



ZIRKOR302 ZIRCONIUM DIOXIDE OXYGEN ANALYZER

RAPID OXYGEN MEASUREMENT FOR OPTIMIZATION
OF INDUSTRIAL PROCESSES

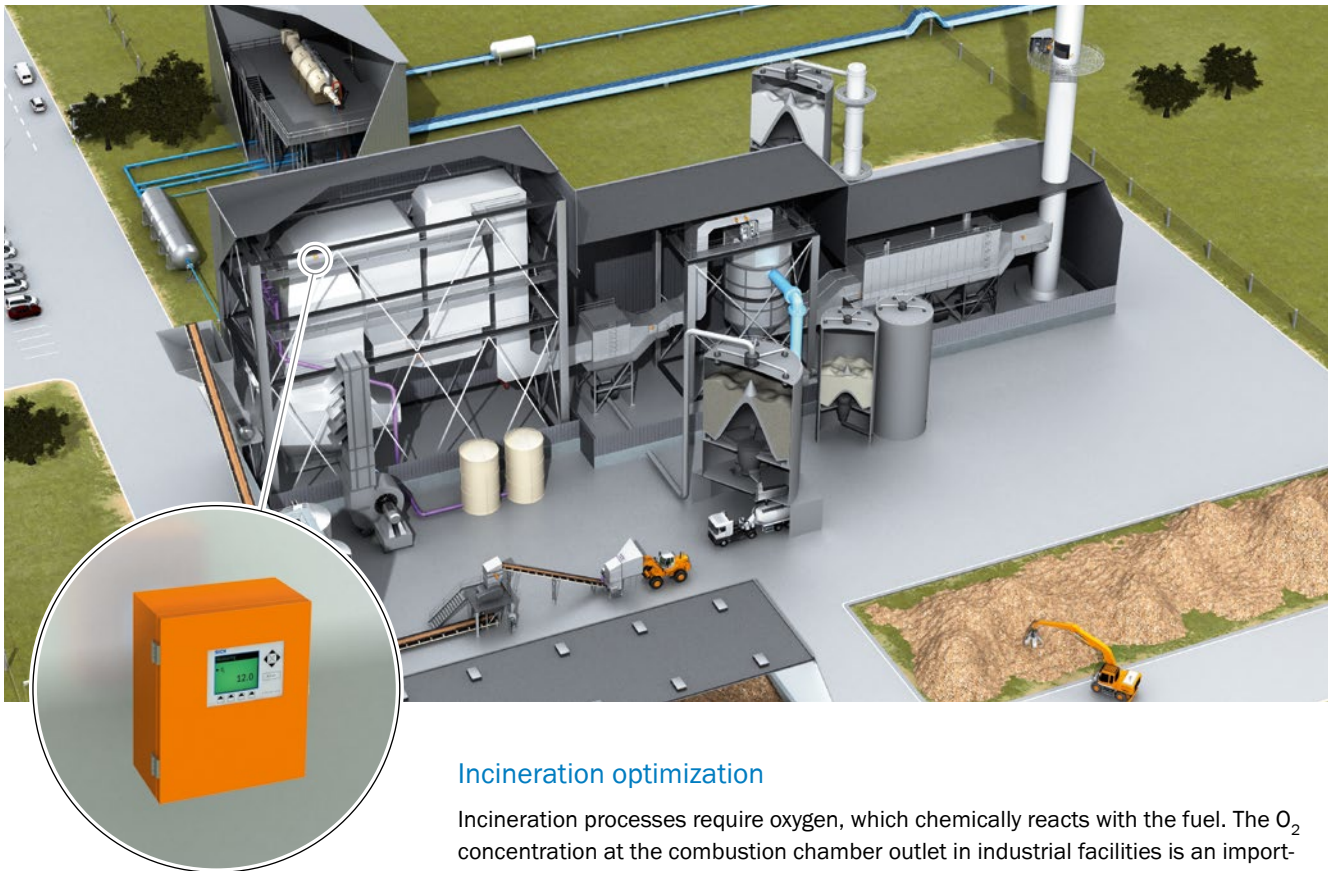
In-situ gas analyzers

SICK
Sensor Intelligence.

FOR EMISSIONS AND PROCESS MEASUREMENTS

Reliable and accurate oxygen measurements are essential for meeting the exacting requirements of emissions monitoring, to allow reference values for other gas components to be established, such as SO_2 , NO , NH_3 , NO_2 . Measured values also need to be available quickly to optimize combustion processes and monitor excess oxygen.

