



ORIGINAL INSTRUCTIONS



Refer to Declaration of Conformity for relevant Directives

Instruction Manual
Thermo-dryers
IDH, IDHA Series

1 Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger." They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)¹⁾, and other safety regulations.

¹⁾ ISO 4414: Pneumatic fluid power - - General rules relating to systems.
ISO 4413: Hydraulic fluid power - - General rules relating to systems.
IEC 60204-1: Safety of machinery - -Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots -Safety,etc.

This manual contains essential information for the protection of users and others from possible injury and/or equipment damage.

- Read this manual before using the product, to ensure correct handling, and read the manuals of related apparatus before use.
- Keep this manual in a safe place for future reference.
- To ensure safety of personnel and equipment the safety instructions in this manual must be observed, along with other relevant safety practices.

	Caution	Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
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	Warning	Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
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	Danger	Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
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Warning

- **The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.**
 - Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.
 - **Only personnel with appropriate training should operate machinery and equipment.**
- The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

- **Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**
- 1) The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
 - 2) When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.

1 Safety Instruction (continue)

- 3) Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
- **Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.**
 - 1) Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
 - 2) Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustions and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specification described in the product catalogue.
 - 3) An application which could have negative effects on people, property, or animals requiring special safety analysis.
 - 4) Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.
 - **Always ensure compliance with relevant safety laws and standards.** All electrical work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

Caution

- **The product is provided for use in manufacturing industries.** The product herein described is basically provided for peaceful use in manufacturing industries. If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary. If anything is unclear, contact your nearest sales branch.

2 Specifications

2.1 General Description and Intended Use

This product is a device for removing water vapour from compressed air, in

order to prevent moisture from condensing in compressed air lines.

2.2 Product Specifications

IDH* - * * *

Model	IDH4-10	IDH4-20	IDH4A-23	IDH6-10	IDH6-20	IDH6A-23
	Fluid	Compressed air				
Air flow capacity (L/min [ANR])	100 to 500		5 to 40		200 to 800	
Inlet air temperature (°C)	0.3 to 1.0					
Inlet air pressure (MPa)	0.15 to 0.85					
Ambient temperature (°C)	(Relative humidity 95% or less)					
Outlet air temperature adjustment range (°C)	15 to 30					
Outlet air pressure range (MPa)	(The inlet pressure should be at least 0.15 MPa higher than the outlet air pressure)					
Air flow capacity (L/min [ANR])	400		600		600	
Inlet pressure (MPa)	0.7					
Inlet air temperature (°C)	35					
Ambient temperature (°C)	30					
Outlet air pressure dew point (°C)	10					
Outlet temperature stability (°C)	±0.1					
Outlet temperature display accuracy (°C)	(Including accuracy of the sensor) ±0.5					
Power supply (Single phase @ 50/60Hz)	100 VAC	200 VAC	230 VAC	100 VAC	200 VAC	230 VAC
Operating current (A)	4.2	2.1	2.1	9.4	4.8	4.8
Circuit breaker (A)	10	5	5	15	10	10
Compressor input (50/60Hz) (W)	180 / 200		385 / 440		420	
Heater input (W)	220		420			
Nominal filtration rating	0.01µm (99.9% filtration efficiency)					
Cleanliness of the filter outlet side	Particles of 0.3µm or more: 3.5 particles/L (ANR) or less					
Overcurrent protection	Overload relay					
Heater overheat prevention	Thermostat, temperature fuse					
Temperature control method	Heater operation, PID control					
Refrigerant type/Refrigerant charge	R134a (0.14kg, GWP:1430)		R134a (0.28kg, GWP:1430)			
Noise level (reference value) ²⁾ (dB(A))	52		55		55	
Weight (kg)	26		37		37	
Applicable drain tube O.D. (mm)	10		10			
Coating colour	Body panels: Urban white, Base: Urban gray 2					
IP Class	IP2X					
Overvoltage Category	IEC60664-1					
Pollution degree	2					

Note 1: ANR refers to conditions of 20°C, atmospheric pressure, 65% relative humidity.

Note 2: The upper limit of the outlet air adjustment temperature depends on the operating conditions.

Note 3: Rated performance is performance at rated conditions, when power supply voltage is as shown in electrical specifications.

Note 4: Please use the running voltage within -5% to +10% of the rated value.

Note 5: Depends on inlet air cleanliness. Filter performance only applies to the type with built-in filter.

Note 6: Front:1m, Height:1m, stable with no load.

