IPG Photonics Scanner Brochure

from the World Leader in Fiber Lasers

Applications

Features

Advantages

www.ipgphotonics.com

The Power to Transform®

IPG Photonics has revolutionized the materials processing industry by providing customers with reliable, compact, energy efficient fiber lasers. IPG now offers Mid-Power and 2D & 3D High-power Scanners with laser power handling of up to 12 kW to optimize applications such as remote welding, remote cutting and surface cleaning/treatment.

Mid-Power Scanner

Standard Features

- Optimized beam quality and spot size
- High-quality through the lens vision
- Adjustable high-performance air-knife assembly
- IPG Scan Controller or XY2-100 Interface
- Seamless Integration to IPG Lasers
- External interfaces available for easy integration with automation
- IPGScan – Comprehensive Application Software

Specifications

Laser	
Wavelength (nm)	1060-1080
Max CW Laser Power (W)	2 kW
Fiber Adaptor	HLC-8
Dynamic Performance	
Tracking Delay (ms)	0.1
Repeatability (rms)	<5 µrad
Optical Configurations	
Mirror clear Aperture (mm)	12
Collimator Focal Length Options (mm)	50
Focal Length Options (mm)[1]	100, 160FS, 163, 254, 254FS, 330
Other Parameters	
Control	IPG Controller, XY2-100
Weight (kg)	≈4 (with FL254FS Lens)

Note 1 – For power levels >200 W, fused silica lenses are required. See available options on Page 6.

Configuration Example

Lens Focal Length (mm)	254
Field size (mm²)	160 × 160
Working distance (mm)	244
Magnification	5x
Process Fiber Diameter (µm)	100
Spot size (µm)	~ 500

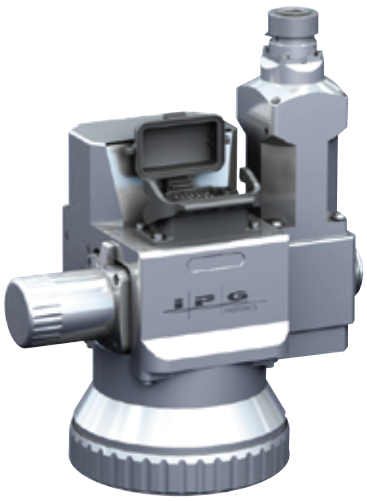
AVAILABLE ACCESSORIES

Air-knife with Mount	P30-007947
Camera Arm Assembly	P30-002424 (Horizontal) P30-009929 (Vertical)
External Control Interfaces *- Motion Interface* *- 24V Interface*	 P30-003779 P30-003943
Multiple Camera Options	HD Camera Package - P30-007443 Ethernet Camera Package - P30-007444 USB Camera Package - P40-007470

2D High-Power Scanner

Standard Features

- Highest Power handling in the industry: 12 kW
- Optimized beam quality and spot size
- High-quality through the lens vision
- Adjustable high-performance air-knife assembly
- IPG Scan Controller
- Seamless Integration to IPG Lasers
- External interfaces available for easy integration with automation
- IPGScan – Comprehensive Application Software



Specifications

Laser	
Wavelength (nm)	1060-1080
Max CW Laser Power (W)	12 kW
Fiber Adaptor	HLC-8, HLC-8 (Rotary), LCA
Dynamic Performance	
Tracking Delay (ms)	0.5
Repeatability (rms)	<5 µrad
Optical Configurations	
Mirror clear Aperture (mm)	33
Collimator Focal Length Options (mm)	100, 120, 140, 160
Focal Length Options (mm)	254, 400
Other Parameters	
Control	IPG Controller & Software
Weight (kg)	≈11-14

Configuration Example

Collimator Focal Length (mm)	120
Lens Focal Length (mm)	400
Field size (mm²)	200 × 200
Working distance (mm)	413
Magnification	3.2x
Process Fiber Diameter (µm)	200
Spot size (µm)	~ 600

AVAILABLE ACCESSORIES

Air-knife with Mount	P30-01035
7in Circular Air-knife	CEU00633690001XU
Camera Arm Assembly	P30-002424 (Horizontal) P30-009929 (Vertical)
External Control Interfaces	
- Motion Interface	P30-003779
- 24V Interface	P30-003943
Multiple Camera Options	HD Camera Package - P30-007443 Ethernet Camera Package - P30-007444 USB Camera Package - P40-007470

3D High-Power Scanner

Standard Features

- 100 mm Dynamic Z-axis range
- Optimized beam quality and spot size
- High-quality through the lens vision
- Adjustable high-performance air-knife assembly
- IPG Scan Controller
- Seamless Integration to IPG Lasers
- External interfaces available for easy integration with automation
- IPGScan – Comprehensive Application Software

