

# **ZIRKOR** series

OXYGEN ANALYZERS – TOUGH IN EVERY RESPECT, EASY TO OPERATE



In-situ gas analyzers

# THE ZIRKOR SERIES: RELIABLE MEASUREMENT RESULTS UNDER TOUGH CONDITIONS







## TOUGH IN EVERY RESPECT, PRECISE ANALYSIS

ZIRKOR100

ZIRKOR200

ZIRKOR302

Reliable oxygen measurement is just as important for controlling an optimized combustion process as it is for emission monitoring. In one of the toughest applications in industrial process automation, the analyzer must be easy to integrate and extremely resistant. In SICK's extremely rugged ZIRKOR series, which consists of ZIRKOR100, ZIRKOR200, and ZIRKOR302, very high quality meets innovative high performance. This makes it the first choice for combustion optimization.

Precise, but not fragile – zirconium dioxide analyzers from SICK.



## MANY GOOD IDEAS WITH ONE AIM: THE MOST RELIABLE MEASUREMENT RESULT

#### Oxygen – powering every combustion process

Optimum combustion depends on the perfect dosage. Too little oxygen leads to incomplete combustion and therefore to increased CO emissions.

On the other hand, an oxygen value that is too high results in extremely high levels of heat loss in the exhaust gas. To monitor the combustion process, the reliable ZIRKOR series oxygen analyzers take measurements directly after combustion. This means that you can set the optimum oxygen value for your fuel.

# Reference value formation for reliable measured values

Different pollutants are produced during each combustion process. The ZIRKOR series therefore delivers an oxygen reference value for emission measurement, thereby ensuring reliable measurement results. Moreover, the measured values are standardized before and after the various flue gas purification stages. Therefore, the values of the individual measurement points always remain comparable and enable accurate process control. Furthermore, the ZIRKOR200 has been tested for suitability in line with European regulations.

#### Oxygen monitoring to improve processes

Inert gas atmospheres are used in certain manufacturing processes. In these environments, SICK's zirconium dioxide analyzers measure the oxygen values and monitor the inert gas atmospheres, resulting in products of higher quality.

### Top results without test gases: The current sensor principle

The innovative current sensor principle of the ZIRKOR302 delivers exceptionally precise measurement results. During this process, the measurement gas is fed through the zirconium dioxide measurement cell and heated; the oxygen is ionized. As the  $ZrO_2$  creates a cathodic effect, electricity flows when a voltage is applied, which delivers highly accurate and precise measured values across the entire measuring range. Calibration can be performed with ambient air; test gases are not required. It is virtually impossible to measure oxygen more accurately.

# Firmly soldered and accurate: It's all about the cells

SICK's zirconium dioxide analyzers take exceptionally precise measurements and are extremely durable. Only resistant materials are incorporated into the measurement cells. Moreover, they are not prone to leaks: A special welding method keeps the measurement cells sealed for an especially long time. This provides a high level of reliability and maximum measurement accuracy for many years.



### Resistance on two levels: LongLife technology

For the sensors in the ZIRKOR series, there are also applications for which rugged isn't rugged enough. The ZIRKOR series' innovative LongLife technology ensures reliable oxygen measurement. Even under extremely tough conditions, such as contact with corrosive gases. The measurement cell contains additional protective layers on the measurement surface. These reduce the negative impact of harmful gases and enable accurate oxygen measurement at the same time. Look no further for a durable sensor, even under aggressive conditions.

Use in a reducing atmosphere presents the measurement cells with a particular challenge. We have developed LongLife<sup>2</sup> specifically for these applications. Alongside the additional protective layer on the LongLife technology, cell protection circuitry protects the measurement cells ceramic and prevents the platinum coating on the electrode from gradually coming off. In turn, this prevents premature wear and tear and a reduction in measurement performance.

