



MOPA-42-R



DEVICE

+42 dBm Master Oscillator Power Amplifier, 1064 nm

OVERVIEW

The Optilab MOPA-42-R is a versatile high power pulsed laser that is designed for research and development of LIDAR, DTS, OTDR or other pulse systems. This fully integrated unit consists of electrical pulse generator, 1064 nm DFB laser, pre-amplifier, ASE filter and power amplifier. MOPA-42-R can generate pulse over 1000 W peak power. The pulse width can be set from 5 ns to 1000 ns and the repetition rate is selectable from 5 kHz to 1 MHz. This universal design creates thousands combinations of pulse width and repetition. With 100 ns pulse width, it provides a pulse energy of $> 100 \mu\text{J}$ @ 100 kHz repetition rate. Pulse generation can alternatively be controlled via an external electrical trigger. Designed with maximum flexibility, MOPA-42-R is either for a stand alone pulsed laser source or can be integrated with other products. It is equipped with LCD touch screen and LabVIEW (TM) remote user interface. Contact Optilab for more information.

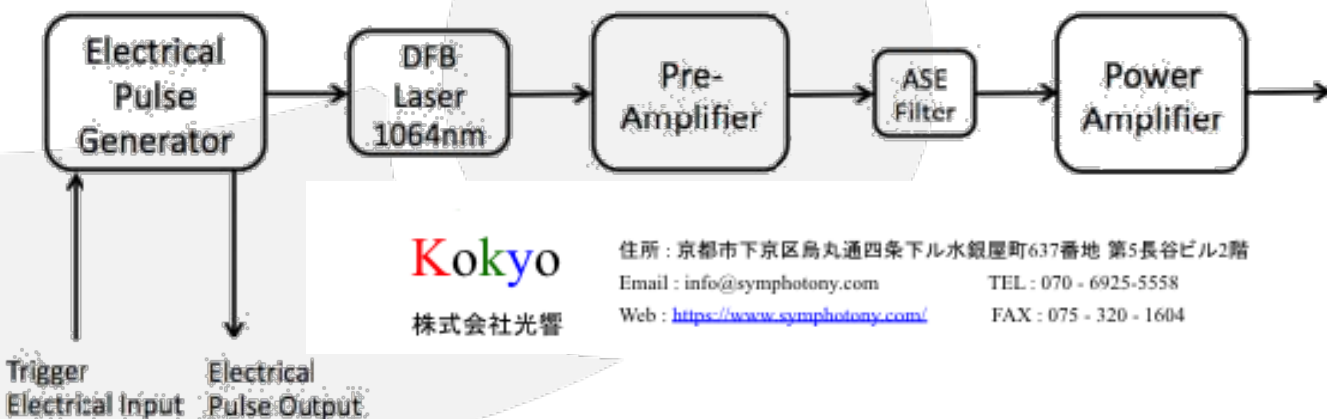
FEATURES

- MOPA design with 1064 nm seed laser
- Over 1000 W peak pulsed power
- Up to +42 dBm CW Output
- Programmable Pulse Width: 5 ns to 1000 ns
- Adjustable Repetition Rate: 5 kHz to 1 MHz
- Touch Screen LCD & USB Interface

USE IN

- Pulsed LIDAR Source
- Laser Source for Distributed Sensor
- Pulsed based Optical Instrumentation
- Raman Distributed Sensing
- Test and Measurement
- Research and Development

FUNCTIONAL DIAGRAM



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SPECIFICATIONS

Operating Wavelength	1030 nm to 1075 nm
Laser Linewidth	< 5 MHz
ASE Filtering	Internal (customized wavelength)
Optical Pulse Width	5 ns to 1000 ns (programmable)
Pulse Repetition Rate	5 kHz to 1 MHz (adjustable)
Peak Power (100 ns p.w.)	> 1000 W @ 100 kHz rep. rate
Pulse Energy (100 ns p.w.)	> 100 μ J @ 100 kHz rep. rate
Input Trigger Level TTL	> 3.5 V
Amplifier Design	Three Stages
Optical Gain	Up to 50 dB
Output Stability (short term)	\pm 0.25 dB
Output Isolation	> 30 dB
Pulse Contrast Ratio	50 dB typ.
CW Output Power	42 dBm typ.
Optical Output	Collimated output with 6 to 8 mm beam diameter

GENERAL

MECHANICAL

Operating Temperature	+5°C to +40°C
Storage Temperature	-10°C to +70°C
Power Supply	100 to 240 VAC, 50 to 60 Hz
Control	Pulsed laser TEC, pulse width, repetition rate Pump laser current, enable switch
Monitoring	Pump laser current, input power
Remote Control	USB 2.0 port
Dimensions	3U: 450 mm x 615 mm x 150 mm