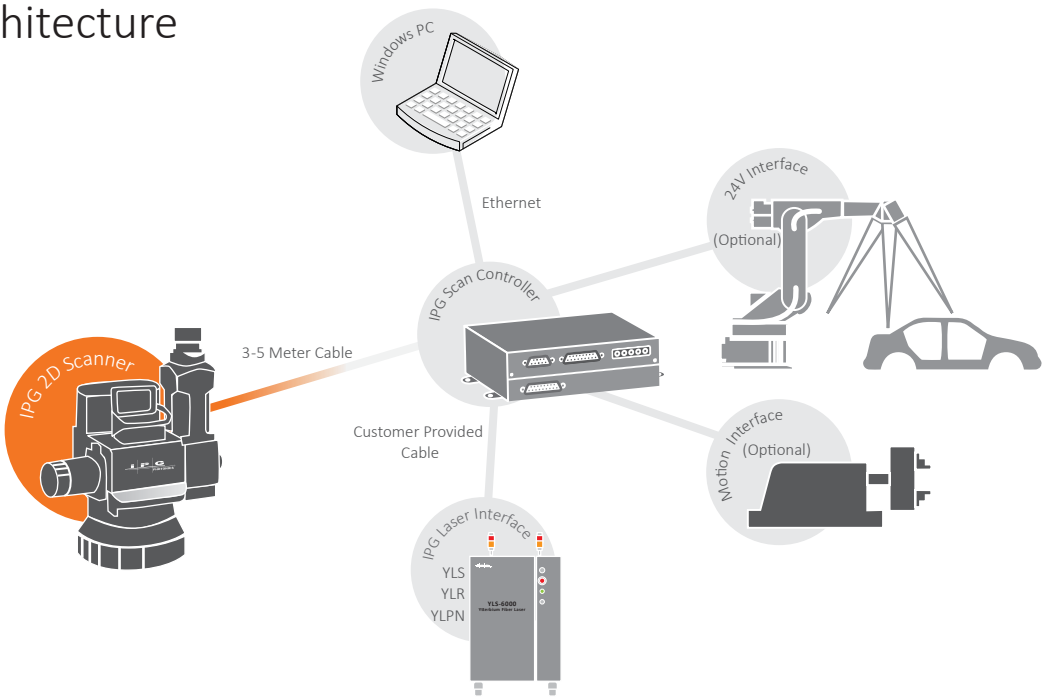
Specifications

Laser	
Wavelength (nm)	1064
Max CW Laser Power (W)	10 kW
Fiber Adaptor	HLC-8, HLC-8 (Rotary), LCA
Dynamic Performance	
Tracking Delay (ms)	0.5
Repeatability (rms)	<5 µrad
Optical Configurations	
Lens Focal Length (mm)	500
Magnification (mm)	3.6x
Working Distance (mm)	470 ±50
Scanner Field of View (mm)	300 [x] x 300 [y] x 100 [z]
Other Parameters	
Control	IPG Controller & Software
Weight (kg)	≈16-18.5

AVAILABLE ACCESSORIES

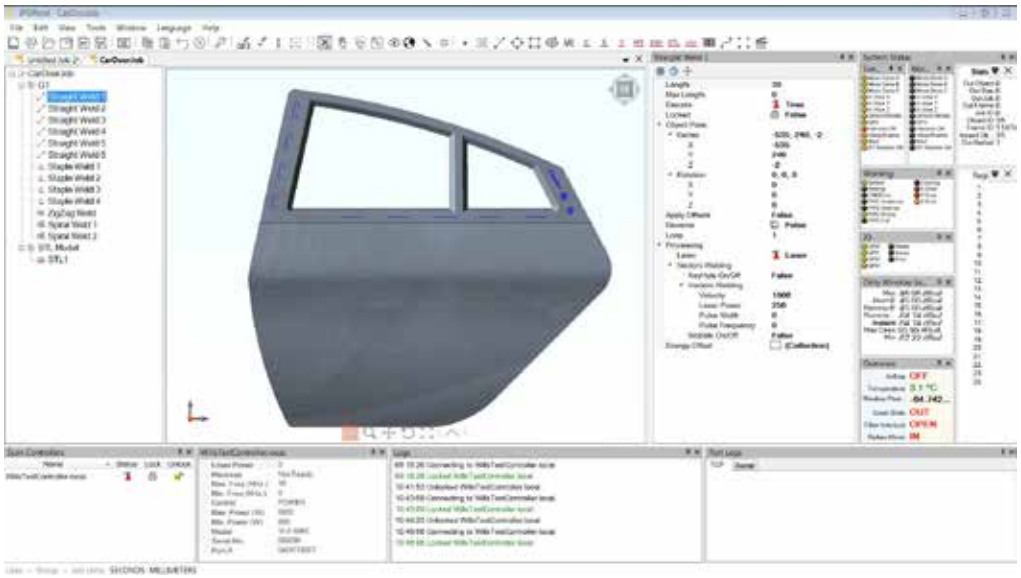
Air-knife with Mount	P30-010625
External Control Interfaces	
- *Motion Interface*	P30-003779
- *24V Interface*	P30-003943
Camera	All 3D High Power Scanners ship with an Ethernet Camera Package