This is where the ZIRKOR302 zirconium dioxide oxygen analyzer comes into its own with its proven in-situ measurement technology.



Incineration optimization

Incineration processes require oxygen, which chemically reacts with the fuel. The O_2 concentration at the combustion chamber outlet in industrial facilities is an important variable when it comes to optimizing incineration. This is regulated by feeding in primary and secondary air.

No test gases required

Automatic testing and adjustment of the measurement with ambient air

Extremely low operating costs

Very low maintenance because maintenance intervals are long – only every three months

Fast response time

Effective plant control
($T_{90} < 20$ s)

Very large temperature range

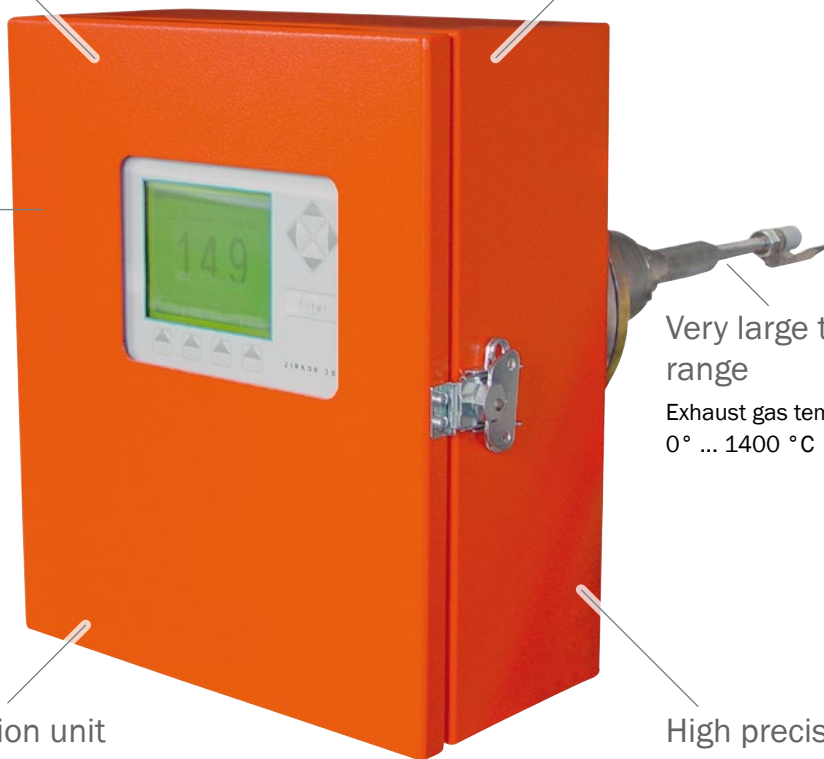
Exhaust gas temperatures from
 $0^{\circ} \dots 1400^{\circ} \text{C}$

Optional evaluation unit

For remote control functions (e.g. mounted in a control room) over a maximum distance of 1,200 m from the analyzer

High precision measured values

$< 0.2\% \text{ Vol.}\%$ across the entire measuring range



Innovative current sensor principle

The ZIRKOR302 oxygen analyzer provides accurate measurement results based on the current sensor principle – i.e. a linear sensor signal across the entire measuring range with a fixed physical zero point. A constant flow of measuring gas passes through a heated solid electrolytic cell.

A key feature of this innovative measurement principle is low operating costs because the ZIRKOR302 does not need any expensive test gases and requires very little maintenance.

RAPID OXYGEN MEASUREMENT FOR OPTIMIZATION OF INDUSTRIAL PROCESSES



Product description

The ZIRKOR302 oxygen analyzer provides fast, reliable measurement of oxygen, even at high temperatures. The analyzer has been designed with safety in mind and does not represent a potential ignition source in the measuring gas. The optional evaluation unit enables

remote maintenance of up to three analyzers. Two variants of the analyzer are available:

- ZIRKOR302-P with integrated measuring gas pump
- ZIRKOR302-E with ejector operated by compressed air

At a glance

- Very large temperature range
- All gas carrying parts are heated
- Automatic testing and adjustment with ambient air or compressed air
- Fixed physical zero point
- Linear measurement signal
- Short response time
- Operation of up to three sensors via one evaluation unit

Your benefits

- No requirement for expensive test gases
- No requirement for reference gas or reference gas pump
- Very low maintenance – maintenance needed only every three months
- Extremely low operating costs
- No risk of igniting the measuring gas because the sensor is outside the measuring gas
- Ideal for process control because the short response time allows for rapid measurements
- Accuracy not affected by the temperature of the measuring gas



