

Solid polymer Electrolytic Dehumidifying Element

ROSAHL

Product Specification

Model : PD4



RYOSAI TECHNICA CO.,LTD.

1. Application

This specification document is applied to model PD4 of Solid polymer Electrolytic Dehumidifying Element "ROSAHL".

2. Outline

Drawing No. : RB-R06X0025 (Refer to page 4)

3. Specifications

- 1) Applicable volume : Up to 1,000cc
- 2) Element terminal voltage : 3V DC  $\pm$  0.1V
- 3) Power consumption : 60mW (at 20 deg C, 60%RH)
- 4) Weight : 0.9g  $\pm$ 0.1g
- 5) Operating temperature : -10 to 50 deg C
- 6) Operating humidity : 90%RH or less
- 7) Storage temperature : -20 to 60 deg C
- 8) Element connecting type : Soldered (Wire diameter : AWG28~26)
- 9) RoHS : Compliant

4. Ability

- 1) Dehumidifying capacity : 42mg/day (at 30 deg C, 60%RH) \*at the shipment

5. Life

The dehumidifying capacity will degrade during use. (How much it degrades depends on the operating environment and conditions.)

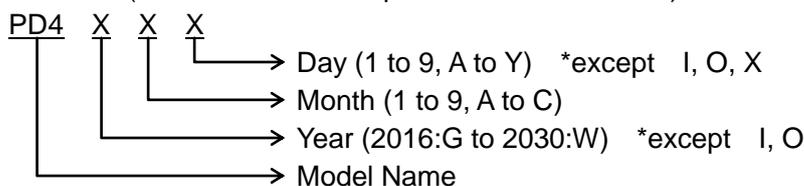
By the specifications of the applied product, the permissible level of the degradation of the dehumidifying element changes, therefore the life is defined as half-life of performance.

Half-life of performance : About 4~6 years

\*Continuously operation at 18 deg C (Annual average temperature in Japan)

6. Indication \* Indicated the following items. (Refer to the drawing)

- 1) Model Name
- 2) Lot Number (Three columns of alphanumeric characters)



- 3) (+)Polarity indicator (Concave Mark)

7. Delivery Inspection \*Tested the following inspection items.

- 1) Appearance : Visual inspection for all quantity
- 2) Dehumidifying capacity : Operation check for all quantity  
Ability measurement (sampling inspection : 1 piece of 1 Lot)  
\*1Lot : 216 pieces

8. Packaging

The products are packed 50~100 pieces individually and fill the box with them to avoid breakage failure while transport.

9. Precautions for Use of Dehumidifying element

- 1) Attach a protective cover as needed not to touch the dehumidifying / humidifying surface of an element with a hand and an object.
- 2) Confirm the dehumidifying / humidifying surface of an element not to get a wrong surface before installation. Attaching an element by mistake will adversely affect the things in the container.
- 3) Keep strictly the following about power supply to an element.
  - (1) Do not reverse the polarity. Confirm a polarity indication of an element.  
Humidification is reversed to dehumidification when you get a wrong polarity, which may result in an adverse effect on the things in the container. It causes a chemical reaction in a porous electrode of cathode side and it causes the trouble of an element.
  - (2) A dehumidifying element usually has a big rush current when the power is turned on.  
Therefore, we recommend the following power supply.
  - (3) Use a dedicated power supply for each dehumidifying element. When multiple dehumidifying elements are connected in series or parallel, the trouble of one element may cause all other elements to be disabled.
  - (4) The water vapor permeates the membrane of an element. So outside water vapor is returned to the container when you switch off a power supply and the humidity is restored.

