Document No.: 10000036991

Product Manual

AUTOMATIC AIR DEHYDRATOR
KD-M Series

PLEASE READ THIS MANUAL THOROUGHLY AND SAVE FOR FUTURE REFERENCE.

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TABLE OF CONTENTS

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1. WARNINGS, CAUTIONS & NOTES

NOTE: Read this manual before installation or operation of the dehydrator.

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W A R N I N G

Power source of the dehydrator must have proper ground connection, to reduces the risk of electrical shock, electrocution, and fires caused by unexpected voltage spikes or short circuits.

High noise may be generated when the dehydrator operates.

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**Hazardous voltages exist inside the unit. Unplug the power before servicing.
Do not energize or operate the unit with the lid removed.**

The unit starts automatically when power switches to on. Do not operate unit without cover secured properly in place.

2. PRODUCT INTRODUCTION

2.1 Product Description

The KD-M Series Automatic Air Dehydrators are designed to provide a source of dry, pressurized air by removing moisture from the ambient air. The unit performs this process automatically with minimal maintenance requirements.

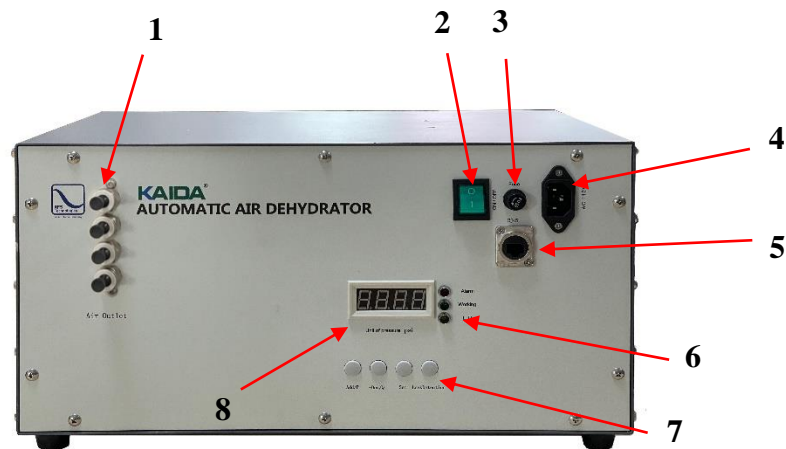### 2.2 KD-M Series Dehydrator Models

Model	Description
KD-M20	0.26SCFM (440L/h), 0.2-14psi Configurable Pressure, 110VAC Dehydrator
KD-M20S	0.26SCFM (440L/h), 0.2-14psi Configurable Pressure, 110VAC Dehydrator, support network protocols
KD-M22	0.24SCFM (402L/h), 0.2-14psi Configurable Pressure, 220VAC Dehydrator
KD-M22S	0.24SCFM (402L/h), 0.2-14psi Configurable Pressure, 220VAC Dehydrator, support network protocols
KD-M24-DC	0.24SCFM (402L/h), 0.2-14psi Configurable Pressure, -48VDC Dehydrator
KD-M24S-DC	0.24SCFM (402L/h), 0.2-14psi Configurable Pressure, -48VDC Dehydrator, support network protocols

2.3 Product Specification

Model	KD-M20/ KD-M20S	KD-M22/ KD-M22S	KD-M24-DC/ KD-M24S-DC
Flow Rate at 25°C	0.26SCFM (440L/h), ±10%	0.24SCFM (402L/h), ±10%	
Power Supply	110VAC ±10%, 60Hz	220VAC ±10%, 50Hz	-48VDC ±10%
Power Consumption	270W max		
Working Pressure	0.2-14psi, Field Adjustable. Factory set low pressure at 3psi and high pressure at 5psi.		
Dew Point	Better Than -45°C (-49°F) at 25°C (77F°)		
Drying Method	Polymeric membrane		
Gas Outlet	4 Outlets, Push-on quick fit for 3/8" OD tube		
Noise Level	<60dB at 1m		
Operation Conditions	-25°C to +65°C (-13°F to 149°F), ≤95% Humidity		
Product Dimensions and Weight	H x L x D: 8.6x16.9x10.2 inches(218x430x260mm), 30.4lbs(13.8kg)		
Shipping Dimensions and Weight	H x L x D: 16.1x22x15 inches(410x560x380mm), 38.6lbs(17.5kg)		
Network Management	S Model Only: Support Network Management Protocols (TCP Server/Client, UDP, Multicast, SNMP) via RJ45 Interface		
Alarms	Low-Pressure, High-Pressure, Dew Point, Excess Run, Compressor Failure		

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Installation	Desktop, 19" Rack, ETSI Rack, Wall

2.4 Appearance and Interface

1. Gas Outlets
2. Power switch on/off
3. Fuse
4. Power socket

5. RJ45 Port (S model only)
6. Indicator lights
7. Control buttons
8. Display window

3. INSTALLATION STEPS

3.1 Installation Location

The Dehydrator KD-M Series is designed for free-standing operation on a desktop, on a standard 19" rack, ETSI rack or on a wall using the supplied rack and wall mounting brackets.

To maintain optimal performance, place the Dehydrator in a dry, well-ventilated location with access to the power supply and gas inlet of the pressurized dry air distribution system. Ensure that there are no flow restrictions in the location of the dehydrator and the dry air system.

3.2 Unpacking and Inspection

Carefully inspect the package before unpacking. Record any damage on the packaging.

Unpack the dehydrator in an environmentally controlled location consistent with the operating conditions of the dehydrator. Place the unit on a flat, stable surface.

Check the contents of the package against the packing list and inspect the appearance of the dehydrator. Please inform RFS Technologies or the distributor if the unit is damaged or if any items are missing from the package.

The following accessories are included with the dehydrator：

	KD-M Series Accessories	Part Number
1	Power cord x 1 piece, 6ft (1.8m) length	KD25002/25004
2	Fuse x 2 pieces	KD22003/22002/22005
3	Nozzle connector x 4 pieces, G 1/8 to 3/8" tube	KD26001
4	Teflon tape x 1 roll	KD29001
5	PU tube x 33ft (10m) length	KD24009
6	Brackets x1 pair	KD30001

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| Dehydrator Model	KD-M20 / KD-M20S	KD-M22 / KD-M22S	KD-M24-DC / KD-M24S-DC
Fuse Model	3A	2A	7A
Part Number	KD22003	KD22002	KD22005

3.3 Staging the Dehydrator

Leave the power switch on the dehydrator in the OFF position. Connect the unit to the appropriate power source using the power cord provided.

Remove the insert from one of the gas outlets by following these steps:

Step1, Depress the release ring: using your thumb and forefinger, gently depress the white plastic ring of the gas outlet towards the unit. This will disengage the locking mechanism holding the insert in place.

Step 2, Pull the insert out: while holding the release ring, pull the black insert away from the gas port with a firm, straight motion. Refer to the following pictures.

Step 3, Store the insert in a safe place for future use.
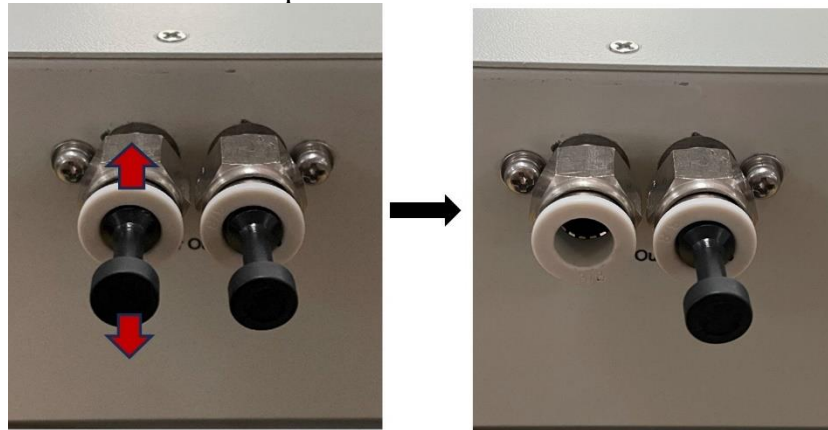
Switch on the power to activate the dehydrator and let it run for 3-5 minutes with nothing attached to the dry air outlet fitting. Check the airflow coming from the gas outlet using your finger. Disregard any alarms shown on the front panel.

If the dryer does not operate, please check the power supply. Report the issue if the dehydrator does not function correctly or if there is no airflow from the gas outlet.

Upon completion of the staging process, power off the dehydrator and proceed with its installation at the designated final location.

3.4 Installation Mode

The Dehydrator is designed for desktop, 19-inch rack, ETSI rack, and wall mounting. Please select an appropriate installation model based on the actual site conditions.

[The following images are for reference only. Accessories may be different for different models].
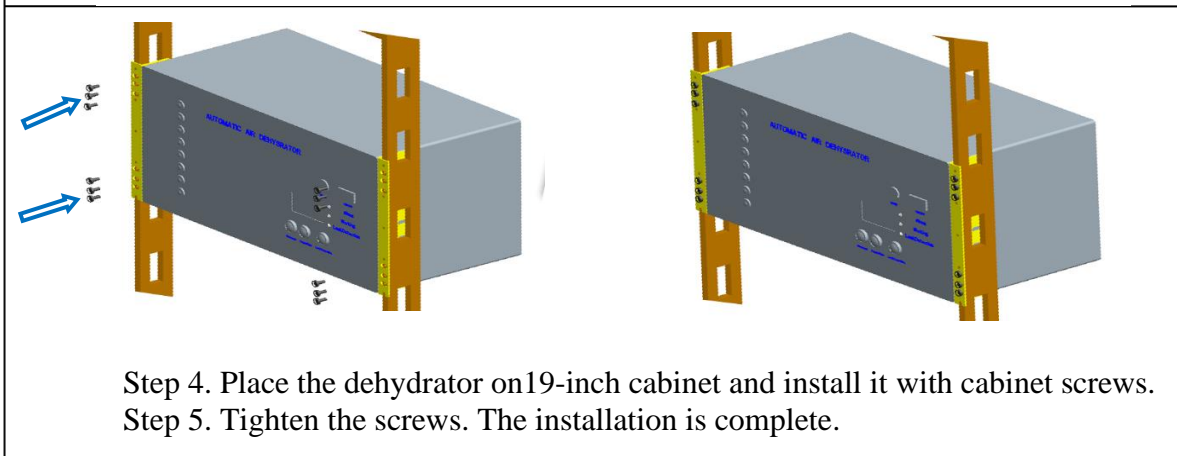
3.4.1 Desktop Installation

The dehydrator comes with four pre-installed feet and can be placed directly on a surface.

Place the dehydrator on a solid, level surface. Allow at least 2" clearance at the top for proper heat dissipation.

3.4.2 19" Rack Installation

The Dehydrator can be installed in a standard 19" rack using the brackets provided. See the following steps for rack installation and dimensions.

Step 1. Remove the feet from the bottom with a screwdriver.
Step 2. Remove 5 screws on each side with a screwdriver.

Step 3. Install the brackets on both sides with 10 screws removed in Step 2
(Please note the notches orientation)

Step 4. Place the dehydrator on19-inch cabinet and install it with cabinet screws.
Step 5. Tighten the screws. The installation is complete.
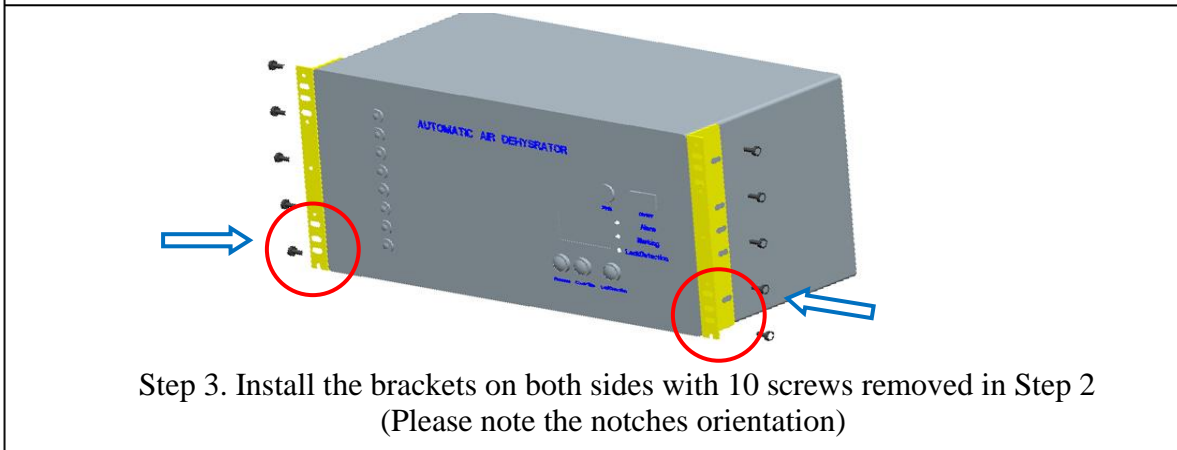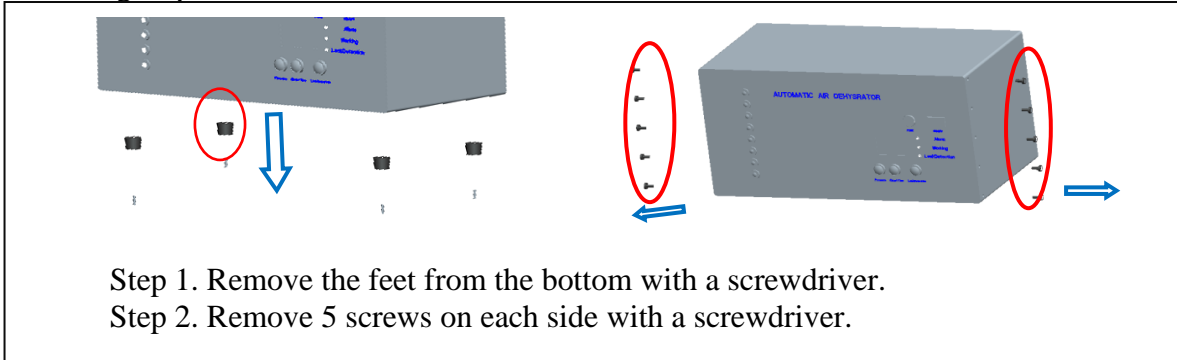
3.4.3   ETSI Rack Installation

Step 1. Remove the feet from the bottom with a screwdriver.
Step 2. Remove 5 screws on each side with a screwdriver.

