Meteorology and Zoology Environment Monitoring System

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Table of Contents

1. System Introduction

1.1 Computer Hardware Requirement

CPU	Pentium 500 mHz
Memory	128M
Hard Disk	More than 300MB free space
RS232 Serial Port	

1.2 Computer Software Requirement

Operation System	Windows 2000 or higher
IE	Internet Explorer 5.01 or higher

2. Recorder Introduction

2.1 The Front Panel and Back Panel of Recorder

Model TRM-ZS1 Meteorology And Zoology Environment Monitoring System

Model TRM-ZS1
1. Data Monitoring
2. Parameter Config
3. Data Communication
4. Electrification Config
5. Data Process
Cable Communication
Current Time 04-12-2006 16：01 : 01

1	2	3	OK
4	5	6	Can
7	8	9	⇧
.	0	Set	⇩
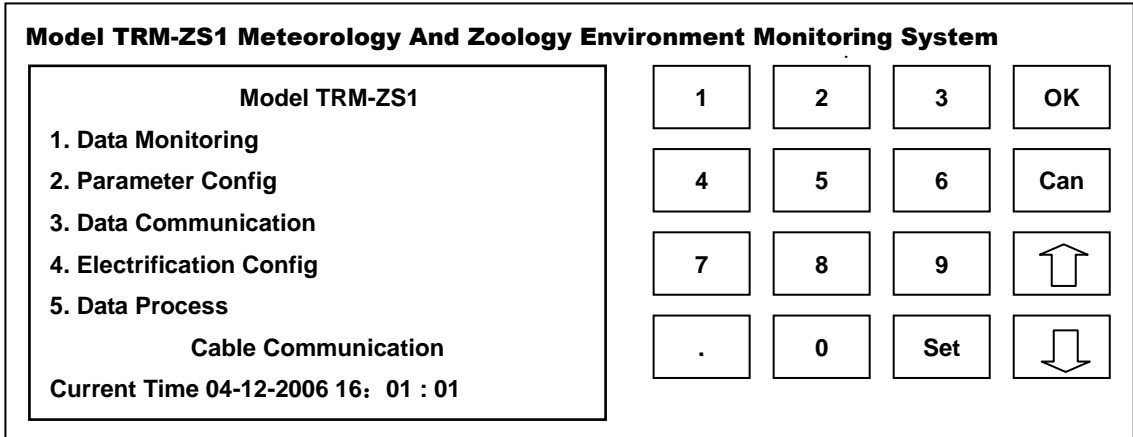
The front panel of Recorder

SWP   L 3   Z F   QA   TBS   COM   9X9S

1   2

Power   AC
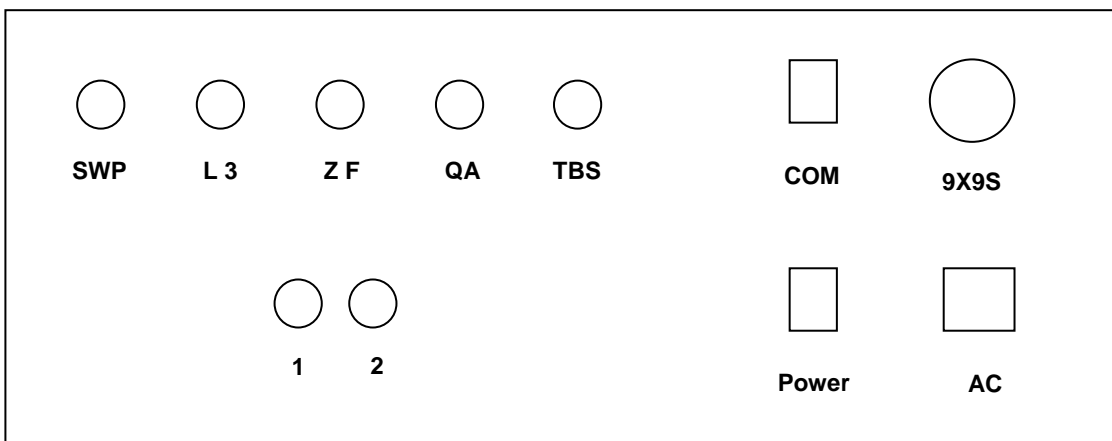
The back panel of Recorder

Illustration:

