SPXFLOW

INSTRUCTION MANUAL

AIR DRYER Delair® EtsilineCommPact

FORM. NO.: ACMM16WC0002 Rev 7 REVISION: 25-11-2021

READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS PRODUCT.

Delair® EtsilineCommPact

Revision History

Revision survey document	Purpose of release	Date	Drw./Appr./Qc.
Rev 0.0	Released	January 2017	HdG/EvL/ES
Rev 1	Released	February 2018	TM/EvL/ES
Rev 2	Released	November 2018	TM/EvL
Rev 3	Released	October 2019	TM/EvL
Rev 4	Released	July 2020	TM/EvL
Rev 5	Released	January 2021	TM/EvL
Rev 6	Released	May 2021	TM/EvL
Rev 7	Released	Nov 2021	SB/EvL

1. Table of Contents

2. Introduction

General

The EtsilineCommPact is an air dryer with compact dimensions, especially designed to be mounted in a 19”-or ETSI-rack. Little or no maintenance is required to operate this unit. The unit can be connected to the internet, to read out operation and/or modify settings.

Purpose of the manual

This manual covers full performance data applicable to the air dryer to instruct you in the correct and safe operational use. To ensure proper setup and use of your air dryer please read all documentation carefully before bringing the air dryer into operational use.
While our dryers are designed for ease of use, the dryer service information contained in this manual will help to ensure reliable and long-term operation.

NOTE : It is essential that the service instructions be followed to guarantee reliability.

Contact address

Address: Munnikenheiweg 41
4879 NE ETTEN-LEUR
The Netherlands

Helpline:

Phone: +31 76 5085568
Fax: +31 76 5085590
E-mail: info.nl@spxflow.com
Website: www.spxflow.com

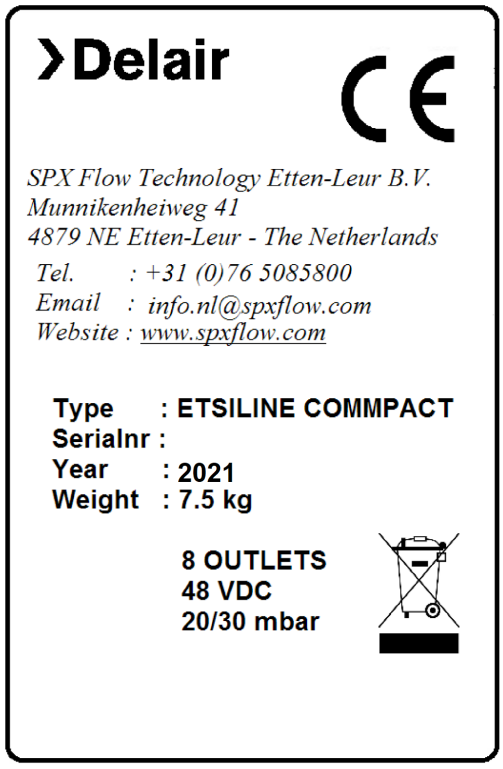
Symbols and conventions

Throughout this user manual, information relevant to safety issues and general warnings/notices are clearly marked with the symbol and laid out as follow:

SAFETY FIRST

This symbol is used throughout this manual and on labels on the installation itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

WARNING	:	Hazards or unsafe practices which could result in severe personal injury or death.
CAUTION	:	Hazards or unsafe practices which could result in minor personal injury.
IMPORTANT	:	Indicates that equipment or property damage could result if instructions are not followed.
NOTE	:	Gives helpful information.



Careful operation is your best insurance against an accident. Read this section carefully before operating the installation. All operators, no matter how much experience they may have had, should read this and other related manuals before operating this unit or any equipment attached to it. It is the owner's obligation to instruct all operators in safe operation.

In addition to these instructions, the local regulations in your country may impose additional requirements that must be observed.

Identification

Each dryer carries an identification plate with minimally the following information;

Name of manufacturer
1 Address of manufacturer
2 Serial number
3 Model + options
4 Year of construction
5 Electric power
6 Max. operating pressure bar(g)
7 Reference and dryer revision status

Serial no. validity

Air dryers covered by this manual:
delair® EtsilineCommPact
From serial number: 202100000 and higher

Abbreviations

Abbreviation	Description
AD	Air Dryer
CE	ConformitéEuropéenne
DHCP	Dynamic Host Configuration Protocol
ID	Internal diameter
MIB	Management Information Base
N/A	Not applicable
OD	Outside Diameter
RFC	Request for Comment
RH	Relative Humidity
SNMP	Simple Network Management Protocol
PCB	Printed Circuit Board

Safety Information

Markings and symbols

The following markings and international symbols are used on the equipment or within this manual.