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→ www.mysick.com/en/ZIRKOR302
For more information, simply go to the link provided to obtain direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Fields of application

- Optimizing combustion processes
- Establishing reference values for emissions monitoring
- Monitoring excess oxygen
- Monitoring inerting processes

Detailed technical data

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

ZIRKOR302 P system

Description	Analyzer with integrated measuring gas pump
Measurement principles	Zirconium dioxide current sensor
Gas flow rate	0.5 l/h
Measuring ranges	O ₂ 0 ... 10 Vol.-% / 0 ... 25 Vol.-%
Certified measuring ranges	O ₂ 0 ... 21 Vol.-%
Response time	≤ 20 s With standard measuring gas extraction device, length = 1 m
Zero point drift	≤ 0.2 Vol.-% within the maintenance interval
Reference point drift	≤ 0.2 Vol.-% within the maintenance interval
Process temperature	Stainless steel sensor: 0 °C ... +700 °C Inconel sensor: 0 °C ... +950 °C Ceramic sensor: 0 °C ... +1,400 °C
Process pressure	700 hPa ... 1100 hPa
Process gas humidity	Non-condensing
Ambient temperature	-20 °C ... +55 °C
Storage temperature	-40 °C ... +85 °C
Conformities	Authorized for systems requiring approval 2001/80/EC (13th BImSchV) (German Federal Immission Protection Ordinance) 2000/76/EC (17th BImSchV) 27th BImSchV EN 14181 GOST
Electrical safety	CE
Enclosure rating	IP 65/NEMA 4x
Analog outputs	1 output: 0/4 ... 20 mA, 800 Ω 0 ... 10 V Volt-free – may be extended with additional I/O module
Digital outputs	4 relay contacts: 48 V AC, 1 A, 30 W / 48 V DC, 1 A, 60 W Option
Digital inputs	4 inputs: 24 V Option
Interfaces	RS-232 (service interface) RS-422 (option)
Bus protocol	PROFIBUS DP (option) Modbus RTU (option) Interbus S (option)
Display	LC display
Input	Function buttons Arrow keys
Operation	Menu-driven operation via LC display and membrane keyboard

Dimensions (W x H x D)	For details, see dimensional drawings
Weight	27 kg With standard measuring gas extraction device, length = 1 m With heating for measuring gas extraction device, additional 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 E system

Description	Analyzer with ejector operated by compressed air
Measurement principles	Zirconium dioxide current sensor
Gas flow rate	0.5 l/h
Measuring ranges	
O ₂	0 ... 10 Vol.-% / 0 ... 25 Vol.-%
Certified measuring ranges	
O ₂	0 ... 21 Vol.-%
Response time	≤ 20 s With standard measuring gas extraction device, length = 1 m
Zero point drift	≤ 0.2 Vol.-% within the maintenance interval
Reference point drift	≤ 0.2 Vol.-% within the maintenance interval
Process temperature	Stainless steel sensor: 0 °C ... +700 °C Inconel sensor: 0 °C ... +950 °C 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	Authorized for systems requiring approval 2001/80/EC (13th BImSchV) (German Federal Immission Protection Ordinance) 2000/76/EC (17th BImSchV) 27th BImSchV EN 14181 GOST
Electrical safety	CE
Enclosure rating	IP 65/NEMA 4x
Analog outputs	1 output: 0/4 ... 20 mA, 800 Ω 0 ... 10 V Volt-free – may be extended with additional I/O module
Digital outputs	4 relay contacts: 48 V AC, 1 A, 30 W / 48 V DC, 1 A, 60 W Option
Digital inputs	4 inputs: 24 V Option
Interfaces	RS-232 (service interface) RS-422 (option)
Bus protocol	PROFIBUS DP (option) Modbus RTU (option) Interbus S (option)

Display	LC display
Input	Function buttons Arrow keys
Operation	Menu-driven operation via LC display and membrane keyboard
Dimensions (W x H x D)	For details, see dimensional drawings
Weight	27 kg With standard measuring gas extraction device, length = 1 m With heating for measuring gas extraction device, additional 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 µm; oil content max. 0.1 mg/m ³ ; pressure condensation point max. -30 °C
Corrective functions	Automatic testing and adjustment with ambient air
Integrated components	Measuring gas pump

