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## Технические характеристики

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# Flame Photometers

## Jenway® Model PFP7 Flame Photometers

Single channel emission flame photometer for routine determination of Na, K, Ca, Li and Ba.

Wide range of clinical, industrial and teaching applications including examination of:-

- pharmaceutical and biochemical samples
  - plant and animal tissues
  - minerals, cements and ceramics
  - oils and greases
  - biological and clinical fluids
- ◆ Digital readout
  - ◆ Switchable decimal point
  - ◆ Narrow band filters on rotating discs
  - ◆ Electronic ignition of flame
  - ◆ Electronic flame failure protection
  - ◆ Automatic regulation of air supply
  - ◆ Simple maintenance and cleaning
  - ◆ Recorder output

Model		PFP7	PFP7/C
Ranges	ppm mmol/l	0 to 199.9 —	0 to 199.9 120 to 160Na (linearised), 0 to 10.0K
Detection limits	ppm	Na 0.2 K 0.2 Li 0.25 Ca 15 Ba 30	0.20 0.20 0.25 15 (using accessory filter) 30 (using accessory filter)
Reproducibility		1% CV for 20 consecutive samples using 10ppm Na, set to read 50.0	
Linearity		Better than 2% when concentration of 3ppm, Na and K and 5ppm Li are set to read 100	
Specificity		Interference from Na, K, Li equal in concentration to test element will be less than 0.5%.	
Recorder output		Nominal 1V for a reading of 100.0	
Dimensions	mm	420 x 360 x 300	
Weight	kg	8	
<b>Services required</b>			
Electrical		230V 50Hz single phase	
Air		Moisture and oil free 6 litres/minute at 1Kg/cm <sup>2</sup>	
Gas		Propane, butane or natural gas (specify correct regulator when ordering)	

### Flame Photometer, Jenway FP7

Supplied with filters as indicated, fuel and air connectors, instructions and service manual. Requires but does not include a gas regulator and an air compressor of the correct type. For 190-250V 50/60Hz single phase supplies.

**FH200-15** Jenway PFP7 with Na, K, Li, Ba and Ca filters

**FH200-35** Jenway PFP7/C with Na, K, and Li filters and fitted with lineariser for clinical applications

### Accessories and spares

It is recommended that accessory filters, air compressor and gas regulator are ordered with the flame photometer.

- FH205-15** Calcium filter
- FH205-20** Lithium filter
- FH205-25** Barium filter

Air compressor, providing moisture and oil-free air. For 220-240V 50/60Hz supplies.

- FH207-10** Air compressor

- FH214-10** Natural gas regulator
- FH214-12** Propane regulator
- FH214-14** Butane regulator
- FH218-10** Minor spares kit
- FH218-12** Major spares kit

Water separator PFP253. For use in locations of high humidity to overcome problem of water condensation in the air line to the flame photometer.

- FH220-10** Water separator

### Calibration Standards

	mmol per litre	Pack qty. ml
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### Clinical Standards

<b>FH216-10</b>	100Na/K	500
<b>FH216-15</b>	1.00Li	500
<b>FH216-20</b>	140Na/5K	500
<b>FH216-24</b>	120Na/2K	500
<b>FH216-28</b>	160Na/8K	500
<b>FH216-32</b>	160Na/80K	500

	ppm	Pack qty. ml
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### Industrial Standards

<b>FH216-60</b>	1000Na	500
<b>FH216-64</b>	1000K	500
<b>FH216-68</b>	1000Li	500
<b>FH216-72</b>	3000Ba	500
<b>FH216-76</b>	1000Ca	500



**FH200**



**FH207**

# Flame Photometers

## Sherwood Model 360 Flame Photometer

Low-cost, single channel, emission flame photometer with analogue output and digital display.

- ◆ Choice of 5 element filters selected by slide; - Na, K, Li, Ca, Ba
- ◆ Modular design reduces footprint and aids dismantling for cleaning
- ◆ Automatic flame optimisation and auto-ignition
- ◆ LCD readout with display hold, LED flame status and element filter selection lamps
- ◆ Safety features include fail-safe flame detection and shut-off, with low air pressure indicator
- ◆ Large working area with spill containment tray
- ◆ Supplied with universal switch-mode power supply and multi-plug
- ◆ Analogue output for recorder

### General Specifications

Model	360
Sensitivity	Minimum concentrations producing a display reading of 100 scale units: Na: 1ppm, K: 0.5ppm, Li: 1ppm, Ca: 20ppm*, Ba: 300ppm*
Minimum detection level at 3x noise	Na, K, Li: 0.1ppm, Ca: 2*, Ba: 20*
Linearity, % value at 50% value	Na, K, Li: $\pm 2\%$ at 3ppm, Ca: $\pm 2\%$ at 100ppm, Ba: $\pm 2\%$ at 1000ppm
Specificity	Na, K, Li interference is $<0.5\%$ value of element under analysis
Reproducibility	$<1.5\%$ (single reading), $<1.0\%$ (20 consecutive readings) from 10ppm K solution set to 1000*
Result display	Manual estimation
Result storage	No
Output	Fixed analogue, 0.2V FSD
Dimensions	mm 300 x 230 x 500
Weight	kg 5.6

\*May not be achievable if fuel gas used is natural gas.

