



CHEMIST 500
UP TO 4 GAS SENSORS COMBUSTION ANALYZER



MADE IN ITALY





CHEMIST 500 2-4 GAS SENSORS

PORTABLE COMBUSTION ANALYZERS

from 2 to 4 GAS SENSORS

BLUE BACKLIT LCD (55 x 95 mm) WITH ZOOM FUNCTION

BUILT IN THERMAL PRINTER ON UNERASABLE THERMAL POLYESTER

13 PREPROGRAMMED FUELS
(INCLUDING WOOD, PELLETS, BIOGAS AND COAL)

RECHARGEABLE LITHIUM ION BATTERIES

STANDARD BLUETOOTH® CONNECTION

DRAUGHT MEASUREMENT

TIGHTNESS TEST

**CHEMIST 500 ANALYZERS
WARRANTY:
4 YEARS ON INSTRUMENT,
GAS SENSORS AND PRINTER**



Standard Bluetooth®



ANDROID APP ON
Google play

SmartFlue Mobile



MAIN FEATURES

- Compliant with EN 50379-1 and EN 50379-2 standards
- Precalibrated gas sensors, user replaceable
- 3 consecutive analysis with average calculation and result printout
- Internal memory for 1000 analysis
- Rechargeable lithium ion batteries
- Recharging time: 6 hrs. up to 90%
- Up to 60/70 analysis autonomy (with printouts)
- Additional dilution pump for CO cell auto range, measurement up to 100.000 ppm (from Chemist 502 up)
- Automatic autozero with sampling probe in the stack
- Self diagnostic function with sensors status
- 32 additional programmable fuels
- 10 different preprogrammed languages
- Dimensions: Analyzer 310x90x60mm (HxWxD), weight 0,9 Kg - Kit 130x510x430mm, weight 3,4 Kg
- Internal pressure probe for high precision draught measurement
- Automatic calculation of gas pipes volume
- TVP holster
- Hard plastic body with magnets

MEASURED VALUES

- Flue gas temperature and differential temperature
- Outdoor air temperature and room temperature
- Draft and differential pressure
- Ambient CO
- Bacharach pump for carbon measurement (AA PM02)
- NO (3rd Sensor)
- Ionization current with accessory (AAC S001)

CALCULATED VALUES

- CO₂
- NO_x (if 3rd sensor is present)
- Boiler efficiency, including condensation
- Stack loss and excess air
- Flow velocity with Pitot tube
- Burning power

CHEMIST 500 KITS

CHEMIST 501

- 2 sensors (O₂, CO/H₂)
- Not expandable
- Integrated printer
- No dilution pump for CO
- Ready for tightness test

CHEMIST 502 B

- 2 sensors (O₂, CO/H₂)
- Expandable up to 4 sensors
- Integrated printer
- No dilution pump for CO
- Ready for tightness test

CHEMIST 502

- 2 sensors (O₂, CO/H₂)
- Expandable up to 4 sensors
- Integrated printer
- With dilution pump for CO
- Ready for tightness test

CHEMIST 502 C

- 2 sensors (O₂, CO)
- Expandable up to 4 sensors
- Suitable for pellet and wood stoves (0-20.000 ppm CO sensor)
- Integrated printer
- With dilution pump for CO
- Ready for tightness test

CHEMIST 503 B

- 3 sensors (O₂, CO/H₂, NO)
- Expandable up to 4 sensors
- Integrated printer
- No dilution pump for CO
- Ready for tightness test

CHEMIST 503

- 3 sensors (O₂, CO/H₂, NO)
- Expandable up to 4 sensors
- Integrated printer
- With dilution pump for CO
- Ready for tightness test

CHEMIST 504 N

- 4 sensors (O₂, CO/H₂, NO, NO₂)
- Integrated printer
- With dilution pump for CO
- Ready for tightness test

CHEMIST 504 S

- 4 sensors (O₂, CO/H₂, NO, SO₂)
- Integrated printer
- With dilution pump for CO
- Ready for tightness test

CHEMIST 500 X

Modular gas analyzer kit with 4 sensors. With O₂ gas measuring cell only and the possibility to add 3 additional sensors to be chosen among 14 references. This enormous versatility makes it possible to generate 352 different analyzers.

FOR CHEMIST 500 COMBUSTION ANALYZERS THERE IS A DISCOUNT FOR SECONDHAND COMBUSTION ANALYZERS EXCHANGE.