ZIRKOR302 evaluation unit – sheet steel housing

Description	The evaluation unit provides the user interface, data processing, data output, and control and monitoring functions
Enclosure rating	IP 65/NEMA 4x
Analog outputs	3 outputs: 0/4 ... 20 mA, 500 Ω Galvanically isolated – one output of measured values per connected analyzer
Digital outputs	3 relay contacts: 48 V AC, 1 A, 60 W / 48 V DC, 1 A, 30 W
Digital inputs	3 inputs: 24 V Preset for fault, maintenance, and operational check
Interfaces	RS-232 (service interface)
Bus protocol	CAN (internal system bus)
Display	LC display Status LEDs: "Power", "Maintenance," and "Fault"
Input	Arrow keys Function buttons
Operation	Menu-driven operation via LC display and membrane keyboard
Design	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 evaluation unit – cast metal housing

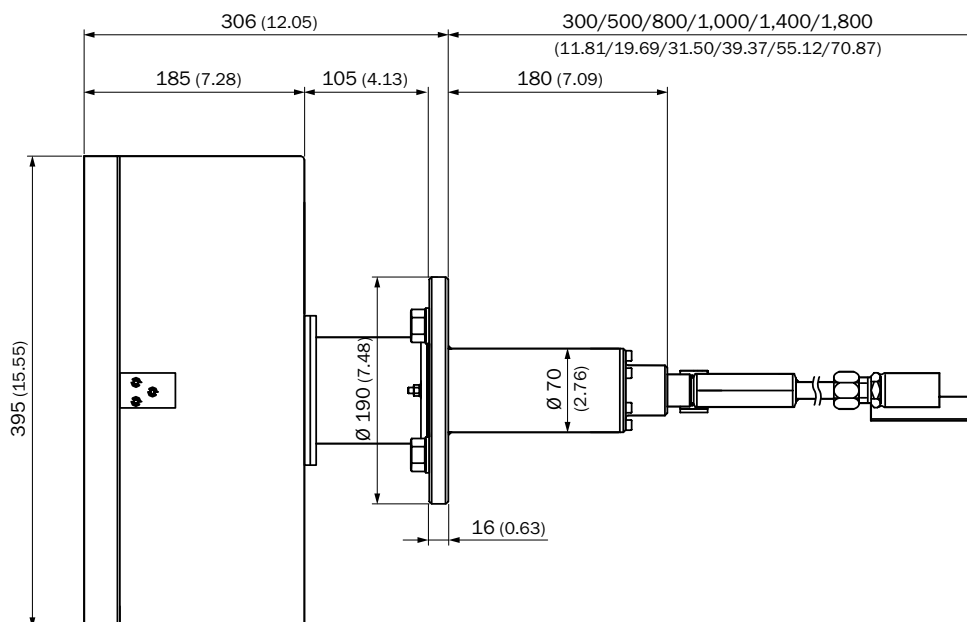
Description	The evaluation unit provides the user interface, data processing, data output, and control and monitoring functions
Enclosure rating	IP 67/NEMA 4x
Analog outputs	3 outputs: 0/4 ... 20 mA, 500 Ω Galvanically isolated – one output of measured values per connected analyzer
Digital outputs	3 relay contacts: 48 V AC, 1 A, 60 W / 48 V DC, 1 A, 30 W Preset for fault, maintenance, and operational check
Digital inputs	3 inputs: 24 V
Interfaces	RS-232 (service interface)
Bus protocol	CAN (internal system bus)
Display	LC display Status LEDs: "Power", "Maintenance," and "Fault"
Input	Arrow keys Function buttons
Operation	Menu-driven operation via LC display and membrane keyboard
Design	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