Step 3. Install the brackets on both sides with 8 screws removed in Step 2
(Please note the notches orientation)

Step 4. Place the dehydrator on the ETSI cabinet and install it with the cabinet screws.
Step 5. Tighten the screws. The installation is complete.
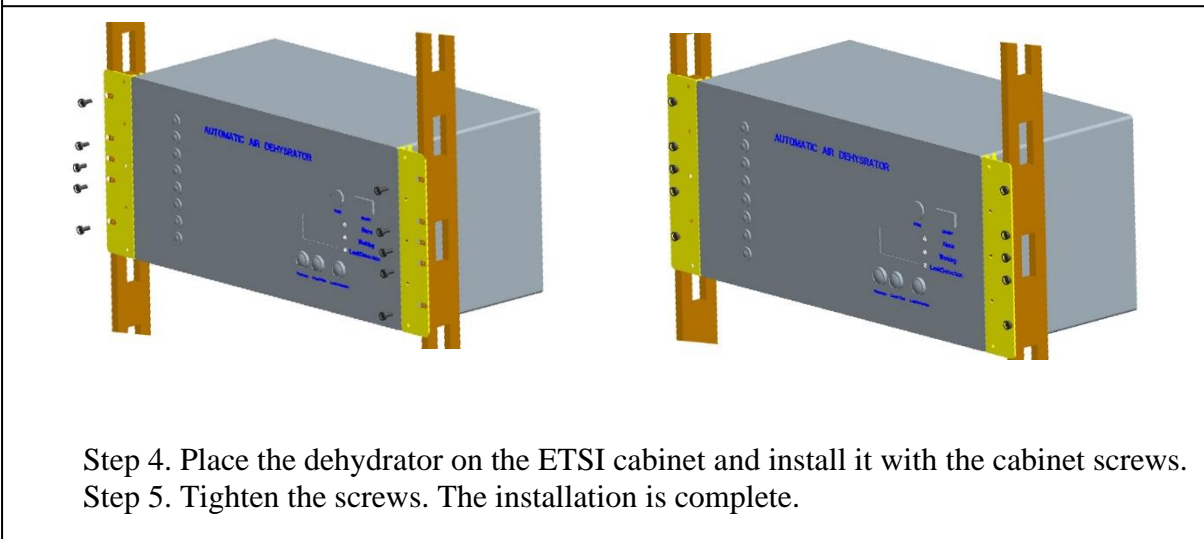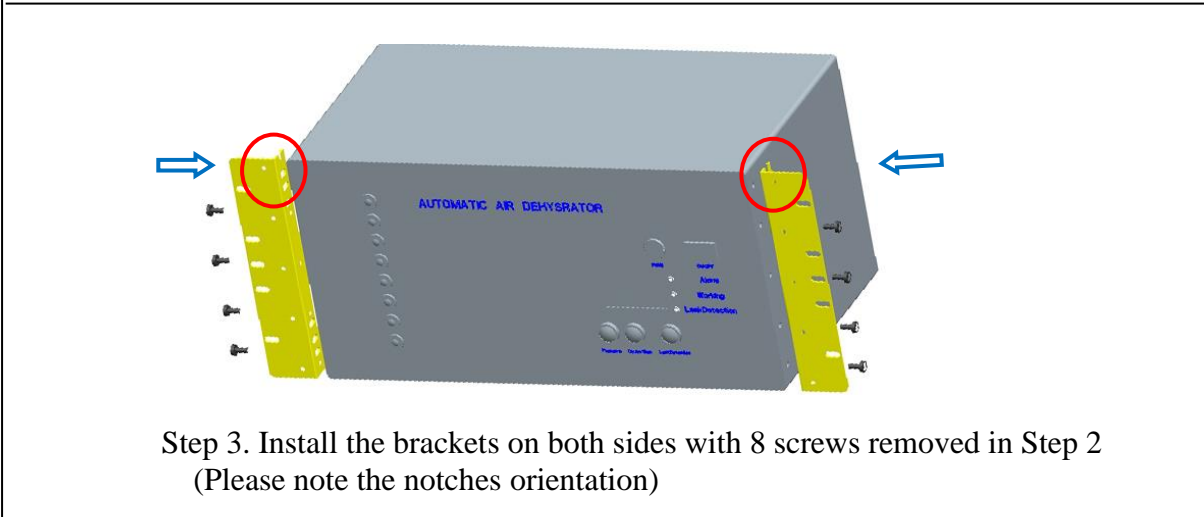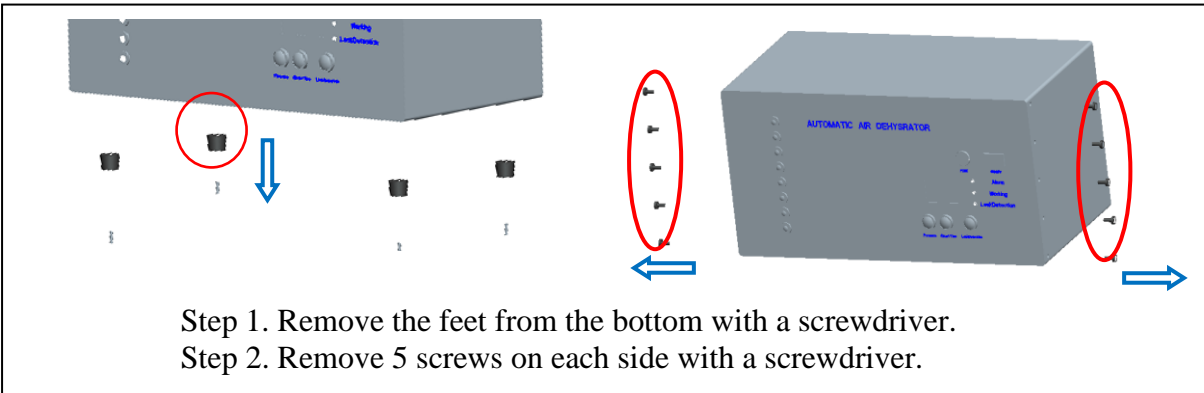
3.4.4   Wall Installation

The dehydrator can be mounted on a wall using the supplied brackets. See the following steps for wall mounting and dimensions.

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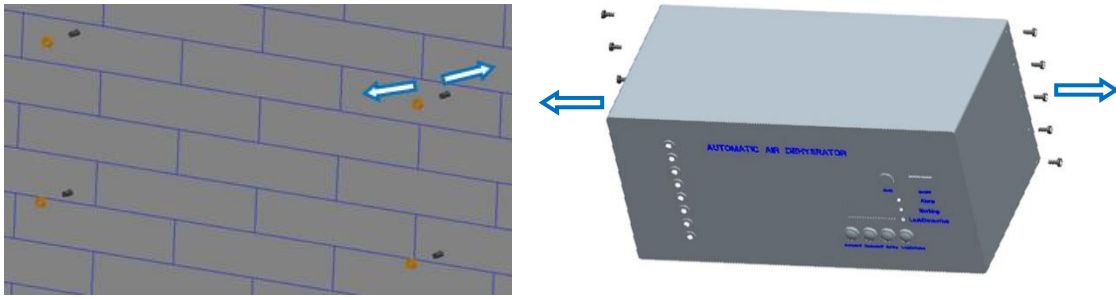
Step 1. Drill 4x round holes according to the hole position on next drawing
(unit mm). Suggested diameter is 8mm or close.

Step 2. Hammer the expansion bolts into the round hole,
and remove the nut on the expansion bolts with a hexagonal wrench.

Step 3. Remove the 5 screws on each side with a screwdriver,
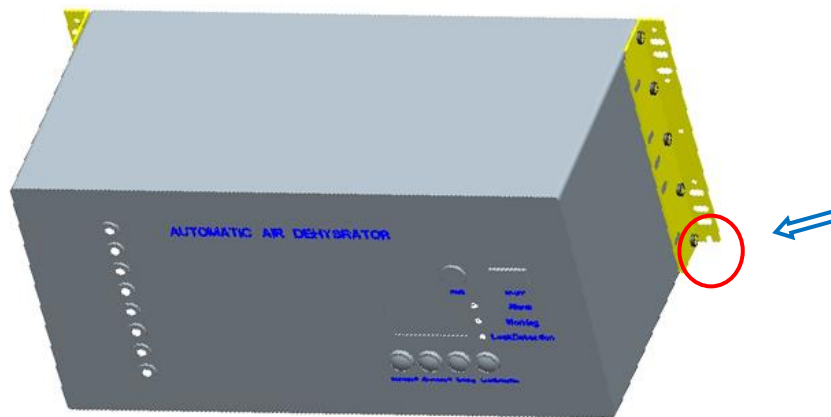
Step 4. Install the brackets at the rear with the screws removed in Step 3.
(Please note the notches orientation)
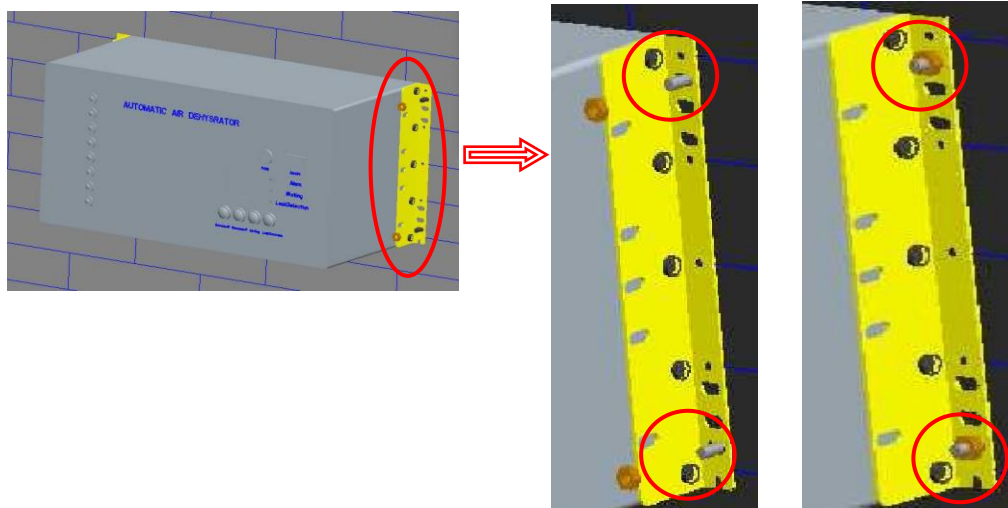
Step 5. Insert 2 expansion bolts into the upper and lower mounting holes on each
side of the brackets.

Step 6. Install the nuts removed in Step 2 on the expansion bolts and tighten them
with a hexagonal wrench. The installation is complete.
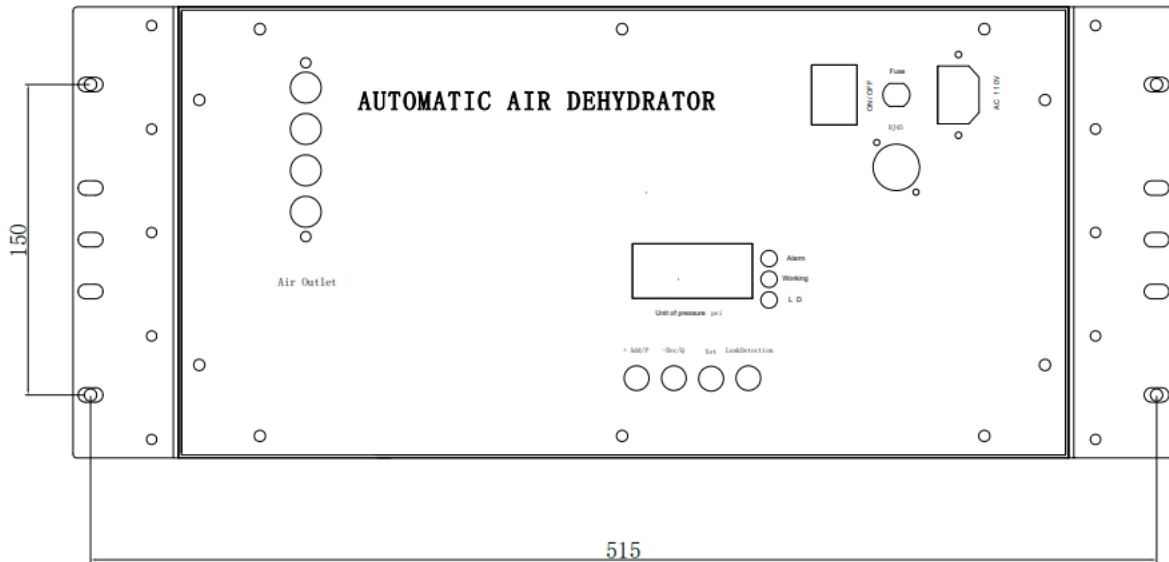
3.5 Connect to the Power Supply

After installing the dehydrator, leave the power switch on the unit in the OFF position. Connect the dehydrator to the appropriate power source using the power cord provided.

