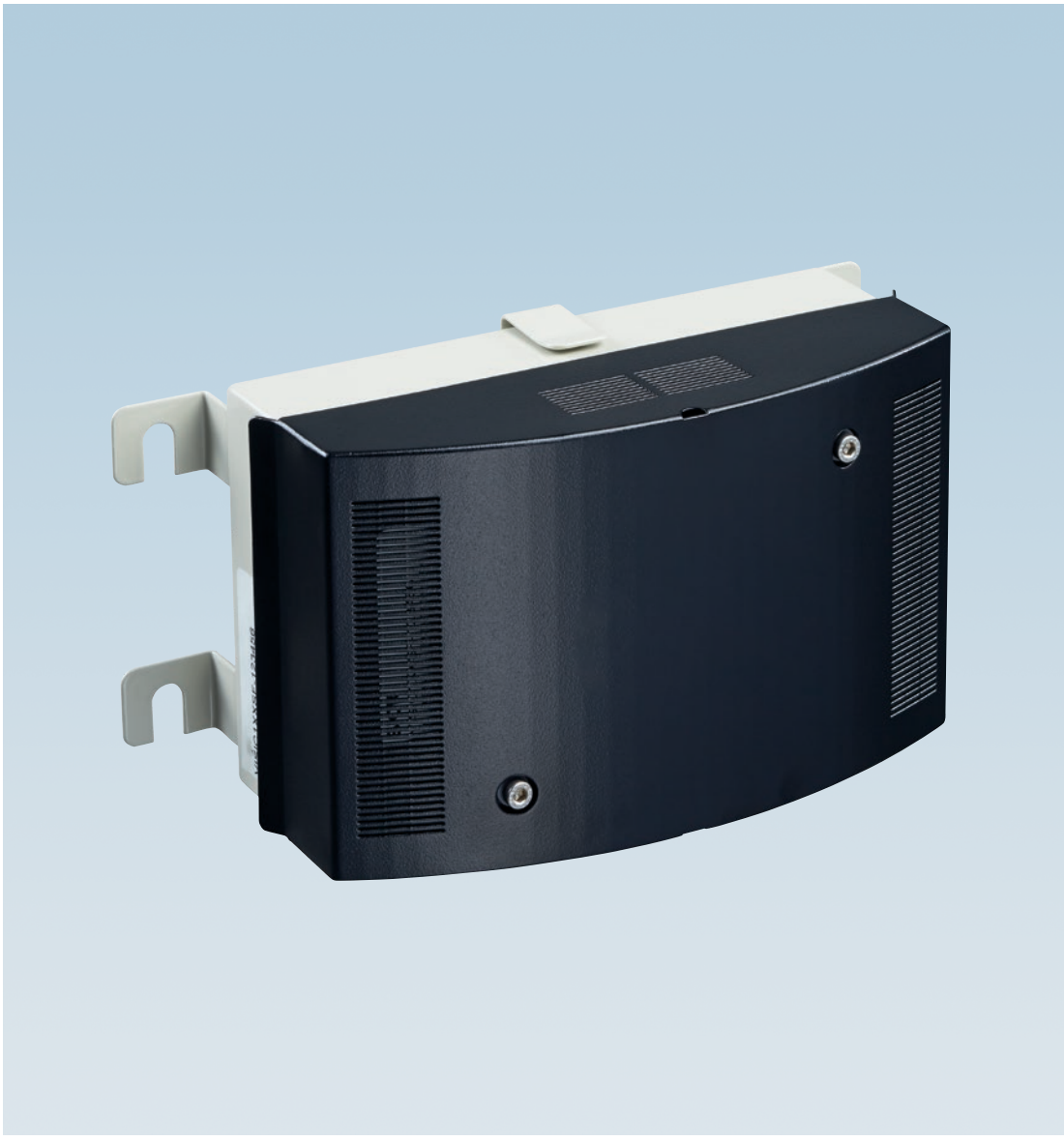
VISIC50SF

Smoke detector for early and reliable fire protection in a tunnel

A smoke detector for the early and reliable detection of fire in tunnels

- Perfect addition to temperature cables due to increased detection speeds
- High levels of reliability and operational safety
- No protective measures required for tunnel washing
- Delivers reliable performance even with portal fog
- Flexible connection options, easy to extend and integrate into existing networks
- Quick K value check with a testing tool
- Low level of effort due to simple mounting and quick commissioning
- Alarm signal with adjustable limit value