### Services required

Electrical	100-240V 50/60Hz single phase
Air	Moisture and oil free 6 litres/minute at 1kg/cm <sup>2</sup>
Gas	High grade propane, butane or propane/butane mixture. Fuel should be free from heavy hydrocarbon deposits and regulated to 30 p.s.i. at the cylinder. Natural gas at 3" to 10" W.G. is also suitable (please note restrictions above).

### Flame Photometer, Model 360

With Na, K, Li, Ca and Ba filters, fuel and air connections, 1000ppm standard solutions. Requires, but does not include, an air compressor of the correct type and gas regulator. For 100-240V 50/60Hz single phase supplies.

**FH270-25** Model 360

### Accessories

Air compressor for temperate conditions 220-240V 50/60Hz single phase.

**FH319-12** Air compressor

Air compressor for conditions of high temperature and humidity. 184-264V 50/60Hz single phase.

**FH319-18** Air compressor high-temp

**FH324-10** Natural gas regulator

**FH324-12** Propane regulator

**FH324-14** Butane regulator

Additional element filters for Rb, Cs and Sr are available - *details on request*.



**FH270-25**

# Flame Photometers

## Sherwood Models 410, 420 and 425 Flame Photometers

For use in applications examining pharmaceutical and biochemical samples, clinical and biological fluids, industrial processes and environmental testing.

◆ Choice of models:

Model 410 — Single channel emission flame photometer for routine determination of Na, K and Ca (Li and Ba also, using accessory filters).

Model 420 — Dual channel emission flame photometer with features as above but with Li filter instead of the Ca filter and additionally offering simultaneous Na and K results, built-in lineariser for clinical samples, Li internal standard referencing for enhanced accuracy, microprocessor control and monitoring of measurements, continuous or peak mode operation, and built-in RS232 port for result output.

Model 425 — As Model 420 but offering simultaneous Ca with K, or Na, results and without lineariser.

Features common to all models

- ◆ Digital readout with moveable decimal point
- ◆ Auto-ignition of flame
- ◆ Integral 'fail-safe' flame monitoring
- ◆ Automatic air regulation
- ◆ Gas cut-off safety feature
- ◆ Recorder output

### General Specifications

Model	410 Classic	420 Clinical	425
<b>Sensitivity</b>	Minimum concentrations producing a display reading of 100 scale units: Na: 0.5ppm, K: 0.5ppm, Li: 2ppm — all models Ba: 1000ppm (optional filter) — 410 only Ca: 5ppm — 410 and 425 only		
<b>Detection limits</b>	Na, K <0.02ppm at 2 x standard deviation		
<b>Specificity</b>	<0.5% to reading from interferent of Na, K, Li equal to the concentration of element under test		
<b>Drift</b>	% 2	<1	<1
<b>Reproducibility</b>	% 1	<0.5 (Peak ref. mode)	<0.5 (Peak ref. mode)
<b>Display channels</b>	1 (LED)	2 (LED)	2 (LED)
<b>Result display</b>	Manual estimation	Auto peak	Auto peak
<b>Result storage</b>	No	Yes	Yes
<b>Outputs</b>	Fixed analogue	Adjustable analogue and RS232 — both models	
<b>Dimensions</b>	mm 390 x 345 x 510 — all models		
<b>Weight</b>	kg 9.5	10	10

### Services required

<b>Electrical</b>	198-264V 50/60Hz single phase
<b>Air</b>	Moisture and oil free 6 litres/minute at 1kg/cm <sup>2</sup>
<b>Gas</b>	High grade propane, butane or propane/butane mixture. Fuel should be free from heavy hydrocarbon deposits and regulated to approx. 30 p.s.i. at the cylinder. Model 410 only is also suitable for use with natural gas at 3"– 10" W.G. (Specify correct regulator when ordering). Model 425 requires propane/air mixture only for Ca tests.

### Flame Photometer, Model 410 Classic\*

With Na, K and Ca filters, fuel and air connection, 1000ppm standard solutions for Na, K and Ca and instructions. Requires but does not include an air compressor of the correct type and gas regulator. For 198-264V 50/60Hz single phase supplies.