3.6 Change the Dehydrator Configuration

Switch the power to the ON position to turn on the dehydrator. When the dehydrator is operating, the digital display window on the front panel will show "P XX" where "XX" represents the current system pressure value.

The Dehydrator is pre-programmed with the following configurations as shown in the table below. If no configuration changes are required, skip the following steps and proceed directly to Section 3.7.

Parameter	Default Setting
Low-Pressure Limit	3 psi
High-Pressure Limit	5 psi
Push Button Tone	Off
Unit ID	245

3.6.1 High-Pressure Limit

When the display shows "P XX", press and hold the "Set" button for 5 seconds to enter the high-pressure limit setting interface. The display will change to "H XX" where XX is the current high-pressure limit setting. Press the "+Add" or "-Ded/Q" button on the front panel to increase or decrease

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the value. The factory default high-pressure limit is 5psi. The adjustable range of the high-pressure limit is between 0.4 and 14 psi.

3.6.2 Low-Pressure Limit

At the "H XX" interface, press the "Set" button once to enter the low-pressure limit setting interface. The display will change to "L XX" where XX is the current low-pressure limit setting. Press the "+Add/P" or "-Ded/Q" button to change the setting. The factory setting for the low-pressure limit is 3psi. The adjustable range of the low-pressure limit is between 0.2 and 13.8 psi. And the low-pressure limit setting must be lower than the high-pressure limit.

3.6.3 Push Button Tone on/off
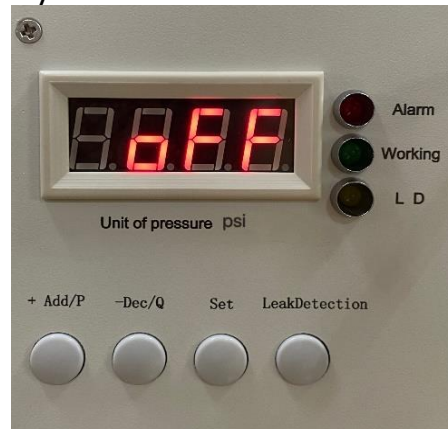
The push button tone provides a key sound indicating that a key operation is being performed.

At the "L XX" interface, press the "Set" button again to enter the push button tone setting interface. The display will show the current setting. The default setting is "off". Press the "+Add/P" or "-Ded/Q" button to change the tone setting.

3.6.4 Unit ID

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From the push button tone setting interface, press the Set button to enter the Unit ID setting interface. The display will show "IXXX" where XXX is the current unit ID number. Press the "+Add/P" or "-Ded/Q" button to change the ID. The default ID is 245 and the adjustable ID range is 1 to 254.

The numbers 0 and 255 are reserved ID numbers and should not be used.

3.6.5   Save Settings

At the Unit ID setting interface, press "Set" again to save and apply the new configurations to the dryer. The display will then return to the "P XX" interface.

Configuration is not lost or changed when the dehydrator is turned off.

3.7 Connect the Dehydrator to the Tubing and the System

Check the configuration of the dryer and make sure the settings are correct. Turn off the unit and begin connecting the tubing.

3.7.1   Connect the Tubing with the Dehydrator

The dehydrator has four gas outlet ports and can be connected to four gas lines. Optional gas distribution manifold can be ordered if more outlets are needed. Eash outlet port is sealed by an insert. Follow the instructions below to connect the tubing.

[Caution] Retain removed inserts for future use. Do not remove inserts from unused ports.
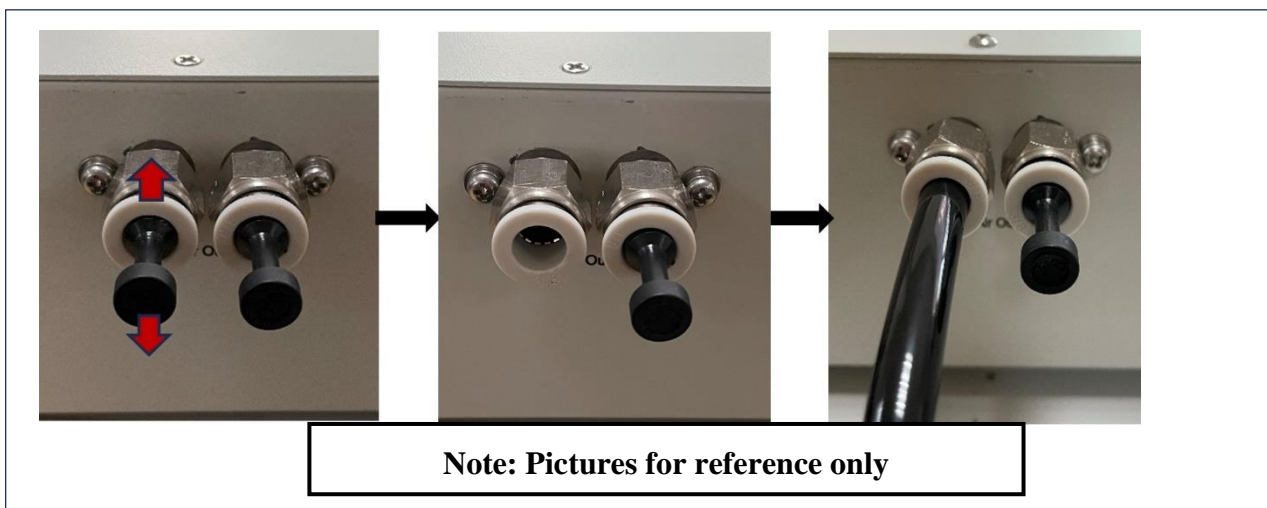
Note: Pictures for reference only

Step 1, Depress the release ring: using your thumb and forefinger, gently depress the white plastic ring of the gas outlet towards the unit. This will disengage the locking mechanism holding the insert in place.

Step 2, Pull the insert out: while holding the release ring, pull the black insert away from the gas port with a firm, straight motion.

Step 3, Push the tube in: insert the 3/8" tube into the gas port until it cannot go in any further. Make sure the tube is securely locked in place by the locking mechanism.

3.7.2   Connect the Tubing to the System

Connect the other end of the tubing to the site distribution system or to the inlets to be pressurized. Different products and systems may use different connection methods. Four gas inlet/pipe adapters are supplied with the dryer. The nozzle has a G 1/8 thread and is compatible with tubing with an outer diameter of 3/8" or 9 mm.

Refer to the following instructions when using these adapters to connect the tubing to the connector.

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[Caution] Please wrap the threads of the gas adapter with Teflon tape before screwing it into the port. After connecting, please check the air tightness strictly.

Step 1: Unplug the sealing plug.

Sealing plug

Step 2: Unscrew the lock nut of the nozzle in the accessory package, and wrap the threads of part A with Teflon tape. Install it to the gas port of the connector. Insert the PU tube through the lock nut

Step 3: Connect the PU tube in Step 2 to part A and tighten the lock nut.
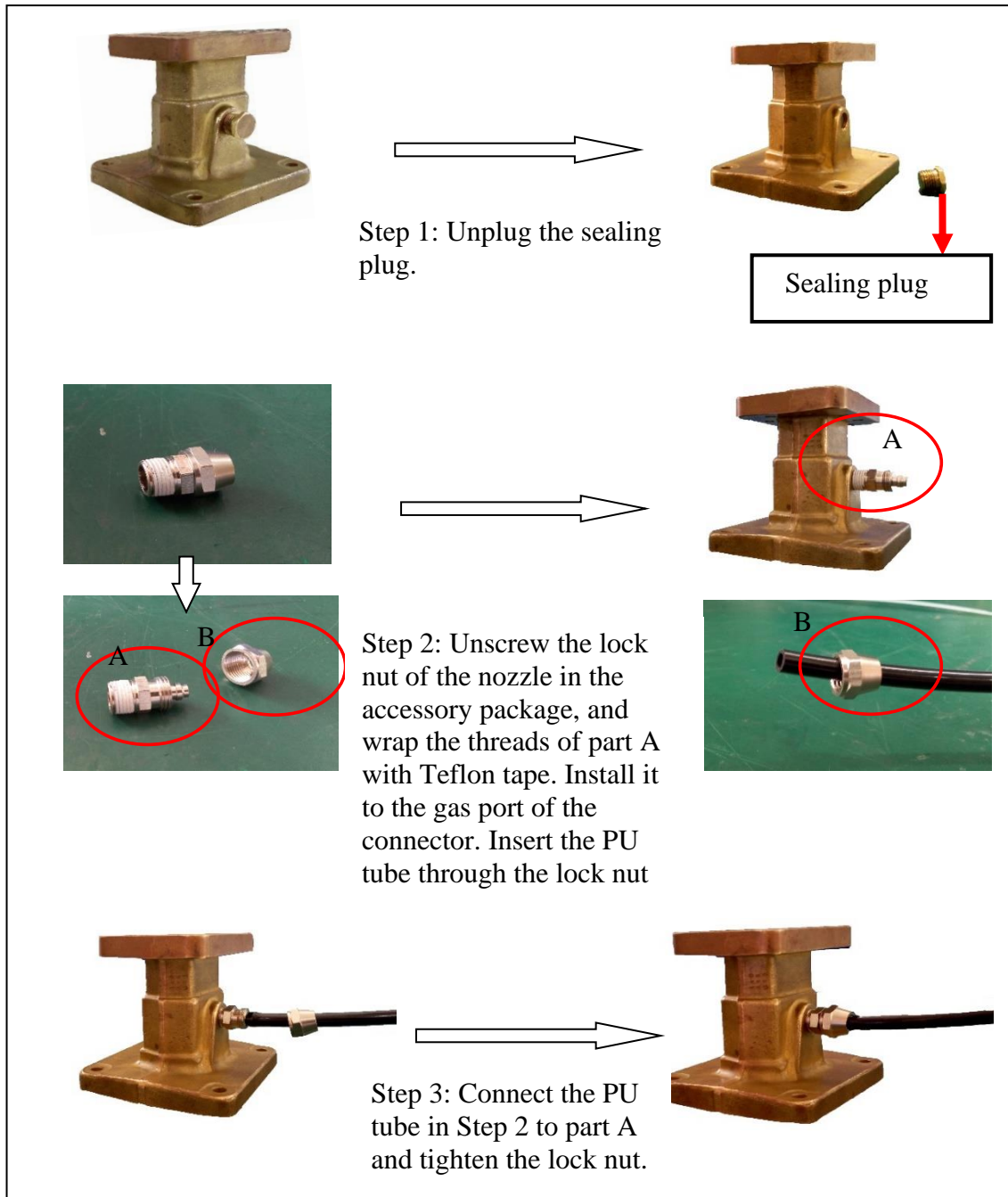
After connecting the tubing, make sure that the air path of the tubing between the dehydrator and the feeder system is unobstructed. Do not bend the tubing.

3.8 System Purging

It is important to properly purge the site distribution system prior to completing the dehydrator installation. Failure to do so may result in moisture being present in the system after the dehydrator is installed. This moisture will remain in the system until it is purged from the system by normal operation of the dehydrator.

If the purge is left to the dehydrator's normal operation, the process may take days, weeks, or longer depending on the dehydrator's installed options, system size, moisture levels, and other variables. Humidity alarms may occur until the moisture is purged from the system.

Use the following steps to purge the system.

3.8.1 If the System Has a Remote Exhaust Vent

Open the exhaust vent, start the dehydrator, and allow it to run for at least one hour. Close the exhaust port and complete the purge.

3.8.2 If the System Doesn't Have a Remote Exhaust Vent

Start the dehydrator and allow it to run until it stops when the high-pressure limit is reached. Wait 15 minutes to allow the dry air to mix with the humid air in the feeder. Disconnect the dehydrator hose and allow the air to escape. Reconnect the tubing and repeat these steps ten times to complete purging.

3.9 Leak Detection

After purging, re-connect the dehydrator to the system. The next step involves checking the airtightness of the feeder system using the leak detection function. Follow these steps for the leakage test:

- Press the "Leak Detection" button and observe the pressure value on the front panel.
- The dehydrator will halt inflation and the "L D" yellow indicator will illuminate when the button is pressed.
- Monitor the change in pressure value to assess the airtightness of the system. Quick drops imply the need for better sealing.
- If the pressure value remains stable, the feeder system is airtight.
- Press the "Leak Detection" button again to end the test, the yellow indicator goes off, and the dehydrator resumes normal operation.

[Caution]

Address any leaks promptly to prevent alarms, excess running and performance decline due to humidity.

