The new hydrogen FID Fuel Gas Storage System is charged at a low pressure of only 25 bar and is operating at pressures below 8 bar. The tank withstands pressures of over 100 bar.

Q: Is the new hydrogen storage a gas tank?

A: No, it is not a gas tank. In this hydrogen fuel gas storage system, hydrogen is stored in form of solid metal powder which chemically reacts to metal hydride when hydrogen is filled.

Q: How could I know when I used up hydrogen, and need to recharge it?

A: If the system is used correctly without a leak, the pressure in the storage drops below 1.5 bar after approx. 36 plus hours and the FID flame goes out. An elapse of 35 hours after correct charging is a good indicator to recharge the system. A pressure gauge in the fuel line can be used as an indicator.

Q: Can your new storage system store gases other than Hydrogen?

A: No, it is strictly a hydrogen storage system.

Q: What will happen if storage is charged with other gases?

A: In practice it will then work just like a high pressure tank. However, if the stored gas is another one than Hydrogen it will destroy the stored metal alloy powder and the storage will no longer store hydrogen properly.

Q: Is a pressure regulator required while using your new hydrogen storage system?

A: No, since the pressure in the storage remains almost constant until 98% of the gas is consumed, the internal regulator in our FID analyzer is all what you need.

Q: How long does it take to charge an empty hydrogen storage system?

A: Recharging is simple and fast. It only takes around 30 plus minutes to charge at a pressure of 25 bar at ambient air temperatures. All together charging takes about 60 minutes to reach equilibrium. Any standard hydrogen pressure regulator with an adjustable output range of 0 to 30 bar should be used for charging.

Q: What is the typical life span of the hydrogen storage system?

A: When always being charged with 99.999% standard 5.0 or higher quality purity hydrogen, the charge/discharge life span comes to over 8000 cycles with less than 10% decay in storage capacity. In fact, it can be considered as a limitless hydrogen source.

J.U.M.® Engineering GmbH

Gauss-Str. 5, D-85757 Karlsfeld, Germany
Tel.: 49-(0)8131-50416, Fax: 49-(0)8131-98894
E-mail: info@jum.com
Internet: www.jum.com

Update Published: June 2017, Print: 06-2017

Rack Mount/Table Top TVOC Analyzer

THC Heated FID 3-300A

Space saving 19"/3PU space saving rack mount and table top heated emission analyzer for the continuous determination of the mass concentration of total gaseous organic carbon using the Flame Ionization Detector Method.

The 3-300A complies with QAL1 (EN 14181-EN ISO 14659), with EN 12619:2013, US EPA Method 25A and US EPA Method 303



Low cost of ownership. Low fuel gas consumption. The combustion air supply for the FID-detector built in. No external cylinder for synthetic air needed. To prevent HC hang up (memory effect) and related drifting, the heated sample line can easily be connected inside of the heated oven. This prevents any cold spot and any related HC condensation

General:

Confirmed by TÜV-Nord to comply with EN 14181 and EN ISO 14956 (EU). Fully complies with EN 12619:2013 (EU) and EPA Method 25A and Method 503 (USA)

With thousand's of units sold, the 3-300A is our second-mostly distributed, very forgiving, robust and cost effective heated FID analyzer in source and stack testing. Mostly integrated into smaller, space critical rack mount multi analyzer CEM' systems.

The J.U.M. Engineering HFID Model 3-300A is time proven in 25 years as the space saving version of our VE7 analyzer. It is a highly reliable and outstandingly forgiving and rugged 19" rack mount or table top heated total hydrocarbon (total gaseous organic carbon) analyzer. Built for very low drift, high accuracy, sensitivity and stability. The 3-300A uses a hydrogen flame ionization detector (FID) in a heated oven to prevent the loss of high molecular weight hydrocarbons and to provide reliable performance in the analysis of high concentrations down to very low trace concentration levels of gaseous organic carbon contaminants in emissions, air and other gases and high purity gases.

All sample containing parts and components are discretely integrated into an easy to maintain heated chamber. The permanent heated sample filter is cleaned by back purging with compressed air or nitrogen. This allows nearly uninterrupted measurements during cleaning the sample filter. While back purging the sample filter, the connected heated sample line and sample probe is also cleaned. This is a very unique feature which makes separate cleaning of the sample line unnecessary. The use of a stack probe filter is not necessary when the 3-300A FID is used in a stand alone mode.

The combustion air supply for the detector is built in. No expensive air generator or external cylinder for synthetic air is needed. The available rear panel sample line adapter-plate system allows cold-spot free coupling of a heated sample line inside of the heated oven without the need of special tools. The fittings can easily be accessed with the cover plate removed from the oven.

The 3-300A is a standard emissions analyzer and therefore optimized for the accordance with the European EN-12619:2013 specifications. Several different target optimizations for "non EN-12619:20136" applications are available.



Analyzer Features

1. Made in Germany
2. **1st Sampling Choice:** Maintenance free, permanently installed sample filter back purge system allows filter to be cleaned without dismantling (automatic back purge optional)
3. **2nd Sampling Choice:** Disposable sample filter which is easily accessible in the rear panel without special tools. This optional available feature is an approx. 20% price advantage.
4. All components in contact with sample are fully heated and digitally maintained at 190 °C
5. Built-In sample pump
6. Built-in combustion air pump and supply, no extra burner air bottle needed
7. Permanent 2 micron stainless mesh sample filter to be cleaned by back purge with compressed dry air or nitrogen. Alternatively available 2 micron disposable sample filter
8. "Overflow" calibration system for safe zero and span calibration
9. Automatic flame out alarm contact and optional available fuel shut off valve
10. Fast response less than 1 second @ sample inlet
11. Low fuel consumption @ 100% or 40/60 mixed fuel gases
12. Microprocessor PID type temperature controller
13. Cold spot free coupling of a heated sample line inside the heated oven with optional Adapter Plate (Works not with OVE Option)
14. Remote control for sample, zero gas, span gas and back purge is standard
15. Automatic or remote range change optional

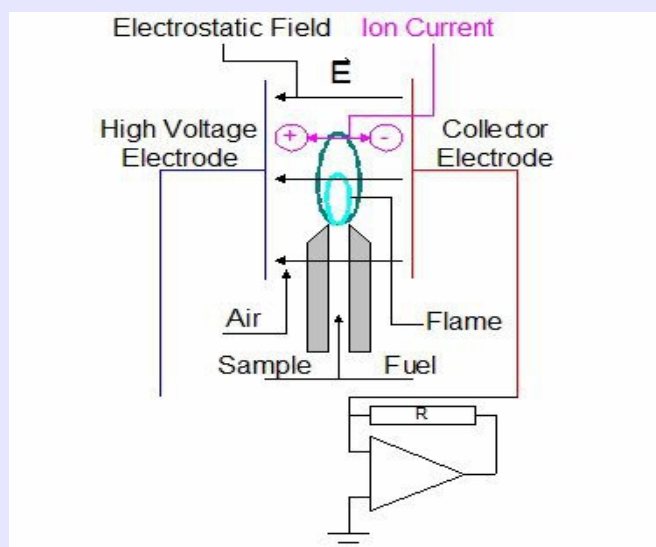
Applications

- Compliance monitoring of source hydrocarbons following European EN 14181/ EN ISO 14659, EN 12619:2013 regulations, US-EPA Method 25A and Method 503
- Stack gas hydrocarbon emissions monitoring
- Vent gas hydrocarbon emissions monitoring
- Fence line (perimeter) monitoring
- Solvent recovery monitor for carbon bed break through
- Catalytic converter and thermal combustion testing
- Carbon adsorption regeneration control
- Measuring engine combustion efficiency
- Raw exhaust vehicle emissions analysis
- Hydrocarbon contamination monitoring in air and other gases
- Detection of trace hydrocarbons in purity gases used in the semi conductor industry
- LEL monitor of solvent laden air

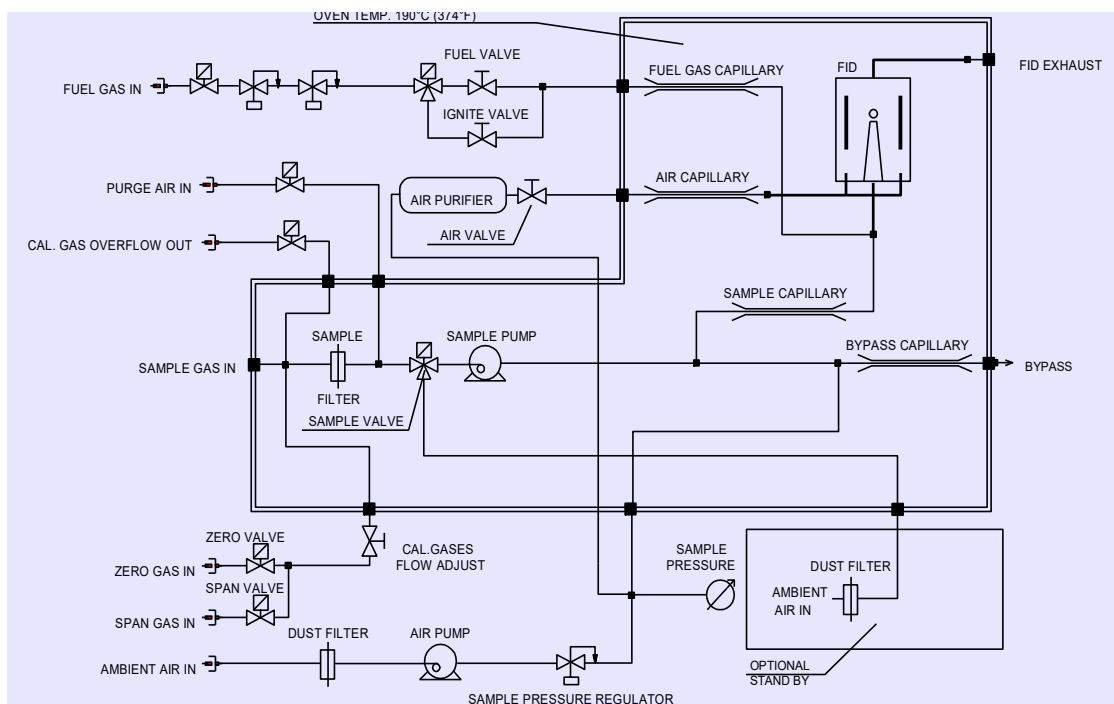
Principle of Operation

The Heated Flame Ionization Detection (HFID) method is used to determine the presence of total hydrocarbon concentrations in gaseous samples. Burning hydrocarbon-free hydrogen in hydrocarbon-free air produces a negligible number of ions in the detector. Once a sample which contains any organic carbon matter is introduced into this flame, a very complex ionization process is started. This process creates a large number of ions. A high polarizing voltage is applied between the two electrodes around the burner nozzle and produces an electrostatic field. Now negative carbon ions migrate to the collector electrode and positive hydrogen ions migrate to the high voltage electrode. The so generated ionization current between the two electrodes is directly proportional to the hydrocarbon concentration in the sample that is burned by the flame. This signal is measured and amplified by a highly sensitive and stable electro-meter-amplifier unit.

