



MCS100 FT FTIR Multi-component Analysis System

Effective HF limit value monitoring
Carefree package through reliable measuring technology
One monitor for most gaseous emissions

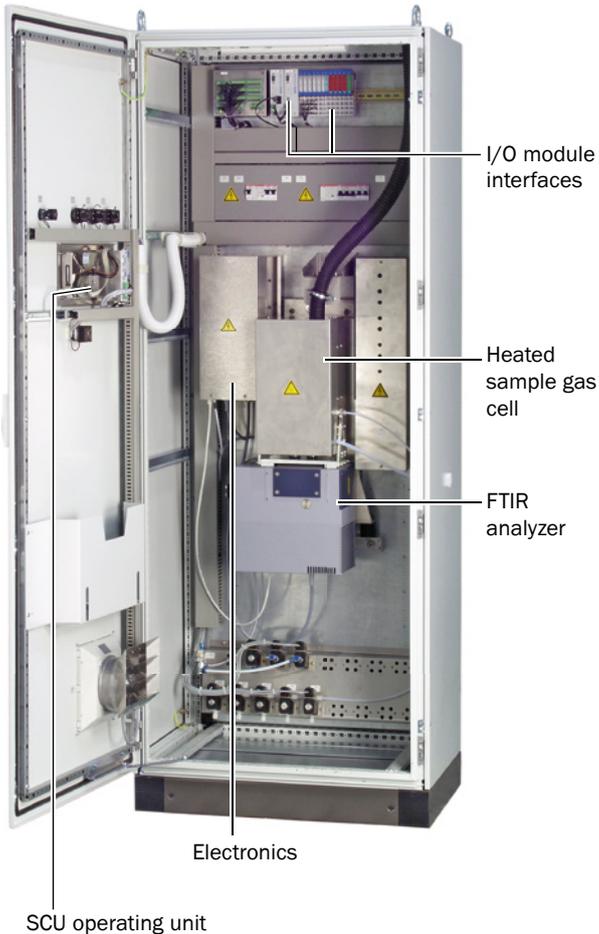
MCS100 FT – Facts that count

Actual HF limit value monitoring through simultaneous detection of even the smallest traces of hydrogen fluoride in exhaust gas. Carefree package for rugged use due to AutoVAL and very low maintenance effort. “One for all” – one monitor for most gaseous emissions.

<p>HF LIMIT VALUE MONITORING</p>	<ul style="list-style-type: none"> Actual monitoring of the strict HF limit values as demanded by statutory regulations: <ul style="list-style-type: none"> 17th BlmSchV (FICA) (EN2000/76/EC) 0 ... 1.5 mg/m³ (2 ppm) Measuring gas cell specially optimized for HF
<p>CAREFREE PACKAGE</p>	<ul style="list-style-type: none"> Automatic spectrum adjustment due to AutoVAL, that means <ul style="list-style-type: none"> Very high reliability for valid measured values System monitors measured value quality independently Low, easy to plan maintenance effort <ul style="list-style-type: none"> Intervals are typically 3 months Qualified, experienced support through official acceptance Easy integration in a superior peripheral system and easy operating via touchscreen user interface Easy remote diagnostics and control from PC using SOPAS ET software
<p>ONE FOR ALL</p>	<ul style="list-style-type: none"> One monitor (CEMS) that performs most of the tasks involved in emission monitoring <ul style="list-style-type: none"> Apart from HF, simultaneously HCl, SO₂, NO, NO₂, CO, NH₃ as well as additionally CO₂ and operating parameters water vapor and O₂ Designed to meet all directives and demands: <ul style="list-style-type: none"> TI Air, 13th BlmSchV (FICA) (EN2001/80/EC) and 17th BlmSchV (FICA) (EN2000/76/EC) MCert, US EPA, GOST