Use this function solely for testing purposes. Remember to exit using the "Leak Detection" button and restore the dehydrator operation. The "L D" indicator will turn off.

3.10 Completion of the Installation

After completing the previous steps, the installation process is now finished. Verify that the dehydrator is functioning normally by ensuring that the alarm indicator is not illuminated, and that the dehydrator stops inflating once the high-pressure limit is reached. Please refer to Section 6 if the dehydrator has the network management capability.

4. OPERATION

4.1 General Description

The KD-M series dehydrators operate automatically once powered on. The system constantly monitors the pressure during standby mode. If the pressure falls below the lower limit, the dehydrator will activate and pressurize the system with dry air. You will notice the green "Working" indicator on the front panel illuminating when the dehydrator is inflating. Once the pressure reaches the upper limit, the dehydrator will return to standby mode and the "Working" indicator will turn off.

The KD-M dehydrators utilize advanced membrane technologies to ensure a continuous provision of dry air. This polymer-based membrane is selectively permeable, permitting only water molecules to pass through while obstructing larger oxygen and nitrogen molecules. This innovative membrane design allows KD-M dehydrators to efficiently remove moisture and provide dry air without the necessity of desiccant replacement or manual reactivation.

4.2 Indicators

The front panel consists of three indicators: Alarm, Working, and L D.

4.2.1 Alarm Indicator

If the red "Alarm" indicator on the front panel is illuminated, it means there is at least one alarm in the dehydrator. For more information on the alarms, refer to Section 4.4.

4.2.2 Working Indicator

During the inflation process of the dehydrator, the green light labeled "Working" illuminates. Conversely, the "Working" indicator remains off during all non-inflating intervals.

4.2.3 L D Indicator

When the "L D" indicator turns yellow, it means that the leakage detection function is in operation. For a detailed explanation of this function, refer to Section 3.9.

4.3 Control Buttons

On the front panel, you will find four control buttons: +Add/P, -Dec/Q, Set, and Leak Detection.

4.3.1 +Add/P Button

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The "+Add/P" button is utilized to increase the value in the pressure (H XX and L XX) and unit ID (IXXX) setting interface, or switch the value in the Push Button Tone (on/off) setting interface.

4.3.2 -Dec/Q Button

The "-Dec/Q" button is utilized to decrease the value in the pressure (H XX and L XX) and unit ID (IXXX) setting interface, or switch the value in the Push Button Tone (on/off) setting interface. Additionally, the "-Dec/Q" button is used to access the dehydrator's logs, status, and alarms. For more information, refer to Sections 4.4 and 4.5.

4.3.3 Set Button

The primary function of the "Set" button is to confirm and store values or status in the setting interfaces. Additionally, it can be used to switch the dehydrator to a different interface. By pressing and holding it for 5 seconds in the "P XX" interface, the dehydrator will switch to the setting interface. Pressing it once in the checking logs, status, and alarms interface will bring the dehydrator back to the "P XX" interface.

4.3.4 Leak Detection Button

Press the "Leak Detection" button to initiate the leak detection process. For further details, please see Section 3.9.

[Caution] Avoid pressing the "Leak Detection" button if the dehydrator's operation should not be disrupted.

4.4 Alarms

The dehydrator is equipped with five types of alarms: compressor failure alarm, high-pressure alarm, low-pressure alarm, dew point alarm, and excess run alarm. When the red alarm indicator illuminates, it signifies a situation involving one or more alarms. Refer to Section 5.2 for instructions on troubleshooting an alarm or alarms.

4.4.1 Identify Alarms

In case the red alarm indicator turns on, follow these instructions and codes for identification purposes.

At the "P XX" interface, press the "-Ded/Q " button five times to change the display to "b XX", with "XX" representing the alarm code. You can find the description of the alarm in the table below, and refer to the corresponding section for more information. For troubleshooting, please refer to Section 5.2.

Table of alarm codes and descriptions

Display	Alarm type
b08	Compressor failure alarm
b10	Dew point alarm

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b18	Compressor failure & Dew point alarm
b20	Low-pressure alarm
b28	Compressor failure & Low-pressure alarm
b30	Dew point & Low-pressure alarm
b38	Compressor failure & Dew point & Low-pressure alarm
b40	Excess run alarm
b48	Compressor failure & Excess run alarm
b50	Dew point & Excess run alarm
b58	Compressor failure & Dew point & Excess run alarm
b60	Low-pressure & Excess run alarm
b68	Compressor failure & Low-pressure & Excess run alarm
b70	Dew point & Low-pressure & Excess run alarm
b78	Compressor failure & Dew point & Low-pressure & Excess run alarm
b80	High-pressure alarm
b90	High-pressure & Dew point alarm

Press the "+Add/P" button to return to the "P XX" interface after the alarm is identified.

4.4.2 High-Pressure Alarm

The dehydrator will show an alarm if the system pressure exceeds the high-pressure limit of **0.5psi (P>H+0.5psi).** Once the pressure returns to normal, the alarm will automatically reset.

[Attention] High pressure can damage pressure sensitive components like pressure windows in the system. Set the high-pressure limit parameter correctly, taking into account the upper pressure limit of the entire system.

4.4.3 Low-Pressure Alarm

The dehydrator will show an alarm if the system pressure falls below the set lower limit of **0.1psi (P<L-0.1psi)**. Typically, a low-pressure alarm is triggered by a leak in the system. You can use the "Leak Detection" function explained in Section 3.9 to verify this.

4.4.4 Dew Point Alarm

The dehydrator will show an alarm if the dew point exceeds -5°C(23F°). KD-M dehydrators can supply dry air with a dew point of -45°C(-49°F) when the ambient temperature is 25°C (77F°). A dew point alarm indicates that the humidity level of the air provided by the dehydrator is rising and does not meet the system's requirements.

[Attention] The dew point alarm is anticipated to appear and persist for a while when the dehydrator is first operated. Once the system purging is completed, the alarm will be reset.

4.4.5 Excess-Run Alarm

The dehydrator will show an alarm if it runs continuously for 30 minutes without reaching the high-pressure limit. A leak is the main cause of this alarm. In this situation, the dehydrator will not stop until it reaches the high-pressure limit or runs continuously for 60 minutes. If the high-pressure limit is

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reached, the dehydrator will stop and the alarm will be cleared. If the dehydrator runs for 60 minutes without reaching the high-pressure limit, it will enter an idling-inflating cycle where it will alternate between stopping and inflating for 60 minutes each. This cycle will continue until the high-pressure limit is reached and the alarm is cleared.

[Attention] **The dehydrator may start frequently or excessively run over 30 minutes during the initial inflation, which is a common occurrence.**

4.4.6 Compressor Failure Alarm

In case of pump operation is abnormalities, the compressor failure alarm occurs by lighting up the red alarm indicator on the front panel. In this situation, the dehydrator will need to be returned to the factory for check-up.

4.5 Dehydrator Status and Logs

The KD-M dehydrator also offers information about the operational states of the unit. It provides these log information to aid in comprehending the dehydrator's status and troubleshooting any issues.

4.5.1 Power-on Time: T XX

At the "P XX" interface, press the "-Ded/Q " button. The power-on time will be displayed as "T XX", with "XX" indicating the total hours since the dehydrator was turned on. This log refreshes every 24 hours and the maximum value displayed is 23. Press the "Set" button to return to "P XX" from the power-on time interface.

4.5.2 Accumulated Inflating Time: t---

At the "P XX" interface, press the "-Ded/Q" button twice. The display window will show "t---" which represents the total inflating time interface. Press the "-Ded/Q" button again will display "XXXX", which is the number of minutes. This log refreshes every 24 hours with a maximum display value of 1439. Press the "Set" button to return to "P XX" from the accumulated inflating time interface.

4.5.3 Number of Inflating: cXXX

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At the "P XX" interface, press the "-Ded/Q" button four times. The display window shows "c XXX" where "XXX" represents the total number of inflations by the dehydrator. The maximum value is 255 and the counter resets after 255. Press the "Set" button to return to "P XX" from the number of inflating interface.

[Attention] During the initial operation of the dehydrator, it is anticipated to observe a significant increase in the number of inflating instances. The duration of these inflating instances and the logs documenting the number of inflating occurrences is valuable for identifying and resolving issues. For instance, if there is a leak in the system, both logs would display higher values than usual.

4.5.4 Alarm Code: b XX

At the "P XX" interface, press the "-Ded/Q" button five times. The alarm code will be displayed as "b XX" on the screen. Refer to Section 4.4.1 for more information.

4.5.5 Working State: F XX

At the "P XX" interface, press the "-Ded/Q" button six times. The code of the dehydrator's working state will be displayed as "F XX" on the screen. You can find the description of the dehydrator working state for each code in the table below.
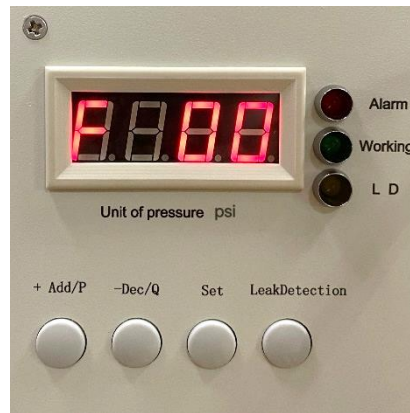

Table of code and description of the dehydrator working state.

Code	Description of Working State
F 00	Pressure holding
F 01	Inflating
F 02	Idling-Inflating mode (inflating for 60min, then stopping 60min for self-protection)

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[Attention] Pressing the "Set" button on any of the mentioned status and logs interfaces will cause a switch back to the "P XX" interface. If there is no button pressed within 20 seconds on any of the status and logs interfaces, it will also return to the "P XX" interface.

4.6 Pressure Relief Function

The KD-M dehydrator is equipped with a pressure relief feature to prevent any unsafe pressure situations in the feeder system caused by temperature changes and pressure surges. If the system pressure exceeds the set high-pressure limit by 0.7psi (**P>H+0.7psi**), the dehydrator will activate the pressure relief valve and discharge excess air to protect the feeder and membrane from potential damage.

The pressure relief valve will automatically close when the system pressure reaches the set high-pressure limit (**P=H**).

## 5. MAINTENANCE AND TROUBLESHOOTING

5.1 Maintenance

If the Dehydrator is installed and operated correctly, it will need very little maintenance throughout its lifespan.

5.1.1 Routine Cleaning

To ensure proper air intake and normal functioning, it is recommended to regularly clean the dust off the dehydrator. Additionally, it is advised to perform a thorough cleaning of the dehydrator after one year of use, or more frequently if the operating environment is very dusty. Follow the instructions below to open the dehydrator and carry out this cleaning process.

Attention: Make sure the power is turned off before starting this cleaning process. Gently open the panel. Be careful not to harm the cable connection when opening the dehydrator for inspection or cleaning.

Step 1: Open the front panel of the dehydrator and locate the air inlet filter.
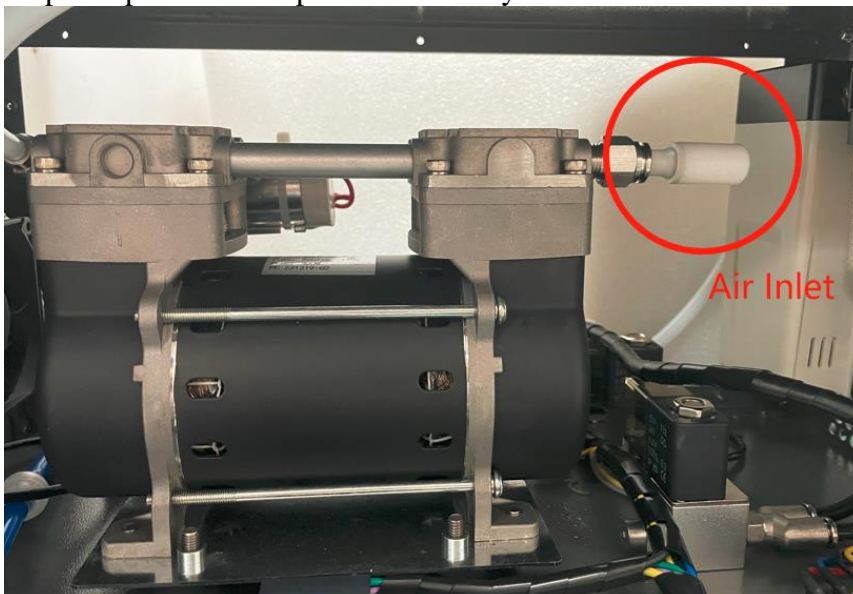
Step 2: While pressing the ring backward, gently pull the white air inlet filter out of the fitting.

