

Electric Micro Dehumidifier

ROSAHL

Instruction Manual

PD2 (Soldering) / PD3 (Push connector)
PD4 (Soldering) / PD5 (Push connector)

NOTICE








1. Please read this manual before you use ROSAHL and use it correctly.
2. Please keep this manual to the person who operates, manages and maintains ROSAHL.



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For Proper Usage

<p>● Supply 3V DC to ROSAHL. DO NOT reverse the polarity. Dehumidification changes to Humidification when you get a wrong polarity, which may result in an adverse effect on several things in the container. Furthermore, it causes a chemical reaction in a porous electrode of cathode side and it causes the trouble of ROSAHL.</p>	 Prohibited
<p>● Confirm the dehumidifying / humidifying surface of a membrane not to get a wrong direction before installation. Attaching ROSAHL by mistake will adversely several things in the container.</p>	 Prohibited
<p>● DO NOT expose the membrane directly to the winds and rain. Please cover the membrane with a cover or moisture-permeable sheet to prevent it from getting wet when using outdoors.</p>	 Prohibited
<p>● DO NOT put pin or wire etc into the membrane. It may cause an electric shock and the membrane may be damaged or deteriorate.</p>	 Prohibited
<p>● DO NOT use a silicon-based sealing materials to improve airtightness of a container. Silicon-based sealing materials generate oxime gas and siloxane gas. As a result, the performance of ROSAHL reduce in a short term.</p>	 Prohibited
<p>● DO NOT use ROSAHL with vapor phase corrosion inhibitor or insect repellent. Do not use ROSAHL in a place having high density of organic gas. The performance of ROSAHL reduce in a short term.</p>	 Prohibited
<p>● DO NOT attempt to disassemble, repair or modify ROSAHL. It may cause an electric shock and the performance deterioration, as this may damage it.</p>	 Prohibited

Installation

- 1 Attach ROSAHL in the center of the side surface of a container with a gasket.
(Do not attach it on a top or bottom surface.)
If you use a silicon gasket, you need to perform a gasket vulcanize. (200 deg C / 6 hours).
If you do not vulcanize it, It will quickly reduce the performance of ROSAHL.
Note : The silicon gasket using for ROSAHL is vulcanized. (conditions : 200 deg C / 6 hours)
- 2 Confirm the dehumidifying / humidifying surface of a membrane not to get a wrong direction before installation. Attaching ROSAHL by mistake will adversely affect several things in the container.
- 3 Make a moisture discharging hole and installation hole on the container where you will install ROSAHL.
(Refer to the Fig.1~3)
- 4 Attach a protective cover as needed not to touch the dehumidifying / humidifying surface of a membrane with a hand and an object. In addition, when using outdoors, cover a membrane with a cover or moisture-permeable sheet to prevent it from getting wet. (Refer to the section 2 of Precautions for use)
- 5 Make a sealed moisture-impermeable container as much as possible to bring a high performance into the ROSAHL.
- 6 Keep the moisture discharging side of a membrane well ventilated.