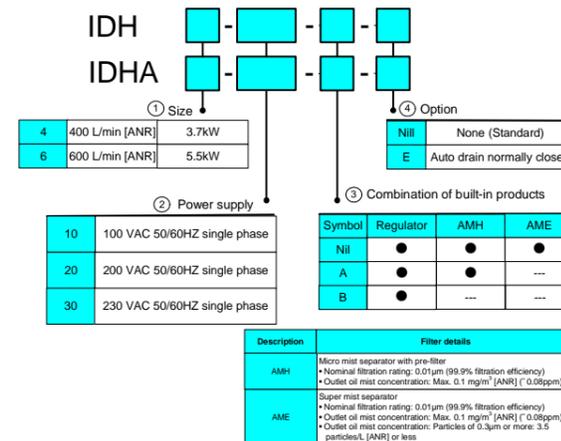
2 Specification (continue)

2.3 Production Serial Number Code

The production serial number code printed on the label indicates the month and year of production as per the following table:

Year	2015	2016	2017	...	2021	2022	2023	...
Month	T	U	V	...	Z	A	B	...
Jan	o	To	Uo	Vo	...	Zo	Ao	Bo
Feb	P	TP	UP	VP	...	ZP	AP	BP
Mar	Q	TQ	UQ	VQ	...	ZQ	AQ	BQ
Apr	R	TR	UR	VR	...	ZR	AR	BR
May	S	TS	US	VS	...	ZS	AS	BS
Jun	T	TT	UT	VT	...	ZT	AT	BT
Jul	U	TU	UU	VU	...	ZU	AU	BU
Aug	V	TV	UV	VV	...	ZV	AV	BV
Sep	W	TW	UW	VW	...	ZW	AW	BW
Oct	X	TX	UX	VX	...	ZX	AX	BX
Nov	y	Ty	Uy	Vy	...	Zy	Ay	By
Dec	Z	TZ	UZ	VZ	...	ZZ	AZ	BZ

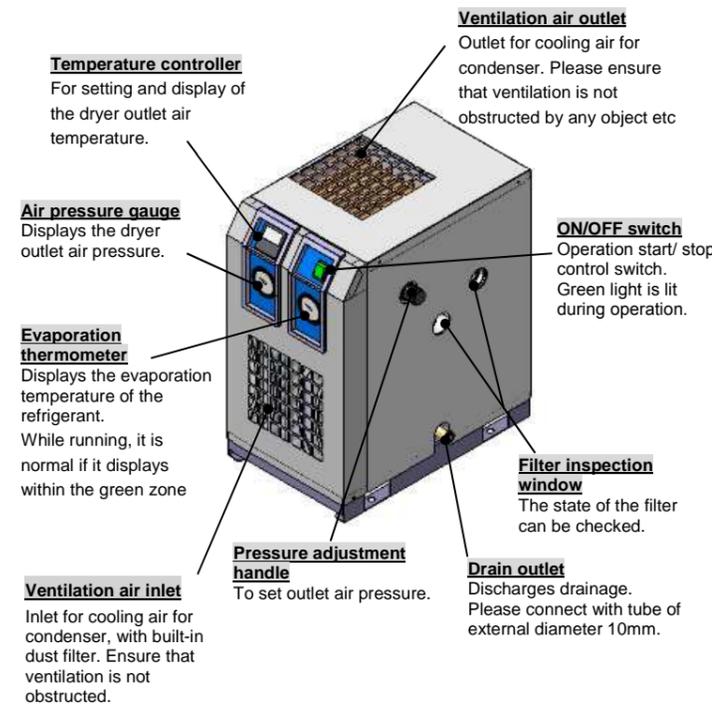
3 How to Order



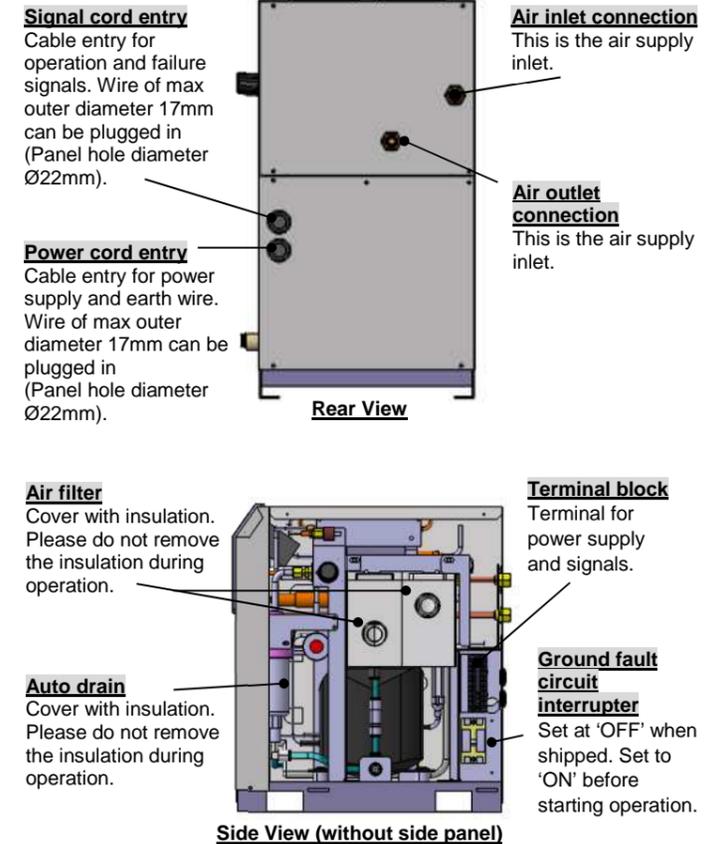
4 Name and Function of Parts

4.1 Main Parts

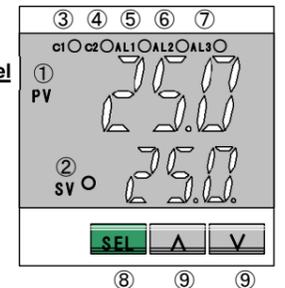
- The names of the parts used in this manual are as follows:



