



 Cole-Parmer®

## FLAME PHOTOMETERS

PERFORM HIGH-ACCURACY ELEMENT  
DETERMINATIONS IN MINUTES



# Cole-Parmer® Flame Photometers

## OUR STATE-OF-THE-ART FLAME PHOTOMETERS MEET AND SET STANDARDS INDUSTRY WIDE!

Cole-Parmer offers the most accurate and reliable flame photometers available for all of your sample determination needs. These versatile units are easy to set up and maintain, and, unlike other flames, include uncompromising safety features ensuring your protection.

Time-consuming sample preparations and long run times are no longer necessary with the new enhanced design and innovative features.

- Select single-, dual-, or four-element flames for single- or multiple-element determinations
- Eliminate complex software programming with convenient monitor and control software

## FEATURES

- Automatic gas shutoff activates if flame is accidentally extinguished or air pressure drops, ensuring your safety
- Thermally insulated chimney eliminates unnecessary exposure to potentially dangerous metal surfaces
- Flame optimization provides excellent quality control, ensuring the reproducibility of results
- Easy-to-use automatic dilutor eliminates the need to manually dilute samples and standards, saving valuable time
- View results on the easy-to-read LCD or download to PC via RS-232 for further analysis

## APPLICATIONS

- Mineral extraction
- Soil analysis
- Chemical composites
- Clinical and pharmaceutical sample analysis



**Eliminate costly sampling errors and increase productivity with a complete flame photometer system**



## SINGLE-CHANNEL FLAME PHOTOMETER PRODUCES SINGLE-ELEMENT DETERMINATIONS

- Optional linearizer module compensates for nonlinear curves, increasing analytical performance
- Save valuable time with linearization module by displaying results in mmol/liter—no need to prepare a standard curve

## DUAL-CHANNEL FLAME PHOTOMETER ENABLES SIMULTANEOUS ELEMENT RUNS

- Internal lithium standard reduces drift, flame fluctuations, and dilution
- Obtain Na<sup>+</sup> and K<sup>+</sup> results simultaneously—eliminates long sample runs and increases efficiency
- Automatic ignition sequence speeds sample determinations

## FOUR-ELEMENT FLAME INCLUDES AN INTERNAL LITHIUM STANDARD FOR QUICK DETERMINATIONS

- Allows the simultaneous direct measurement of calcium with potassium for simple soil analysis applications
- Independent calibration on each channel reduces sample run times
- Interface with automated systems from Bran & Luebbe, Skalar, and Lachat for potassium, calcium, and sodium detection

## OPTIONAL SYSTEM COMPONENTS PROVIDE ADDITIONAL FLEXIBILITY

- Automatic dilutor eliminates time-consuming sample preparation steps
- Autosampler (for dual- and four-element flames) allows full automation of long sample runs



Single-channel  
flame photometer



Dual-channel  
flame photometer



**FREE TECHNICAL  
APPLICATIONS ASSISTANCE!**

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Call 847-549-7600 to reach our  
 International Sales Department  
 or contact your local dealer.

## PERFORMANCE SPECIFICATIONS

- Reproducibility of  $\pm 1\%$   $C_V$  for 20 replicate samples
- Twenty-second initial sample aspiration ensures stability

**Specificity:**

Less than 0.5% interference when concentrations are equal to test sample concentrations

**Linearity:**

Less than  $\pm 1\%$  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)

**Display:**

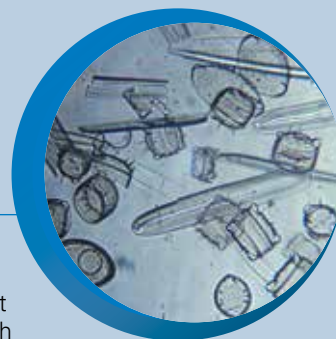
3½-digit LED, ½" H

**Power:**

120/240 VAC, 50/60 Hz (switchable)

**Dimensions:**

15¾" W x 20" H x 13½" D



Model	Single-channel	Dual-channel	Four-element
<b>Catalog number</b>	<b><a href="#">ML-02655-00</a></b>	<b><a href="#">ML-02655-10</a></b>	<b><a href="#">ML-02655-15</a></b>
Elements analyzed	Na <sup>+</sup> , Ca <sup>+</sup> , K <sup>+</sup> , Ba <sup>+</sup> , Li <sup>+</sup>	Na <sup>+</sup> , K <sup>+</sup> (with Li <sup>+</sup> internal standard), Li <sup>+</sup>	Na <sup>+</sup> , Ca <sup>+</sup> , K <sup>+</sup> (with Li <sup>+</sup> internal standard), Li <sup>+</sup>
Measuring ranges	0 to 1999	ppm: all 1.00 to 9.99, 10.0 to 199.9 mmol/L: as above except Li <sup>+</sup> only 1.00 to 5.00	ppm: all 1.00 to 9.99, 10.0 to 199.9 mmol/L: as above except Li <sup>+</sup> only 1.00 to 5.00
Readout	No units	No units or mmol/L	No units or mmol/L
Sensitivity (100 displayed)	Na <sup>+</sup> and K <sup>+</sup> = 0.5 ppm Ca <sup>+</sup> = 5 ppm Ba <sup>+</sup> = 1000 ppm Li <sup>+</sup> = 2 ppm	Na <sup>+</sup> and K <sup>+</sup> = 0.5 ppm Li <sup>+</sup> = 2 ppm	Na <sup>+</sup> and K <sup>+</sup> = 0.5 ppm Ca <sup>+</sup> = 5 ppm Li <sup>+</sup> = 2 ppm
Reproducibility	Less than $\pm 2\%$	Less than $\pm 0.5\%$	Less than $\pm 0.5\%$
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

**What's included**

Standards, two meters each of gas and air tubing with connectors, RS-232 output cable, and 7-ft power cable (02655-10, -15).

**Optional Accessories**

**[ML-02656-00 Linearizer module](#)** (for single-channel flame). Module for sodium curves measuring in the 100 to 200 mmol/liter range of serum samples.

**[ML-02657-00 Automatic dilutor](#)**, 120/240 VAC (for all models). Automatically dilutes samples and standards.

**[ML-02657-25 Autosampler](#)**, 115/230 VAC (for dual-channel and four-element models). Fully automatic solution for long sample runs.