Can – Cancel

SWP – Environment Temperature & Environment Humidity

COM – Serial port

L3 – Rainfall

ZF – Evaporation

QA – Air Pressure

TBS – Direct solar radiation

1 – DC 12V

2 – Battery

2.2 Specifications

Element	Resolution	Range	Accuracy
Dew point	0.01℃	-50～80℃	±0.2℃
Humidity	0.1% RH	0～100%RH	±2% RH
Temperature	0.1℃	-40～80℃	±0.1℃
Evaporation	0.1mm	0～100mm	± 1.5%
Wind direction	1°	0～360°	±3°
Wind speed	0.1m/s	0～70m/s	±0.3m/s
Rainfall	0.1mm	0～999.9mm	± 0.2mm
Direct solar radiation	1W/m2	0～2000 W/m2	<5%
Air pressure	0.1Hpa	0～1200Hpa	± 0.3Hpa

3. Operation Instruction

It displays Real-Time Monitoring status while the user turn on the recorder. If the time of recorder is different from local time, choose 'Time Setting' from 'Recorder Setting' menu at the computer software to modify date and time of the system to recorder.

```
Model TRM-ZS1 Meteorology and Zoology Environment Monitoring System

            Model TRM-ZS1              [ 1 ] [ 2 ] [ 3 ] [ OK ]
   1. Data Monitoring
   2. Parameter Config                 [ 4 ] [ 5 ] [ 6 ] [ Can ]
   3. Data Communication
   4. Electrification Config           [ 7 ] [ 8 ] [ 9 ] [ ⇧ ]
   5. Data Process
            Cable Communication        [ . ] [ 0 ] [ Set ] [ ⇩ ]
   Current Time 04-12-2006 16：01 : 01
```
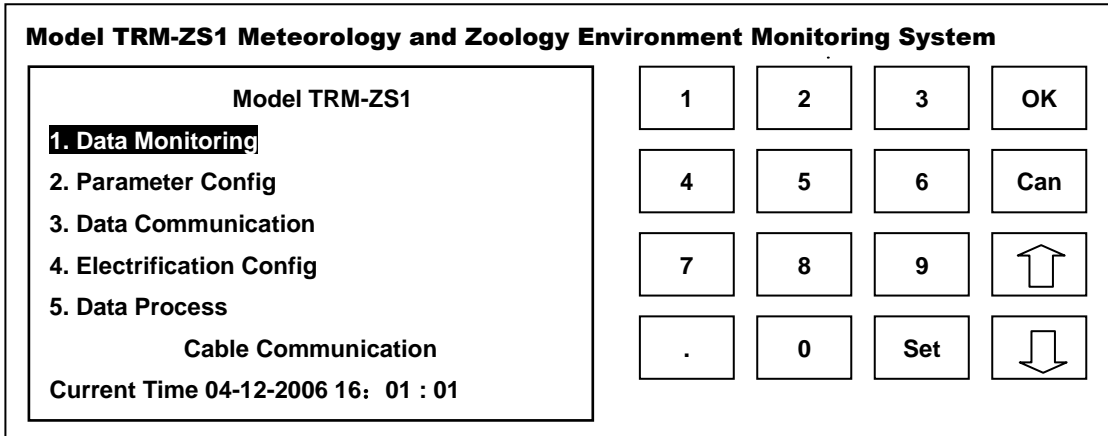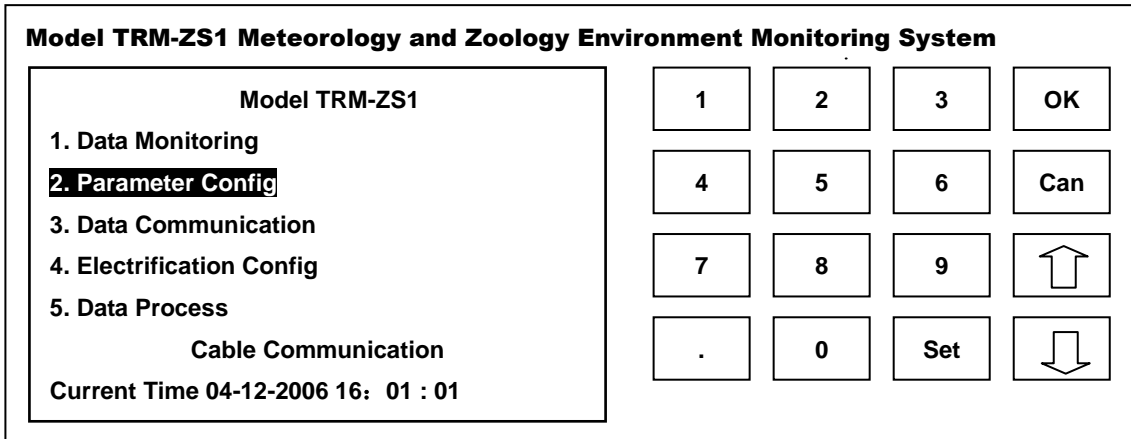
3.1 Data Monitoring

