

COMPLETE COMBUSTION
ANALYZER

RELIABLE AND EASY
TO USE



The Bacharach Portable Combustion Analyzer (PCA) is designed for complete, combustion efficiency and compliance testing for a variety of commercial and residential combustion applications.



PCA[®]

Portable Combustion Analyzer

ADVANCED



The PCA is the perfect tool for service technicians and boiler contractors who need to determine carbon monoxide (CO) safety, combustion efficiency and emission testing in combustion applications. The PCA directly measures and displays flue gas O₂, temperatures, draft, NO_x and CO. Simultaneously, the instrument calculates and displays combustion efficiency, excess air, CO₂, NO_x-Ref. O₂ and CO air free. The large display shows eight different values simultaneously with backlight. The PCA provides seven (7) fuels: natural gas, oil 2, oil 4, oil 6, kerosene, liquid propane and coal, for calculating combustion values.

USER-FRIENDLY

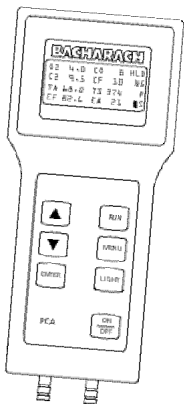


The PCA offers advanced communication features to track and analyze combustion safety tests, efficiency calculations and environmental analysis for residential and commercial applications.

The new communication features of the PCA 55 and the PCA 65 allow the user to store up to 100 tests, customize each combustion test with customer information, generate a personalized printout, and download all of this information to a personal computer for record keeping and trend analysis.

BACHARACH LISTENS TO ITS CUSTOMERS

The most important goal at Bacharach is to meet the needs of you, our customer. We listened to you, and developed the PCA around your needs and requirements. We also contacted several HVAC associations including ACCA, RSES, NAOHSM, and others for their input. As a result, product features were incorporated into the design of the PCA to meet or exceed your expectations. Some of the features include a simple keypad for user friendly operation, an easy to read display showing eight different values simultaneously, an optional infrared printer to document test results and a rugged, lightweight case for added versatility during operation and transport.





Forced Air Furnaces; Commercial Boilers; Hot Water Heaters; Gas Ovens/Stoves



ONLY BACHARACH'S PCA MEASURES CO AIR FREE

The CO air free unit of measurement is computed by the PCA from the CO and O₂ measurements. This calculated value is a concept for determining the amount of CO present in a sample by compensating for the amount of excess air provided by the burner. In other words, the CO air free measurement eliminates the excess air dilution caused by primary and secondary air. American National Standards Institute (ANSI Z21) specifies the use of PPM CO air free as a unit of measure when testing certain appliances. The following are the ANSI standards: 200 ppm CO air free on an unvented space heater; 400 ppm CO air free on furnace flue gas; and 800 ppm CO air free on an unvented gas oven.

Features & Benefits

- Directly measures and displays flue gas O₂, temperatures, Draft, CO and NO_x
- Calculates and displays combustion efficiency, excess air, CO₂, CO air free; and NO_x - Ref.O₂
- Large display shows eight (8) different values simultaneously with backlight
- Long life, disposable batteries with an optional 120 VAC power supply
- Two year warranty
- Draft, CO and NO_x measurements (optional)
- Seven (7) North American fuels
- Dated results can be recalled to the display screen at any time
- Separate temperature sensor for combustion air
- Infra-red serial link for data transfer to printer
- Performs local emissions reporting quicker than ever before by selecting the O₂ reference between 0 and 15% O₂ (PCA 55 & 65 units only)
- Stores up to 100 combustion tests for downloading to PC or printer (PCA 55 & 65 units only)

Specifications

Measurement Ranges	Oxygen Primary/Air Temperature Stack Gas Temperature Carbon Monoxide (optional) Draft (optional) Oxides of Nitrogen (optional)	0 to 20.9% auto calibration 0°F to 999°F 0°F to 2,000°F 0 to 4,000PPM (hydrogen compensated) -8.0 to +8.0 in. WC (user selectable in Pascal or Millibar) 0 to 2,000PPM
Calculated Ranges	Combustion Efficiency Excess Air Carbon Dioxide Carbon Monoxide (air free)	0.1 to 99.9% (0.1% resolution) 1 to 250% 0.1 to 20.0% (fuel dependent) 0 to 9,999PPM (comes with CO ₂ measurement)
Sensor Accuracy	Oxygen Carbon Monoxide Oxides of Nitrogen Pressure/Draft Temperature (stack)	+/-0.4% Oxygen (electrochemical) +/-5% of CO reading (electrochemical) ±5% of reading ±1% of reading or ±0.01 H ₂ O whichever is > +/-4°F between 32° and 255°F +/-6°F between 256° and 480°F +/-8°F between 481° and 2,000°F
Size	7 7/8" H x 3 1/3" W x 2" D (200mm x 85mm x 50mm)	
Weight	Approximately 1.5 lbs. (0.68Kg) instrument only	
Power Source	Power by four disposable AA size alkaline batteries; minimum of 8 hours of continuous operation. An optional 120 power supply is available for line operation	
Display	A 20 character by 4 line alpha numeric display with backlight	
Warm Up Time	A 60 second total warm up – sensors are checked and autozeroed at warm up	

