# O₂ Transmitter 4500

## Technical Data

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| **Inputs** | 1 current-sensitive input for amperometric oxygen sensor | |
| | 1 current input displayed as 0…100 %. In combination with power supply output usable as complete 2-wire loop, e.g. for flow meter, level meter and pressure sensor | |
| | 1 input for temperature sensor (included in METTLER TOLEDO sensor) | |

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| **Measuring range** | saturation | 0.0…600.0 % Air |
| | | 0.0…120.0 % O₂ |
| | concentration | 0.0 µg/l…90.00 mg/l |
| | | 0.0 ppb…90.00 ppm |
| | partial pressure | 0…2000 mbar |
| | air pressure | 700…1100 mbar |
| | temperature NTC | −40.0…+150.0 °C |
| | current input | 0(4)…20 mA / 50 Ω (0…100 %) |

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| **Sensor control** | Sensocheck®, monitoring of membrane and electrolyte |

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| **Display** | graphic LCD, 240x64 points with CFL[1] backlighting | |
| | main display | character height approx. 25 mm |
| | additional display | character height approx. 6 mm |
| | parameter display | 7 lines, character height approx. 4 mm |

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| **Display options** | main display: | additional display: | |
| | saturation | saturation | [% Air] |
| | | | [% O₂] |
| | concentration | concentration | [mg/l; g/l] |
| | | | [ppm; ppb] |
| | partial pressure | partial pressure | [mbar] |
| | temperature | temperature | [°C] |
| | | pressure | [mbar] |
| | time | time | [h, min] |
| | | date | [d, m, y] |
| | | current output 1 | [mA] |
| | | current output 2 | [mA] |
| | | current input | [%] |
| | | calibration timer | [h] |
| | | impedance | [kOhm] |
| | | sensor current | [nA] |

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| **Current output 1** [*] | 0…20 mA or 4…20 mA, max. 10 V, floating |
| | user-defined for the measured variables % Air, % O₂, Conc., pO₂, °C |
| | error messages if burden exceeded |
| | characteristic of output current, user-definable |

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| **Current output 2** [*] (Option 350) | 0…20 mA or 4…20 mA, max. 10 V, floating |
| | user-defined for the measured variables % Air, % O₂, Conc., pO₂, °C |
| | error messages if burden exceeded |
| | characteristic of output current, user-definable |

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| **Beginning/end of scale** [*] | saturation | 0.0/600.0 % Air; 0.0/120.0 % O₂ |
| | concentration | 0.0 µg/l/90.0 mg/l |
| | partial pressure | 0/2000 mbar |
| | temperature NTC | −40.0/+150 °C |

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| **Measuring spans** [*] | saturation | 10.0…600.0 % Air; 2.0…120.0 % O₂ |
| | concentration | ≥ 20.0 µg/l, min. 10 % from the measurement end |
| | partial pressure | 20…1200 mbar |
| | temperature | 10.0…300.0 °C |

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| **Input values** | measuring current | range 1:  0…250 nA, resolution 5 pA (Opt. 430: 2 pA…250 µA) |
| | | range 2:  0…5 µA, resolution 100 pA |
| | | range 3:  0…250 µA, resolution 5 nA |
| | polarization voltage | 0…−1500 mV |

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[*] adjustable     1) Cold fluorescent lamp

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| **Current input** | 0(4)…20 mA (0…100 %), input resistance 50 Ω<br>overload 100 mA |
| **Temperature input** | NTC 22 kOhm<br>temperature sensor (tolerance) adjustment |
| **Calibration** | operating modes *)<br>• automatic calibration in air-saturated water<br>• automatic calibration in air<br>• manual<br>• to sample value input |
| **Temperature compensation** | saturation:              − 10 °C ... + 80 °C<br>concentration:       − 5 °C ... + 60 °C<br>non-linear, matching by METTLER TOLEDO $O_2$ sensor |
| **Salinity correction** | 0.0…45.0 g/kg |
| **Measurement error**<br>(± 1 digit<br>operating temperature<br>−20…+50 °C) | measuring current       < 0.5 % of measured value<br>                           ± 0.005 % of end value<br>temperature             < 0.2 % of measured value, ± 0.2 K<br>air pressure              < 12 mbar (operating temperature 0…40 °C ) |
| **Current source mode** | 0.00 mA…20.50 mA |
| **Output current error** | < 0.25 % of measured value ± 20 µA |
| **Switching Contacts** *) | 8 switching contacts, floating<br>contact rating           AC < 250 V/5 A < 1250 VA resistive<br>                           DC < 120 V/5 A < 120 W<br>NAMUR contacts [2]    functional check<br>                           warning<br>                           failure<br>failure/warning:      delay times definable<br>limit contacts          limit 1<br>                           limit 2<br>cleaning contacts     rinsing<br>(Option 352)            cleaning<br>                           probe |
| **Interface** *)<br>(Option 351) | RS 485, galvanically isolated<br>baud rate               300/600/1200/9600<br>data bits                7/ Even, 7/0dd, 8/No<br>point-to-point connection or bus connection of up to 31 devices |
| **Log book**<br>(Option 354) | recording of           function activations, warning and failure<br>                           messages on appearance and<br>                           disappearance, with date and time<br>storage depth (memory)    200 entries available<br>retrievable via         keypad/display or interface |
| **Cleaning function** *) (Option 352) | automatic sensor cleaning and rinsing via timer-controlled contacts |
| **Data retention** | parameters and settings      >10 years (EEPROM)<br>clock and log book (reserve power)    >1 year (battery backed) |
| **Instrument self-test** | test of RAM, EPROM, EEPROM, display and keypad, record for quality management<br>documentation (QM) following DIN ISO 9000<br>data retrievable via display and interface |
| **Power output** | 24 V DC/30 mA, floating, short-circuit-proof<br>application examples: loop current for current input, signal current for switching outputs |

*) adjustable                   2) German Committee for Measurement and Control Standards in the chemical industry

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| **Clock** | real-time clock with date, self-contained |
| **RFI suppression** | to EN 50 081-1 specifications |
| **Immunity to interference** | to EN 50 082-2 and NAMUR[2] EMC recommendations for process and laboratory control equipment |
| **Power supply** | AC 230 V $-15\%$ $+10\%$ < 10 VA 48...62 Hz <br> Option 363  AC 115 V  $-15\%$ $+10\%$ < 10 VA 48...62 Hz <br> Option 298  AC/DC 24V  AC: $-15\%$ $+10\%$ < 10 VA <br> DC: $-15\%$ $+25\%$ < 10 W <br><br> Option 475  AC 100 V <br> protection class II  ▢ |
| **Operating/ambient temperature** <br> **Transport and storage temperature** | $-20...+50\,°C$ <br> $-20...+70\,°C$ |
| **Enclosure** | enclosure with separate terminal compartment, suitable for outdoor installation <br> material: acrylonitrile-butadiene-styrene (ABS) <br> protection: IP65 |
| **Cable glands** | 10 PG 13.5 threaded cable glands |
| **Dimensions** | see dimension drawing |
| **Weight** | approx. 3 kg |

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