After selected the item, press 'OK' button to start monitoring. If the first monitoring day is not current day, recorder displayed 'Whether to continue add up accumulative value? ', it means whether add up the accumulation value to historical data, click 'OK' or 'Cancel' button.
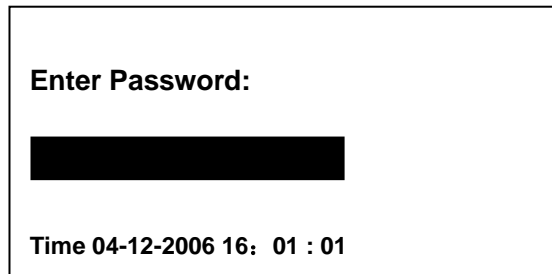
On monitoring status, press '↑'and '↓'button to page up and page down, got more monitoring results of transducers.

Clicked 'cancel' button to exit the testing status, system shows that 'Exit real-time monitoring?', click 'OK' to exit or press 'cancel' button.
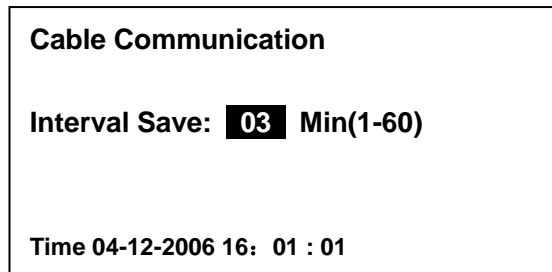
3.2 Parameter Configuration

```
┌─────────────────────────────────────────────────────────────────────────────┐
│ Model TRM-ZS1 Meteorology and Zoology Environment Monitoring System           │
│                                                                               │
│ ┌──────────────────────────────────────┐   ┌────┐ ┌────┐ ┌────┐ ┌────┐       │
│ │          Model TRM-ZS1               │   │ 1  │ │ 2  │ │ 3  │ │ OK │       │
│ │ 1. Data Monitoring                   │   └────┘ └────┘ └────┘ └────┘       │
│ │ 2. Parameter Config                  │   ┌────┐ ┌────┐ ┌────┐ ┌────┐       │
│ │ 3. Data Communication                │   │ 4  │ │ 5  │ │ 6  │ │ Can│       │
│ │ 4. Electrification Config            │   └────┘ └────┘ └────┘ └────┘       │
│ │ 5. Data Process                      │   ┌────┐ ┌────┐ ┌────┐ ┌────┐       │
│ │          Cable Communication         │   │ 7  │ │ 8  │ │ 9  │ │ ⇧  │       │
│ │ Current Time 04-12-2006 16：01 : 01  │   └────┘ └────┘ └────┘ └────┘       │
│ └──────────────────────────────────────┘   ┌────┐ ┌────┐ ┌────┐ ┌────┐       │
│                                              │ .  │ │ 0  │ │Set │ │ ⇩  │       │
│                                              └────┘ └────┘ └────┘ └────┘       │
└─────────────────────────────────────────────────────────────────────────────┘
```

The recorder will show picture below when the item has been selected.

```
┌─────────────────────────────────────┐
│                                     │
│  Enter Password:                    │
│                                     │
│  ███████████████████████            │
│                                     │
│  Time 04-12-2006 16：01 : 01        │
│                                     │
└─────────────────────────────────────┘
```

The password is '168', then press 'OK' button, recorder shows below。

```
┌─────────────────────────────────────┐
│  Cable Communication                │
│                                     │
│  Interval Save:  ██03██  Min(1-60)  │
│                                     │
│                                     │
│  Time 04-12-2006 16：01 : 01        │
└─────────────────────────────────────┘
```

The function means that how long will the recorder stores value of transducers to memory. Press 'cancel' button, delete the data error inputted or exit. Setting stores in the recorder when finished modified after press 'OK' button.

3.3 Electrification Configuration

Control the battery start or stop charging. Charging time as 10 hours, can also controlled by the system software.

