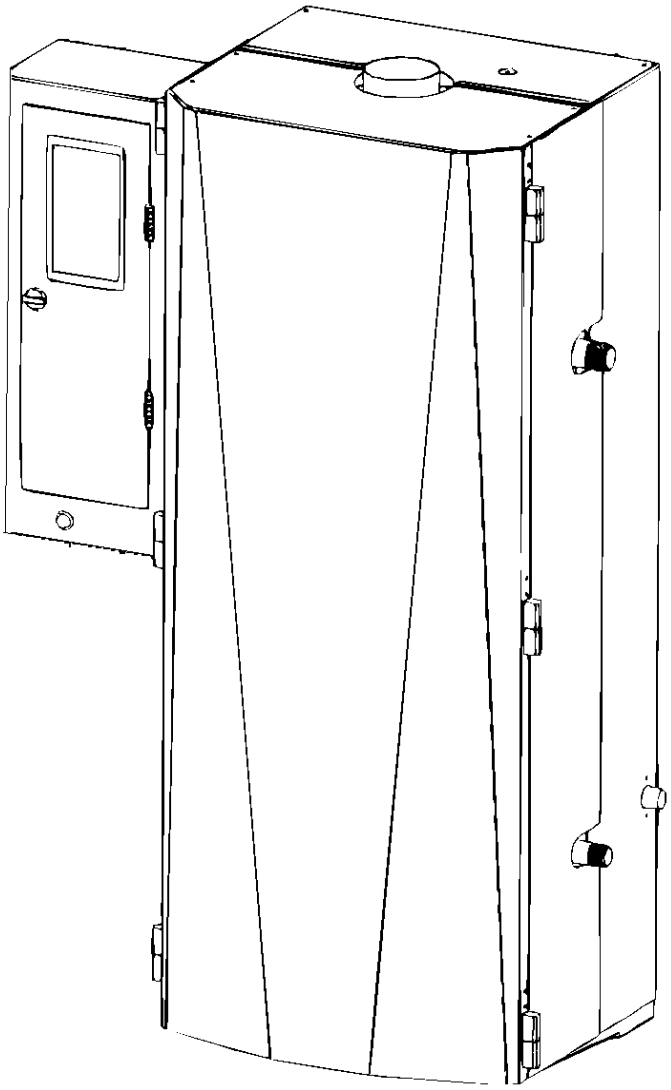
STEAMOVAP

ISE

STEAM EXCHANGE HUMIDIFIER



Installation and Operation Manual

Please read and save this manual

Tel.: 1-844-357-4477 • www.steamOvap.com

Rev.240301

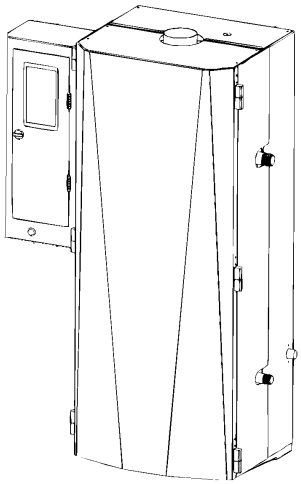
Introduction

Foreword

Thank you for purchasing ISE steamOvap Steam Exchange Humidifier.
If you have questions or comments please contact us:
www.steamOvap.com
info@steamOvap.com
1-844-357-4477

Description

ISE steam exchange humidifier is a steam generator that uses pressurized steam heat exchanger to produce pure and sterile steam at atmospheric pressure that is distributed in air handling unit or ventilation duct, or directly into space.
ISE humidifier can be supplied with tap or treated water such as reverse osmosis water or deionized water without alteration or additional required option.
When tap water is used, the scale will come off the heat-exchanger by the natural contraction and expansion of its coiled shape tube . Scale pieces then accumulate at the bottom of the cylinder without the risk of clogging the drain outlet.
Regular maintenance consists in opening and removing the cylinder and cleaning the accumulated scale off.
ISE unique & patent pending vertical heat-exchanger allows for very easy regular maintenance that consists in opening and removing bottom part of the cylinder and cleaning the accumulated scale off without the need of any tool or consumable.



Main features

- Very accurate +/-1% and constant steam production whatever water condition.
- Fully modulating humidifier.
- Drain water automatically cooled down at 140°F [60°C].
- Pre-heating function for quick reaction upon demand.
- Steam production reduction option.
- Permanent stainless steel cylinder with thermal insulation.
- Easy and quick regular maintenance with no tool required.
- Log of events and alarms easy to export.
- Modbus RTU remote communication
- Optional remote communication BACnet (RS485)
- Three year warranty (when installation is commissioned by steamOvap authorized service representative)

Intended use

ISE steam exchange humidifier is intended exclusively to produce steam from water at atmospheric pressure for air humidification.
Operating conditions are specified in this Installation and Operation Manual (IOM).
Operation of this humidifier in the intended use scope requires that all directions and information contained in this IOM are observed.
Any other use or operation outside the above design scope without written authorization from steamOvap may lead to trouble and hazardous conditions and will void warranty.
No alteration or modification to the humidifier must be done without written authorization from steamOvap.
Replacement of any defective components must be done with original component and spare parts from steamOvap representative.

Installation and Operation Manual Limitation

This IOM is intended for trained and qualified personnel and must be applied along with the applicable local codes and regulations.
Any work related to installation or service for this humidifier must comply with local code and regulation regarding safety and prevention of accidents.

End of life disposition

Ensure that **ISE** steam exchange humidifier is empty from water, if not proceed same way as for a standard drain for service.
Disconnect **ISE** steam exchange humidifier from power supply, electrical control signal, water main supply, Steam line, and drain. **ISE** steam exchange humidifier can then be removed from the wall or stand.
ISE steam exchange humidifier is an electrical equipment and as such MUST not be disposed of in domestic waste. This humidifier should be returned to the closest steamOvap authorized representative for proper dismantling, recycling and disposition of components according to local regulations.

Table of content

Safety warnings

General

Risk of electric shock.
Disconnect power supply before installation or service.
For safety and warranty reasons, Installation and service of this humidifier should be carried out by trained and qualified personnel.

Any work related to installation and service of this humidifier must comply with local code and regulations regarding safety and prevention of accidents.

Electrical Warning

Risk of electric shock.
Disconnect power supply before installation or service.
Power supply connection must be done by a trained and qualified electrician.

Any work related to power supply installation or service of this humidifier must comply with local code and regulation regarding safety and prevention of accidents.

Water safety warning

Any work related to water supply, drain connection as well as steam lines and condensate returns lines installation or service of such for this humidifier must comply with local code and regulation regarding safety and prevention of accidents.
Water supply connection must be done by a trained and qualified plumber.

Risk of malfunction. Steam lines should not have any restriction or blockage that may cause a burst of pressure in the steam line.

Others

Risk of flooding. In order to avoid any risk of flooding steamOvap recommends a Hi limit humidity switch installed in the air duct downstream of the steam distribution ramp.
Risk of freezing. Plan an anti-freeze system in case of installation in a location that would be exposed to outside conditions and susceptible of freezing.
Risk of malfunction. Do not block steam outlet(s).

Before to proceed to Installation

Please read this Installation and Operation manual before to proceed to the Installation

Receiving & Unpacking

1. Upon receipt verify that packaging is complete and not damaged.
   In case of damage, and/or missing boxes advise immediately the carrier by writing a note on the waybill.
2. Verify that model of the humidifier matches the purchase order and that all accessories are included.
3. Any missing item should be reported as soon as possible to steamOvap or its representative and within 5 business days after receipt.
   steamOvap will not assume any responsibility for missing item after this delay.
4. Proceed carefully to unpacking, and check that the humidifier and its accessories are not damaged. in case of damage please proceed as for point 3

Included in standard delivery of ISE steam exchange humidifier

1. **ISE** steam exchange humidifier
2. Water supply hose
3. Collar(s) to secure steam hose on steam outlet of ISE
4. 1-1/4in flexible hose for easy connection to the drain outlet
5. Actuated control valve for pressurized steam input
6. Strainer to be installed on pressurized steam inlet upstream the actuated control valve
7. Float & Thermostatic condensate trap for condensate return fro heat exchanger.
8. This IOM

Depending on other accessories ordered

9. Steam ramp(s)
10. Steam hose
11. Condensate hose
12. RH% sensors for duct or room
13. HI Limit RH% switch
14. Air flow switch
15. Condensate temperature switch

ISE Overview

ISE steam exchange humidifier

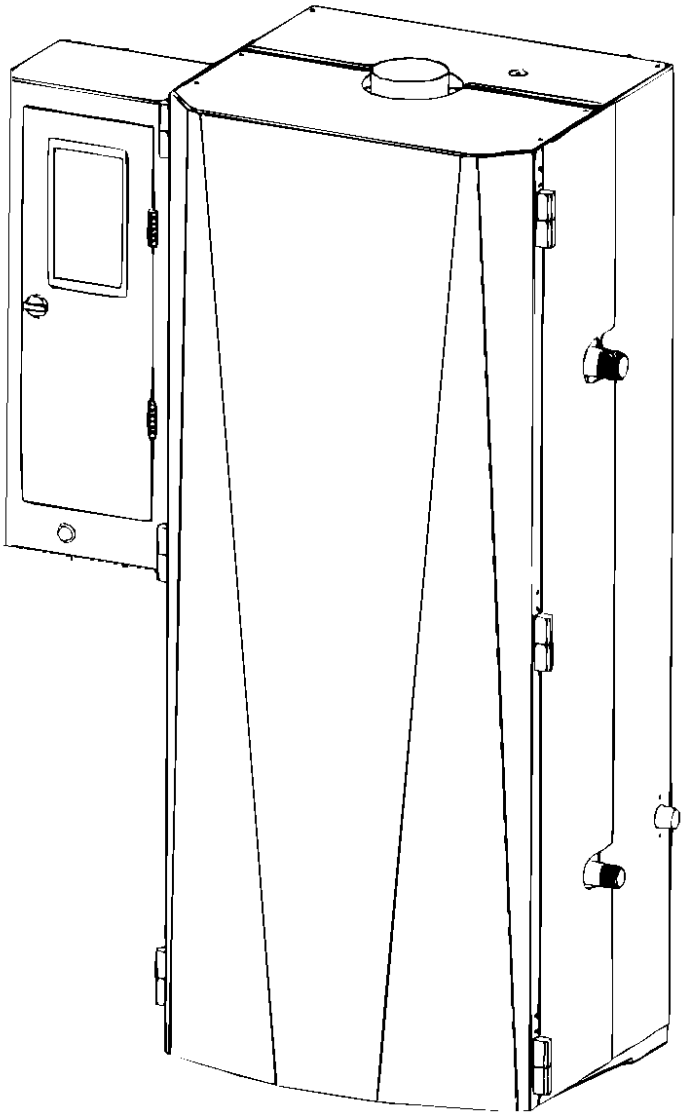


Figure 1 – ISE Overview

ISE product designation & name plate

steamOvap technologies inc.
Steam exchange humidifier

MODEL	**ISE120-120/1**		
S/N	**YY-DDDXXX**		
CAPACITY	120lb/h @ 15PSI	MAX PRESSURE	15PSI [103kPa]
POWER	100W	VOLTAGE	120Vac
CURRENT	0.5A	NB OF PHASE	1ph
		FREQUENCY	50/60Hz

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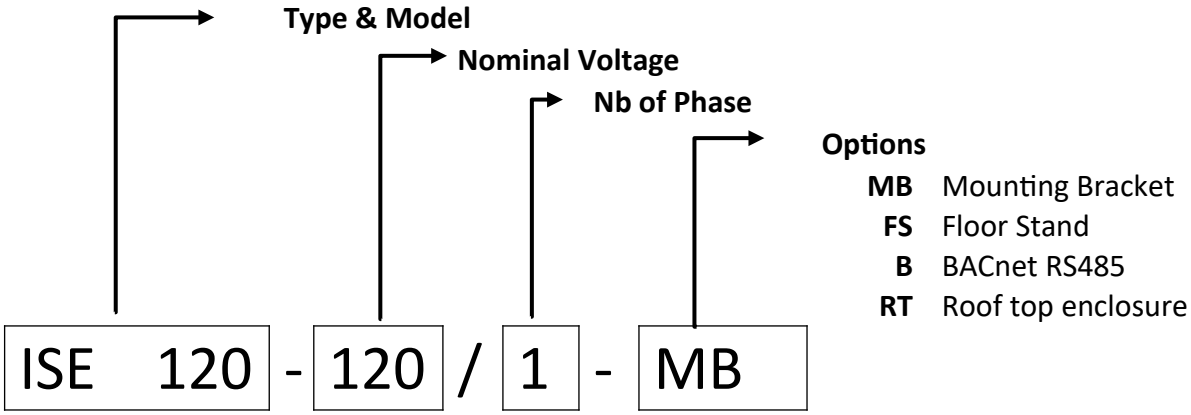
Figure 2 –ISE Name plate

Model designation and options codification



ISE capacity & power requirement

Model	Steam Capacity			Power requirement	
	5PSI [34kPa]	10PSI [69Kpa]	15PSI [103kPa]	Power	Voltage
ISE30	4lb/h	15lb/h	30lb/h	100W	120Vac/1ph or 240/1ph
ISE70	9lb/h	35lb/h	70lb/h	100W	120Vac/1ph or 240/1ph
ISE120	16lb/h	60lb/h	120lb/h	100W	120Vac/1ph or 240/1ph
ISE170	23lb/h	85lb/h	170lb/h	100W	120Vac/1ph or 240/1ph
ISE220	29lb/h	110lb/h	220lb/h	100W	120Vac/1ph or 240/1ph
ISE300	40lb/h	150lb/h	300lb/h	100W	120Vac/1ph or 240/1ph
ISE440	48lb/h	200lb/h	400lb/h	200W	120Vac/1ph or 240/1ph
ISE600	80lb/h	300lb/h	600lb/h	200W	120Vac/1ph or 240/1ph

ISE Dimensions

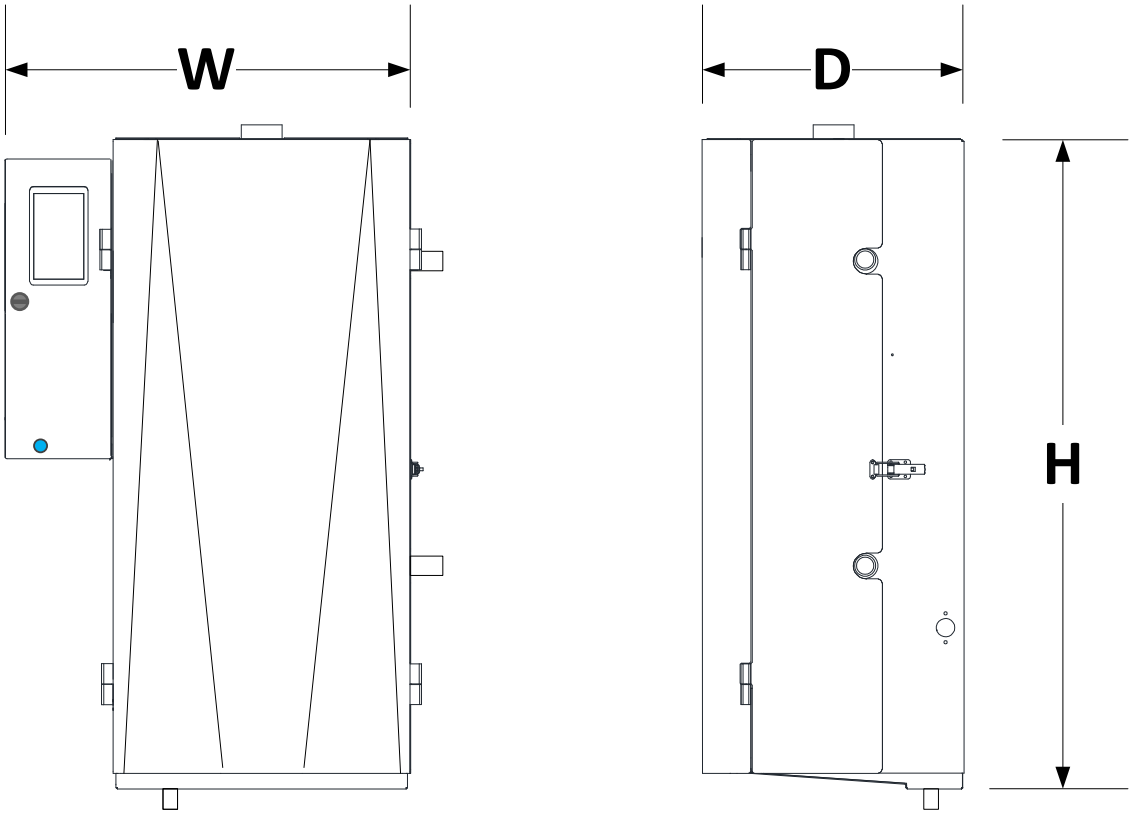


Figure 3 – ISE Dimensions , single module

Model	Nb Cyl + size	Nb Steam Outlet + Ø	Dimensions			Net weight
			W	H	D	
ISE30	1x small	1x 1-1/2in [DN40]	20in	32in	13in	60lb
ISE70	1x medium	1x 2in [DN50]	28in	48in	16in	85lb
ISE120	1x medium	1x 3in [DN80]	25in	52in	16in	110lb
ISE170	1x medium	1x 3in [DN80]	25in	52in	16in	150lb
ISE220	1x Large	1x 3in [DN80]	30in	52in	20in	200lb
ISE300	1x Large	1x 3-1/2in [DN90]	30in	52in	20in	230lb