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As a full-service supplier of tunnel sensors and traffic measurement technology, we make available with the VISIC50SF a compact smoke detector for early and safe smoke detection. Of a high quality and future proof with regard to service and long-term support.

Simple and cost-effective

The VISIC50SF compact smoke detector impresses with a very simple installation process and a fast commissioning. As the VISIC50SF is pre-set before dispatch, it can begin measuring as soon as it is switched on. This means less time is required to prepare the site for installation and get the device up and running. And with extensive service intervals of at least one year, the VISIC50SF is also extremely cost-effective.

When every second counts

Fast and reliable smoke detection in tunnels can save lives and avoid damage to property. With the VISIC50SF, an efficient solution has been developed that is ideally suited for this task.

Using a tried-and-tested scattered light measurement system, the innovative VISIC50SF tunnel smoke detector can recognize smoke particles within just a few seconds and sounds an alarm immediately.

High levels of reliability and operational safety

With the VISIC50SF, tunnels can be washed without the need for any additional protective measures: The device's rugged stainless-steel housing features a high enclosure rating (IP 6K9K). As the device's software has been developed to comply with the requirements of safety integrity level (SIL) 1, high operational safety during measurement is ensured. A monitoring tool is available which can be used to test the device's smoke detection function by checking an actual value within the unit's measuring range.

The solution for every tunnel

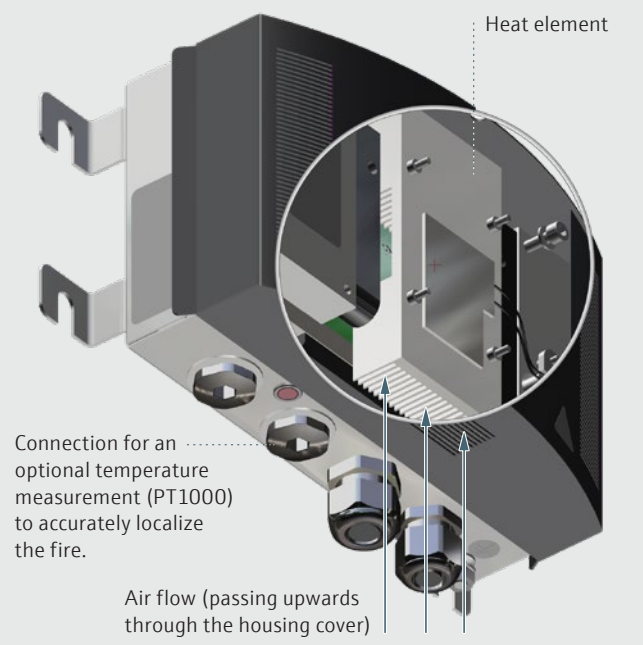
The VISIC50SF smoke detector includes flexible interfaces featuring Modbus RTUs or PROFIBUS DP, allowing the device to be altered to suit local installation conditions or easily integrated into an existing network. False alarms due to fog can be avoided by using an optional heating. This is a key requirement, particularly for measurement devices located around tunnel portals.

Alarm security you can rely on

The VISIC50SF smoke detector effectively prevents interference by:

- To evaporate fog using an optional heating
- Limiting the size of the measurement opening to prevent insects from entering the measurement chamber and thus altering measured values
- Providing adequate optical chamber protection.

The result: Exceptionally low false alarm rates combined with extremely reliable smoke detection.



