



Air quality monitoring Visibility & gas measurement

Visibility and gas monitoring to improve tunnel safety

Technical Data

Visibility measurement	
Measuring method	30° scattered light intensity
Measured value	Scattered light
Measuring range	0 .. 15 / km
Resolution	0.001 / km
Accuracy	0.01/ km
Temperature range	-40 .. +60 °C
Humidity range	0 .. 100% relative humidity (non-condensing)

Gas measurement (optional)	
Measuring cells	up to 3
Measuring method	Electrochemical gas analysis
Measured value	Gas concentration in ppm
Measuring range	Depending on installed cell
Resolution	Typical ranges according to draft of EN50545-2:
Accuracy	0 .. 300 ppm CO / 0.1 ppm / ± 2 ppm or 2 % reading 0 .. 25 ppm NO / 0.01 ppm / ± 0.5 ppm or 2 % reading 0 .. 2 ppm NO ₂ / 0.01 ppm / ± 0.05 ppm or 4 % reading
Long term drift	< 2 % per month
T90 time	< 40 s
Temperature range	-40 .. +60 °C (temperature compensated)
Pressure range	900 .. 1100 hPa
Humidity range	15 .. 95% relative humidity (non-condensing)

Sensor	
Model	JES smart/AQM
Power supply	24 VDC
Material	Stainless steel 1.4404
Protection class	IP 69K
Dimensions	300 x 220 x 100 mm
Weight	approx. 6.5 kg
Digital interfaces	MODBUS RTU (RS-485) MODBUS/TCP (Ethernet) Webserver for configuration (Ethernet)
Analogue outputs	3 x 4 – 20 mA (up to 6 on request)
Digital outputs	3 x relay (up to 6 on request)



Terminal Box	
Model	JES smart/AQM-TBX
Operating voltage	90 to 264 VAC, 48 to 62 Hz
Power consumption	approx. 30 VA
Protection class	IP 66
Dimensions	250 x 160 x 110 mm
Weight	approx. 3.2 kg
Material	Stainless steel 1.4404 (AISI 316L)
Fastening	Including mounting brackets made of stainless steel 1.4404 to fasten the housing to the wall



Operating unit with touch display (optional)	
Type	JES smart/HUB
Power supply	24 VDC
Display	7" graphic TFT with touch operation
Digital interfaces	MODBUS RTU (RS-485) MODBUS/TCP (Ethernet) Webserver for configuration (Ethernet)
Analogue outputs	2 x 4 – 20 mA per I/O module
Digital outputs	3 x relay per I/O module



Conformities	
Electrical standards	2014/35/EU Low Voltage Directive (LVD) 2014/30/EU Electromagnetic compatibility (EMC) EN IEC 61000-6-2:2019 Immunity standard for industrial environments EN IEC 61000-6-3:2007 + A1: 2011 Emission standard for residential, commercial and light-industrial environments EN 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use EN 61326-1 Electrical equipment for measurement, control and laboratory use - EMC requirements
Tunnel safety standards	AT: RVS 09.02.22 DE: RABT 2006 CH: ASTRA RL 13001, Fachhandbuch BSA
Gas monitoring	EN 50545-1 AT: ÖNORM M9418, ÖNORM M9419 DE: VDI 2053

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