

User Manual



Artec[®]

HYDRO | SENS

UK

Productive enviroment
Item nr. 365400

Introduction

Dear customer

Congratulations on your new Airtec® system.

With the purchase of an Airtec® system, you are ensured a product that are produced and handled accordingly with the Quality, Environmental and Hygienic accreditations ISO 9001, ISO 14001 and ISO 22000 HACCP.

To maintain the HACCP norm there are some additional requirements to comply with. Airtec® has special HACCP service agreements, please ask your local distributor.

All our systems are developed and produced in Denmark.

Safety:

This manual has been written to ensure the safe use, performance and longevity of the equipment and is intended for the use by engineers and properly trained technical personnel.

For the correct maintenance of your system, we recommend maintenance to be done by authorized Airtec® service engineers.

To prevent water stagnation and bacterial contamination, this humidifier should be left switched on continuously. If the system is switched off for prolonged periods, the pipe work should be disinfected. Please contact Airtec® or your distributor.

Warning:

This symbol highlights an instruction relating to safety, where extra caution should be taken.



Notice:

Airtec® policy is one of continuous research and development. Airtec® A/S reserves the right to amend, without notice, the specifications provided in this document. Airtec® A/S does not guarantee, or accept liability, for the accuracy of the information in this document.

Contact Airtec® A/S:

Questions related to your new Airtec® A/S system can be directed to

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General Information

1.1 Correct use

Airtec® high pressure air humidification system is intended for adiabatic humidification and cooling.

Airtec® designs and produces air humidification systems with the purpose of improving the total outcome of the production facilities – People • Product • Process.

Eliminating problems relating to electro static discharge, dust, desiccation and temperature variables is our primary focus.

The system should always be left switched on. If the system is not required to run, the set point should be set at 0 % RH. In this mode the system will start up a hygienic rinse cycle of the system every 6 hour, to prevent stagnation of the water and bacterial contamination.



If the system is shut down due to power outage contact you supplier to restart the system.



Due to maintenance and service on the humidifiers, air in the system can occur. This can result in drip from the nozzles during start and stop of the system. This should stabilize over a period of 2-4 days.



1.2 Safety

Work on the system:

Disconnect or switch off power supplies to the system before commencing maintenance or repair.

Hygienic safety: Turn to page 19



General Information

1.3 EU-agreement declaration

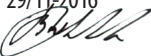
Manufacturer: **Airtec® A/S**
Address: **Hvedemarken 21 · DK-7620 Lemvig**
Phone: **+45 99 63 13 00**
Fax: **+45 97 81 11 01**
E-Mail: **airtec@airtec.dk**
Web: **www.airtecsolutions.com**

Hereby declares, that

Machine: **High pressure air humidification system**
Brand: **Airtec®**
Type: **HYDRO | SENS**
 HYDRO | SENS AHU

Serial no.: _____

- is in conformity to the technical directive:
directive 2006/42/EC EN60204-1:2006
- is in conformity to the EMC-directive:
directive 2014/30/EU
- is in conformity to the Low voltage directive:
directive 2014/35/EU EN 61439-1:2014

Place: Lemvig
Date: 29/11-2016
Signature: 
Bo Rahbek, Managing Director

General Information

1.4 Water connection

It is owner responsibility to insure that the water supply complies with the local regulations and bylaws, particularly those for the control of bacteria.

Tap water supply with following minimum requirements * .

Hardness	dH°	30
Conductivity	µs/cm	300-1000
PH		7-8,5
NTU		≤ 1
Chlorine free	mg/l	≤ 0,1
Manganese (Mn)	mg/l	≤ 0,05
Iron (Fe)	mg/l	≤ 0,2
Silt		≤ 3
KMnO ₄	mg/l	≤ 10
Coliform Bacteria		0
Kim 37c°	CFU/ml	20
Kim 22c°	CFU/ml	200
Pressure*	bar / psi	2-7 / 29-101
Water temperatur	max °C	15°C

pressure must be stabilized to insure optimal operation

A water analysis should always be performed by the customer to confirm the water quality.

Please note possible loss in pressure from pre water filtration.

Drain should be minimum 40 mm and terminated 20 cm above the floor drain, complies with the local regulations .

minimum required water filtration is 1µ filter before entering the system.

A water analysis should always be performed by the customer to confirm the water quality.

system requier room with floor drain.