VISIC50SF:
Early and reliable fire detection in tunnels

Product description

The VISIC50SF smoke detector offers high-speed measurement to ensure fast and reliable smoke detection when tunnel fires occur. The VISIC50SF is very easy to mount, operate and maintain. Measurement starts immediately: No alignment or configuration is needed. An enclosure rating of IP 6K9K means the VISIC50SF can withstand not only harsh environmental conditions, but also washing procedures. During the design phase, particular importance was placed on ensuring reliable operation and long maintenance intervals. That is why there are no moving parts. To suppress for fog, there is an optional version available with heating. This allows the VISIC50SF to effortlessly meet your desired requirements, making it the perfect solution for the fast and reliable detection of fires.

At a glance

- Visibility (K value) measured according to the scattered light measurement principle
- Highly reliable – no moving parts
- Quick and safe smoke detection
- Minimal error rate
- IP 6K9K enclosure rating thanks to a rugged stainless steel housing
- Fog evaporation via integrated heating element (optional)

Your benefits

- Perfect addition to temperature cables due to increased detection speeds
- High levels of reliability and operational safety
- No protective measures required for tunnel washing
- Delivers reliable performance even with portal fog
- Flexible connection options, easy to extend and integrate into existing networks
- Quick K value check with a testing tool
- Low level of effort due to simple mounting and quick commissioning
- Alarm signal with adjustable limit value

Fields of application

- Cold smoke detection in road tunnels for early fire detection
- Smoke detection in areas with corrosive environments

CE EN 15267 EN 14181

More Information online

For more information, enter the link or scan the QR code to get direct access to technical data, operating instructions, software, application examples, and much more.
www.endress.com/visic50sf

Detailed technical data

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

VISIC50SF

Measured values	Visibility (K-value)
Measurement principles	Scattered light forward
Measuring ranges	
Visibility (K-value)	0 ... 150 /km
Temperature measurement (option)	−30 ... +70 °C
Response time	≤ 5 s
Resolution	Visibility (K-value): 1 /km
Repeatability	1 % of measuring range full scale
Ambient temperature	−20 °C ... +55 °C
Storage temperature	Measuring device: −30 °C ... +85 °C
Ambient pressure	860 hPa ... 1.080 hPa
Ambient humidity	10 % ... 100 % Relative humidity; non-condensing
Conformities	ASTRA "Guideline - Fire Detection in Road Tunnels" (2007) RABT 2006
Electrical safety	CE
Test functions	Contamination monitoring of glass pane Drift and plausibility check Automatic self-test Functional monitoring of the optional heating
Options	Internal heating Terminal box TAD tunnel adapter device Temperature sensor

VISIC50SF sensor unit

Description	Analyzer unit of the measuring system
Enclosure rating	IP 6K9K
Analog outputs	2 outputs: 4 ... 20 mA, 500 Ω, electrically isolated; short-circuit proof. Outputs are preset for smoke detection and temperature.
Digital outputs	3 relay contacts: 48 V, 0.5 A, 24 W Preset for failure, limit value and maintenance
Interfaces and bus protocols	
RS-485	Modbus RTU (not available when a TAD is used)
RS-485	PROFIBUS DP (option)
Indication	LC display, inside Status LEDs: "Operational", "Maintenance required", and "Fault"

Input	Functional keys
Operation	Via LC-display and function keys
Dimensions (W x H x D)	266 mm x 159 mm x 117 mm (for details see dimensional drawings)
Weight	2,8 kg
Material	Stainless steel 1.4571
Mounting	Wall mount, vertical, wall inclination up to 45° or ceiling mount using an adapter
Power supply	
Voltage	18 ... 28 V DC
	Other voltages with optional terminal box or Tunnel Adapter Device TAD
Current consumption	≤ 1 A
Power consumption	Without heating: ≤ 5 W With heating: ≤ 20 W