Ordering Information

PART NO.	DESCRIPTION
24-8040	PCA 10 Standard PCA instrument with O ₂ measurement
24-8041	PCA 15 Standard PCA instrument with O ₂ and Draft measurement
24-8042	PCA 20 Standard PCA instrument with O ₂ and CO measurement
24-8043	PCA 25 Standard PCA instrument with O ₂ , CO and Draft measurement
24-8045	PCA 35 Standard PCA instrument with O ₂ , CO, NO _x and Draft measurement
24-8143	PCA 55 Advanced PCA instrument with O ₂ , CO and Draft measurement
24-8145	PCA 65 Advanced PCA instrument with O ₂ , CO, Draft and NO _x measurement
24-0788	Replacement Oxygen sensor
24-0789	Replacement CO sensor
24-0797	Replacement Draft sensor
24-0881	Replacement NO _x sensor
24-0886	IR printer
24-0887	Printer paper, 1 roll per package
24-3004	Draft probe and hose assembly
24-3003	Standard probe and hose assembly
24-0885	External power supply 120V
07-1598	Replacement filter element (white) 3/pkg
24-0683	Replacement filter element (brown) 3/pkg
104-1797	Thermocouple 10ft. (for primary air temperature)
24-1107	Water trap and filter
24-1124	20 ft. hose extension
24-1131	Leather carrying case
24-1073	Replacement serial cable
19-3037	Probe stop
102-0875	Thumb screw for probe stop

Instrument comes complete with: carrying case, probe and hose assembly, factory calibrated and installed sensor(s), instruction manual, user guide, batteries (packaged separately) and a two-year warranty. All instruments can be upgraded to include CO or Draft and NO_x.





FEATURES & BENEFITS

Portable Combustion Analyzer PCA®

PCA 55 & 65 Features and Benefits	
Features	Benefits
Computer Interface	The measured and calculated values can be downloaded directly to any computer through the instruments RS 232 port. Now the operator will be able to manage and analyze combustion tests from a computer.
Customized Printout	Customize your printout with three lines of 20 alphanumerical characters consisting of company information. For example, company name, address and phone number of company performing service can be shown on every printout. By customizing the printout, the operator will be able to leave the printout with the customer and repeat business is sure to take place.
Customer Identification	This feature consists of three lines of 16 alphanumerical characters that will allow the operator to identify individual tests for boiler, burner and test identification. These text lines appear with each test record when the test is printed or sent to a computer. Operators will now be able to profile each test they are conducting with customer information, job #, type of equipment they are servicing and the date of the service. This can be downloaded to a computer or printer.
Memory Storage	Store up to 100 sets of measurement tests and calculations, download the test to a personal computer and then go back and recall or research the test. With this new feature engineers and contractors can store more tests for quick reference and analysis.

These new features are ideal for Plant Engineers, Energy Auditors, Commercial/Boiler Contractors, Maintenance Engineers, HVAC Engineers, Residential Service Technicians and anyone who needs to keep a complete set of records for future reference.

Combustion testing in residential homes, commercial buildings, schools, and factories are just a few of the typical applications where these new features can be used.

All versions of the PCA are upgradeable to include these new features.

* Simply send the instrument into the Bacharach Service Center nearest you for an upgrade.

*Upgrade kits available. Contact Bacharach for pricing.



SAMPLE PRINTOUT FEATURES

Portable Combustion Analyzer PCA®

PCA 55 & 65 Additional Printout Features

ABC BOILER TUNE-UP
PITTSBURGH, PA
CALL 1-800-524-1361

CUSTOMIZED PRINTOUT

Customize your printout with user information. Up to three (3) lines of 20 characters each.

BACHARACH, INC.
PCA 65
SN: CT1015

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ID1: BOILER #3
ID2: 600 HORSEPOWER
ID3: FORBES HOSPITAL

CUSTOMER IDENTIFICATION

Profile each individual test with detailed customer information. Up to three (3) lines of 16 characters each.

TIME 10:29:05 pm
DATE 06/25/98

FUEL
NATGAS

STACK-TEMP 374 °F
AMB.-TEMP 68.1 °F
O2 4.0 %
CO2 9.5 %
CO 8 ppm
O% COR CO 10 ppm
EFFICIENCY 82.6 %
EX. AIR 21 %

COMMENTS:



ORDERING INFORMATION

Portable Combustion Analyzer PCA®

PCA 55 & 65 Ordering Information

	PCA 10	PCA 20	PCA 25	PCA 35	PCA 55	PCA 65
Measurements:						
Oxygen	X	X	X	X	X	X
Air Temp	X	X	X	X	X	X
Stack Air	X	X	X	X	X	X
Carbon Monoxide	O	X	X	X	X	X
Draft	O	O	X	X	X	X
NOx	O	O	O	X	O	X
Calculations:						
Combustion Efficiency	X	X	X	X	X	X
Excess Air	X	X	X	X	X	X
Carbon Dioxide	X	X	X	X	X	X
CO (air free)	O	X	X	X	X	X
NOx (air free)	O	O	O	X	O	X
Output Capabilities:						
Printer Interface	X	X	X	X	X	X
Memory Storage	10	10	10	10	100	100
Customized Printout	O	O	O	O	X	X
Customer Identification	O	O	O	O	X	X