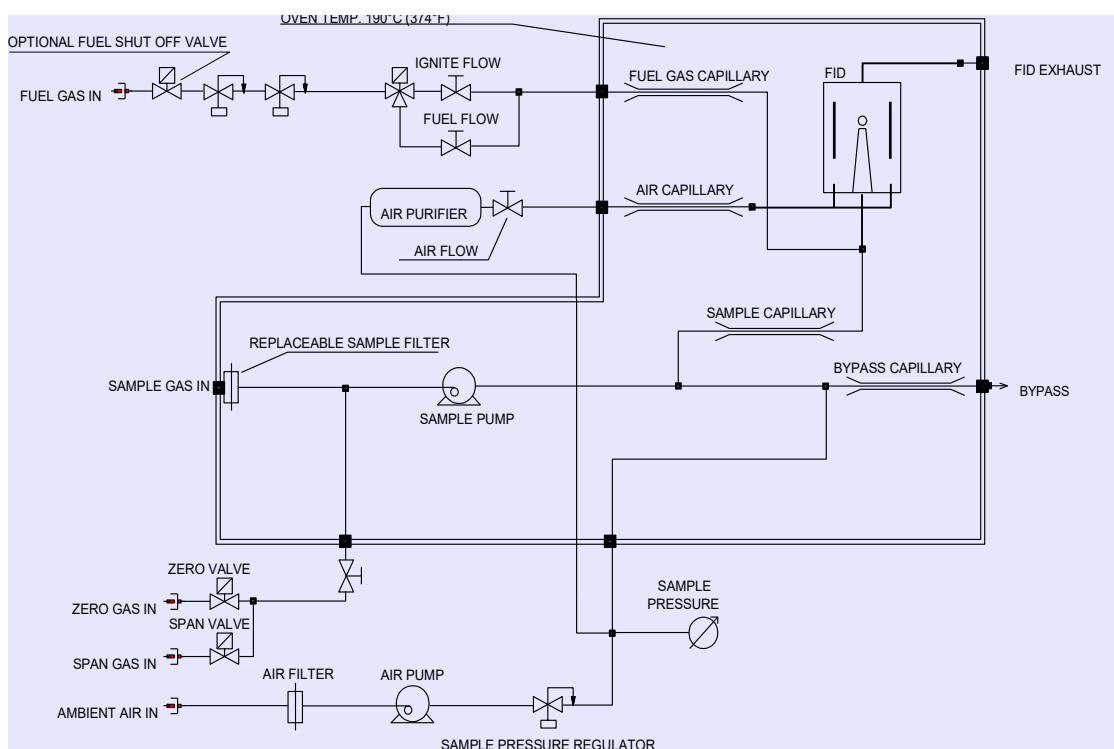
Our proprietary sample pressure regulator provides a controlled sample pressure and flow which gives admittance of a constant sample flow rate to the FID burner. This technique of using our non sample contact regulator is time proven for over 40 years by J.U.M. Engineering to provide the highest possible sample low flow rate stability at the lowest maintenance. Our compactly designed flow control module for fuel, ignition and air flow rates via low thermal mass needle valves use high precision pressure regulators. The needle valves are factory adjusted and sealed to ensure the optimization of the burner.



3-300A HFID Total Gaseous Organic Carbon Analyzer



Complete flow diagram shown with standard back purge sample filter



Complete flow diagram shown with alternative disposable sample filter Option OVE 33

Technical Specifications

Method	Heated Flame Ionization Detector (HFID)
Sensitivity	Max. 1 ppm CH ₄ full scale
Response time	@ sample inlet <0.5 seconds
t₉₀ time	@ sample inlet <1.2 seconds
t₉₀ time including 4X6mm heated sample line	Including heated sample line (7.5m) and sample probe filter filter: less than 8 seconds
Zero drift	<2% full scale / 24h
Span drift	<2% full scale / 24h
Linearity	Up to 10.000 ppm full scale within 1.5%
Oxygen synergism	< 2% FSD
Measuring ranges (ppm)	0-10,100, 1,000, 10,000, 100,000, others on request. Front panel turn switch. Automatic or remote range change optional
Display	6- digit direct reading ppm units. High resolution of 24 bit. Capability to measure 3 overlapping ranges without range change
Signal outputs	0-10 VDC, 4-20 mA, including RS-232 data output
Display	6- digit direct reading ppm units capability to measure 3 overlapping ranges without range change
Total sample flow through Sample filter	2.5 to 2.8 l/min capacity @ operating temp. Permanent 2 micron mesh filter, cleaned by back purge with compressed dry air or N ₂ . Alternatively disposable change filter in rear panel. Option OW 7.
Zero and Span gas	Front panel turn switch select and remote control, gas inlets on rear panel
Zero and span adjust	Manual duo dial on front panel
Fuel gas choice	<ol style="list-style-type: none"> 1. Standard 100% H₂, consumption approx. 20 ml/min 2. Optional 40%H₂/60%He, consumption approximately 90 ml/min 3. Optional 40%N₂/60%He, consumption approximately 90 ml/min
Burner air consumption	Built in burner air supply. No external cylinder air needed. consumption approximately 130 ml/min @ 100% H ₂ fuel gas and approx. 220 ml/min at 40/60 mixed fuel gas
Oven temperature	190°C (374°F)
Temperature control	micro-processor PID controller
Power requirements	230VAC/50Hz, 850 W. 120 VAC/60Hz optional
Ambient temperature	5-43°C (41-110°F)
Dimensions (W x D x H)	19" (483 mm) x 460 mm x 132 mm
Weight	approx. 22 kg (50 lbs)

Available Options

OVE 33	Quick change disposable 2 micron sample filter housed in the heated oven instead of back purge sample filter
OWM 33 ***	Wall or Panel Mount Adapted System allows the analyzer to be installed on a wall, a panel, or inside of an outdoor or safety purged enclosure
AMU 33	Automatic controlled range change with range identification
APO 33	Automatic sample filter pack purge; EXTERNAL, easily programmable back purge timing system for back purge time and purge sequence
AZM 33	Automatic flame ignition and re-ignition
DCC 33	Dual concentration alarm w. individual adjustable thresholds and alarm outputs
ENG 33	6-digit engineering units display 0-100.000 ppm (or others) with RS232 data output. 24 bit resolution allows to digitally measure throughout 2 to 3 measuring ranges without range change
FOAS 33	Flame out control with automatic fuel shut off valve
ICM 33 *	Built-in NMHC Cutter, measure either THC or Methane-Only concentrations with one analyzer
LTO 33	Measurement of low trace hydrocarbon levels. Requires external, zero grade combustion air supply
MBP 33 **	Integrated heated bypass pump for very long sample lines. It also compensates sample pressure fluctuations at sample inlet of up to 2 bar. <i>The MBP Option allows to feed another gas analyzer in series with the FID analyzer (for example NOx). Call for more details.</i>
PDA 33	Sample pressure monitor with alarm
RCA 33	0-20mA analog output instead of 4-20mA
RCC 33	Remote controlled range change with range identification (dry contact)
RCI0 33	0-20 mA analog output, galvanic isolated
RCI4 33	4-20 mA analog output, galvanic isolated
TPR 33	External temperature controller for J.U.M. heated sample lines Model TJ 100 or other with "J" type thermocouple

Important!

1. * ICM cannot be combined with LTO
2. ** MBP cannot be combined with ICM
3. *** When equipped with OWM 33, the analyzer design is upright. The dimensions are (W x D x H) 383 mm (19") x 132 mm x 700 mm

J.U.M.® Engineering GmbH

Gauss-Str. 5, D-85757 Karlsfeld, Germany
 Tel.: 49-(0)8131-50416, Fax: 49-(0)8131-98894
 E-mail: info@jum.com
 Internet: www.jum-aerosol.com

© J.U.M. Engineering 2014/2015
 Print Date: February 2016

Rack Mount/Table Top NMGOC Analyzer

Heated FID 109A

© J.U.M. Engineering 2014/2016

The 109A is a rack mount and table top heated emission analyzer for the continuous / simultaneous determination of the mass concentration of Non Methane Gaseous Organic Carbon using the Dual Flame Ionization Detector method. Throughout the EU the TGOC (TVOC) channel fully with complies with QAL1 (EN 14181-EN ISO 14659) and EN 12619:2013. In the USA full compliance with EPA Method 25A and Method 503



****Low cost of ownership. **Low fuel gas consumption.**
****The combustion air supply for the FID-detector is built in. No external cylinder for synthetic air is needed. **To prevent well known HC hang up (memory effect) and related drifting, the heated sample line can easily be connected inside of the heated oven. This prevents any cold spot and any related HC condensation**

The THC (TVOC) circuit of this analyzer fully complies with QAL1 (EN 14181-EN ISO 14659), with EN 12619:2013 and in USA with EPA Method 25A and Method 503

The J.U.M. Engineering HFID Model 109A is time proven in nearly 20 years. It is a highly reliable and outstandingly rugged 19" rack mount or table top heated NMGC (non methane gaseous organic carbon) analyzer. Built for very low drift, high accuracy, sensitivity and stability. The 109A uses two parallel operating hydrogen flame ionization detectors (FID) in a heated oven to prevent the loss of high molecular weight hydrocarbons and to provide reliable performance in the analysis of high concentrations down to very low trace concentration levels of gaseous organic carbon contaminants in emissions, air and other gases and high purity gases. One of the two sample capillaries is connected in series to a temperature controlled catalyst module. This catalyst oxidizes all hydrocarbons except Methane carbon. Both detectors are connected to two individual electrometer amplifiers. From these two FID signals, total organic gaseous carbon from the detector without the catalyst and methane carbon from the detector with the catalyst, the non methane organic carbon signals is generated via differential calculation Thus resulting in the three continuous simultaneous signals shown on individual front panel displays. Three individual DC voltage and 4-20 mA signals are available in the rear panel plus an optional RS 232 data output per signal. All sample containing parts and components are discretely integrated into the heated chamber. The permanent heated sample filter is cleaned by back purging with compressed air or nitrogen. This allows uninterrupted measurements during cleaning the sample filter. While back purging the sample filter, the external sample line and sample probe is also cleaned. The use of a stack probe filter is not necessary when the FID is used in a stand alone mode. The combustion air supply for the detector is built in. No expensive zero gas generator or external cylinder for synthetic air is needed. The proprietary rear panel sample line adapter-plate system allows cold-spot free coupling of a heated sample line inside of the heated oven without the need of special tools. The fittings can easily be accessed through a wrench port in the right side panel.