Ambient temperatur 1-20c° (35c°)



1.5 Electrical installations

All installations comply with the EU regulations

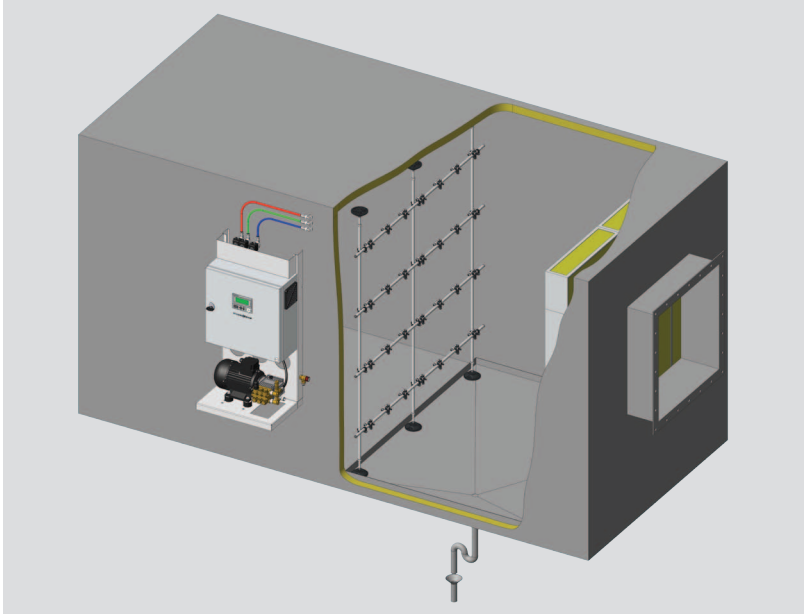
See power lable og electrial diagram.

Always insolate all power supplies to the system before commencing any installations, maintenance or repair.

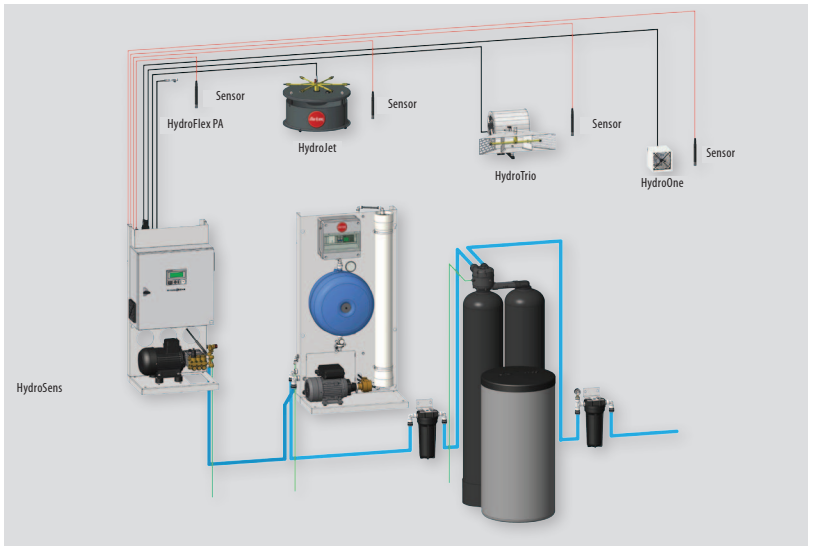


1.6 System overview

HYDRO|SENS AHU



HYDRO|SENS



1.7 Warranty

Airtec® system parts are warranted for 2 years from invoice date for material and fabrication defects in accordance with ORGALIME S 2000 or ORGALIME SE 01.

All communication concerning the system, should be directed to the distributor from where the system was purchased. This applies to both daily use, service, maintenance, spareparts and any warranties.

Terms of warranty:

1. Regular inspections, adjustments, service or technical changes are not included by the warranty.
2. All claims concerning warranty should be directed to the distributor from where the system was purchased.
3. This warranty does not cover defects that cannot be traced back to material or fabrication defects.
4. Airtec® A/S policy is one of continuous research and development. Airtec® A/S reserves the right to introduce improvements and changes to the design of the system without being liable to modify existing systems.

Extended warranty, high pressure pump:

36 months or 15.000 operating hours.

The following are not included by the warranty:

Spare and wear parts, operation errors, accidents, negligent system handling, and changes to the systems construction or using unoriginal spare parts.

Damages due to force majeure, improper or lack of maintenance, consequential damages or other causes beyond the control of Airtec®.

1.8 Decommissioning

Disposal in accordance to the WEEE-directive in the country of use.