5 Name and Function of Parts (continue)



Operation display panel



No	Description	Function
1	PV	Displays the air temperature at the outlet of the dryer
2	SV	Displays the set value for air temperature at the outlet of the dryer. (Default value 25°C)
3	C1	Lights/flashes when temperature adjustment heater operates.
4	C2	Not used in this product.
5	AL1	Not used in this product.
6	AL2	Not used in this product.
7	AL3	Not used in this product.
8	SEL	Key used to change and select setting values
9	^ v	Keys used to select setting

4 Name and Function of parts (continue)

4.2 Dimensions

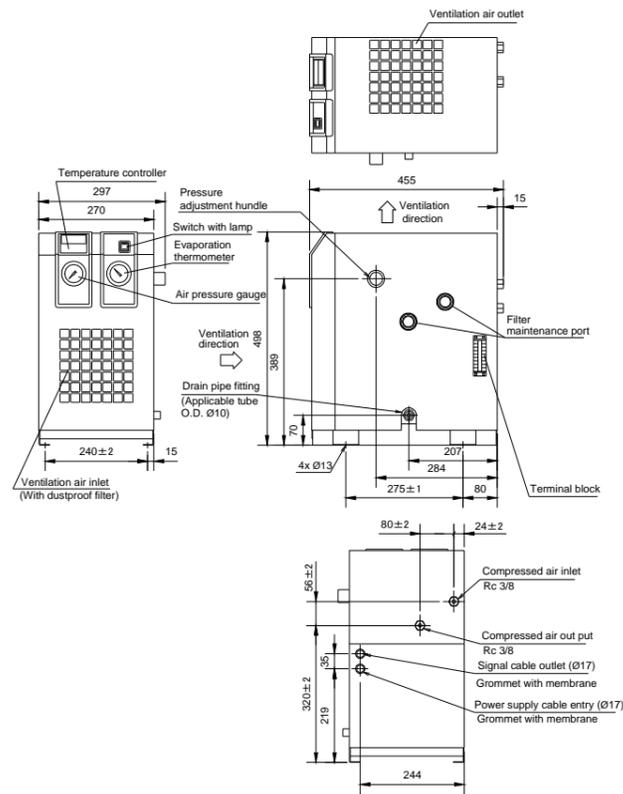


Fig.1 IDH*4

5 Transportation, Transfer and Moving

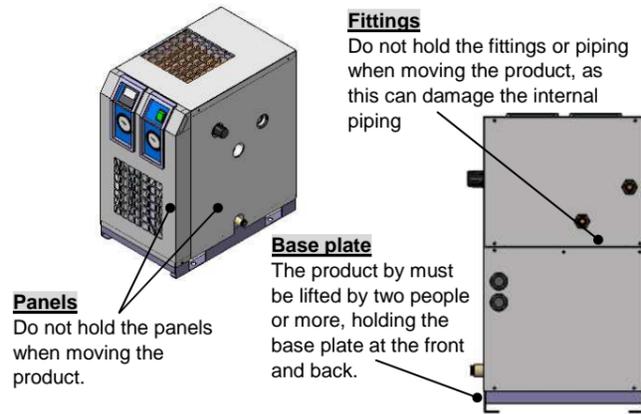
5.1 Moving by forklift or by persons



- Transportation, installation, and maintenance including dangerous work must be done by trained personnel with sufficient knowledge and experience of the equipment and the system.



- The instructions below must be followed because the equipment is heavy and potentially dangerous to transport.
- The dryer must be transported by more than one person, or using a forklift.
- When transporting the dryer, always follow the instructions:
 - 1) When lifting the dryer, lift carefully by the base to prevent dropping or tipping over.
 - 2) Do not lift by the panels, fittings or piping.
 - 3) Never lay this equipment on its side to move it. Pushing it over onto its side will damage the dryer.



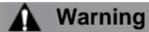
6 Installation

6.1 Installation



- Do not install the product unless the safety instructions have been read and understood.

6.2 Types of Hazard Labels



- The product has various potential hazards and they are marked with warning labels.

Warning related to Electricity



This symbol stands for a possible risk of electric shock.

Warning related to High Temperatures



This symbol stands for a possible risk of hot surface and burns.

Warning related to Rotating Objects



This symbol stands for a possible risk of cutting fingers or hand, or entanglement by rotating fan (For air-cooled type).

Warning related to other General Dangers



This symbol stands for general danger.