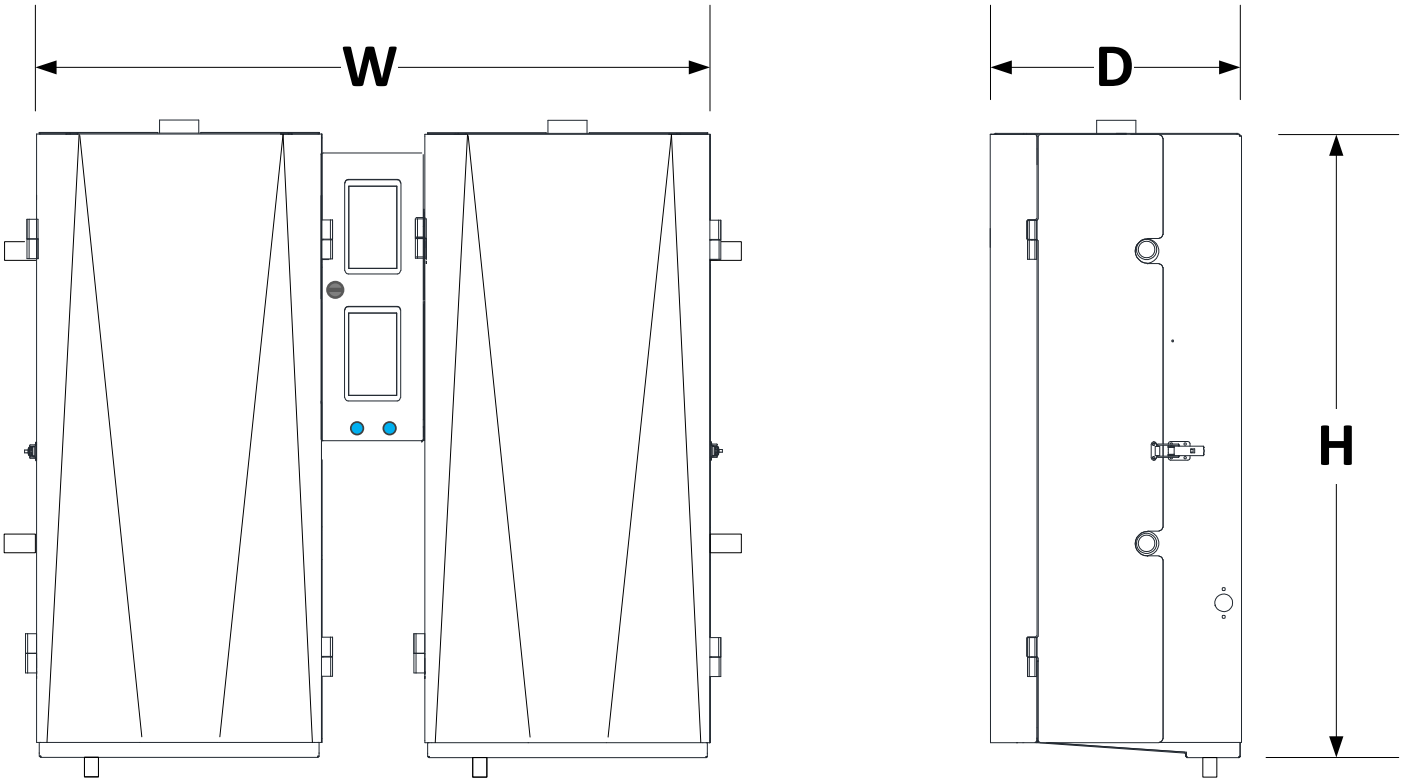


Figure 4 – ISE Dimensions, two modules

Model	Nb Cyl + size	Nb Steam Outlet + Ø	Dimensions			Net weight
			W	H	D	
ISE440	2x large	2x 3in [DN80]	63-3/4in	53in	20in	400lb
ISE600	2x large	2x 3-1/2in [DN90]	63-3/4in	53in	20in	460lb

Installation overview

General

1. Installation of this humidifier should be carried out by trained and qualified personnel.
2. Any work related to installation of this humidifier must comply with local code and regulation regarding safety and prevention of accidents.

WARNING. Risk of electric shock.
Power supply must be disconnected during installation.
Main power should be connected only after all installation steps have been completed and properly verified.

Typical installation with steam ramp

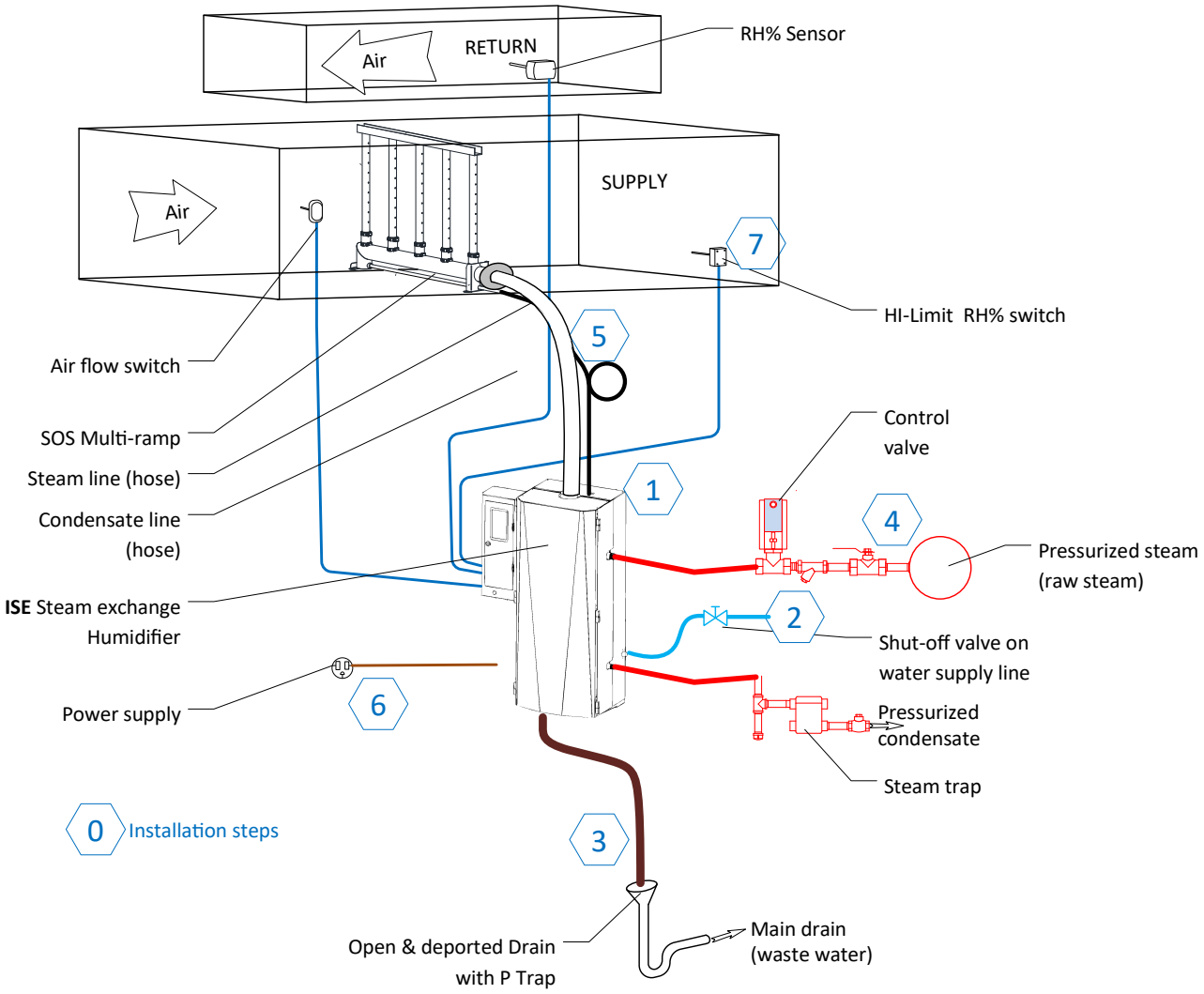


Figure 5 – installation overview

Typical installation steps :

1. Positioning & mounting of **ISE** steam exchange humidifier
2. Water supply installation
3. Drain installation
4. Pressurized steam & condensate return lines installation
5. Atmospheric steam line installation for duct humidification
6. Power supply installation
7. Actuated control valve connection
8. Safety & RH% control installation

Installation – step 1
Positioning & Mounting

General guidelines for positioning

ISE steam exchange humidifier should be positioned so that:

- Length of the steam line (or hose) is as short as possible,
- In case steam hose is used, the bend radius of 12in (300mm) is ensured
- Humidifier is easily accessible for service

CAUTION. Risk of malfunction due to vibration. Do Not mount ISE steam exchange humidifier directly on ventilation duct**.**
CAUTION. Risk of flooding. Ensure that the local where **ISE steam exchange humidifier** will be installed is equipped **with floor drain.**
In case of no floor drain is available; installation of a water leak detector is required in order to prevent any flooding in case of abnormal operation or service.

ISE steam exchange humidifier should be installed in a well-ventilated and dry environment.
If local is subject to below freezing point temperature, activation of ant freezing function of the **ISE steam exchange humidifier** is required.
For outdoor installation please contact your steamOvap representative to order and install special outdoor optional enclosure for **ISE**.

ISE maximum ambient conditions:
Temperature: 41°F to 113°F [+5 to +45°C]
Relative Humidity: 90%RH max (non condensing)

Ingress Protection for **ISE** standard enclosure: IP20

Clearances

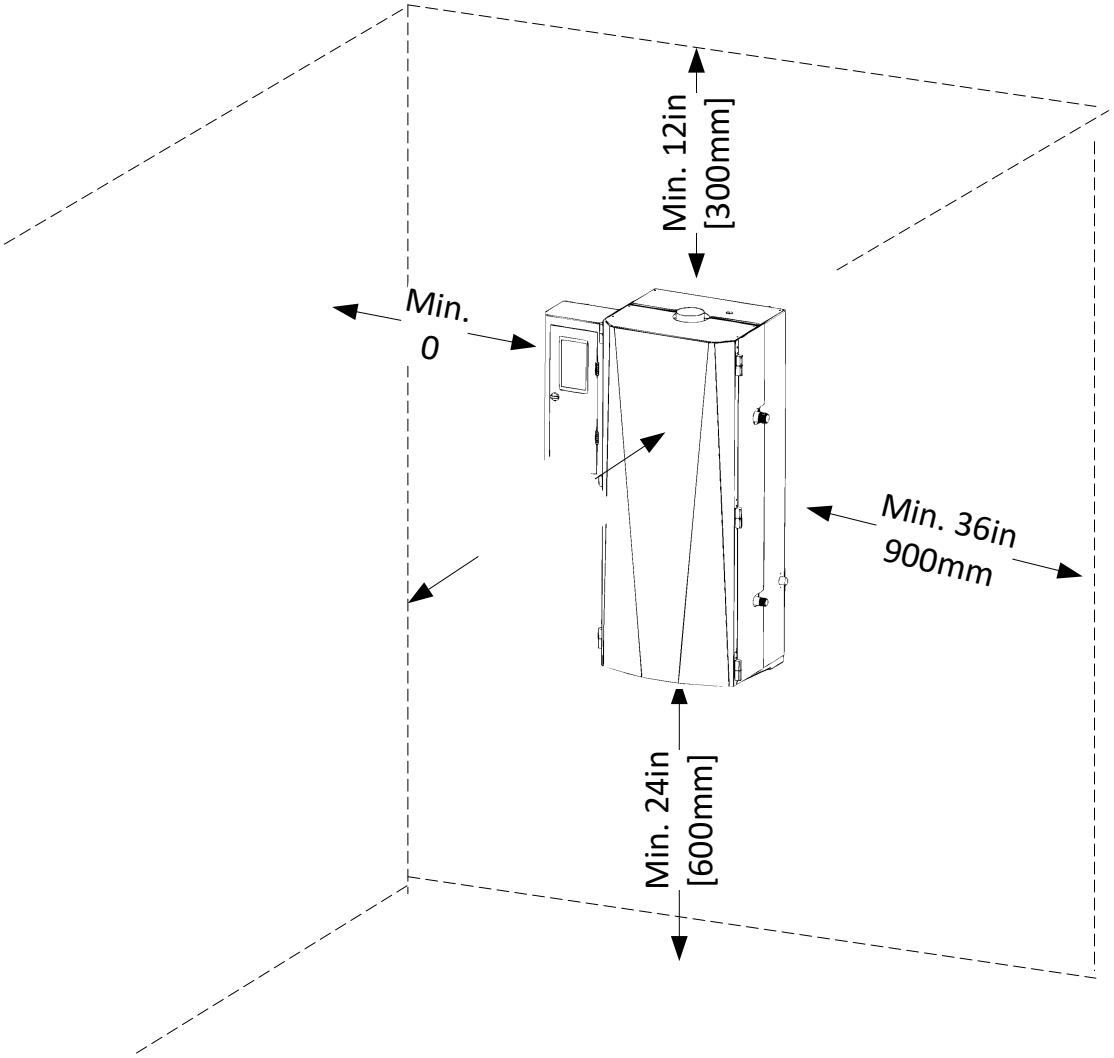


Figure 6 – minimum clearances

Clearance guidelines

There is no minimum clearance on left side of the **ISE** steam exchange humidifier, but it is a good practice to have a clearance of 4 to 8 in [100 to 200mm] for ease of installation and service.
Right side clearance of 36in (900mm) minimum is required to the steam exchanger connection to steam supply and condensate return piping.
In case of a 2 modules **ISE** [model ISE400] same clearance, 36in [900mm], is required on both side of the **ISE** humidifier.

Allow a minimum clearance of 24in [610mm] with floor to allow for proper drain slope and drain pipe column.
Top clearance is required of 12in [300mm] for access and proper steam connection

Front clearance of 30in [762mm] is required for access to the **ISE** steam exchange humidifier

Wall Mounting bracket & weight

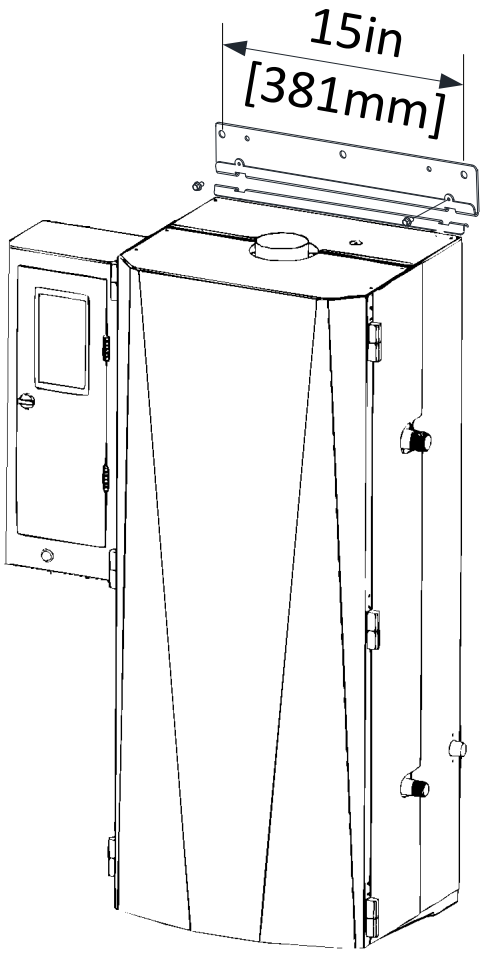


Figure 7 mounting bracket for single module (ISE30 to 300)

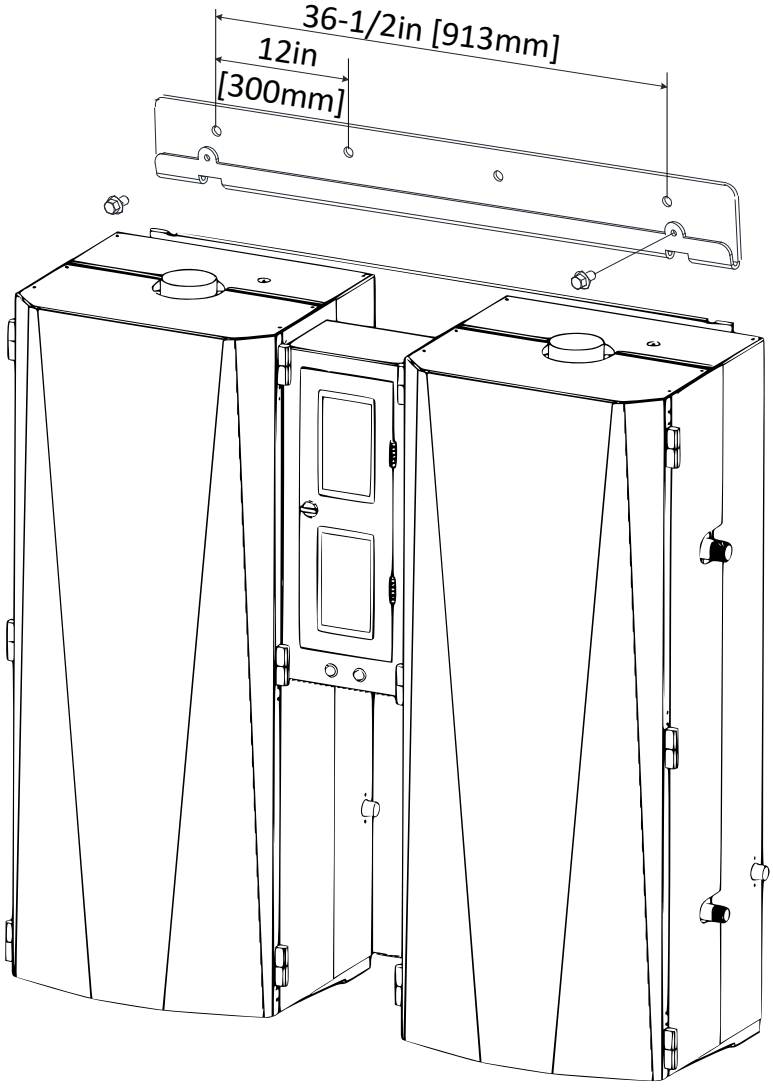


Figure 8 – 2 modules mounting bracket (ISE440 & 600)

Weight

Model	Nb Cyl + size	Net Weight	Oper. Weight
ISE30	1x small	60lb	110lb
ISE70	1x medium	85lb	175lb
ISE120	1x medium	110lb	225lb
ISE170	1x medium	150lb	265lb
ISE220	1x large	200lb	325lb
ISE300	1x large	230lb	355lb
ISE440	2x large	400lb	650lb
ISE600	2x large	460lb	710lb

General guidelines for Mounting

CAUTION. Risk of malfunction. ISE steam exchange humidifier must be levelled in X & Z axis.

