

Cole-Parmer® Economical Flame Photometer

Simple operation gives you fast and accurate results

- Automatic gas shutoff feature ensures operator safety
- Unit comes with Na⁺, K⁺, Ca⁺, Li⁺, and Ba⁺ filters



Cole-Parmer® Single-Channel Five-Element Flame Photometer

Save money while still getting reliable performance

- Five-element filter stick allows quick and easy filter selection for sodium (Na), potassium (K), lithium (Li), calcium (Ca), or barium (Ba)
- Removable front tray for easy cleaning



REQUIRED System Components

- 1) Pump page 345
- 2) Regulator page 345
- 3) Calibration standards page 345
- 4) Cleaning solutions page 345

Ideal for the testing of alkali metals in chemical manufacturing, pharmaceuticals, soil analysis, food, paper industries, and much more!

Features include auto-ignition and flame optimization, LED indicators for selected filter, digital display with hold button, recorder output, and fail-safe flame detection with auto shutoff. The mixing chamber, burner head, and burner stem can be disassembled without tools for easy maintenance.



What's included: one each of 1000 ppm Na⁺, K⁺, Li⁺, Ca⁺, and Ba⁺ standards in a 100-mL bottle, gas and air tubing, pack of three nebulizer cleaning wires, and universal power supply.

Specifications

- Elements analyzed:** Na⁺, K⁺, Li⁺, Ca⁺, and Ba⁺
- Measuring range:** 0 to 1999
- Linearity:** less than ±2% at midpoint with 3 ppm Na⁺, K⁺, or Li⁺ set at 100
- Sensitivity**
 - Na⁺, K⁺, Li⁺: 0.1 ppm
 - Ca⁺: 2.0 ppm
 - Ba⁺: 20 ppm
- Aspiration rate:** 3 to 6 mL/min
- Air supply (required):** 6 L/min at 14 psi; oil and moisture free
- Recorder output:** 100 mV per 1000 display units
- Power:** 100 to 240 VAC, 50/60 Hz

Description	Fuel supply	Catalog number	Price
Single-channel five-element flame photometer	Propane/butane	GY-02655-90	
	Natural gas	GY-02655-91	



REQUIRED System Components

- 1) Pump page 345
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Use this economical flame photometer for routine determinations of sodium and potassium in industrial and educational applications.

Specifications

- Measuring range:** 0 to 199.9 ppm
- Sensitivity**
 - Na⁺ and K⁺ filters: 3 to 100 ppm
 - Ca⁺ and Li⁺ filters: 5 to 100 ppm
 - Ba⁺ filter: 100 to 200 ppm
- Specificity:** less than 0.5% interference when concentrations are equal to test sample concentrations
- Reproducibility:** better than ±1% C.V.
- Linearity:** better than ±2%
- Aspiration rate:** 2 to 6 mL/min
- Reading stabilization:** approximately 8 seconds
- Recorder output:** 100 mV
- Air supply (required):** 6 liters/min at 14 psi, oil and moisture free
- Fuel supply:** high-grade propane, butane, or propane/butane mixture regulated at approximately 30 psi; natural gas at 3 to 10" W.G.

Description	Power (VAC/Hz)	Catalog number	Price
Economical flame photometer	115, 50/60	GY-83055-02	
	230, 50/60	GY-83055-05	

