



Special features:

- **Calculates C-level from the residual oxygen content of a gas or CO₂-content from the furnace atmosphere**
- **Converts the L-probe voltage to the voltage curve of a zirconium oxide probe**
- **Parameter input via plug-in terminal**
- **Menu-guided operation**
- **High operation per galvanic separation of all inputs**
- **Optional connection of two thermocouples Type "K" and "S"**
- **Additional input for CO-analyzer**

Intelligent Transmitter Carbo 47

Function:

The **Carbo 47** is an intelligent transmitter designed for connecting different types of sensors. The unit processes the input signals and outputs the desired output variable as a voltage or current unit signal.

The versions described here convert the residual oxygen content of a gas to other components such as C-level based on the assumed gas equilibrium.

Determination of the C-level in conjunction with a conventional controller enables a favourably priced system for controlling carbon atmospheres in heat treatment plants.

The system still contains the facilities offered by more expensive systems, such as actual value correction (see below). The investment is soon amortized even on smaller furnace systems.

Another practical function of the unit is the conversion of the L-probe voltage into the probe voltage of a conventional zirconium oxide probe (see the appropriate data sheet for the **L-probe**). This allows the cheaper, more robust L-probe to be adapted to existing control systems.

Overview of types:

Type	Input	Output
1:	L-probe, thermocouple Type "K" or "S"	0...1300mV ZrO ₂ -probe- charakteristik
2:	L-probe, thermocouple Type "K" or "S"	C-level 0(4)...20 mA (0...10 V)
3:	ZrO ₂ - thermocouple Type "K" or "S"	C-level 0(4)...20 mA (0...10 V)
4:	CO ₂ -analyzer, thermocouple Type "K" or "S"	C-level 0(4)...20 mA (0...10 V)

C-level measurement (principle):

measured:	output:
Temperature	C-level (0...20 mA)
Ref. pt temperature	
O ₂ content via ZrO ₂ or L-probe	

Parameter (fixed value):

CO content
Correction data

Actual value correction:

To eliminate measuring errors and deviations due to special conditions in the furnace, a correction of the calculated C-level which is based on foil samples, is provided.

Technical Data (basic unit):

Housing:

Wall housing made of polystyrene

Dimensions:

296 x 256 x 118 mm (w x h x d)

Weight:

approx. 2 kg

Protection type:

IP 50 according to DIN 40050

Climate:

Storage: -10...+70 °C

Operation: 0...+50 °C

5...95 % relative humidity, non condensing

Auxiliary voltage:

115 / 230 Vac +- 10 % 50 - 60 Hz

Power consumption:

approx. 15 VA

Fuse:

230 V: 1 x 0,315 A slow blow

Analog inputs:

Type 1:

- thermocouple, Type "K" or "S"
- L-probe

Type 2:

- thermocouple, Type "K" or "S"
- L-probe
- CO-analyzer

Type 3:

- thermocouple, Type "K" or "S"
- ZrO₂-probe
- CO-analyzer

Type 4 :

- thermocouple, Type "K" or "S"
- CO₂-analyzer 0...3 % log. or 0...0.5 % lin.