Note: The expression meaning of the battery symbol of the upper right corner of LCD is as follows:
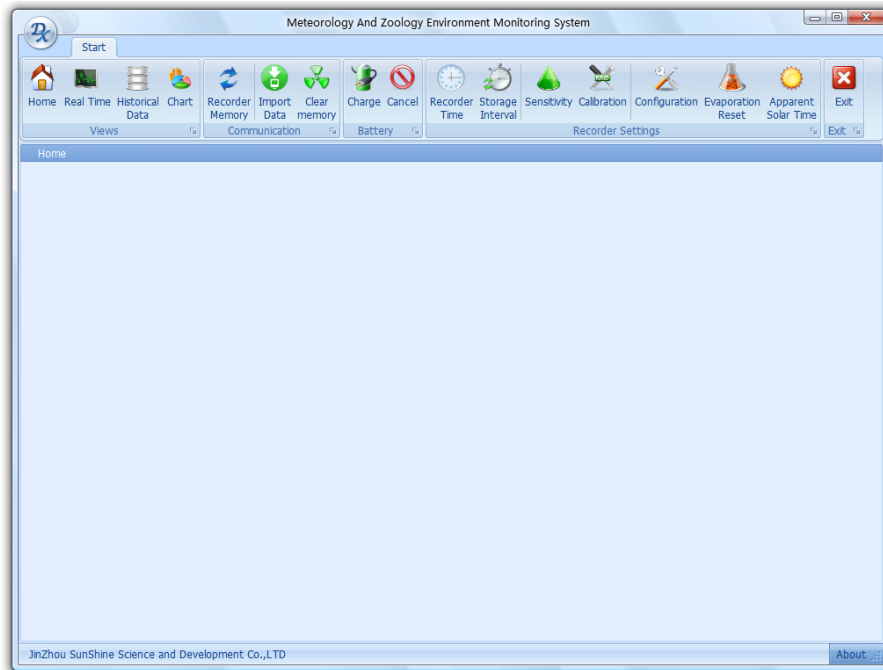
a、 ▭   Electric consumption is insufficient

6

b、   Quantity of electricity

c、   Battery charging

3.4 Data Process

The item includes 'Examine the data storage' and 'clear memory'. The password of 'Clear Recorder Data' is '168'.

4. Software Instructions

4.1 Views

4.1.1 Home

Recorder could be setting only under the view status.

4.1.2 Historical Data

To retain data by copying it from recorder storage to historical data view.

4.2 Communication

4.2.1 Check Memory

The function could check the count of records in the recorder memory and query current recorder time.

4.2.2 Import Data

To retain data by copying it from recorder storage to historical data view.

4.2.3 Clear Memory

The operation will clear memory of recorder to empty.

4.3 Battery

4.3.1 Charge

The operation takes about 10 hours for electrification. Do not halt the power of recorder during this period.

4.3.2 Cancel

Cancel charging.

4.4 Recorder Setting

4.4.1 Recorder Timer Setting

The function sets recorder time to current computer time.

4.4.2 Storage Interval

The function means that how much time interval will the recorder stores value of transducers to memory.

4.4.3 Configuration

Choose a computer serial port number connected with the recorder.

4.4.4 Calibration

Calibrate sensor's value.

4.4.5 Sensitivity

Input direct solar radiation sensitivity.

4.4.6 Evaporation Reset

Reset accumulated value of evaporation to zero.

5. Troubles and Maintenance

1. Trouble phenomena: Recorder cannot set up an electric circuit.

    Solution:
    a. Please examine carefully whether the power line has been connected successfully.

    b. Please examine the storage battery of recorder have any electric power. Please charge them through artificial charge method when A.C. power source is provided.

2. Trouble phenomena: the main computer appears the state of dead or indicates user to examine serial port when recorder is operated through computer.

    Solution:
    a. Examine whether the communication cable between recorder and computer is connected successfully or the serial port of computer is damaged.

    b. Cut off the power source of computer and recorder and then turn on it again.

3. Trouble phenomena: the data and time inputted is confused.

    Solution:
    a. Cut off the power source of computer and recorder and then turn on it again.

    b. Input time into recorder again.

4. Trouble phenomena: the open time of transferred data is not in accordance with the actual open time or the data is lost. The reason is that A.C. power source is cut off again when making quick charge.

    Solution:
    Avoid quick charge when the A.C. power supply is cut off frequently. Start to charge after the A.C. power is stable.

