

Contactless Hall-IC Tilt Angle Sensor

## PMP-HTL Series



- Contactless Single / Dual Axis Tilt Angle Sensor  
Single Axis (X-axis ONLY) : **PMP-xxHTL**  
Dual Axis : **PMP-xxHTZL**

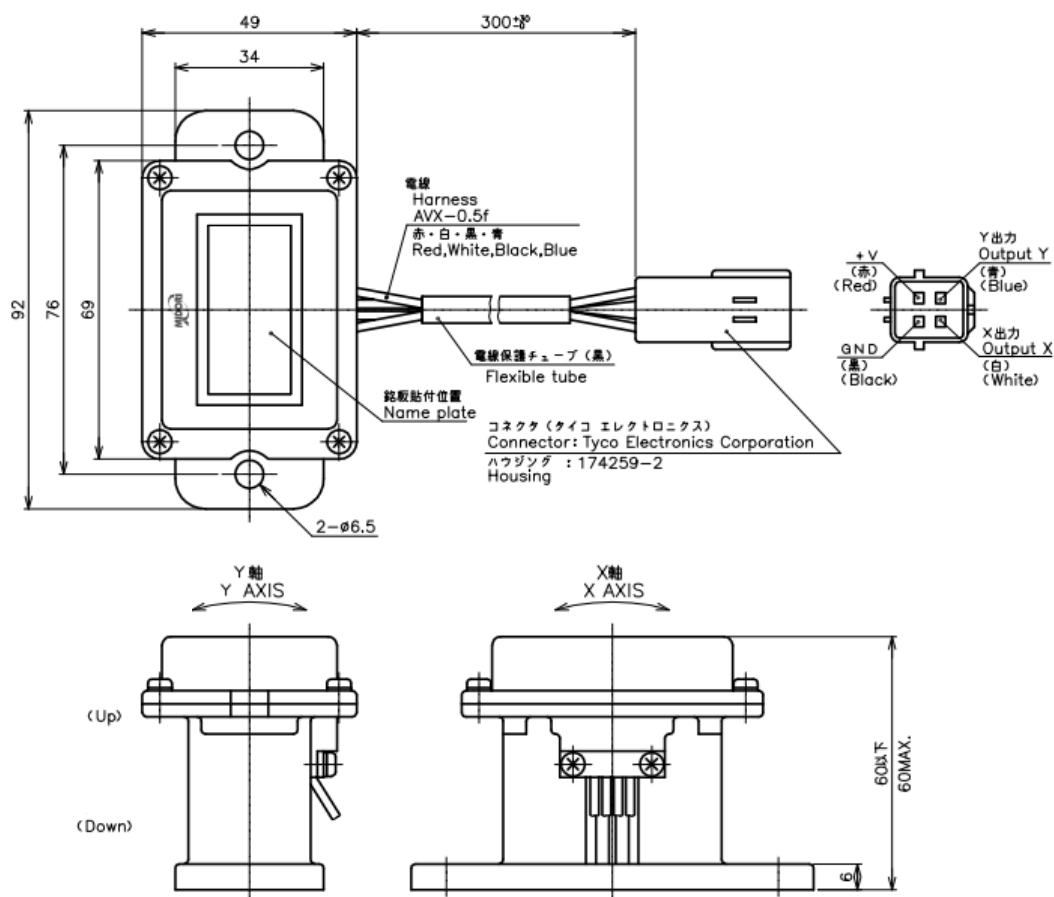
- Effective Electrical Tilt Angle :  $\pm 5^\circ$  (PMP-5HTL / 5HTZL)  
 $\pm 10^\circ$  (PMP-10HTL / 10HTZL: Standard)  
 $\pm 20^\circ$  (PMP-20HTL / 20HTZL)  
 $\pm 30^\circ$  (PMP-30HTL / 30HTZL)

- Center Based Linearity :  $\pm 1\%$ FS (X,Y axis)

【Material】

- Housing : Aluminum

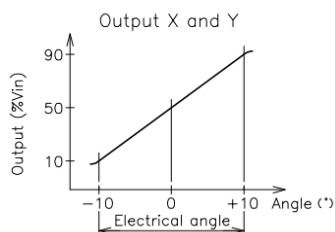
### Dimension [mm]



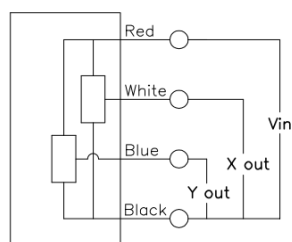
**MIDORI MIDORI PRECISIONS**  
 URL: <http://www.midori.co.jp>  
 E-mail: [overseas@midori.co.jp](mailto:overseas@midori.co.jp)

2012/12

### ■ Output Characteristics



### ■ Schematic



· Red, White, Blue, Black indicate lead colors.