Analyzer Features

- Made in Germany
- **1st Sampling Choice:** Maintenance free, permanently installed sample filter back purge system allows filter to be cleaned without dismantling (automatic back purge optional)
- **2nd Sampling Choice:** Disposable sample filter which is easily accessible in the rear panel without special tools. This optional available feature reflects a 20% price advantage.
- All components in contact with sample are fully heated and digitally maintained at 190°C
- Built-In sample pump
- Built-in combustion air supply, no extra burner air bottle needed
- Permanent 2 micron stainless steel wire mesh back purge sample filter or 2 micron disposable sample filter
- "Overflow" calibration system for safe zero and span calibration
- Automatic flame out alarm contact and optional available fuel shut off valve
- Fast response time
- Low fuel consumption @ 100% H₂ or 40/60 mixed fuel gases
- Microprocessor PID type temperature controller
- Cold spot free coupling of a heated sample line inside the heated oven with optional Adapter Plate (not available with OVE Option)
- Remote control for sample, zero gas, span gas and back purge is standard
- Automatic or remote range change optional

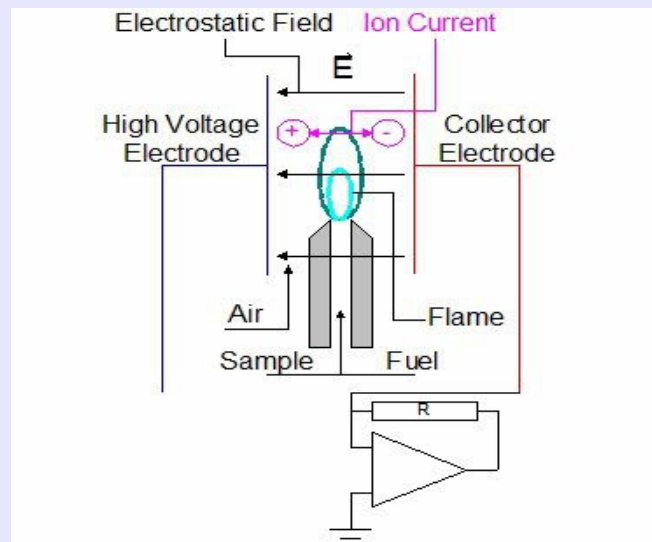
Applications

- Compliance monitoring of source total organic gaseous carbon, methane carbon and non methane organic gaseous carbon and with US EPA Method 25A and US IACA TCM-042
- VOC compliance stack emissions monitoring Industrial printing press dryer systems
- US EPA VOC compliance testing of bakery stack emissions
- Optimizing industrial bakery ovens
- Fence line (perimeter) monitoring
- Solvent recovery monitor for carbon bed break through
- Catalytic converter monitoring/ testing
- Thermal combustor monitoring/ testing
- Carbon adsorption regeneration monitoring and control
- Raw exhaust vehicle emissions analysis
- Hydrocarbon contamination monitoring in air and other gases

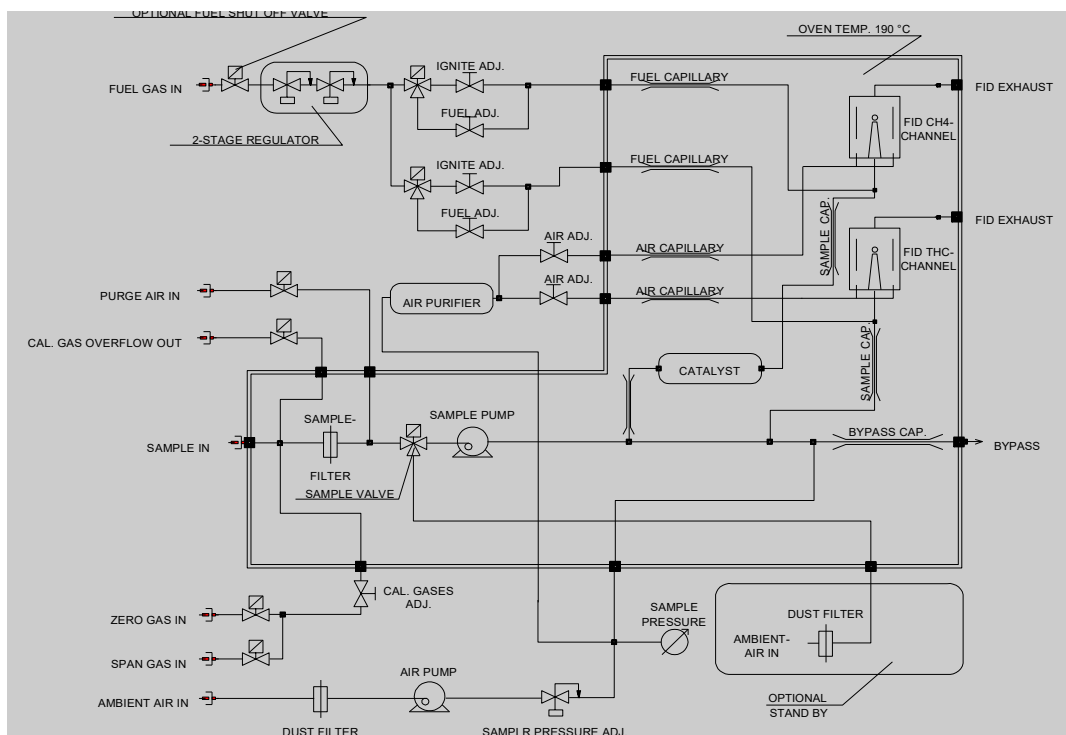
Principle of Operation

The Heated Flame Ionization Detection (HFID) method is used to determine the presence of total organic carbon concentrations in gaseous samples. Two detectors are used in parallel, one for TGOC and one for Methane Carbon (MC). Burning hydrocarbon-free hydrogen in hydrocarbon-free air produces a negligible number of ions in the detector. Once a sample which contains any organic carbon matter is introduced into this flame, a very complex ionization process is started. This process creates a large number of ions. A high polarizing voltage is applied between the two electrodes around the burner nozzle and produces an electrostatic field. Now negative carbon ions migrate to the collector electrode and positive hydrogen ions migrate to the high voltage electrode. The so generated ionization current between the two electrodes is directly proportional to the hydrocarbon concentration in the sample that is burned by the flame. This signal is measured and amplified by a highly sensitive and stable electro-meter-amplifier unit.

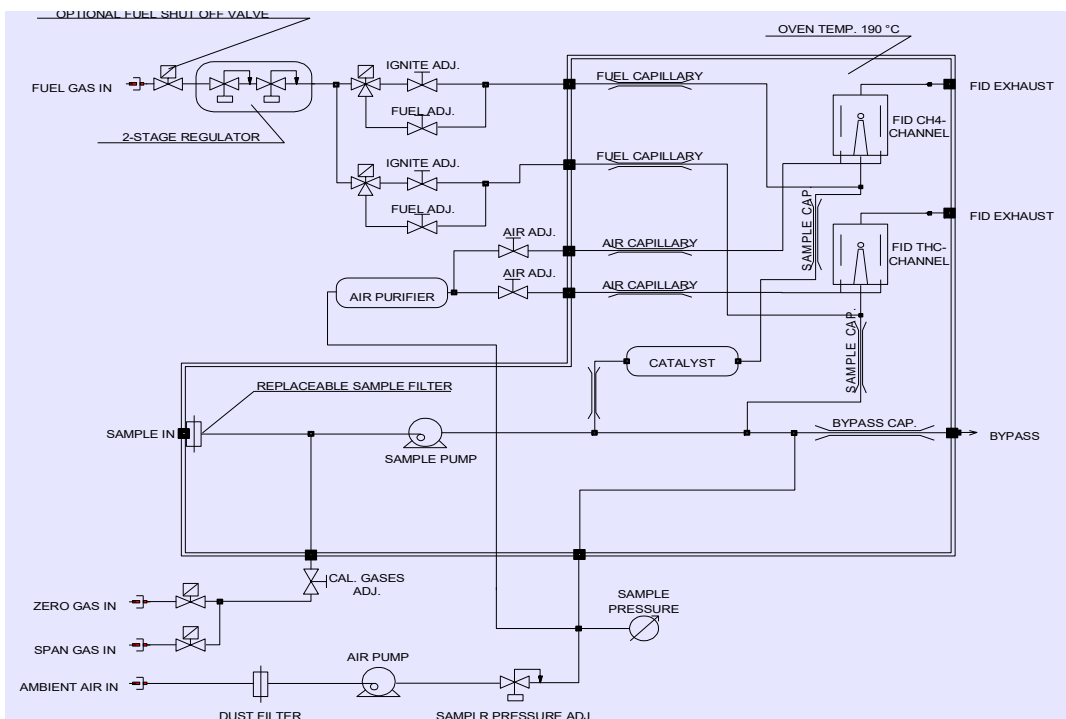
Our proprietary sample pressure regulator provides a controlled sample pressure and flow which gives admittance of a constant sample flow rate to the FID burner. This technique of using our non sample contact regulator is time proven for over 40 years by J.U.M. Engineering to provide the highest possible sample low flow rate stability at the lowest maintenance. Our compactly designed flow control module for fuel, ignition and air flow rates via low thermal mass needle valves use high precision pressure regulators. The needle valves are factory adjusted and sealed to ensure the optimization of the burner.



109A Heated FID Total Continuous Gaseous NMGOC Analyzer



Complete flow diagram shown with standard back purge sample filter



Complete flow diagram shown with alternative disposable sample filter Option OVE 9



Technical Specifications

Method	Dual heated Flame Ionization Detector (HFID) one for TGOC, one for MOC (CH ₄)
Sensitivity	Max. 1 ppm CH ₄ full scale
Response time TGOC	<0.2 seconds @ sample inlet
Response time CH₄	< 15 seconds @ sample inlet
T₉₀ time TGOC	< 1.2 seconds @ sample inlet
T₉₀ time CH₄	< 50 seconds @ sample inlet
Linearity	Up to 10.000 ppm full scale within 1.5%
Oxygen synergism	< 2.5% FSD
Measuring ranges (ppm)	0-10, 100, 1,000, 10,000, 100,000, others on request. Front panel turn switch, automatic or remote control optional
Signal outputs	One each 0-10 VDC, 4-20 mA, RS-232 data output for TGOC, MGO and NMGOC and
Display	6- digit direct reading ppm units capability to measure 3 overlapping ranges without range change
Total sample flow through	2.5 to 2.8 l/min capacity @ operating temp.
Sample filter	Permanent 2 micron mesh filter, cleaned by back purge with compressed dry air or N ₂ . Alternatively disposable change filter in rear panel. Option OVE 9
Zero and Span gas	Front panel switch selectable and remote control, gas inlets on rear panel
Zero and span adjust	Manual duo dials on front panel
Fuel gas choice	<ol style="list-style-type: none"> 1. Standard 100% H₂, consumption approx. 40 ml/min 2. Optional 40%H₂/60%He, consumption approximately 180 ml/min 3. Optional 40%N₂/60%He, consumption approximately 180 ml/min
Burner air consumption	Built in burner air supply. No external cylinder air needed. consumption approximately 260 ml/min. At 40/60 mixed fuels. Air consumption is approx. 450 ml/min
Oven temperature	190°C (374°F)
Temperature control	micro-processor PID controller
Power requirements	230VAC/50Hz, 900 W. 120 VAC/60Hz optional
Ambient temperature	5-43°C (41-110°F)
Dimensions (W x D x H)	19" (483 mm) x 460 mm x 221 mm
Weight	approx. 24 kg (50 lbs)

Available Options

OVE 9	Quick change, disposable 2 micron sample filter housed in the heated oven in stead of back purge sample filter (A 20% Price Advantage)
OWM 9 *	Wall or panel mount adapted system allows the analyzer to be installed on a wall, a panel, or inside of an outdoor or safety purged enclosure. Includes extractive FID exhaust. Only available on special request.
AMU 9	Automatic controlled range change with range identification
APO 9	Automatic sample filter pack purge; Internal, easily programmable back purge timing system for back purge time and purge sequence sequence
AZM 9	Automatic flame ignition and re-ignition
ENGA 9	6-digit engineering units display 0-100.000 ppm (or others) with RS232 data output. 24 bit resolution allows to digitally measure throughout 2 to 3 measuring ranges without range change
FOAS 9	Flame out control with automatic fuel shut off valve
MBP 9	Integrated bypass pump for very long sample lines, also compensates sample pressure fluctuations at sample inlet. Not available with PDA option
PDA 9	Sample pressure monitor with alarm
RCC 9	Remote controlled range change with range identification (dry contact)
RCI4 9	4-20 mA analog output, galvanic isolated
RCIO 9	0-20 mA analog output, galvanic isolated
TPR 9	External temperature controller for J.U.M. heated sample lines TJ 100 or other brand with "J" type thermocouple

Important! * When equipped with OWM option the analyzer design is to be mounted upright with all gas and electrical connections on top. The dimensions are (W x D x H) 383 mm (19") x 221 mm x 700 mm

J.U.M.® Engineering GmbH

Gauss-Str. 5, D-85757 Karlsfeld, Germany
 Tel.: 49-(0)8131-50416, Fax: 49-(0)8131-98894
 E-mail: info@jum.com
 Internet: www.jum-aerosol.com

1st Published: Nov. 2014, Print: March 2016



GMS800 FIDOR® TOTAL HYDROCARBON ANALYZER

CONTINUOUS MONITORING OF HYDROCARBON EMISSIONS

Gas Analyzers

SICK
Sensor Intelligence.