CHEMIST 500 MAIN CONFIGURATIONS

FETAURES	501	502 B	502	502 C	503 B	503	504 N	504 S
O2 sensor	✓	✓	✓	✓	✓	✓	✓	✓
CO sensor	✓	✓	✓	0-20000 ppm	✓	✓	✓	✓
Expandable to 4 sensors	-	✓	✓	✓	✓	✓	✓	✓
NO sensor	-	-	-	-	✓	✓	✓	✓
Calculated NOx	-	-	-	-	✓	✓	-	✓
Measured NOx (NO+NO2)	-	-	-	-	-	-	✓	-
NO2 sensor	-	-	-	-	-	-	✓	-
SO2 sensor	-	-	-	-	-	-	-	✓
Sensors replaced by the user	✓	✓	✓	✓	✓	✓	✓	✓
Flue gas interception Solenoid Electrovalve	✓	✓	✓	✓	✓	✓	✓	✓
2nd dilution pump	-	-	✓	✓	-	✓	✓	✓
Ambient CO measurement	✓	✓	✓	✓	✓	✓	✓	✓
15 Pre-programmed fuels	✓	✓	✓	✓	✓	✓	✓	✓
Memory for 1000 analysis	✓	✓	✓	✓	✓	✓	✓	✓
Draft measurement with internal sensor	✓	✓	✓	✓	✓	✓	✓	✓
Gas pipe tightness	✓	✓	✓	✓	✓	✓	✓	✓
Gas pipes volume automatically calculated	✓	✓	✓	✓	✓	✓	✓	✓
Differential pressure kit	✓	✓	✓	✓	✓	✓	✓	✓
Bluetooth® communication (class 1) / USB	✓	✓	✓	✓	✓	✓	✓	✓
SW for updating and memory download for pc	✓	✓	✓	✓	✓	✓	✓	✓
Warranty 4 years	✓	✓	✓	✓	✓	✓	✓	✓
Flue gas sensor probe 180 mm	✓	✓	✓	✓	✓	✓	✓	✓
Combustion air temperature probe	✓	✓	✓	✓	✓	✓	✓	✓

EVERY KIT INCLUDES:

Instrument - Protective rubber holster - Flue gas probe 300 mm with 3 m cable - outdoor/indoor air temperature Probe - USB key with software - Water Trap with dust filter, stainless steel fittings and silicon hose - Power - EU plug - Hard plastic Case - Calibration Certificate - Unerasable printing paper - Differential pressure measurement kit - Quick start guide

CHEMIST 500 TECHNICAL FEATURES

MEASUREMENT	SENSOR	RANGE	RESOLUTION	ACCURACY	
O ₂	Electrochemical sensor	0 .. 21.0% vol	0.1% vol	±0.2% vol	
CO with H ₂ compensation	Electrochemical sensor	0 .. 8000 ppm	1 ppm	±10 ppm ±5% ±10%	0 .. 200 ppm 201 .. 2000 ppm 2001 .. 8000 ppm
CO Low range with H ₂ compensation	Electrochemical sensor	0 .. 500 ppm	0.1 ppm	±2 ppm ±5%	0 .. 40.0 ppm 40.1 .. 500.0 ppm
CO Mid range	Electrochemical sensor	0 .. 20000 ppm	1 ppm	±100 ppm ±5% ±10%	0 .. 2000 ppm 2001 .. 4000 ppm 4001 .. 20000 ppm
CO Hi range	Electrochemical sensor	0 .. 10.00% vol	0.01% vol	±0.1% vol ±5%	0 .. 2.00 % 2.01 .. 10.00 %
CO H ₂ Hi immunity	Electrochemical sensor	0 .. 8000 ppm	1 ppm	±20 ppm ±5% ±10%	0 .. 400 ppm 401 .. 4000 ppm 4001 .. 8000 ppm
NO	Electrochemical sensor	0 .. 5000 ppm	1 ppm	±5 ppm ±5%	0 .. 100 ppm 101 .. 5000 ppm
NO Low range	Electrochemical sensor	0 .. 500.0 ppm	0.1 ppm	±2 ppm ±5%	0 .. 40.0 ppm 40.1 .. 500.0 ppm
NO _x	Calculated				
SO ₂	Electrochemical sensor	0 .. 5000 ppm	1 ppm	±5 ppm ±5%	0 .. 100 ppm 101 .. 5000 ppm
SO ₂ Low range	Electrochemical sensor	0 .. 500.0 ppm	0.1 ppm	±2 ppm ±5%	0 .. 40.0 ppm 40.1 .. 500.0 ppm
NO ₂	Electrochemical sensor	0 .. 1000 ppm	1 ppm	±5 ppm ±5%	0 .. 100 ppm 101 .. 1000 ppm
NO ₂ Low range	Electrochemical sensor	0 .. 500.0 ppm	0.1 ppm	±2 ppm ±5%	0 .. 40.0 ppm 40.1 .. 500.0 ppm
C _x H _y	Sensore Pellistore	0 .. 5.00% vol	0.01% vol	±0.25% vol	
CO ₂	Calculated	0 .. 99.9% vol	0.1% vol		
CO ₂	Sensore NDIR	0 .. 50.0% vol	0.1% vol	±1% ±2% FS	0 .. 10 % 10 .. 50 %
Air Temperature	TcK Sensor	-20.0 .. 1250.0 °C	0.1 °C	±0.5 °C ±0.5%	0 .. 100 °C 101 .. 1250 °C
Smoke Temperature	TcK Sensor	-20.0 .. 1250.0 °C	0.1 °C	±0.5 °C ±0.5%	0 .. 100 °C 101 .. 1250 °C
Pressure (draught & differential)	External instrument	-1000 .. 20000 Pa	1 Pa	±2 Pa ±1% ±1%	-200 .. +200 Pa +201 .. +20000 Pa -201 .. -1000 Pa
Differential Temperature	Calculated	0 .. 1250.0 °C	0.1 °C		
Air Index	Calculated	0.00 .. 9.50	0.01		
Air excess	Calculated	0 .. 850 %	1 %		
Stack loss	Calculated	0.0 .. 100.0 %	0.1 %		
Efficiency	Calculated	0.0 .. 100.0 %	0.1 %		
Condensing Efficiency	Calculated	0.0 .. 120.0 %	0.1 %		
Smoke index	External instrument	0 .. 9			