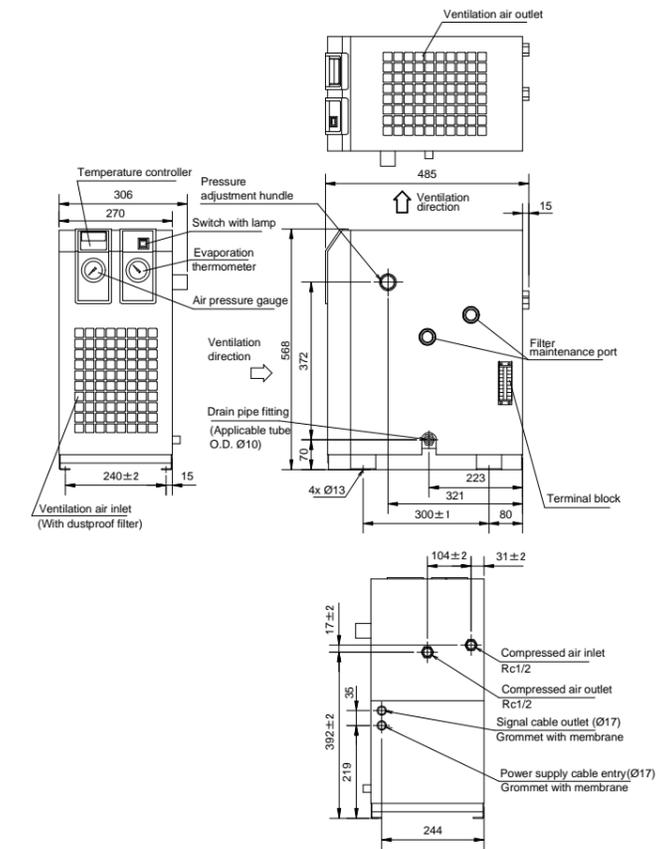
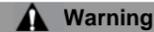


Fig.2 IDH*6

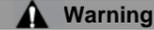
6 Installation (continue)

6.3 Warning labels



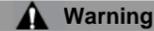
- Read with caution and pay attention to the danger warning labels.
- Do not remove or rub danger warning labels.

6.4 Environment



- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not use the product outdoors. If the product is subjected to rain or water splash it may cause electrical shock, fire or failure.
- Do not use in an explosive atmosphere.
- Do not use in locations at altitudes of 2000m or higher (except for product storage and transport).
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not mount in a location exposed to radiant heat.
- Do not mount on vehicles, marine vessels, etc.
- Do not install in a location subject to vibration or impact. Check the product specifications.
- Do not install in a location where it could draw in discharge hot air from a compressor or other dryers.
- Do not install where ambient temperatures are outside the following ranges:
 - During operation: 2 to 30°C
 - Storage: 0 to 50°C (when there is no drain water inside of the piping)

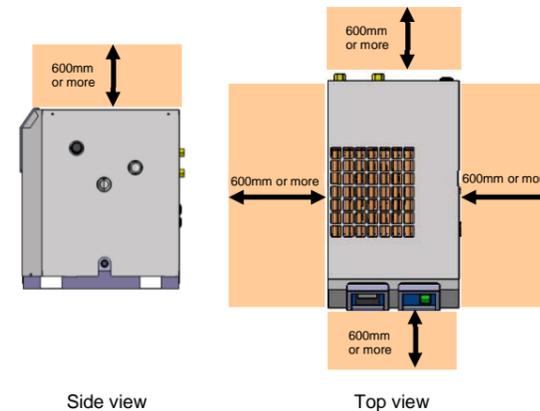
6.5 Mounting



- The Installer / End User is responsible for carrying out a noise risk assessment on the equipment after installation and taking appropriate measures as required.

- 1) Select a hard flat and level surface suitable to support the weight of the product and which will reduce the effect of vibration.

- 2) Install the product so the operation panel is easily visible and accessible, electrical and fluid connections can be easily made at the rear of the product and the air inlet and outlet vents are clear of obstructions. After moving into position, lock the front caster wheels again.
- 3) Fix the product to the floor or base using the anti-seismic bracket (prepared separately).



Recommend installation space

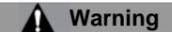
6.6 Air piping

- Connection to the inlet and outlet of compressed air should be made removable by using union or similar connections.
- Hold the hexagonal fitting with a spanner, and connect the air piping fittings to the unit.
- Prevent the weight of the piping or unreasonable pressure that is caused in the process of piping from acting on the product.
- Be careful not to let the vibration of the air compressor transmit.
- If the temperature of compressed air at the inlet side is higher than 50°C, place an after-cooler after the air compressor outlet line.
- Use a material with low moisture absorption and dust generation, stainless steel, copper, fluoropolymer etc. for piping of the compressed air inlet and outlet. Be sure to insulate to the outlet piping. If piping is not insulated the controlled outlet air may be affected by piping outside temperature.

6 Installation (continue)

- If the air supplied to the dryer contains a lot of oil or foreign matter, this can cause deterioration in performance. Please install a main line filter or mist separator in the compressed air supply line to this dryer.
- Use pipes and fittings that are compatible with the operating pressure and temperature. Connect piping and fittings firmly to prevent air leakage.
- Provide bypass-piping to make it possible to do maintenance without stopping the air compressor.

6.7 Drain tube



- During drainage follow your own procedure to ensure the safety of operators (example: Wear protective goggles, apron and gloves).
- If the drained fluid contains oil, waste liquid treatment is necessary according to local laws or regulations.
 - A polyurethane tube of 10mm external diameter is attached as a drain tube. The outlet end of the tube is released to atmosphere.
 - Condensate fluid will be drained regularly using compressed air pressure. Fix the draining end of the tube firmly to prevent it from vibrating during draining.
 - Do not use the drain tube in an upward direction.
 - Do not bend or crush the drain tube.