SOLUTION FOR CONTINUOUS HYDROCARBON MEASUREMENTS



The compact GMS800 FIDOR® extractive gas analyzer is the solution for continuous hydrocarbon measurements. Both the standalone and the integrated system versions combine rugged design, ease of operation, precision measuring, and modern interfaces to achieve very high availability of 99.5 %. This means more reliability and better measurement certainty when monitoring emissions of total hydrocarbon concentrations. Where operating costs are concerned, the GMS800 FIDOR® features low consumption of hydrogen as its fuel gas, compact dimensions, and maintenance-free ejector pump. The modular and simple construction inside the device allow for easy maintenance and servicing.

High measurement certainty

The GMS800 FIDOR continuously measures hydrocarbon concentrations – without any moving parts featuring in the design of the analyzer. Wear and mechanical failures are not an issue. Another plus is that the ejector pump for the sample gas is maintenance-free. Stable measurement certainty is assured in the long term. The very high availability (99.5 %) of the hydrocarbon analyzer is a major factor in this regard. The GMS800 FIDOR can be relied upon to deliver valid measured values at all times.

Minimum maintenance required

The GMS800 FIDOR has a certified maintenance interval of three months. Achieved due to the durability of the device, resulting in low cost of ownership.

High operational safety

The GMS800 FIDOR is also capable of operation in an extended process gas pressure range of ± 120 mbar. Protective filters at all gas inlets provide increased protection against contamination and failure. As a result, the GMS800 FIDOR is able to achieve high levels of operational safety.

Combining user-friendliness with convenient remote operation

As standard, the basic control unit (BCU) for the GMS800 FIDOR is available directly on the device. Retrieving measured values or remote diagnosis can be carried out quickly and conveniently via optional remote control using SOPAS ET software.

Cost-effective measuring

The GMS800 FIDOR uses hydrogen for fuel gas and, at 30 ml/min (typical), consumption is low. An expensive hydrogen/helium mixture is not required. All this combined makes for efficient measuring.

Fully tested for suitability inline with EN 15267-3

Having passed EN 15267-3 suitability testing and boasting outstanding performance figures, the GMS800 FIDOR guarantees availability of 99.5 %. The certification is valid for the entire system including analyzer, probe, heated sample gas inlet, and catalytic converter.

Versions: GMS800 FIDOR



GMS810 FIDOR: 19" design with integrated basic control unit (BCU)

In the compact 19" design, the GMS810 FIDOR with integrated basic control unit (BCU) features a user interface menu with password protected access to all relevant settings and diagnosis functions.



GMS811 FIDOR: 19" design with external basic control unit (BCU)

The GMS811 FIDOR comprises the 19" housing and the separate basic control unit (BCU). The BCU can be set up separately as a complete external unit including I/O signals and interfaces for convenient control and monitoring of the analyzer locally (in a maintenance control room, for example).



GMS840 FIDOR: wall housing (stand-alone) with integrated basic control unit (BCU)

The space-saving wall housing model GMS840 FIDOR for stand-alone operation. Enclosure rating class IP54 with purge gas and pneumatic hydrogen shutoff.

SOLUTION FOR CONTINUOUS HYDROCARBON MEASUREMENTS



Product description

A member of the innovative GMS800 analyzer family, the GMS800 FIDOR extractive gas analyzer is ideally suited for emission monitoring according to regulatory requirements (in waste incinerators, cement and/or power plants, for example). Based on the proven flame ionization detection principle, the GMS800 FIDOR measures total hydrocarbon concentrations in gases at both trace levels and high concentration

levels. The GMS800 FIDOR is available in three versions: the GMS810 FIDOR with integrated control unit (BCU), the GMS811 FIDOR with separate control unit (BCU) and the GMS840 FIDOR with a space-saving wall housing. The housing makes stand-alone operation and the integration into existing systems such as SICK's MCS100 E HW multi-component analyzer very easy.

At a glance

- Standard 19" housing for easy integration into typical industrial systems
- Space-saving wall housing (stand-alone)
- Virtually maintenance-free ejector pump for conveying sample gas
- Internal catalytic converter (option) for cleaning zero gas and combustion air
- Protective filter at sample gas inlet
- Automatic regulation and compensation of in-process pressure fluctuations
- High degree of linearity ($\leq 2\%$) for very low through high measuring ranges
- Suitability tested according to EN 15267 and EN 14181

Your benefits

- High availability (99.5 %)
- Convenient remote diagnosis and operation via ethernet using SOPAS-ET software
- Minimum maintenance costs due to the absence of moving parts
- Replacement of complete assemblies and modules makes repairs easy
- Compatible with predecessor systems
- Hydrogen as fuel gas, expensive helium is not required
- Low operating costs, e.g., due to low hydrogen consumption
- (typical 30 ml/min)
- The GMS811 FIDOR, on which the control unit (BCU) can be separated from the analyzer unit, supports convenient control and monitoring from a central control room.



Additional information

Fields of application	5
Detailed technical data	5
Ordering information	8
Dimensional drawings	8
Connection type	11

→ www.mysick.com/en/GMS800_FIDOR
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.

Fields of application

- Continuous monitoring of hydrocarbon emissions in raw gas and clean gas
- Emissions measurement in thermal, catalytic, and biological exhaust gas cleaning systems
- Measurement of maximum workplace concentrations
- Process monitoring in process systems
- Laboratory applications, e.g., in research and development

Detailed technical data

System

Sample quantity	≤ 120 l/h
Process temperature	≤ +230 °C
Process pressure	–120 hPa ... 120 hPa Relative
Process gas humidity	Non-condensing
Ambient temperature	+5 °C ... +40 °C
Storage temperature	–20 °C ... +70 °C
Ambient pressure	900 hPa ... 1,100 hPa
Ambient humidity	≤ 95 % Non-condensing
Electrical safety	CE
Electrical connection	
Voltage	90 ... 240 V
Frequency	47 ... 63 Hz
Power consumption	≤ 450 W:
Auxiliaries	
Instrument air:	≤ 1,000 l/h Instrument air: 4±0.2 bar; particle size max. 1 µm; oil content max. 0.1 mg/m³; pressure condensation point max. –40 °C
Fuel gas:	Typical 30 ml/min Hydrogen: 5.0 or higher; 3±0.2 bar
Combustion air:	Typ. 250 ml/min Instrument air: 3±0.2 bar; measuring ranges below 300 ppm (500 mg/m³) require an internal or external catalytic converter
Zero gas:	≤ 500 l/h Instrument air: 3±0.2 bar; measuring ranges below 300 ppm (500 mg/m³) require an internal or external catalytic converter
Reference gas:	≤ 500 l/h Propane in synthetic air: 75 % of measuring range final value; 3±0.2 bar
Purge gas:	> 1.200 l/h Air for purging enclosure
Corrective functions	Adjustment with test gases
Test functions	Extended device diagnosis with SOPAS ET software
Scope of delivery	The scope of delivery depends on application and customer specifications

Design GMS810

Description	19" rack housing with 4 rack units, for integration in cabinets
Enclosure rating	IP 40
Dimensions (W x H x D)	483 mm x 177 mm x 485 mm (for details see dimensional drawing)
Weight	≤ 17 kg
Power supply	≤ 17 kg
Voltage	90 ... 240 V
Frequency	47 ... 63 Hz
Power consumption	≤ 450 W
Sample connections	Sample gas inlet: G 1/4"; G 1/8" double, no protection against kinking; G 1/8" no protection against kinking Exhaust gas outlet: 12 mm straight; 1/2" straight; 10 mm 90° bent
Auxiliary connections	Auxiliary gas inlet: Varies depending on type

Design GMS811

Description	19" rack housing with 4 rack units, for use with separate control unit (BCU), for integration in cabinets
Enclosure rating	IP 40
Dimensions (W x H x D)	483 mm x 177 mm x 352 mm (for details see dimensional drawing)
Weight	≤ 17 kg
Power supply	≤ 17 kg
Voltage	90 ... 240 V
Frequency	47 ... 63 Hz
Power consumption	≤ 450 W
Sample connections	Sample gas inlet: G 1/4"; G 1/8" double, no protection against kinking; G 1/8" no protection against kinking Exhaust gas outlet: G 1/4"; G 1/8" double, no protection against kinking; G 1/8" no protection against kinking
Auxiliary connections	Auxiliary gas inlet: Varies depending on type

Design GMS840

Description	Closed steel sheet housing for wall mounting for use indoors
Enclosure rating	IP 54
Dimensions (W x H x D)	522 mm x 475 mm x 478 mm (for details see dimensional drawing)
Weight	20 kg
Power supply	≤ 17 kg
Voltage	90 ... 240 V
Frequency	47 ... 63 Hz
Power consumption	≤ 450 W
Sample connections	Sample gas inlet: screw-in fittings, 6 mm, G1/8", stainless steel Exhaust gas outlet: G 1/4"
Auxiliary connections	Varies depending on type

Analyzer unit FIDOR

Description	Flame ionization detector for measuring volatile organic components (VOC)
Measuring components	Total carbon (C_{org})
TÜV-approved measured values	Total carbon (C_{org})
Measurement principle	Flame ionization detection
Sample quantity	≤ 120 l/h
Measuring ranges	C_{org} 0 ... 0.6 ppm / 0 ... 62,000 ppm A flame arrester must be provided by the customer when measuring gas concentrations above the lower explosion limit (LEL).
Certified measuring ranges	C_{org} 0 ... 15 mg/m ³ / 0 ... 50 mg/m ³ / 0 ... 150 mg/m ³ / 0 ... 500 mg/m ³
Response time	≤ 2.5 s No sample gas line
Sensitivity drift	< 3 % within the maintenance interval, relative to measuring range final value
Zero point drift	< 3 % within the maintenance interval, relative to measuring range final value
Detection limit	C_{org} : 0.05 mg/m ³
Electrical safety	CE

Basic control unit BCU

Description	The control unit serves as the user interface and is responsible for data processing and output as well as control and monitoring functions.
Display	Status LEDs: "Power", "Maintenance", and "Fault" LC display
Operation	Via LC display and membrane keyboard
Dimensions (W x H x D)	375 mm x 275 mm x 66 mm (with separate control unit (BCU); for details see dimensional drawings)