MCS100 FT – Advanced, Proven Technology

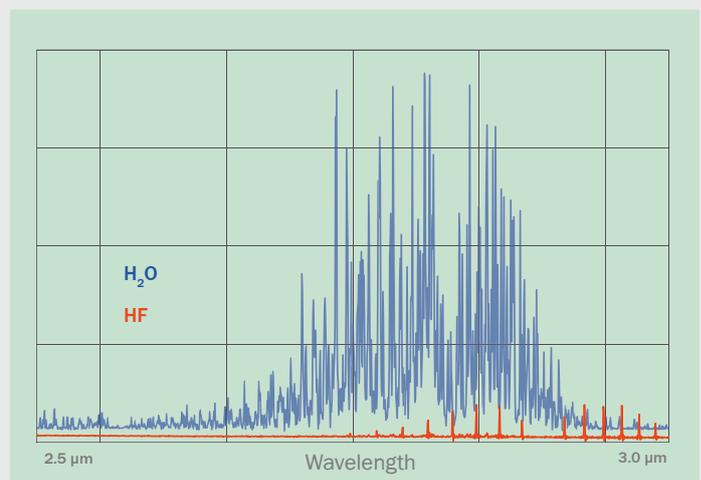


MCS100 FT – the highlights

- **Real multicomponent analysis system**
 - Simultaneous recording of more than 10 measuring components
 - Customized to meet the respective customer demands
- **Very sturdy analysis system**, through
 - **Over 30 years** experience in spectroscopic emission monitoring
 - **Over 2000** installed systems (CEMS)
 - Standardized system technology
 - Ejector principle with high gas flow; no memory effects, shorter reaction times (t_{90}) and low instrument air consumption
 - High temperature sample gas cell made of non-corrosive material, no mirror adjustment required
 - **Representative gas sampling thanks to proven MCS probe** – for corrosive, aggressive media as well
 - Automatic zero and calibration gas cycles, backflushing and filter cleaning
- **Usage of state-of-the-art FITR technology** with new generation spectrometer:
 - PLS evaluation procedures (chemometry), exact, sturdy and reliable gas analysis
 - High-resolution, fast measuring results through sophisticated evaluation algorithms
 - Very reliable results through Cube Corner Interferometer

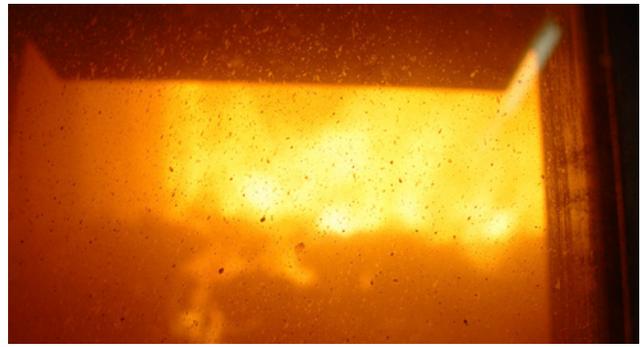
FTIR measuring principle

Infrared spectroscopy according to the Fourier Transformation (FTIR) principally ensures high measuring precision – especially in combination with our newly developed sample gas cell. Exact gas concentrations from the selected gas components are determined from the very fast spectrum measurement using chemometric models. The Cube Corner technique used by the MCS100 FT interferometer delivers very reliable, stable measuring results.



Exhaust gas spectrum example

MCS100 FT – Specifications



Measuring components	Measuring ranges	
	Min.	Max.
Hydrogen fluoride HF	0 ... 1,5 mg/Nm ³	0 ... 15 mg/Nm ³
Hydrogen chloride HCl	0 ... 15 mg/Nm ³	0 ... 150 mg/Nm ³
Water H ₂ O	0 ... 40 vol. % ^{1) 2)}	0 ... 40 vol. % ^{1) 2)}
Ammonia NH ₃	0 ... 20 mg/Nm ³	0 ... 100 mg/Nm ³
Carbon monoxide CO	0 ... 75 mg/Nm ³	0 ... 750 mg/Nm ³
Sulphur dioxide SO ₂	0 ... 75 mg/Nm ³	0 ... 1000 mg/Nm ³
Nitrogen oxide NO	0 ... 200 mg/Nm ³	0 ... 1000 mg/Nm ³
Nitrogen dioxide NO ₂	0 ... 50 mg/Nm ³	0 ... 300 mg/Nm ³
Nitrous oxide N ₂ O	0 ... 50 mg/Nm ³	0 ... 300 mg/Nm ³
Carbon dioxide CO ₂	0 ... 25 vol. % ¹⁾	0 ... 25 vol. % ¹⁾
Methane CH ₄	0 ... 50 mg/Nm ³	0 ... 150 mg/Nm ³
Oxygen O ₂	0 ... 21 vol. % ^{1) 2)}	0 ... 21 vol. % ^{1) 2)}

