

Accurate, cost-saving and reliable Natural gas analyzer SITRANS CV



SITRANS CV

Answers for industry.

SIEMENS

Many years of experience and state-of-the-art technology – for highest performance



Siemens has 30 years of experience with natural gas chromatographs and is the pioneer in applying microelectrical mechanical systems (MEMS) for online GCs. Chip-size valves and detectors combined with narrow-bore capillary columns offer unsurpassed performance and deliver a wide range of benefits.

Unsurpassed accuracy

- Relative standard deviation for SITRANS CV: 0.007 %
- Linearity throughout the entire measuring range enables single-point calibration – as confirmed by PTB, the German national metrology institute
- Detection limits are lower than 5 ppm – even for neo-pentane
- Ambient temperature influence is negligible
- Exact measurements for every component mean precise correction factors for volume flow calculation
- No cross-sensitivity: narrow-bore capillary separation columns result in high separation performance
- Checksums verify correct parameter settings
- Independent from sample and ambient pressure due to unique “live injection”

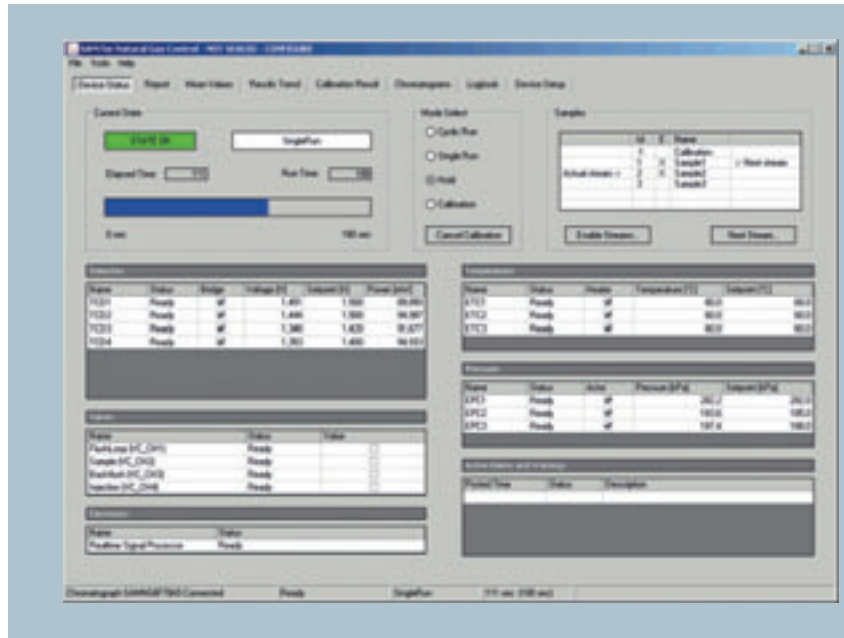
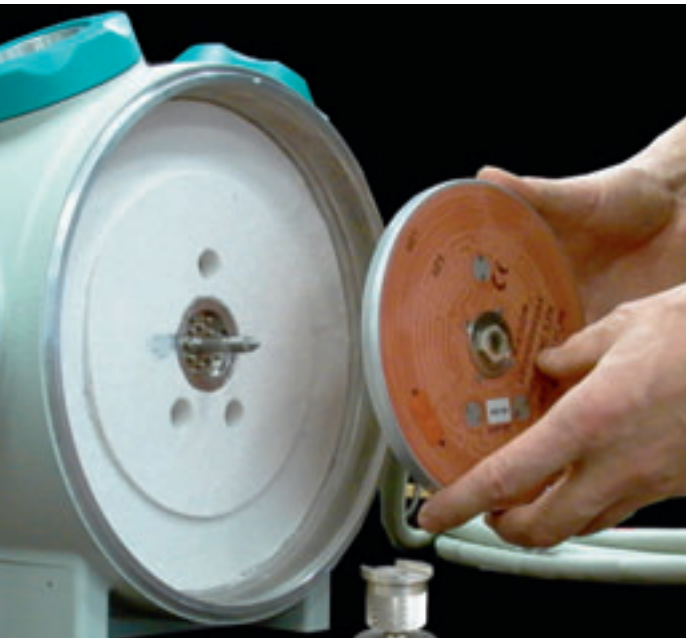
Cost-effective installation and operation