The current sensor principle



### Always know where you stand: Sensor diagnostics

The analyzers use the progression of the measurement curve and the probe response time to calculate the cells' remaining service life. This enables you to avoid unexpected failures or incorrect measurement results.

|   | SI   | СК          |
|---|--|-------------|
| en al section of the | 2-moinf calibration. 0s 1 2   0 Second 110 Burnammi(100) 4   0 Second 110 Burnammi(100) 4   0 France 7 8   0 1 0 0 | 3<br>6<br>9 |
| ZIRKOR200   |  |             |
| ZIRKOR200   | ZIRKOR200  |             |
|   | ZIRKOR200  |             |
|   |  |             |

#### Safe and convenient: ZIRKOR remote

ZIRKOR remote allows you to completely control the device remotely. As well as releasing test gases, this also includes checking the entire system. All process data and information on the analyzer can be saved conveniently and in real time on mobile end devices, and be sent as a report via e-mail.



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# MANY REQUIREMENTS, ONE PRODUCT FAMILY



## ZIRKOR100

Oxygen measurement made easy

#### For smaller plants

Reliable oxygen measurement is essential in smaller combustion plants too. Thanks to its innovative cell technology, ZIRKOR100 is extremely rugged while remaining affordable. The integrated cell diagnostics function keeps the maintenance requirements to a minimum and all the important information and functions can be accessed via ZIRKOR remote. With the ZIRKOR100, you no longer need to worry about oxygen measurement in your combustion processes.



## ZIRKOR200

Already has the innovation in the cells

#### Satisfies requirements

The ZIRKOR200 offers many additional features and functions. Certified to EN 15267, it works at process temperatures of up to 1,600 °C with ease, adjusts itself automatically, and can be equipped with LongLife or LongLife<sup>2</sup> technology to ensure the sensor cells have a longer service life. Variable probe lengths and a higher number of interfaces make it possible to install this device into a wide range of plants and applications.



## ZIRKOR302

The other kind of oxygen measurement

#### Adjustment without test gas

The ZIRKOR302 differs from the other two analyzers mainly through its automatic calibration function using ambient air. The proven current sensor principle does not require any test gases for this and ensures a lasting, exceptionally precise measurement, even at high temperatures. The ZIRKOR302 is not an ignition source in the measurement gas due to its safety-related construction. Furthermore, the fast response time supports effective process regulation.

The ZIRKOR302 is optionally available with an integrated measuring gas pump or with an ejector operated by compressed air. An optional evaluation unit allows you to maintain up to three analyzers remotely at the same time.

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## THE ZIRKOR SERIES AT A GLANCE

|   | ZIRKOR100      | ZIRKOR200      | ZIRKOR302      |  |
|---|----------------|----------------|----------------|--|
| Sensor technology                         |                |                |                |  |
| Measurement cell protection<br>(optional) | -              | Yes            | -              |  |
| Cell diagnostics                          | Yes            | Yes            | -              |  |
| Cell replacement                          | -              | Yes            | Yes            |  |
| Process gas temperature                   |                |                |                |  |
| Measuring probe                           | Up to 400 °C   | Up to 600 °C   | Up to 950 °C   |  |
| Measuring probe with<br>protective pipe   | Up to 1,400 °C | Up to 1,600 °C | Up to 1,400 °C |  |
| Measuring probe immersion dept            | h              |                |                |  |
|   | 400 500 mm     | 520 3,682 mm   | 300 1,800 mm   |  |
| Wireless remote control                   |                |                |                |  |
|   | Yes            | Yes            | -              |  |
| Interfaces                                |                |                |                |  |
| Analog signal                             | Yes            | Yes            | Yes            |  |
| Bluetooth                                 | Yes            | Yes            | -              |  |
| Modbus RTU RS-232                         | -              | Yes            | Yes            |  |
| Modbus RTU RS-485                         | -              | Yes            | Yes            |  |
| Hart                                      | -              | Yes            | -              |  |
| Fieldbus                                  | -              | Yes            | -              |  |
| Enclosure rating                          |                |                |                |  |
| Analyzer unit                             | IP 20          | IP 65          | IP 65          |  |
| Control unit                              | IP 66          | IP 66          | IP 65          |  |
| Adjustment                                |                |                |                |  |
| Test gases required                       | Yes            | Yes            | No             |  |

## **OXYGEN MEASUREMENT MADE EASY**



## Product description

The ZIRKOR100 gas analyzer from SICK provides robust and reliable oxygen measurement for small combustion plants. It is characterized by a measurement cell with a long service life and a diagnostic function. This significantly reduces maintenance effort. The ZIRKOR remote

#### At a glance

- Measurement cell with long service life due to high-quality processing
- Measurement cell self-monitoring
- Version for high temperatures available

#### Your benefits

- High availability due to measurement cell with long service life
- Reduction of analyzer failures due to internal self-monitoring

app allows you to wirelessly access the analyzer quickly and easily.

