SMOTEC450
Smoke Detector

Fast and reliable smoke detection
for every type of tunnel

SICK
Sensor Intelligence.

SMOTEC450
Highly efficient smoke detection for every type of tunnel

WHEN SECONDS COUNT

Fast and reliable detection of smoke in tunnels safes human life and avoids material damage.

SICK has developed a highly effective solution: **the SMOTEC450**. Using scatter light measurement, this innovative tunnel smoke detector device is able to register smoke particles within seconds and gives out the alarm immediately. The same applies in conditions with high air velocity and "cold" fires.

RELIABLE ALARM SIGNALS

There are thousands of transmissiometers, made by SICK, that have been installed in tunnels all over the world to measure visibility. The rate for false alarm is 0.05/device per year. The SMOTEC450 achieves even lower rates, achieved by cutting out perturbations, such as:
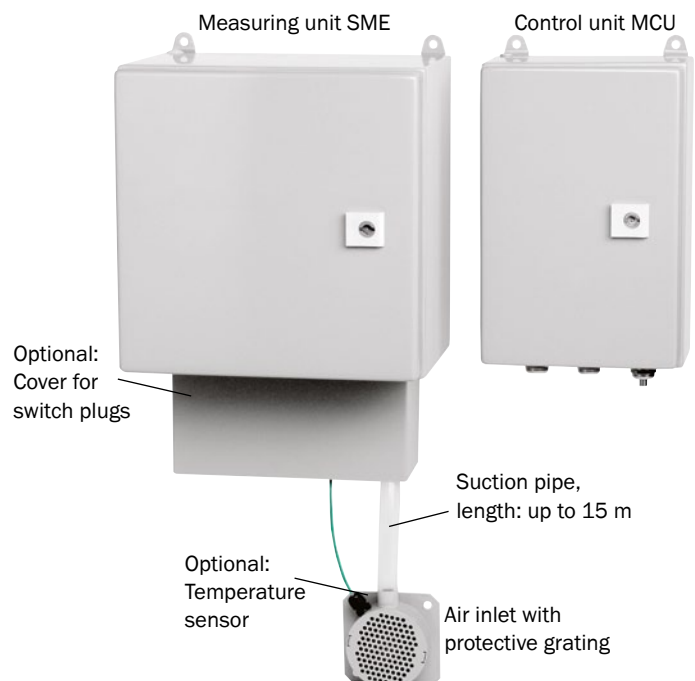- Fog – gets evaporated in a heating chamber.
- Animals (birds and spiders) – are scarcely able to penetrate the measuring volume.
- Contamination of optics – compensated by control cycles.

It's a very convincing answer: an all-time record of low false alarms and at the same time a high detection ratio.

EASY INTEGRATION INTO EXISTING SYSTEMS

It is simple to integrate SMOTEC450 in a wide range of installations on-site, because the control unit MCU is not only upgradeable with standard interfaces (analog and digital) but also optionally with additional modules, such as PROFIBUS or Ethernet.

The distance between 2 measurement points must not exceed 150 m (see regulations, e.g. RABT, ASTRA). There are no restrictions to the height of the installation point.

Measuring unit SME

Control unit MCU

Optional: Cover for switch plugs

Suction pipe, length: up to 15 m

Optional: Temperature sensor

Air inlet with protective grating

With the optional protection shield, tunnels can be cleaned wihout special precautions for the measurement device SMOTEC450

More safety with SICK in demanding situations

DOUBLE SAFETY

How frequently do smoke detector need to be checked? What is the expense for tunnel closure, servicepersonnel and tools?