Installation on wall, with mounting bracket

1. Verify that wall structure and strength is appropriate to support the operating weight of the ISE steam exchange humidifier.
   In case that wall is not solid enough to support operating weight of **ISE** humidifier, install it on a floor stand (**FS** option is available to your steamOvap representative).
2. Mark the wall or support according as per below drawing, Drill holes to the wall or support to attach the mounting bracket to the wall as per the size of anchors and/or screws.
   Distance between the 2 holes in Mounting bracket is 15in [381mm] for ISE30 to ISE200
   36-1/2in [913mm] for ISE400

3. Use anchors of sufficient size (at least 3/8in [9m]). Install the mounting bracket to the wall or support. Ensure that the mounting bracket is properly levelled.
4. With front cover removed, hung the **ISE** humidifier onto the mounting bracket.
5. Install the 2 supplied screws to avoid the **ISE** steam exchange humidifier to move up from the mounting bracket.

Installation on Floor Stand (option FS)

1. Ensure that the floor structure and strength is appropriate to support the operating weight of the **ISE** humidifier.
2. Attach the floor stand to the floor or structure to avoid any movement of the **ISE** humidifier.
   You can use bolt or screws to attach this one to surrounding structure or to the floor.
3. Install Humidifier (with front cover removed) hung the **ISE** humidifier onto the **FS** floor stand and secure it with supplied bolts.
4. Re-install the front cover to the humidifier.

Installation – step 2
Water supply installation

Water supply specification & quality:

Water supply pressure: 15 to 80PSI [1 to 5bar]
Water supply temperature: 37 to 105°F [3 to 40°C]

ISE steam exchange humidifier can accept a wide range of water quality.
Untreated water will lead to scale deposits that will need to be regularly removed from steam chamber.
Use of additives such as scale inhibitor or corrosion inhibitors, disinfectants or other can impair the normal operation of the humidifier and are not allowed.
Water supply conductivity: 1 to 1500µS/cm
Water supply hardness: 0 to 16grains/gallon [0 to 15°gH][268mg $CaCO_3$/l]
Water supply PH: 6.5 to 7.5
Water supply chloride content: 0 to 50ppm

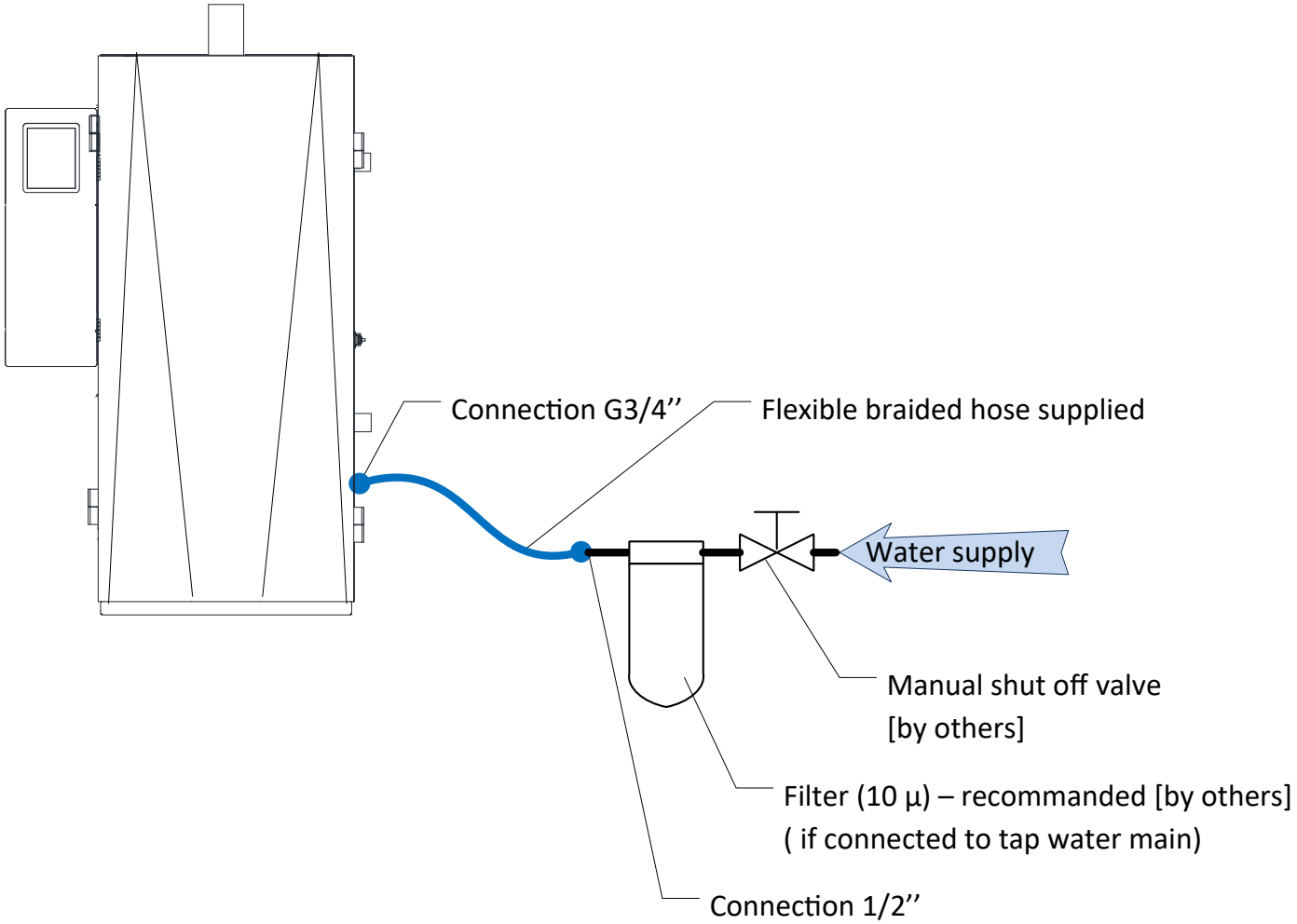


Figure 9 – water supply connection, single module

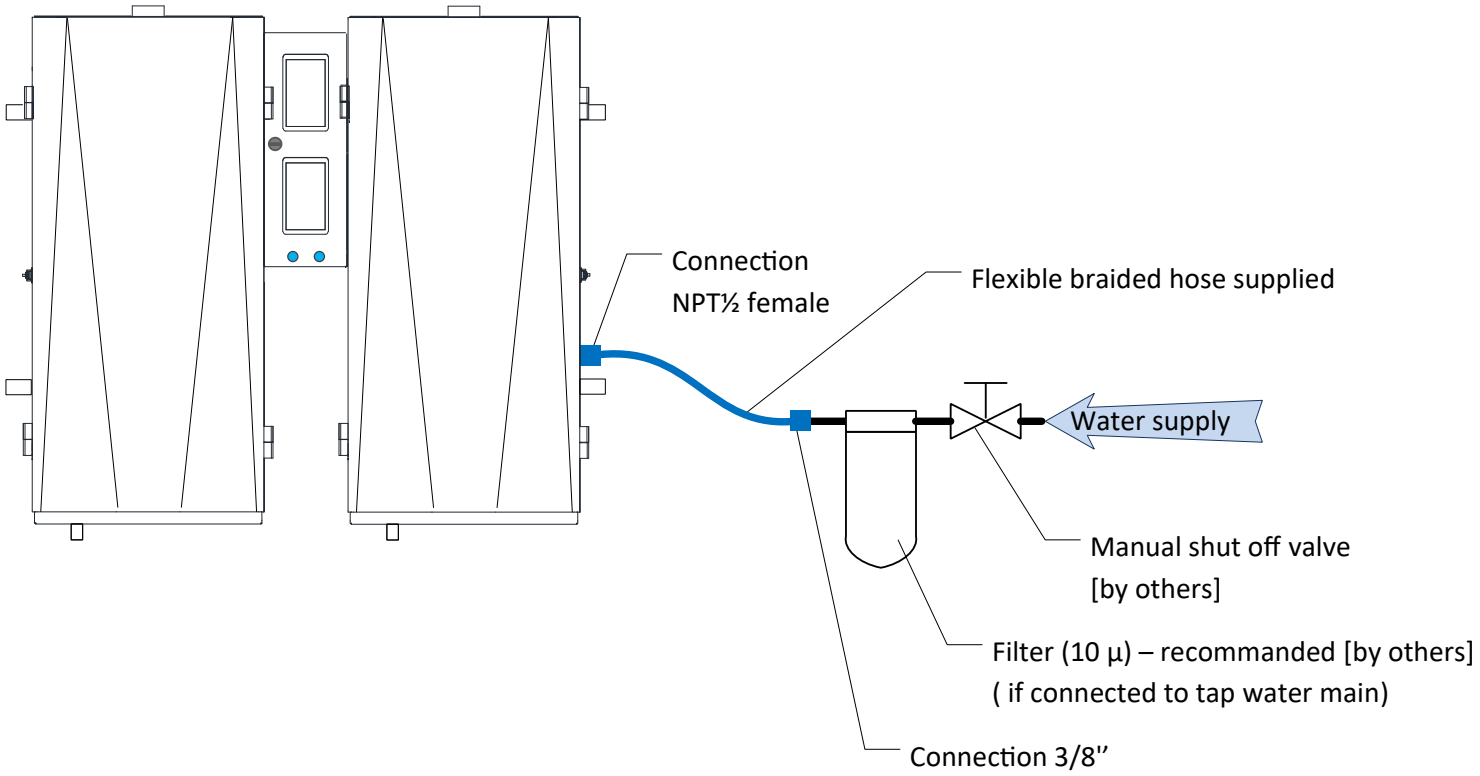


Figure 10 – water supply connection, 2 modules ISE440 & 600

Water supply connection:

1. Install a manual; shut off valve on the water main line.
2. If **ISE** humidifier is supplied with tap water it is recommended to install a 10µ sediment filter on the line. This filter will protect internal water fill valve from clogging.
3. A flexible braided hose is supplied for an easy and secure connection to the water supply inlet.

Installation – step 3
Drain installation

Water drained specification:

Drained water maximum temperature: 140°F [60°C]
when supplied with cold water supply
Drained water flow rate: 6.6 GPM [25 l/min]
Drain outlet dimension: **ISE30 to 300**: (1x)1-1/4in [32mm]
ISE440 to 600: (2x)1-1/4in [32mm]

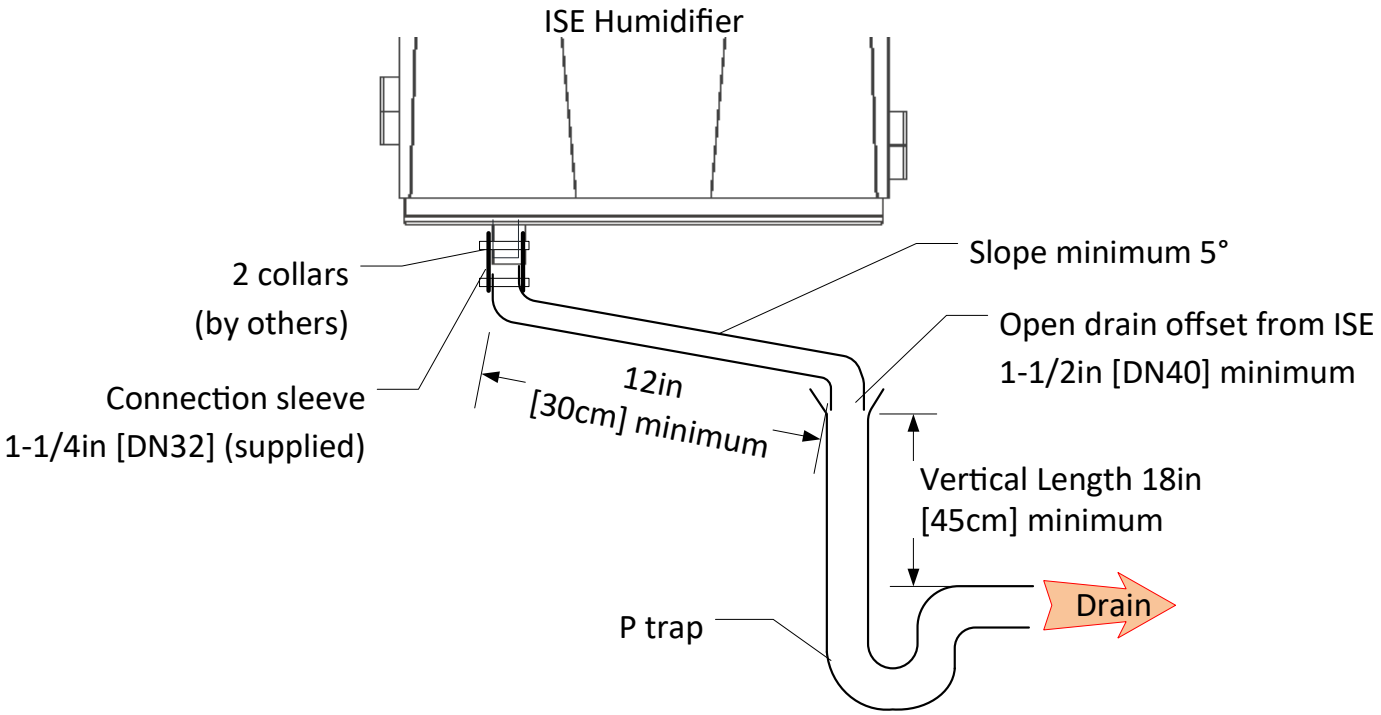


Figure 11 – water drain connection, single module

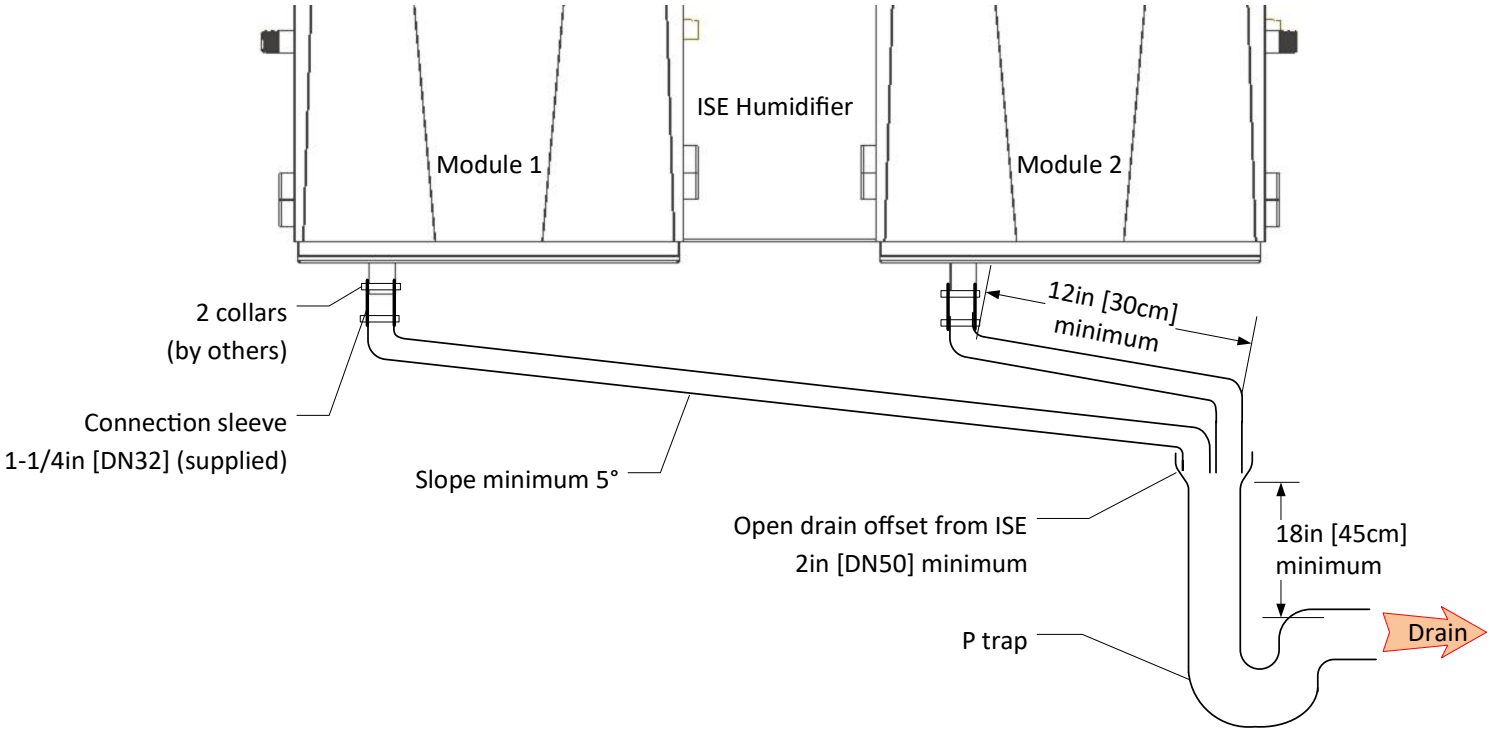


Figure 12 – water drain connection, 2 modules ISE440 & 600

Installation steps :

1. Ensure that an Open drain with a P-trap is installed offset from the **ISE** humidifier.
   IMPORTANT: Risk of malfunction. A minimum **slope angle** of 5 degree of the drain hose or pipe and a minimum length of 12in [30cm] must be provided between the drain outlet of the **ISE** humidifier and the open drain inlet.
   A minimum of **18in [45cm] vertical run** before P trap or obstruction must be provided
2. If required, install a connection sleeve 1-1/4 [32mm] at the drain outlet of the **ISE** humidifier to the drain pipe, and secure it with 2 collars.