Unit : mm

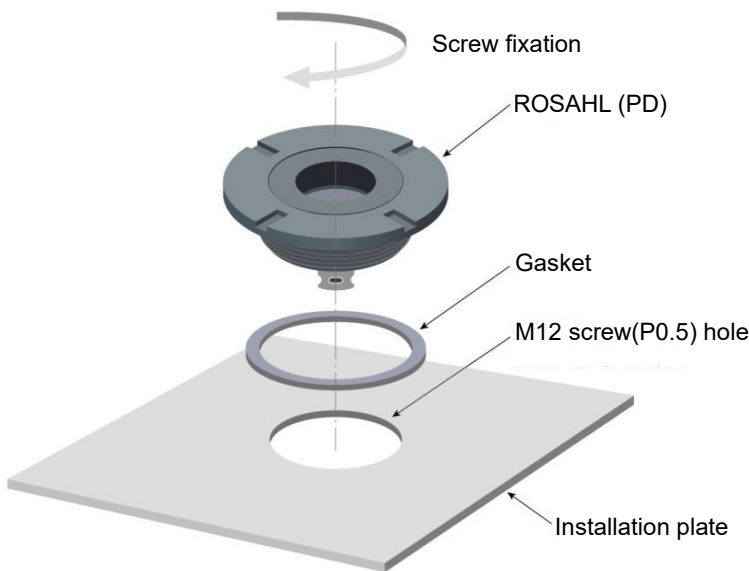


Fig.1 Installation Image

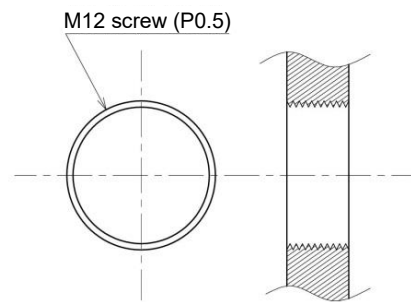


Fig.2 Installation Dimensions

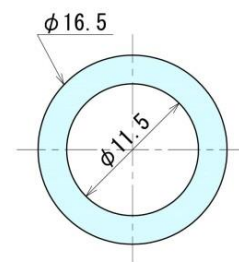


Fig.3 Gasket Dimensions (t0.5)

<How to install ROSAHL>
Make an M12 screw(P0.5) hole on the container.
Insert the gasket into the hole and slowly screw ROSAHL in the screw.
[Specified torque : 0.25 to 0.39 N·m]
*The gasket is not included.

Precautions for Use of ROSAHL

1. Regarding Sealant

Do not use silicon-based sealing materials to improve airtightness of a container. (Silicon-based sealing materials generate oxime gas and siloxane gas. As a result, performance of ROSAHL reduce in a short term.) Additionally, when using any other sealing materials, ROSAHL must be attached after sealing materials are completely cured. Volatile substances generated during curing affect the performance of ROSAHL.

[Recommended product] modified silicon caulk (Konishi Co., Ltd.)

2. Regarding Moisture Permeable Sheet

Attach a moisture-permeable sheet to a membrane to protect ROSAHL from much dust or oil mists.

[Recommended Product] Vent Filter TEMISH : S-NTF2131A-S06 (Nitto Denko Corporation)

3. Regarding Power Supply

Keep strictly the following about power supply to ROSAHL.

- (1) Do not reverse the polarity. Confirm a polarity indication of ROSAHL.
Dehumidification changes to humidification when you get a wrong polarity, which may result in an adverse effect on several things in the container. Furthermore, It causes a chemical reaction in a porous electrode of cathode side and it causes the trouble of ROSAHL.
- (2) ROSAHL 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 membrane. When multiple membranes are connected in series or parallel, the trouble of one membrane may cause all other membranes to be disabled.
- (4) The water vapor go through a membrane of ROSAHL. If you switch off a power supply, outside water vapor is returned to a container 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 regarding overcurrent protection function.

You cannot use the power supply with the Hiccup mode current limiting type, because the voltage more than 2V DC is necessary for ROSAHL when an overcurrent protection function worked. Also ROSAHL may not work correctly depending on a characteristic of fold-back current limiting.