5. If user encounters any trouble that you cannot solute, please do not disassemble recorder by yourself and communicate with manufacturer or maintenance worker promptly.

6. Take the shielded cable as the plug of output conducting wire and the shielded layer has to be connected with ground.
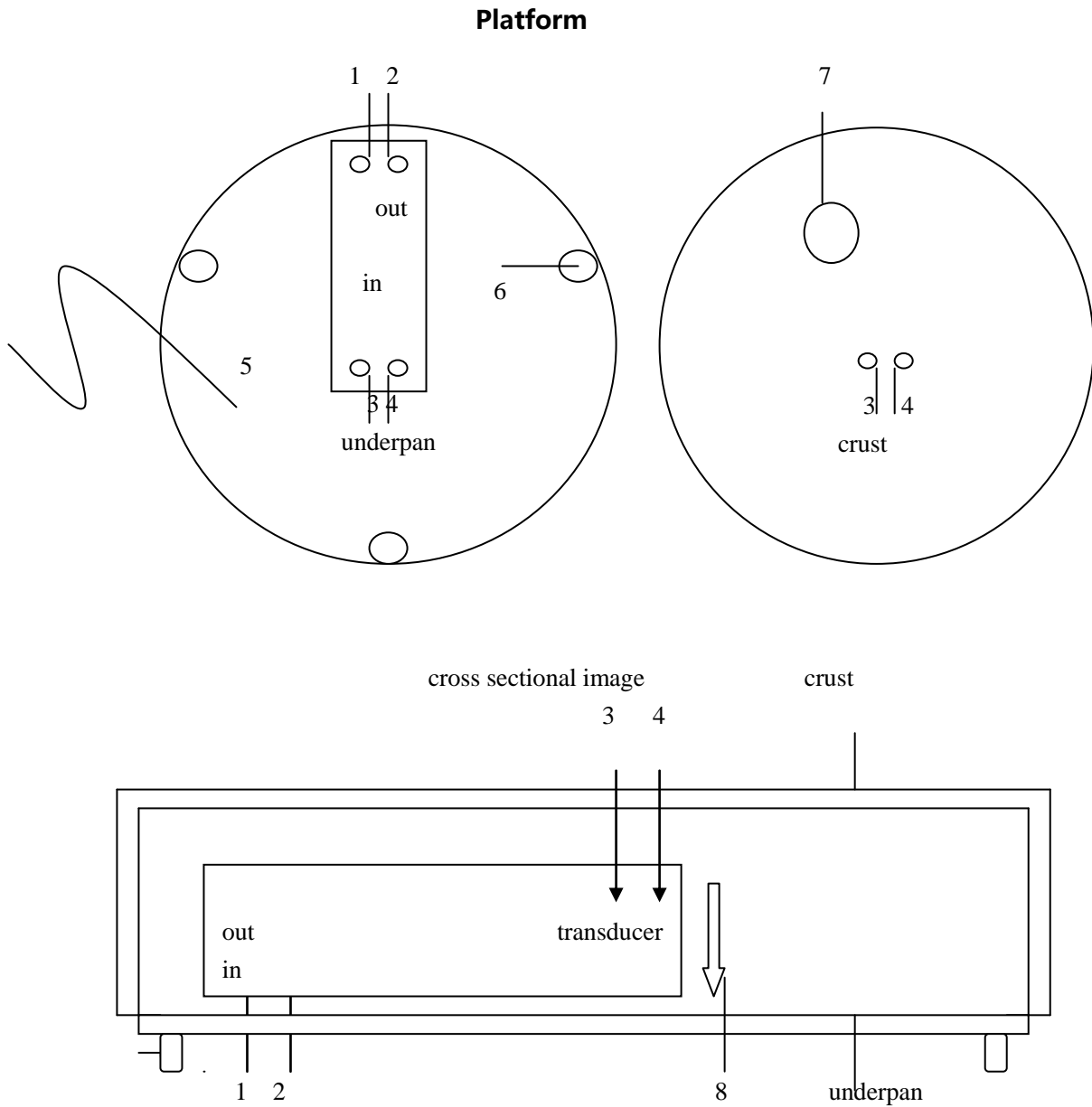
6. Structure Chart

