

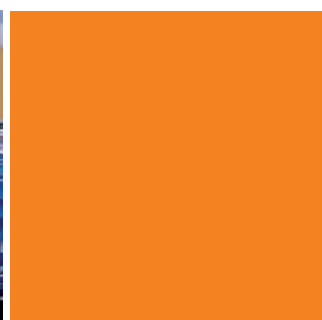
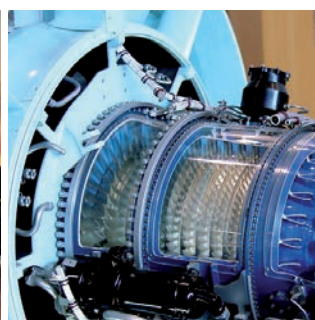


## Measurement parameter

- Methane
- Carbon dioxide
- Hydrogen sulphide
- Oxygen
- Hydrogen
- Higher hydrocarbons (C<sub>2+</sub>)

## Applications

- Biogas
- Sewage gas plants
- Landfill sites
- Glass / ceramics
- Energy supply
- Energy generation
- Environment



# INCA4001

Multi-gas analyzer

The multi-gas analyzers of the device series **INCA4001** are used to determine the gas composition

- Methane
- Carbon dioxide
- Hydrogen sulphide
- Oxygen
- Hydrogen
- Higher hydrocarbons (C<sub>2+</sub>)

The multi-gas analyzers of the device series **INCA4001** are engineered for indoor installation. Gases with condensate can be measured with or without gas pressure. The device can be designed with max. 10 sample gas inlets and 1 calibration gas inlet. Caused by the use of a jet pump, gas can be sucked from the measuring point for a distance of up to 100m to the analyzer.



**Typical measuring ranges INCA4001**

| Measuring module      | Meas. methods | Measuring ranges             | Measuring accuracy  |
|-----------------------|---------------|------------------------------|---|
| CH <sub>4</sub>       | NDIR          | 0 – 100 Vol.-%               | +/- 1% FS <sup>1)</sup>   |
| CH <sub>4</sub>       | NDIR          | 0 – 5 Vol.-%                 | +/- 3% FS <sup>1)</sup>   |
| CH <sub>4</sub>       | NDIR          | 80 – 100 Vol.-%              | +/- 1% FS <sup>1)</sup>   |
| C <sub>2+</sub>       | NDIR          | 0 – 20 Vol.-%                | +/- 2,5% FS <sup>1)</sup>   |
| CO <sub>2</sub>       | NDIR          | 0 – 100 Vol.-%               | +/- 1% FS <sup>1)</sup>   |
| CO <sub>2</sub>       | NDIR          | 0 – 10 Vol.-%                | +/- 1,5% FS <sup>1)</sup>   |
| O <sub>2</sub>        | EC            | 0 – 25 Vol.-%                | +/- 3% MV <sup>2)</sup>   |
| O <sub>2</sub>        | paramagnetic  | 0 – 25 Vol.-%                | +/- 1% MV <sup>2)</sup>   |
| H <sub>2</sub> S      | EC            | 0 – 50 ppm                   | +/- 3% FS <sup>1)</sup>   |
| H <sub>2</sub> S      | EC            | 0 – 100 ppm                  | +/- 3% FS <sup>1)</sup>   |
| H <sub>2</sub> S      | EC            | 0 – 2.000 ppm                | +/- 30 ppm<br>(≤ 1000 ppm)<br>+/- 3% MV <sup>2)</sup><br>(> 1000 ppm) |
| H <sub>2</sub> S      | EC-µPulse     | 0 – 10.000 ppm               | +/- 3 ppm<br>(≤ 25 ppm)<br>+/- 15% MV <sup>2)</sup><br>(> 25 ppm)     |
| H <sub>2</sub> S      | EC            | 0 – 10.000 ppm               | +/- 3% FS <sup>1)</sup>   |
| H <sub>2</sub> S      | EC-µPulse     | 0 – 50.000 ppm               | +/- 30 ppm<br>(≤ 500 ppm)<br>+/- 15% MV <sup>2)</sup><br>(> 500 ppm)  |
| Calorific Value Hi    | calculated    | 8 – 11,5 kWh/m <sup>3</sup>  | +/- 1,5% FS <sup>1)</sup>   |
| Wobbe-Index Wi        | calculated    | 10 – 14,3 kWh/m <sup>3</sup> | +/- 2% FS <sup>1)</sup>   |
| Relative density (SG) | acoustic      | 0,2 – 2,2                    | +/- 1% FS <sup>1)</sup>   |