2.1 Technical data, HYDRO | SENS.

S.Nr: 100000-

Flow l/h	4-600	24-800	84-1200
Power supply	230/240 V, 50/60 Hz. 16 Amp 1P+ N + PE		3x400/230 to 480/240 V, 16 Amp 3P + N + PE
	!! 230/240 V, 50/60 Hz is always 1P+N+PE		
P2, power output available kW	1,8 kW		5,4 kW
Frequency inverter kW	1,5		2,2
Ventilator supply	10 A		
	!! Please note, effect demand from total amount of atomizers		
Supply water pressure, bar	2 - 7		
Supply water connection	ø14 mm		
Sensor control	0-10 V		
On/Off control	✓		
Control	4-8-10 zones Rh% or 2-4-5 zones Rh% / °C		
Pulsing function	✓		
Hygienic rinse system	✓		
Ethernet/MODBUS TCP	✓		
microSD slot	4-32 Gb SDSC or SDHC class 6 or 10 (not included)		
Datalog	✓ (microSD card required)		
Maintenance indicator	✓		
External stop	1 input available to stop 1 or more zones		
Alarm log	✓		
Alarm out, potential free	✓		
External alarm in	1 input available to stop system in alarm, reset required		
Thermal pump control	✓		
Flow control	✓		
Low water pressure alarm	✓		
High/low humidity alarm	✓		
Ambient temperature range	1-20 °C (35 °C) / 34-68 °F (35 °C/95 °F)		
Protection class	IP 52		
Noice level , dB (A)	< 70		
VDI 6022 compliant	✘		
Ventilator start/stop	Option		
Scada remote control	Option		
MODBUS RTU (RS232/485)	Option		
Analog input 4-20 mA	✘		
Dimensions (Width x Depth x Heights)	590 x 365 x 1030 mm / 23,2" x 14,4" x 40,5"		
Weight Kg / Lbs	53 / 116,8	61 / 134,5	68 / 149,9

2.2 Technical data, HYDRO | SENS AHU.

S.Nr: 100000-

Flow l/h	4-600	24-800	84-1200
Power supply	230/240 V, 50/60 Hz. 16 Amp 1P+ N + PE		3x400/230 to 480/240 V, 16 Amp 3P + N + PE
	!! 230/240 V, 50/60 Hz is always 1P+N+PE		
P2, power output available kW	1,8 kW		5,4 kW
Frequency inverter kW	1,5		2,2
Ventilator supply	10 A		
	!! Please note, effect demand from total amount of atomizers		
Supply water pressure, bar	2 - 7		
Supply water connection	ø14 mm		
Sensor control	0-10 V / BMS 0-10 V PID		
On/Off control	✓		
Control	2-3 AHU		
Pulsing function	x		
Hygienic rinse system	✓		
Ethernet/MODBUS TCP	✓		
microSD slot	4-32 Gb SDSC or SDHC class 6 or 10 (not included)		
Datalog	✓ (microSD card required)		
Maintenance indicator	✓		
External stop	1 input available to stop 1 or more zones		
Alarm log	✓		
Alarm out, potential free	✓		
External alarm in	1 input available to stop system in alarm, reset required		
Thermal pump control	✓		
Flow control	✓		
Low water pressure alarm	✓		
High/low humidity alarm	✓		
Ambient temperature range	1-20 °C (35 °C) / 34-68 °F (35 °C/95 °F)		
Protection class	IP 52		
Noise level, dB (A)	< 70		
VDI 6022 compliant	✓		
Ventilator start/stop	Option		
Scada remote control	Option		
MODBUS RTU (RS232/485)	Option (Analog input 4-20 mA not optional)		
Analog input 4-20 mA	Option (MODBUS RTU not optional)		
Dimensions (Width x Depth x Heights)	590 x 365 x 1030 mm / 23,2" x 14,4" x 40,5"		
Weight Kg / Lbs	53 / 116,8	61 / 134,5	68 / 149,9

2.3 Screen menu, HYDRO|SENS.

Airtec HydroSens
InRoom %RH
Software V. 2.05
Status OK

< Zone Overview >
%RH/set %RH/set
° 1 XXX/XXX ° 6 XXX/XXX
° 2 XXX/XXX ° 7 XXX/XXX
° 3 XXX/XXX ° 8 XXX/XXX
° 4 XXX/XXX ° 9 XXX/XXX
° 5 XXX/XXX °10 XXX/XXX

< System >
Operation, hours XXXXXX
Pump, hours XXXXXX
Oil, hours XXXXXX
Reset Service Yes
Pressure, Bar XX.X
Inverter, Amps XX.X



Pulsing, Sec = Off>0
On/Off On/Off
1 XXX/XXX 6 XXX/XXX
2 XXX/XXX 7 XXX/XXX
3 XXX/XXX 8 XXX/XXX
4 XXX/XXX 9 XXX/XXX
5 XXX/XXX 10 XXX/XXX

Zone Hours
hours hours
1 XXXXXX 6 XXXXXX
2 XXXXXX 7 XXXXXX
3 XXXXXX 8 XXXXXX
4 XXXXXX 9 XXXXXX
5 XXXXXX 10 XXXXXX

Flow Limit
Value Value
1 XX.X 6 XX.X
2 XX.X 7 XX.X
3 XX.X 8 XX.X
4 XX.X 9 XX.X
5 XX.X 10 XX.X
LowFlow XX.X

Flow Test & Setup
Test Zone no. XX Yes
Hysteresis, Hz XX.X
Inverter Freq, Hz XX.X

LowFlow Installed Yes
Alarm Delay, Sec. XX
Alarm On

User password: 1300

OK > 2 sec.