Installation – step 4
Pressurized steam & condensate installation

Pressurized steam supply piping must conform to local codes and regulations.
Risk of damage to **ISE** humidifier. Steam piping should be supported to avoid stress to steam components and/or **ISE** humidifier heat exchanger.
Pipes should be free from dirt.

Pressurized steam line installation should be performed by a qualified installer.

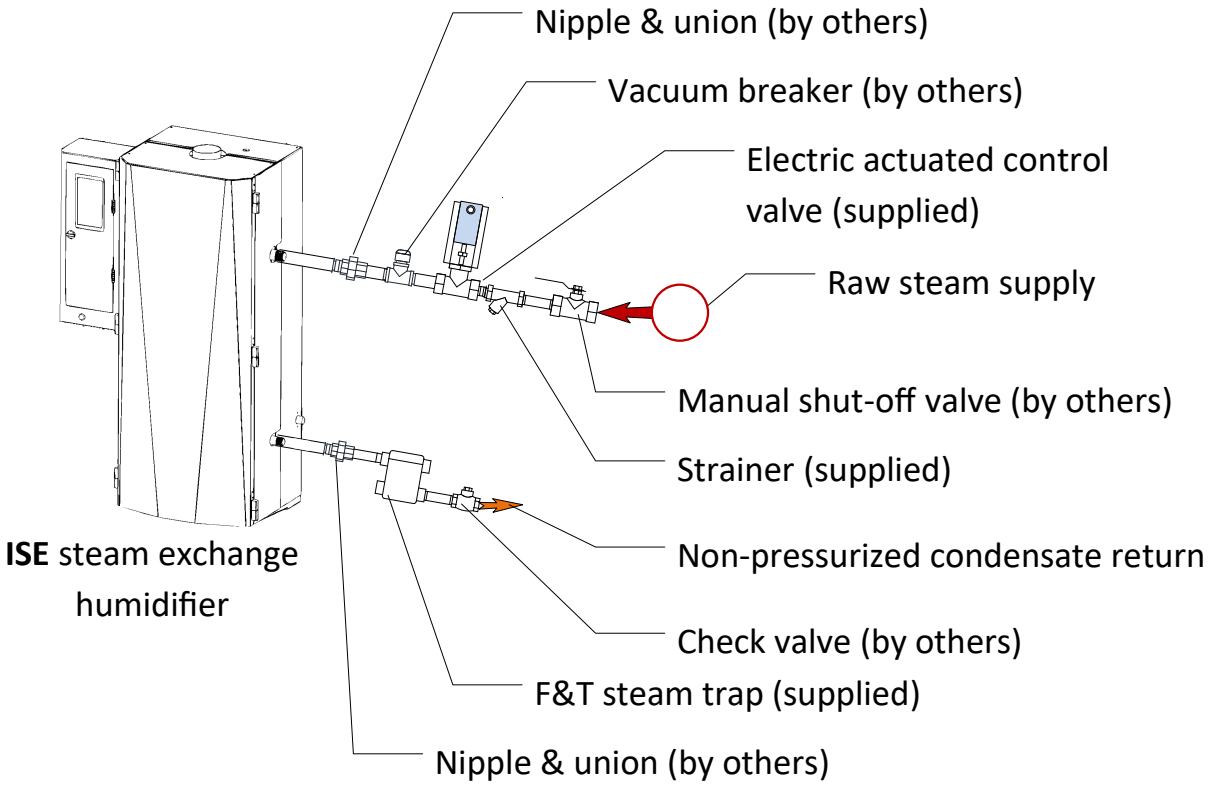


Figure 13 – Pressurized steam & condensate connection

Pressurized steam installation:

ISE humidifier heat exchanger is designed for a maximum steam pressure of 15PSI (105kPa).
Pressurized steam line must be sized to provide design pressure and flow at the CV valve at full output. Pressure losses in the steam supply line will reduce ISE pure steam capacity.
Actuated steam control valve should be tilted to reduce the heat transfer from steam pipe to the electric actuator. Please refer to below illustration.

It is a good practice to install the following components:

- Strainer (supplied) and a manual shut-off valve upstream to the control valve .
- Manual shut-off valve and pressure gauge (by others) upstream to the actuated control valve.
- Vacuum breaker (by others) between actuated control valve and **ISE** heat exchanger inlet and at any high point of the pressurized steam piping
- nipple and union (by others) to the inlet and outlet of the **ISE** heat exchanger for ease of service.

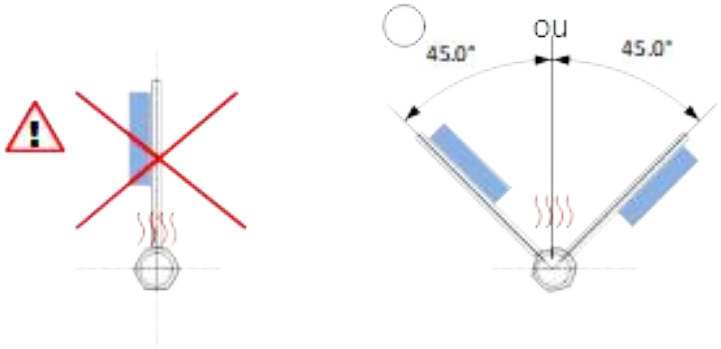


Figure 14 – Actuated control valve recommendation

Condensate line installation:

Do not use thermostatic or Thermodynamic traps for condensate from **ISE** heat exchanger.
Condensate must be drained to a non-pressurized boiler condensate return line.
Risk of heat exchanger damage, Do not use pressurized steam to lift condensate.
Condensate pump is recommended when lifting condensate in a pressurized system.

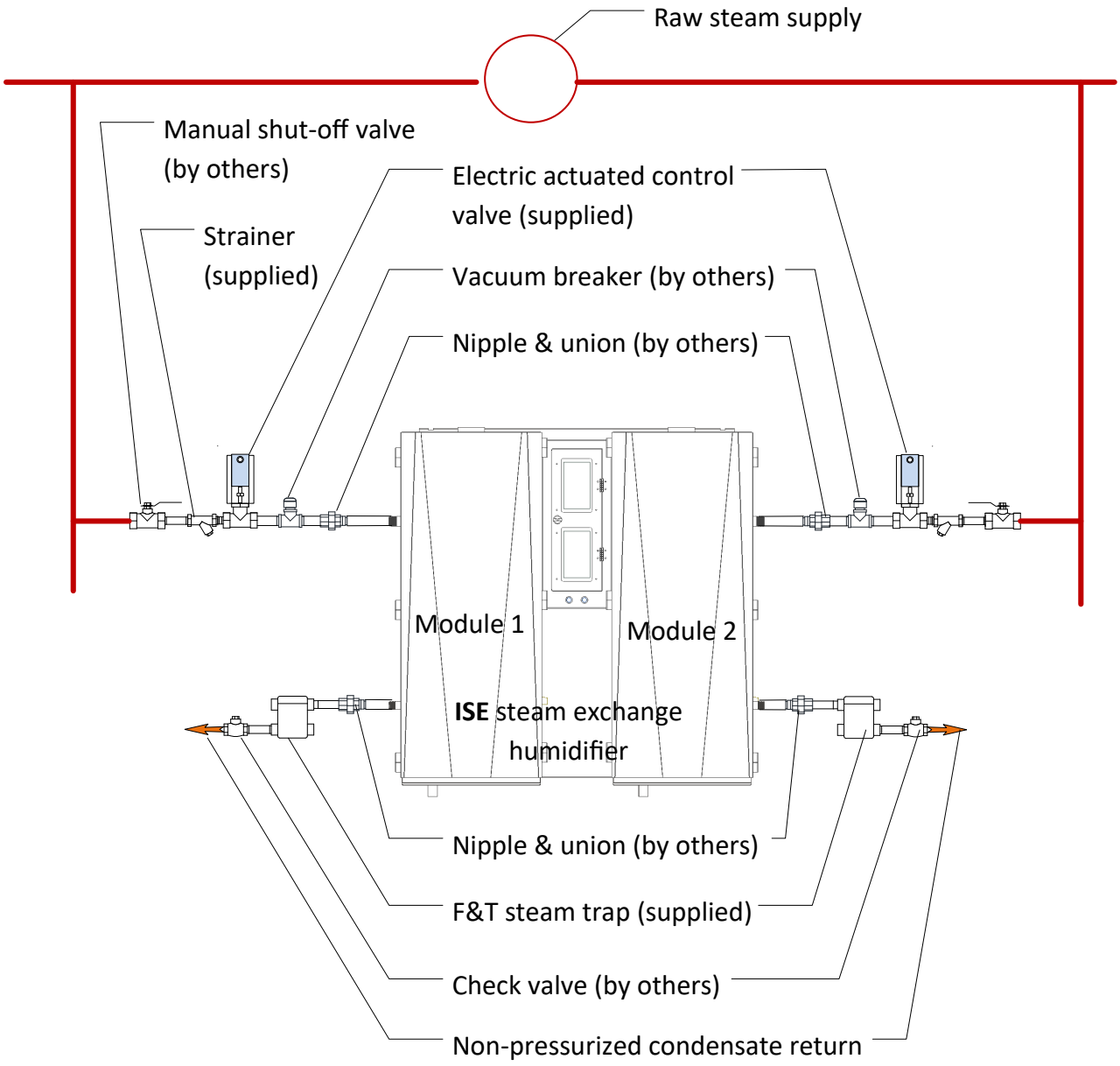


Figure 15 – Pressurized steam & condensate connection- 2 modules ISE440 & 600

Installation – step 5
Steam line installation

Horizontal duct

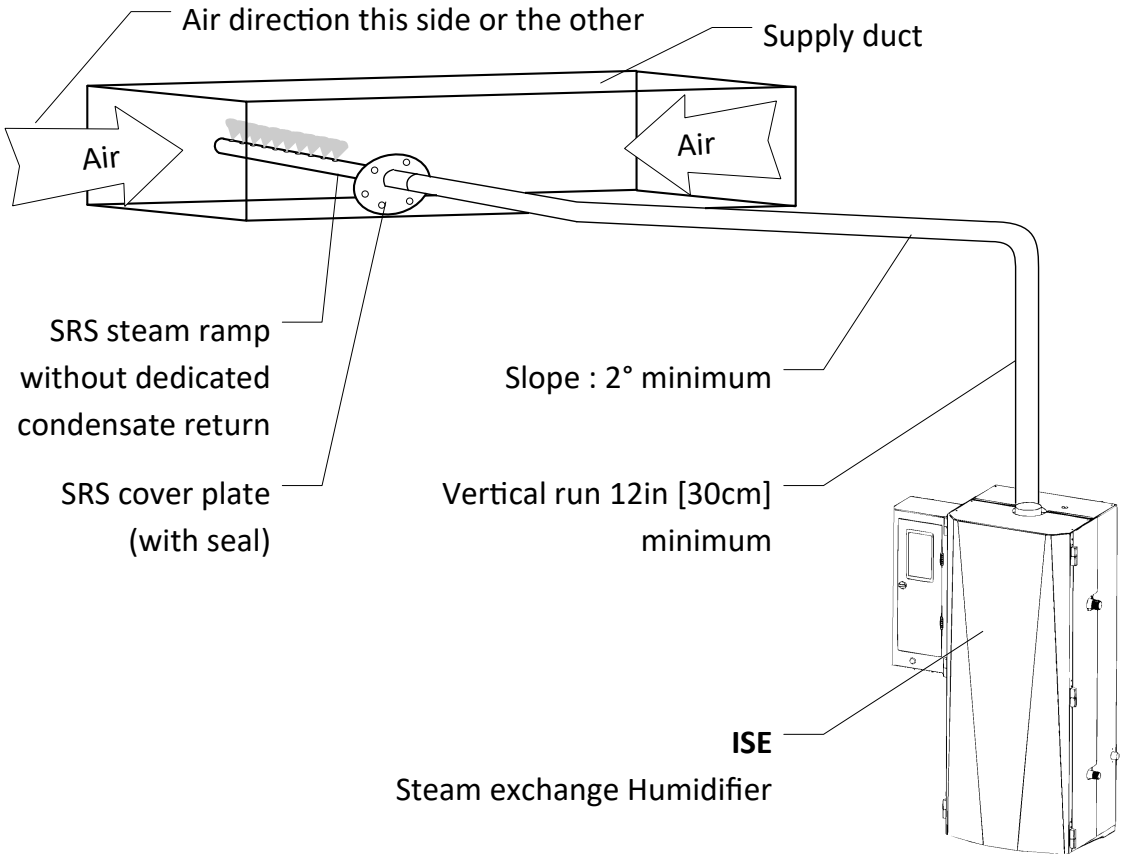


Figure 16 – SRS & SRSX installation – no dedicated condensate return line

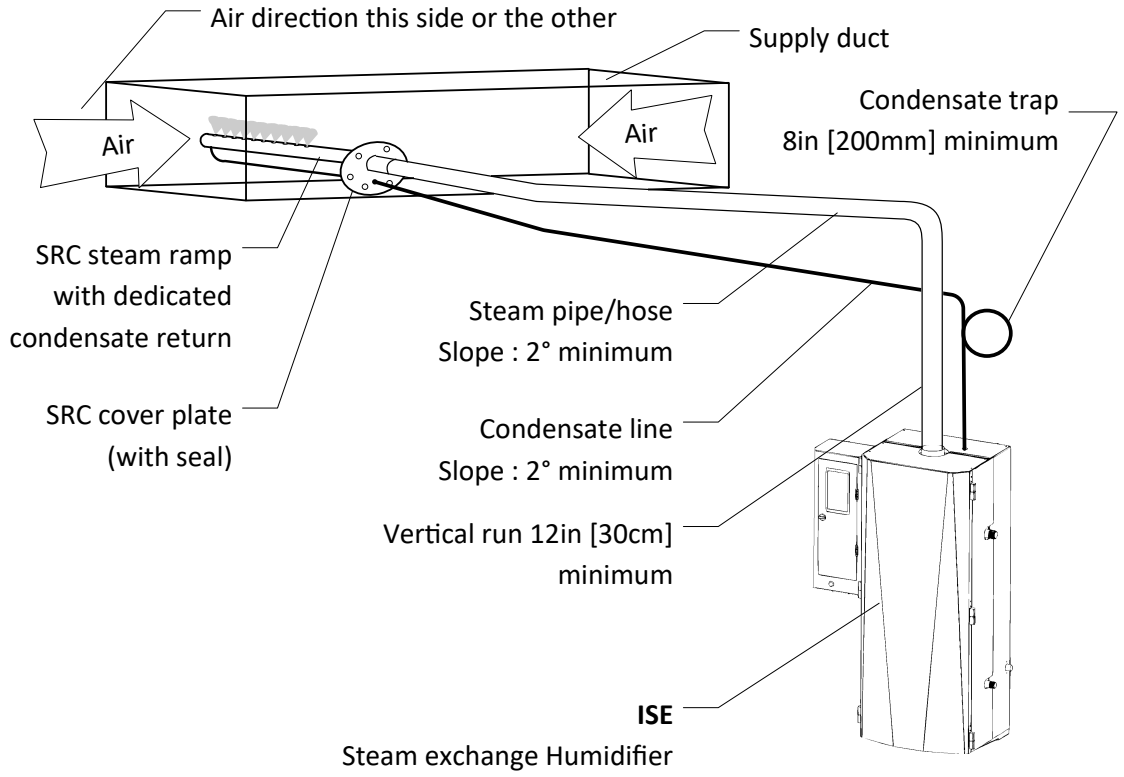


Figure 17 – SRC & SRCX installation – with dedicated condensate return line to ISE

Installation steps :

1. Positioning & mounting of **SR (S, C, SX or CX)** steam ramp to the ventilation duct wall by using metal screw
2. Install the steam hose or rigid steam pipe between the ISE steam humidifier and the steam ramp.
   Note: when using rigid stem pipe (stainless steel or copper) it is a good practice to connect in between the steam ramp, ISE steam exchange humidifier and pipe by using a small length of steam hose for ease of installation and service.
   Allow for a slope of 2° minimum.
3. Secure all connection with hose clamps
4. For SRC or SRCX install a condensate hose in between steam ramp and ISE steam exchange humidifier.
   Provide a condensate trap of 8in [200mm] minimum as shown on above figure.
   Allow for a slope of 2° minimum
5. Secure all connection with hose clamps

Steam ramp description

SRS - Steam ramp without dedicated condensate return

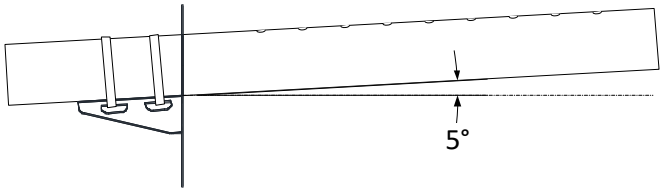


Figure 18 – SRS

Simpler to install, but not recommended when large quantity of condensate is produced (in case of long steam line run or large duct with low air temperature).