TAD tunnel adapter device

Description	Remote controll with integrated display and additional I/Os
Enclosure rating	IP 66
Analog outputs	4 outputs (option): 4 ... 20 mA, 500 Ω, electrically isolated
Digital outputs	3 outputs (option): 125 V AC, 0.6 A / 30 V DC, 2 A
Digital inputs	1 input (option): 30 V DC
Dimensions (W x H x D)	210 mm x 347 mm x 129 mm (for details see dimensional drawings)
Weight	5 kg
Material	Stainless steel 1.4571
Power supply	
Voltage	88 ... 264 V AC
Frequency	47 ... 63 Hz
Power consumption	≤ 15 W

VISIC50SF terminal box

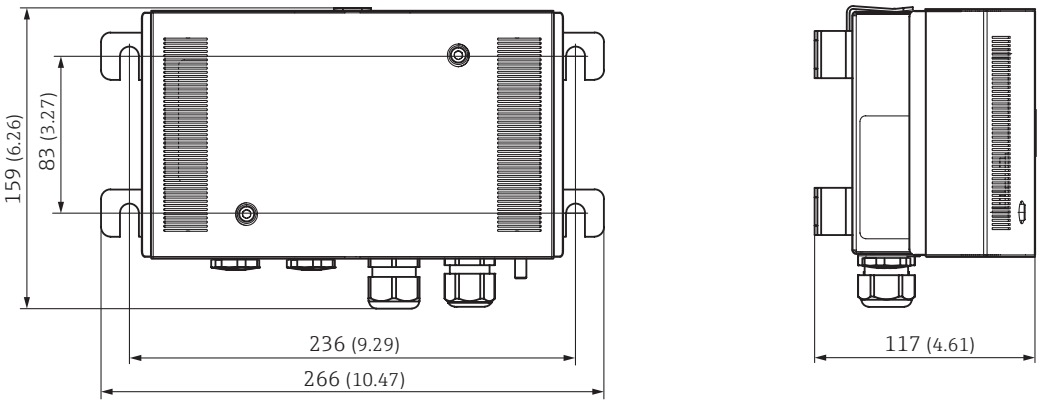
Description	Serves for connection of power supply, data and signal cabling provided by the customer
Enclosure rating	IP 6K9K
Dimensions (W x H x D)	266 mm x 238 mm x 146 mm (for details see dimensional drawings)
Weight	2,8 kg
Material	Stainless steel 1.4571
Power supply	
Voltage	85 ... 264 V AC
Frequency	45 ... 65 Hz
Current consumption	≤ 0,1 A

Ordering information

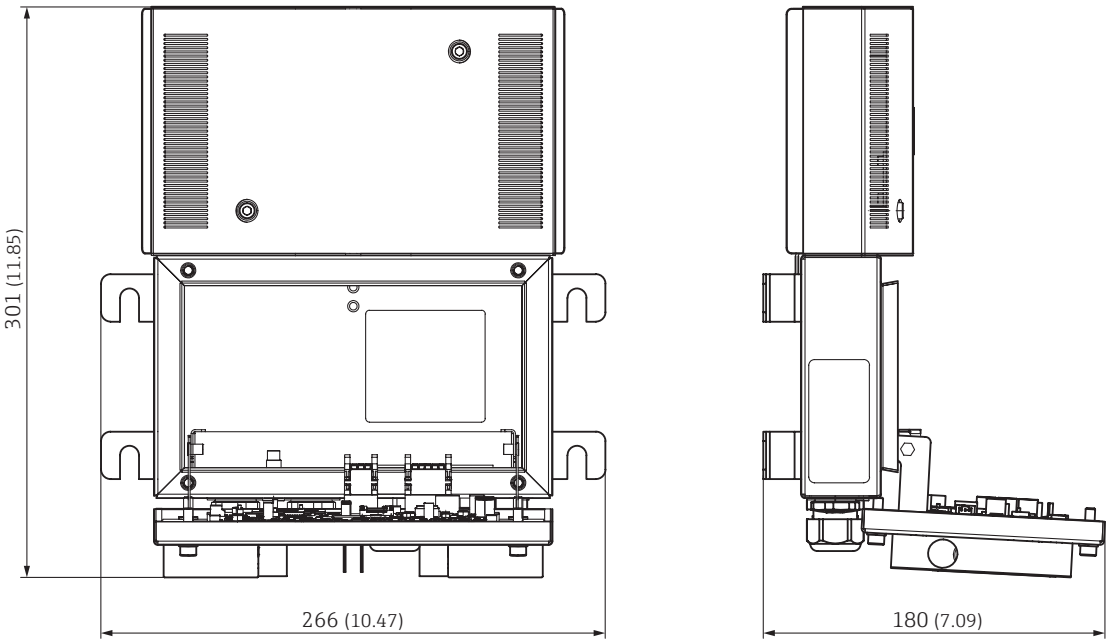
BOur regional sales organization will help you to select the optimum device configuration.