Dimensions

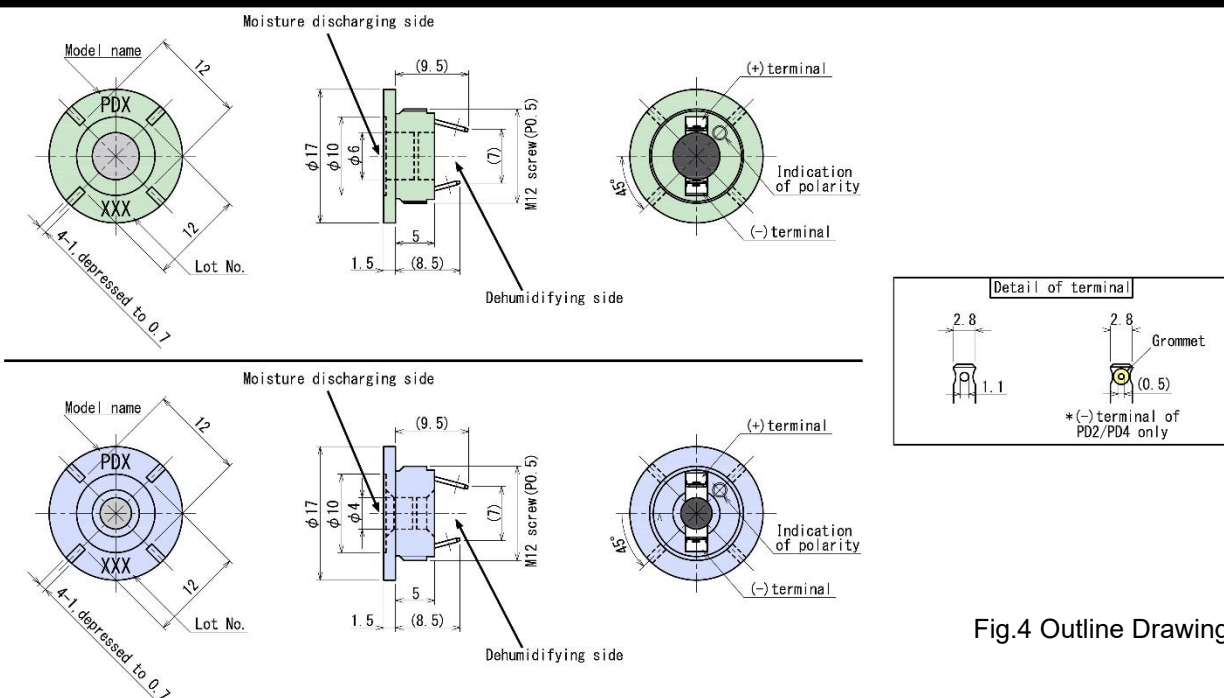


Fig.4 Outline Drawing

Confirmation Items before Using

Please confirm the following items surely before turning on the power.

1. Is the power supply 3V DC?
2. Is the polarity of ROSAHL correct?
3. Does not a membrane get wet?

Usage

1. Please supply 3V DC to ROSAHL.
2. Please adjust a supply voltage in the range of 2.9 - 3.3V DC between each terminals after 15-20 minutes turning on the power at the first time of installation.
(ROSAHL naturally causes a relatively big rush current when the power is turned on.
But this is not abnormal.)

Specifications

Table 2 PD2/PD3/PD4/PD5 Specifications

Items	Model Name	PD2	PD3	PD4	PD5
Dehumidifying Performance	(mg/day) ^{*1}	84		42	
Applicable Volume	(cc) ^{*2}	~ 2,000		~ 1,000	
Element Terminal Voltage	(V)	3 DC			
Power Consumption	(mW) ^{*3}	80		60	
Dimensions	(mm) ^{*4}	Φ17×11			
Weight	(g)	0.9			
Dimensions of Installation Hole	(mm) ^{*5}	M12 screw (P0.5)			
Operating Temperature	(deg C)	-10 to 50			
Connecting Terminal Type		Soldering ^{*6}	Push ^{*7} connector	Soldering ^{*6}	Push ^{*7} connector

Notes

- ^{*1} The initial value at the temperature of 30 deg C and humidity 60%RH.
(The dehumidifying performance will reduce during use. How much it degrades depends on the operating environment and conditions. If any signs of abnormality are seen, early replacement is recommended.)
In addition, white substances may be attached on dehumidifying surface.
These are the materials of a membrane attached in the manufacturing process and never affect dehumidifying performance and life.
- ^{*2} The applicable volume is for a sealed, moisture-impermeable container, and may vary depending on the material of the container, state of sealing and required humidity.
- ^{*3} The annual average power consumption in average condition in Japan.
- ^{*4} Refer to the Figure 4.
- ^{*5} Refer to the Figure 1~3.
- ^{*6} When you solder to PD2/PD4, twist an electric wire around a terminal and solder within 360 deg C, five seconds using the soldering iron. (Wire diameter : AWG28~26)
- ^{*7} For push connector type PD3/PD5, use STO-01T-110N (J.S.T.MFG.CO.,LTD.) flat connecting terminal or erquivalent. (Wire diameter : AWG28~20) The terminals may touch each other, as the element bodies are small. Refer to the following figure for installation.