	**WARNING** • A warning shows a hazard that can cause death or serious injury. Follow the instructions.		**HOT SURFACE** • Hot surface; beware of burning skin
	**ELECTRICITY** • High voltage; danger of electric shock		**ENVIRONMENT** • Instructions with respect to the environment
	**HOT SURFACE** • Hot surface; beware of burning skin		**ENVIRONMENT** • Follow instructions for disposal of equipment
	**WARNING** • Poisonous substances and danger		**ENVIRONMENT** • Follow instructions for disposal of equipment

Do not operate this equipment until the safety information and instructions in this user guide have been read and understood by all personnel concerned.

WARNING

- User responsibility. Failure or improper selection or improper use of the products described herein or related items can cause death, personal injury and property damage.

General

Correct use of the air dryer is important for your personal safety and for trouble-free functioning of the air dryer. Incorrect use can cause damage to the air dryeror can lead to incorrect air supply.

WARNING

- Read this manual before you start the installation and putting into operation of the air generator. Prevent accidents and damage to this equipment.
- Contact your supplier if you detect a problem that you cannot solve with this manual.
- Use the air dryer in accordance with its purpose.
- Only service-engineers, that are qualified to work on electric and pneumatic equipment, are allowed to do the installation, maintenance and repairs. Unqualified people are not allowed to repair the equipment.
- Do not tamper or experiment with the equipment. Do not exceed the technical specifications of the air drier.

Electricity

WARNING

- Only service-engineers, that are qualified to work on electric equipment, are allowed to do the installation, maintenance and reparations.
- Disconnect the main power supply before you do the maintenance or repair.
- If a service-engineer has to work on the air drier while the electric power is connected, the service-engineer must be very careful with respect to the electric hazards.

Safety precautions

WARNING

- Make sure that the ventilation rate is sufficient in the room where the air drier is installed.
- Keep the ambient temperature for the air drier between -10 and +45 °C.
- Install the peripheral equipment and piping/tubing according to standard procedures.
- Ensure proper and safe operation.
- Make sure that instructions concerning health and safety are compliant with the local legislation and regulations.

Environmental aspects

The use and maintenance of the air drier does not include environmental dangers. Most parts are made of metal and can be disposed in the regular way. Optimal installation according to instructions and according to good craftsmanship will result in minimal energy consumption and maximal life of your system.

	According to EC-regulations electrical systems have to be disassembled and recycled at the end of their life. SPX Flow technology can support you in this.
	To improve the collection, treatment and recycling of electronics at the end of the life, special requirements may apply to the disposal of this product. Please contact local authorities when disposing this product. SPX Flow technology can support you in this.

IMPORTANT	Make sure that instructions concerning health, safety and environment are compliant with the local legislation and regulations.

Approvals

Safety and electromagnetic compatibility

This equipment has been tested and complies with the following European Standards	
Directive for electromagnetic compatibility (EMC)	2014/30/EU EMC Directive
Waste Frame (WFD)	2008/98/EC
Directive on waste electrical and electronic equipment (WEEE)	2012/19/EU WEEE Directive
	EN ISO 12100:2010
	EN 61000-3-2:2014
	EN 61000-6-1:2007
	EN 61000-6-2:2005
	EN 61000-6-3:2007
	EN 61000-6-4:2007
	NEN-EN-ISO 13857:2008
Quality assurance	ISO 9001:2015

Page left blank intentionally for 2 sided printing purposes

3. Technical data

General

Subject	Value
Operation	Continuous operation
Outlet connections	8 outlets for ID=6mm (OD=8mm) or ID=1/4” (OD=3/8”) flexible hose
Dry air volume	120 l/h at 20 mbar(g)
Working pressure	20-30 mbarg (default setting)
	Pressure range adjustable within a range of 0 – 100 mbar(g)