I/O module

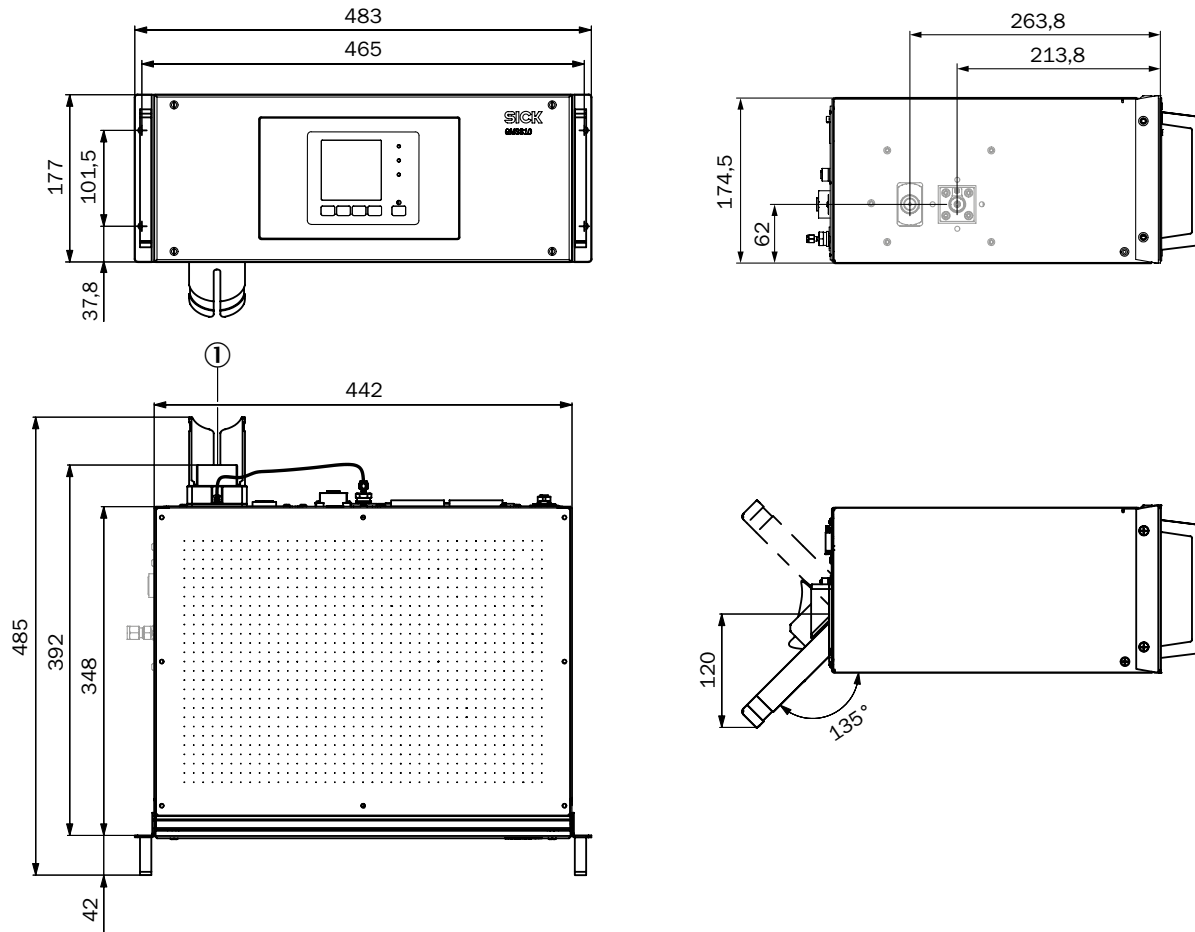
Description	Closed module with top-hat rail adapter or open module for integration into housing
Analog outputs	4 outputs: 0/2/4 ... 20 mA, 500 Ω Galvanically isolated
Analog inputs	2 outputs: 0/2/4 ... 20 mA, 500 Ω Not galvanically isolated
Digital inputs	8 inputs: 42 V All inputs with common reference potential
Modbus	✓
Type of fieldbus integration	TCP RTU RS-485
Ethernet TCP/IP	✓
Function	Connection to SOPAS ET software or OPC server

Ordering information

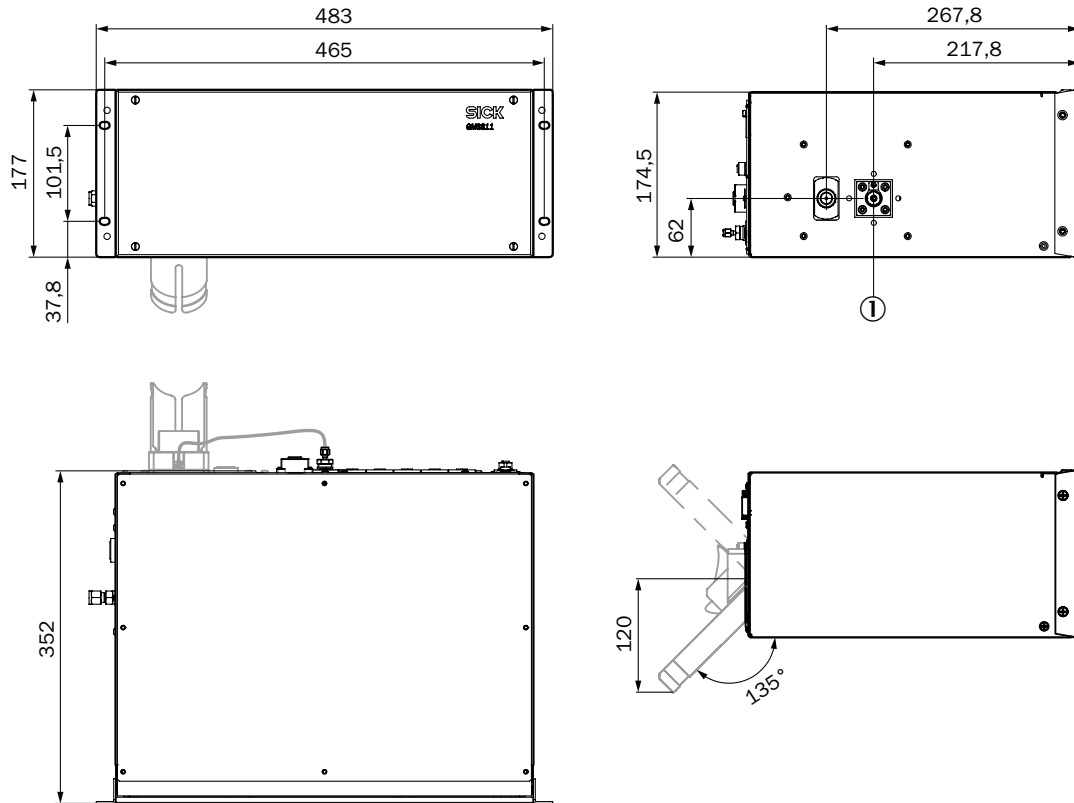
Our regional sales organization will help you to select the optimum device configuration.

Dimensional drawings (Dimensions in mm)

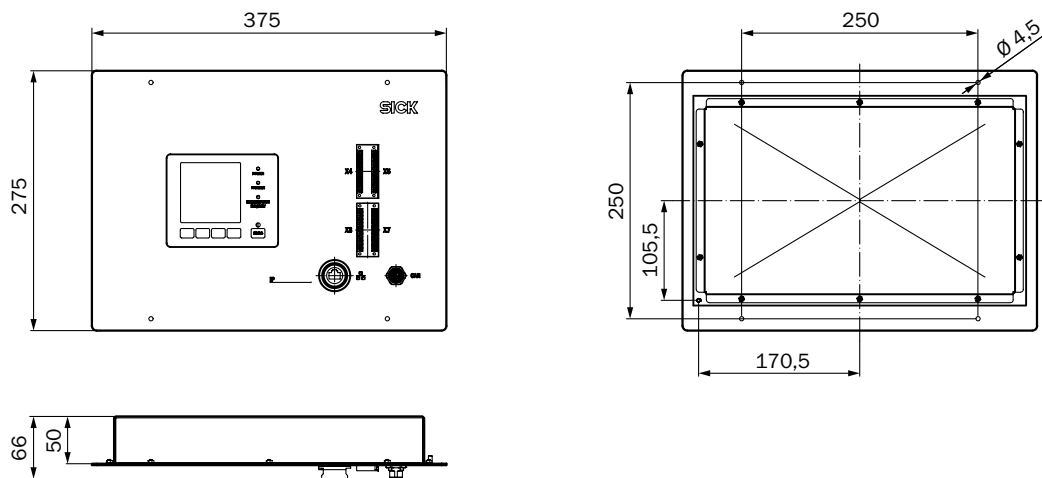
GMS810 FIDOR



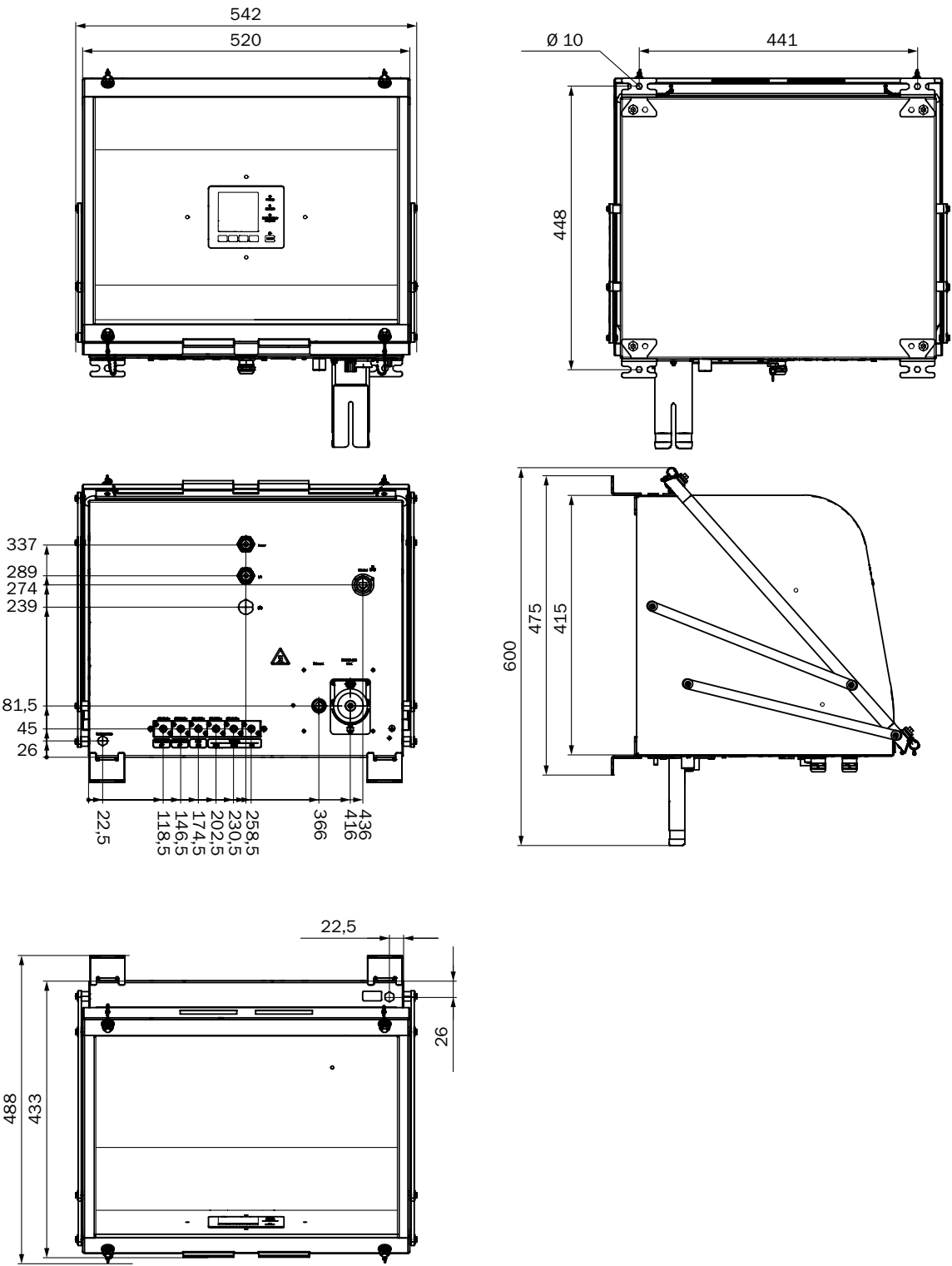
① On the GMS810 FIDOR, the sample gas inlet can be located on the rear or on the side (shown in light grey).