<sup>1)</sup> Linearity error with regard to measuring full scale value

<sup>2)</sup> Linearity error with regard to measuring value

Table 1: Typical measuring ranges INCA4001

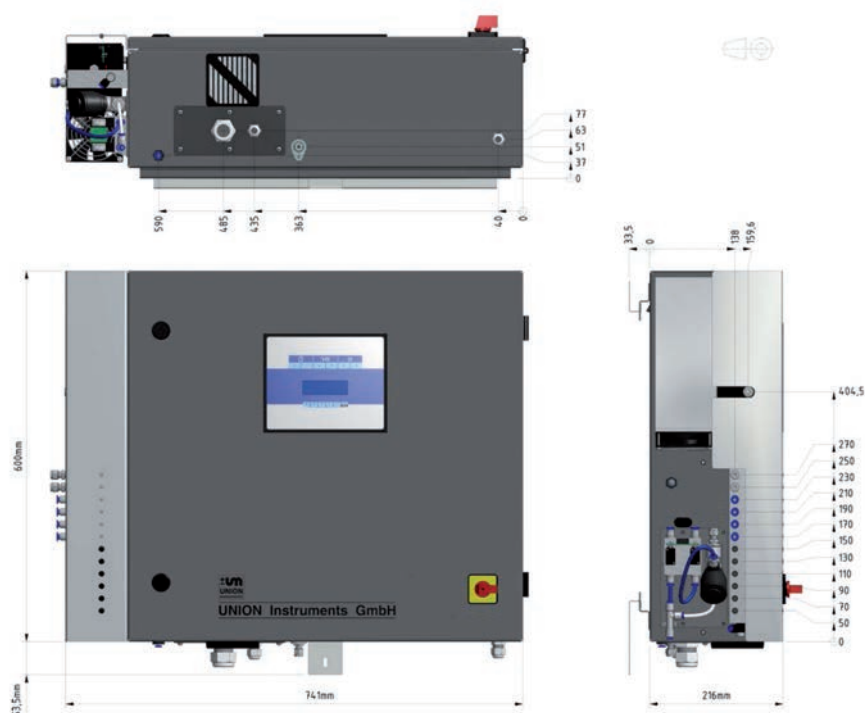
**Option (T-Modelle) INCA4001**

| T-Modelle | con./<br>discont. | CH <sub>4</sub><br>[Vol.-%] | CO <sub>2</sub><br>[Vol.-%] | H <sub>2</sub> S<br>[ppm]      | O <sub>2</sub><br>[Vol.-%] | H <sub>2</sub><br>[ppm] | C <sub>2+</sub><br>[Vol.-%] |
|-----------|-------------------|-----------------------------|-----------------------------|--------------------------------|----------------------------|-------------------------|-----------------------------|
| T074      | discont.          | -                           | -                           | 0 – 10.000 disc. <sup>3)</sup> | 0 – 25 disc.               | -                       | -                           |
| T096      | discont.          | -                           | -                           | 0 – 10.000 disc. <sup>3)</sup> | -                          | -                       | -                           |
| T098      | discont.          | 0 – 100 disc.               | -                           | 0 – 10.000 disc. <sup>3)</sup> | 0 – 25 disc.               | -                       | -                           |
| T100      | discont.          | 0 – 100 disc.               | 0 – 100 disc.               | 0 – 10.000 disc. <sup>3)</sup> | 0 – 25 disc.               | -                       | -                           |
| T140      | discont.          | 0 – 100 disc.               | 0 – 100 disc.               | 0 – 10.000 disc. <sup>3)</sup> | 0 – 25 disc.               | 0 – 4000 disc.          | -                           |
| T160      | discont.          | 0 – 100 disc.               | 0 – 100 disc.               | 0 – 50.000 disc. <sup>3)</sup> | 0 – 25 disc.               | -                       | -                           |

