

# PSH14E Scan Head

Focusing on high-end industrial laser applications



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## Typical Applications:

The PSH14E scan heads offer excellent suitability as entry-level choices for high-end laser processing applications, including marking, scribing, laser cleaning, processing on-the-fly, etc.

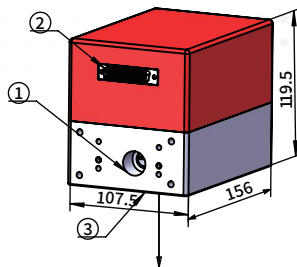
Featuring a compact and lightweight design, the PSH14E is an optimal and cost-effective solution that guarantees exceptional long-term stability.

# PSH14E Scan Head

## Focusing on high-end industrial laser applications



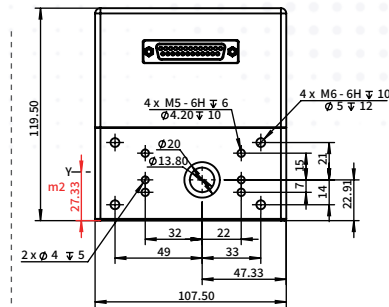
## Mechanical Drawings (Dimensions in mm)



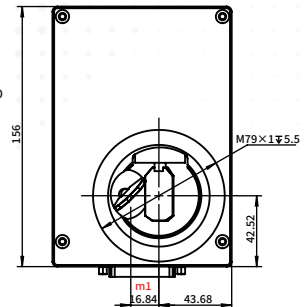
Legend:

- 1.Beam in
- 2.Electrical interface (XY2-100, power in)
- 3.Beam out

PSH14E Scan Head



## Beam In & Mounting Bracket



Beam Exit Side

## Specifications

| Specifications                                                                                                                                                                                     | PSH14E                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Maximum allowed average laser power <sup>(1)</sup>                                                                                                                                                 | 500 W                                                             |
| Optional adaptable wavelengths <sup>(6)</sup>                                                                                                                                                      | 355nm;532nm;1030-1090nm                                           |
| Aperture                                                                                                                                                                                           | 14 mm                                                             |
| Typical scan angle <sup>(2)</sup>                                                                                                                                                                  | ± 10°                                                             |
| Tracking error                                                                                                                                                                                     | ≤ 0.15 ms                                                         |
| Step response time (1% of full scale )                                                                                                                                                             | ≤ 0.36 ms                                                         |
| <b>Speed</b><br>Positioning / Jump <sup>(3)</sup><br>Line scan <sup>(3)</sup><br>Vector scan <sup>(4)</sup><br>Good writing quality <sup>(3)(5)</sup>                                              | <br>< 25 m/s<br>< 25 m/s<br>< 3 m/s<br>700 cps                    |
| <b>Precision</b><br>Linearity<br>Repeatability                                                                                                                                                     | <br>99.9 %<br>2 μrad                                              |
| <b>Temperture drift</b><br>Offset<br>Gain                                                                                                                                                          | <br>25 μrad/°C<br>25 μrad/°C                                      |
| <b>Long-term drift (at constant ambient temperature around 25 °C )</b><br>Over 8 hours long-term offset drift (after 30 mins warm-up)<br>Over 8 hours long-term gain drift (after 30 mins warm-up) | <br>40 μrad<br>80 μrad                                            |
| Operating Temperature Range                                                                                                                                                                        | 25 °C ± 10 °C                                                     |
| Signal interface                                                                                                                                                                                   | Analog: ± 10 V or ± 5 V<br>Digital: XY2 - 100,<br>PRS422 protocol |
| Input power requirement (DC)                                                                                                                                                                       | ± 15 V @ 5 A Max RMS                                              |

Note:

(1) For laser wavelength 1030-1090 nm.

(2) All angles are in mechanical degrees.

(3) With F-Theta objective  $f = 160$  mm. Speed value varies correspondingly with different focal lengths.

(4) Repeatability and temperature drift are measured within this speed.

(5) Single-stroke font with 1 mm height.

(6) The long-term thermal drift test shall be carried out under a constant ambient temperature of approximately 25 °C, with the laser power kept below 500 W. High laser power shall not be adopted for thermal drift testing. Under high laser power, thermal distortion will occur in both the optical system and mechanical system. Consequently, it cannot be determined whether the measured drift originates from the inherent drift of the galvo scanner or from thermal deformation of the optical and mechanical systems.

(7) Appropriate delay parameters must be configured for normal operation of the galvo scanner. Failure to do so may result in abnormal operation of the galvo motor and even irreversible damage to the motor! Please contact PSI engineers regarding relevant parameter configuration issues.

(8) Wavelength customization available. Please consult PSI engineers!