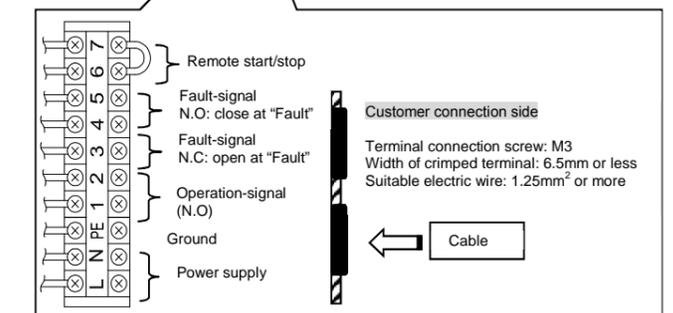
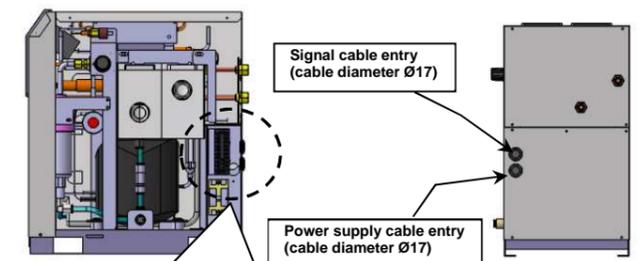
6.8 Electrical wiring



- The electrical wiring should be installed and wired in accordance with local laws and regulations of each country and by the person who has knowledge and experience.
- Be sure to shut off the user's power supply. Wiring with the product energized is strictly prohibited.
- Be sure to provide grounding. Incomplete grounding can cause failure and electrical shock.
- Do not connect the earth to a water pipe, gas pipe or lightning rod.
- Use an individual socket or electric leakage breaker (Refer: 3.2 Product specification) that has correct short circuit capacity and load capacity to prevent electric shock or burnout of the motor of the refrigerator.
- Check the power supply. Operation with voltage, capacities and frequencies other than those specified can caused heat, fire and electrical shock.

6.8.1 Wiring procedure

- 1) Remove the panel from the right-hand side of the dryer and lead the power cable from the power cable entry on the back panel.
- 2) Lead the signal cable from the signal cable entry in the same way as the power cable.
- 3) Connect the power cable, earth wire and signal cable to the terminal block. (Tightening torque: 0.6 to 1Nm)
- 4) Turn the ground fault circuit interrupter on.
- 5) Mount the cover on the terminal block and mount the panel on the right-hand side.



7 Start-up, Settings and Shutdown

7.1 Preliminary Preparation for Start-up

Caution

- Only personnel with sufficient knowledge and experience about the product and its accessories should operate or shut down the equipment.

7.1.1 Check points before Start-up

- Installation
 - By visual inspection check that the equipment is installed in the upright position.
 - Make sure the product is fixed sufficiently with anchor bolts.
 - Do not place heavy items on the equipment or apply excessive load to piping etc.
- Wiring Connections
 - Power cord and earth wire should be connected firmly.
- Drain Tube
 - Drain tube should be connected correctly.
- Air piping
 - Check that the compressed air piping is connected correctly and flushing can be done as described in 7.2. Check that the compressed air inlet and outlet of the dryer, and bypass piping valves, are completely closed. Also, check that the compressed air inlet and outlet piping is insulated.

7.2 Start-up Operation

7.2.1 Start operation in the following sequence:

- With Valve 2 (see Fig.3 Example circuit) closed; open Valve 1 to perform flushing of the outlet piping.
- Turn on the main power supply breaker, and then turn on the ON/OFF switch.
- The operation lamp and temperature control PV value and SV value light up. After a moment, the cooling fan will rotate, and hot air will be exhausted from the upper ventilation outlet.
- Set the outlet air temperature of the dryer.

Note:

 - Depending on the operating conditions, the outlet air temperature and air cleanliness will stabilize in approximately 10 minutes.
 - If the outlet air temperature does not stabilize, set the PID value by auto tuning during operation

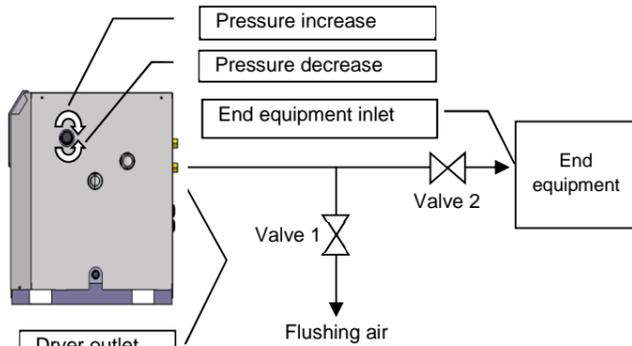


Fig.3 Example circuit

- Open Valve 2 and close Valve 1 to start using the compressed air.
- Slowly turn the pressure adjustment handle to set the pressure supplied to the end equipment. The pressure is increased by turning clockwise, or decreased by turning anti-clockwise. The supply pressure can be adjusted from around 0.15MPa lower than the dryer inlet air pressure. *The pressure adjustment handle has a lock function. Initially it is in the locked state. Before adjustment, pull the handle towards you to release the lock. After adjustment, push it gently inwards to re-lock.
- Depending on the condition of compressed air or ambient temperature, the cooling fan may alternate between start and stop. The operation of the chiller becomes continuous and the pointer of the evaporating thermometer will indicate the green zone.