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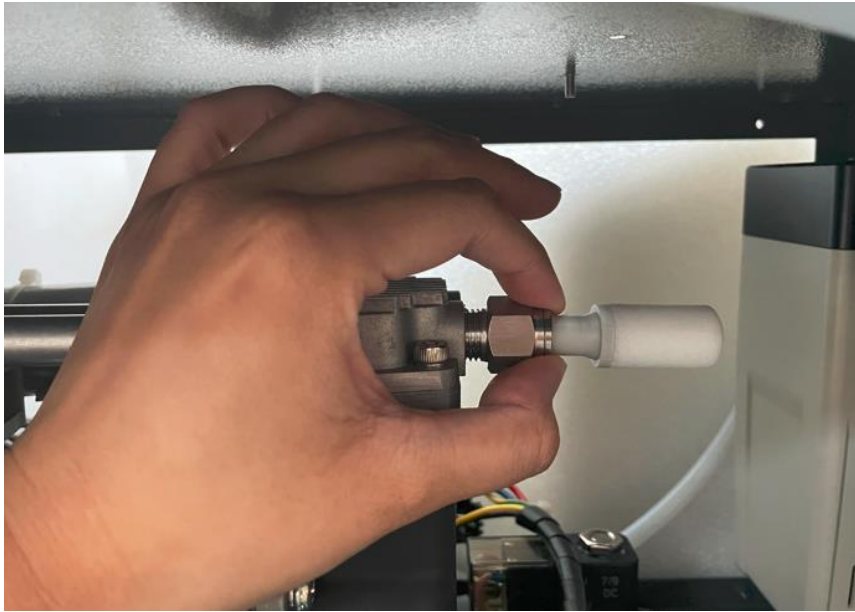
Step 3: Use high-pressure air and reverse blow the filter to remove dust, or directly wash and dry it. Avoid dust entering the exposed dehydrator.

Step 4: Ensure that the filter is securely inserted into the fitting until it firmly locks into the position. Reinstall the panel.

5.2 Troubleshooting

5.2.1 Dehydrator Won't Power On

Possible Cause	Check	Solution
Power switch in OFF position		Turn the Power switch to ON position
No power supplied to the dehydrator	Power cord and power source, measure the incoming voltage	Use the right power supply or cord with the right voltage
Fuse is blown	Fuse box on the panel	Replace the fuse, see the instructions below

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Step 1: Remove the fuse box by rotating it counterclockwise.

Step 2: Peel off the protective layer outside the fuse tube in the accessories

Step 3: Insert the new fuse into the fuse box.

Step 4: Screw the fuse box into the panel clockwise to complete the replacement.

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5.2.2 Display Pressure Is Always At 0 Or Stays at A Very Low-Pressure Value

Possible Cause	Check	Solution
Leak in the dehydrator	Feel the air flow from the dehydrator outlets by hand, block the outlets and see the pressure display change	If there is no airflow from the outlet, the dehydrator is not functioning properly. Contact the after-sale service.
Serious leak in the feeder system		If there is an airflow, the pressure value will go up quickly to reach the high-pressure limit when you block the outlet, and this value can remain for a certain time. Check the leak in the feeder system.
Pressure sensor failure		If there is an airflow, and after blocking the outlet the display still is 0. Contact the after-sale service.

5.2.3 High-Pressure Alarm

Possible Cause	Check	Solution
The dehydrator detects the high limit and stops to inflate	The alarm is normal, no need to check	It is common to observe a quick high-pressure alarm when the dehydrator inflating for a while.
Feeder system installed in a high temperature environment or the air in the feeder expands from exposure to the sun	Environmental temperature	Disconnect the tubing to release the pressure. Adjust the high-pressure limit setting considering the impact of heat.
High-pressure limit set to too low	High-pressure limit setting	Raise the high-pressure limit setting.

5.2.4 Low-Pressure Alarm

Possible Cause	Check	Solution
The dehydrator detects the lower limit and starts to inflate	The alarm is normal, no need to check.	It is common to observe a quick low-pressure alarm when the dehydrator restart to inflate.
First time dehydrator operation		It is common to observe a low-pressure alarm when the dehydrator is switched on and begins operating for the first time.
Leak in the dehydrator	Feel the airflow from the dehydrator outlets by hand, block the outlets, and see the pressure display change	If there is an airflow, the pressure value will go up quickly to reach the high-pressure limit when you block the outlet, and this value can remain for a certain time, then the dehydrator is well sealed; If there is no airflow from the outlet, the dehydrator is not functioning properly. Contact the after-sale service.

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Possible Cause	Check	Solution
System leak	Use leakage detection function (Section 3.9)	Locate the leak and fix it.

5.2.5 Dew Point Alarm

Possible Cause	Check	Solution
First time dehydrator operation		It is common to observe a dew point alarm when the dehydrator is switched on and begins operating for the first time.
The dehydrator operates in an extreme environment	Environmental temperature and humidity	Make sure the dehydrator operates in an environment that meets the requirements
The dew point of output air does not meet the requirements	Using a dew-point meter	Contact the after-sale service.

5.2.6 Excess-run Alarm

Possible Cause	Check	Solution
First time dehydrator operation		It is common to observe a excess-run alarm when the dehydrator is switched on and begins operating for the first time.
System leak	Use leakage detection function (chapter 3.9)	Locate the leak and fix it.
Leak in the dehydrator	Feel the air flow from the dehydrator outlets by hand, block the outlets and see the pressure display change	If there is no airflow from the outlet, the dehydrator is not functioning properly. Contact the after-sale service.

5.2.7 Compressor does not turn

Possible Cause	Check	Solution
System program crashed		Toggle the ON/OFF switch.
Compressor failure	A compressor failure alarm occurs and no airflow for a longtime	Contact the after-sale service.

6. CONFIGURATIONS FOR NETWORK MANAGEMENT (for models with network management only)

6.1 Network Management Description

The KD-M dehydrators provide the option to support network management systems, which is available only on specific models with an "S" at the end of the model's name. Upgrading a standard unit to have network management capability is not possible.

To facilitate network management for the dehydrator, a network management system must be used and connected to the dehydrator through the RJ-45 interface. The KD-M dehydrators support independent TCP and UDP sessions and offer various socket operation modes such as TCP server, TCP client, UDP, and multicast. They also support Simple Network Management Protocol (SNMP), and an MIB file is included with the "S" model to support the SNMP network management. For detailed SNMP parameters, please refer to Section 7.3.

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6.2 Management Interfaces on the Dehydrator

6.2.1 Ethernet Interface

The dehydrator is equipped with a RJ-45 Ethernet interface located on the front panel. This Ethernet interface allows for easy setup of network management parameters and to enables the network management functionalities.

This interface adheres to the IEEE 802.3u standard and allows for 10/100M bit/s speed in both full or half-duplex operation using crossline and straight-through lines.

The Ethernet interface's default IP address is 192.168.8.10, with a subnet mask of 255.255.255.0 and a gateway of 192.168.8.1. To ensure that the dehydrator is in the same management network, users have the option to modify the IP address of the Ethernet interface.

6.2.2 Wi-Fi Interface

The dehydrator is equipped with a built-in Wi-Fi module that enables users to connect to the unit wirelessly using their smartphones or computers. The Wi-Fi network name (SSID) is "kddtu" and the password is "12345678". These default network credentials cannot be modified. It is important to understand that the Wi-Fi interface is solely used for setting network parameters and not for network management.

The default IP address for the Wi-Fi interface is 192.168.0.1 and cannot be changed.

If the default IP address for the Ethernet interface is altered and cannot be remembered, users can still access the unit by connecting to the Wi-Fi interface and finding out the Ethernet IP address.

6.3 Setting the Unit for Network Management Systems

To facilitate network management, the dehydrator must be configured to a specific network mode with the correct parameters based on the protocol used by the existing network management system. KD-M dehydrator is compatible with TCP/IP and SNMP protocols. For TCP/IP, it offers four operation modes (sockets): TCP server, TCP client, UDP, and Multicast.

The default setting of the dehydrator is UDP mode, with an IP address of 192.168.8.10, a local port of 8000, a target host IP of 192.168.8.100, and a target host port of 9000. These settings can be modified through a web browser using an Ethernet or Wi-Fi connection.

6.3.1 Change the IP Address of the Dehydrator

Ensure that the management computer and the dehydrator are on the same subnet. Connect the Ethernet cable and launch the browser. Enter 192.168.8.10 in the address bar to access the dehydrator's web interface. In case of a Wi-Fi connection is used, enter 192.168.0.1 instead.

To modify the IP address of the Ethernet interface, following these steps:

1）Navigate to the left menu and click "NetworkConfig".
2）In the main window, click on the "EthernetConfiguration" tab.
3）Configure the dehydrator's "IP address", "Subnet Mask", and "Gateway" address.
4）Finally, click on the "Save" button to apply the new settings.

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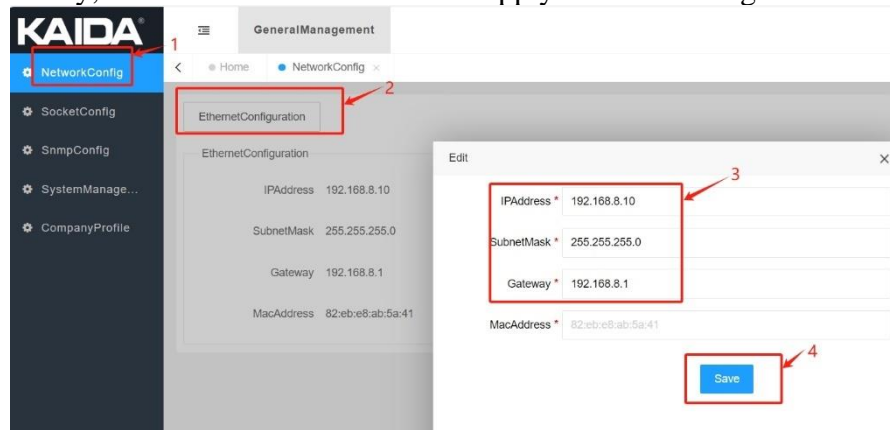
6.3.2 TCP Server

The dehydrator can act as a server in TCP server mode, with the network management system acting as a client. To configure this, follow the steps below:
1）Go to the left menu and select "SocketConfig".
2）In the main window, click on the "SocketConfig" tab.
3）From the drop-down menu, select "tcpserver". Enter the desired "LocalPort" number (between 2000 and 65535) for communication.
4）Finally, click on the "Save" button to apply the settings.
    See the example configuration in the figure below, with a port number of "8000".
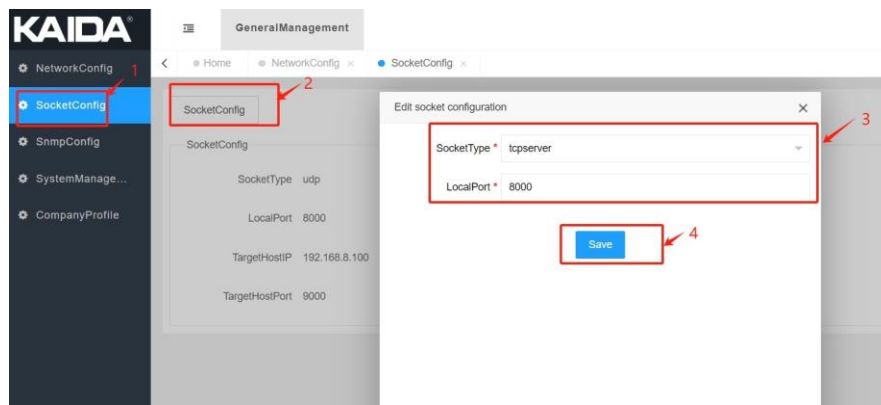
6.3.3 TCP Client

To configure the TCP client mode, follow these steps:
1）Go to the left menu and click on "SocketConfig".
2）In the main window, click on the "SocketConfig" tab.
3）From the drop-down menu, select "tcpclient". Enter the IP address of the network management system in the "TargetHostIP" field. Enter the port number of the network management system in the "LocalPort" field. Make sure the port number is within the range of 2000 and 65535.
4）Once you have entered the necessary information, click on the "Save" button.

The screenshot below is an example configuration of the dehydrator in TCP client mode:
- Target host IP (management computer): 192.168.8.100
- Target host port (management computer): 9000.

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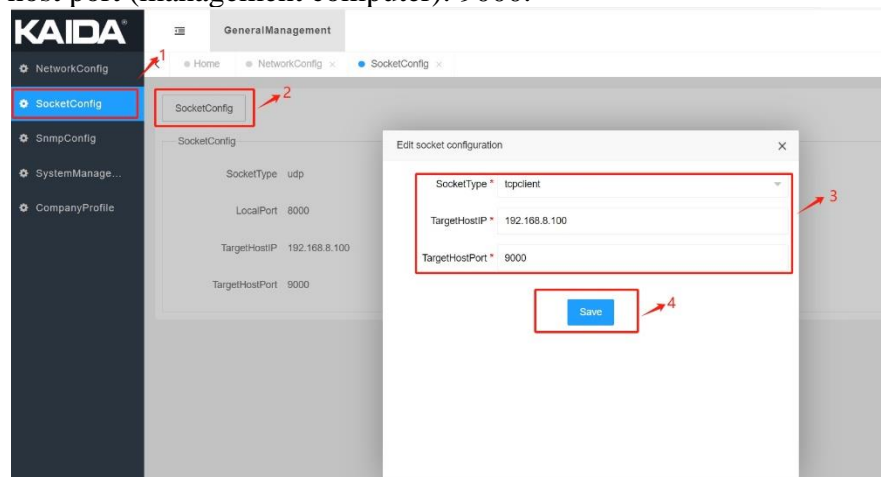
6.3.4 UDP

When the network management system uses UDP protocol, the dehydrator needs to be set to UDP mode. To do this, follow these steps:

1） Go to the left menu and click on "SocketConfig".
2） In the main window, click on the "SocketConfig" tab.
3） From the drop-down menu, select "udp". Enter the "LocalPort" number, "TargetHostIP" address and "TargetHostPort" number. Make sure the port number is within the range of 2000 and 65535.
4） Click on the "Save" button.

