**UltraLow DP Sensor: TPS-30KPA.BOX**

**Low DP Sensor: TPS-200KPA.BOX**

**High DP Sensor: TPS-650KPA.BOX**

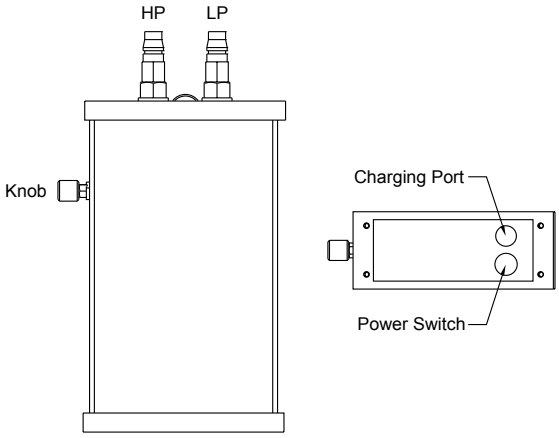
# Hydraulic Balancing Debugging Instrument

TPS is a debugging instrument for measuring and documenting of differential pressure, flow, temperature and power consumption in hydronic systems. It connects to the handset APP sofeware via bluetooth which could debug faster and more economical.

## TPS-DP Sensor Technical Parameters

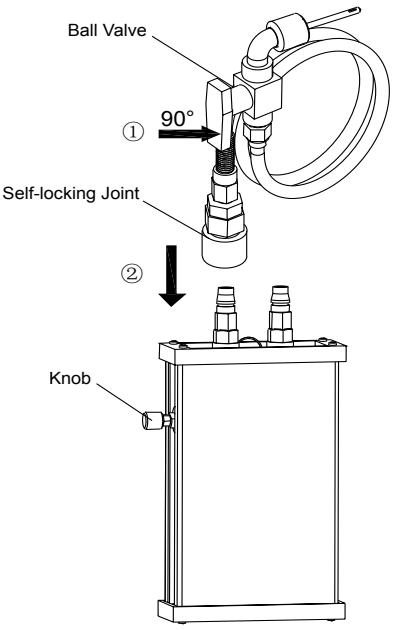
| | |
|---|---|
| **Max. Permissible Pressure** | 650kPa |
| **DP Measurement Range** | TPS-30KPA.BOX: 0~30kPa (suitable for DRV)<br>TPS-200KPA.BOX: 0~200kPa(suitable for DRV)<br>TPS-650KPA.BOX:0~650kPa(suitable for DPCV) |
| **Pressure Range during Flow measurement (Recommended Value)** | TPS-30KPA.BOX: 3~30kPa<br>TPS-200KPA.BOX: 3~200kPa<br>TPS-650KPA.BOX: 3~650kPa |
| **Medium Temperature** | -20~120°C |
| **Measurement Deviation** | DP Sensor: ≤0.5%<br>Flow: DP Deviation+ Valve Deviation |
| **Battery Capacity** | 3000mA |
| **Operating Time** | >20 h |
| **Charge Time** | 6 h |
| **Protection Level** | IP64 |
| **Ambient Temperature** | Operating and Charging Status: 0~40°C<br>Storage Status: -20~60°C (Do not leave water in the sensor when there is a risk of freezing) |
| **Ambient Humidity** | Max. 90%RH |
| **Charger** | Output Voltage: 12.6V DC<br>Output Current: 500mA |
| **Applicable System** | Android |
| **Dimension** | L*W*H=470*355*150mm |

## DP Sensor Panel




- HP : Connect the measuring hose (red) to high pressure end of DP sensor.
- LP : Connect the measuring hose (blue) to low pressure end of DP sensor.
- Knob: Tighten the knob clockwise, unscrew it anti-clockwise
- Charging port: Charge up the DP sensor
- Power switch: Self- return button power switch, press to power on the DP sensor and the power indicator light is lit. Press again to power off the DP sensor and the power indicator light is off.

## Operation Instruction




1. Rotate anticlockwise the knob (thread length is 5-7mm), connect the red and blue measuring hoses to the HP end and LP end respectively.

2. Power on and open the APP software “Hydraulic Balancing Debugging Instrument”, click “search”, connect the sensor according to the MAC on it.

3. Exhaust: Close the ball valve on the red measuring hose, make the measuring needle insert into the testing point of the valve-red one, open ball valves on the red and blue measuring hose separately and exhaust internal air. When the needle of the blue measuring hose exhausts continuous water column, the exhaust was completed. Close the ball valve on the blue measuring hose, make the measuring needle insert into the testing point of the valve-blue one.