As a result, the simple ZIRKOR100 oxygen measurement relieves the plant operator and frees them up to concentrate on other important tasks.

- ZIRKOR remote app for remote access to analyzer
- Very short response time
- Quick measurement close to the combustion process for timely control
- Easy analyzer operation even remotely

#### More information

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→ www.sick.com/ZIRKOR100

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

## Fields of application

- Combustion optimization in small to medium-sized combustion plants
- Oxygen monitoring for process control

## Detailed technical data

The precise device specifications and product performance data may vary and are dependent on the respective application and customer specifications.

## ZIRKOR100 analyzer unit

| Measurands                       | 0 <sub>2</sub>  |
|----------------------------------|---|
| Maximum number of measurands     | 1   |
| Measurement principles           | Zirconium dioxide sensor  |
| Measuring ranges                 |   |
| 02                               | 025%  |
| Response time (t <sub>90</sub> ) | 5 s<br>Depends on the measuring gas flow rate   |
| Accuracy                         | ± 0.2% of the measured value  |
| Detection limit                  | 0 <sub>2</sub> : < 1 ppm  |
| Process temperature              | Measuring probe: $\leq$ +400 °C<br>Measuring probe with cooling protection tube: $\leq$ +1,400 °C |
| Process pressure                 | –100 hPa 100 hPa<br>Maximum pressure fluctuation: ± 50 hPa  |
| Process gas speed                | ≤ 50 m/s  |
| Ambient temperature              | -40 °C +80 °C   |
| Electrical safety                | CE  |
| Enclosure rating                 | IP 20   |
| Immersion depth                  | Measuring probe: $\leq$ 500 mm<br>Measuring probe with cooling protection tube: $\leq$ 1,000 mm   |
| Material in contact with media   | Stainless steel 1.4571  |
| Material                         | Stainless steel 1.4571  |
| Options                          | Cooling protection tube   |

## ZIRKOR100 control unit

| Ambient temperature    | -20 °C +55 °C   |
|------------------------|---|
| Storage temperature    | -40 °C +80 °C   |
| Electrical safety      | CE  |
| Enclosure rating       | IP 66   |
| Analog outputs         | 1 output:<br>4 20 mA, 500 Ω   |
| Digital outputs        | 2 outputs:<br>Up to 4 optional outputs possible                                   |
| Display                | Status LEDs: "Alarm", "Maintenance", and "Error"                                  |
| Operation              | Via LC display and membrane keyboard<br>Via Android device with ZIRKOR remote app |
| Version                | Sheet metal housing   |
| Dimensions (W x H x D) | 300 mm x 440 mm x 240 mm  |
| Weight                 | 17 kg 19 kg   |

| Power supply      |   |
|-------------------|---|
| Voltage           | 104 126 V / 207 253 V                           |
| Frequency         | 50 Hz / 60 Hz                                   |
| Power consumption | ≤ 350 W   |
| Options           | Two oxygen limit value alarms (min./max. value) |

### Ordering information

Our regional sales organization will be glad to advise you on which device configuration is best for you.