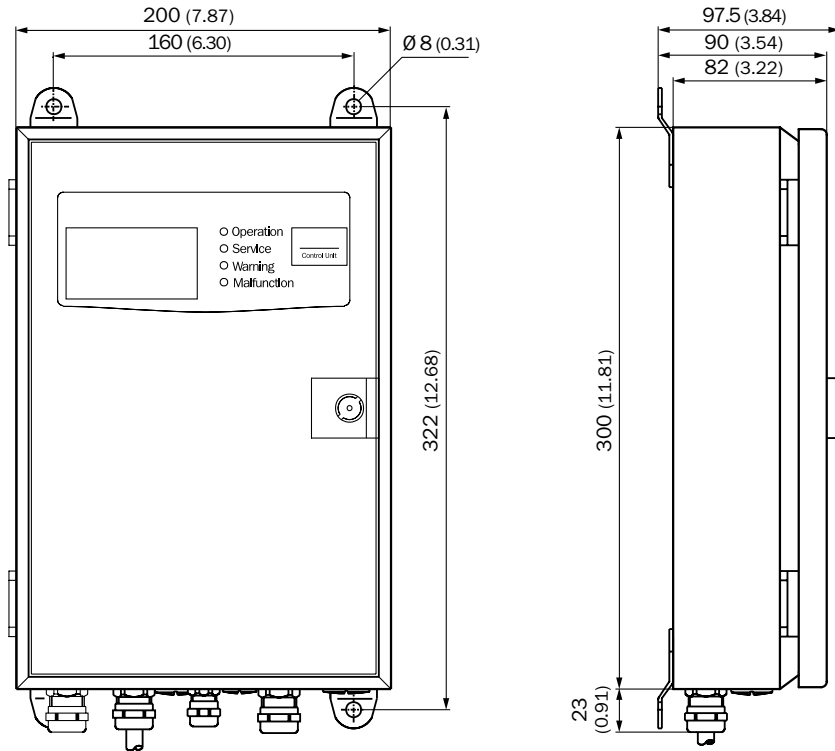
Our regional sales organization will be glad to advise you on which device configuration is best for you.

Dimensional drawings (Dimensions in mm (inch))

