

Technical Data CarboSen K



Fig. 1 CarboSen K

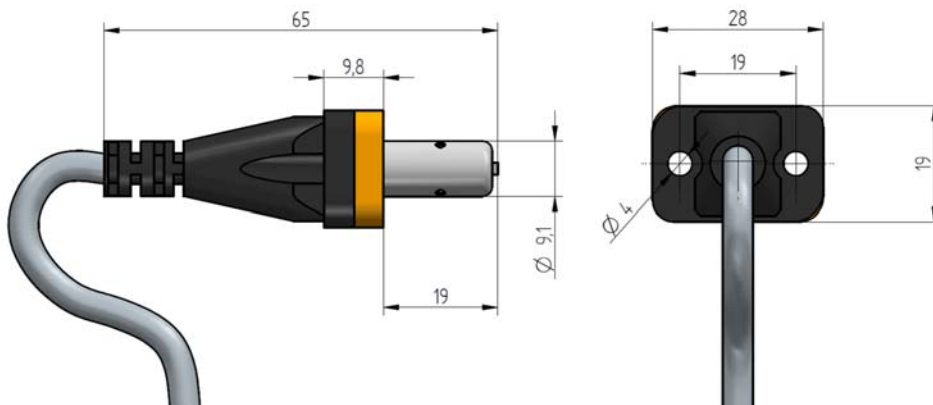


Fig. 2 Dimensions CarboSen K

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Dimension (W x H x D)	65 x 9.10 x 28 mm / 2.56 x 0.36 x 1.10" in
Weight	probe: 5 g / 0.01 lb cable: 75 g (2 m, free cable ends) / 0.17 lb (6.56 ft, free cable ends)
Material	probe housing: Viton and stainless steel cable: copper strand nickel plated, special TPE
Measurement range	CarboSen1.000K: 0 ... 1,000 ppm CarboSen10.000K: 0 ... 10,000 ppm
Measurement accuracy	CarboSen1.000K: ±25 % of the measured value - not better than ±20 ppm CarboSen10.000K: ±30 % of the measured value - not better than ±40 ppm - after previous calibration with operating conditions, - with almost constant fuel composition - after external compensation of the oxygen cross-sensitivity
Sensor signal	-750 ... +50 mV (signal is inverted within the device)
Response time t_{60}	< 3 s
Relaxation time (measurement readiness after over- load)	< 9 s
Offset to environment	< 5 ppm
Hysteresis	-
Linearity	-
Repeating precision	-
Ambient pressure dependency	-

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Differential pressure dependency	-
Drift	-
Cross sensitivity	to CO ₂ : - none to O ₂ : - present
Influence of humidity	insignificant
Influence of installation position	none, if installed according to operating instructions
Influence of main voltage	none, if installed according to operating instructions
Influence of leakage	none, if installed according to operating instructions
Pressure influence of measuring gas	-
Power supply voltage for heating	12 V PWM with sign change
Sensor temperature	approx. 630 °C / 1,166 °F with temperature factor $t_f = 2.6$
Heating power consumption	approx. 3.5 W with temperature factor $t_f = 2.6$ (max. 6 W)
Heating current	approx. 350 mA with temperature factor $t_f = 2.6$
Heating resistance	approx. $9.5 \pm 1 \Omega$ with temperature factor $t_f = 1.0$ (room temperature) approx. 25Ω with temperature factor $t_f = 2.6$
Internal sensor resistance	approx. $300 \pm 150 \Omega$ with temperature factor $t_f = 2.6$
Lifetime	> 3 years (in case of light fuel oil and natural gas)
Heating-up time	> 30 s
Measurement principle	mixed potential-solid electrolyte sensor

Conditions of Use

Mounting/measuring gas extraction	directly in flue gas channel/in situ
Leakage	$qL^* \leq 100 \text{ cm}^3/\text{h}$
Mounting position	horizontal to vertical
Permissible fuels	residue-free, gaseous hydrocarbons, natural gas, light fuel oil***
Permissible measuring gas humidity	100 % relativ humidity, condensing**
Permissible measuring gas temperature	at sensor head: -20 ... +120 °C / -4 ... + 248 °F
Permissible measuring gas speed	< 2 m/s / 6.56 ft/s (measured at measuring gas temperature 25 °C / 77 °F). In case of smaller measuring gas temperatures it might be necessary to protect the probe from the incident flow.

* According to DIN V 18160-1:2006-01, leakage towards environment through housing and fastening

** Protect from drops/splash water/water

*** Direct measurement in combustion gases is not possible

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Environmental Conditions

Operation	permissible temperature range	on seal face	-20 ... +100 °C / -4 ... +212 °F
		on electrical contacting	-20 ... +90 °C / -4 ... +140 °F
		on cable bushing	-20 ... +70 °C / -4 ... +140 °F
		on connecting cable	-20 ... +70 °C / -4 ... +140 °F
Transport	permissible temperature range		-40 ... +60 °C / -40 ... +140 °F
Storage	permissible temperature range		-20 ... +40 °C / -4 ... -40 °F
Degree of protection	DIN EN 60529	IP43 (in mounted condition)	

NOTICE

The limits of the technical data must be strictly adhered to.

Order Information

CarboSen K in plastic housing, connecting cable 2 m / 6.6 ft

For detection of combustible gases (CO_e), integrated in a plastic housing, flue gas temperature up to 150 °C / 302 °F, 100 % relative humidity, condensating, incl. sealing and screws

Description/Type	Order no.
CarboSen1.000K, connecting cable 2 m / 6.6 ft recommended detection range up to 1,000 ppm CO _e	658R0052
CarboSen10.000K, connecting cable 2 m / 6.6 ft recommended detection range up to 10,000 ppm CO _e	658R0053

Additional required: Electronic evaluation unit CarboSen Transmitter CT1, probe connection to DIN-connector
 or
 electronic evaluation unit CarboSen Transmitter CT2-F, probe connection to terminals

A10 'Electrical Connection'	Selection
Connection cable with cable end sleeves	01
Connection cable with DIN connector	02



The information in this publication is subject to technical changes.



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