Password
0000

Press OK

Password: 1300

Service

ESC > 2 sec.



Temperature pump ° A
ModBus Fault ° L
Inverter Fault ° A
External Alarm ° R
High Flow/No Water M
Pressure Alarm
High %RH, Z. 1 2 3 4 5 6
Low %RH, Z. 1 2 3 4 5 6

Alarm Log
Power XXXXX
External Alarm XXXXX
Temperature Pump XXXXX
Modbus Fault XXXXX
Inverter Fault XXXXX

Alarm Log
High Pressure XXXXX
Max. Pressure, Bar XXX.X
High Flow XXXXX
High Flow/No Water XXXXX
High %RH XXXXX
Low %RH XXXXX

Screen menu, HYDRO | SENS.

Information and daily setup Screens

<pre> Airtec HydroSens < InRoom %RH > Software V. 2.05 Status OK </pre>	<p>- Software Type/Version and system status</p> <p>10 zones %RH or 5 zones %RH/°C</p>
<pre> < Zone Overview > %RH/set %RH/set ° 1 XXX/XXX ° 6 XXX/XXX ° 2 XXX/XXX ° 7 XXX/XXX ° 3 XXX/XXX ° 8 XXX/XXX ° 4 XXX/XXX ° 9 XXX/XXX ° 5 XXX/XXX °10 XXX/XXX </pre>	<p>- Zone overview %RH/setpoint</p> <p>To change setpoints, enter password</p>
<p style="text-align: center;">OR</p> <pre> < Zone Overview > %RH/set °C/set ° 1 XXX/XXX XXX/XXX ° 2 XXX/XXX XXX/XXX ° 3 XXX/XXX XXX/XXX ° 4 XXX/XXX XXX/XXX ° 5 XXX/XXX XXX/XXX </pre>	<p>- Zone overview %RH/setpoint & °C/setpoint</p> <p>To change setpoints, enter password</p>
<pre> < System > Operation, hours XXXXXX Pump, hours XXXXXX Oil, hours XXXXXX Reset Service Yes Pressure, Bar XX.X Inverter, Amps XX.X </pre>	<p>- Hours, Pressure and Amps</p> <p>User password: - reset service (incl. oil hours)</p>

Shared User and Maintenance setup Screens.

<pre> Pulsing, Sec = Off>0 On/Off On/Off 1 XXX/XXX 6 XXX/XXX 2 XXX/XXX 7 XXX/XXX 3 XXX/XXX 8 XXX/XXX 4 XXX/XXX 9 XXX/XXX 5 XXX/XXX 10 XXX/XXX </pre>	<p>- Puls/Pause setup</p> <p>Edit On and Off values</p> <p>- min. On value = Flow alarm delay + 1 - if Off = 0 then constand spraying</p>
<pre> Zone Hours hours hours 1 XXXXXX 6 XXXXXX 2 XXXXXX 7 XXXXXX 3 XXXXXX 8 XXXXXX 4 XXXXXX 9 XXXXXX 5 XXXXXX 10 XXXXXX </pre>	<p>- Valve hours</p> <p>User password: - read only</p>
<pre> Flow Limit Value Value 1 XX.X 6 XX.X 2 XX.X 7 XX.X 3 XX.X 8 XX.X 4 XX.X 9 XX.X 5 XX.X 10 XX.X LowFlow XX.X </pre>	<p>- Flow limit for all valves and LowFlow</p> <p>Read only, value is automaticly stored during Flow Test</p>
<pre> Flow Test & Setup Test Zone no. XX Yes Hysteresis, Hz XX.X Inverter Freq, Hz XX.X LowFlow Installed Yes Alarm Delay, Sec. XX Alarm On </pre>	<p>- Flow Test, Hysteresis, Inverter Hz, Flow Alarm & delay</p> <p>User password: - run flow test (select zone and change "No" to "Yes") - edit hysteresis - !! Flow alarm automatic activate after 1 hour.</p>

Screen menu, HYDRO | SENS.