Dimensional drawings

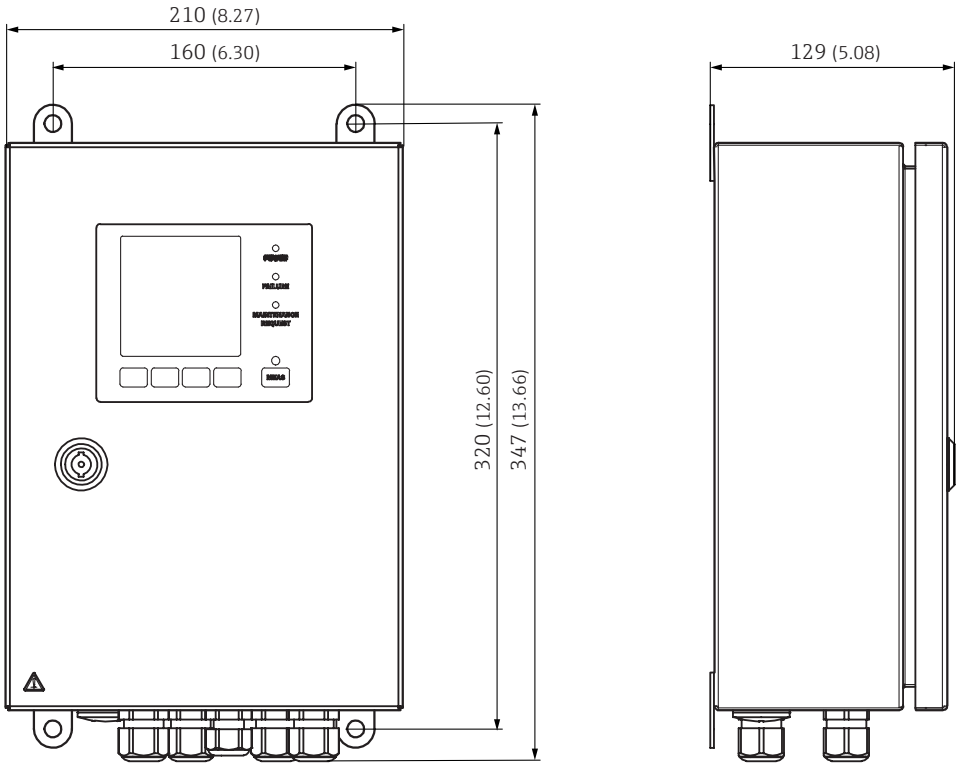
Sensoreinheit VISIC50SF geschlossen (dimensions in mm (inch))