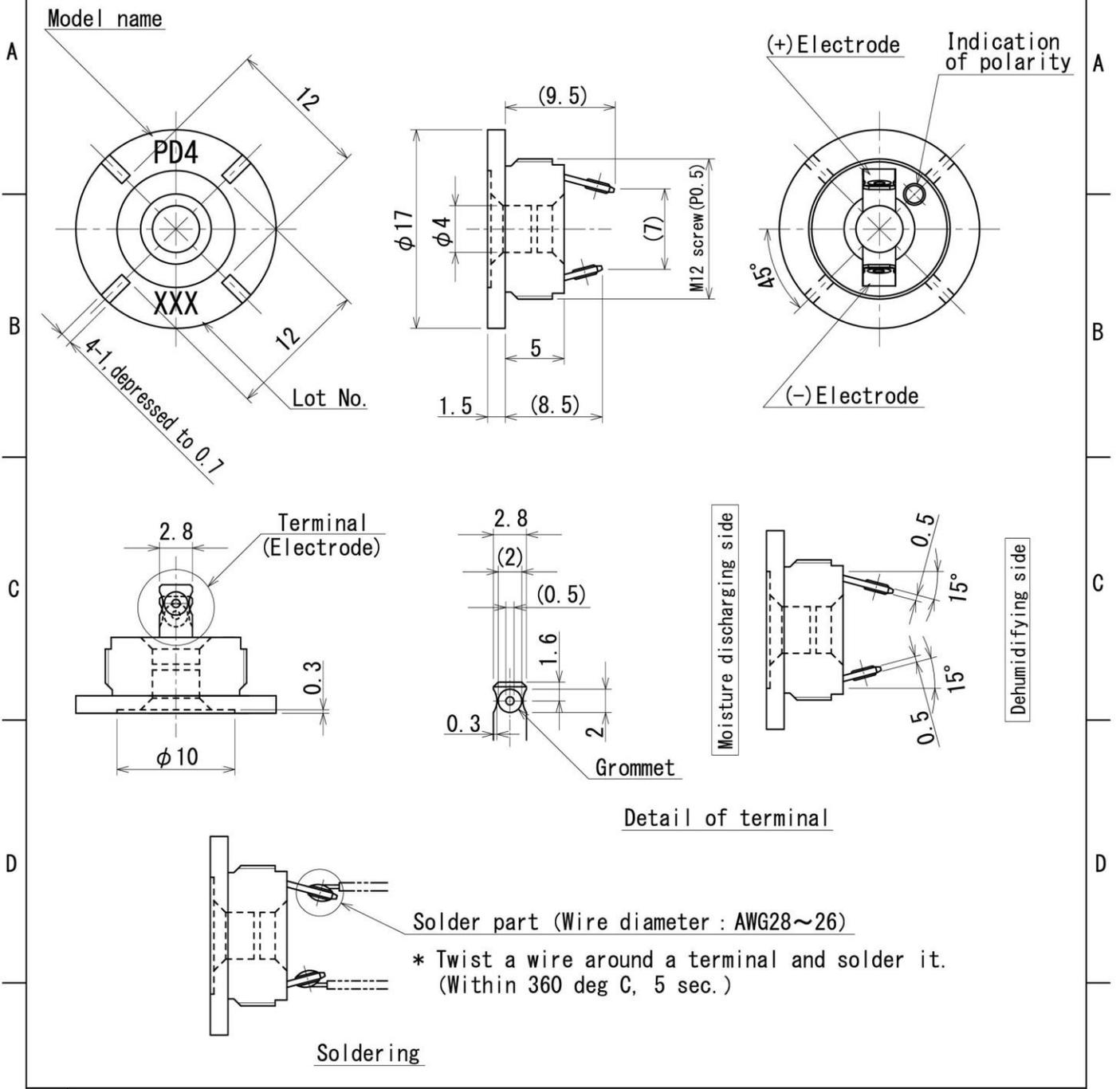
Table 1. Recommended power supply specifications

Rated output voltage	3V DC
Rated output current	500mA
Overcurrent protection function * Note	Required
Overvoltage protection function	Required
Output voltage variation	0.1V or less
Ripple noise	0.2V or less
Others	In accordance with the specifications of commercially available power supply

Note : Use a constant or fold-back current limiting about overcurrent protection function. You cannot use the power supply of the Hiccup mode because the voltage more than 2V is necessary for an element when an overcurrent protection function worked. Also an element may not work correctly depending on a characteristic of fold-back current limiting.

- 4) A container must be an airtightness container. If a container has low airtightness and moisture-permeable material, the results may not be what you expected.
- 5) Attach an element in the center of the inner side surface of a container with a packing while keeping the airtightness of a container. (Do not attach it on a top or bottom surface.)  
If you use a silicon rubber, you need to treat a packing with heat (150 deg C / 11 hours) not to quickly degrade the performance of the dehumidifying element.
- 6) If you use an element with a rubber packing or a similar material that contains an antioxidant, crystal materials may occur on the surface of an element. When you choose a packing, evaluate it enough.
- 7) Do not use silicon-based sealing materials to improve the airtightness of the container.  
(Silicon-based sealing materials generate oxime gas and siloxane gas during hardening. As a result, performance of the dehumidifying element decreases in a short term.)  
[Recommended products] : modified silicon caulk (Konishi) or acrylic caulk (Konishi)  
\* Modified silicon caulk is mainly composed of polyurethane.
- 8) Do not expose the moisture discharging hole to water. When using outdoors, be sure to attach the cover to protect an element from water or insects.
- 9) Attach a moisture-permeable sheet to an element to protect it in the place with much dust or oil mists.  
[Recommended products] : Vent Filter TEMISH S-NTF2131A-S06 (Nitto)
- 10) Keep a moisture discharging hole a good state of the ventilation.
- 11) Do not use an element with vapor phase corrosion inhibitor or insect repellent.  
Do not use an element in a place having high density of organic gas.
- 12) Do not do remodeling. An element may break down.

Element connecting terminal type : Soldered type



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		RYOSAI TECHNICA CO., LTD		Paper size : A4	
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