7 Start-up, Settings and Shutdown (continue)

8. Please use as it is in a continuously operating state.

Caution

- Avoid frequently switching the dryer on and off, as this may cause problems.
- The auto drain on this dryer has a Normally Open structure in which the valve closes when the air pressure is 0.15MPa or above, so until the pressure increases, air will come out of the drain discharge outlet. Note that the pressure may not increase if the compressor has low air discharge.
- If the amount of compressed air used varies, the outlet air temperature of the dryer may fluctuate.
- If compressed air is supplied intermittently or stopped, the heater of the dryer may overheat, which will activate the protection devices, causing the dryer to stop. Supply compressed air using the flushing valve, or turn off the power.
- The performance display of this device shows the value at the outlet of this device, and is not guaranteed to be the value at the customer's end equipment inlet. Please control pressure and the temperature in the end equipment.

7.3 Operation of the Temperature Controller

7.3.1 Initial Default Settings on the Temperature Controller

Parameter display symbol	Parameter	Display		Comments
		IDH*4-***	IDH*6-***	
SV	Set temperature	25.0	25.0	
AT	Auto-tuning	0	0	'0': Pause
P	Proportional band	5.0	9.0	
I	Integral time	60	70	
D	Derivative time	11.5	13.5	
LoC	Key lock	0	0	'0': No key lock
ALN1	Type of alarm	10	10	
AL1	Deviation value	5	5	
A1hy	Hysteresis	7	7	
dly1	ON-delay	20	20	
CRrL	Self-tuning	FUZY	FUZY	Fuzzy control

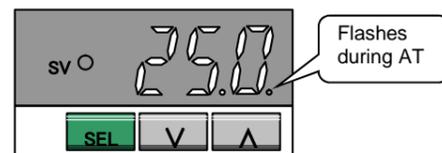
7.3.2 Setting Set Value (SV)

- This indicates the target value (SV) for performing temperature control.

Sequence	Explanation	Display
V	V: Temperature decreases when pushed. (e.g. 30°C → 25°C)	SV 30.0
		↓
		SV 25.0
^	^: Temperature increases when pushed (e.g. 25°C → 30°C)	SV 30.0

7.3.3 Selecting Auto-Tuning (AT) Operation

- P.I.D value is set automatically.
- When auto-tuning, it automatically sets and stores the P.I.D value. Therefore when the power is switched off, there is no need to set P.I.D value again.
- During auto-tuning operation, the decimal point on the right of the display will flash.
- When the auto tuning is completed, flashing stops and the parameter AT automatically turns to "0".



[1] AT=1 (standard type); [2] AT=2 (low PV type)

7 Start-up, Settings and Shutdown (continue)

Sequence	Explanation	Display
SEL (for 1sec)		PV 57.69 SV off
		↓
V	Press V (twice)	PV off SV off
		↓
SEL	Press SEL	SV Flashes
		↓
^	Select "1" by pressing ^ once or "2" by pressing ^ twice. *SV flashes when setting.	PV off SV off
		↓
SEL (for 2sec)	Fix settings & return to normal screen.	

Note:

- Low PV type reduces overshoot when tuning.
- The value of P.I.D is set beforehand. Please use this function only when control is not optimum.
- Please use this function only when control is not optimum.
- The controller switches to ON-OFF operation (= 2- position operation), so PV will largely vary depending on the process.
- If SV varies largely or controlled temperature changes, perform the auto tuning again.

7.3.4 Set Key Lock

- This function means the set values cannot be changed.

Sequence	Explanation	Display
SEL (for 1sec)		PV 57.69 SV off
		↓
V	Press V 5 times to set Key lock mode.	PV LoC SV off
		↓
SEL	Press SEL (twice)	SV Flashes
		↓
^ or ^	Select the key lock no. you want to set (e.g. Change from 0→1)	PV LoC SV off
		↓
SEL (for 2sec)	Fix settings & return to normal screen.	SV off

• There are three types of key lock.

LoC No.	All parameters	SV value only
	Front key	Front key
0	O	O
1	X	X
2	X	O
3	Same as LoC 0	
4	Same as LoC 1	
5	Same as LoC 2	

- When releasing key lock, set key lock number to '0'.
- Not locked in initial state.

7 Start-up, Settings and Shutdown (continue)

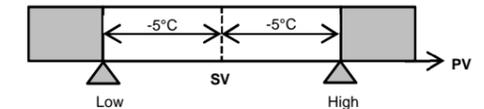
7.3.5 Set Alarm Function

7.3.5.1 How to set type of alarm

- Alarm for 'SV'.

