



# Wavelength-Tunable Ion Laser Systems

- Selectable wavelengths ranging from violet to red
- Output power to 195 mW
- Highest output power for its size
- Switching power supplies with power-factor correction
- CE, IEC, and CDRH compliant

These air-cooled ion laser systems are compact devices that produce high-quality, linearly polarized output that can be tuned over a wide variety of wavelengths. The 35 LAP 321 and 35 MAP 321 are extremely compact argon-ion lasers, less than 15 inches in length (excluding cables). The somewhat longer 35 LAP 431 and 35 MAP 431 are argon-ion lasers that produce as much as 195 mW multimode and up to 130 mW with a clean Gaussian TEM<sub>00</sub> mode. The model 35 KAP 431 is a mixed-gas (argon/krypton) laser with nine selectable wavelengths ranging from 476 nm (violet) to 676 nm (red). To select a wavelength, the operator simply turns a calibrated micrometer on the back panel of the laser head. This rotates the full-dispersing prism assembly and determines the output.

A switching-regulated power supply, equipped with both current and light-feedback regulation systems, is a standard feature. Light regulation tightly controls the laser output to maintain constant power and low beam noise over long periods of time. The power supply has outstanding power factor correction (greater than 90%), meets all relevant U.S. and European electrical emission standards, and proudly displays the CE mark. The systems are shipped with integral forced-air cooling. For information on remote cooling, please contact your nearest Melles Griot sales office.

## SPECIFICATIONS:

### WAVELENGTH-TUNABLE ION LASER SYSTEMS

**Transverse Mode :** TEM<sub>00</sub> (except as noted)

**Longitudinal Mode Spacing :**

35 (X)AP 321: 469 MHz

35 (X)AP 431: 349 MHz

**Coherence Length :** ~10 cm

**Polarization :** Linear (vertical  $\pm 5^\circ$ ) with >250:1 extinction ratio

**Pointing Stability :** <30  $\mu$ rad/°C

**Power Stability :**  $\pm 0.5\%$  over a 2-hour period

**Optical Noise (%p-p @ <100 kHz / <1 MHz) :**

**Argon:** 488 nm, 4 / 6; 514 nm, 4 / 6

**Argon/Krypton:** 488 nm, 5 / 7; 514 nm, 6 / 10;  
568 nm, 3 / 6; 647 nm, 5 / 8

**Warm-up Time :** <15 minutes from cold start

**Recovery from Standby :** 1 second

**Cooling :** Forced air

**Input Voltage :**

100, 120, 200, 208, 220, 230, or 240 Vac  $\pm 10\%$

**Input Frequency :** 47–63 Hz, single phase

**Input Power :**

35 (X)AP 321: 2 kVA (typical)