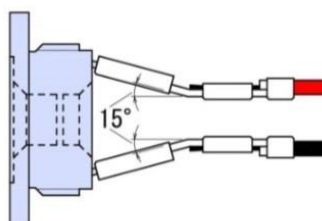


Fig.5 Installation example of push connector

Prohibited Substances and Recommended Materials for ROSAHL

1. Prohibited substances

The substances which adversely affect ROSAHL and harm in response to ROSAHL are as follows.

The anode side is affected mainly. Even the additives of materials may be affected.

Please evaluate enough when a new substance is adopted or a maker is changed.

Classification	Substance Name	State	Notes
Inorganic Matter	hydrochloric acid gas	gas	
	nitric acid gas	gas	
	other corrosion gases	gas	
	SOx gas	gas	
	NOx gas	gas	
	chlorine gas	gas	
	sulfurous acid gas	gas	
	other pollution gases	gas	
	concentrated hydrochloric acid	liquid	
	concentrated nitric acid	liquid	
	substance which produces other corrosion gas	liquid	
	divalent metal ion	liquid	
	Organic Matter	siloxane gas	gas
oxime gas		gas	
lamp black		gas	
diethylamine		gas	
other amine-based gas		gas	
amide-based low molecular weight compound		gas, liquid	
methylene chloride		liquid	
perchloroethylene		liquid	
trichloroethylene		liquid	
perchloroethylene		liquid	
tetrachloroethylene		liquid	
other chlorinated solvent		liquid	
oil mist		liquid	
dimethyl sulfoxide		liquid	
other sulfur based organic solvent		liquid	
silicone sealant		solid	These substances produce siloxane gas. Heat treatment (bake) is necessary to remove low molecule siloxane of non-reaction.
silicone grease		solid	
silicone rubber		solid	
silicone-based sealing compound		solid	
other siloxane chemical compound		solid	
pran-ace		solid	
camphor		solid	
other insect repellent		solid	
paradichlorobenzene		gas, liquid	
other chlorine-based insect repellent		gas, liquid	
vapor phase inhibitor		liquid, solid	
corrosion inhibitor which is added in materials		liquid, solid	
cigaret tar constituent		gas, liquid	
2,6-Di-tert-butyl-4-methylphenol (BHT)		liquid	The antioxidant which was added in packing

2. Recommended Materials

The recommended materials in a range understanding in us are as follows.

Classification	Material Name	Notes
Frame	Glass , Metal , Acrylic , Plastic	The acrylic and plastic resin has moisture permeability. Please thicken the board thickness when using them.
Sealing Compound	the material which does not include "Silicon group" [Recommended products] modified silicon caulk (Konishi Co., Ltd.)	Do not use silicon-based sealing compounds. In addition, about the recommendation product, please operate ROSAHL after completely cured. (Please avoid operating ROSAHL before curing.)
Adhesive	the material which does not include "Silicon group" [Recommended products] Silex, SL220W, SL220LB (Konishi Co., Ltd.)	Do not use silicon-based adhesives.
Gasket	Silicon rubber (secondary vulcanization finished) EPT rubber [Ethylene-propylene] (single bubble) PTFE rubber [Polytetrafluoroethylene]	About the silicon rubber, please perform secondary vulcanization by all means. (ex. 200 deg C / 6 hours) In addition, we don't evaluate all silicon rubber, EPT rubber, PTFE rubber. Please evaluate enough when using them.

The above are just as of April 1, 2021 but not all of them. Please verify in advance and evaluate enough when using our electric dehumidifier "ROSAHL". We don't take any responsibility or liability for any damage or loss caused through the unknown phenomenon and the wrong usage.