### ■ Mounting



| 【Model No.】                                                | PMP-10HTL<br>PMP-10HTZL                         | PMP-5HTL<br>PMP-5HTZL         | PMP-20HTL<br>PMP-20HTZL        | PMP-30HTL<br>PMP-30HTZL        |      |
|------------------------------------------------------------|-------------------------------------------------|-------------------------------|--------------------------------|--------------------------------|------|
| 【Electrical Specifications】                                | X and Y axis                                    |                               |                                |                                |      |
| Effective Electrical Tilt Angle                            | ±10                                             | ±5                            | ±20                            | ±30                            | °    |
| Output Range                                               | 10 - 90                                         |                               |                                |                                | %Vin |
| Index Point                                                | 50±4                                            | 50±8                          | 50±3                           |                                | %Vin |
| Center Based Linearity                                     | ±1                                              |                               |                                | ±1.5                           | %FS  |
| Input Voltage                                              | DC 5±0.5                                        |                               |                                |                                | V    |
| Load Resistance                                            | MIN. 10                                         |                               |                                |                                | kΩ   |
| Supply Current                                             | MAX. 20                                         |                               |                                |                                | mA   |
| Insulation Resistance                                      | MIN. 100/DC50V                                  |                               |                                |                                | MΩ   |
| Temp. Characteristics<br>-20℃～80℃<br>(Reference Temp. 25℃) | At 0°: ±1.0°<br>At ±10°: ±1.5°                  | At 0°: ±1.0°<br>At ±5°: ±1.5° | At 0°: ±2.5°<br>At ±20°: ±2.5° | At 0°: ±2.5°<br>At ±30°: ±3.0° |      |
| 【Mechanical Specifications】                                |                                                 |                               |                                |                                |      |
| Response time                                              | Approx. 0.5 (Damper Oil 1000mm <sup>2</sup> /s) |                               |                                |                                | Sec. |
| Total Mechanical Tilt Angle                                | MIN. ±12                                        | MIN. ±6                       | MIN. ±24                       | MIN. ±36                       | °    |
| Mass                                                       | Approx.230                                      |                               |                                |                                | g    |
| 【Environmental Specifications】                             |                                                 |                               |                                |                                |      |
| Operating Temperature Range                                | -20～+80                                         |                               |                                |                                | ℃    |
| Storage Temperature Range                                  | -40～+80                                         |                               |                                |                                | ℃    |
| Vibration                                                  | 70m/s <sup>2</sup> 3 axis 2 hours               |                               |                                |                                |      |
| Shock                                                      | 1000m/s <sup>2</sup> 6 directions 3 times       |                               |                                |                                |      |
| EMS                                                        | 100V/m 200M ～1GHz                               |                               |                                |                                |      |
| ESD(Case To Each Terminal)                                 | ±4                                              |                               |                                |                                | kV   |
| ESD(Between Each Terminal)                                 | ±4                                              |                               |                                |                                | kV   |
| IP Level                                                   | IP65                                            |                               |                                |                                |      |

### ■ Options

- Different effective electrical tilt angle between X and Y axis (ex. X-axis=±5°, Y-axis=±10°)
- Other damper oil viscosity
- Narrower output voltage range

### ■ Handling Instruction

- Hall-IC sensor is impossible to measure resistance value as a variable resistor.
- This product may be influenced from external magnetic field.
- Use this sensor in the place where is protected from ESD.
- To avoid the spring pendulum bending, don't lay this unit on its side.

## We are here for you. Addresses and Contacts.

---

### Headquarter Switzerland:

Angst+Pfister Sensors and Power AG  
Thurgauerstrasse 66  
CH-8050 Zurich  
Phone +41 44 877 35 00  
[sensorsandpower@angst-pfister.com](mailto:sensorsandpower@angst-pfister.com)

### Office Germany:

Angst+Pfister Sensors and Power Deutschland GmbH  
Edisonstraße 16  
D-85716 Unterschleißheim  
Phone +49 89 374 288 87 00  
[sensorsandpower.de@angst-pfister.com](mailto:sensorsandpower.de@angst-pfister.com)

### Office North America:

Angst+Pfister North America Inc.  
10391 Brecksville Rd.  
US-Brecksville, OH 44141  
Phone +1 440 375-5212  
[info.apus@angst-pfister.com](mailto:info.apus@angst-pfister.com)

---

Scan here and get an overview of personal contacts!



<https://sensorsandpower.angst-pfister.com/en/>

---