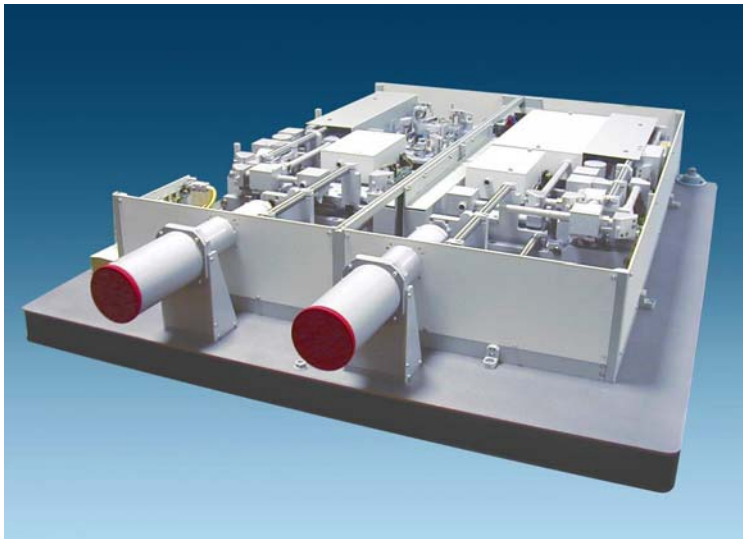


Two-Channel Laser System



Elimination or minimisation of global atmospheric pollution has become an essential part of life for most countries today. The acquisition of information about the state of the Earth's atmosphere is an integral part of both global and regional atmospheric monitoring.

Lidar systems using laser radiation are becoming more and more integrated into systems used for atmospheric monitoring. The

Solar TII Two-Channel Laser System is specially designed for use in lidar complexes to determine the levels of atmospheric pollution with gases (such as NH_3 , SO_2 , NO_x , O_3 , amongst others). Applications include monitoring of vertical distribution of ozone in the stratosphere.

Features:

- ◆ Simultaneous lasing at several wavelengths
- ◆ Broad spectral range (235 – 1064nm)
- ◆ Generation of narrow-linewidth (down to 35 pm) radiation
- ◆ A wide range of output energies (1 to 650 mJ)
- ◆ Automatic setting and control of output parameters
- ◆ Energy and wavelength control for each output pulse in both of the channels in real time
- ◆ Heat/Impact-resistant construction, and stable parameters
- ◆ Completely automatic system for measuring each pulse parameter
- ◆ High noise immunity
- ◆ Control and data transfer via fibre optics

Specifications

LASER PARAMETERS

Wavelength

Channel 1

Nd:YAG laser:	532nm, 266nm
Ti: Sapphire laser	
at fundamental:	700 – 950nm
at second harmonic:	350 – 475nm
at third harmonic:	235 – 315nm

Channel II

Nd:YAG laser:	1064nm, 355nm
Ti: Sapphire laser	
at fundamental:	700 – 950nm
at second harmonic:	350 – 475nm
at third harmonic:	235 – 315nm

Laser linewidth (max)

Nd:YAG laser:	0.005nm
Ti: Sapphire laser:	0.035nm

Max wavelength stability

(with 8 hours continuous laser running): 0.02nm

Beam Diameter (before output telescope)

Nd:YAG laser:	≤7,5mm
Ti: Sapphire laser:	≤3.0mm

ENERGY CHARACTERISTICS

Pulse energy (before output telescope)

Nd:YAG laser	
1064nm:	650mJ
532nm:	400mJ
355nm:	150mJ
266nm:	120mJ
Ti: Sapphire laser	
at fundamental:	75mJ
at second harmonic (450nm):	30mJ
at third harmonic (300nm):	10mJ

TIME CHARACTERISTICS

Max pulse width (1064nm):	16ns
Pulse repetition rate:	10Hz (20Hz)

SPATIAL CHARACTERISTICS

Max beam divergence:	0.5mrad
Telescopes:	achromatic 8x
Separation between channel optic axes:	350mm

PULSED PARAMETERS MEASURED AND MEASUREMENT ACCURACY

Pulse energy measurement	
measurement range:	1-650mJ
measurement accuracy:	+/-3%
Wavelength measurement	
measurement range:	230 - 959 nm
measurement accuracy	
700-950nm:	0.04nm
350-475nm:	0.02nm
235-315nm:	0.013nm

ELECTRIC CHARACTERISTICS

Power requirements:	Single phase, 220V +/-20%, 50-60Hz, 1850W (max)
External synchronisation:	TTL level (+5%)

OVERALL SIZE, WEIGHT

Laser heads module:	1500 x 1200 x 250mm, 385kg
Power & Cooling unit:	420 x 510 x 1080mm, 96kg