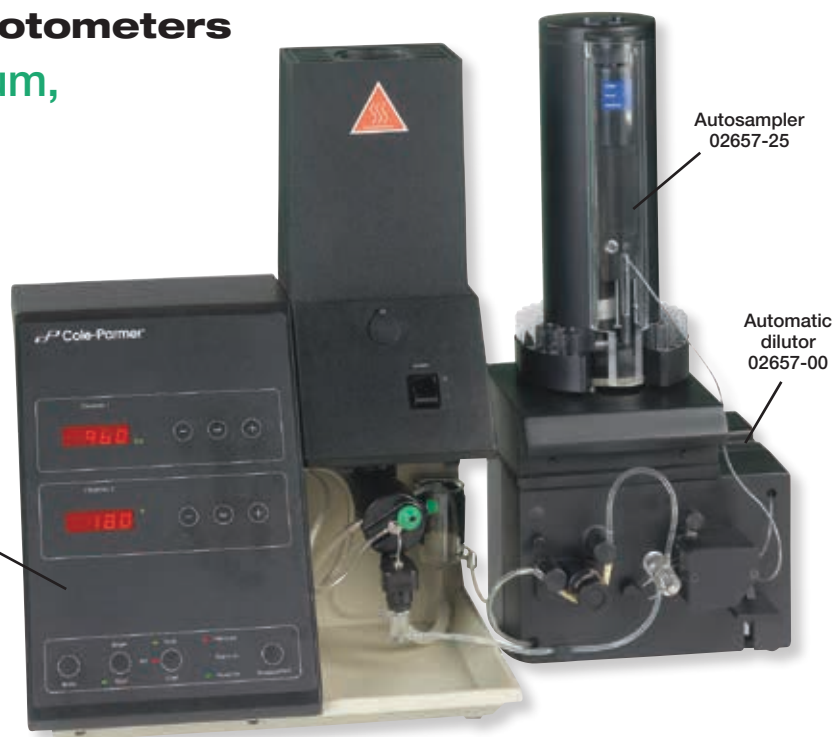
Flame Photometers

Cole-Parmer® Flame Photometers

Determine levels of sodium, calcium, potassium, and lithium accurately

- Four-element model features additional calcium channel and lithium internal standard
- Autosampler works with the dual-channel and four-element models—ideal for your long sample runs

Four-element photometer
02655-15



Single-Channel Flame Photometer is designed with user ease and comfort in mind. The sample introduction port is located in the front. Filter replacement is made easy—there's no need to dismantle large sections of the unit. Special features ensure workplace safety, including an automatic gas shutoff if the flame becomes accidentally extinguished, as well as a thermally insulated chimney. Unit offers a wide measuring range of 0 to 1999.

Dual-Channel Three-Element Flame Photometer offers improved analytical performance over single-channel flame photometers in the measurement of sodium, potassium, and lithium ions. Features include automatic ignition sequence, lithium internal standard, monitoring and control software, and dual-channel display. Built-in linearizing software allows sodium measurements up to 40 ppm.

Obtain Na⁺ and K⁺ results simultaneously. The lithium internal standard signal reduces fluctuation in flame conditions, drift, and dilution errors—ensures reproducible results and precise measurements. The fully automatic ignition and flame optimization sequences reduce set up and calibration time. An automatic gas shutoff mechanism activates if the flame is accidentally extinguished or if air pressure drops. Monitoring and control software allow measurements only after blanking and calibration.



REQUIRED System Components

- 1) Pump [page 345](#)
- 2) Regulator [page 345](#)
- 3) Calibration standards [page 345](#)
- 4) Cleaning solutions [page 345](#)

Dual-Channel Four-Element Flame Photometer offers the same great features found on our dual-channel flame photometer, plus a calcium channel and direct measurement of Ca⁺ with potassium, which are two vital elements for soil analysis. Unit allows you to measure Ca⁺ in combination with sodium, and also with lithium without an internal standard. Use this flame photometer as a detector in combination with multichannel analyzers from SEAL Analytical, Skalar, and Lachat. This system includes its own protocols for calibration, and features a special mode allowing you to set up the flame photometer within these protocols. User-selectable signal averaging is designed into the system allowing you to use these protocols along with analog output.

Specifications

Specificity: less than 0.5% interference when concentrations are equal to test sample concentrations

Linearity: less than ±1% at midpoint with 3 ppm K⁺ set at 100

Aspiration rate: 3 to 6 mL/min

Fuel supply: high-grade propane, butane, or propane/butane mixture regulated at approx 30 psi (natural gas—only with single-channel photometer)

Description	Single-channel	Dual-channel three-element	Dual-channel four-element
Catalog number	GY-02655-00	GY-02655-10	GY-02655-15
Elements analyzed	Na ⁺ , Ca ⁺ , K ⁺ , Ba ⁺ , Li ⁺	Na ⁺ , K ⁺ (with Li ⁺ internal standard), Li ⁺	Na ⁺ , Ca ⁺ , K ⁺ (with Li ⁺ internal standard), Li ⁺
Measuring ranges	0 to 1999	ppm: all 1.00 to 9.99, 10.0 to 199.9 mmol/L: as above except Li ⁺ only 1.00 to 5.00	ppm: all 1.00 to 9.99, 10.0 to 199.9 mmol/L: as above except Li ⁺ only 1.00 to 5.00
Readout	No units	No units or mmol/L	No units or mmol/L
Sensitivity (100 displayed)	Na ⁺ and K ⁺ = 0.5 ppm; Ca ⁺ = 5 ppm Ba ⁺ = 1000 ppm; Li ⁺ = 2 ppm	Na ⁺ and K ⁺ = 0.5 ppm; Li ⁺ = 2 ppm	Na ⁺ and K ⁺ = 0.5 ppm; Ca ⁺ = 5 ppm; Li ⁺ = 2 ppm
Reproducibility	Less than ±2%	Less than ±0.5%	Less than ±0.5%
Reading stabilization	20 seconds	Variable software command	Variable software command
Recorder output	0 to 200 mV fsd	Two outputs: 50 mV to 7.5 V via software command	Two outputs: 50 mV to 7.5 V via software command
Air supply (required)	6 liters/min at 12 psi, oil and moisture free	6 liters/min at 12 psi, oil and moisture free	6 liters/min at 15 psi, oil and moisture free
Price			

Cole-Parmer® Flame Photometers (continued)

Automatic Dilutor will accurately dilute your samples and standards. Designed for minimal diluent consumption and tubing wear. Maximum dilution ratio is 1:200 using included tubing.