"LocalPort" is the port the dehydrator used to communicate with the network management system. "TargetHostIP" and "TargetHostPort" are the IP address and port number of the network management system.

The following figure shows an example configuration of the dehydrator in UDP mode, where the local (dehydrator) port is "8000", the target host (management computer) IP is "192.168.8.100", and the target host (management computer) port is "9000".
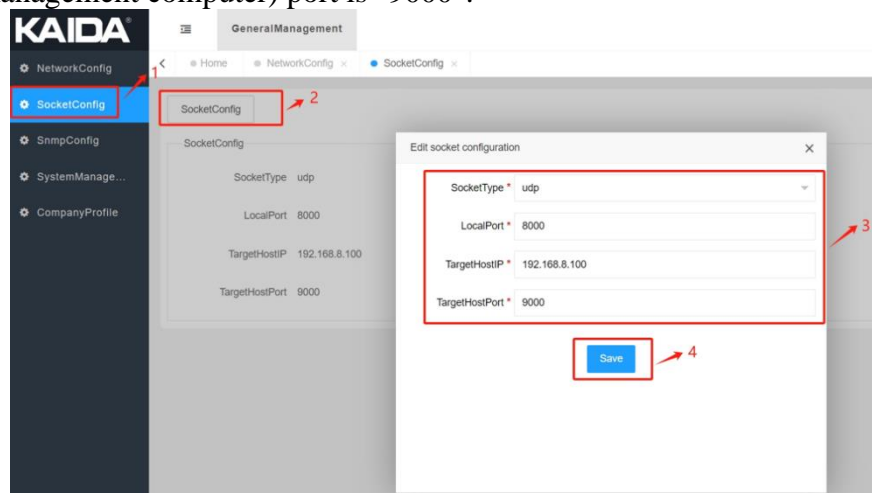

6.3.5 Multicast

To set the dehydrator work in the multicast mode, follow these steps:

1） Go to the left menu and click on "SocketConfig".
2） In the main window, click on the "SocketConfig" tab.
3） From the drop-down menu, select "multicast". Enter "multicast receive IP" "multicast receive port", "multicast send IP", and "multicast send port".
4） Click on the "Save" button.

The dehydrator's IP and port for receiving data are referred to as the "multicast receive IP" and "multicast receive port" respectively. Similarly, the dehydrator's IP and port for sending data are known as the "multicast send IP" and "multicast send port". The multicast IP range spans from 224.0.1.0 to 238.255.255.255, while the port range is between 2000 and 65535. Remember to click the "Save" button after making any modifications.

In the example configuration of the dehydrator in Multicast mode, the "multicast receive IP" is set to "230.0.54.1" and the "multicast receive port" is set to "50004". On the other hand, the "multicast send IP" is configured as "230.0.50.1" and the "multicast send port" is set to "50000".
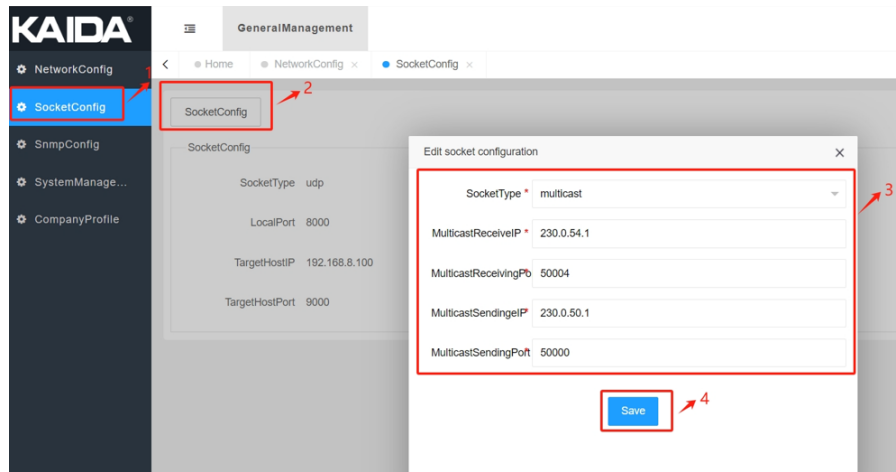
6.3.6 SNMP

If the network management system uses SNMP (Simple Network Management Protocol), the dehydrator needs to be setup according to these steps:

1）Go to the left menu and click on "SnmpConfig".
2）In the main window, click on the "SnmpConfig" tab.
3）Enter the SNMP server's IP address at "IP1". Enter other server's IP addresses at "IP2", "IP3" and "IP4" if multiple servers exist in the network.
4）Click on the "Save" button.

The following figure shows an example configuration of the dehydrator in SNMP mode with one SNMP server's IP of 192.168.8.101.
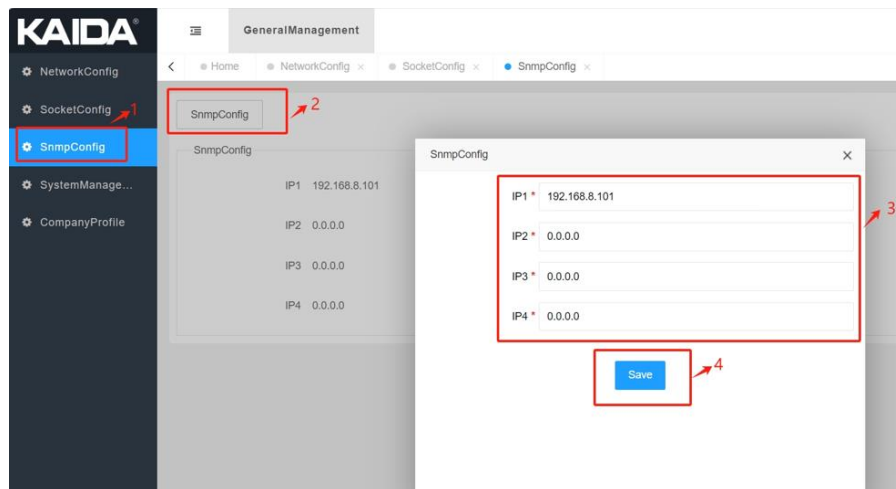
6.3.7 Software Information and System Reset

Select "SystemManagement" from the left menu to access the "SystemMessage" screen in the main window. Here, you can view the software information. If needed, you can reset the dehydrator by clicking on the "SystemReset" button. Please note that the saved parameters of the dehydrator will not be impacted by this reset.

7. MANAGE DEHYDRATOR BY SNMP (for models with network management only)

7.1 SNMP Management Overview

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SNMP is a widely used network management protocol that is supported by KD-M dehydrators. These dehydrators can be integrated into an existing SNMP management system or managed using any SNMP compatible management software. To ensure proper communication with the device, SNMP software requires a SNMP definition and configuration file (MIB file). The MIB file for KD-M dehydrators can be found in the provided USB drive.

With SNMP management, you can monitor various aspects of the dehydrator such as current pressure, operation status, operation count, and alarm codes. You also can check and adjust settings for high-pressure limit and low-pressure limit. Furthermore, you can control the unit by starting or stopping the inflation process.

7.2 Setting the Unit for SNMP

To establish a connection between the SNMP server and the Ethernet interface of the dehydrator, please consult Section 6.3.1. Additionally, for configuring the SNMP parameters in the dehydrator, refer to Section 6.3.6.

7.3 SNMP Parameters

Device Configuration Information	
Software Version	Vx.x.x
MEMO	Software releases vx.x.x build at xx: xx: xx. Month-day-year
IP Address	Numeric(xxx.xxx.x.xx)(Default: 192.168.8.10)
Subnet Mask	Numeric(xxx.xxx.xxx.x)(Default: 255.255.255.0)
Gateway Address	Numeric(xxx.xxx.x.x)(Default: 192.168.8.1)
MAC	xx:xx:xx:xx:xx:xx(Factory Preset inalterable)
SNMP Write Community	
Status Readings (Read-Only)	
Outlet Pressure Reading	Numeric(psi)
Inflating times in 24-hour	Numeric (0~255)
Dehydrator State	Numeric (01 Inflating /02 Idling-Inflating /00 Pressure holding)
Alarm	Numeric (144/128 /120/112/104/96/88/80/64/56/48/40/32/24/16/08/00)

| Alarm Readings (Read-only)	
High-pressure & Dew point alarm	Numeric 144
High-pressure alarm	Numeric 128
Compressor failure & Dew point & Low-pressure & Excess run alarm	Numeric 120
Dew point & Low-pressure & Excess run alarm	Numeric 112
Compressor failure &Low-pressure & Excess run alarm	Numeric 104
Low-pressure & Excess run alarm	Numeric 96
Compressor failure &Dew point & Excess run alarm	Numeric 88
Dew point & Excess run alarm	Numeric 80
Excess run alarm	Numeric 64
Compressor failure &Dew point & Low-pressure alarm	Numeric 56
Dew point & Low-pressure alarm	Numeric 48
Low-pressure & Compressor failure alarm	Numeric 40
Low-pressure alarm	Numeric 32
Dew point& Compressor failure alarm	Numeric 24
Dew point alarm	Numeric 16
Compressor failure alarm	Numeric 08

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| No Alarm	Numeric 00
Configuration Settings (Read-Write)	
High-pressure alarm	Numeric (0.4~14.0) (psi)
Low-pressure alarm	Numeric (0.2~13.8) (psi)
Start to inflate	Read (0 false/1 true) Write (1)
End inflate	Read (0 false/1 true) Write (2)
Alarm Traps Sent to SNMP Server	
High-pressure & Dew point alarm	Numeric 144
High-pressure alarm	Numeric 128
Compressor failure & Dew point & Low-pressure & Excess run alarm	Numeric 120
Dew point & Low-pressure & Excess run alarm	Numeric 112
Compressor failure &Low-pressure & Excess run alarm	Numeric 104
Low-pressure & Excess run alarm	Numeric 96
Compressor failure &Dew point & Excess run alarm	Numeric 88
Dew point & Excess run alarm	Numeric 80
Excess run alarm	Numeric 64
Compressor failure &Dew point & Low-pressure alarm	Numeric 56
Dew point & Low-pressure alarm	Numeric 48
Low-pressure & Compressor failure alarm	Numeric 40
Low-pressure alarm	Numeric 32
Dew point& Compressor failure alarm	Numeric 24
Dew point alarm	Numeric 16
Compressor failure alarm	Numeric 08
No Alarm	Numeric 00