Architecture



Control and Software

IPG remote scanning products are available with internally developed software that is designed for precise control of IPG lasers (YLR/YLS/YLPN series). IPG's software, IPGScan, provides users with the ability to select between three different categories of software (IPGWeld/IPGMark/IPGClean). Each software offers tailored parameters specific to the type of application and laser in order to provide optimized processing. This software, in combination with either of the external control interfaces, allows the scanners to be implemented in various automated systems such as robotic, PLC, gantry, rotary, and stage applications.



Configuration

Mid Power

P30-010226

Example:

P30-010226-A1A6

Control Interface	Collimator/ Fiber Receiver	Configuration	Focusing Lens
A[1] IPG Controller 24V Interface	1 50 mm HLC-8	A Horizontal, No Camera Port	X No Lens
B[2] XY2-100 3rd Party Software		B Horizontal, with Camera Port	1 FL100 mm
C[1] IPG Controller Type E Interface			2 FL163 mm
			3 FL254 mm
			4 FL330 mm
			5 FL420 mm
			6 FL160 mm FS[3]
			7 FL254 mm FS[3]

[1] IPG software included. Consult IPG beam delivery representative for proper interface type.
[2] For interfacing with 3rd party controllers and software.
[3] For power levels >200 W, lens options 6 or 7 are required. 2000 W maximum power.

2D High Power

P30-010057

Example:

P30-010057-A3C1

Control Interface	Collimator Focal Length	Focusing Lens	Fiber Receiver
A[1] IPG Controller 24V Interface	2 100 mm	B 254 mm	1 HLC-8
C[1] IPG Controller Type E Interface	3 120 mm	C 400 mm	2 LCA
	4 140 mm		3 HLC-8 (Rotary)[2]
	5 160 mm		

[1] IPG software included. Consult IPG beam delivery representative for proper interface type.
[2] Allows rotation of fiber (Typically used with square fiber applications)

3D High Power

CDSH0006

Control Interface	Configuration	Focusing Lens	Fiber Recevier
A[1] IPG Controller Type E Interface	D Vertical with Ethernet Camera	X 500 mm	1 HLC-8
B[1] IPG Controller 24 V Laser Interface			2 LCA
			4 HLC-8 (Rotary)[2]

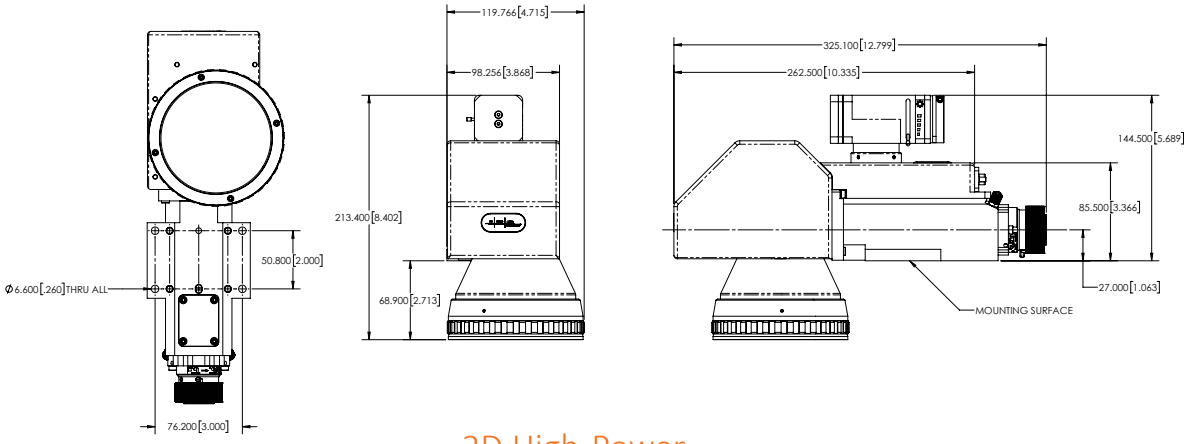
Example:

CDSH0006**B**X**DX**X**1**XU

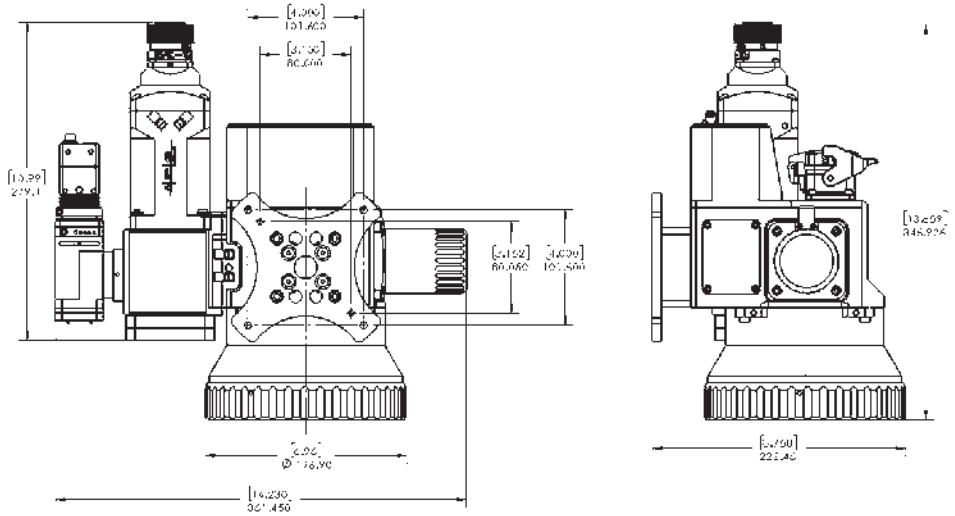
[1] IPG software included. Consult IPG beam delivery representative for proper interface type.
[2] Allows rotation of fiber (Typically used with square fiber applications)

Outline Drawings

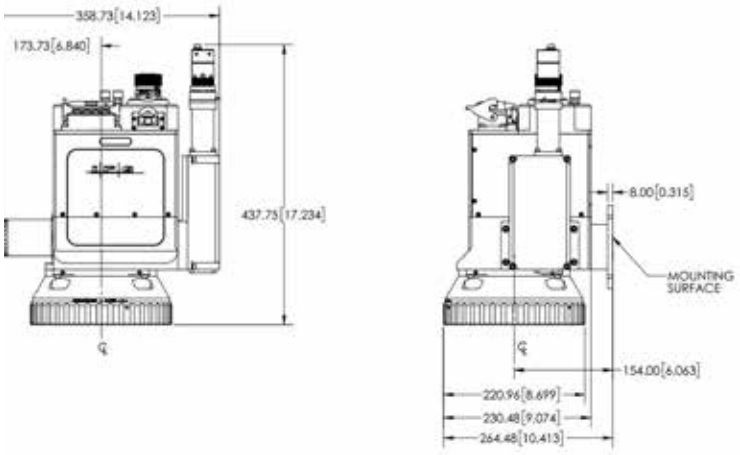
Mid-Power



2D High-Power



3D High-Power



IPG Photonics Corporation
World Headquarters
Oxford, MA USA
+1 508 373 1100
sales.us@ipgphotonics.com

IPG Laser GmbH
European Headquarters
Burbach, DE
+49 2736 44200
sales.europe@ipgphotonics.com

IRE-Polus Co.
IPG Russia
Fryazino, Moscow RU
+7 (495) 702 95 89
mail@ntoire-polus.ru

Brazil
+55 11 4380 9939
sales.br@ipgphotonics.com

China
+86 10 6787 3377 ext. 1020
sales@ipgbeijing.com

Czech Republic
+420 241 433 199
sales.cz-sk@ipgphotonics.com

France
+33 (0) 388 674 974
sales.france@ipgphotonics.com

India
+91 956 060 8808
sales.india@ipgphotonics.com

Italy
+39 0331 170 6900
sales.italy@ipgphotonics.com

Japan
+81 45 716 9831
info@ipgphotonics.co.jp

Mexico
+52 81 1354 2540
ipgmexico@ipgphotonics.com

Poland
+48 32 721 22 20
sales.poland@ipgphotonics.com

Singapore
+65.667.87709
sales.singapore@ipgphotonics.com

South Korea
+82 42 930 2000
ipgk@ipgphotonics.com

Spain & Portugal
+34 937 999 971
sales.spain@ipgphotonics.com

Taiwan
+886 2 27 93 3582
ahung@ipgphotonics.com

Turkey
+90 216 306 0317
sales.turkey@ipgphotonics.com

United Kingdom & Ireland
+44 0 117 203 4060
sales.uk@ipgphotonics.com

www.ipgphotonics.com

IPG Photonics manufactures a wide range of laser products with laser classifications ranging from Class I to Class IV. Please review the individual product specification for the optical performance characteristics specific to the device. This information typically includes the wavelength range, output power (CW and/or Peak), Pulse Energy, Pulse Repetition Rate, Pulse Width, etc.

VISIBLE AND/OR INVISIBLE
LASER RADIATION
AVOIDE EYE OR SKIN EXPOSURE TO
DIRECT OR SCATTERED RADIATION

CLASS X LASER PRODUCT

Per IEC 60825-1: 2007-03; 21 CFR 1040: 10(g)

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