### Dimensional drawings (dimensions in mm)

ZIRKOR100 analyzer unit with cooling protection tube







ZIRKOR100 analyzer unit







### ZIRKOR100 / ZIRKOR200 control unit





## Accessories

## Flanges

### Weld-in flange

| Brief description                             | Nominal length | Interior diameter | Bolt circle diameter | Thread size | Part no. |
|---|----------------|-------------------|----------------------|-------------|----------|
| Flange with tube, stain-<br>less steel 1.4571 | 100 mm         | 72.1 mm           | 130 mm               | M12         | 5335407  |

## Device protection (mechanical)

#### Protective housing and tubes

| Brief description                                 |         |
|---|---------|
| Insulation for cooling protection tube 310 mm     | 5335411 |
| Insulation for flange DN65 PN6                    |         |
| Weather hood for control unit, 1.4301 not coated  |         |
| Weather hood for analyzer unit, 1.4301 not coated |         |

## ALREADY HAS THE INNOVATION IN THE CELLS



### Product description

SICK's ZIRKOR200 gas analyzer provides very robust, reliable, and suitability-tested oxygen measurement for small and large combustion plants. The ZIRKOR200 is characterized by a measurement cell with a particularly long service life. The LongLife technology employed for this purpose increases the resistance of the measurement cell in corrosive and reducing conditions in particular. The integrated measurement

#### At a glance

- Measurement cell with extremely long service life due to innovative protection mechanism
- Measurement cell self-monitoring
- Fully automated adjustment mechanism integrated into the control unit
- Version for high temperatures available

### Your benefits

- Very high availability due to measurement cell with extremely long service life
- High reliability due to innovative measurement cell protection – even in corrosive or reducing conditions
- Reduction of analyzer failures due to internal self-monitoring

cell monitoring system and fully automated adjustment significantly reduce the maintenance effort. The ZIRKOR remote app allows you to wirelessly access the analyzer quickly and easily. The ZIRKOR200 provides a low-maintenance, simple oxygen measurement system for combustion optimization. Thanks to its suitability test as per EN 15267, it is also suitable for emission monitoring.

- ZIRKOR remote app for remote access to analyzer
- Very short response time
- Suitability-tested according to EN 15267
- Easy connection of process control systems
- No manual adjustment required
- Quick measurement close to the combustion process for timely control
- · Approved for emission monitoring
- Easy analyzer operation even remotely

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#### www.sick.com/ZIRKOR200

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

## Fields of application

- Combustion optimization
- Oxygen monitoring for process control

- Oxygen reference value for emission measurement
- Monitoring of inert gas atmospheres

## Detailed technical data

The precise device specifications and product performance data may vary and are dependent on the respective application and customer specifications.

## ZIRKOR200 analyzer unit

| Measurands                       | 0 <sub>2</sub>  |
|----------------------------------|---|
| Performance-tested measurands    | 0 <sub>2</sub>  |
| Maximum number of measurands     | 1   |
| Measurement principles           | Zirconium dioxide sensor  |
| Measuring ranges                 | 0 25 Vol%   |
| Certified measuring ranges O2    | 0 25 Vol%   |
| Response time (t <sub>90</sub> ) | 5 s<br>Depends on the measuring gas flow rate   |
| Accuracy                         | ± 0.2% of the measured value  |
| Detection limit                  | 0 <sub>2</sub> : < 1 ppm  |
| Process temperature              | Measuring probe: ≤ +600 °C<br>Measuring probe with cooling protection tube: ≤ +1,600 °C   |
| Process pressure                 | -100 hPa 100 hPa<br>Maximum pressure fluctuation: ± 50 hPar   |
| Process gas speed                | ≤ 50 m/s  |
| Ambient temperature              | -40 °C +80 °C   |
| Conformities                     | EN 15267<br>2000/76/EC (17th BlmSchV) (17th German Federal Immission Control Act)<br>2001/80/EC (13th BlmSchV)<br>27th BlmSchV<br>30th BlmSchV<br>TA-Luft (Prevention of Air Pollution) |
| Electrical safety                | CE  |
| Enclosure rating                 | IP 65   |
| Immersion depth                  | Measuring probe: $\leq$ 3,682 mm<br>Measuring probe with cooling protection tube: $\leq$ 1,000 mm   |
| Material in contact with media   | Stainless steel 1.4571  |
| Material                         | Stainless steel 1.4571  |
| Options                          | Cooling protection tube<br>LongLife cell<br>LongLife <sup>2</sup> cell  |