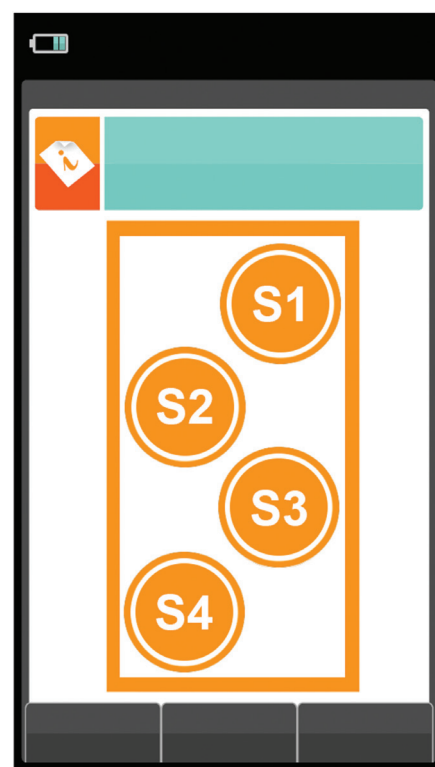
CHEMIST 500 X : MODULAR GAS ANALYZER KIT WITH 4 SENSORS

The basic kit Chemist 500 X allows to exploit completely the expandability up to 4 gas measuring sensors of the Chemist 500 analyzers range. Chemist 500 X carries the O₂ gas measuring cell only: the 3 sensors which can be added to O₂ cell are to be chosen among 14 references, allowing to measure with different ranges, accuracies and resolution up to 6 gases: CO (carbon monoxide), NO (nitrogen monoxide), NO₂ (nitrogen dioxide), SO₂ (sulphur dioxide), C_xH_y (unburnt hydrocarbons), CO₂ (carbon dioxide). It is also available a cell with high sensitivity to Methane / LPG allowing to use flue gas probe as a sniffer probe for gas leaks.

This enormous versatility makes it possible to generate 352 different analyzers as a result of sensors combinations, thus fulfilling the needs of many different applications.

TYPE AND POSITION SENSORS ON CHEMIST 500

GAS SENSORS	COD	S1	S2	S3	S4
Sniffer flue gas	AACSE19	--	--	--	✓
CO - 8000ppm alta immunità H ₂	AACSE20	--	✓	✓	✓
CO / H ₂ - 8000ppm	AACSE12	--	✓	--	--
CO / H ₂ - 500.0ppm	AACSE24	--	✓	--	--
CO - 10.00%	AACSE17	--	✓	✓	✓
CO - 20000ppm	AACSE18	--	✓	✓	✓
CO ₂ NDIR - 50.0%	AACSE47	--	--	✓	✓
C _x H _y - 5.00%	AACSE39	--	--	✓	✓
NO - 5000ppm	AACSE10	--	--	✓	--
NO - 500.0ppm	AACSE25	--	--	✓	--
NO ₂ - 1000ppm	AACSE14	--	✓	✓	✓
NO ₂ - 500.0ppm	AACSE26	--	✓	✓	✓
O ₂ LL - 21.0% vol	AACSE43	✓	--	--	--
SO ₂ - 5000ppm	AACSE13	--	✓	✓	✓
SO ₂ - 500.0ppm	AACSE28	--	✓	✓	✓



Screenshot with internal sensors arrangement

ACCESORIES AND SPARE PARTS

PRINTERS AND CONSUMABLES

COD.	PHOTO	DESCRIPTION
AA RC05		Unerasable printing polyester roll for Chemist 500 printer
AA RC06		Plain thermal paper roll for Chemist 500 / 600
AARC10		Plain thermal paper roll inalterabile for Chemist 500 / 600