- Low power and gas consumption
- No shelter required – it’s rugged and compact. Just install SITRANS CV in the field at the sampling point
- Repair in minutes, just exchange analytical plug & play module, stable operation already 30 min. later
- Superior availability

- Only one calibration gas required due to high linearity, no linearization service needed
- During standby modus gas consumption only 6 ml/min
- Minimal maintenance time through:
 - Maintenance-free valves
 - Automatic self-diagnostics and optimization
 - Easy-to-use yet powerful operation software
- Short cycle times of less than 3 minutes allow multistream analysis with one instrument
- Local Siemens service support

Proven reliability

- 45 years of Siemens process GC experience are built into every component
- Maintenance-free valves based on chip-based MEMS technology: no moving parts for superior reliability
- Continuous self-checking and automatic optimization of parameter settings
- Rugged design: made for tough environments
- Proven software
- Embedded state-of-the-art electronic controller
- Electronic pressure controllers instead of solenoid valves
- Remote maintenance capabilities



Ease of use

- CV Control software makes the operations manual nearly unnecessary – it’s clear and easy to use
- SITRANS CV checks itself continuously. Six detectors monitor the analytic system at all gas outlets and inline constantly. Even the amount of injected sample is verified. Checksums verify correct parameter settings. During calibration SITRANS CV corrects automatically retention and even switching times. Critical operation levels are password-protected
- Troubleshooting and repair have never been easier and faster: You can replace the plug-and-play analytic module in just a few minutes using the Siemens exchange service, 30 min. later SITRANS CV is running stable again
- Local display and remote operation always provide operators with clear information and enable full control

Maximum functionality

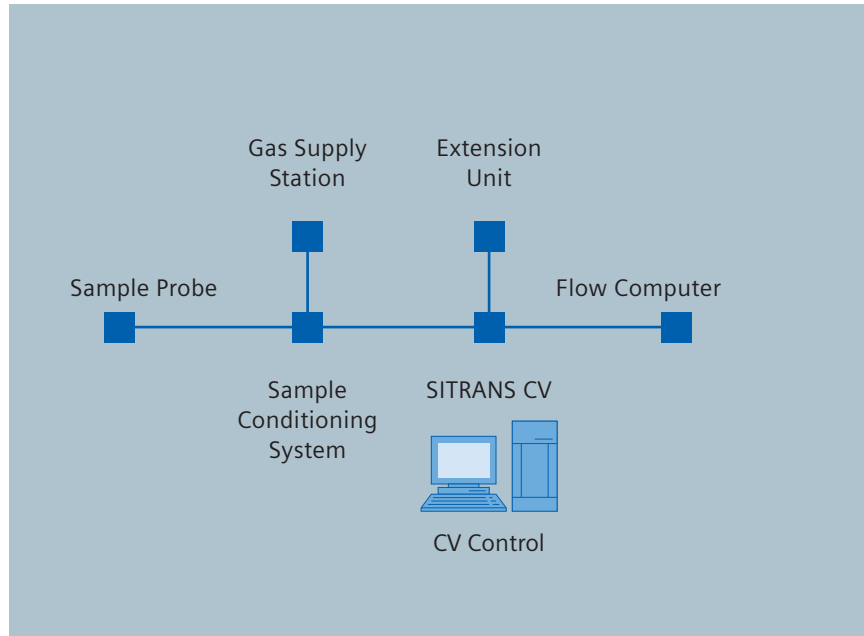
- Flexible communication via RS485/RS232 interface using the configurable MODBUS protocol or by Ethernet via TCP/IP. Other communication protocols and I/Os can be added with an optional expansion unit
- Calculation of upper and lower calorific values, standard density, and Wobbe Index; meets a wide range of standards and is certified by international testing authorities
- Country- or customer-specific setup, including all necessary information to meet individual requirements.