4. The exhaust must be completed before click “calibrate” to zero clearing.

5. Open the ball valve on the blue measuring hose, close the knob clockwise and do the debugging.

6. Set relevant parameters in “formula bar”.

7. Click “data storage” to record the value after debugging.

8. After testing, rotate anticlockwise the knob, close those two ball valves and pull out the measuring needles, power off the sensor.

9. After all above, open those two ball valves and exhaust the internal water in measuring hose and sensor.

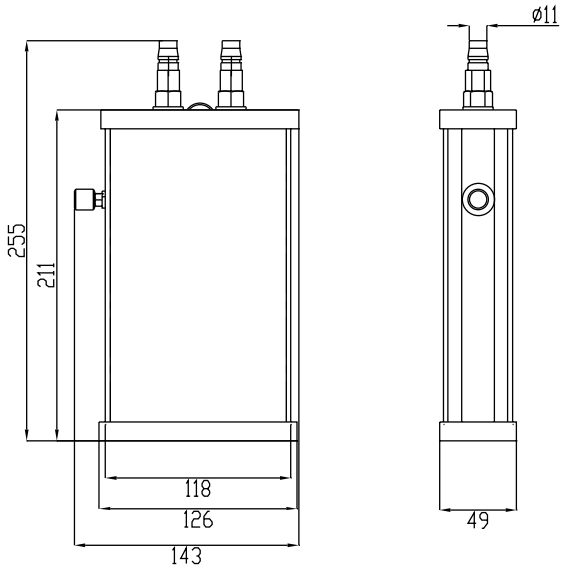
**Notice:**

**1. All of above operations should be finished when the instrument is placed horizontally.**

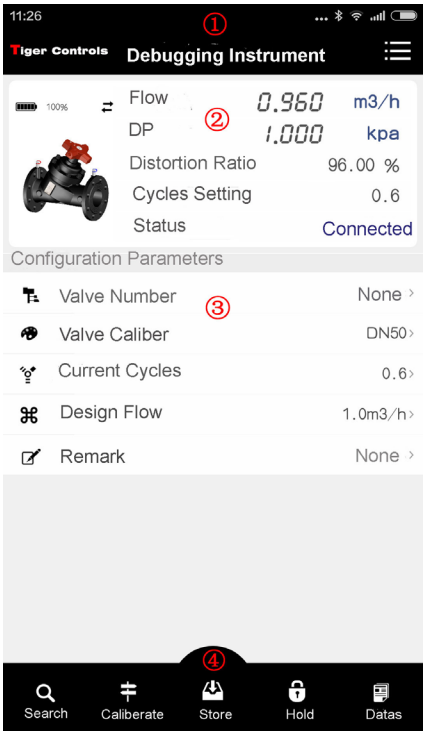
**2.The HP and LP are not allowed to be inversely connected.**

**3.When test high pressure, high temperature liquid medium, please put on heat-resistant gloves and any other necessary protectors to ensure the security of the testing process.**

## DP Sensor Dimension




## Interface Introuduction




①Menu Bar: include language, settings, toolings and about.

Language: chinese-english switch

Settings: set the normal operation information, such as project name, company selection and so on.

Toolings: reserved

About: soft and database version

②Display Bar:

The left: the battery status, product icon. When the connection works, this icon will flicker.

The right: the current flow, DP and current cycles, Distortion Ratio (actual flow/ setting flow),connecting status of device.

③Formula Bar: input basic testing parameters, including valve number, caliber choice, current cycles, design flow, remark info. and so on.

④Operation Bar:include calibrate, search, datas, hold and store

Calibrate:calibrate the zero drift of the instrument.

Search:search for Bluetooth devices.

Store: store the current measuring value.

Datas:view the current records and xls spreadsheet management.

Hold:hold the current data.

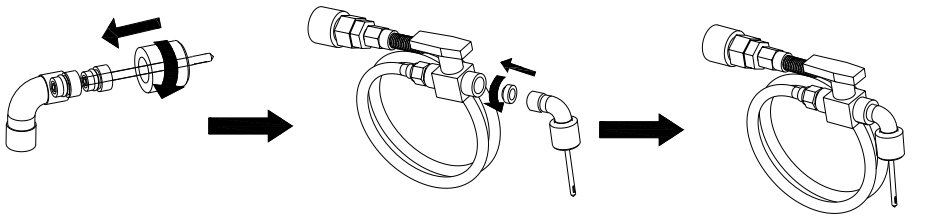
## Contents

| TPS-30KPA.BOX Contents | | | |
|---|---|---|---|
| **Item** | **QTY** | **Item** | **QTY** |
| DP sensor TPS-30KPA | 1 | 3*150 allen wrench | 1 |
| Handheld Unit(With charger) | 1 | 5*200 allen wrench | 1 |
| Measuring hose with needle100mm, Red | 1 | 8*350 allen wrench | 1 |
| Measuring hose with needle100mm, Blue | 1 | Utility knife | 1 |
| Standby filter | 2 | Flashlight | 1 |
| Standby needle | 1 | Awl | 1 |
| Charger for DP sensor | 1 | Case | 1 |
| Neck strap | 1 | Operation instruction | 1 |

