PowerLine F 10 QS, PowerLine F 10 QS T

Laser Markers with Green Fiber Laser

PowerLine F 10 QS laser markers deliver shallow marks on semiconductor ICs and other heat sensitive components. This is accomplished by combining a green wavelength, nanosecond pulse length fiber laser with high quality scan optics. The PowerLine F 10 QS is available as either a single or twin laser marker. The latter offers a very cost-effective solution for high throughput marking in semiconductor fab or other high volume production environments. Marking software included with the PowerLine F 10 QS simplifies the design of sophisticated marks and facilitates the use of variable data (bar codes, serial codes).

Features and Benefits
- Compact green fiber laser
- Fully air-cooled
- High quality scanners and optics
- Powerful marking software
- Control by PC, PLC, or fieldbus
- SECS/GEM (optional)
- Versatile configuration options

Applications
- Shallow depth marking of semiconductor ICs
- Marking of organic materials
- Marking-on-the-Fly (conveyor belt or rotary axis)
- SmartMap3D freeform marking

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SPECIFICATIONS

	PowerLine F 10 QS	PowerLine F 10 QS T
Laser Type	Fiber	
Wavelength (nm)	532	
Average Power at 250 kHz (W)	9	2 x 9
Adjustable Power Range (%)	20 to 100	
Pulse Burst Energy (µJ)	>35	
Pulse-to-Pulse Stability (% rms)	2	
Frequency Range (kHz)	10 to 250	
Pulse Width (ns) (each Pulse in the burst)	1.5 ±0.5 (3-pulse burst)	
M^2	<1.2	
Beam Diameter (mm)	4.5 ±1.0	
Cable Between Laser Head and Supply Unit[1] (m)	2.6	
Weight (kg) Laser Head Supply Unit	16 22	40 22 (primary) and 22 (secondary)
Fiber Laser Type	Yb-doped fiber laser	
Cooling	Air cooling. Ambient operating temperature: +15 to +30°C	
Scanners	Range of scanners for general marking, on-axis alignment, high precision marking (digital encoder)	
Optical Z-Axis	Yes (option)	
Marking Field Size	Between 60 mm x 60 mm and to 600 mm x 600 mm depending on f-Theta objective	
Positioning Help Laser	Yes	
Physical Dimensions	Physical dimensions and working distance of the laser marker depend on the detailed configuration. Please refer to the technical drawing.	
Mounting of Laser Marker	Horizontal (laser head and supply unit)	
Supply Unit	19" rack mount unit, height: 4 rack units	Two 19" rack mount units, height: 2 x 4 rack units
Interfaces PLC Control PC Control[2]	Parallel interface (digital I/Os). Encoder devices can be connected to differential I/Os. LAN (TCP/IP), RS-232[3]	
Fieldbus Control[4]	Profibus DP, Profinet IO	not available
Variable Data	Keyboard input, local file (lot file), barcode reader, via LAN (TCP/IP) 4, Matrix objects	
Standard Software	Visual Laser Marker (VLM), Visual Marking Controller (VMC2), Laser Console, RCU.exe	
Marking Objects	Vector graphics, text, logos, ring, bitmap, banding	
Barcodes	GS1 DataBar, Code 39, Code 128, EAN8, EAN13, UPC-A, UPC-E, BookLan and others	
2D Codes	ECC200, Code 49, Micro-PDF417 and other data matrix and QR codes	
Optional Software Features	MJC (Marker Job Control), HK (Host Coupling), CAD Extension, AI, PDF and PS Import, SECS/GEM	
	Marking-on-the-Fly (MoF), SmartMap3D	not available
OS-Single Board PC	Windows 10	
Certificates	PowerLine F 10 QS laser markers comply with the following international standards: EN 60825-1:2014, EN 55011:2009/A1:2010, EN 61000-6-4:2007, EN 61000-6-2:2005, EN 61000-3-2:2014, EN 61000-3-3:2013, 47 CRF Part 18 ICES-003 Issue 4:2004, CDRH (radiation) standard.	