## ZIRKOR200 control unit

| Ambient temperature                              | Instrument air version: -20 °C +55 °C<br>Pump version: -20 °C +50 °C<br>GRP housing with heating: -40 °C +55 °C   |
|--|---|
| Storage temperature                              | -40 °C +80 °C   |
| Conformities                                     | EN 15267  |
| Electrical safety                                | CE  |
| Enclosure rating                                 | IP 66   |
| Analog outputs                                   | 1 output:<br>4 20 mA, 500 Ω<br>Galvanically isolated  |
| Analog inputs                                    | 1 input:<br>4 20 mA, 120 Ω<br>Not galvanically isolated   |
| Digital outputs                                  | 5 relay contacts  |
| Digital inputs                                   | 2 relay contacts:<br>+ 24 V AC/DC, 1 A  |
| Interfaces and bus protocols<br>RS-232<br>RS-485 | Modbus RTU<br>Modbus RTU<br>HART<br>Fieldbus  |
| Display  | Status LEDs: "Alarm", "Maintenance", and "Error"  |
| Operation  | Via LC display and membrane keyboard<br>Via Android device with ZIRKOR remote app   |
| Version  | Sheet metal housing<br>Stainless-steel housing<br>GRP housing<br>19" rack   |
| Dimensions (W x H x D)                           | 300 mm x 440 mm x 240 mm (sheet metal housing)<br>300 mm x 400 mm x 240 mm (stainless-steel housing)<br>510 mm x 600 mm x 310 mm (GRP housing)<br>483 mm x 132 mm x 304 mm (19″ rack) |
| Weight   | Sheet metal housing: 17 kg 19 kg<br>Stainless-steel housing: 17 kg 19 kg<br>GRP housing: 19 kg 27 kg<br>19" rack: 10 kg 11 kg   |
| Power supply                                     |   |
| Voltage  | 104 126 V / 207 253 V   |
| Power consumption                                | ≤ 400 W   |
| Options  | Semi-automatic and automatic adjustment (1-point or 2-point adjustment)<br>LongLife cell<br>LongLife <sup>2</sup> cell<br>Ejector and pump version                                    |

## Ordering information

Our regional sales organization will be glad to advise you on which device configuration is best for you.

## Dimensional drawings (dimensions in mm)

ZIRKOR200 analyzer unit with cooling protection tube







#### ZIRKOR200 analyzer unit



Ø 230

## ZIRKOR200 IN-SITU-GAS ANALYZERS

| Туре    | Α   | В   | Immersion<br>depth C | D     | E     | F    | Weight |
|---------|-----|-----|----------------------|-------|-------|------|--------|
| Z200-X1 | 135 | 97  | 520                  | 380   | 615   | 57.0 | 11.0   |
| Z200-Z2 | 150 | 97  | 950                  | 800   | 1,045 | 57.0 | 13.0   |
| Z200-Z3 | 150 | 120 | 1,835                | 1,720 | 1,955 | 76.1 | 17.5   |
| Z200-Z4 | 150 | 120 | 2,768                | 2,648 | 2,888 | 76.1 | 21.1   |
| Z200-Z5 | 150 | 120 | 3,682                | 3,562 | 3,802 | 76.1 | 25.0   |

All dimensions in mm, all weights in kg

GRP housing for ZIRKOR200 control unit







ZIRKOR200 control unit; 19" rack housing



#### ZIRKOR100 / ZIRKOR200 control unit





#### Accessories

### Hardware

| Brief description                                  | Part no. |
|--|----------|
| Compressed air preparation including dryer         | 6063324  |
| Compressed air preparation including dryer/housing | 6063322  |

## Flanges

## Weld-in flange

| Brief description                     | Interior diameter | Bolt circle diameter | Thread size | Part no. |
|---------------------------------------|-------------------|----------------------|-------------|----------|
| Flange plate, structural steel 1.0037 | 90 mm             | 191 mm               | M16         | 5335405  |