Overall weight and dimensions

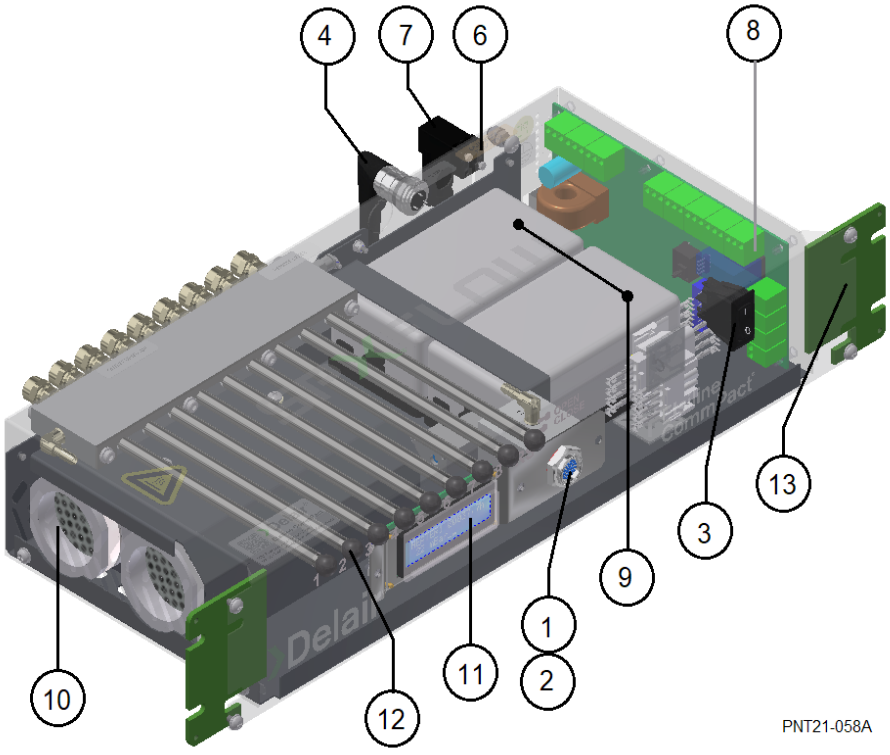
Mounting	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
19”-Rack	483	270	87*	10
ETSI-Rack	535	270	87*	10
Wall Mounting (brackets optional)	483	320	87	10+2
Floor/table mounting (brackets optional)	483	320	95	10+2

* Height is 2U (2 units) in 19”- and ETSI-rack

Optionally a power adaptor can be delivered for this unit. It is mounted at the back side of the unit and does not affect above dimensions. Weight will increase with 0,5kgs.