PROBES

COD	PHOTO	DESCRIPTION
AAC S001		Ionization current probe. Range: $\pm 100\mu A$. Accuracy: $\pm 2\mu A$
AA SF51A		180 mm flue gas probe with 2 m cable
AA SF62A		300 mm flue gas probe with 2 m cable
AA SF65A		750 mm flue gas probe with 3 m cable
AA SF66A		1000 mm flue gas probe with 3 m cable
AA SL05A		300 mm flexible flue gas probe with 2 m cable
AA SX01		300 mm CO gas probe, with 2 m cable
AA SX02		750 mm industrial motors probe with 3 m cable

CASE, HOLSTER AND ACCESSORIES

COD.	PHOTO	DESCRIPTION
AAC CT01		Fabric bag with shoulder belt
AAC R07		Hard plastic kit case
AA PB01		Rechargeable Lilon battery, 3,7 V, 4,8 Ah
AA SM06		EVA rubber holster
AA ZN01		Fabric bag with shoulder belt / backpack

CERTIFICATES, GUARANTEE AND MAINTENANCE

COD	DESCRIPTION
CER 012	ISO 9001 calibration certificate for 2 sensors analyzers: Chemist 501, 501B, 502, 502B, 502C
CER 013	ISO 9001 calibration certificate for 3 sensors analyzers: Chemist 503, 503B
CER 014	ISO 9001 calibration certificate for 4 sensors analyzers: Chemist 504N
CER 015	ISO 9001 calibration certificate for 4 sensors analyzers: Chemist 504S
CER 016	ISO 9001 calibration certificate Chemist 500X: (O ₂ , CO, + 2 sensors at the choice)
CON 009	Annual maintenance contract for 2 sensors analyzers: Chemist 501, 501B, 502, 502B, 502C, 401, 402
CON 010	Annual maintenance contract for 3 sensors analyzers: Chemist 503, 403
CON 011	Annual maintenance contract for 4 sensors analyzers: Chemist 504N, 504S, 404N, 404S

(*) : net, non-discountable

SENSORS, KITS AND EXTENSIONS

COD	PHOTO	DESCRIPTION
AAC DP02		High accuracy and resolution external pressure sensor with cable and plug
AAC EX01S		3 m extension cable for flue gas probe (cod. AASFXXA)
AAC KP01		Differential pressure measurement kit. 2 x 1 m hoses + fittings
AAC KP02		Differential pressure measurement kit. 1 m hose + fitting
AA KT04		Kit for tightness test with 4 ways manifold, manual pump, 100 ml syringe, hoses, 2 silicone conical fittings
AA SA08		Outdoor air temperature 200 mm TcK probe, with 2 m cable
AA SG01		Gas sniffer probe for Chemist 500 analyzers da 1 m + raccordo
AA TT01		"L" shaped Pitot tube. 300 mm length, 6 mm external diameter. Without thermocouple
AA TT02		"L" shaped Pitot tube. 800 mm length, 6 mm external diameter. Without thermocouple

ACCESSORIES

COD	PHOTO	DESCRIPTION
AA AL05		90÷264V~ / 5V= Power adapter with USB output and interchangeable AC connector
AAC ADX005		Dummy sensor (replaces not installed gas sensors)
AAC FA01		Fine dust filters for AACTA03 (5 pcs. package)
AAC TA03		Water trap with dust filter without stainless steel fittings and silicon hose
AAC TA03A		Water trap with dust filter, stainless steel fittings and silicon hose suitable for all combustion analyzers
AA PM02		BACHARACH hand pump for carbon measurements
AA RA01		Threaded 9 mm diameter fitting, 1/4" gas coupling, 1/4" to 1/8" gas nipple (for tightness test)
AA SI01		Italy/EU plug adapter
AA SP01		Guard shield for flue gas probe
AA UA01		2 m USB A / USB B adapter cable

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**GAS SENSORS**

GAS	RANGE	COD
CO / H2	0...8000 ppm	AAC SE12
CO / H2 Lo Range	0...500,0 ppm	AAC SE24
CO Hi Range	0...10.00% Vol (100.000 ppm)	AAC SE17
CO Mid Range	0...20000 ppm	AAC SE18
CO2	0...50% v/v	AAC SE47
CxHy	0...5.00% Vol CH4	AAC SE39
H2S	0...500,0 ppm	AAC SE35
NO	0...5000 ppm	AAC SE10
NO Lo Range	0...500 ppm	AAC SE25
NO2	0...1000 ppm	AAC SE14
NO2 Lo Range	0...500 ppm	AAC SE26
O2 Long Life	0...21% v/v	AAC SE43
SO2	0...5000 ppm	AAC SE13
SO2 Lo Range	0...500 ppm	AAC SE28