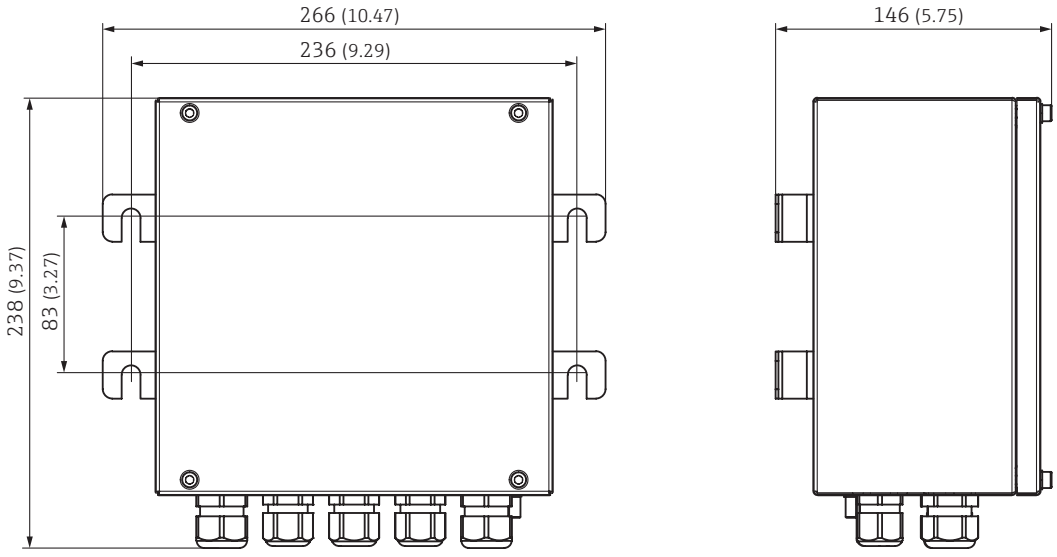
VISIC50SF sensor unit open with clipped-on front cover (dimensions in mm (inch))



TAD tunnel adapter device (dimensions in mm (inch))

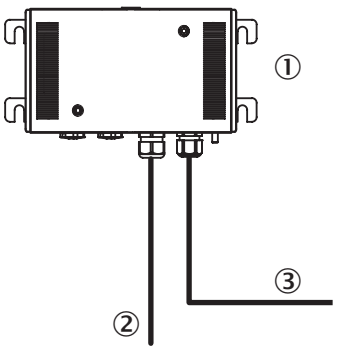


VISIC50SF terminal box (dimensions in mm (inch))