Standard absorption

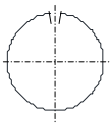


Figure 20 – SRS

Short absorption

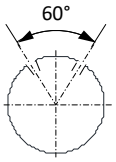


Figure 21 – SRSX

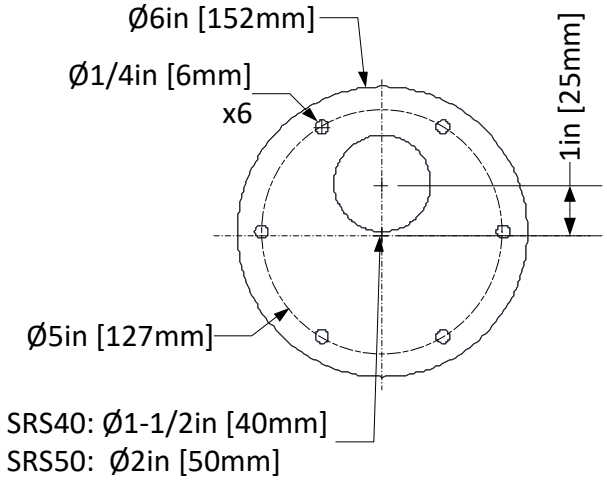


Figure 24 – SRS & SRSX cover plate dimension

SRC - Steam ramp with dedicated condensate return

Figure 19 – SRC

Avoid any possible trouble due to condensate flow against the steam flow inside steam pipe or hose.
A condensate line must be installed and connected to drain or returned to humidifier

Standard absorption

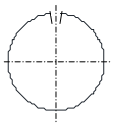


Figure 22 – SRC

Short absorption

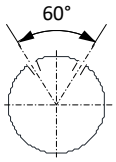


Figure 23 – SRCX

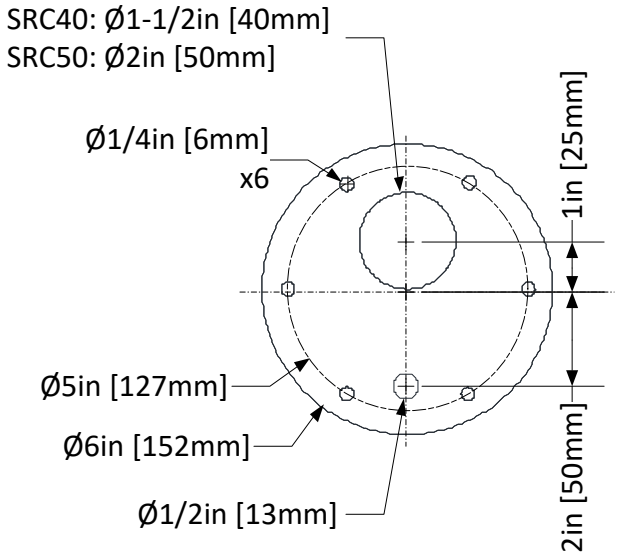


Figure 25 – SRC & SRCX cover plate dimension

Minimum distances for SRS & SRSX

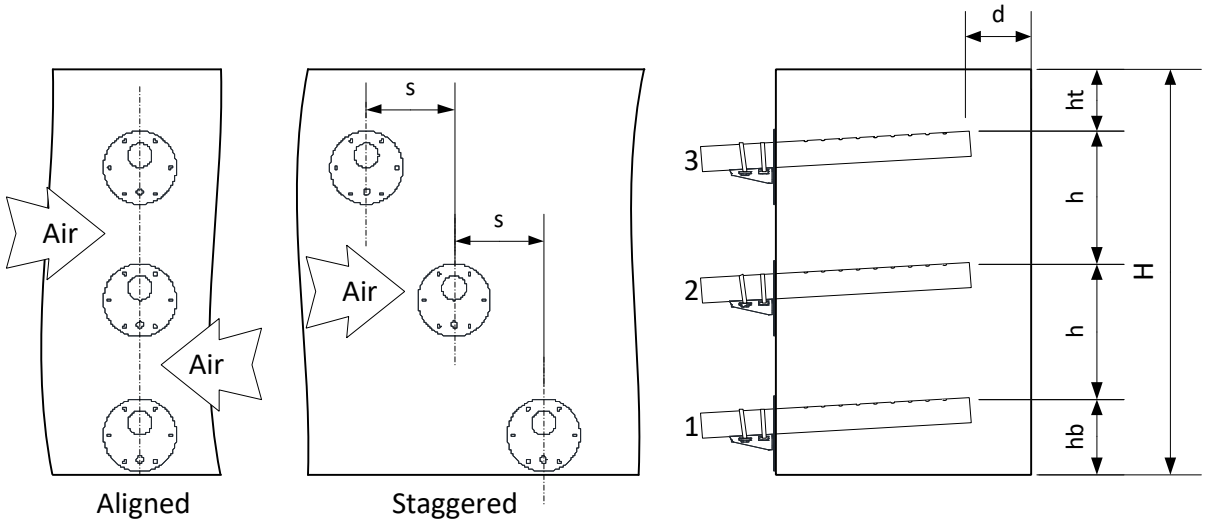


Figure 26 – SRS & SRSX minimum distances

In order to avoid condensing on the duct surface or on ramps, steamOvap recommends the following minimum distances:

- ht(min)
  Minimum height distance between end of top ramp (#3) and top of the duct.
  ht (min) = 4.5in [115mm]
- d(min)
  Minimum depth distance between top ramp and side wall of the duct.
  d(min) = ht(min) = 4.5in [115min]
- hb(min)
  There is no minimum height distance required for the bottom ramp (#1) and the bottom of the duct.
  However we recommend a minimum: hb(min)=4in [100mm]
- h(min)
  Height in between ramps (h) should be equal / even.
  h=H-(ht+hb)/(nb of ramps -1),

If ramps are aligned	If ramps are staggered
h(min) = 8in [200mm] Air flow can be one or the other direction.	h(min) = 4.5in [115mm] Important: the air flow direction should be as indicated on above drawing. s(min) minimum distance between ramps s(min) = 4in [100mm]

Minimum distances for SRC & SRCX

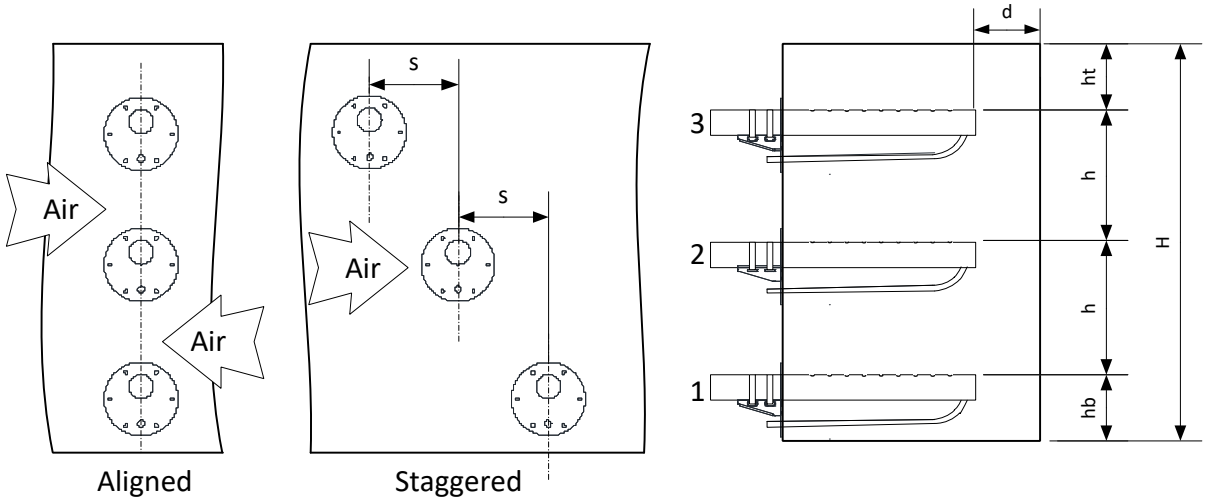


Figure 27 – SRC & SRCX minimum distances

In order to avoid condensing on the duct surface or on ramps, steamOvap recommends the following minimum distances:

- ht(min)
  Minimum height distance between end of top ramp (#3) and top of the duct.
  ht (min) = 5in [130mm]
- d(min)
  Minimum depth distance between top ramp and side wall of the duct.
  d(min) = 4.5in [115min]
- hb(min)
  There is no minimum height distance required for the bottom ramp (#1) and the bottom of the duct.
  However we recommend a minimum: hb(min)=4in [100mm]
- h(min)
  Height in between ramps (h) should be equal / even.
  h=H-(ht+hb)/(nb of ramps -1),

<u>If ramps are aligned</u>
h(min) = 8in [200mm]
Air flow can be one or the other direction.

<u>If ramps are staggered</u>
h(min) = 4.5in [115mm]
Important: the air flow direction should be as indicated on above drawing.
s(min) minimum distance between ramps
s(min) = 4in [100mm]

steamOsorb installation

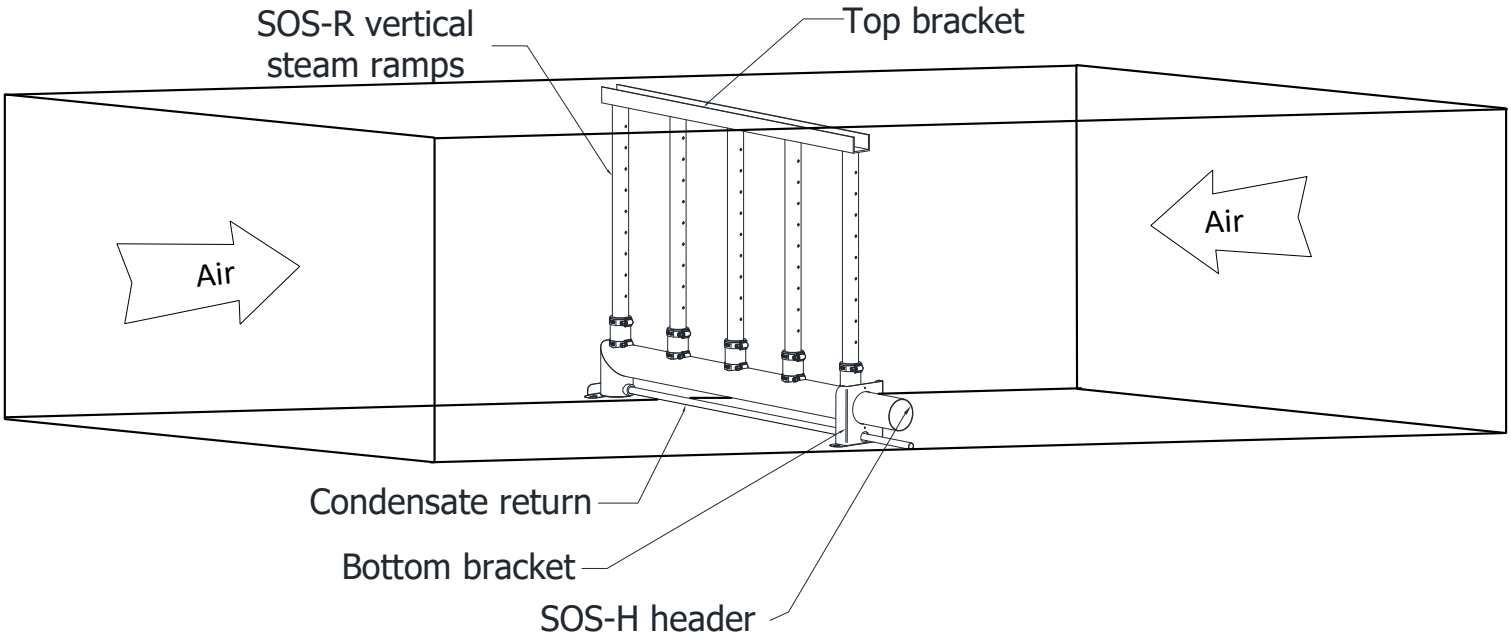


Figure 28 – steamOsorb multiramp installation

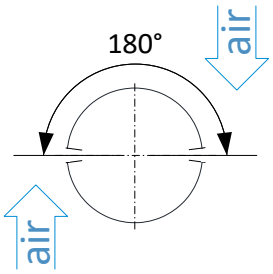


Figure 29 steam ramp profile and outlets position

Please refer to steamOsorb IOM for installation guidelines.

steamOsorb or steam ramp installed lower than ISE humidifier steam outlet

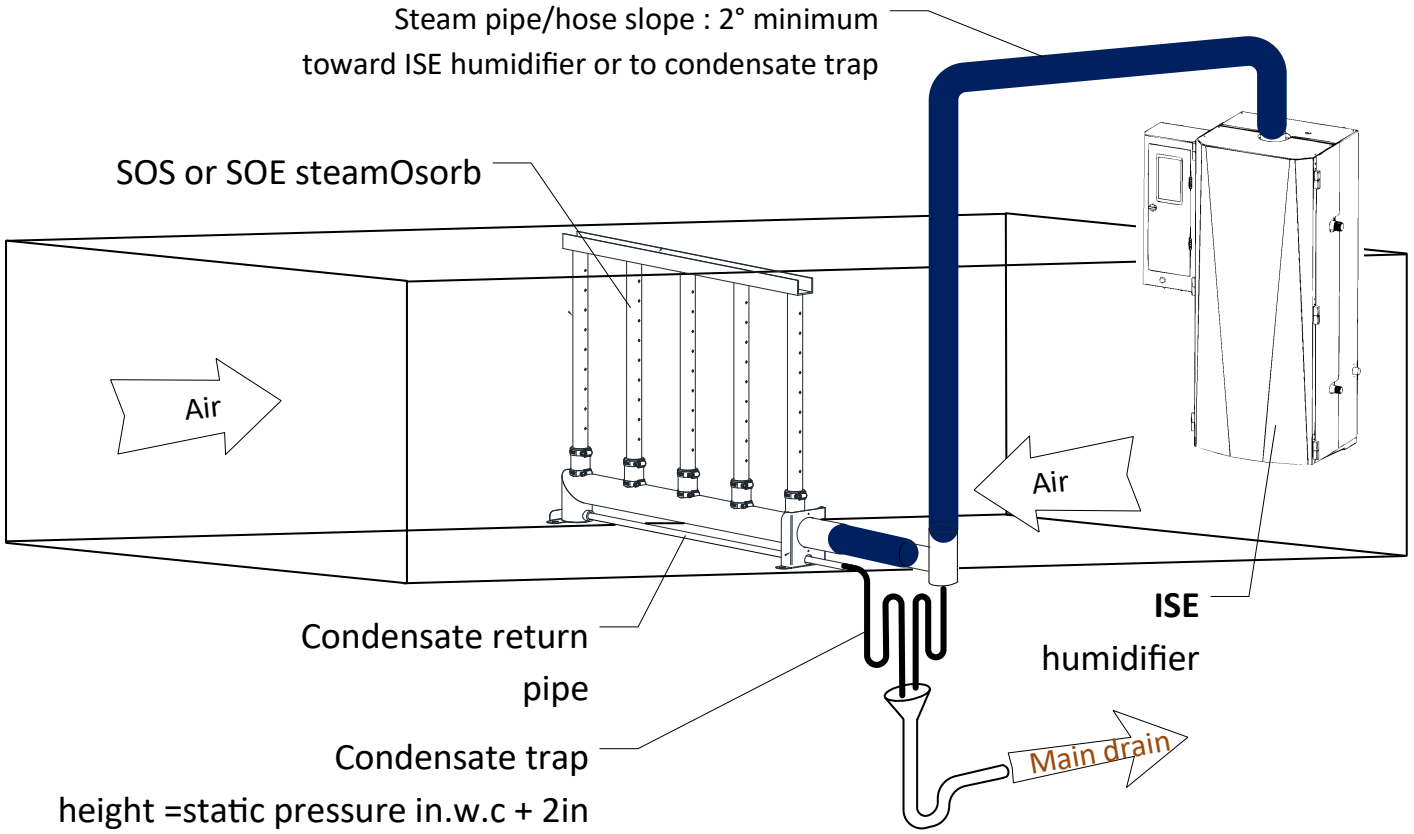


*Figure 30 – steamOsorb multiramp install lower than **ISE***

When SR steam ramp or SOS steamOsorb multiramp is installed lower than **ISE** humidifier steam outlet, a tee with condensate port must be installed at the lowest point of the steam line.
Condensate should be evacuated through a trap. The height of the condensate trap should be equal to duct static pressure in in.w.c. + 2 in.

Installation – step 6
Power supply installation

Electrical Warning

Risk of electric shock.
Disconnect power supply before installation or service.
Power supply connection must be done by a trained and qualified electrician.

Any work related to power supply installation of this humidifier must comply with local code and regulation regarding safety and prevention of accidents.

ISE electrical rating

Model	Nb of module	Voltage	Nb of Power connection	Power	Current
ISE30 to 300	1	120Vac 1ph	1	100W	0.9A
		240Vac 1ph	1	100W	0.5A
ISE440 & 600	2	120Vac 1ph	1	200W	1.8A
		240Vac 1ph	2	2x 100W	1.0A

Installation steps :

120Vac

ISE humidifier is supplied with a 120Vac standard electric plug.
Refer to below table for power and current requirements

240Vac

1. Make sure power supply is disconnected before to proceed
2. Open Cover of the closed type transformer located on the side panel of the ISE humidifier.
3. Connect supply lines (L , N and GND) to the transformer terminals
   Connect the earth conductor with a lug and secure it to the GND threaded stud..
4. Secure and attach the supply wiring, and close the transformer cover.
5. It is a good practice to install a switch of disconnect closed to the ISE humidifier in order to easily shutting it down for service.