| TPS-200KPA.BOX Contents | | | |
|---|---|---|---|
| **Item** | **QTY** | **Item** | **QTY** |
| DP sensor TPS-200KPA | 1 | 3*150 allen wrench | 1 |
| Handheld Unit(Charger included) | 1 | 5*200 allen wrench | 1 |
| Measuring hose with needle100mm, Red | 1 | 8*350 allen wrench | 1 |
| Measuring hose with needle100mm, Blue | 1 | Utility knife | 1 |
| Standby filter | 2 | Flashlight | 1 |
| Standby needle | 1 | Awl | 1 |
| Charger for DP sensor | 1 | Case | 1 |
| Neck strap | 1 | Operation instruction | 1 |

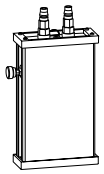
| TPS-650KPA.BOX Contents | | | |
|---|---|---|---|
| **Item** | **QTY** | **Item** | **QTY** |
| DP sensor TPS-650KPA | 1 | 3*150 allen wrench | 1 |
| Handheld Unit(Charger included) | 1 | 5*200 allen wrench | 1 |
| Measuring hose with needle100mm, Red | 1 | 8*350 allen wrench | 1 |
| Measuring hose with needle100mm, Blue | 1 | Utility knife | 1 |
| Standby filter | 2 | Flashlight | 1 |
| Standby needle | 1 | Awl | 1 |
| Charger for DP sensor | 1 | Case | 1 |
| Neck strap | 1 | Operation instruction | 1 |

## Parts Installation Instruction



Changing pinhead　　Changing filter　　Installation complete

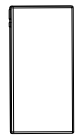
## Accessories



**DP sensor（TPS）**

Mainly used for measuring differential pressure, handheld unit can connect to the DP sensor by Bluetooth function.

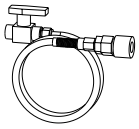
| Specifications | Article No |
|---|---|
| Ultra LP（0~30kPa） | TPS-30KPA |
| LP（0~200kPa） | TPS-200KPA |
| HP（0~650kPa） | TPS-650KPA |



**Handheld Unit**

With charger

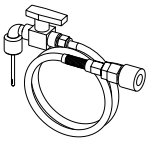
| Article No |
|---|
| TMOBILE-1 |



**Measuring hose**

With shutoff valve

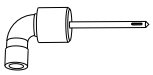
| Length[mm] | | Article No |
|---|---|---|
| 100 | Red | TPS-001-R |
| 100 | Blue | TPS-001-B |



**Measuring hose with needle, angle**

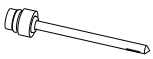
With shutoff valve and measuring needle

| Length [mm] | | Article No |
|---|---|---|
| 100 | Red | TPS-002-R |
| 100 | Blue | TPS-002-B |



**Measruing needle, angle**

| Article No |
|---|
| TPS-003 |



**Pinhead**

| Article No |
|---|
| TPS-004 |

**Filter**

Measuring hose parts

| Article No |
|---|
| TPS-005 |

**Allen wrench**

| Specifications | Article No |
|---|---|
| 3mm | TPS-006-3 |
| 5mm | TPS-006-5 |
| 8mm | TPS-006-8 |

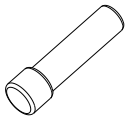
**Awl**

| Article No |
|---|
| TPS-007 |

**Utility knife**

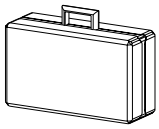
| Article No |
|---|
| TPS-008 |

## Accessories(cont.)



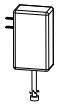
**Flashlight**

| Article No |
|---|
| TPS-009 |



**Case**

| Dimension | Article No |
|---|---|
| 470*355*150mm | TPS-010 |



**Charger**

For DP sensor and P/Temp sensor

| Article No |
|---|
| TPS-011 |

**Neck strap**

| Article No |
|---|
| TPS-012 |