## Device protection (mechanical)

#### Protective housing and tubes

| Brief description  | Part no. |
|--|----------|
| GRP housing for analyzer unit, with heating 115 V / 500 W                    | 6063326  |
| Heating for control unit 115 V / 500 W, GRP housing is needed                | 6063321  |
| Heating for control unit 230 V / 500 W, GRP housing is needed                | 6063320  |
| GRP housing for analyzer unit, with heating 230 V / 500 W                    | 6063325  |
| Insulation for probe flange 75 mm, suitable for probe length < $1 \text{ m}$ | 5335847  |
| Insulation for probe flange 95 mm, suitable for probe length > $1 \text{ m}$ | 5335421  |
| Insulation for cooling protection tube 625 mm                                | 5335830  |
| Weather hood for control unit, 1.4301 not coated                             | 5335404  |
| Weather hood for analyzer unit, 1.4301 not coated                            | 5335406  |

## Plug connectors and cables

#### Other plug connectors and cables

| Brief description                           | Part no. |
|---|----------|
| Cable for referenceair                      | 6065207  |
| Connection cable Analyzer unit/Control unit | 6065208  |

## THE OTHER KIND OF OXYGEN MEASUREMENT



## **Product description**

The ZIRKOR302 in-situ gas analyzer from SICK can be relied upon to measure oxygen quickly even at increased temperatures. Thanks to the current sensor measurement principle, it does not require expensive test gases – ambient

#### At a glance

- Innovative current sensor measurement principle
- Fixed physical zero point and linear measurement signal
- All parts in contact with gas are heated

#### Your benefits

- Automated testing and adjustment with ambient air
- · No expensive test gases required
- Reignition into the measurement gas not possible because the sensor is located outside the measurement gas

air is sufficient. The analyzer is not an ignition source in the measurement gas due to its safety-related construction. The optional evaluation unit allows you to operate up to three analyzers.

- Version for high temperatures available
- Short response time
- Operation of up to three analyzers via one evaluation unit
- Process monitoring even at high temperatures
- Quick measurement directly in the process for timely control

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#### More information

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→ www.sick.com/ZIRKOR302

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

## Fields of application

- Reference value formation during emission monitoring
- Monitoring of inert gas atmospheres

Monitoring of oxygen surpluses

## Detailed technical data

The precise device specifications and product performance data may vary and are dependent on the respective application and customer specifications.

## ZIRKOR302 E analyzer unit

| Description                      | Analyzer with an ejector operated by compressed air   |
|----------------------------------|---|
| Measurands                       | 0 <sub>2</sub>  |
| Performance-tested measurands    | 0 <sub>2</sub>  |
| Measurement principles           | Zirconium dioxide current sensor  |
| Gas flow rate                    | 0.5 l/h   |
| Measuring ranges                 | 0 10 Vol -% / 0 25 Vol -%   |
| Certified measuring ranges       | 0 10 vol707 0 23 vol70  |
| 0 <sub>2</sub>                   | 0 21 Vol%   |
| Response time (t <sub>90</sub> ) | $\leq$ 20 s<br>With standard measuring gas extraction device, length = 1 m  |
| Zero point drift                 | $\leq$ 0.2 Vol% within the maintenance interval   |
| Reference point drift            | $\leq$ 0.2 Vol% within the maintenance interval   |
| Process temperature              | Stainless steel sensor: 0 °C +700 °C<br>Inconel sensor: 0 °C +950 °C<br>Ceramic sensor: 0 °C +1,400 °C  |
| Process pressure                 | 700 hPa 1,100 hPa   |
| Process gas humidity             | Non-condensing  |
| Ambient temperature              | -20 °C +55 °C   |
| Storage temperature              | -40 °C +85 °C   |
| Conformities                     | Approved for systems requiring permission<br>2001/80/EC (13th BlmSchV) (13th German Federal Immission Control Act)<br>2000/76/EC (17th BlmSchV)<br>27th BlmSchV<br>EN 14181 |
| Electrical safety                | CE  |
| Enclosure rating                 | IP 65 / NEMA 4x   |
| Analog outputs                   | 1 output:<br>0/4 20 mA, 800 $\Omega$ 0 10 V Volt-free; can be extended with additional I/O module   |
| Digital outputs                  | 4 relay contacts:<br>+48 V AC, 1 A, 30 W / 48 V DC, 1 A, 60 W<br>Optional   |
| Digital inputs                   | 4 inputs:<br>+24 V<br>Optional  |
| Display                          | LC display  |
| Input                            | Function buttons<br>Arrow keys  |
| Operation                        | Menu operation via LC display and membrane keyboard   |
| Dimensions (W x H x D)           | Details, see dimensional drawings   |