Alarm Screens

<pre> Temperature pump° A ModBus Fault° L Inverter Fault° A External Alarm° R High Flow/No Water M Pressure Alarm High %RH, Z. 1 2 3 4 5 6 Low %RH, Z. 1 2 3 4 5 6 </pre>	<p>- Alarm screen</p> <p>Here you can see the active alarms (see troubleshooting) -if the ° is shown at the first four, the fault is still active</p> <p>Goto alarm screen, ESC > 2 sec.</p> <p>Reset alarms F3 > 2 sec.</p>
<pre> Alarm Log Power XXXXX External Alarm XXXXX Temperature Pump XXXXX Modbus Fault XXXXX Inverter Fault XXXXX </pre>	<p>- Alarm log screen 1</p> <p>Info about how many times an alarm has appeared</p>
<pre> Alarm Log High Pressure XXXXX Max. Pressure, Bar XXX.X High Flow XXXXX High Flow/No Water XXXXX High %RH XXXXX Low %RH XXXXX </pre>	<p>- Alarm log screen 2</p> <p>Info about how many times an alarm has appeared</p>

Password and Service Screen

<pre> Password 0000 Press OK </pre>	<p>- Setup Alarm Out, 2nd PLC, Valve pause and Rinse</p> <p>Goto password screen, OK > 2 sec.</p> <p>Enter password OK</p> <p>!! automatic lockout after 10min. standby</p>
<pre> Service </pre>	<p>- Time for service</p> <p>Appears the first time, when the pump has run for 300 h, it reappears for every time the pump has run for 2000 hours or half a year, depending on what comes first</p> <p>When leaving the screen it reappears after two days, until "Service is reset"</p>

2.4 Screen menu, HYDRO|SENS AHU.

Airtec HydroSens
AHU
Software V. 2.05
Status OK

< AHU Overview >
°-1- °-2- °-3-
Step X X X
Control % XXX XXX XXX
Room %RH XXX XXX XXX
Setpoint XX XX XX
Duct %RH XXX XXX XXX
Setpoint XX XX XX

< System >
Operation, hours XXXXXX
Pump, hours XXXXXX
Oil, hours XXXXXX
Reset Service Yes
Pressure, Bar XX.X
Inverter, Amps XX.X



Valve Hours
D1.1 XXXXXX D3.1 XXXXXX
D1.2 XXXXXX D3.2 XXXXXX
D1.3 XXXXXX D3.3 XXXXXX

D2.1 XXXXXX
D2.2 XXXXXX
D2.3 XXXXXX

Flow Limit
D1.1 XX.X D3.1 XX.X
D1.2 XX.X D3.2 XX.X
D1.3 XX.X D3.3 XX.X

D2.1 XX.X
D2.2 XX.X
D2.3 XX.X LowFlow XX.X

Flow Test & Setup
Test LowFlow Yes
Hysteresis, Hz XX.X
Inverter Freq, Hz XX.X

LowFlow Installed Yes
Alarm Delay, Sec. XX
Alarm On

User password: 1300

OK > 2 sec.

Password
0000

Press OK

Passwords: 1300

Service

ESC > 2 sec.



Temperature pump° A
ModBus Fault° L
Inverter Fault° A
External Alarm° R
High Flow/No Water M
Pressure Alarm
High %RH, Z. 1 2 3 4 5 6
Low %RH, Z. 1 2 3 4 5 6

Alarm Log
Power XXXXX
External Alarm XXXXX
Temperature Pump XXXXX
Modbus Fault XXXXX
Inverter Fault XXXXX

Alarm Log
High Pressure XXXXX
Max. Pressure, Bar XXX.X
High Flow XXXXX
High Flow/No Water XXXXX
High %RH XXXXX
Low %RH XXXXX

Screen menu, HYDRO | SENS AHU

Information and daily setup Screens

<pre> Airtec HydroSens < AHU > Software V. 2.05 Status OK </pre>	<p>- Software Type/Version and system status</p>
<pre> < AHU Overview > °-1- °-2- °-3- Step X X X Control % XXX XXX XXX Room %RH XXX XXX XXX Setpoint XX XX XX Duct %RH XXX XXX XXX Setpoint XX XX XX </pre>	<p>- Step, Control %, Room and Duct %RH/setpoint</p> <p>To change setpoints, enter password</p>
<pre> < System > Operation, hours XXXXXX Pump, hours XXXXXX Oil, hours XXXXXX Reset Service Yes Pressure, Bar XX.X Inverter, Amps XX.X </pre>	<p>- Hours, Pressure and Amps</p> <p>User password :</p> <p>- reset service (incl. oil hours)</p>

Shared User and Maintenance setup Screens

<pre> Valve Hours D1.1 XXXXXX D3.1 XXXXXX D1.2 XXXXXX D3.2 XXXXXX D1.3 XXXXXX D3.3 XXXXXX D2.1 XXXXXX D2.2 XXXXXX D2.3 XXXXXX </pre>	<p>- Valve hours</p> <p>User password:</p> <p>- read only</p>
<pre> Flow Limit D1.1 XX.X D3.1 XX.X D1.2 XX.X D3.2 XX.X D1.3 XX.X D3.3 XX.X D2.1 XX.X D2.2 XX.X D2.3 XX.X LowFlow XX.X </pre>	<p>- Flow limit for all valves and LowFlow</p> <p>Read only, value is automatically stored during Flow Test</p>
<pre> Flow Test & Setup Test LowFlow Yes Hysteresis, Hz XX.X Inverter Freq, Hz XX.X LowFlow Installed Yes Alarm Delay, Sec. XX Alarm On </pre>	<p>- Flow Test, Hysteresis, Inverter Hz, Flow Alarm & delay</p> <p>User password can:</p> <p>- run flow test (select duct/valve and change No to Yes)</p> <p>- edit hysteresis</p> <p>- !! Flow alarm automatic activate after 1 hour.</p>

Screen menu, HYDRO | SENS AHU.