GMS811 FIDOR

① On the GMS811 FIDOR, the sample gas inlet can be located on the side or on the rear (shown in light grey).

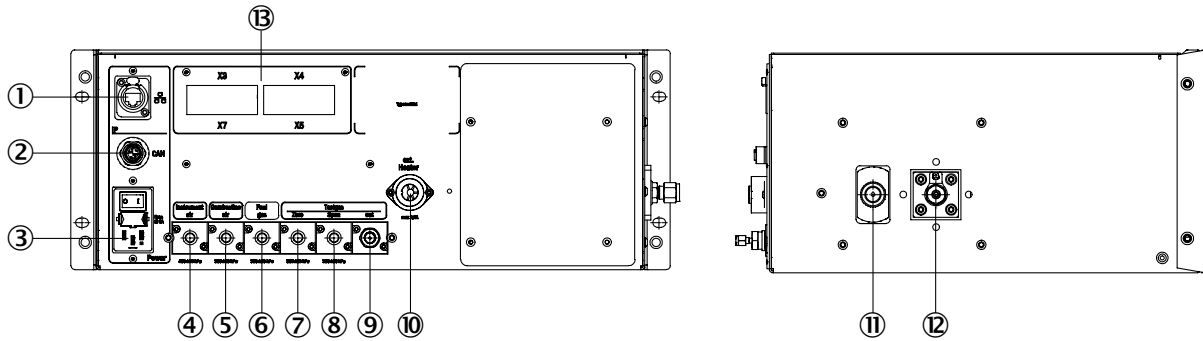
Control unit (BCU)

GMS840 FIDOR



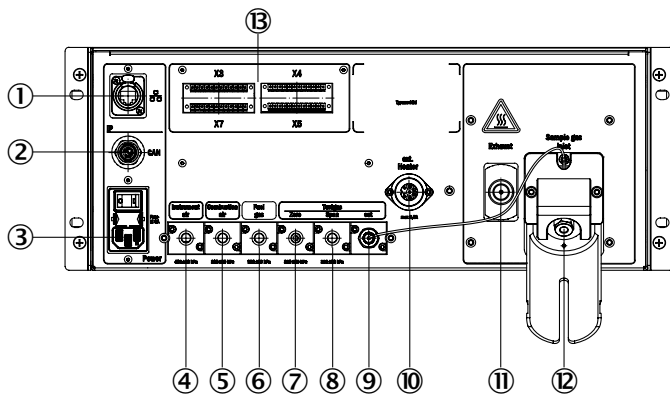
Connection type

GMS810 FIDOR and GMS811 FIDOR: sample gas inlet on the side



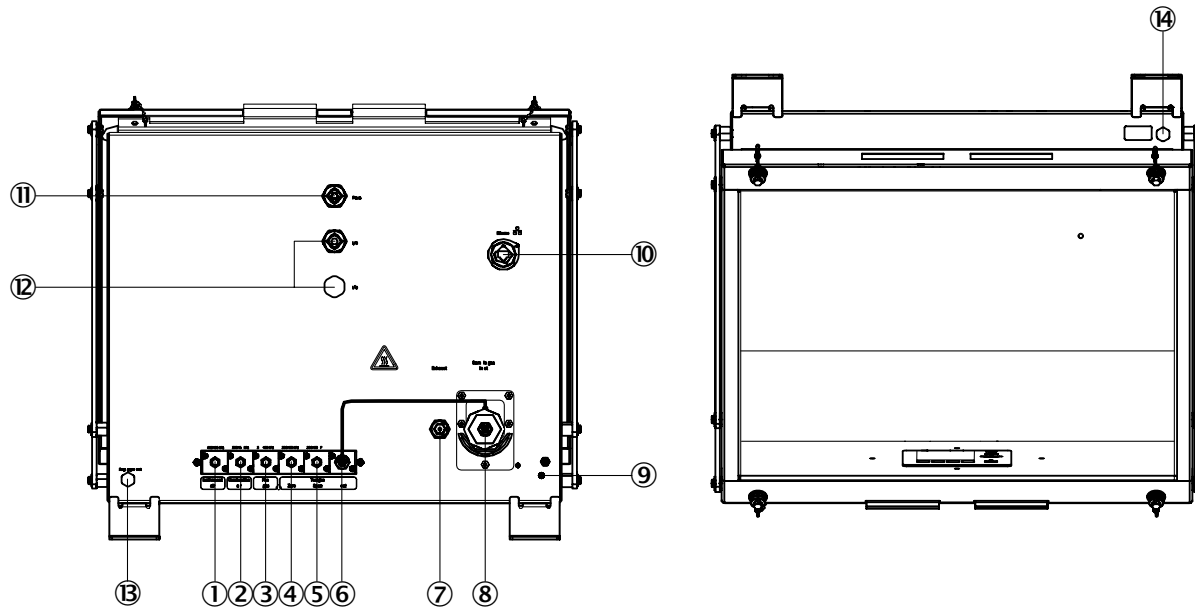
- ① Ethernet
- ② CAN
- ③ Line connection
- ④ Instrument air
- ⑤ Combustion air
- ⑥ Fuel gas
- ⑦ Zero gas
- ⑧ Reference gas
- ⑨ Test gas outlet
- ⑩ External heating
- ⑪ Exhaust gas outlet
- ⑫ Sample gas inlet
- ⑬ I/O module

GMS810 FIDOR and GMS811 FIDOR: sample gas inlet on the rear



- ① Ethernet
- ② CAN
- ③ Line connection
- ④ Instrument air
- ⑤ Combustion air
- ⑥ Fuel gas
- ⑦ Zero gas
- ⑧ Reference gas
- ⑨ Test gas outlet
- ⑩ External heating
- ⑪ Exhaust gas outlet
- ⑫ Sample gas inlet
- ⑬ I/O module

GMS840 FIDOR

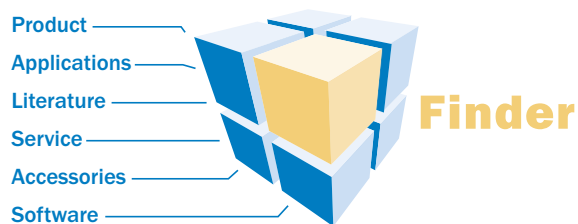


Top view (left) and bottom view (right)

- ① Instrument air
- ② Combustion air
- ③ Fuel gas
- ④ Zero gas
- ⑤ Reference gas
- ⑥ Test gas outlet
- ⑦ Exhaust gas outlet
- ⑧ Sample gas inlet
- ⑨ PA (protective ground)
- ⑩ I/O module
- ⑪ Line connection supply
- ⑫ Ethernet
- ⑬ Air for purging enclosure, input
- ⑭ Air for purging enclosure, output

WWW.MYSICK.COM – SEARCH ONLINE AND ORDER

Search online quickly and safely - with the SICK “Finders”

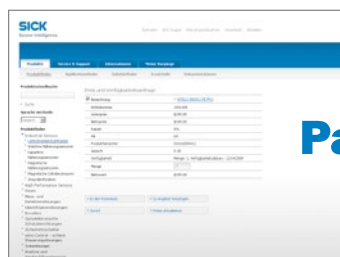


Product Finder: We can help you to quickly target the product that best matches your application.

Applications Finder: Select the application description on the basis of the challenge posed, industrial sector, or product group.

Literature Finder: Go directly to the operating instructions, technical information, and other literature on all aspects of SICK products.

Efficiency – with the E-Commerce-Tools from SICK



Find out prices and availability

Determine the price and possible delivery date of your desired product simply and quickly at any time.

Request or view a quote

You can have a quote generated online here. Every quote is confirmed to you via e-mail.

Order online

You can go through the ordering process in just a few steps.

FOR SAFETY AND PRODUCTIVITY: SICK LIFETIME SERVICES

SICK LifeTime Services is a comprehensive set of high-quality services provided to support the entire life cycle of products and applications from system design all the way to upgrades. These services increase the safety of people, boost the productivity of machines and serve as the basis for our customers' sustainable business success.



Consulting & Design

Globally available experts for cost-effective solutions



Product & System Support

Fast and reliable, by telephone or on location



Verification & Optimization

Checks and recommendations for increased availability



Upgrade & Retrofits

Uncovers new potential for machines and systems



Training & Education

Employee qualification for increased competitiveness

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 7,400 employees and over 50 subsidiaries and equity investments as well as numerous agencies 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.

Comprehensive services round out our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations → www.sick.com



EUROFID3010 TOTAL HYDROCARBON ANALYZER

Continuous monitoring of the lower explosion limit (LEL)

Extractive gas analyzers

SICK
Sensor Intelligence.

Specialist for the measurement of the lower explosion limit (LEL) of total hydrocarbons

The EuroFID3010 total hydrocarbon analyzer is the specialist for the continuous monitoring of the lower explosion limit (LEL) of hydrocarbon mixtures. The integrated sample gas dilution, short response time, and design with no moving parts ensure high availability and, above all, fast and reliable information about your process. The EuroFID3010 is modular and can be configured in a system consisting of the following components: analyzer unit, control unit, and terminal box. Additional options, such as the Ex 1 industrial enclosure, enable the system to be adapted to handle challenging tasks.

The EuroFID3010 from SICK is approved as a gas warning device in accordance with the latest version of the EN 50271:2010 standard.



Quick availability

The EuroFID3010 is attached directly to the plant via a flange. The sampling pipe extends directly into the process chamber. The fast supply of sample gas through the ejector pump and the measurement principle of the EuroFID3010 ensure a short response time (T_{90}), allowing you to detect changes in the process very quickly and react to them accordingly.

No moving parts

The EuroFID3010 measures continuously and has no moving parts. An ejector pump is used instead of a mechanical pump to supply the sample gas. Wear and mechanical failures are not an issue. This results in lower maintenance costs (low cost of ownership).

Heating

All of the parts of the device that come into contact with gas, including the analysis chamber, are heated, which prevents condensation from forming inside the analyzer unit.

Integrated dilution

The sample gas is diluted using the ejector principle, enabling measurements of gas mixtures which would solidify if left undiluted to be taken. Dilution also allows high concentrations to be measured.

Adaptation to process conditions

The EuroFID3010 offers various options as a system. These include the industrial enclosure for Ex and non-Ex applications, the process gas lock-out, and the flexible positioning of the control unit at a distance of up to 500 m from the analyzer unit.

