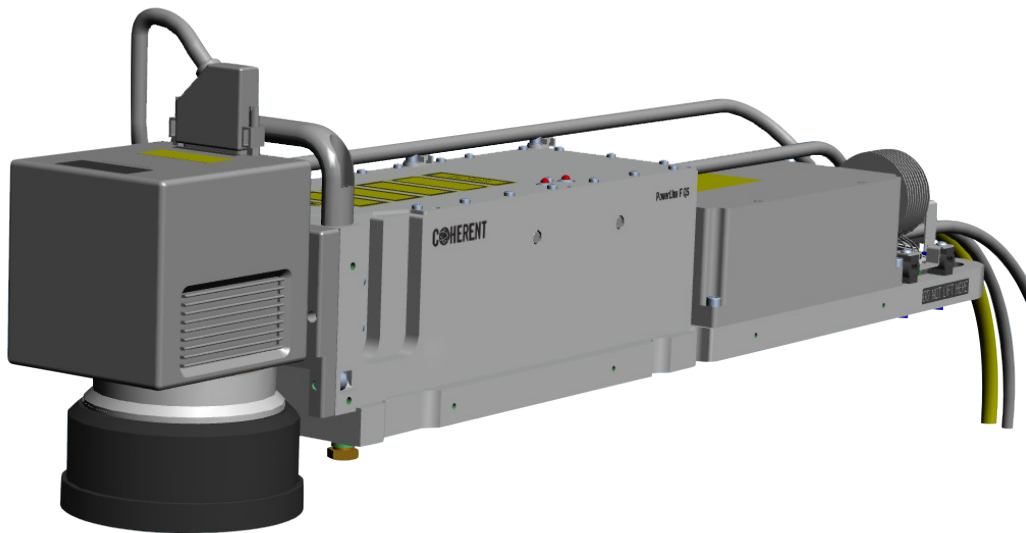


PowerLine F 10 QS

Laser Marker 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. It offers a 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

- 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
- Laser Cutting

| Specifications | PowerLine F 10 QS |
|---|---|
| Laser Type | Fiber |
| Wavelength (nm) | 532 |
| Average Power (W) | >9 W (at 250 kHz) |
| 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 ² (m) | 2.6 |
| Weight (kg) Laser Head ³ Supply Unit | 20 22 |
| Fiber Laser Type | Frequency-doubled 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(s) |
| 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 |
| Interfaces (PLC control) | Parallel interface (digital I/Os). Encoder devices can be connected to differential I/Os. |
| Interfaces ⁴ (PC control) | LAN (TCP/IP), RS-232 ⁵ |
| Fieldbus Control ⁶ | Profibus DP, Profinet IO |
| Variable Data | Keyboard input, local file (lot file), barcode reader, via LAN (TCP/IP) 4, Matrix objects |

Notes:

1. At beam exit before entering the splitter flange.
2. The fiber laser module is mounted inside the supply unit. The fiber link between marker head and laser module cannot be unplugged.
3. Weight of laser head incl. standard optics and scanner heads.
4. Requires Host Communication (HK), Marker Job Control (MJC) or SECS/GEM software feature.
5. Requires an RS-232-to-USB-adaptor.
6. The fieldbus interface is provided by a fieldbus coupler. The fieldbus coupler is connected to the supply unit by Fast Ethernet connection.

| Specifications | PowerLine F 10 QS |
|----------------------------|---|
| Standard Software | Visual Laser Marker (VLM), Visual Marking Controller (VMC2), Laser Console, RCU.exe |
| Marking Objects | Vector graphics, text, logos, ring, 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 |
| OS-Single Board PC | Windows 10 |
| Compliance | PowerLine F 10 QS laser markers comply with the following international standards: CE compliant; CDRH (Radiation) Standards: 21 CFR subchapter J, as applicable 21 CFR 1040, 10 und 1040, 11; FCC 6 |
| Classification | Laser class 4, according to EN 60825-1:2014 |

Mechanical Specifications

PowerLine F QS

