

Smart Lambda Sensor Cable CBS10x



Reliable tool that helps control combustion and oxidation processes

ETAS supports and facilitates the development of software-defined vehicle (SDV).
The CBS10x - cable comes with the following features:

Areas of application

- Usage in heating systems, furnaces and industrial, plants, steam ovens, and baking ovens
- Measurements of oxygen content O_2 , lambda value λ or the pump current I_p
- Emulation of LSM 11¹ switching type sensor in existing installations by combination of CBS104.1-2 and LSU 4.9² wideband sensor
- Different versions for various measuring purposes (explained overleaf): CBS100.1-2, CBS104.1-2 and CBS105.1-2

Features

- Cable with an original connector from Bosch (RB150) that allows LSU 4.9² to be connected directly
- Proportional current or voltage output
- Galvanic isolation of the analog output from the supply voltage
- Control for the LSU 4.9² sensor heater by the cable electronics
- Diagnostic circuit makes it possible to check the stability of the internal control loops

Benefits

- LSU 4.9² are very easy to integrate into open-loop and closed-loop control systems
- Easy to integrate into existing installations thanks to its open cable and plug-and-play functionality
- Compact and cost-optimized

¹: Oxygen Sensor Type Code LSM 11 „Lean“-Sensor from Bosch

²: Oxygen Sensor Type Code LSU 4.9 „Lean“-Sensor from Bosch

CBS10x versions

CBS100.1-2	with analog output voltage as a function of the oxygen content O_2 , the lambda value λ or the pump current I_p
CBS104.1-2	as an emulation of the LSM 11 ¹ lambda sensor, with analog voltage output as a function of the oxygen content O_2
CBS105.1-2	with output current as a function of the oxygen content O_2 , of the lambda value λ or the pump current I_p



Figure 1: Lambda sensor input with RB150 connector and analog output with open cable end.

Technical Data

Size	Cable length	2 m / 78.75 in (total)
		0.30 m / 11.81 in (input)
		1.70 m / 66.93 in (output)
	Elektronics module	21.6 x 126.4 x 50.0 mm / 0.85 x 4.98 x 1.97 in (H x W x D)
Environment	Weight	230 g / 0.51 lb
	Temperature range	- 40 °C ... +80 °C / -40° F ... +176 ° F
	Operating height above mean sea level	5,000 m / 16,400 ft max.
	Safety class	IP44
Power supply	Operating voltage	10 V ... 14 V DC
		10 V ... 13 V AC, 50 Hz ±1 Hz
Power consumption	At 12 V	1.1 A typ.
		1.7 A max.
Sensor interface	Supported sensors	Bosch LSU 4.9 (RB150 plug, code 1)
	Sensor heater	Integrated control (~ 100 Hz PWM)
	Warm-up period	~ 20 s at 12 V
Measurement range	CBS100, CBS105	$\lambda = 0,65 \dots 5$ $O_2 = 0 \% \dots 25 \%$ $I_p = -2,5 \text{ mA} \dots +2,5 \text{ mA}$
	CBS104	LSM11 emulation
Analog output	Output signal	CBS100: 0 V ... 10 V (+/- 5 mA, 10 Ω typ. impedance) Short circuit proof Protects against external voltages up to a maximum of 12 V
		CBS104: -20 mV ... +80 mV (100 Ω typ. impedance) Short circuit proof Protects against external voltages from -0.3 V ... +3 V
		CBS105: 4 mA ... 20 mA (+9 V ... +28 V, passive output) Reverse polarity protection
Isolation		60 V DC max.
Refresh rate		100 ms

The product has been developed and released for use in automotive applications. For usage in other domains please contact your ETAS representative.
¹: Oxygen Sensor Type Code LSM 11 „Lean“-Sensor from Bosch.