6.1 Portable Auto Weather Station Observeing Bracket
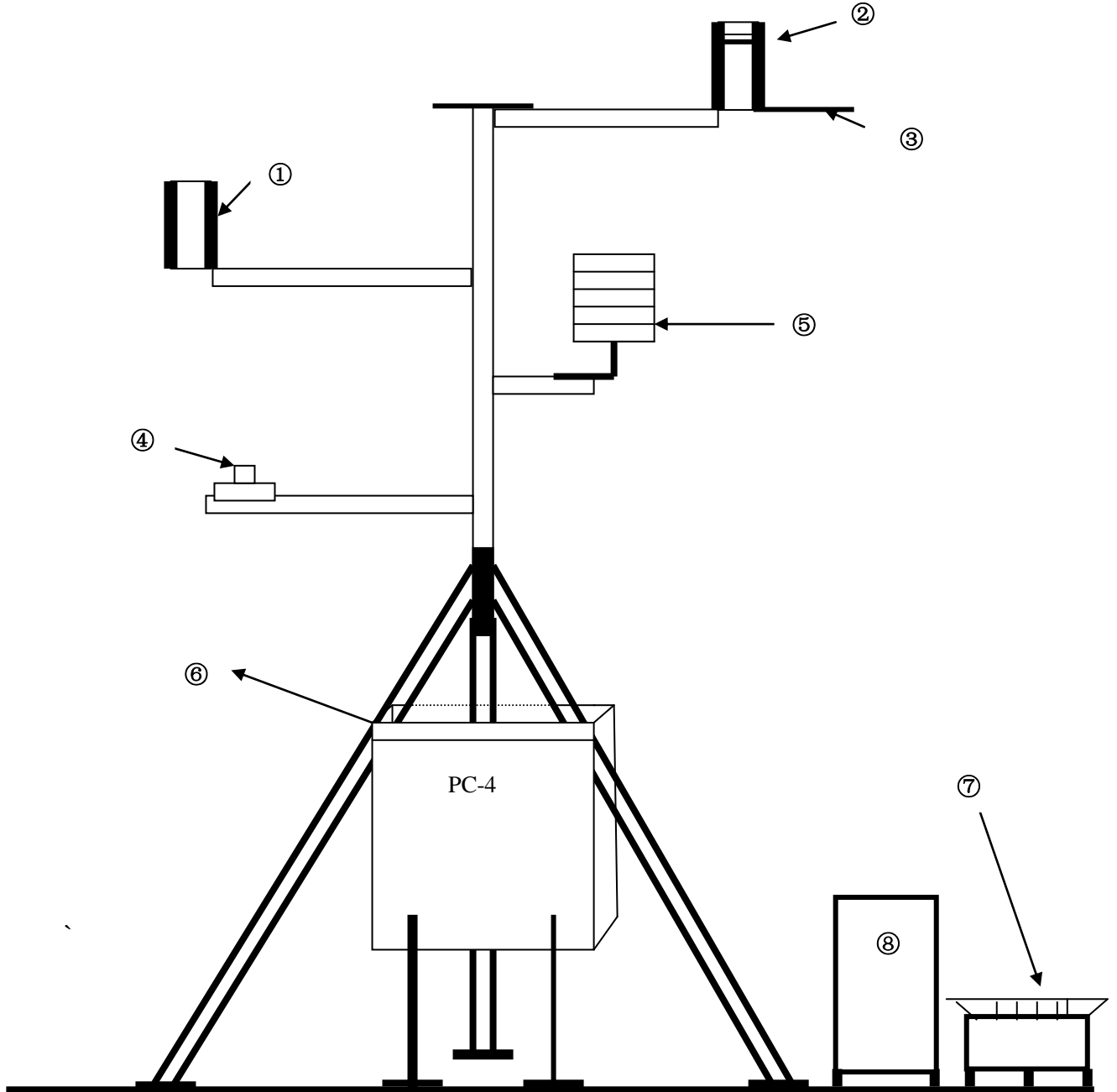
① Wind Speed   ⑤ Environment Temperature and Humidity Transducer

② Wind Direction   ⑥ Machine case 1

③ Compass   ⑦ Evaporation

④ Direct Solar Radiation   ⑧ Rainfall

6.2 Evaporation Transducer Installation Chart

Platform

※ note: 1,2 is the grub screw the sensor is fixed by the chassis lower part to general.

3,4 is the grub screw is fixed by the outer covering outside to under the sensor.

5 is power line.

6 is three adjustments levels place foot screw strut entire chassis.

7 is outer covering surface level survey marking.

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