Cont. = Online measuring; discont. = min. 15 min

Table 2: Typical combinations of sensors (further on request)

## Technical data



### Technical data INCA4001

|                             |   |
|-----------------------------|---|
| Weight [kg]                 | up to 30  |
| Dimensions (WxHxD) [mm]     | 745x630x220   |
| Degree of protection        | IP20  |
| Power supply                | 100 – 240 V, 50/60 H  |
| Max. power consumption      | 250 VA  |
| <b>Inlets of gas</b>        |   |
| Inlets of process gas       | 1 – 10 pneumatic valves   |
| Inlets of calibration gas   | 1   |
| Inlets purging gas (air)    | 1   |
| Gas connection              | Compression fitting 6 mm  |
| Max. gas inlet pressure     | 20 mbar rel.  |
| Min. gas inlet pressure     | -100 mbar rel.  |
| Flame barrier               | ATEX-certification G IIC  |
| Rel. gas humidity           | ≤ 100% (condensate possible)  |
| Condensate trap             | yes   |
| Gas cooler                  | yes   |
| Cooling principal           | thermoelectrical  |
| Dewpoint                    | 3 – 30 °C adjustable  |
| Condensate removal          | jet pump  |
| <b>Ambient conditions</b>   |   |
| Operating temperature       | 5 – 45 °C   |
| Humidity                    | 0 – 95% rel. air humidity   |
| Ambient pressure            | 900 – 1250 hPa (0,9 – 1,2 bar)  |
| Storage temperature         | -20 – 60 °C   |
| <b>Interfaces</b>           |   |
| Relays                      | 3   |
| Dig. Interface              | RS232   |
| 4 – 20 mA                   | optional  |
| Fieldbus                    | optional  |
| Remote maintenance (IP/TCP) | optional  |
| Approval (optional)         | NRTL approval by SGS, standards: UL61010-1,<br>CAN/CSA-C22.2 No. 61010-1<br>(customer reference 710162) |

Table 3: Technical data INCA4001



## About UNION Instruments

UNION Instruments GmbH, founded in 1919, is a specialized supplier of measuring instruments in the areas of calorimetry and gas composition. Its user and customer base includes biogas producers, the chemical industry, and energy and water suppliers. The company has its headquarters in Karlsruhe and a subsidiary in Lübeck. With 30 international distributors, UNION Instruments operates worldwide. The company's core businesses include development and production as well as maintenance, service, and support.

## Our service performance



### Support

The **UNION-hotline** helps to solve all inquiries and urgent issues fast and easy. Device specific concerns can be solved worldwide within minutes by direct communication via TEAMVIEWER.



### Original spare parts

Original spare parts for the majority of UNION's products are on stock directly at site and ready for dispatch within a few hours.



### Software

For read-out of measurement and calibration data a device-specific software is available for our clients. In addition to the graphic display of measurement data its export in several database formats is possible.



### Training

UNION offers individual in-house training or on-site seminars for installation, use and maintenance of our devices even at the customer's premises. Training is individually adapted to the client's requirements.



### Repair service

A global service for inspection, maintenance and repair of our devices and systems is provided directly by UNION and via its distributors.



### Certification

Since 20 years we have implemented the ISO9001 system. UNION's products are certified to ATEX and UL/CSA directives accordingly. Industrial safety "**Safety with System**" is part of UNION's company policy.



### Engineering

In the last decades UNION compiled a very high level to the state of the art that covers many market segments. So a wide range of possible solution approaches is on-hand.



### Calibration

As part of maintenance and service UNION provides the validation and re-calibration of measuring devices in conformity with certified custody transfer instruments and / or traceable perpendicular.

[www.union-instruments.com](http://www.union-instruments.com)

UNION Instruments GmbH ■ Zeppelinstrasse 42, 76185 Karlsruhe, Germany  
Phone: +49 (0) 721-68 03 81 0 ■ Fax: +49 (0) 721-68 03 81 33  
E-Mail: [info@union-instruments.com](mailto:info@union-instruments.com)