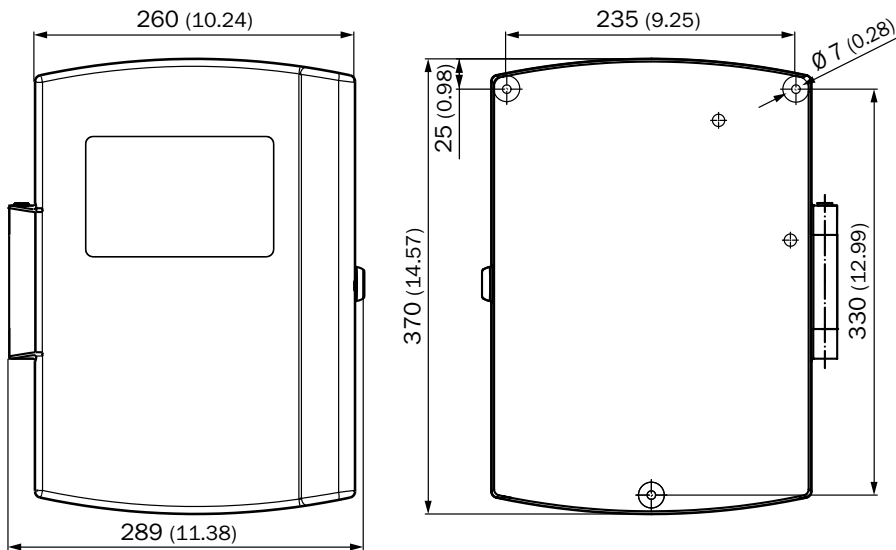
ZIRKOR302



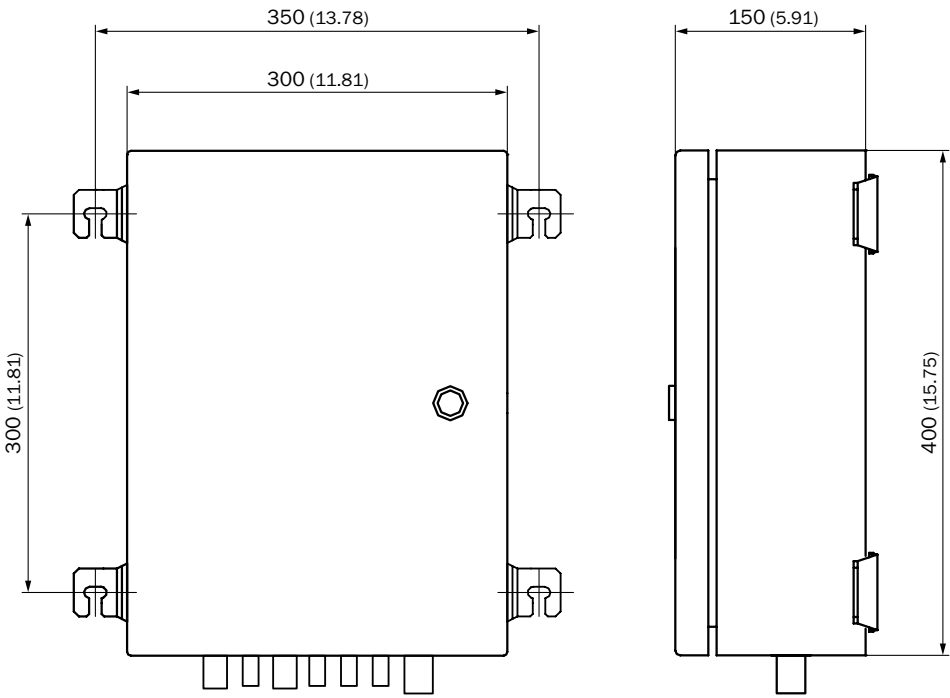
Evaluation unit; steel sheet enclosure



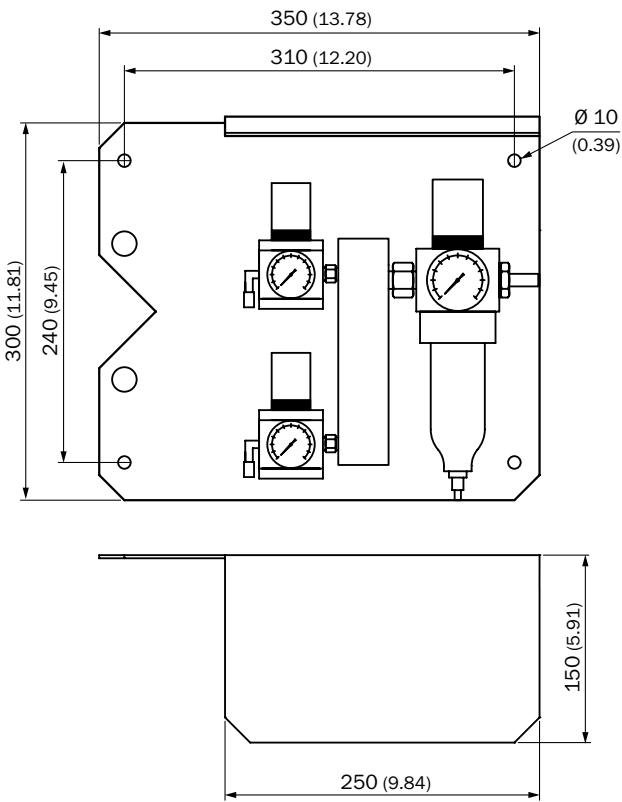
ZIRKOR302 evaluation unit; cast metal enclosure



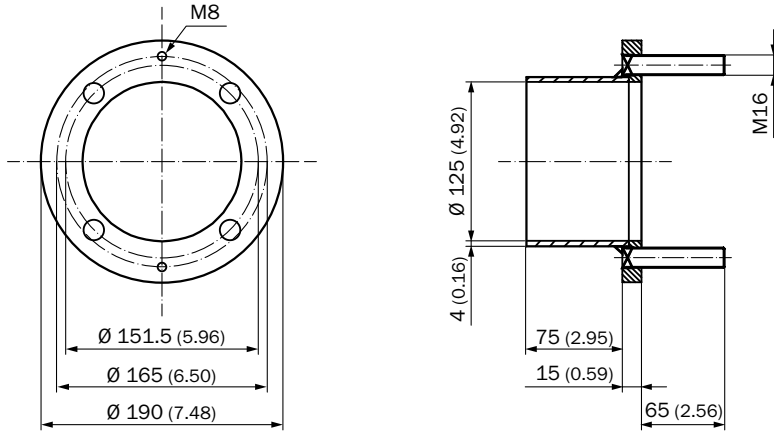
Compressed air unit; enclosure version



Compressed air unit; mounting panel



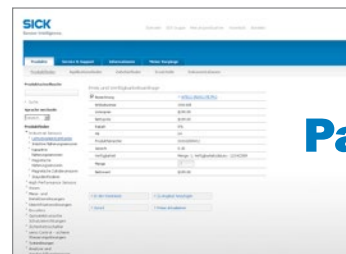
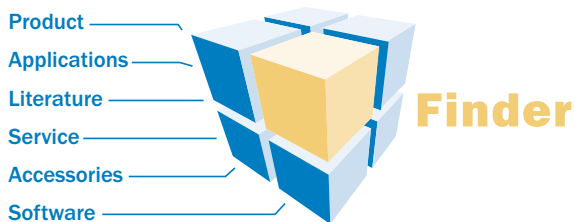
Mounting flange, $D_f=125$ mm



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SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 6,500 employees and over 50 subsidiaries and equity investments as well as numerous representative offices 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:

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Detailed addresses and additional representatives → www.sick.com