¹⁾ Moist ²⁾ Standard range; all ranges on dry basis; other range on request

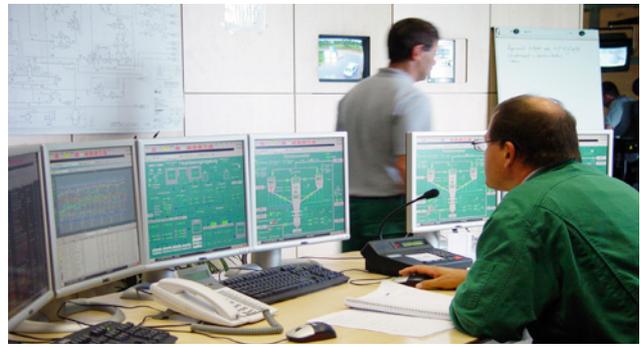
Analyzer technical data	
Response time (t ₉₀ time)	< 200 s for standard sample gas lines up to max. 35 m (115 ft)
Reproducibility	> 1 ... 2 % of upper measuring range value
Temperature drift	< 5 % of upper measuring range
Cross-sensitivity	< 4 % of upper measur. range value; < 0.2 vol. % for O ₂
Linearity error	Max. ±2 % of upper measuring range value; max. ±0.3 vol. % for O ₂
Drift during maintenance interval	Max. ±2 % of upper measur. range value in display range ≥ 20 mg/m ³ Max. ±3 % of upper measur. range value in display range ≤ 20 mg/m ³ Max. ±0.2 vol. % for O ₂
Zero point drift	Automatic subsurface correction
Flushing medium	N ₂ (1.0 l/min; 1,000 cc/min)

System	
Measuring cells	
Volume	1.3 l (1,300 cc)
Optical path length	8.48 m (27.8 ft)
Max. temperature	220 °C (430 °F)
Cabinet Rittal TS 8 with socket	
Dimensions (W x D x H)	800 x 600 x 2100 mm (31.5 x 23.6 x 82.7 in)
Ambient temperature	+5 ... +40 °C (+40 ... 104 °F)
Ambient humidity	80 % moisture, not condensing
Weight	Approx. 300 kg (660 lb)
Protection class	IP 54 (when fan fitted)
Power supply	230/115 V 3p 1n 1g; 50/60 Hz, +10/-15%; power consumption approx. 1500 VA
Climate control	Fan (air conditioner optional)
Material	Sheet steel
Gas sampling filter	450 VA
Heated probe	500 VA
Heated sample gas line	95 VA/m
Designed for	13 th BlmSchV (FICA; EN2001/80/EC), 17 th BlmSchV (FICA; EN2000/76/EC), TI Air, MCert, US EPA, GOST

Interfaces and signals	
Interfaces	
Bus systems	<ul style="list-style-type: none"> For analyzers: CAN Bus I/O signaling: CAN Bus Modbus PROFIBUS
Serial interface	1 x RS232, 9 pol. Sub-D socket
Ethernet	<ul style="list-style-type: none"> Customer/service: RJ45, 10 BaseT Analyzer: RJ45, 10 BaseT Remote diagnostics connection
Memory card	1 slot for Compact Flash type II
FID interface	Gas connections and signaling
Signal inputs/outputs	
Analog	<ul style="list-style-type: none"> Outputs: 0/4 ... 20 mA, galvanic separation³⁾ Inputs: 0/4 ... 20 mA, galvanic separation³⁾
Digital	<ul style="list-style-type: none"> Outputs: as specified³⁾ Inputs: as specified³⁾
Heating control	4 A, 8 A, 16 A in HC8X temperature control box
Color display	Touchscreen: 800 x 600 Pixel