| Weight                         | 27 kg<br>With standard measuring gas extraction device, length = 1 m<br>With heating for measuring gas extraction device, additionally: 4 kg 6 kg |
|--------------------------------|---|
| Material in contact with media | Stainless steel 1.4571  |
| Power supply                   |   |
| Voltage                        | 115 V / 230 V   |
| Frequency                      | 48 62 Hz  |
| Power consumption              | ≤ 250 W   |
| Auxiliaries                    |   |
| Compressed air:                | 4 6 bar; particle size max. 1 $\mu m$ ; oil content max. 0.1 mg/m³; pressure condensation point max. –30 $^\circ C$                               |
| Corrective functions           | Automatic testing and adjustment with ambient air   |
| Integrated components          | Measuring gas pump  |

## ZIRKOR302 P analyzer unit

| Description                      | Analyzer with integrated measuring gas pump   |
|----------------------------------|---|
| Measurands                       | O <sub>2</sub>  |
| Performance-tested measurands    | 0 <sub>2</sub>  |
| Measurement principles           | Zirconium dioxide current sensor  |
| Gas flow rate                    | 0.5 l/h   |
| Measuring ranges                 |   |
| 02                               | 0 10 Vol% / 0 25 Vol%   |
| Certified measuring ranges 02    | 0 21 Vol%   |
| Response time (t <sub>90</sub> ) | $\leq$ 20 s With standard measuring gas extraction device, length = 1 m   |
| Zero point drift                 | $\leq$ 0.2 Vol% within the maintenance interval   |
| Reference point drift            | $\leq$ 0.2 Vol% within the maintenance interval   |
| Process temperature              | Stainless steel sensor: 0 °C +700 °C<br>Inconel sensor: 0 °C +950 °C<br>Ceramic sensor: 0 °C +1,400 °C  |
| Process pressure                 | 700 hPa 1,100 hPa   |
| Process gas humidity             | Non-condensing  |
| Ambient temperature              | -20 °C +55 °C   |
| Storage temperature              | -40 °C +85 °C   |
| Conformities                     | Approved for systems requiring permission<br>2001/80/EC (13th BImSchV) (13th German Federal Immission Control Act)<br>2000/76/EC (17th BImSchV)<br>27th BImSchV<br>EN 14181 |
| Electrical safety                | CE  |
| Enclosure rating                 | IP 65 / NEMA 4x   |
| Analog outputs                   | 1 output: 0/4 20 mA, 800 $\Omega$ 0 10 V Volt-free; can be extended with additional I/O module  |
| Digital outputs                  | 4 relay contacts:<br>+48 V AC, 1 A, 30 W / 48 V DC, 1 A, 60 W<br>Optional   |
| Digital inputs                   | 4 inputs:<br>+24 V<br>Optional  |
| Display                          | LC display  |

| Input                          | Function buttons<br>Arrow keys  |
|--------------------------------|---|
| Operation                      | Menu operation via LC display and membrane keyboard   |
| Dimensions (W x H x D)         | Details, see dimensional drawings   |
| Weight                         | 27 kg<br>With standard measuring gas extraction device, length = 1 m<br>With heating for measuring gas extraction device, additionally: 4 kg 6 kg |
| Material in contact with media | Stainless steel 1.4571  |
| Power supply                   |   |
| Voltage                        | 115 V / 230 V   |
| Frequency                      | 48 62 Hz  |
| Power consumption              | ≤ 250 W   |
| Corrective functions           | Automatic testing and adjustment with ambient air   |
| Integrated components          | Measuring gas pump  |