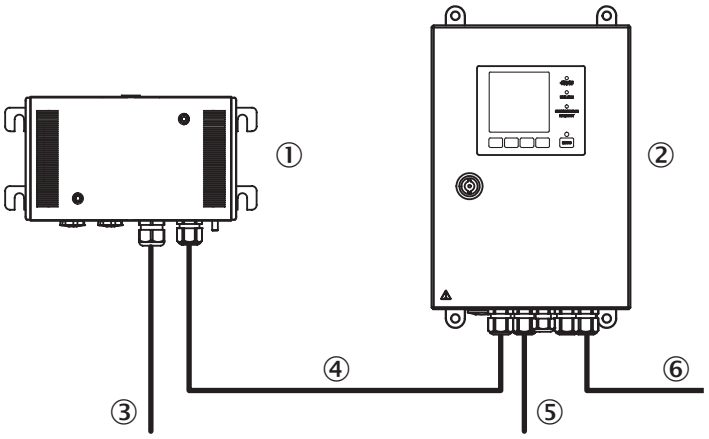
Connection types

Standard version



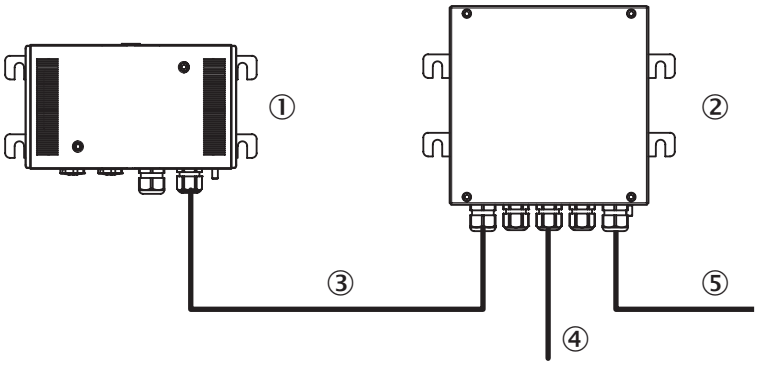
① VISIC50SF sensor unit
② Power supply (24 V)
③ Analog and digital signals or data bus

Version with Tunnel Adapter Device TAD



① VISIC50SF sensor unit
② TAD tunnel adapter device
③ Power supply (24 V)
④ Analog and digital signals or data bus (maximum length = 1,200 m)
⑤ Power supply (230 V)
⑥ Analog and digital signals or data bus

Version with terminal box



① VISIC50SF sensor unit
② VISIC50SF terminal box
③ Analog and digital signals or data bus, incl. power supply (24 V)
④ Power supply (230 V)
⑤ Analog and digital signals or data bus

Accessories

Power supply units and power cord connectors

Brief description	Part no.
Power supply set consisting of: power supply,plastic housing, terminal, gland	2081372
TAD for VISIC100/VISIC50SF with LC-display, power supply and connection terminals, data transfer: analog and digital, distance to sensor: max. 20 m	1069505
TAD for VISIC100/VISIC50SF with LC-display,power supply and I/O-module, data transfer:digital (RS-485) distance to sensor: max. 1200 m by separate power supply for Sensor and TAD	1069507
Terminalbox without power supply, connection terminals for the analog outputs and relay of the VISIC100SF/ VISIC50SF	2069653
Terminalbox with power supply for the VISIC100SF, connection terminals for the analog outputs and relay of the VISIC100SF/VISIC50SF	2069660

Test and monitoring tools

Brief description	Part no.
Test set consisting of: case, 1x filter for checking the K-value for smoke	2075601

Mounting brackets and mounting plates

Befestigungswinkel

Brief description	Part no.
Bracket for mounting VISIC50SF below the ceiling, Stainless steel 1.4529	2076795
Bracket for mounting VISIC50SF below the ceiling, Stainless steel 1.4571	2075713
Bracket swiveling for mounting VISIC50SFlat sloped tunnel wall, Stainless steel 1.4529	2076796
Bracket swiveling for mounting VISIC50SF at sloped tunnel wall, Stainless steel 1.4571	2075525

Other mounting accessories

Brief description	Part no.
Mounting kit, 4 x M8 steel wall plug for VISIC100SF/VISIC50SF and/or Terminal Box, Stainless steel 1.4529	2071034

Plug connectors and cables

Other connectors and cables

Brief description	Part no.
Connection cable between VISIC100SF/VISIC50SF and Terminal Box/TAD, with core cable end, 12-wire, 10 m	2076478
Connection cable between VISIC100SF/VISIC50SF and Terminal Box/TAD with core cable end, 12-wire, 2 m	2076476
Connection cable between VISIC100SF/VISIC50SF and Terminal Box/TAD, with core cable end, 12-wire, 20 m	2076479
Connection cable between VISIC100SF/VISIC50SF and Terminal Box/TAD, with core cable end, 12-wire, 5 m	2076477
Connection cable between VISIC100SF/VISIC50SF and Terminal Box/TAD, with core cable end, 6-wire, 10 m	2076483
Connection cable between VISIC100SF/VISIC50SF and Terminal Box/TAD, with core cable end, 6-wire, 2 m	2076481
Connection cable between VISIC100SF/VISIC50SF and Terminal Box/TAD, with core cable end, 6-wire, 20 m	2076484
Connection cable between VISIC100SF/VISIC50SF and Terminal Box/TAD, with core cable end, 6-wire, 5 m	2076482

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