Sequence	Explanation	Display
SEL (for 3sec)		PV P SV 5.0
		↓
V	Press V 12 times to set "ALN1".	PV ALN1 SV off
		↓
SEL	Press SEL	SV Flashes
		↓
^ or ^	Change the set value (e.g. Change from 10→0)	PV ALN1 SV off
		↓
SEL (for 2sec)	Fix settings & return to normal screen.	

- Initial set values (default values) are as follows: -
 - Type of alarm: High/Low-Deviation
 - Deviation value $\pm 5^\circ\text{C}$

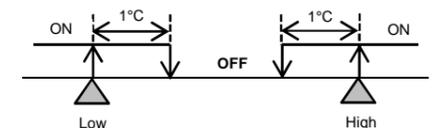


Alarm No.	Type of Alarm	Alarm No.	Type of Alarm
0	None	8	High-Absolute
3	High-Absolute	9	Low-Absolute
4	Low-Absolute	10	High/Low-Deviation

7.3.5.2 How to set Deviation value or Absolute value

Sequence	Explanation	Display
SEL (for 1sec)		PV 57.69 SV off
		↓
V	Press V 4 times to set "ALN1".	PV ALN1 SV 5.0
		↓
SEL	Press SEL	SV Flashes
		↓
^ or ^	Change the set value (e.g. Change from 5.0→2.0)	PV ALN1 SV 2.0
		↓
SEL (for 2sec)	Fix settings & return to normal screen.	

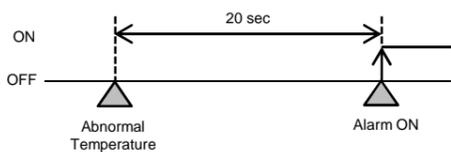
7.3.5.3 How to set Hysteresis



7 Start-up, Settings and Shutdown (continue)

Sequence	Explanation	Display
SEL (for 5sec)		PV P-nl SV 0
↓		
V	Press V 4 times to set "A1hy"	PV A1hy SV 1.0
↓		
SEL	Press SEL	SV Flashes
↓		
Λ or Λ	Change the set value (e.g. Change from 5.0→2.0)	PV A1hy SV 3.0
↓		
SEL (for 2sec)	Fix settings & return to normal screen.	

7.3.5.4 ON-delay: 20 sec



Sequence	Explanation	Display
SEL (for 5sec)		PV P-nl SV 0
↓		
V	Press V 4 times to set "A1hy"	PV dLYI SV 20
↓		
SEL	Press SEL	SV Flashes
↓		
Λ or Λ	Change the set value (e.g. Change from 5.0→2.0)	PV dLYI SV 30
↓		
SEL (for 2sec)	Fix settings & return to normal screen.	

7.4 Shutdown

- Turn off the ON/OFF switch.
- The lamp will go out and then, the operation will stop. Depending on the condition of operation, hot air continues to be emitted from the ventilation grille by the cooling fan for a while after turning off the switch.

7.5 Restart

Caution

- Wait at least 3 minutes before restarting the air dryer after it has been shut down. Failure to do this may cause safety devices to trip due to over load.
- When operation is restarted, power failure etc. the temperature controller retains the set values before power been switched off.

7.6 Check points before restart

- Check the following points before starting operation. If any abnormality occurs, stop operation immediately. Turn off the ON/OFF switch and then turn off the breaker of the main power supply.
- There is no leakage of compressed air.
 - The SV value of the temperature controller is set correctly.

7 Start-up, Settings and Shutdown (continue)

- The PV value of the temperature controller is not displaying an error, and is not an abnormal value.
- The air pressure, temperature, flow rate and ambient temperature are within the specifications.
- Moisture is discharged from the drain tube.
- The pointer of the evaporating thermometer indicates the green zone.
- The dryer is not generating any abnormal sound, vibration or smell.

7.7 Cautions for abnormal stop

The heater has the following protective devices built in:

Protection device	Purpose
Thermostat, Temperature fuse	To prevent heater from overheating
Overload relay	Over current protection and overheat protection of the refrigerating compressor.

When the protective devices are activated, the operation of the dryer will stop.

Caution

The protection devices are automatic return type. Wait at least 3 minutes after operation stops. If restarted within 3 minutes, the dryer may not operate, or may stop again.

8 Troubleshooting

8.1 Troubleshooting

Should any problem occur, refer to the following table.

Warning

In the event of an unexpected problem or malfunction, switch off the product and investigate the cause. If the cause of the problem cannot be determined, do not use the product, but contact SMC for assistance.

Problem	Probable causes	Action
Air dryer does not operate and running lamp does not come on even when the switch is 'ON'.	Power or plug is loosened or has come out completely. Ground fault circuit interrupter is OFF.	Connect the power cord and plug correctly. Confirm whether a circuit breaker of the correct capacity is used. It is not possible to restart the air dryer within 3 minutes after shutdown. Wait for 3 minutes before restarting. Resume the operation after resetting the circuit breaker to ON. If the circuit breaker still trips to OFF, failure of electrical insulation may have occurred. Remove the power supply and contact SMC.
During operation, the light goes out and the chiller stops.	- Ambient temperature is too high	Reduce ambient temperature to within the specifications.