7.4 SNMP Browser

7.4.1 Computer Configuration

Follow the steps in the picture to configure the IP and Gateway of the computer.
The IP address should be in the same network segment as DTU (the dehydrator).
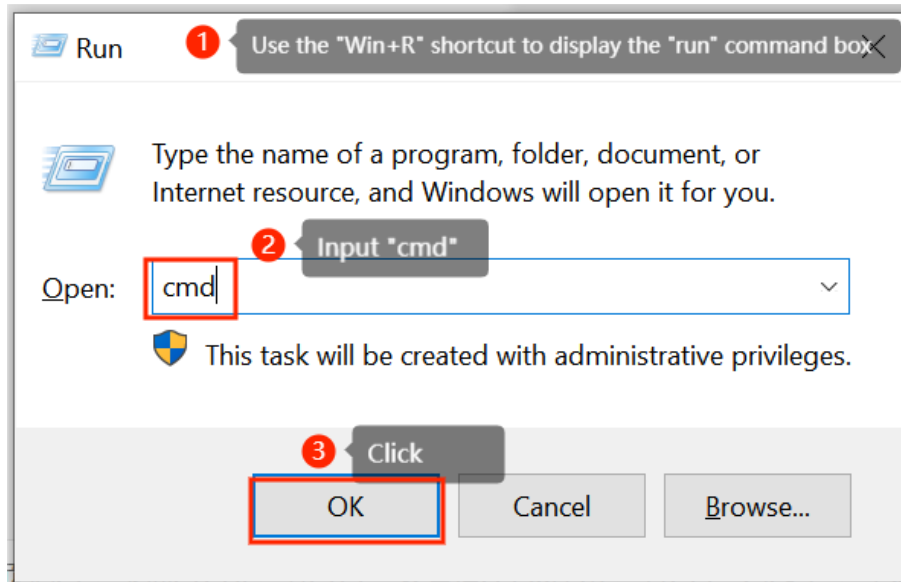
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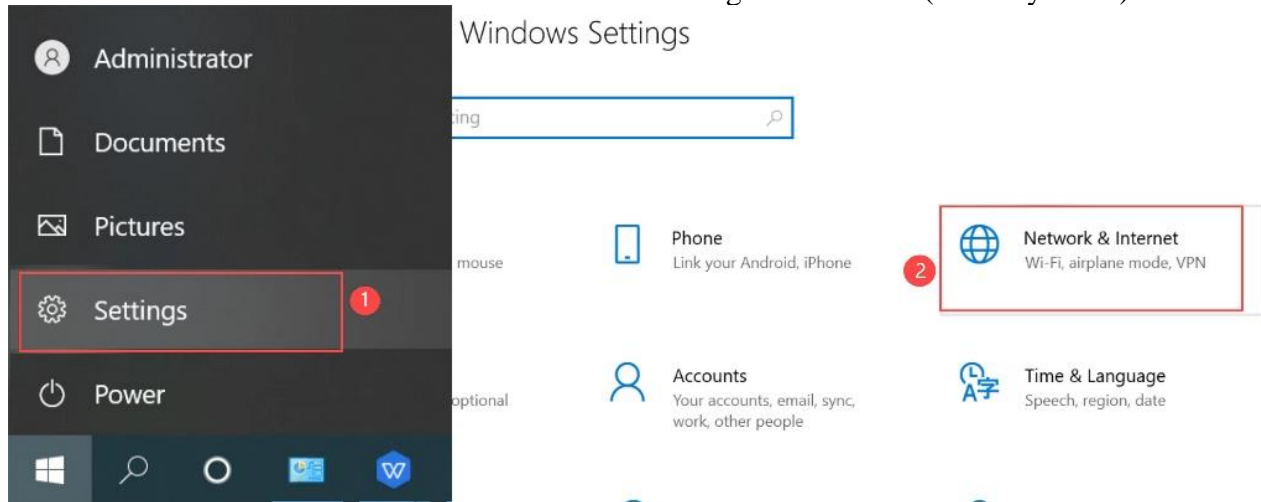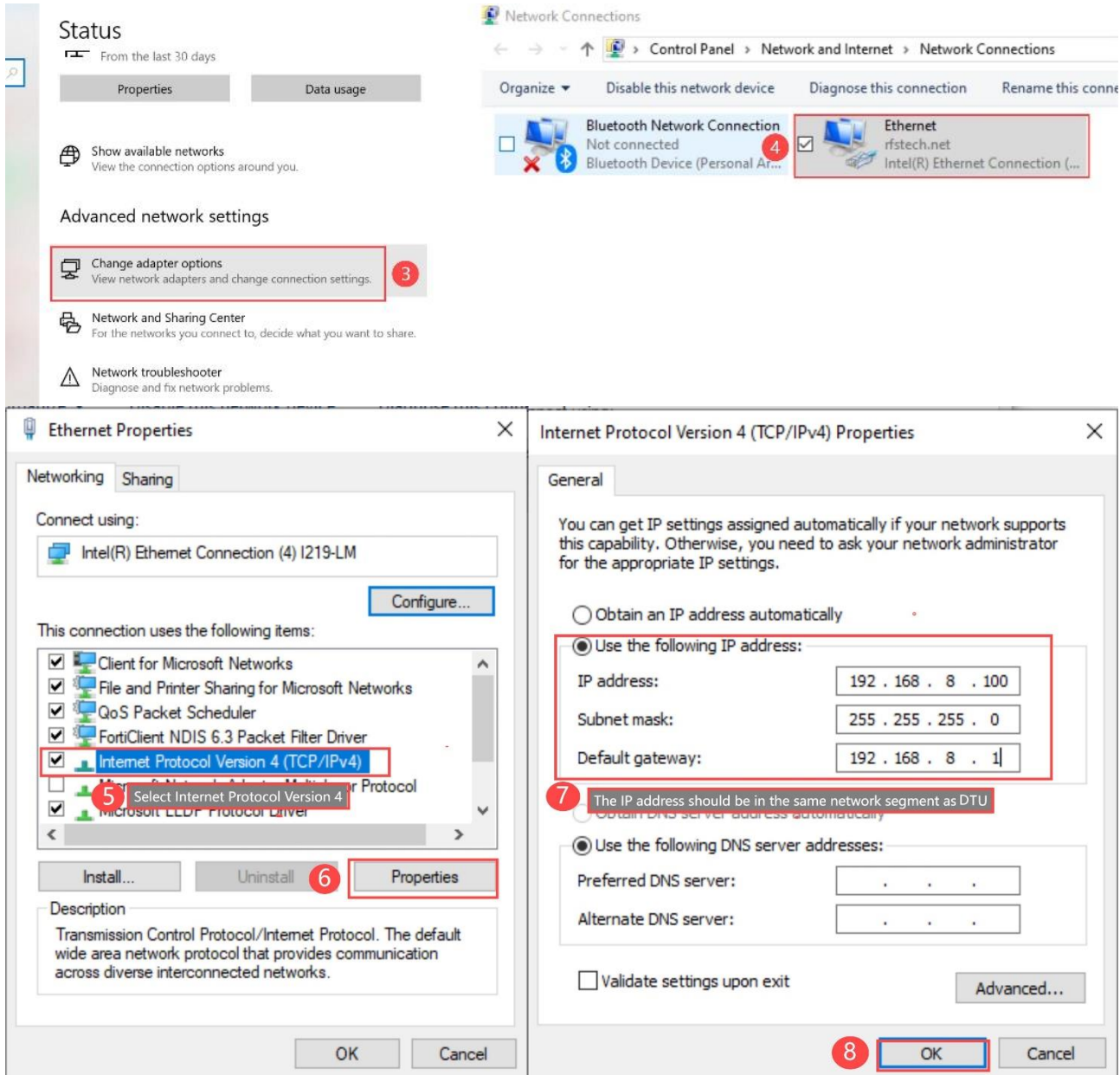
7.4.2 Network Connectivity Test
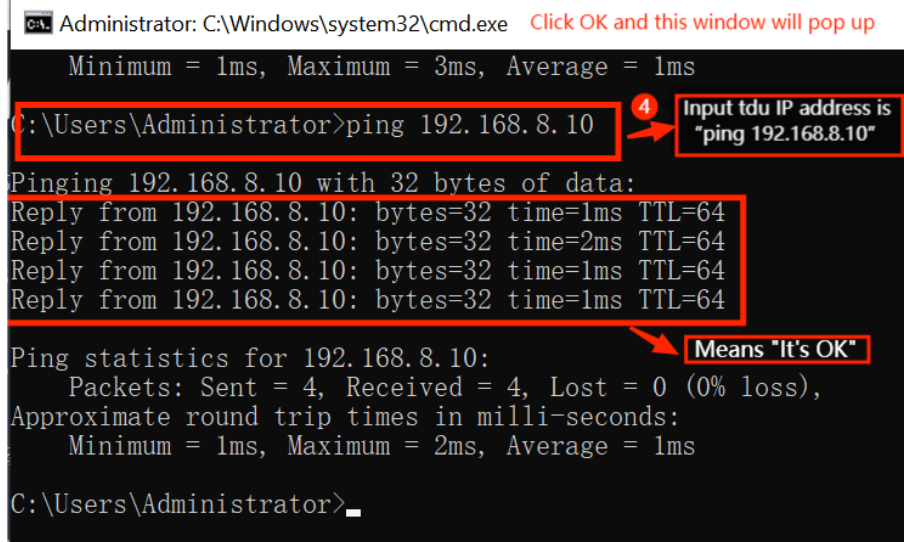
Use the "ping" command to test the network. Steps are as following.
1) Use the "Win+R" shortcut to display the "Run" command box.
2) Type in "cmd" in the open dialog box.
3) Click "OK".

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4) Following screen will pop up, type in "ping 192.168.8.10".

NOTE: If the test fails, return to the previous step to check whether the settings are correct.

7.4.3 Configure Network Parameters

1) Open the browser, type in 192.168.8.10.

2) Setup the IP address according to the steps 1 to 4 below.

7.4.4 Instruction of the MIB Browser

7.4.4.1 MIB Loading and MIB Browser Configuration

1) Run the setup.exe file in the USB drive to install the MIB Browser application.

2) Double click on the MIB Browser's icon , launch the program.
3) Load the dehydrator's MIB file by clicking the menu "File"→ "Load MIBs", then selecting the MIB file as shown below. The file is included in the provided USB drive and it has a file extension .txt.
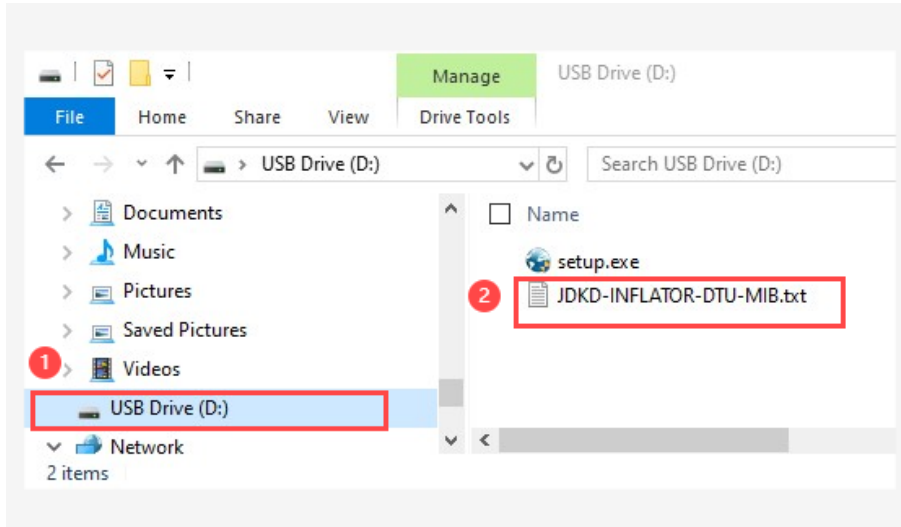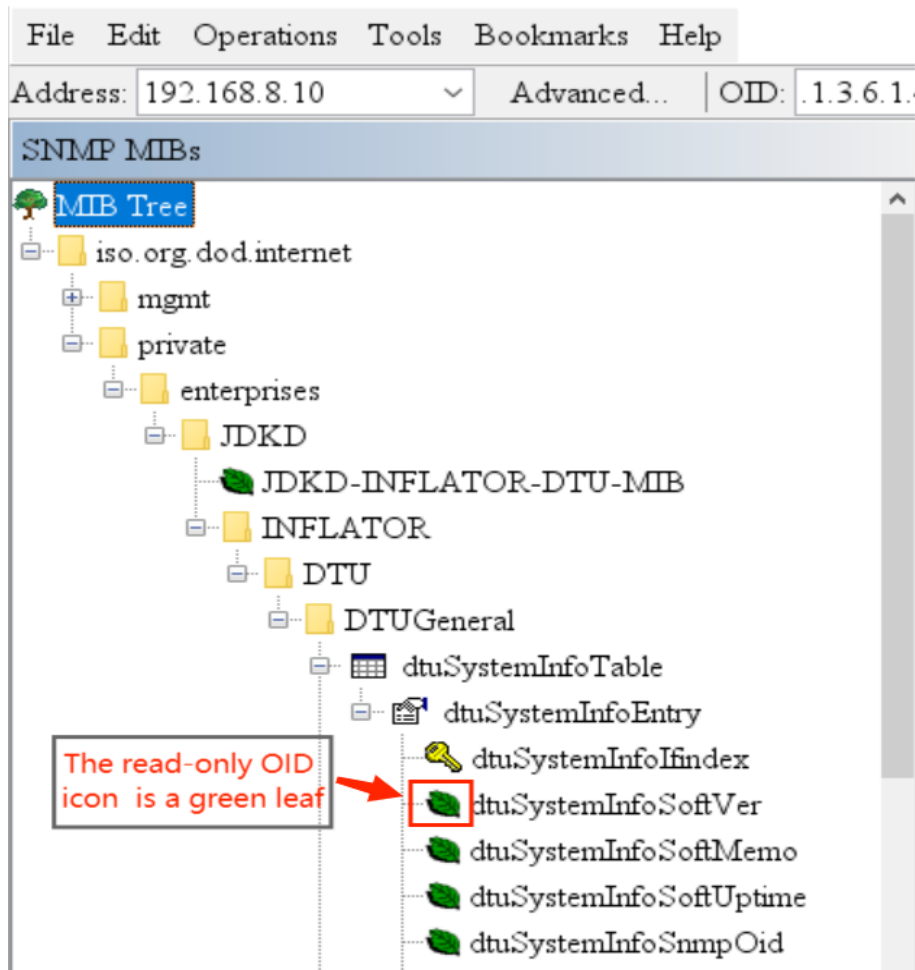