Alarm Screens

<pre> Temperature pump° A Modbus Fault° L Inverter Fault° A Pressure Alarm R High Flow/No Water M High %RH in Room 1 2 3 Low %RH in Room 1 2 3 High %RH in Duct 1 2 3 </pre>	<p>- Alarm screen</p> <p>Here you can see the active alarms (see troubleshooting) -if the ° is shown at the first three, the fault is still active</p> <p>Goto alarm screen, [ESC] > 2 sec. Reset alarms [F3] > 2 sec.</p>
<pre> Alarm Log Power XXXXX Temperature Pump XXXXX Modbus Fault XXXXX Inverter Fault XXXXX High Pressure XXXXX Max. Pressure, Bar XXX.X </pre>	<p>- Alarm log screen 1</p> <p>Info about how many times an alarm has appeared</p>
<pre> Alarm Log High Flow XXXXX High Flow/No Water XXXXX High %RH in Room XXXXX Low %RH in Room XXXXX High %RH in Duct XXXXX </pre>	<p>- Alarm log screen 2</p> <p>Info about how many times an alarm has appeared</p>

Password and Service Screen

<pre> Password 0000 Press OK </pre>	<p>- Setup Alarm Out, 2nd PLC, Valve pause and Rinse</p> <p>Goto password screen, [OK] > 2 sec. Enter password [OK]</p>
<pre> Service </pre>	<p>- Time for service</p> <p>Appears the first time, when the pump has run for 300 h, it reappears for every time the pump has run for 2000 hours or half a year, depending on what comes first</p> <p>When leaving the screen it reappears after two days, until "Reset Service"</p>

2.5 Trouble shooting

Fault / Message	Cause	Possible Solution	
Temperatur pump	Pump temp > 65°C reset is only possible when temp < 45°C	Check if pump output is blocked	
	Defect pump	Replace pump	
Modbus Fault	Defect inverter or plc	Replace defect part	
	Loose connection	Replace broken cable	
	Defect end resistance	Replace 120 Ohm resistance	
Inverter fault	Fault on inverter hardware	Replace inverter	
	Pump motor overload	Replace motor or pump	
		Call	
External alarm	Alarm input is high	Check external alarm device	
High flow / no water	defect 2,5bar drainvalve	replace valve	
		No supply water to system	Check supply line
			Check Ro and softener
	flow on one or more zone to high	check for leakage	
Run flow test			
Pressure alarm	pressure above Alarm limit	Defect by-passvalve, call service	
		Blocked pump output. check solenoid valve each zone	
		Defect pressure transmitter	
High humidity Zone, Room & duct	humidity above alarm limit default 80% in room and 88 in duct %	Check room conditions	
		Replace sensor	
		Jammed solenoidvalve, Call Service	
		control signal AHU need adjustment, Call Service	
Nozzle not spraying	Condition is ok		
	System is in alarm	Check alarm menu	
Water on the floor	Defect nozzle	replace nozzle	
		Check ambient condition	
	Defect 2,5 bar Drain valve	Replace valve	
Connecting to controller	Connection fault	Check connection plc - display	
	Defect display	Replace display	

2.6 Periodic control

Airtec® systems require very little day to day maintenance, but we recommend you check the oil, the nozzles and the filters to ensure reliable performance and a long lifetime of the system.

We recommend you take out an Airtec® service contract twice a year, to go over all relevant components, safeties and functionalities of the system.

daily / weekly inspection

- Add salt to softener system, and check if system is using the salt
- Softener test from Softener water outlet
- μs measurement from RO (if installed)
- Visuel inspection for leakage
- System alarm status

Check seals on the high pressure pump

Water seals on the high pressure pump is replaced when leaking or every 12 months.

Notice: If water seals are not replaced instantly when broken this could lead to oil leak.

This would not be covered by warranty.

Use the designated tool to replace the seals to avoid damage. " sparepartslist "

If the pump is leaking oil, replace the pump.

2.7 Hygienic safety

If system has been unable to perform in ok status, for more than 7 days, we recommend to flush each zone before starting the system again to insure no stagnant water is atomized.

! A water sample should be taken to verify the water quality.

System situations where the system cannot maintain high hygienic quality.