- Analytic module, controller and communications – all functions are integrated
- Flexible installation with compact design and weight of only 15 kg, EEx d explosion protection, and IP65/NEMA 4X splashwater protection. SITRANS CV can be mounted virtually anywhere – on the pipeline, offshore, or in other extreme environmental conditions
- SITRANS CV analyzes up to three sample streams and one calibration stream
- Reports including measurements and all calculated values are stored for 100 days, hourly averages for 1 year, daily averages for 2 years and monthly averages for more than 100 years

Wide range of applications:

- Natural gas exploration
- Gas processing
- Gas storage
- Pipelines
- Gas turbines
- Gas distribution networks
- Custody transfer stations
- Power plants
- Landfills
- Steel plants
- Biogas
- LNG liquefaction and regasification

Set CV – the standard for natural gas quality analysis



Set CV offers a standardized and complete system solution for SITRANS CV. The modular design means that options can be added to meet your requirements, from simple to extra security design. The set is suitable for one to three sample streams plus one calibration stream.

The system is designed for use with stable, dry, and clean natural gas. Depending on the options specified, it can be used in a wide range of environments:

- Pressures up to 160 bar
- Ambient temperatures between $-30\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$
- EEX 2G, T3

Trouble-free GC operation and data reliability

- Components from well-known producers with long industry experience
- Field-proven solutions

Cost savings

- Up to three sample streams plus one calibration stream per system
- Protection of SITRANS CV, its components and measurement results
- Simple to maintain, easy to access

SITRANS CV – at a glance

Pioneer in applying microelectrical mechanical systems:

• Unsurpassed accuracy	• Low maintenance requirements
• Single-point calibration saves calibration gases due to wide linearity	• Comprehensive automatic self-diagnosis and optimization
• Detection limit for neo-pentane: 5 ppm	• Standby modus saves supplies
• Analysis in less than 3 minutes	• Versatile communications
• Low operating costs	• Quick and easy repair based on plug & play analytical module
• Global service and support network	
• Complies with relevant standards and certifications	• Compact and rugged design enables field installation

Power Environment Mounting

Power	24 V
	typ.15 VA, max. 50 VA
Ambient temperature	-20°C ... +55°C operation -30°C ... +70°C storage
Enclosure rating	IP65, NEMA 4X
Area classification	CSA Cl1, Div1 Gr. B, C, D T4 ATEX II 2G Eex d IIC T4 FM Cl1, Div1 Gr. B, C, D T4 FM Zone1 Gr. IIB+H2 T4
Dimensions	Diameter 30 cm (12 in) Height 23 cm (9 in)
Weight	15 kg (35 lb)
Mounting	Post, pipe or wall
Gas connections	1/8-in Swagelok

Standards & Approvals

ISO 6974-5, DIN EN ISO 6976, ISO 10723, ISO 13686, DVGW G260 and G262, GOST22667, AGA8, ANSI/ GPA 2172-96, GPA 2145-03, PTB certificate, BRLM metrological certificate
Pattern Approval in China, Russia and Kazakhstan

Communication, Interfaces

Ethernet	10 Base T; TCP/IP
RS485, RS232	MODBUS RTU / ASCII
Digital outputs	4 : 3 Streams, 1 cal
Digital inputs	4 : Sample Flow, Sync, Revision, Cal

Data storage

Results, reports	100 days
Hourly / daily / monthly average	1 year / 2 years / 166 years

Analytical System

Detector	6 TCD sensors
Cycle time	< 180 sec
Repeatability CV, density	< 0.01 %
Accuracy CV, density	< 0.1 %
Detection limit neo-pentane	5 ppm
Calibration	single point

Measured Components

Component	Range in V%
Methane	50 ... 100
Nitrogen	0 ... 25
Carbon Dioxide	0 ... 20
Ethane	0 ... 20
Propane	0 ... 15
i-Butane	0 ... 10
n-Butane	0 ... 10
neo-Pentane	0 ... 1
i-Pentane	0 ... 1
n-Pentane	0 ... 1
Hexane+	0 ... 3
Hexane, Heptane, Octane, Nonane	Optional: individually separated for more accurate CV determination
Helium	Not measured, can be entered with at a fixed value
H ₂ S	Not measured, max. 500 vpm

Calculated Values

Upper and lower calorific value, density, Wobbe Index, specific gravity

Your Siemens partners worldwide

Further information at:

www.siemens.com/sitranscv

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