4) Set the proxy IP address (Dehydrator's IP address) according steps 1 to 5 shown below.
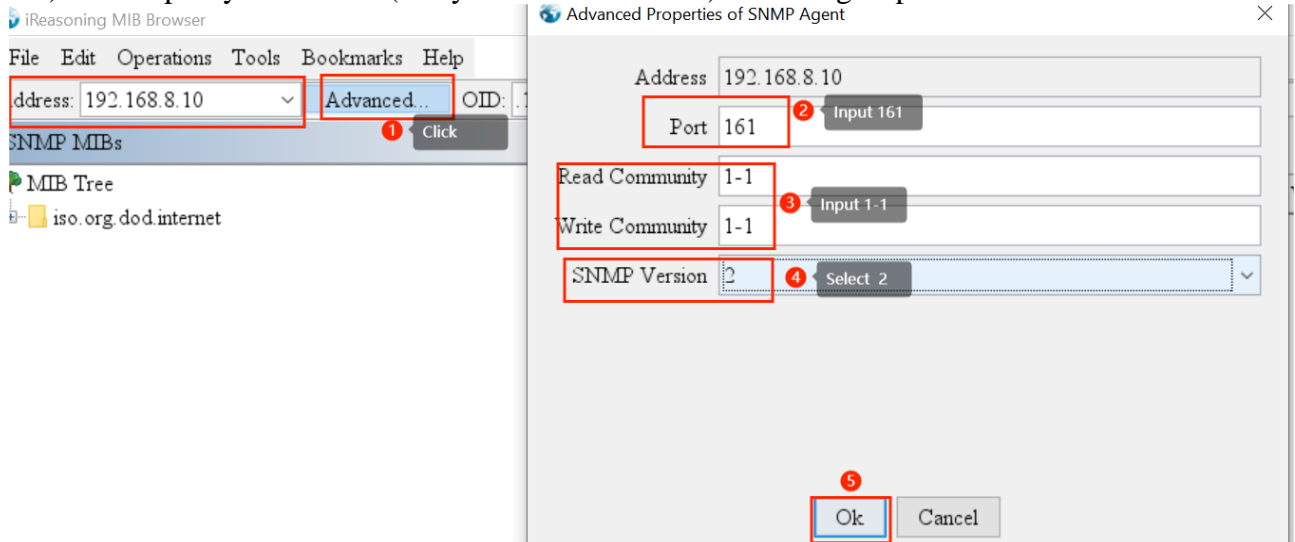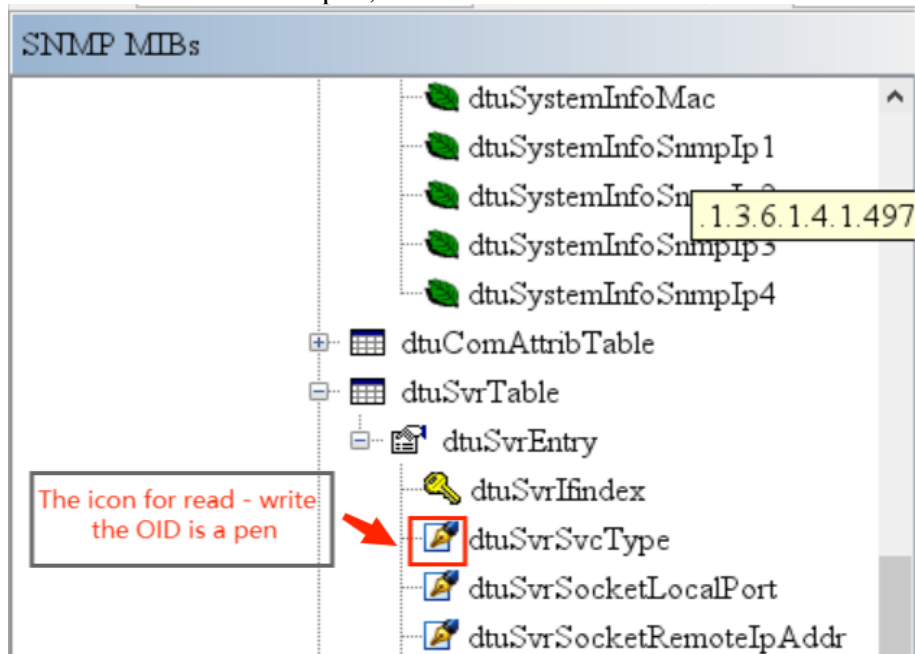

7.4.4.2 Two Types of OIDs (Object Identifier)

1) Read-only OID (GET OID)
Read-only OID has a green leaf icon as shown below.

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2) Read-write ODI (GET SET OID)
    The icon for this kind of OID is a pen, as shown below.

7.4.4.3 MIB Tree Menu

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The MIB tree menu is presented in the figure below. To expand lower levels, simply click on the "+" next to the folder's name. All management tasks related to dehydrators are performed within the "DTUGeneral" folder.
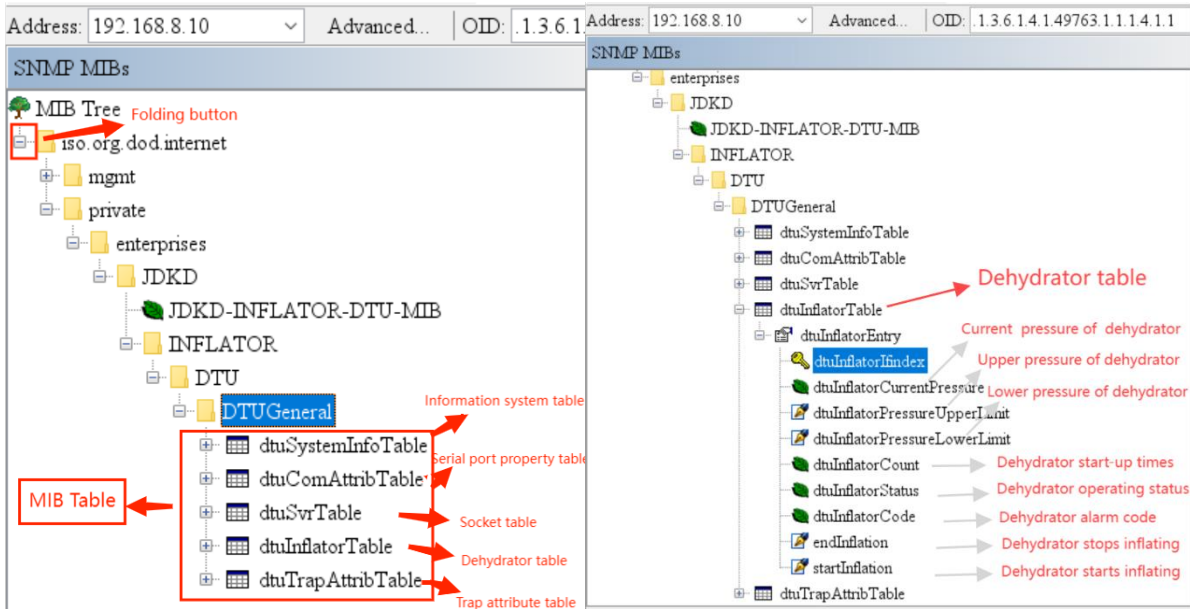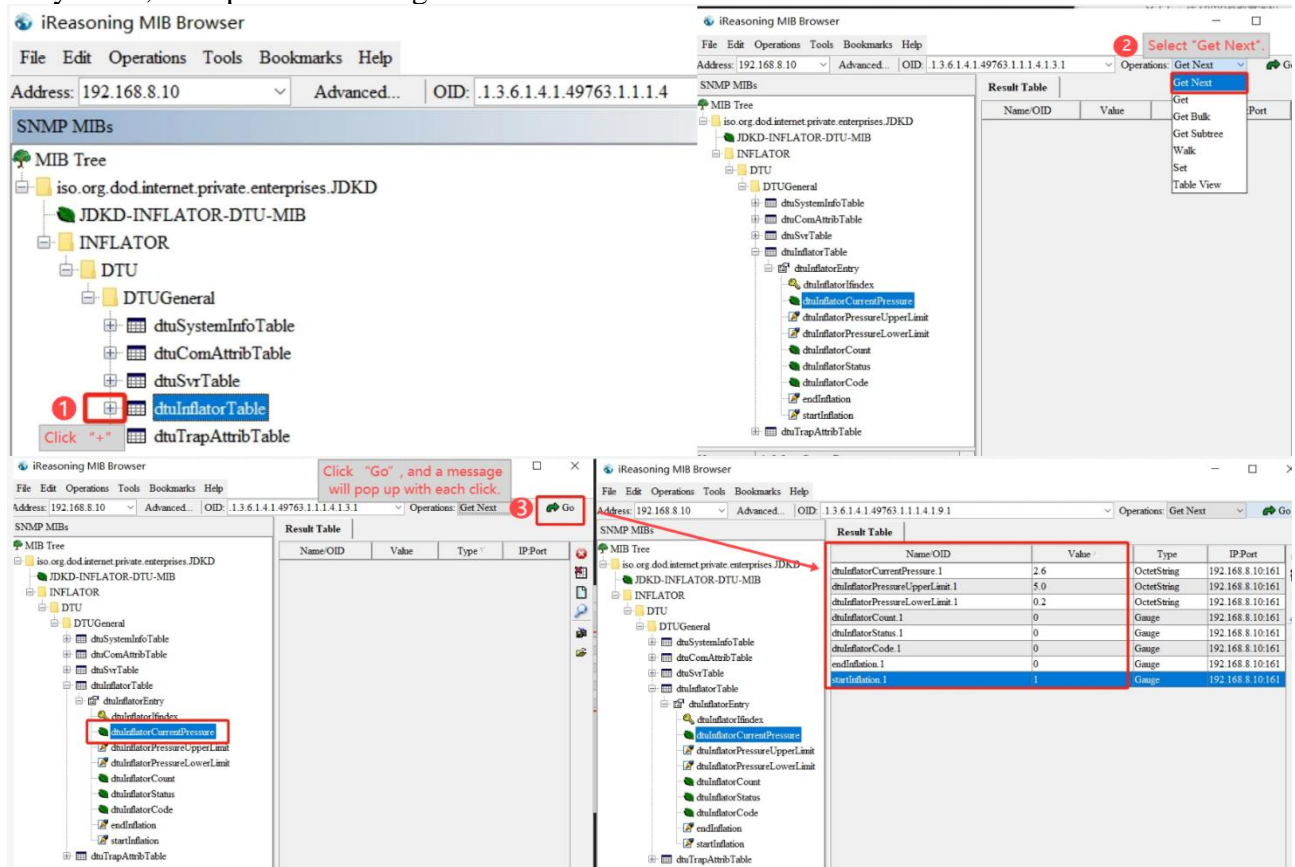

1) Visit the parameters of the dehydrator

①Click "+" as shown in the figure.

②Select "Get Next".

③Click "Go". A line of parameters appears at each click, and the first 8 parameters are related to the dehydrator, as depicted in the figure."

2) Configuration of pressure, as shown:

① Select the pressure parameters, then right-click and select "Set".
②Fill in the pressure value from 0.4-14, Click "OK".
③Click "OK" on the pop-up window.

8. TRANSMISSION LINE VOLUMES

The tables below contain estimated volume per linear unit for the most common transmission lines.

RFS and RFS Technologies Elliptical Waveguide volumes:

Waveguide Type	Liters per meter (l/m)	Cubic foot per foot (ft³/ft)
E38/EP38	2.34	0.0252
E46/EP46	1.68	0.0181
ES46/ESP46	1.58	0.0170
E60/EP60	1.02	0.0110
E65/EP65	0.83	0.00894
EP70	0.72	0.00775
E78/EP78	0.60	0.00646
EP100	0.38	0.00409
E105/EP105	0.31	0.00334
E130/EP130	0.24	0.00258
E150/EP150	0.18	0.00194
E185/EP185	0.11	0.00118
E220	0.08	0.000861
E250	0.06	0.000646
E300	0.037	0.000398
EO38	0.07	0.000754
E380	0.03	0.000323

RFS and RFS Technologies Air Dielectric Coaxial cable volumes:

Cable Type	Liters per meter (l/m)	Cubic foot per foot (ft³/ft)
HCA38	0.107	0.00115
HCA12	0.134	0.00144
ICA12	0.131	0.00141
HCA58	0.252	0.00271
HCA78	0.34	0.00366
HCA118	0.6	0.00646
HCA158	1.4	0.0151
HCA214	2.11	0.0227
HCA295	2.91	0.0313
HCA300	3.0	0.0323
HCA400	5.0	0.0538
HCA495	8.3	0.0894
HCA550	14.0	0.151
HCA618	19.0	0.205
HCA800	30.15	0.325
HCA900	40.16	0.432

Commscope/Andrew Elliptical Waveguide volumes:

Waveguide Type	Liters per meter (l/m)	Cubic foot per foot (ft³/ft)
EW17	6.60	0.0710
EW20	5.62	0.0605
EW37	1.96	0.0211
EW43	1.69	0.0182
EW52	1.045	0.0112
EW63	0.855	0.0092
EW64	0.725	0.0078
EW77	0.585	0.0063
EW85	0.39	0.0042
EW90	0.334	0.0036
EW127A	0.25	0.0027
EW132-137	0.167	0.0018
EW132-140	0.167	0.0018
EW132-144	0.167	0.0018

EIA Rectangular Waveguide (TE10 mode) Volumes:

Waveguide Type	Liters per meter (l/m)	Cubic foot per foot (ft³/ft)
WR340 / WG9A	3.73	0.0401
WR284 / WG10	2.46	0.0264
WR229 / WG11A	1.70	0.0183
WR187 / WG12	1.05	0.0113
WR159 / WG13	0.816	0.00878
WR137 / WG14	0.551	0.00593
WR112 / WG15	0.360	0.00387
WR90 / WG16	0.232	0.00250
WR75 / WG17	0.181	0.00195
WR62 / WG18	0.125	0.00134
WR51 / WG19	0.0839	0.000903
WR42 / WG20	0.0461	0.000496
WR28 / WG22	0.0253	0.000272
WR22 / WG23	0.0162	0.000174
WR19 / WG24	0.0114	0.000123
WR15 / WG25	0.00707	0.0000761
WR12 / WG26	0.00480	0.0000517

Rigid Coaxial Transmission Line (50-ohm) volumes:

Line Size	Liters per meter (l/m)	Cubic foot per foot (ft³/ft)
7/8"	0.255	0.0027
1-5/8"	0.958	0.0103
3-1/8"	3.77	0.0405
4-1/16"	6.36	0.0685
6-1/8"	14.70	0.158
7-3/16"	22.80	0.245
8-3/16"	29.77	0.320
9-3/16"	33.30	0.358

RFS Technologies
an Amphenol Company