³⁾ Max. 24 I/O modules connectable via 2 CAN nodes

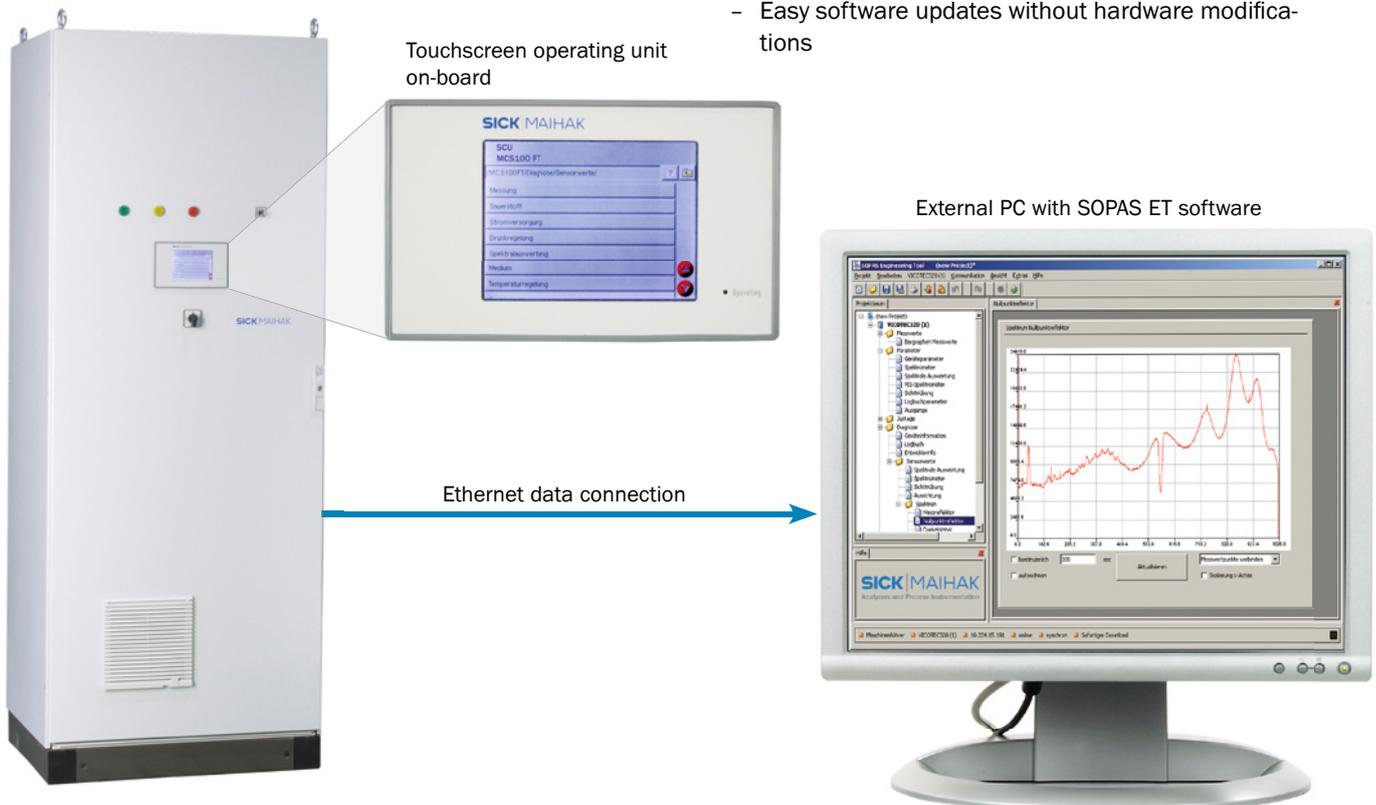
MCS100 FT – Your Demands in Focus



WASTE HANDLING	<ul style="list-style-type: none"> Waste incineration plants and multifuel furnace plants, e.g. cement works
ENERGY INDUSTRY	<ul style="list-style-type: none"> Power stations, also with waste incineration
CHEMICAL INDUSTRY	<ul style="list-style-type: none"> Plants with chemical combustion
MANUFACTURING INDUSTRY	<ul style="list-style-type: none"> Aluminum, steel and iron production Smelting plants

Everything under control

- All data under control thanks to integrated operating unit SCU
 - Comfortable touchscreen operating unit according to the latest demands on operation and operating safety
 - Universal SOPAS user software available for decentral access via PC
- Remote control and remote maintenance at the push of a button with the innovative PC software SOPAS ET
- Everything is possible – connecting to customer periphery
 - Various Bus systems (CAN, ModBus, PROFIBUS)
 - Trouble-free integration in every on-site customer network environment via Ethernet
- Easy to use Logbook function
 - All important information available at all times
- Data processing
 - Proprietary chemometric model
 - Easy software updates without hardware modifications



ANALYZERS AND PROCESS INSTRUMENTATION

AT HOME IN THE INDUSTRIAL SECTOR

We can build on years of experience in the field of Analyzers and Process Instrumentation. That is why we are at home in the world of cement and power plants as well as in the chemical and petrochemical sector. Be it emission control at the waste treatment or process optimization for steel manufacturing, we offer tailor-made solutions.



WE OFFER YOU A CHOICE

SICK MAIHAK offers a number of sensor-based techniques for analysis, ranging from the continuous gas and dust measurement to specialized applications for water and liquid analysis. Within the process measurement technology our products play a central role in determining volume flow of gases and level of bulk materials.



AROUND THE WORLD TO YOUR SERVICE

Where ever you are, our global network of subsidiaries and representatives is able to supply qualified support when you need it. We deliver the equipment for your measuring tasks, provide documentation and training. Our highly skilled service staff offers support during installation, commissioning and maintenance of the appliances.



SICK GROUP

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