35 (X)AP 431: <3 kVA

**Operating Temperature :** +5°C to +40°C

**Nonoperating Temperature :** –30°C to +60°C

**Operating Humidity :** 0% to 90%, noncondensing

**Laser Head Weight :** 11.4 kg (25.0 lb)

**Power Supply Weight :** 2.72 kg (6.0 lb)

**Safety Classification :** CDRH IIIb, IEC 3B, CE

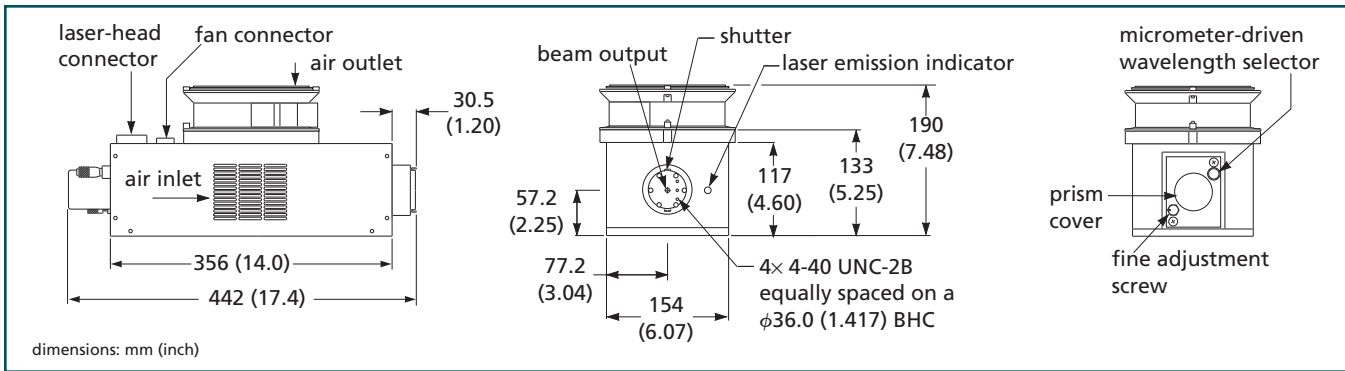
## Wavelength-Tunable Ion Laser Systems

Active Gas	Output Power (mW) for Individual Wavelengths (nm) <sup>1</sup>													Beam Diameter (1/e <sup>2</sup> ) (mm)	Beam Divergence (1/e <sup>2</sup> ) (mrad)	M <sup>2</sup>	PRODUCT NUMBER <sup>2</sup>	
	454	457	465	472	476	483	488	496	502	514	520	568	647					676
Argon	*	10	9	8	15	NA	<b>40</b>	14	4	<b>40</b>	NA	NA	NA	NA	0.66 $\pm$ 5%	1.1	<1.2	35 LAP 321
Argon	*	15	14	12	23	NA	<b>60</b>	21	6	<b>60</b>	NA	NA	NA	NA	0.90 $\pm$ 5%	2.0	Multimode	35 MAP 321
Argon	*	26	18	18	28	NA	<b>125</b>	24	12	<b>130</b>	NA	NA	NA	NA	0.72 $\pm$ 5%	1.0	<1.2	35 LAP 431
Argon	*	39	27	27	42	NA	<b>185</b>	36	18	<b>195</b>	NA	NA	NA	NA	1.10 $\pm$ 5%	1.8	Multimode	35 MAP 431
Argon/Krypton	NA	*	*	*	4	10	<b>20</b>	4	NA	<b>10</b>	20	<b>20</b>	<b>20</b>	6	0.70 $\pm$ 5%	1.1	<1.2	35 KAP 431

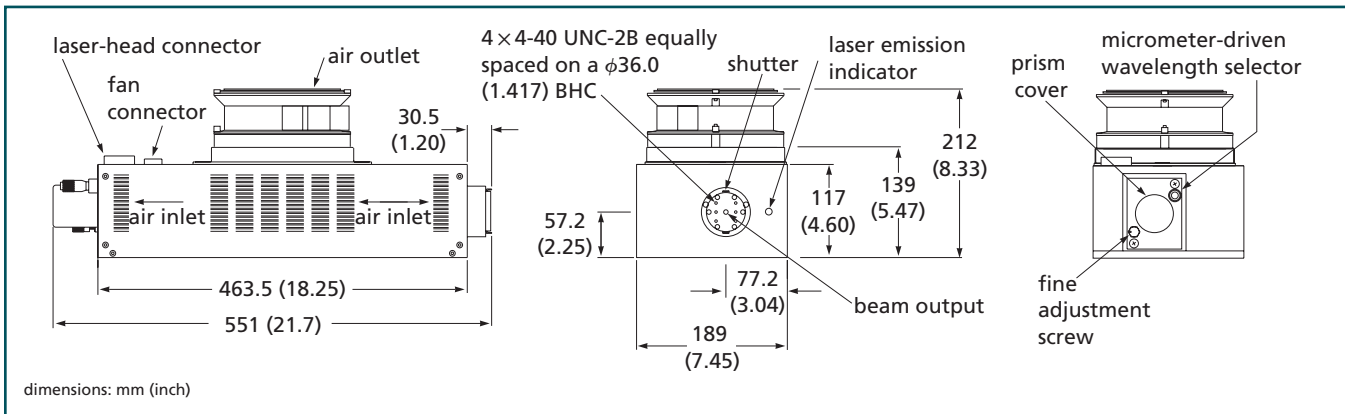
\*Indicates that output is unspecified and may or may not be present.

<sup>1</sup> Guaranteed output power specified in bold type. Other output indications for reference purposes only.

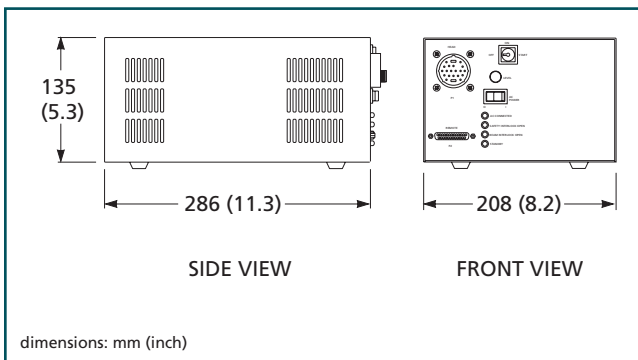
<sup>2</sup> Append the appropriate suffix to the product number to specify input voltage: -100 for 100 Vac, -120 for 120 Vac, -200 for 200 Vac, -208 for 208 Vac, -220 for 220 Vac, -230 for 230 Vac, or -240 for 240 Vac (-100 and -120 available only on 35 LAP/MAP 321 lasers).



Tunable ion laser head (35 LAP 321 and 35 MAP 321)



Tunable ion laser head (35 LAP 431, 35 MAP 431, and 35 KAP 431)



Power and control unit for ion lasers