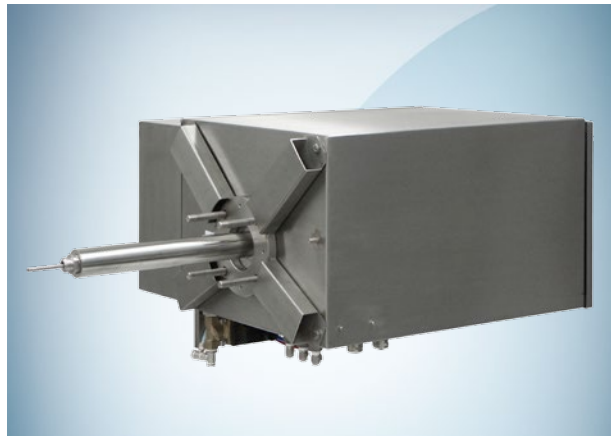
EC type examination according to Directive 94/9/EC

The EuroFID is approved as a fixed gas warning device for measuring combustible gases and vapors mixed together with air. The measuring range is from 0 to 100% of the LEL. Type examination certificate: BVS 05 ATEX G 005 X.

Versions of the EuroFID3010



Analyzer unit with control unit and terminal box



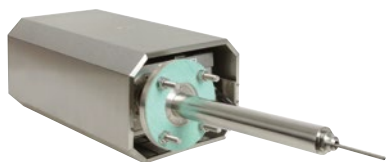
Version in industrial enclosure for Ex Zones 1 and 2

The inline version of the analyzer unit is installed directly in the process via the flange. The terminal box supplies the power to the analyzer unit. The control unit can be installed at a distance of up to 500 m from the analyzer unit. It provides a display and offers the option to enter parameters and output measured values.

The EuroFID can be installed in Ex Zones 1 and 2 by

using the Ex 1 industrial enclosure. In this case, the terminal box is located in the enclosure along with the analyzer unit. The system can be fitted with an air conditioning unit. The control unit is installed in a safe area at a distance of up to 500 m from the analyzer unit.

RELIABLE LEL MONITORING IN PROCESSES



Product description

The EuroFID3010 total hydrocarbon analyzer is a heated flame ionization detector for the determination of volatile organic compounds (VOC) in exhaust air and exhaust gas. Typical applications are

LEL monitoring in drying facilities and leak detection for solvent-filled containers. The inline analyzer can be combined with the control unit and terminal box to form a system.

At a glance

- Gas warning device for volatile organic compounds
- Certified according to EN 50271
- Inline version for direct connection to the process
- Enclosure for use in Ex Zones 1 and 2 as an option
- Modular design for flexible installation
- Integrated dilution of sample gas
- All gas paths are heated
- No moving parts

Your benefits

- Early warning thanks to short response time
- Measurement in corrosive gases possible
- No condensation inside the analyzer due to heating and dilution of sample gas
- Low maintenance effort due to wear-resistant design
- Direct mounting at the gas duct possible
- EC type examination as gas warning device according to 94/9/EC



Additional information

Fields of application	5
Detailed technical data.	5
Ordering information.	7
Dimensional drawings	7
Connection types.	10

→ www.mysick.com/en/EuroFID3010

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

Fields of application

- Monitoring of VOC concentration in raw gas prior to exhaust air cleaning systems
- LEL measurement in the production of solvent-based products
- LEL monitoring in coating system dryers
- LEL monitoring of spray booths
- Leak detection in solvent-filled containers

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.

System

Measured values	% LEL
TÜV-approved measurands	% LEL
Measurement principles	Flame ionisation detection
Sample quantity	40 l/h ... 170 l/h
Measuring ranges	
% LEL	0 ... 100 %
Certified measuring ranges	
% LEL	0 ... 100 %
Sensitivity drift	< 3 % of measuring range full scale per month
Zero point drift	< 0.5 % of measuring range full scale per month
Detection limit	< 1.5 % of measuring range full scale
Sample temperature	≤ +350 °C
Process pressure	–50 hPa ... 50 hPa
Process gas humidity	Non-condensing
Ambient pressure	800 hPa ... 1,100 hPa
Ambient humidity	5 % ... 90 % Relative humidity; non-condensing
Conformities	ISO 60079-29-1 EN 50271
Electrical safety	CE, cCSAus
Electrical connection	
Voltage	115 V / 230 V
Frequency	50 Hz / 60 Hz
Power consumption	Analyzer ≤ 230 W BCU operating unit ≤ 400 W Terminal box ≤ 275 W

Analyzer

Description	Analyzer unit of the measuring system
Ambient temperature	0 °C ... +55 °C
Storage temperature	–25 °C ... +70 °C
Ex-approvals	ATEX Standard version: II 2/- G IIB+H2 XXX °C (XXX = 170 ... 220 °C) With industrial enclosure Ex1: II 2 G EEx p IIB+H2 XXX °C (XXX = 170 ... 220 °C)
Enclosure rating	Standard version: IP 22 With industrial enclosure Ex1: IP 65
Dimensions (W x H x D)	275 mm x 210 mm x 887 mm 596 mm x 400 mm x 844 mm (industrial enclosure Ex1)
Weight	< 25 kg Industrial enclosure Ex1: < 56 kg

Electrical connection		Supply via terminal box
Auxiliaries	Fuel gas:	1.3 l/h ... 1.8 l/h Hydrogen 5.0; 3 ±0.3 bar; residual hydrocarbon content < 0.5 ppm
	Instrument air:	360 l/h 4.0 ±0.2 bar; particle size ≤ 1 µm; particle content ≤ 1 mg/m³; oil content ≤ 0.1 mg/m³; water content ≤ 0.12 g/m³ (pressure dew point max. 10 °C below lowest ambient temperature); hydrocarbon content ≤ 4 ppm (≤ 1 % full scale, non-fluctuating)
	Reference gas:	200 l/h Typical consumption during adjustment; 8,000 ppm propane in synthetic air (LEL monitoring) or 80% of measuring range full scale; 3 ±0.3 bar
Auxiliary connections		Compression fitting for 6mm-tubes Compression fitting for 1/4"-tubes (US version)

BCU operating unit

Description	Unit to control the system components and to evaluate and output the data provided by them
Ambient temperature	0 °C ... +40 °C
Storage temperature	-20 °C ... +60 °C
Ex-approvals	ATEX II (2) G
Enclosure rating	IP 20
Analog outputs	2 outputs: 0/4 ... 20 mA, 500 Ω ≤ 36 V Floating
Analog inputs	4 inputs: 0.25 ... 20 V
Digital outputs	7 FET switch: 24 V AC/DC, 100 mA For status signals
Digital inputs	3 floating contacts: 24 V, 10 mA Preset for lack of gas, adjustment lock and maintenance lock
Interfaces	RS-232c (for printer, I/O terminal strip and remote control)
Indication	LC display and status LEDs
Operation	Menu-driven operation via LC-display and membrane keyboard
Dimensions (W x H x D)	213 mm x 173 mm x 320 mm
Weight	≤ 4.5 kg

EuroFID3010 terminal box

Description	Unit for connecting data cables and power supply to the system components; for potentially explosive atmospheres
Ambient temperature	0 °C ... +55 °C
Storage temperature	-25 °C ... +70 °C
Ex-approvals	ATEX II 3 G Ex nR II T4
Enclosure rating	IP 65
Dimensions (W x H x D)	262 mm x 395 mm x 95 mm
Weight	≤ 8 kg

Terminal module V2

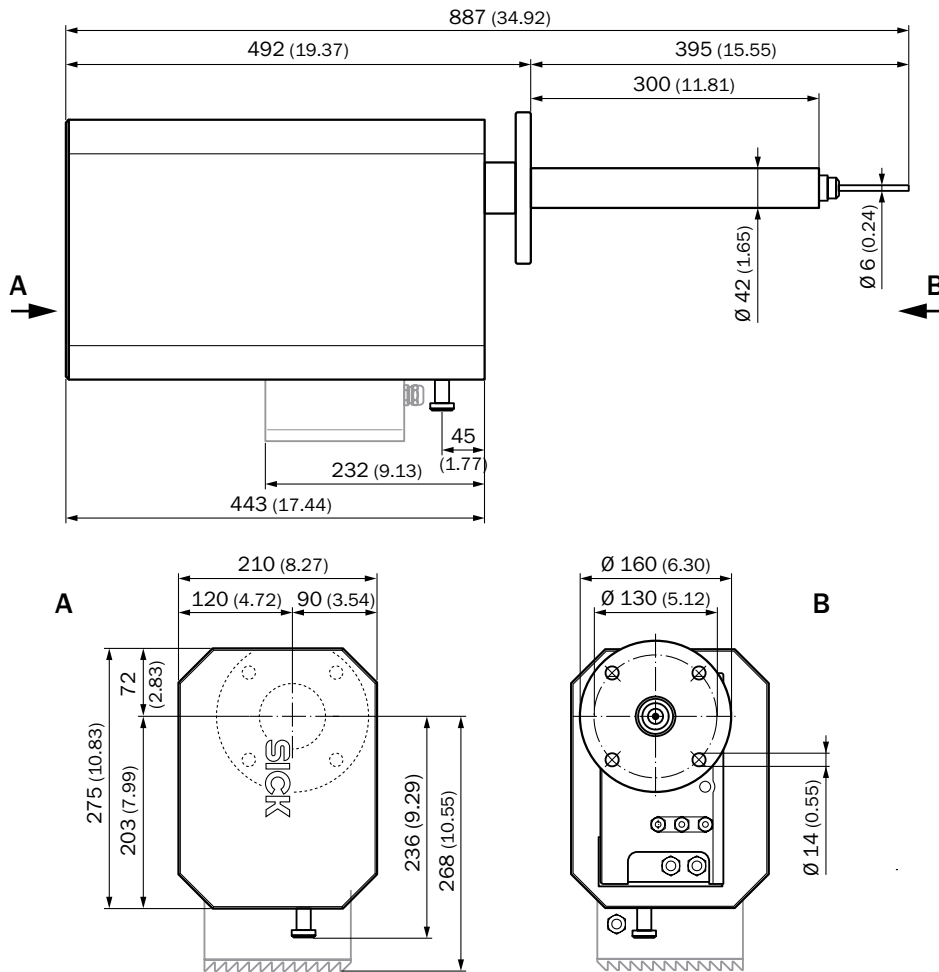
Description	Serves for connection of power supply, data and signal cabelling provided by the customer
Ambient temperature	0 °C ... +40 °C
Storage temperature	-20 °C ... +60 °C
Dimensions (W x H x D)	158 mm x 76 mm x 48 mm
Electrical connection	
Voltage	24
	External power supply according SELV (EN 61140) required

Ordering information

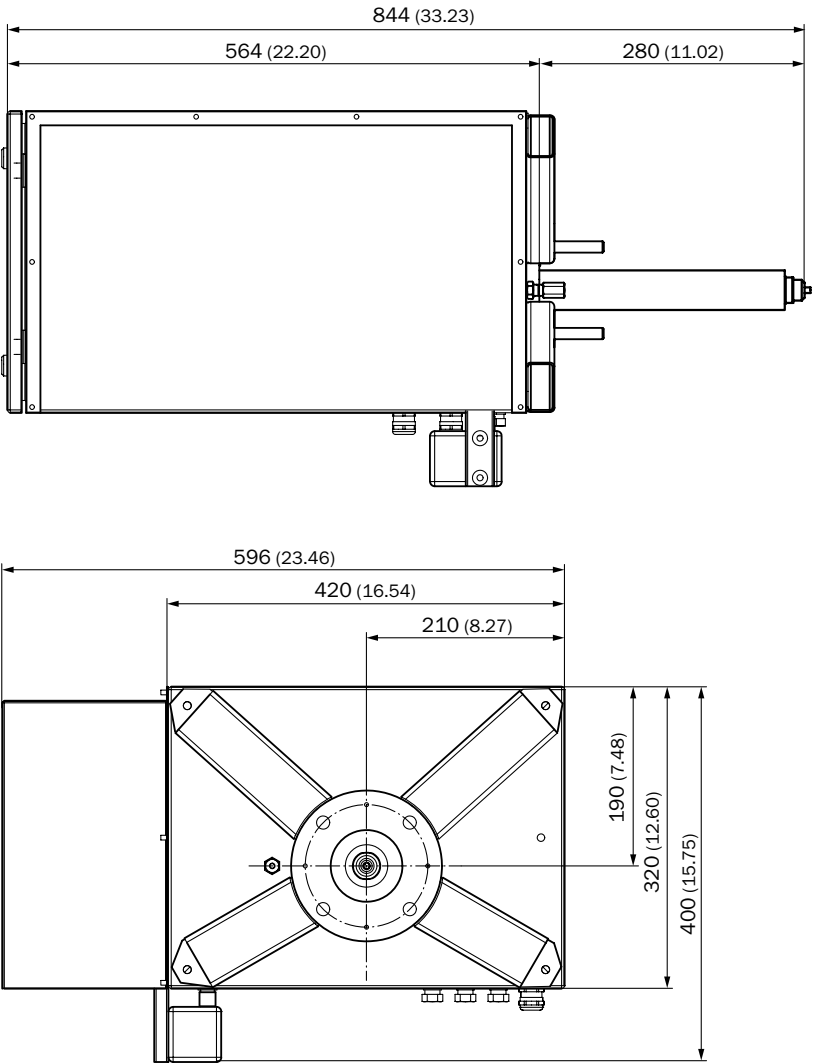
Our regional sales organization will help you to select the optimum device configuration.