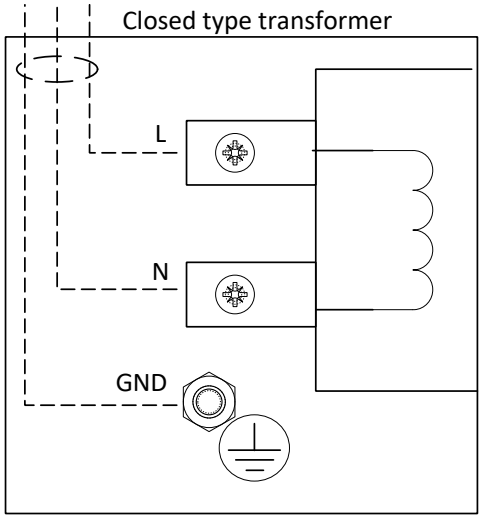


Figure 31 – Power supply connection for 240Vac/1ph

Installation – step 7
Actuated valve connection

General guidelines

Actuated control valve should be connected as described in the wiring diagram
a junction box (by others) should be installed for easy connection

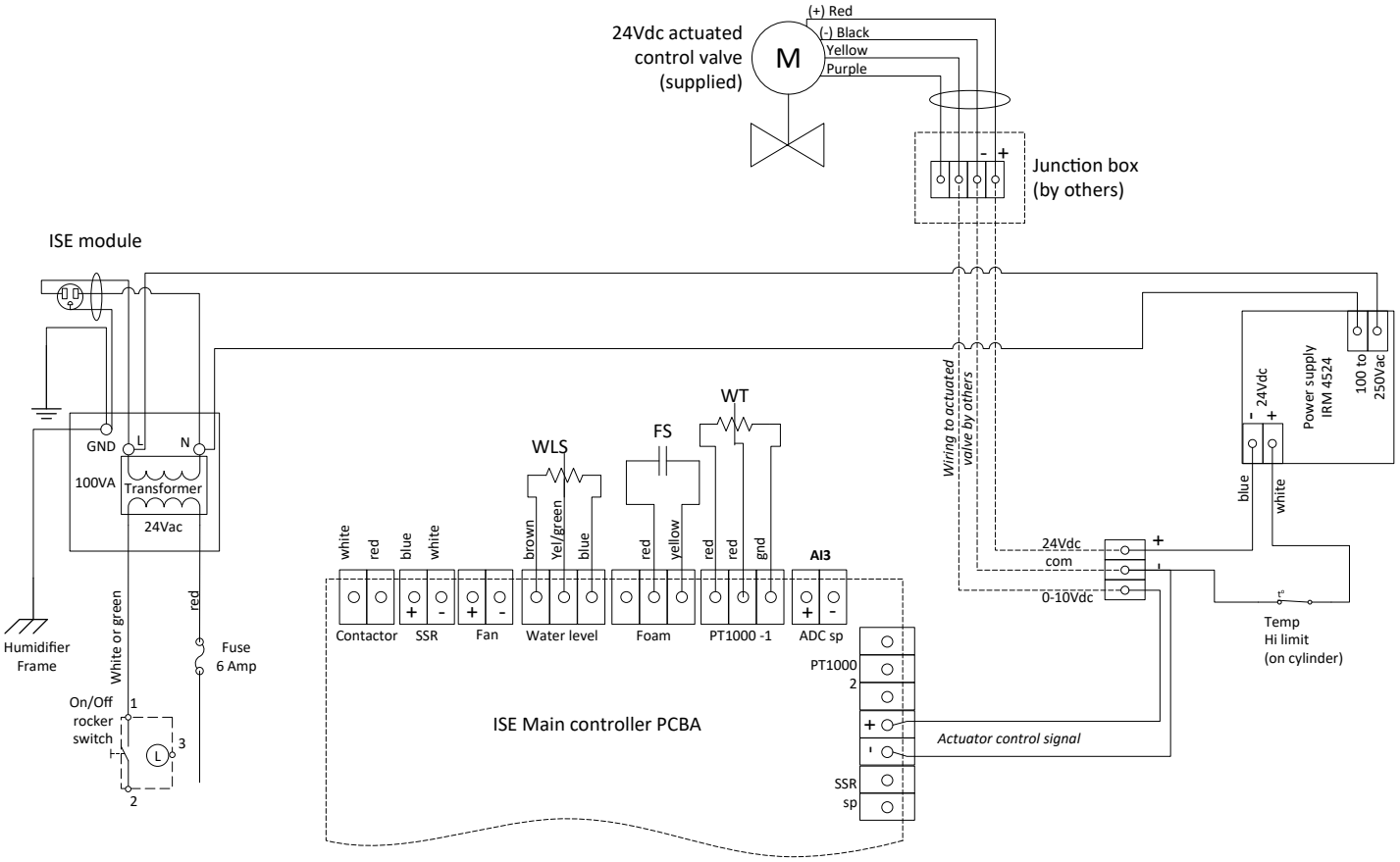


Figure 32 – Actuated valve connection

Installation – step 8
Control installation

General guidelines for control installation

It is a good practice to install the following safety controls:

- An air proving switch (APS) in the same duct as the humidifier's steam ramp so that it can prevent humidifier from producing steam in case there is no air flow.
- A high limit humidistat shall be installed downstream of the steam ramp so that it can prevent any over humidity (condensing) occurrence. High limit humidistat is usually provided by an on-off switch its set point should be 85%RH minimum.
  High limit humidistat should be placed at least at a distance equivalent to five times the absorption distance. If the absorption distance is not known, locate it at least 9 feet (3m) downstream of the steam ramp.
  For system that needs very accurate RH% control a RH% sensor can replace or supplement the On/Off Hi Limit humidistat in this case the **ISE** humidifier will not only modulate the steam production based on the control; signal demand but also on this proportional Hi-Limit signal.
- An enable dry contact can also be wired to switch the humidifier ON or OFF, this enable contact can be used either as a third safety control or as a way to control the humidifier ON and OFF, although **ISE** humidifier is fully modulating.

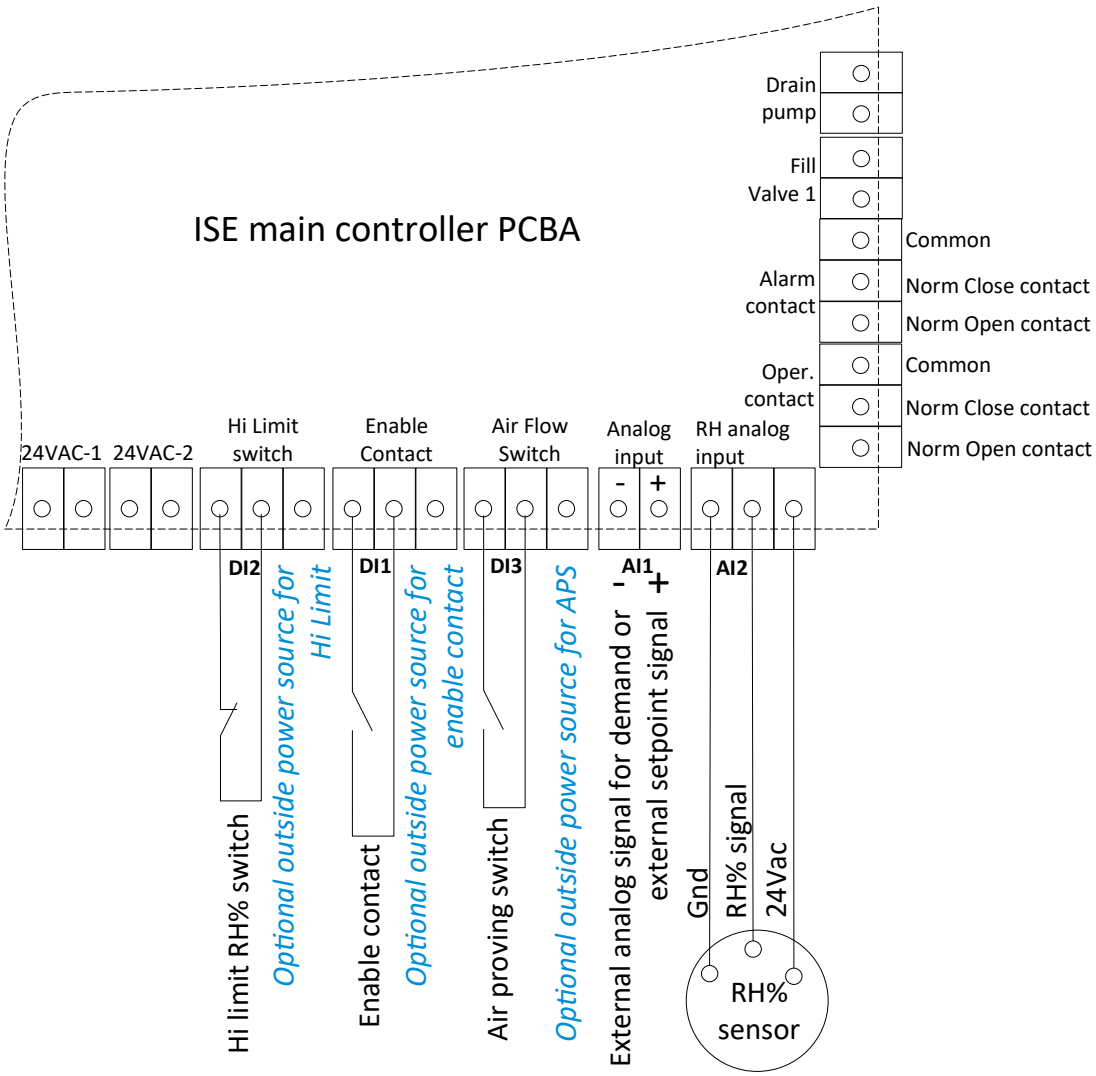


Figure 33 – Control connection

Admissible control signal

Control	Admissible signals
External analog signal for demand	0-10Vdc, 2-10Vdc, 4-20mA
On-Off external signal	Dry contact
Proportional RH% or temperature sensor	0-10Vdc, 2-10Vdc, 4-20mA

Installation steps :

1. Ensure that the safety contact for Air proving switch and Hi limit humidistat are connected to the terminals 4 and 5.
2. Connect the applicable controls according to the above wiring diagram
3. Selection of control signal is done through set-up screens once the **ISE** humidifier will be powered.

Verification before start-up

Warning

For safety and warranty reasons, Installation and service of this humidifier should be carried out by trained and qualified personnel.
Any work related to installation and service of this humidifier must comply with local code and regulation regarding safety and prevention of accidents.

Risk of electric shock. Disconnect power supply before verification.

Risk of malfunction. Steam lines should not have any restriction or blockage that may cause a burst of pressure in the steam line.

Risk of flooding. In order to avoid any risk of flooding steamOvap recommends a Hi limit humidity switch installation in the air duct downstream of the steam distribution ramp.

Risk of freezing. Plan an anti-freeze system in case of installation in a location that would be exposed to outside conditions and susceptible of freezing.

Risk of malfunction. Do not block steam outlet(s).

Check list

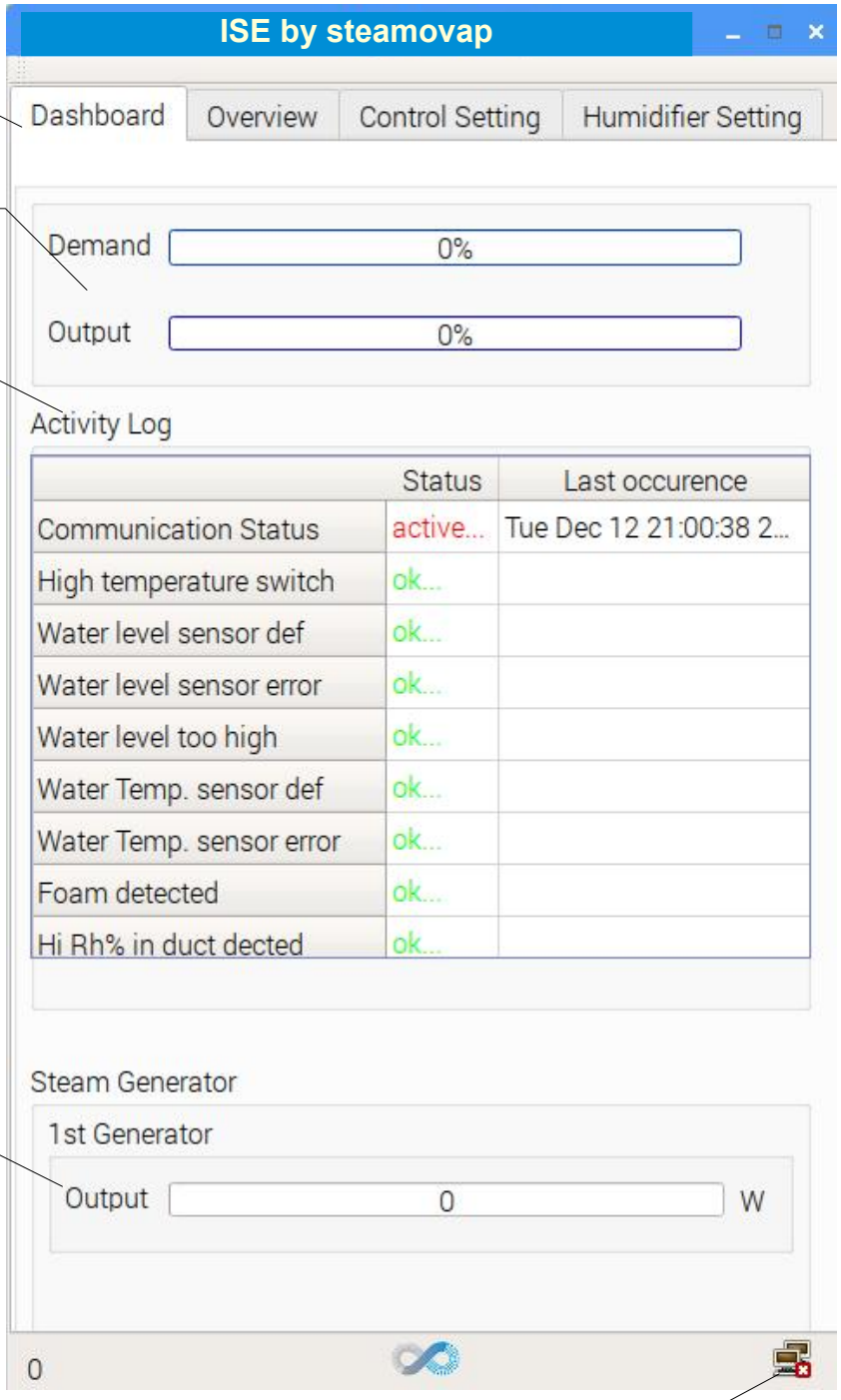
- **Mounting**
  - Check mounting to verify that the **ISE** humidifier is level and securely supported before filling with water.
- **Water supply**
  - Verify that all piping connections have been completed as recommended and that water pressure is available.
  - Once water shut off valve is open, verify for any possible leaks.
- **Drain**
  - Verify that all drain piping has been completed as recommended and that an open drain deported from **ISE** humidifier is provided.
- **Pressurized steam**
  - Verify that pressurized steam piping has been completed as recommended and that a manual shut off valve, a strainer and vacuum breaker are provided.
  - Open the manual shut-off valve and check for hissing sound and any possible leaks, on the steam piping and all connections.
- **Condensate**
  - Verify non pressurized condensate from **ISE** heat exchanger has been completed and is returned to boiler or directed to a gravity drain
- **Atmospheric steam distribution**
  - Verify that all steam piping has been completed as recommended and that a slope of minimum 2° is provided.
  - Ensure that there is no sag or kink or any possible obstruction in the steam line, and condensate line.
- **Power supply**
  - Verify that power supply wires have been connected to main terminal and ensure that all wires are safely tightened. Ensure that an all pole disconnecting device with fuses is installed and easily accessible.
- **Actuated control valve**
  - Verify that the actuated control valve is properly connected as indicated in this IOM.
- **Control circuit**
  - Verify that safety controls such as air proving switch and Hi limit humidistat have been connected.
  - Verify that a control signal demand or RH% sensor is connected to the control terminals.

Once all above verification has been completed and found satisfactory you can proceed to the start-up and to to power up the **ISE** humidifier to review and complete its setting and configuration.