Description	Catalog number	Price
Automatic dilutor	GY-02657-00	



Autosampler provides a fully automatic analysis solution for long sample runs. Holds up to 40 vials.

Description	Catalog number	Price
Autosampler	GY-02657-25	



Digital Interface/Linearizer Module allows you to connect the single-channel flame photometer to a printer or a computer. Print results with sequence number, designation (blank, calibration, sample, and repeat), and date/time stamp. The module also features the ability to linearize sodium curves for measuring in the 100 to 200 mmol/liter range typical of serum samples.

Description	Catalog number	Price
Digital interface/linearizer module	GY-02656-10	

Replacement Parts

Keep your flame photometer system running smoothly



02655-02



02655-14

Description	Part for model(s)	Catalog number	Price
Parts for flame photometers			
Nebulizer cleaning wires. Pack of 3	02655-00, -10, -15	GY-02655-01	
Stainless steel nebulizer		GY-02655-02	
Nebulizer inlet tube, 150-mm length		GY-02655-08	
Nebulizer inlet tube, 150-mm length. Pack of 12	02655-00, -10, -15	GY-02655-11	
Mixing chamber and burner		GY-02655-14	
O-ring for mixing chamber	02655-00, -10, -15	GY-02655-04	
Inner glass chimney		GY-02655-25	
Solution, 140 Na/5 K/1.5 Li. 100-mL bottle	02655-00, -10	GY-02655-18	
Sodium filter characterized	02655-10, -15	GY-02655-27	
Potassium filter	02655-00	GY-02655-12	
Sodium filter	02655-00	GY-02655-13	
Parts for automatic diluter			
Lithium internal reference tubing, 1:200 ratio. Pack of 3	02657-00	GY-02655-03	
Weir assembly		GY-02655-05	
Filter assembly		GY-02655-09	
Manifold assembly		GY-02655-19	
Parts for autosampler			
Sample cups, 14 mL. Pack of 50	02657-25	GY-02655-06	
Sample cups, 2 mL. Pack of 500		GY-02655-07	
Probe kit		GY-02655-23	

Required Components for all Flame Photometers

1. Vacuum/Compressor Air Pump

Supply your flame photometer with a quiet, oil- and moisture-free air supply. Maximum pressure is 60 psi; maximum vacuum is 24" Hg. The maximum inlet temperature is 100°F (37.8°C), and the free-air capacity is 1.1 cfm. Includes pressure and vacuum regulators, regulator assemblies, and 6-ft (1.8-m), three-wire cord with plug for 115 VAC, 60 Hz operation.



Description	Catalog number	Price
Vacuum/compressor air pump with regulator	GY-07061-40	

2. Primary Regulators

A primary regulator is required to adjust the flow rate of fuel gas entering the flame photometer. Choose a regulator according to your fuel type and cylinder valve outlet. **Note:** All fuels should be free of heavy hydrocarbon deposits and regulated at the cylinder to 30 psi.



02655-20



02655-26

Gas	Cylinder	Catalog number	Price
Propane	5/8" BSP	GY-02655-20	
Butane	"Gaz" type	GY-02655-24	
Natural	—	GY-02655-26	
Propane	7.5 cu ft, disposable	GY-02655-30	

3. Calibration Standards

Packaged in six 100-mL bottles.

Type	Concentration	Catalog number	Price/pk
Sodium	1000 ppm	GY-02655-70	
Potassium	1000 ppm	GY-02655-71	
Lithium	1000 ppm	GY-02655-72	
Calcium	1000 ppm	GY-02655-73	



4. Cleaning Solutions

After shutdown, rinse the photometer with general cleaning solution. If your samples have a high protein content, use the deproteinizing solution instead. Dilute cleaning solution 02655-79 at a 1:100 ratio with deionized water before use. Deproteinizing solution 02655-31 comes as six powder packets, each making one liter of solution. Use tubing disinfectant 02655-81 when analyzing samples containing pathogenic organisms. Use the diluent concentrate 02655-83 for diluting samples and making blanks to zero your instrument; use at 1 part to 999 parts water.



Description	Bottle volume	Catalog number	Qty/cs	Price/cs
General cleaning solution	500 mL	GY-02655-79	1	
Deproteinizing solution	80 mL	GY-02655-31	6	
Tubing disinfectant	100 mL	GY-02655-81	6	
Diluent concentrate	100 mL	GY-02655-83	6	

Wait! Don't Forget...

Safety Eye Protection. See pages 820-821.