ORDERING OPTIONS

MOPA-XXXX-Z-YY

XXXX

Wavelength (nm): 1030/1064/1070

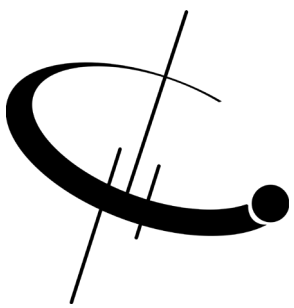
Z

Nanosecond (ns): 1/5

YY

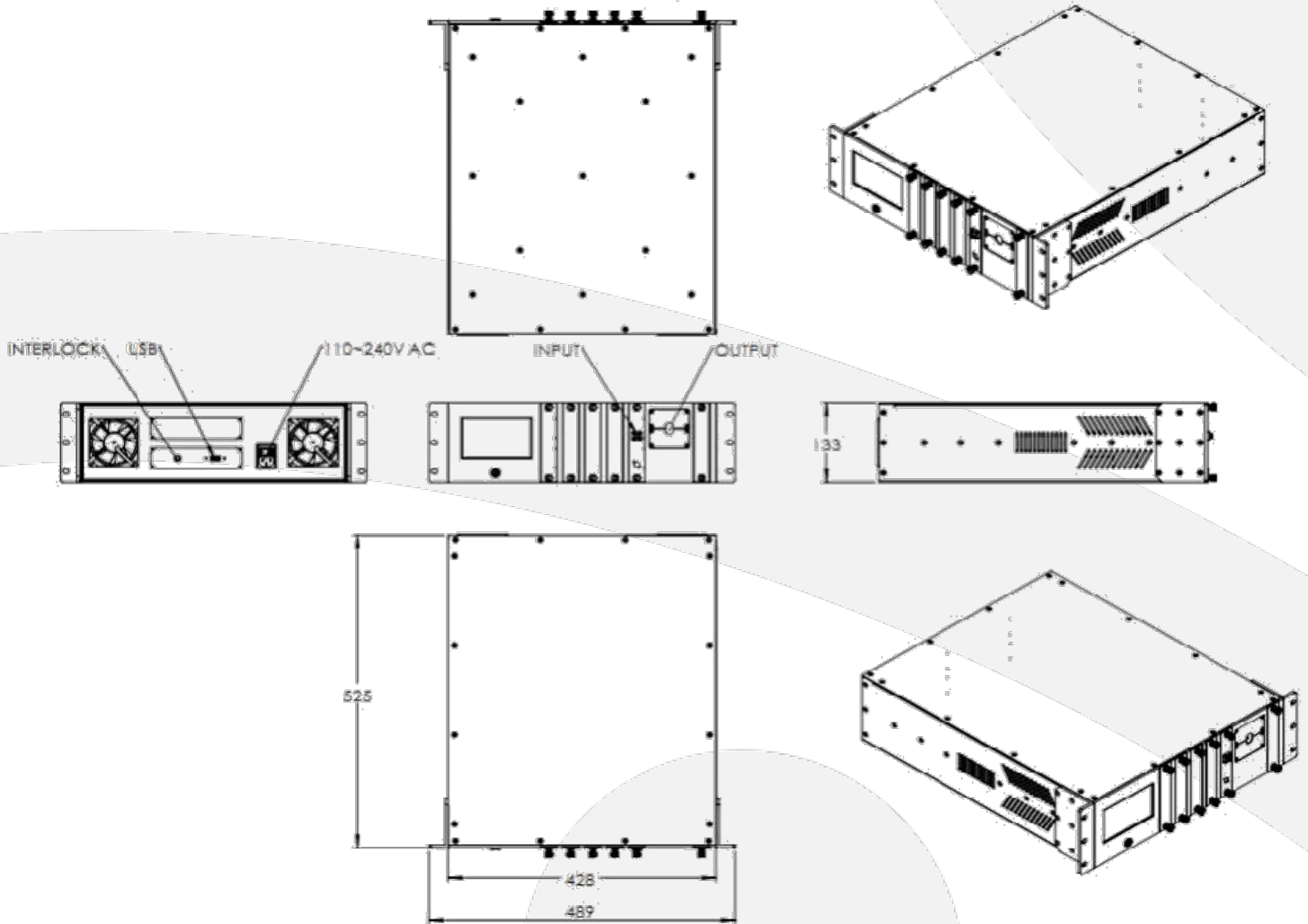
Saturated Output Power (dB): 40/42/43/45

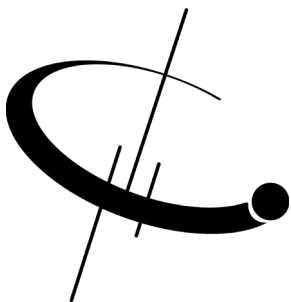




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MECHANICAL DIAGRAM





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TOUCHSCREEN FOR BUILT-IN AMPLIFIER CONTROL (MOPA-42-R EXAMPLE)

MOPA-42-R

PUMP1 CURRENT:	0769	mA	SHIFT
PUMP2 CURRENT:	1049	mA	
PUMP1 LIMIT:	0850	mA	INC
PUMP2 LIMIT:	1200	mA	SAVE
INPUT POWER:	+09.51	dBm	NEXT

FW VER: V2.2.2

BOOSTER CONTROL

BOOSTER ENABLE:	ON	SHIFT
POWER SET:	155	
POWER LIMIT:	165	INC
BOOSTER STATUS:	NORMAL	SAVE
		NEXT

LABVIEW REMOTE INTERFACE (MOPA-42-R EXAMPLE)

The LabVIEW interface features the Optilab logo and 'MOPA-42-R' title. It includes a 'COM Number' dropdown menu and a red 'Stop' button. The interface is divided into two main sections: 'Status' and 'Setting'.

Status		Setting	
TEC Point	0	TEC Point	520 [Set]
Pulse Width	0 * 2.5 ns	Pulse Width	0 * 2.5 ns [Set]
Repetition Rate	0 Hz	Repetition Rate	0 Hz [Set]
Trigger Mode	Internal	Trigger Mode	Internal [Set]
Status	Normal		
Calc. Pulse Width	0 ns		

v1.0.1