- Without power*
- System in alarm*
- External stop is activated*

*Situations where the system is unable to perform the automatic hygiene rinse cycle.

How to flush a zone :

1. Power up the system and press F2 to stop.
2. Stop all zones.
3. Take the last nozzle out in zone 1, and attach a 10mm hose, and connect the hose to a bucket, or direct to drain.
4. Deactivate flow alarm
5. Start the zone, and let it run for for 30 sec for each 100m hose there is in the zone.
6. Stop the zone and attach the nozzle again.
7. Repeat step 3-6 for all zones.

Restart the system.

2.8 Spareparts & Consumables

Description	Part no.		
Capacity, l/h:	600	800	1200
Frequency inverter "U1"	365514	365515	365516
Electrical motor "M1"	365325	365378	365382
By-pass	201410	201410	201413
Pump	201310	201320	201341
Sealing kit for pump *	201430	201430	201432
Tool sealingkit 600/800/1200	201460		412457
Oil for pump *	201462		
Ceramic pistons for the Speck Pump, 1 piece	201416		
Valve Kit pump 200l-1200l	201420		
Solenoid valve kit 3/2 valve	211128		
Solenoid valve, complete *	211110		
Solenoid valve coil connector incl. cable	211125		
Automatic fuse 10A	365856	365856	365857
Automatic fuse 6A	231315		
Relay G2RV-SL700 230v screw	365425		
Control relay G2R-1-SNI-230VAC	241022		
Filter for ventilator	231250		
Plc "E1/E2"	365527		
LCD Display	365261		
Modbus module serialsol	365262		
Pressure transmitter	231121		
Thermal switch	365394		
Non return valve 1/8"*	161710		
2,5 bar drain valve*	851016		
Low Flow Kit . 21 l/h	111315		111320
Sensor SmartSens	121100		

* = Recommended sparparts

Spareparts & Consumables

Description	Part no.
Nozzle 5,2 l/h *	365469
Nozzle 4 l/h *	365468
Nozzle 2,7 l/h *	365467
Nozzle 1,0 l/h *	365466
Ventilator for HydroOne	221309
Ventilator and motor for HydroTrio	221212
Ventilator for HydroJet atomiser, grey	221120
Nozzle blind plug	182341
Capacitor HydroTrio 2,0 µF	221215
Grid for Gray HydroJet	365064
Key for 10" filter house	182420
Waterfilter 10", 60% *	191010
Waterfilter 10", 90%	191020
O-ring NBR, for filterhouse	451098
hannah microsiemens reader	176210
Softener tester*	176200
Service kit CC206	365799
Service kit CC208	365800
Service kit Mach 2030s - 2060s	365801
Service kit Mach 2100s - 2175s	365802
Brine Valve ASY CC206	111140
Brine Valve ASY CC208C	121112
Brine valve asy 30/60/100/2000	171120
Hardnessensor	243038
Carbon change 172217 0,5 m ³ /h	365433
Carbon change 172218 1,4 m ³ /h	365434

* = Recommended sparparts

2.9 Checklist VDI 6022 - Periodic hygiene check for AHU

POS	Activity	Action, if required	1 month	3 months	6 months	12 months	24 months
1	Initial hygiene inspection	Specialised personnel with category A or higher accordance with VDI 6022					x
2	Check for damages, corrosion and microbial growth	Clean and repair		x			
3	Check drain	Clean		x			
4	Check condensate tray	Clean and disinfect			x		
5	Check max. hygrostat sensor	Function test			x		
6	Check pipes and hoses	Repair				x	
7	Check control	Function test			x		
8	Check control valve	Replace/function test			x		
9	Check for condensate precipitation in the humidifier chamber	Adjust nozzle and water volume			x		
10	Check spray nozzles for deposits	Replace					
11	Determine number of CFUs in the humidifier water	*If number of CFUs is > 1000/ml, clean, rinse and dry the tray. Disinfect. Test supply water quality.	x				

* Screening test using dip slides. Use dip slides suitable for determining the total number of CFUs in the water. Further eraching analyses of water samples can only be carried out by microbiological laboratory, standard values listed in the table below

Parameter	Humidifier water	Recooling water
Total number of CFUs (bacteria) as per ISO 6222	< 1.000 CFU/ml	< 10.000 CFU/ml
Legionella sp. as per ISO 11731 and ISO 11731-2	< 100 CFU/100 ml	< 1.000 CFU/100 ml
Pseudomonas sp. King Bagar, 36 °C, 48 h	< 100 CFU/100 ml	< 100 CFU/100 ml
Fungi and yeasts ^{a)} Malt-extract agar, 25 °C, 7 days	< 100 CFU/ml	< 1000 CFU/ml

^{a)} Higher values, specific to the branch in question, may be found in industrial and production facilities.