It's simple with the SMOTEC450: **one** test a day, no tunnel closure, no other costs. The automatic control cycle monitors each important component (transmitter LED, receiver, contamination of optics).
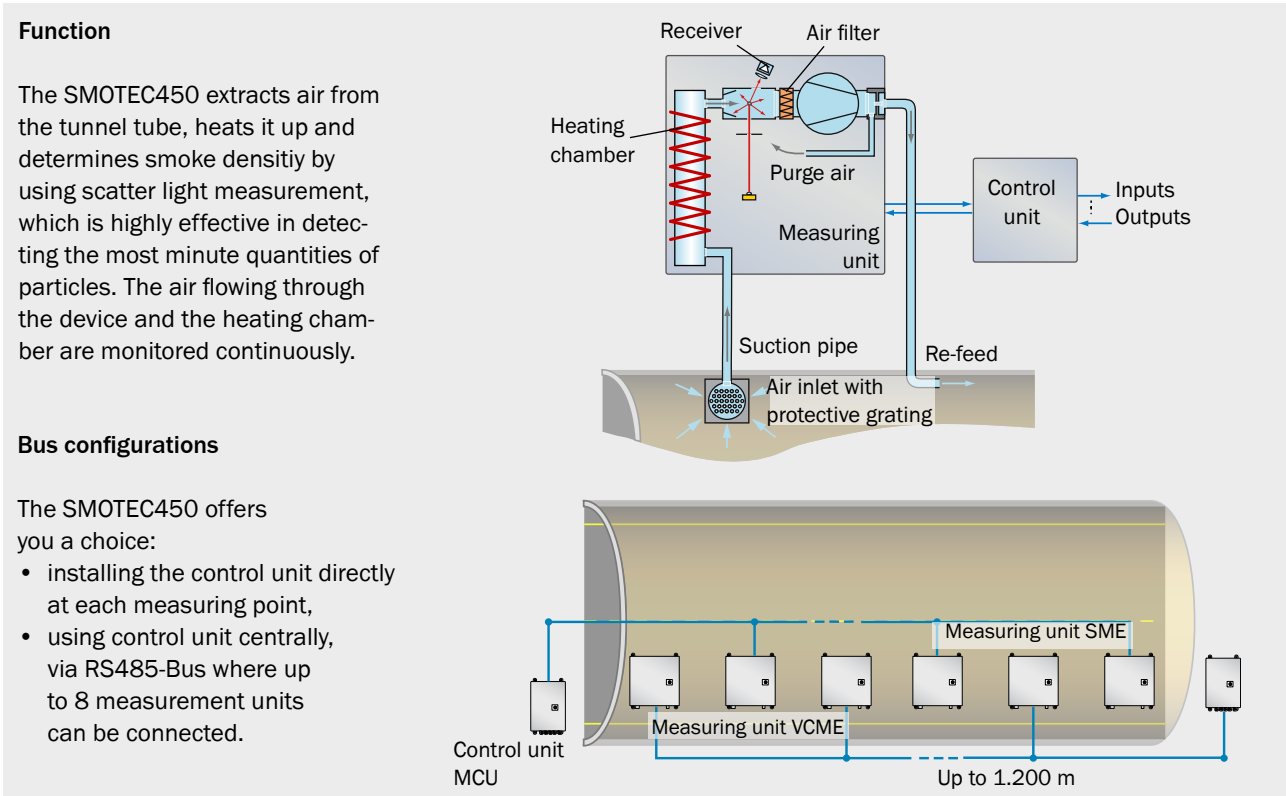
FLEXIBLE, DURABLE AND ROBUST

SMOTEC450 is suitable for installation in operation areas, at tunnel walls or in air passages. The air is either sucked in with a suction pipe, that can measure up to 15 metres or directly at the device.

The robust housing, made of stainles steel, 1.4571, meets protection class IP 66 and is suitable for long-lasting operation in harsh tunnel environment.

SIMPLE TO START-UP AND TO OPERATE

The start-up of the SMOTEC450 is straight forward: simply check and enter a few parameters, that have been factory-set with standard values – finished. Cost- and time efficient maintenance during operation due to :
- signal for maintenance requirement,
- an optional blower control (increased service time of air filter),
- an integrated purge-air for optical boundary surfaces,
- use of top-quality components.

Function

The SMOTEC450 extracts air from the tunnel tube, heats it up and determines smoke densitiy by using scatter light measurement, which is highly effective in detecting the most minute quantities of particles. The air flowing through the device and the heating chamber are monitored continuously.

Bus configurations

The SMOTEC450 offers you a choice:
- installing the control unit directly at each measuring point,
- using control unit centrally, via RS485-Bus where up to 8 measurement units can be connected.

SMOTEC450 | SICK

Technical data	SMOTEC450	
Measuring components	Visibility (K-value)	
Measuring range	0 ... 2000 $^1/_{km}$, default: 0 ... 150 $^1/_{km}$	
Ambient conditions		
Ambient temperature	• Operation: –30 ... +55 °C • Storage: –40 ... +60 °C	
Approvals		
Protection class	IP 66	
Electrical safety	CE	
Inputs/Outputs,Interfaces	**Sensor**	**Control Unit MCU**
Analog outputs		1 analog outputs[1]
Analog inputs		2 analog inouts
Digital outputs		5 relais outputs[1]
Digital inputs		4 digital input[1]
Interfaces		• USB • RS232 Optional: • Profibus DP (undirektionaler Datentransfer); RS485
General		
System components	• 1 measuring unit SME with integrated suction pipe • 1 control unit MCU • Optional: Cover for switch plugs • Optional: • Measurement of air flow rate • Temperature sensor	
Operation	SOPAS-ET	
Control function	Automatic self test • Linearity • Contamination, drift • Aging Manual linearity test • with reference filter	
Installation	Direct installation at the measuring location	

[1] Optional: modules for further relays and analog outputs

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