Configuration & Operation

Dashboard screen

Dashboard screen is also the main/home screen



Navigation tabs

Demand & Output information

Activity log shows status, date & time of occurrence of events

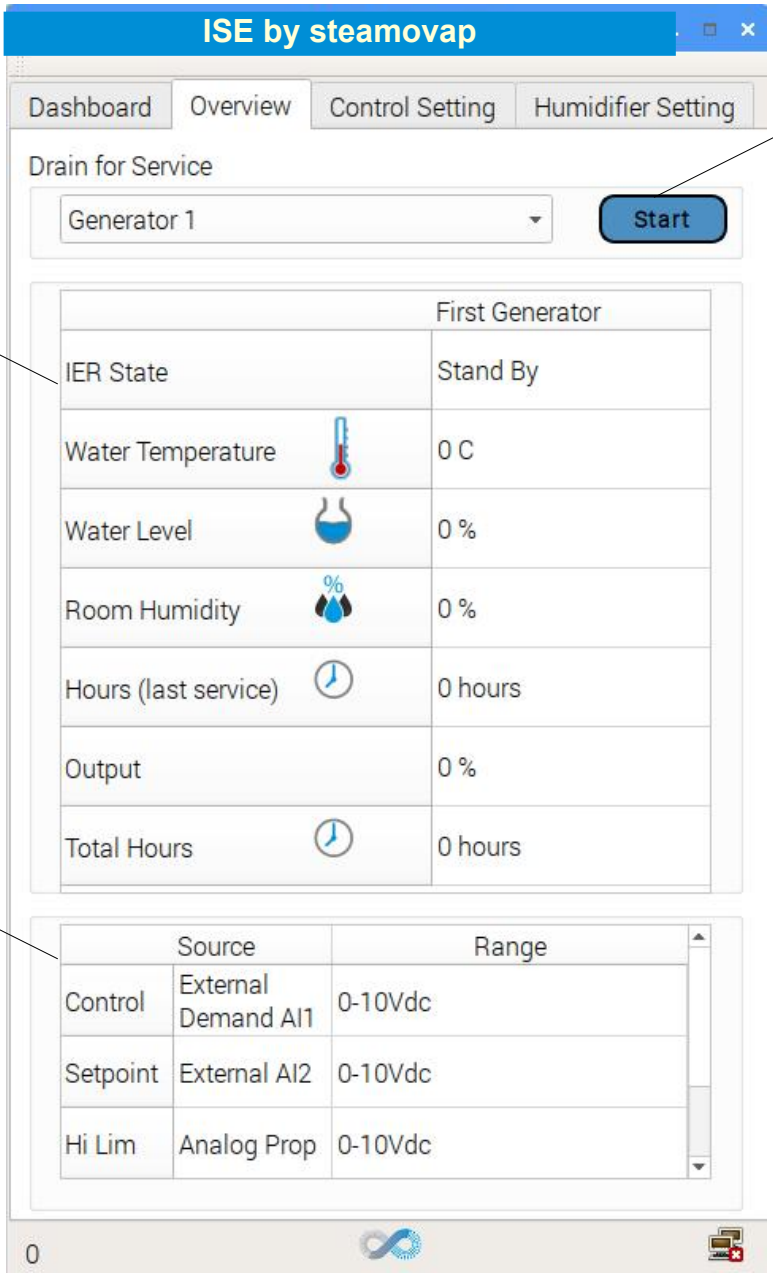
Output in Watt for each steam generator

Status of operation & communication icon

Figure 34 – Dashboard screen

Overview screen

Overview screen gives all information on internal sensors and control settings and allow ordering a drain for service



Current state of the IER humidifier

Control configuration summary

Order drain for service
1) select steam generator
2) click on start;
Drain pump will operate. If water temperature is between 140 to 212°F [60 to 100°C] cylinder will be cooled off by filling up with fresh water and draining it a 2nd time.
IER state will change to ''SERVICE''

Figure 35 – overview screen

Icon status

An icon status located at the right hand side in the footer of the screen indicate the status of the **ISE** humidifier

 ISE is OK and in operation or stand by.

 Alarm level 1, needs service technician reset if latched.

 Alarm level 2, auto reset as soon as default is over.

 Communication between board computer and Main controller is altered.

 Service is required.

ISE states

The different possible states of the **ISE** humidifier are:

- STANDBY_STATE,
  ISE humidifier is disable (see status of enable button in Control setting / control config).
- ARMED_STATE,
  ISE humidifier is ready to operate, waiting for humidity demand
- STEAM_ON_STATE,
  ISE humidifier is producing steam
- DRAINCYCLE_STATE,
  ISE humidifier is draining the cylinder
- ADD_WATER_STATE,
  ISE humidifier is adding water in the cylinder (while producing steam or not)
- PRE_HEAT_STATE,
  If Preheat function is enable, the ISE is heating water in the cylinder.
- ALARMS_STATE,
  ISE humidifier is on Alarm of level 1, a manual reset is required, go to Humidifier settings / Reset alarm.
- SERVICE_STATE,
  User has ordered a drain for service, in this case **ISE** humidifier will drain the cylinder, refill with fresh water in case the temperature inside cylinder is above 140°F [60°C] (if cooling function is enabled), and drain again.

Control Setting screen

Control setting screen allows user (control engineer) to set signal and parameters to control the **ISE** steam exchange humidifier.
Access to this screen can be restricted with password. In this case password is 3549

Pop up to enter password

Pop Up for password entry

Access password are:

- Control setting : 3549
- Humidifier setting : 7030

Note: Touch the screen one time to activate it before to enter code then click on Enter.

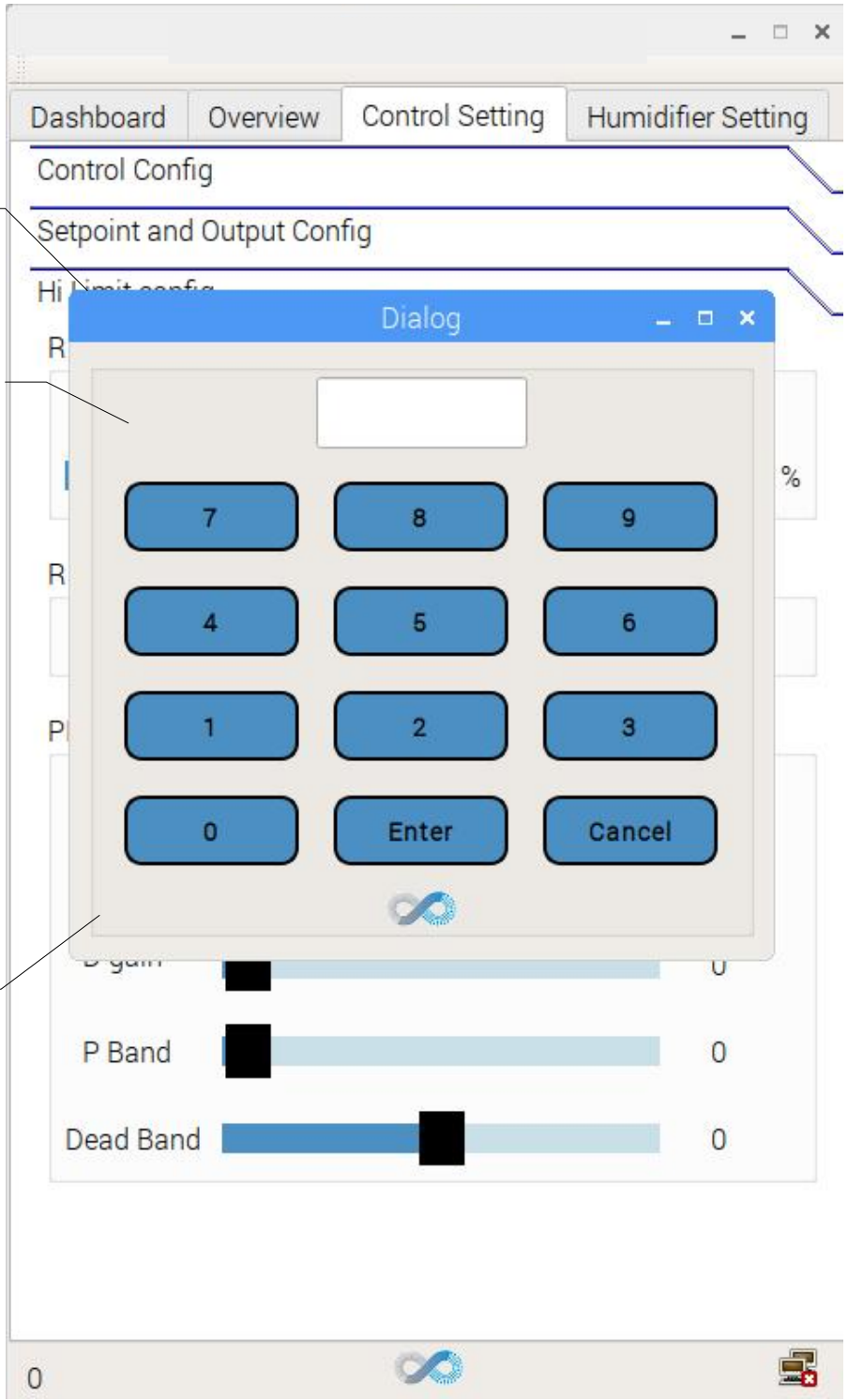


Figure 36 – password screen

Control setting / control config

Control setting is composed of 3 sub sections:
Control config.
Setpoint & output config.
Hi Limit config.

Select control source

If analog demand is selected, indicate the signal range

If RH% or Temp is selected, indicate the signal range

If RH% or Temp is selected, set the PID control

Humidifier enable allows to put IER ON or OFF

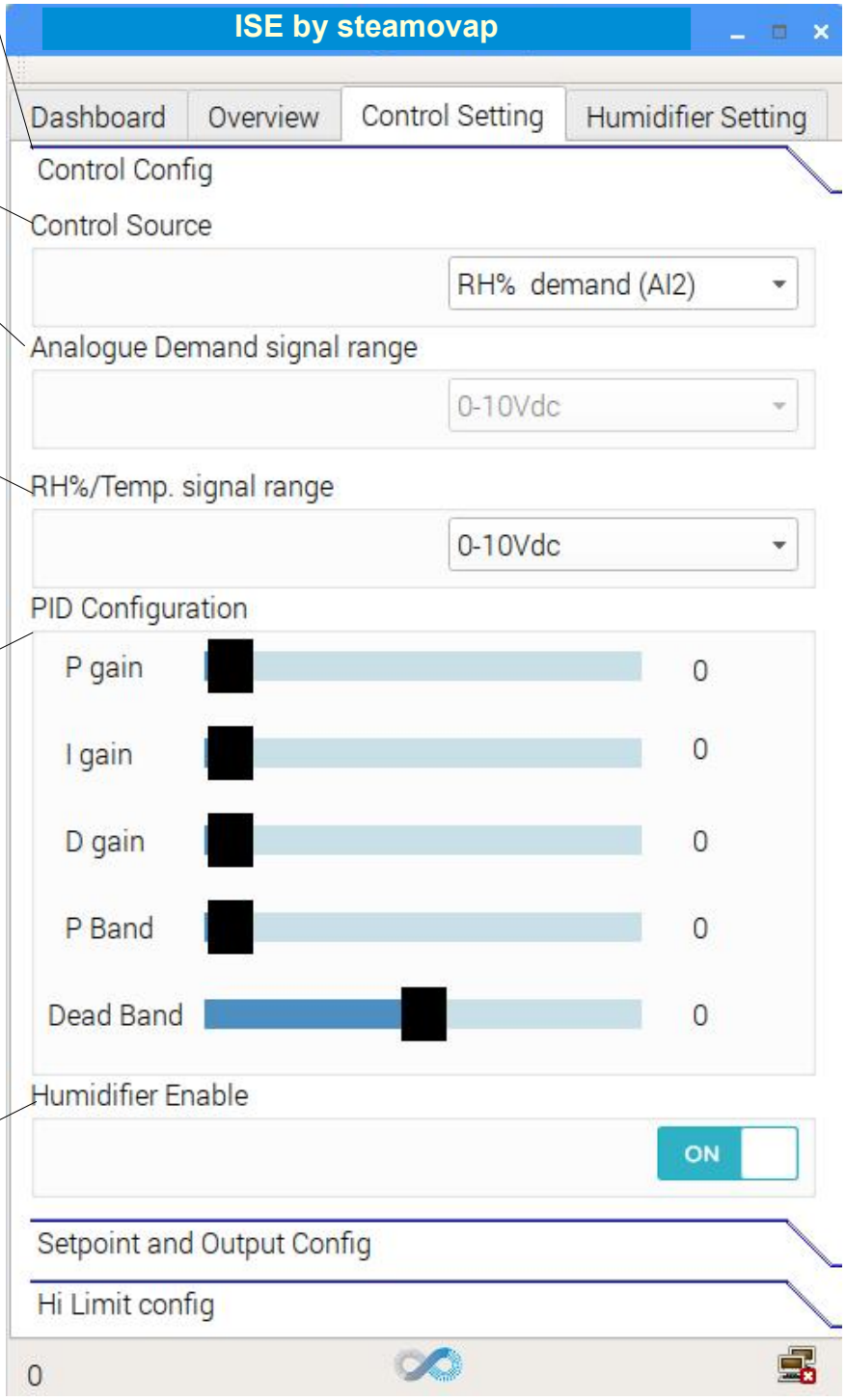


Figure 37 – Control setting/control config screen

Control setting / setpoint & output config

Select setpoint source

If internal set point is selected, indicate the RH% or Temp. setpoint

Output signal range

Output capacity reduction allows to reduce the overhall steam capacity of the IER

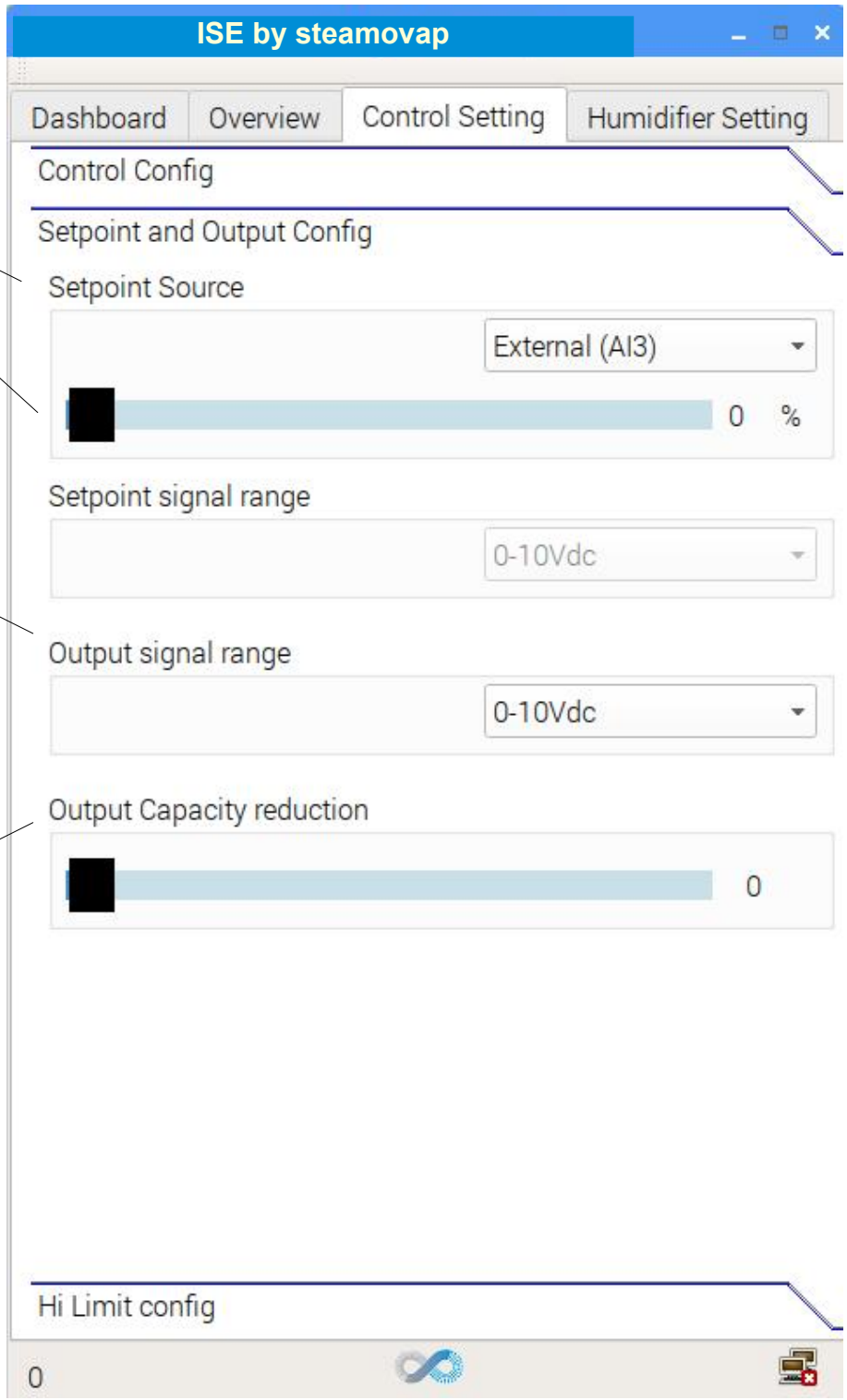


Figure 38 – Control setting/set point config screen

Control setting / Hi Limit config

Select RH% Hi limit source

If internal RH% Hi limit is selected, indicate the RH% setpoint

If external RH% Hi limit is selected, indicate range

If external RH% is selected, set the PID control

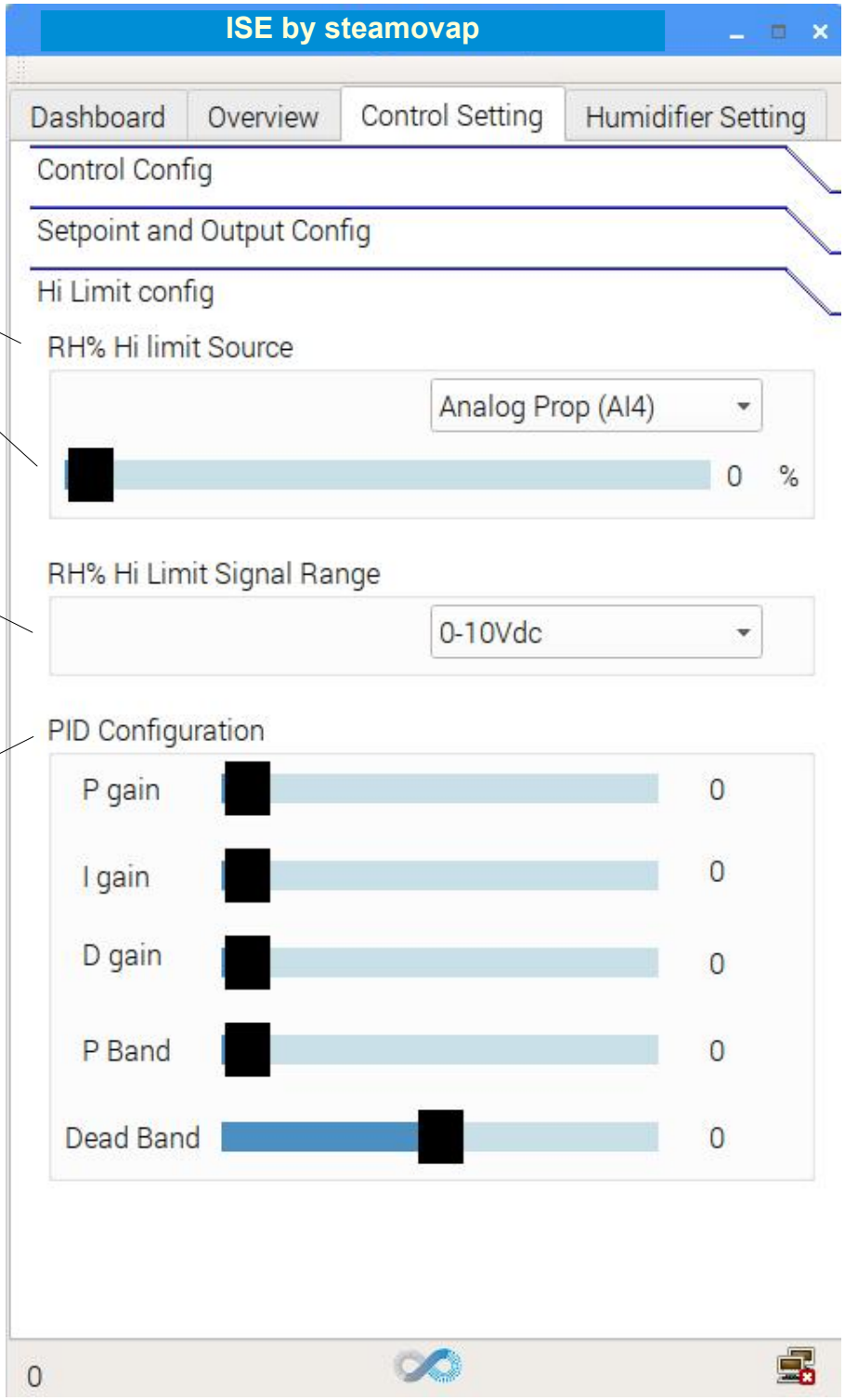


Figure 39 – Control setting/Hi Limit config screen

Humidifier setting screen

Humidifier setting screen allows user (mechanical contractor) to set humidifier parameters. Access to this screen can be restricted with password. In this case password is 7030