## ZIRKOR302 control unit; sheet metal housing

| Description                  | The evaluation unit serves as the user interface and is responsible for data processing and output as well as control and monitoring functions |
|------------------------------|--|
| Enclosure rating             | IP 65 / NEMA 4x  |
| Analog outputs               | 3 outputs: 0/4 20 mA, 500 $\Omega$ Galvanically isolated – one output of measured values per connected analyzer                                |
| Digital outputs              | 3 relay contacts:<br>+48 V AC, 1 A, 60 W / 48 V DC, 1 A, 30 W  |
| Digital inputs               | 3 inputs:<br>+24 V<br>Preallocated for faults, maintenance, and operational check  |
| Interfaces and bus protocols |  |
| RS-232                       | SOPAS ET   |
| Display                      | LC display<br>Status LEDs: "Power", "Maintenance", and "Fault"   |
| Input                        | Arrow keys<br>Function buttons   |
| Operation                    | Menu operation via LC display and membrane keyboard  |
| Version                      | Sheet metal housing  |
| Dimensions (W x H x D)       | 200 mm x 346 mm x 97.5 mm  |
| Weight                       | 4 kg   |
| Power supply                 |  |
| Voltage                      | 115 V / 230 V  |
| Frequency                    | 50 Hz / 60 Hz  |
| Power consumption            | ≤ 50 W   |
|                              |  |

## ZIRKOR302 control unit; cast metal housing

| Description      | The evaluation unit serves as the user interface and is responsible for data processing and output as well as control and monitoring functions |
|------------------|--|
| Enclosure rating | IP 67 / NEMA 4x  |
| Analog outputs   | 3 outputs: 0/4 20 mA, 500 $\Omega$ Galvanically isolated – one output of measured values per connected analyzer                                |
| Digital outputs  | 3 relay contacts:<br>+48 V AC, 1 A, 60 W / 48 V DC, 1 A, 30 W<br>Preallocated for faults, maintenance, and operational check                   |
| Digital inputs   | 3 inputs:<br>+ 24 V  |

| Interfaces and bus protocols |  |
|------------------------------|--|
| RS-232                       | SOPAS ET   |
| Display                      | LC display<br>Status LEDs: "Power", "Maintenance", and "Fault" |
| Input                        | Arrow keys<br>Function buttons                                 |
| Operation                    | Menu operation via LC display and membrane keyboard            |
| Version                      | Cast metal housing   |
| Dimensions (W x H x D)       | 289 mm x 370 mm x 138 mm                                       |
| Weight                       | 4 kg   |
| Power supply                 |  |
| Voltage                      | 115 V / 230 V  |
| Frequency                    | 50 Hz / 60 Hz  |
| Power consumption            | ≤ 50 W   |

## Ordering information

Our regional sales organization will be glad to advise you on which device configuration is best for you.

#### Dimensional drawings (dimensions in mm)

Control unit; sheet metal housing



Control unit; cast metal housing







Compressed air unit; mounting plate



Compressed air unit; housing version





## Accessories

## Flanges

Weld-in flange

| Brief description   | Part no. |
|---|----------|
| Adapter flange with seal for high-dust applications, inner diameter = 82 mm, length = 195 mm, structural steel 1.0037 | 5311412  |
| Adapter flange with seal for high-dust applications, inner diameter = 82 mm, length = 195 mm, stainless steel 1.4571  | 5311413  |
| Flange with tube, internal diameter 125 mm, length 90 mm, structural steel 1.0037                                     | 5311342  |
| Flange with tube, internal diameter 125 mm, length 90 mm, stainless steel 1.4539                                      | 5314311  |
| Flange with tube, internal diameter 125 mm, length 90 mm, structural steel 1.0037                                     | 5311343  |

## Plug connectors and cables

Other plug connectors and cables

| Brief description                 | Part no. |
|-----------------------------------|----------|
| CAN extension cable, 6-wire, 15 m | 2020439  |
| Serial connection cable, 10 m     | 6026308  |
| Extension cable, 10 m             | 6026309  |

## 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.

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