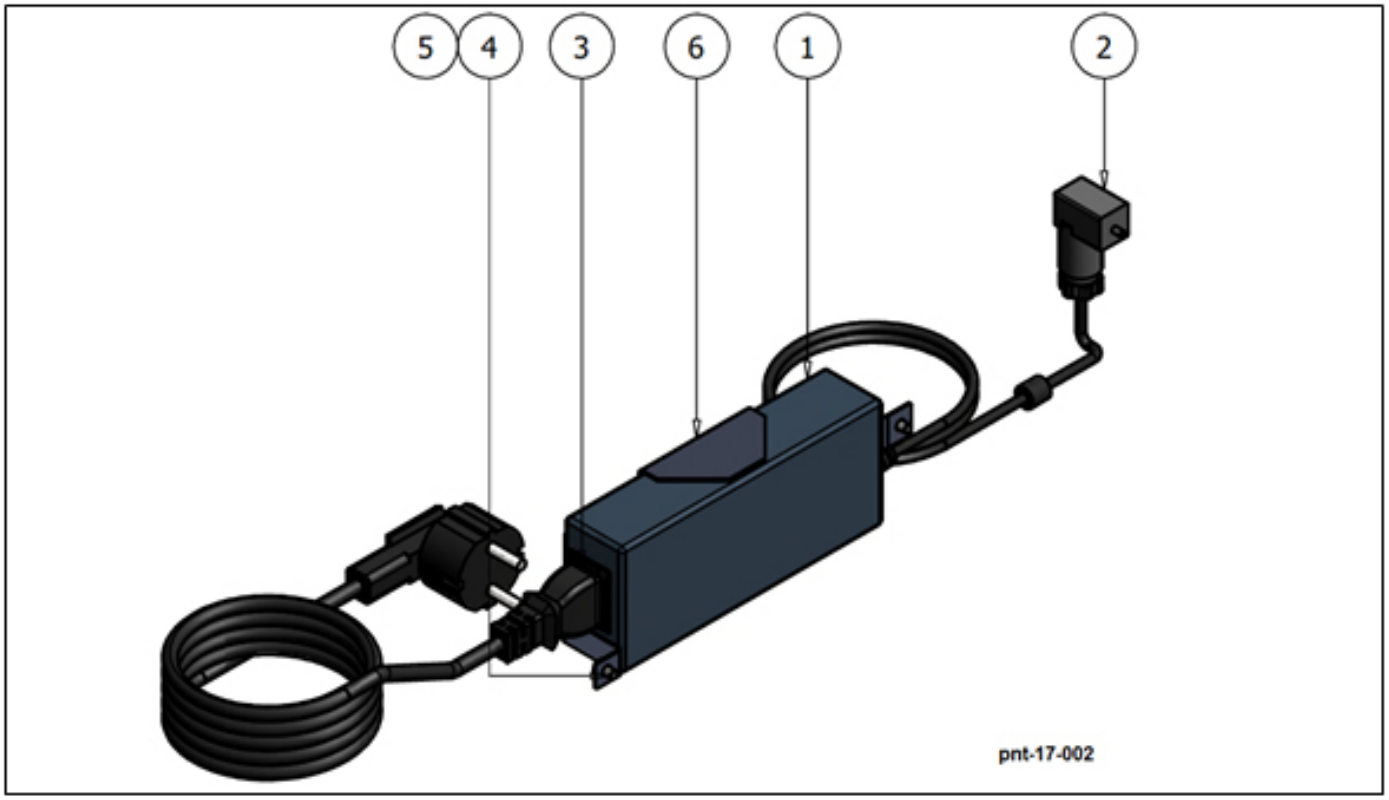
Components – overview of the equipment

The main parts of the Air Dryer are presented below (with power adaptor option 0281544);



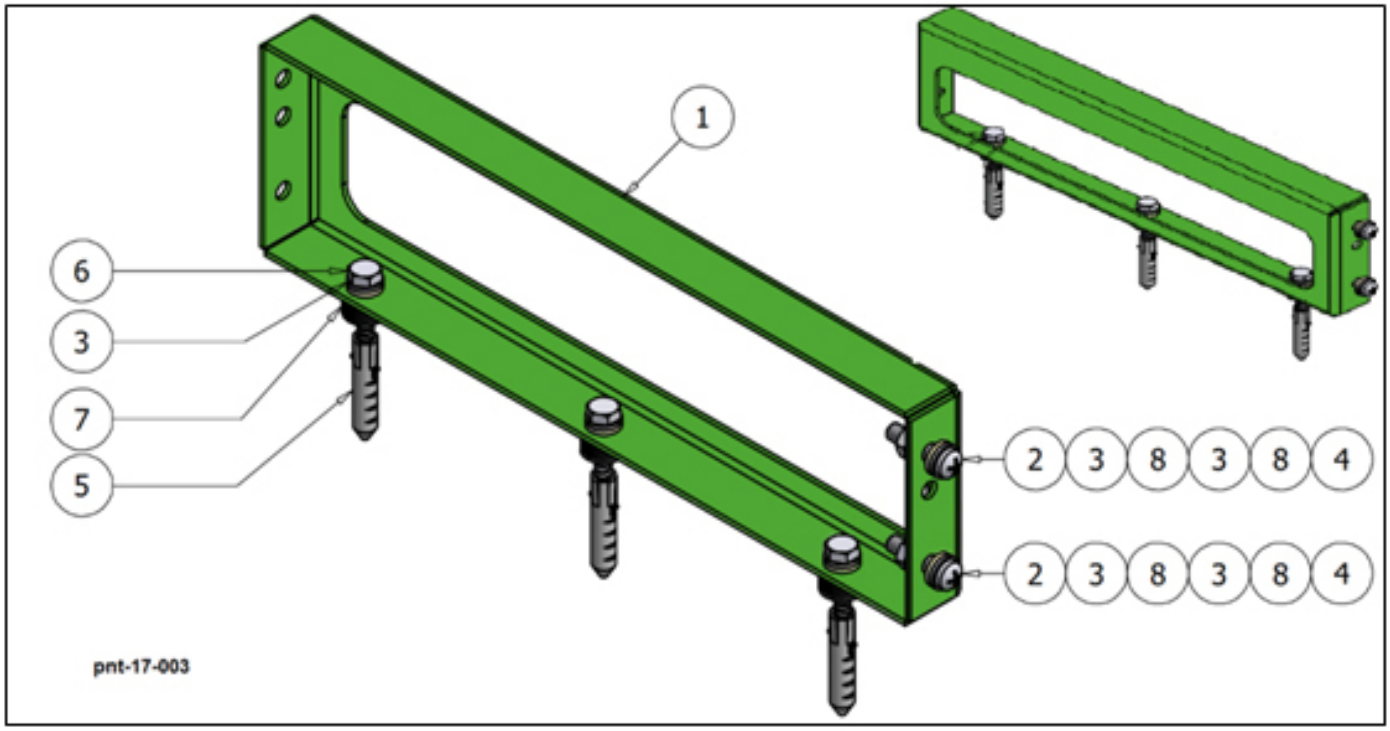
No	Component	Purpose
1	Humidity indicator	Indicates residual moisture through colour change (blue = dry; pink is humid)
2	Gasket for indicator	Sealing to prevent leakage
3	On/off switch	Switching unit ON and OFF
4	Alarm plug	For external signalling
6	Connector power supply	To connect electrical power supply
7	Cable socket	For connector power supply cable
8	Electrical controller	Controlling the unit
9	Air pumps	Increasing (dry) air supply pressure
10	Side grill opening	Opening for air inlet and wet (hot) air outlet
11	Display	Readout operating conditions
12	On-off valves	Valves for opening/closing supply to connections on back-side of the unit
13	Mounting brackets	To fixate unit