**FH300-10** Model 410 Classic

\*Clinical version available - *details on request.*

### Flame Photometer, Model 420 Clinical\*\*

With Na, K and Li filters, fuel and air connection, 1000ppm standard solutions for Na, K and Li, software and instructions. Requires but does not include an air compressor of the correct type and gas regulator. For 198-264V 50/60Hz single phase supplies.

**FH305-20** Model 420 Clinical

\*\*Industrial version available - *details on request.*

### Flame Photometer, Model 425

With Na, K, Ca and Li filters, fuel and air connection, 1000ppm standard solutions for Na, K, Ca and Li, software and instructions. Requires, but does not include, an air compressor of the correct type and gas regulator. For 198-264V 50/60Hz single phase supplies.

Note: cannot be operated using natural gas.

**FH305-30** Model 425

### Accessories for Model 410 only

- FH317-10** Calcium filter<sup>†</sup>
- FH317-12** Barium filter
- FH317-14** Lithium filter
- FH324-10** Natural gas regulator kit

<sup>†</sup>Accessory for instruments built before December 2003.

### Accessories for all models

Air compressor for temperate conditions 220-240V 50/60Hz single phase.

**FH319-12** Air compressor<sup>#</sup>

<sup>#</sup>Free of charge when ordering FH305-series.

Air compressor for conditions of high temperature and humidity. 184-264V 50/60Hz single phase.

- FH319-18** Air compressor, high-temp
- FH324-12** Propane regulator
- FH324-14** Butane regulator



**FH300-10**



**FH305-20, FH305-30 is similar**

# Flame Test

## Flame Test

### Flame Test Glass

Cobalt blue, 75 x 50mm.

**FH610-10** Cobalt glass

### Wire Holder

Nickel plated brass with screw chuck which accepts wire or needles up to 0.56mm diameter (24 swg).

**FH625-10** Wire holder

### Magnesia Rods

Manufactured in HCT 500 QS magnesium oxide refractory material. Size 140 x 1.8mm length x diameter. Supplied in a pack of 100.

**FH640-15** Magnesia rods

## Laboratory Burners, Fuego SCS

For occasional or intermittent use, or serial flame sterilisation.

- ◆ Automatic gas ignition
- ◆ Low-profile easily cleaned stainless steel casing
- ◆ Gas and air regulators for fine control
- ◆ Visual alarm of burner head clogging and "burner hot" residual heat indicator
- ◆ Smooth sculpted design channels spillages away
- ◆ Can be tilted to avoid nozzle contamination
- ◆ Overheat protection system cuts off gas supply if overheating occurs or the electrical supply interrupted

### Burner, Fuego SCS basic

With push-button ignition. The flame is maintained as long as the button is pressed and extinguishes on release. Alternatively, a foot pedal provided allows hands-free operation if required. Supplied with foot pedal, tilt mechanism, nozzles for natural gas or LPG, rack for up to 3 wire loop holders, tubing connector, wrench for gas connection and screwdriver for burner head. Overall 103 x 130 x 49mm L x W x H. Weight 0.7kg. Requires a 230V 50/60Hz single phase supply for the ignition circuit. Without gas supply.

**BY340-30** Fuego SCS basic

### Burner, Fuego SCS

Generally as BY340-30 but without foot pedal and with Infra-red sensor, range 5 to 50mm, requiring two hand movements to activate the flame which is maintained for a timed period adjustable within two ranges: start-stop from 1 second to 2 hours or Auto-off from 1 second to 2 hours. An LCD readout with heat resistant glass face indicates time remaining and burner functions/adjustment. An accessory foot pedal is available, if preferred. Requires a 230V 50/60Hz single phase supply for the ignition circuit. Without gas supply.

**BY340-40** Fuego SCS

### Accessories

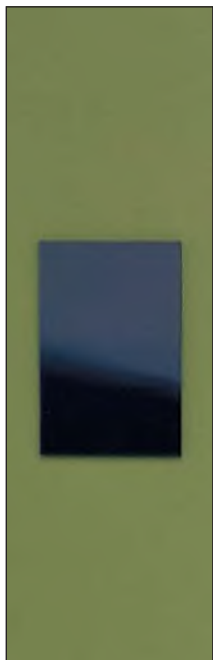
**BY344-06** Foot pedal. Accessory for BY340-40

**BY344-12** Glass safety shield. For added safety when handling pathogenic material

**BY344-24** Gas cartridge, CV270, 250g

**BY344-26** Adapter for connecting BY344-24 to BY340-burners

**Note:** Gas cartridges BY344-24 can be exported only as sea freight – deck cargo. Local purchase is recommended.



FH610



FH625



FH640



BY340-40 in use, BY340-30 is similar



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