Problem	Probable causes	Action
During operation, the light goes out and the chiller stops.	- Poor ventilation in installation location. - Ventilation grille is obstructed by a wall or blocked with dust. - The dust filter is blocked	- Improve ventilation by installing ducts etc. - Install so that the front and the top ventilation ports are far enough from walls. Ref.6.3 - We recommend frequent cleaning of the ventilation grilles. (Once a month as a guide)
	- Compressed air flow rate is too low or not flowing, or is too high	- Use with flow rate of compressed air within the specifications. (If the flow rate is too low or not flowing, the heater may overheat, activating the thermostat.) - Adjust using the flushing valve. Ref.7.2
	- Inlet air temperature is too high	Improve the ventilation system around the air compressor, or reduce the ambient temperature around the air compressor to lower the temperature of discharge from the compressor.
Evaporation thermometer indicates higher than green zone.	- Large fluctuation of power supply voltage.	Install a power supply transformer and review the power supply to keep the voltage within the allowable value. Allowable fluctuation of the power supply voltage is +/-10% of the rated voltage.
	- Poor ventilation in installation location. - Ventilation grille is obstructed by a wall or blocked with dust. - The dust filter is blocked with oil, foreign matter, dust etc.	- Improve ventilation by installing ducts etc. - Install so that front and back ventilation ports are at least 600mm from walls. Ref.6.3 - We recommend frequent cleaning of the ventilation grilles. (Once a month as a guide) - Clean or replace the dust filter.
	- Ambient temperature is too high - Compressed air flow rate is too high	Reduce ambient temperature to within the specifications. Use with flow rate of compressed air within the specifications.
Large pressure drop.	- Inlet air temperature is too high	Improve the ventilation system around the air compressor, or reduce the ambient temperature around the air compressor to lower the temperature of discharge from the compressor.
	- The valve in the inlet/ outlet piping is not fully opened.	- Be sure to use the dryer with the inlet/ outlet piping valve fully opened.

8 Troubleshooting (continue)

Problem	Probable causes	Action
Large pressure drop.	- The air filter in the compressed air piping is blocked.	- Replace the element of the air filter on the inlet side or built-in to this product. Ref. Operation Manual 4.2.4
	- Compressed air flow rate is too high.	- Use with flow rate of compressed air within the specifications.
Moisture is generated downstream of the compressed air line.	- The bypass valve is open.	- Be sure to use the dryer with the bypass valve fully closed.
	- Drainage fluid is not discharged from the auto drain.	- Check that the drain tube is not trapped or bent. - Check the auto drain. - Check the auto drain strainer. Ref.9.3
Compressed air does not flow.	- The piping converges with piping from a separate airline that does not have an air dryer.	- Install an air dryer in the line that does not have one. - Separate the two lines so they do not converge.
	- The set pressure is too low.	- Adjust the pressure with the pressure adjustment handle. Ref.7.2
The air pressure cannot be set.	- The inlet/ outlet valve is closed.	- Open the inlet/ outlet valve.
	- The pressure adjustment handle is locked.	- Release the lock of the pressure adjustment handle. Ref.7.2
The outlet air temperature is higher than the set temperature.	- Air flow rate is too low or not flowing	- Use with flow rate of compressed air within the specifications.
	- Set temperature is too low.	- Set the temperature within the setting range.
The outlet air temperature is lower than the set temperature	- Compressed air flow rate is too high.	- Use with flow rate of compressed air within the specifications.
	- Inlet air temperature is too high.	- Reduce the inlet air temperature to within the specifications by reducing the ambient temperature or installing an after cooler.
The temperature controller buttons do not work.	- The temperature controller key lock is on.	- Release the key lock. Ref.7.3.4
	- The contact of the temperature sensor terminal is bad, or wiring has been disconnected.	- Please contact your nearest sales office.

9 Maintenance

9.1 General Maintenance

Warning

- Do not operate switches, etc. with wet hands and do not touch the electrical parts such as the power supply plug. It might cause electric shock.
- Do not splash water directly on the product and do not wash with water. It might cause electric shock and fire, etc.
- Do not touch the fins directly when cleaning the dustproof filter. It might cause injury.
- Remount all panels removed for inspection or cleaning. As this might cause injury or electric shock if the product is operated without the panels.

9.2 Daily Check Points

- Check the following points during normal operation.
- There is no air leakage.
- The running lamp is on during operation.
- Moisture (condensate fluid) is being discharged from the drain tube.
- The pointer of the evaporation thermometer indicates in the green zone when it is running with pressurized air supply.
- There is no abnormal sound or vibration coming from the equipment.
- There are no abnormal smells or smoke coming from the equipment.

9 Maintenance (continue)

9.3 Periodical Maintenance

9.3.1 Cleaning of filter at ventilation port (suction port)

To eliminate dust at the ventilation port (suction port), apply an electrical vacuum or air blow once every month. Wear protective goggles and a mask to prevent dust from entering the eyes or throat during air blow.

9.3.2 Cleaning the auto drain strainer

Remove dust from the auto drain strainer once a month. Use a neutral detergent for cleaning. Also, if the auto drain becomes heavily polluted replace it with a new one and shorten the next cleaning interval.

10 Declaration of Conformity

Below is a sample Declaration of Conformity (DoC) used for this product. An actual DoC will be supplied with each product.



11 Contacts

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