3.1 Changing filter

It's recommended to change the filter when the pressure drop over the filter shows considerable fluctuation.

Before changing filter, shut down the humidification system, and close for the water supply

Use the supplied tool to open and close the filterhouse.

Use the wrapping around the filter to avoid polluting the filter



Changing filter

3.2 Oil change on high pressure pump

Change oil every 2000 hours or minimum once per year.

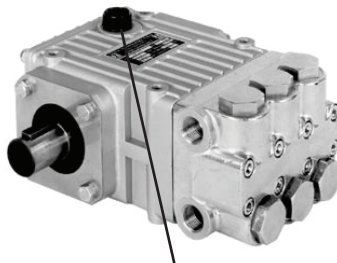
correct oil level is marked on oilpin

replace oil in case of condensate

Oil type: SAE 80W-90 GL-5 " part no. in spareparts list

Reset the oil counter

The oil counter can be reset in user menu



Refilling of oil



3.3 Changing nozzles

Before changing nozzles

Close for the high pressure water supply on the ball valve at the atomizers; if there isn't any ball valve, shut down the humidification system

The nozzles should only be tightened by hand to the point where the 2 metal surfaces meet and is tightened firmly – do not use a tool.

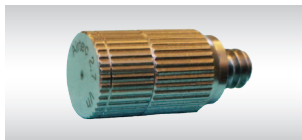


Changing of nozzles

3.4 Specifications Nozzles

1,1 - 2,7 - 4,0 - 5,2 l/h

Droplet size at 1000 psi, micron	10-15 μ
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Atomizers

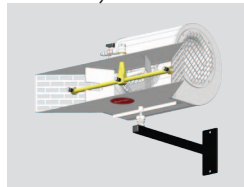
4.1 Technical data

	HydroJet	HydroTrio	HydroOne	HydroFlex PA / S	
Water capacity l/h	32	15	4	5	
Water pressure, bar	50	50	50	50	
Ventilator type	Axial	Centrifugal	Axial	-	
Ventilator RPM	870	1000	2650/2950	-	
Ventilator m ³ /h	1850	645	150	-	
Power supply, V AC	230	230	230	-	
Voltage tolerance	± 10 %	± 10 %	± 10 %		
Hz	50/60	50/60	50/60		
Power supply, W	80/110	65/80	20/19	-	
Power supply, A	0,34	0,29	0,13	-	
Nozzles	6	3	1	1	
Noice level, dB (A)	< 70	< 70	< 43/48	< 40,5	
Dimensions:					
Width, mm	ø430	300	125	-	
Heights, mm	490	500	125	-	
Depth, mm		240	150	-	
Weight, kg	7	5	2		
Temperature range, °C	0-45	0-45	0-45	0-45	0-80
Humidity upto, % RH	65	70	65	95	
Protection class	IP 13	IP 03	IP 20		

HydroJet



HydroTrio



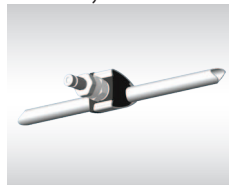
HydroOne



HydroFlex PA



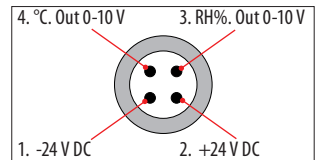
HydroFlex S



Humidity/temperature sensor

4.3 Technical data Humidity/Temperature Sensor

SmartSens	
Power supply	12 - 24 V
Max. power consumption	10 mA
Temperature range	- 40 to 60 °C
Resolution	0,1 °C
Accuracy -40 - 0 °C	± 1,5 °C
Accuracy 0 - 40 °C	± 0,5 °C
Accuracy 40 - 60 °C	± 1,5 °C
Repeatability	0,1 °C
Response time	10 sec
Humidity range	0 - 100 % RH
Resolution	0,1 % RH
Accuracy 0-90 % RH	± 2 % RH
Accuracy 90-100 % RH	± 4 % RH
Hysteresis	± 1 % RH
Long term stability per year	< 1 % RH
Analog out 10 bit	0 - 10 V DC
Dimensions:	
Diameter, mm	ø20
Height, mm	125
Weight	0,06 kg



SmartSens



Quick menu

Green: Started & Status OK
 Red constand: Stopped
 Red blink: Started & Alarm
 White: User/maintenance setup
 Blue: Time for service

F1 F2 F3
 F4 F5 F6
 MENU

ESC
 OK

USB

F1 - Start ▲ - Up screen/value ◀ - Previous screen/setting
 F2 - Stop ▼ - Down screen/value ▶ - Next screen/setting
 F3 - Reset ESC - Exit edit OK - Edit
 F4 - Front page ESC > 2 sec. - Alarm Log OK > 2 sec. - Password

Zone	Name
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Duct	
1	
2	
3	