1 The fiber laser module is mounted inside the supply unit. The fiber link between marker head and laser module cannot be unplugged.
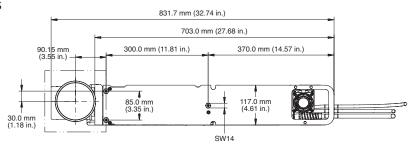2 Requires Host Communication (HK), Marker Job Control (MJC) or SECS/GEM software feature.
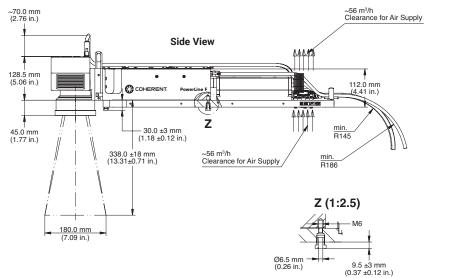3 Requires an RS-232-to-USB-adapter.
4 The fieldbus interface is provided by a fieldbus coupler. The fieldbus coupler is connected to the supply unit by Fast Ethernet connection.
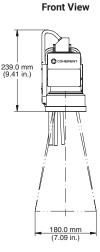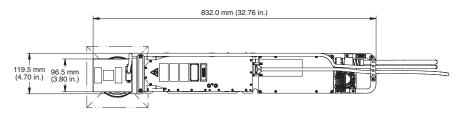
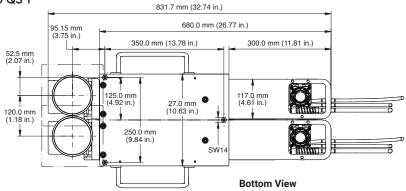COHERENT.

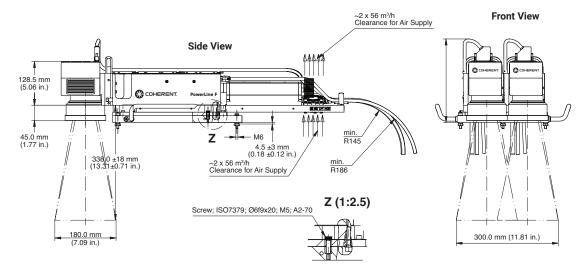## MECHANICAL SPECIFICATIONS

PowerLine F 10 QS

Bottom View

831.7 mm (32.74 in.)
703.0 mm (27.68 in.)
90.15 mm (3.55 in.)
300.0 mm (11.81 in.)
370.0 mm (14.57 in.)
85.0 mm (3.35 in.)
117.0 mm (4.61 in.)
30.0 mm (1.18 in.)
SW14

Side View

~70.0 mm (2.76 in.)
128.5 mm (5.06 in.)
45.0 mm (1.77 in.)
30.0 ±3 mm (1.18 ±0.12 in.)
338.0 ±18 mm (13.31±0.71 in.)
~56 m³/h Clearance for Air Supply
180.0 mm (7.09 in.)

Z

~56 m³/h Clearance for Air Supply
112.0 mm (4.41 in.)
min. R145
min. R186

Z (1:2.5)

M6
Ø6.5 mm (0.26 in.)
9.5 ±3 mm (0.37 ±0.12 in.)

Front View

239.0 mm (9.41 in.)
180.0 mm (7.09 in.)

Top View

832.0 mm (32.76 in.)
119.5 mm (4.70 in.)
96.5 mm (3.80 in.)

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MECHANICAL SPECIFICATIONS

PowerLine F 10 QS T

831.7 mm (32.74 in.)
680.0 mm (26.77 in.)
95.15 mm (3.75 in.)
350.0 mm (13.78 in.)
300.0 mm (11.81 in.)
52.5 mm (2.07 in.)
125.0 mm (4.92 in.)
117.0 mm (4.61 in.)
27.0 mm (10.63 in.)
120.0 mm (1.18 in.)
250.0 mm (9.84 in.)
SW14

Bottom View

~2 x 56 m³/h Clearance for Air Supply

Front View

Side View

128.5 mm (5.06 in.)
45.0 mm (1.77 in.)
338.0 ±18 mm (13.31±0.71 in.)
Z
M6
4.5 ±3 mm (0.18 ±0.12 in.)
~2 x 56 m³/h Clearance for Air Supply
min. R145
min. R186
180.0 mm (7.09 in.)

Z (1:2.5)

Screw; ISO7379; Ø6f9x20; M5; A2-70

300.0 mm (11.81 in.)

34.5 mm (1.36 in.)
832.0 mm (32.76 in.)
96.5 mm (3.80 in.)
19.0 mm (0.75 in.)

Top View

tech.sales@coherent.com   **www.coherent.com**