Humidifier setting / setting 1

Humidifier setting is composed of 4 sub sections:

Reset Alarms allows the reset of latched alarms

Set Drain frequency ''Auto dilution'' is an autoadaptive program to reduce energy consumption due to drain

Inactivity drain will drain the cylinder after set time is reached

Drain cooling automatic sequence can be put OFF

Set the service frequency

When pre set time is reached IER will automatically turn OFF if service Auto off is enabled

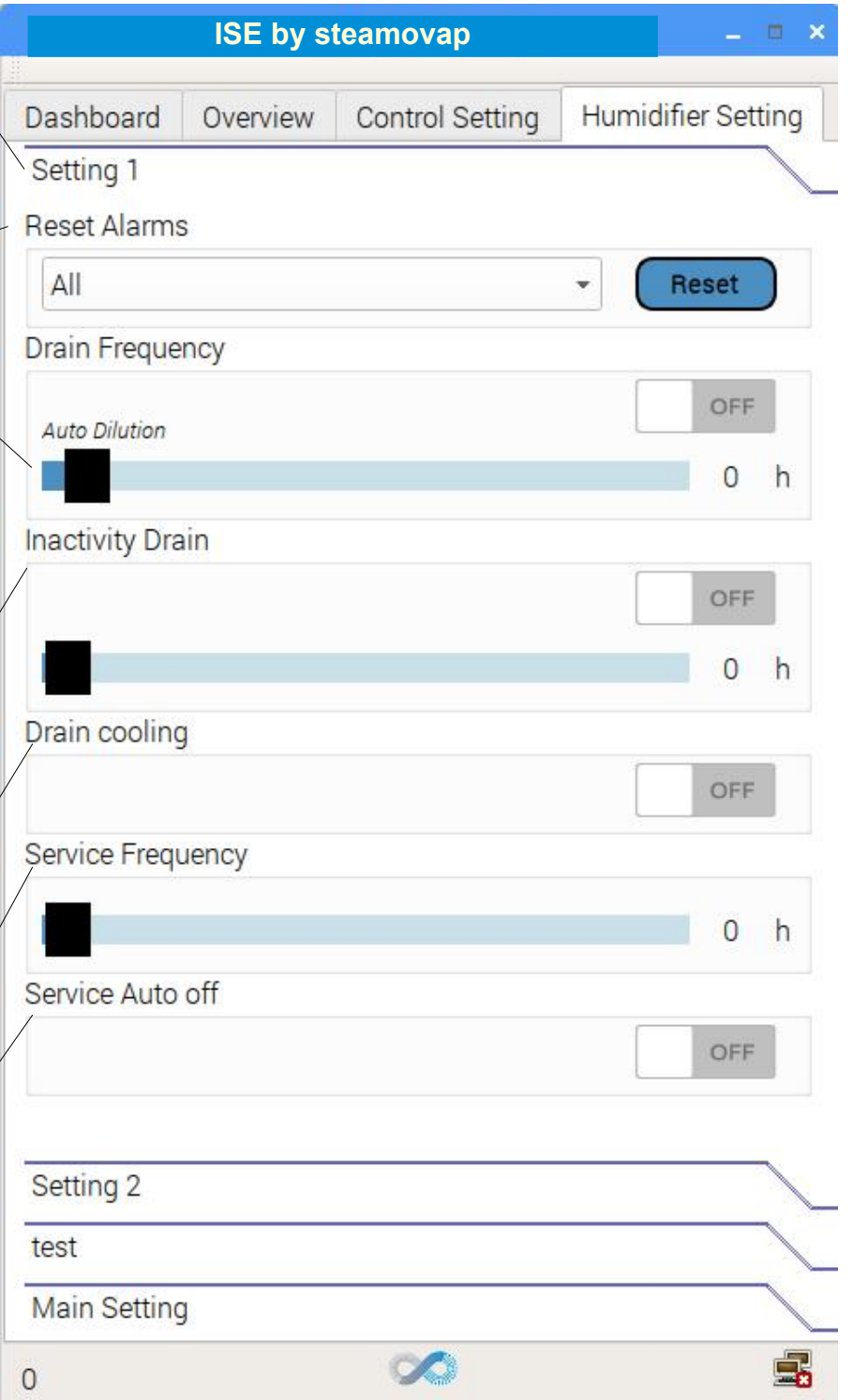


Figure 40 – Humidifier setting/setting 1 screen

Humidifier setting / setting 2

Activate antifreeze function if IER is located in a location where freezing can occur

In case of water temperature sensor drifting you can adjust its calibration (should be done at boiling point)

Possible control of external fan from IER

Water pre-heat can be used for tight RH% control to avoid delay in steam production

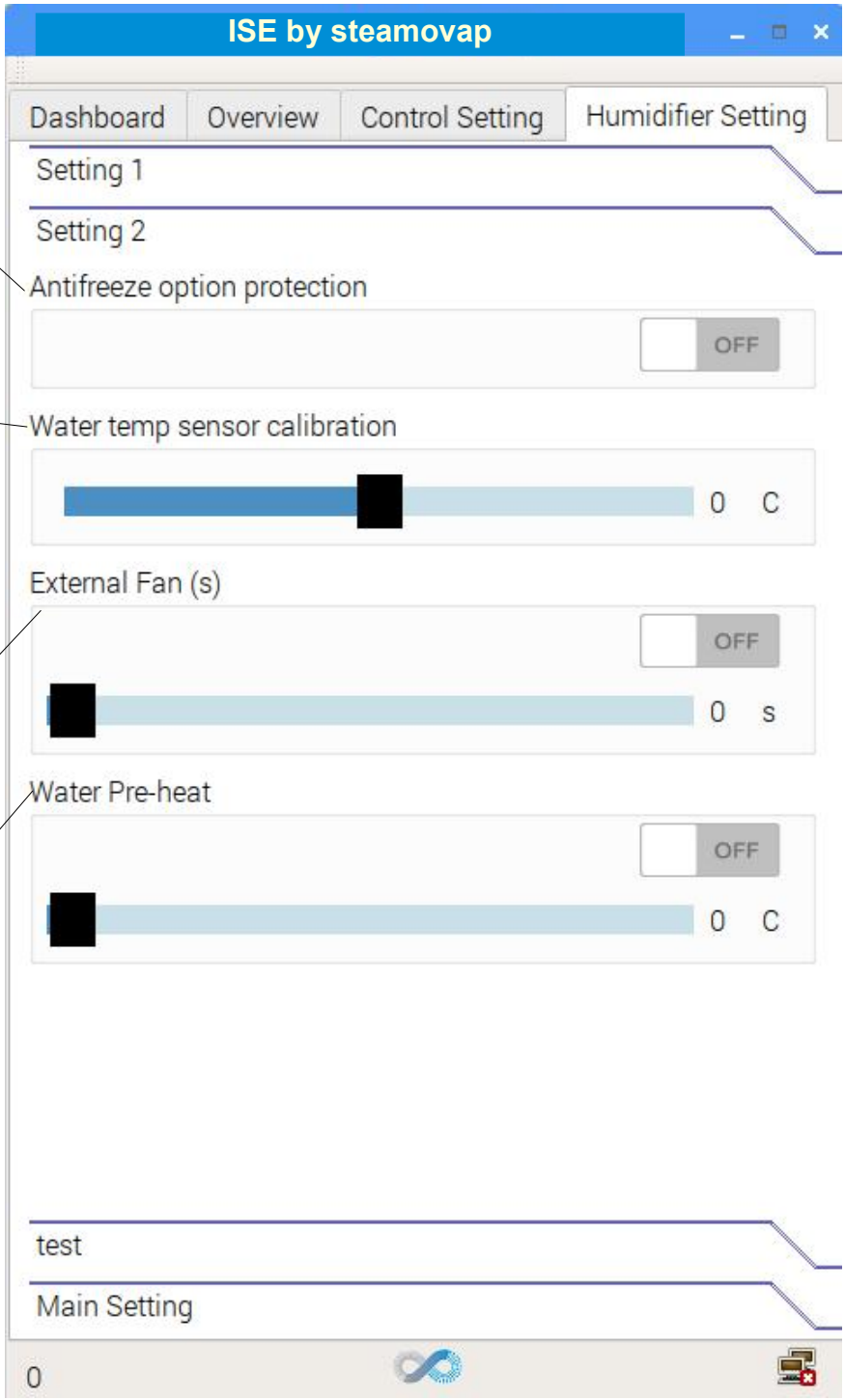


Figure 41 – Humidifier setting/setting 2 screen

Humidifier setting / Main setting

Software revision

Export and/or import user config for quick set-up

Password access for control or humidifier settings screens can be disabled

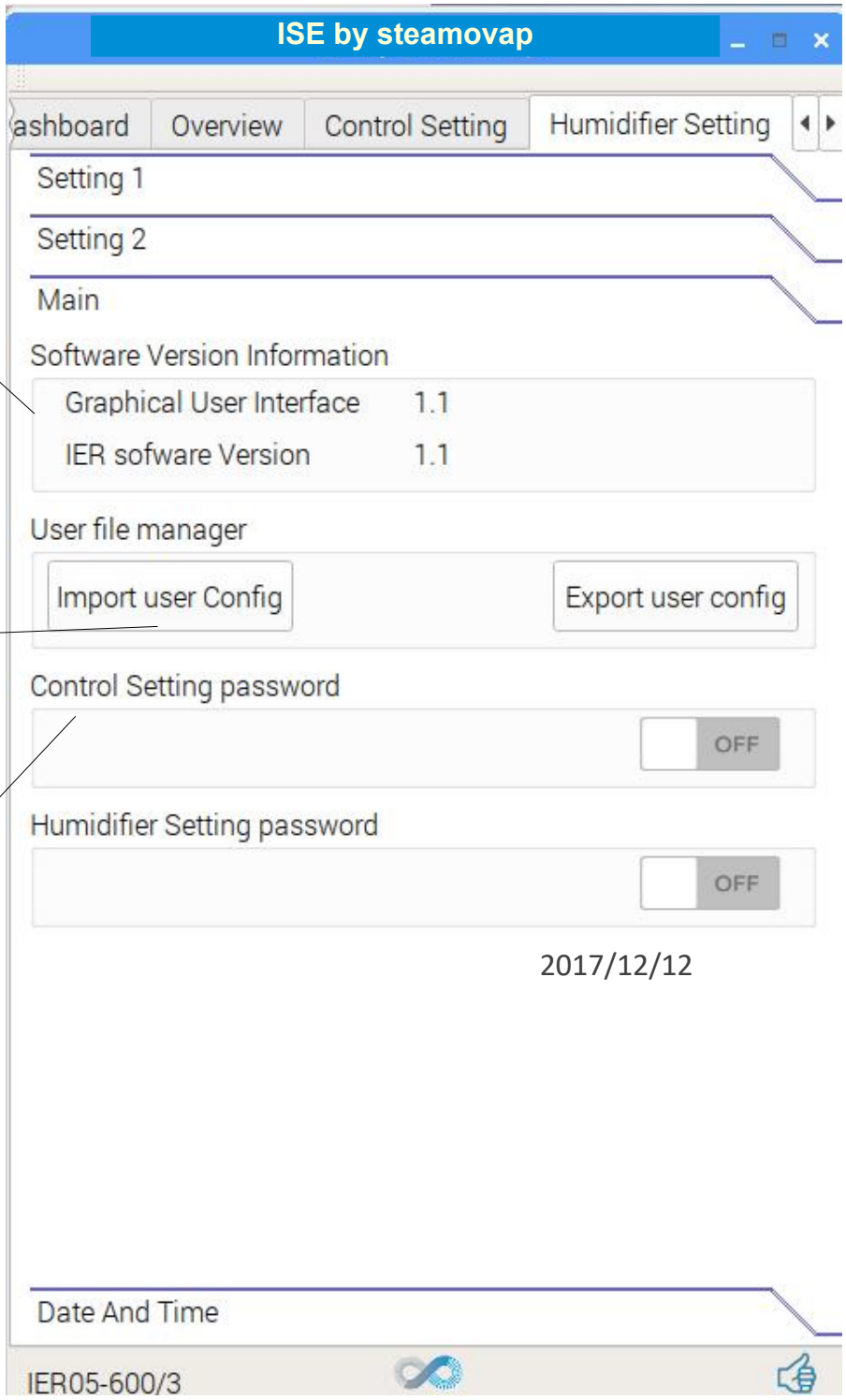


Figure 42 – Humidifier setting/setting 1 screen

List of alarms

In case of alarm, the status icon located at the right hand side in the bottom footer of the screen can be either:

 Alarm level 1, critical alarm will stop operation of **ISE** humidifier, if latched will need manual reset by service technician.

 Alarm level 2, non-critical alarm will not stop operation of **ISE** humidifier, auto reset as soon as default is over.

Alarm	Level	Description
Service needed	2	Servicing the cylinder is required latched if set as is by installer
Air Flow error	1	No air flow in the duct
Hi Rh% in duct detected	1	A duct Hi limit RH% sensor or switch is installed and has detected High humidity.
Enable Switch	1	Enable switch is off
High temperature Switch	1 latched	Hi limit safety switch located on top of the cylinder is open
Water level sensor def	1	Water level sensor is defective
Water level sensor error	1	Water level detected is abnormal
Water level too high	1	Water level is higher than expected
Water level too low	2	Water level is lower than expected
Water Temp. Sensor def	1 latched	Water temperature sensor is defective
Water Temp. Sensor error	1	Water temperature measured is abnormal
Foam detected	1	Foam is detected in the cylinder latched in case of repetition
Water inlet Low Flow	2	Fill or refill of cylinder is longer than expected
Water Feed Error	1	No water is supplied
Drain pump error	1	Drain pump is not able to empty cylinder
Unit not heating	2	ISE not heating water
Electric supply	2	Low power
No control Connected	2	No signal received
Communication Status	2	Loss of communication between board computer and Main controller

Warranty

steamOvap technologies inc. (hereinafter referred to as **steamOvap**), warrant for a period of 3 years after installation, that steamOvap manufactured and assembled products are free from defects in material and workmanship; provided that a start-up report with no default has been done and signed by the authorized **steamOvap** local representative. Otherwise the warranty period is reduced to 18 months.

steamOvap's obligations and liabilities under this warranty are limited to furnishing replacement parts to the customer, F.O.B. **steamovap's** factory, providing the defective part(s) is returned freight prepaid by the customer. Parts used for repairs are warranted for the balance of the term of the warranty on the original product or 90 days, whichever is longer.

No liability whatsoever shall be attached to **steamOvap** until said products have been paid for in full and then said liability shall be limited to the original purchase price for the product. Any further warranty must be in writing, signed by an officer of **steamOvap**.

steamOvap makes no warranty and assumes no liability unless the equipment is installed in strict accordance with installation manual in effect at the date of purchase and by qualified and trained personnel and in accordance to local codes and regulations.

steamOvap makes no warranty and assumes no liability whatsoever for consequential damage or damage resulting directly from misapplication, incorrect sizing or lack of proper maintenance of the equipment.

steamOvap retains the right to change the design, specification and performance criteria of its products without notice or obligation.

In case of litigation or dispute arising, all parties agree that the exclusive venue for any litigation shall be vested with a court of competent jurisdiction located in the Judicial District of Montreal, Quebec, Canada.

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