Dimensional drawings (Dimensions in mm (inch))

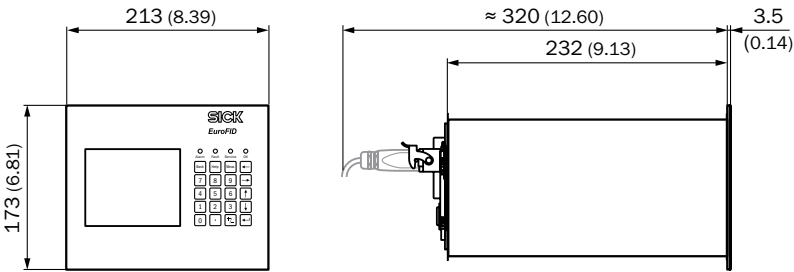
Analyzer unit



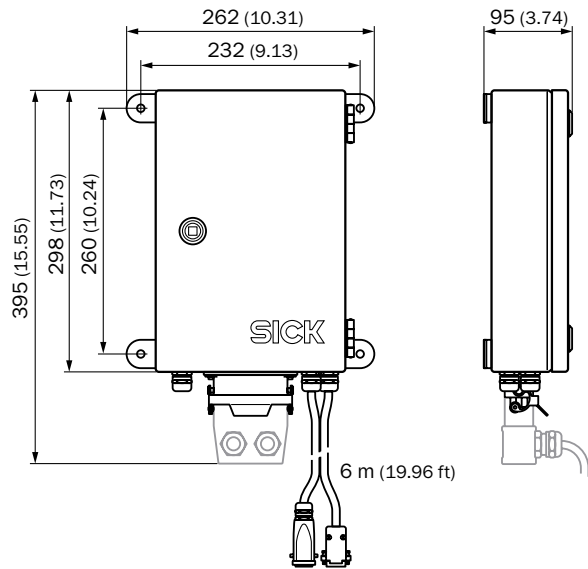
Industrial enclosure Ex1



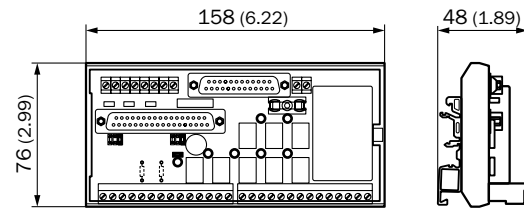
BCU operating unit



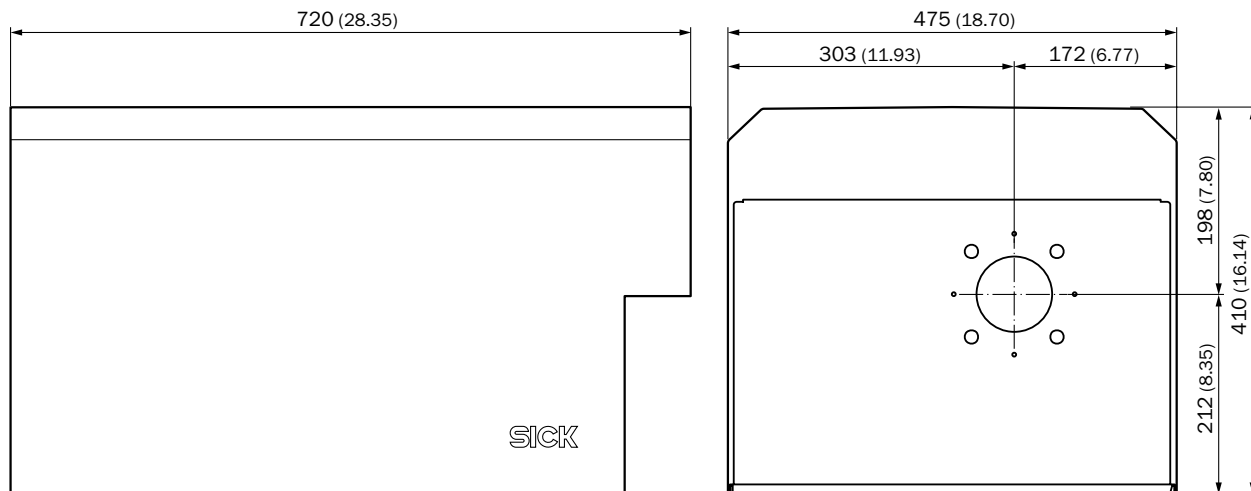
EuroFID3010 terminal box



Terminal module V2

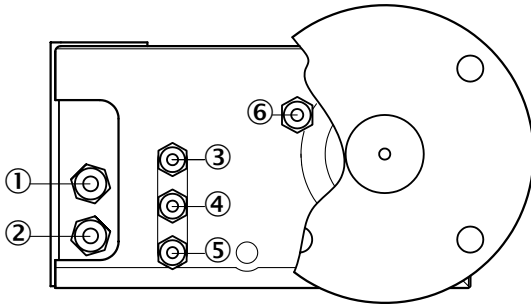


Weather hood for analyzer unit



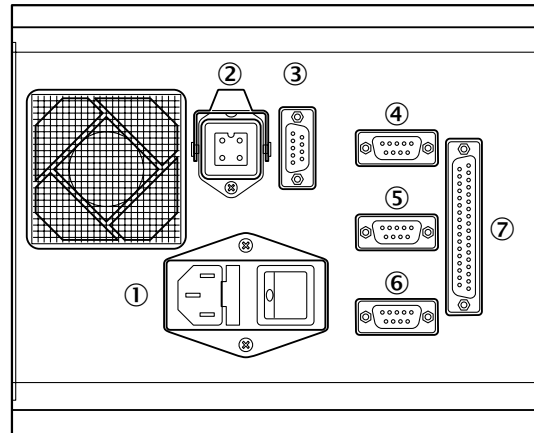
Connection types

Analyzer unit



- ① Data connection
- ② Power supply
- ③ Fuel gas
- ④ Reference gas
- ⑤ Instrument air
- ⑥ Exhaust gas outlet

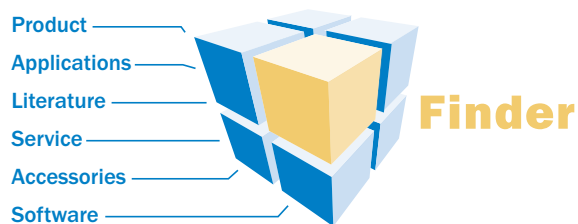
BCU operating unit



- ① Power supply
- ② Analyzer
- ③ Data connection
- ④ System
- ⑤ Printer
- ⑥ RS-232c
- ⑦ I/O (analog and digital)

WWW.MYSICK.COM – SEARCH ONLINE AND ORDER

Search online quickly and safely - with the SICK “Finders”

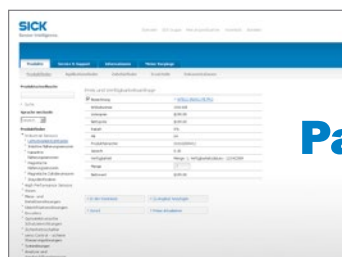


Product Finder: We can help you to quickly target the product that best matches your application.

Applications Finder: Select the application description on the basis of the challenge posed, industrial sector, or product group.

Literature Finder: Go directly to the operating instructions, technical information, and other literature on all aspects of SICK products.

Efficiency – with the E-Commerce-Tools from SICK



Partner Portal
www.mysick.com

Find out prices and availability

Determine the price and possible delivery date of your desired product simply and quickly at any time.

Request or view a quote

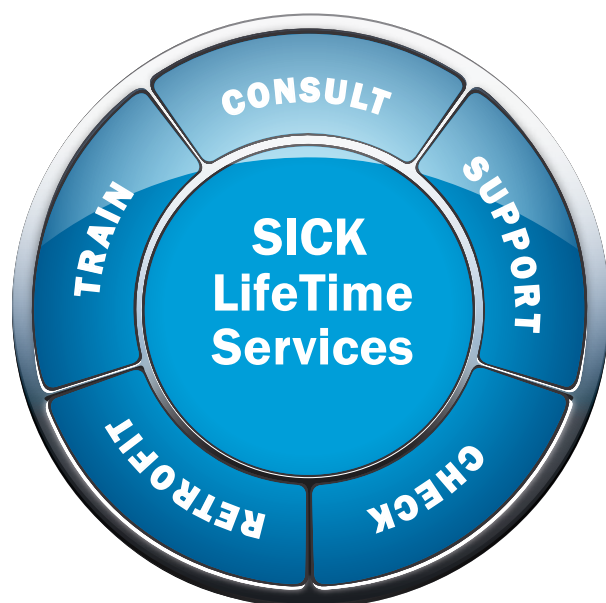
You can have a quote generated online here. Every quote is confirmed to you via e-mail.

Order online

You can go through the ordering process in just a few steps.

FOR SAFETY AND PRODUCTIVITY: SICK LIFETIME SERVICES

SICK LifeTime Services is a comprehensive set of high-quality services provided to support the entire life cycle of products and applications from system design all the way to upgrades. These services increase the safety of people, boost the productivity of machines and serve as the basis for our customers' sustainable business success.



Consulting & Design

Globally available experts for cost-effective solutions



Product & System Support

Fast and reliable, by telephone or on location



Verification & Optimization

Checks and recommendations for increased availability



Upgrade & Retrofits

Uncovers new potential for machines and systems



Training & Education

Employee qualification for increased competitiveness

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for factory, logistics, and process automation. With more than 6,000 employees and over 40 subsidiaries 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.

Comprehensive services round out our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

Worldwide presence:

Australia, Austria, Belgium/Luxembourg, Brazil, Czech Republic, Canada, China, Denmark, Finland, France, Germany, Great Britain, Hungary, India, Israel, Italy, Japan, Mexico, Netherlands, Norway, Poland, Romania, Russia, Singapore, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, United Arab Emirates, USA

Please find detailed addresses and additional representatives and agencies in all major industrial nations at: www.sick.com