Parts supplied with option 0281544



No	Component	Purpose
1	Power adaptor	To convert 90-264Vac/1ph/50-60Hz into 48Vdc
2	Cable socket	Connecting power supply
3	Power cord with euro plug	Connection between adaptor and mains
4	Screw	Fixation M4
5	Washer	Surface protection
6	Bracket	Fixation of adaptor to back side of unit

Parts supplied with mounting options 0281565



No	Component	Purpose
1	Bracket	For wall and floor mounting
2, 3, 4	Fixation materials	Fixating unit
5	Plug	Fixation in (solid) wall/floor
6	Screw wood	Fixation in (solid) wall/floor
7	Spacer	Create ventilation distance (only for floor mounting)
8	Washer	Surface protection

Control system

For detailed instructions for the controller, please refer to chapter 8 “Controller”.

Purpose of the equipment

The delair® EtsilineCommPact air dryer, is designed to supply dry air to a system and maintain an over-pressure in this system. It can be used in any system in which the presence of water vapour is undesired. Water vapour can enter a system in several ways;

- By diffusion
- The system is often not leak-free.
- Because of temperature changes the system will ‘breathe’.
- In case the temperature further reduces, water vapour may even condensate.

The air dryer is able to continuously supply dry air because it is equipped with two adsorber vessels. While one adsorber vessel is in drying-mode, the other vessel is regenerated. Regeneration means that adsorbed water vapour is removed by heating it, after which the desiccant bed is cooled again.

Location of equipment

The air dryer should be installed in a dry room indoors. Ample free space should be allowed for the maintenance of the device. The air dryer shall be installed on a straight and even surface capable of handling the weight of the unit as specified in the technical specification.

Consult the dimensional drawings for the minimum required distance to walls and other equipment. Make sure the unit is not exposed to direct sunlight exposure.

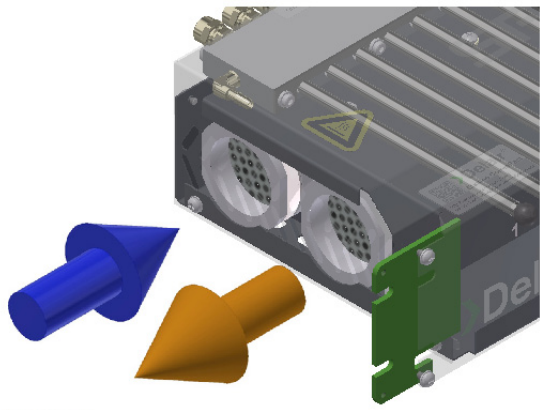
Environment

Subject	Value
Operating temperature:	-10°C to +45°C
Storage temperature:	-20°C tot +70°C
Relative humidity:	max. 95%
Enclosure:	IP20 according IEC529
Acoustic noise:	≤43dBA at 1m distance and 1,5m height

Space requirements

See paragraph “Overall weight and dimensions”

Ventilation Requirement



PNT21-059

The unit has ventilation openings on left, right and bottom side for cooling purposes. However, on the left side (see figure above) ambient air is sucked in, which is dried and delivered to system. At the same time relative warm, humid air exits the unit. Make sure to keep enough distance to neighbouring parts (minimally 20/30mm).

Inlet air quality

Medium
Conditioned clean ambient air

Electrical Requirements

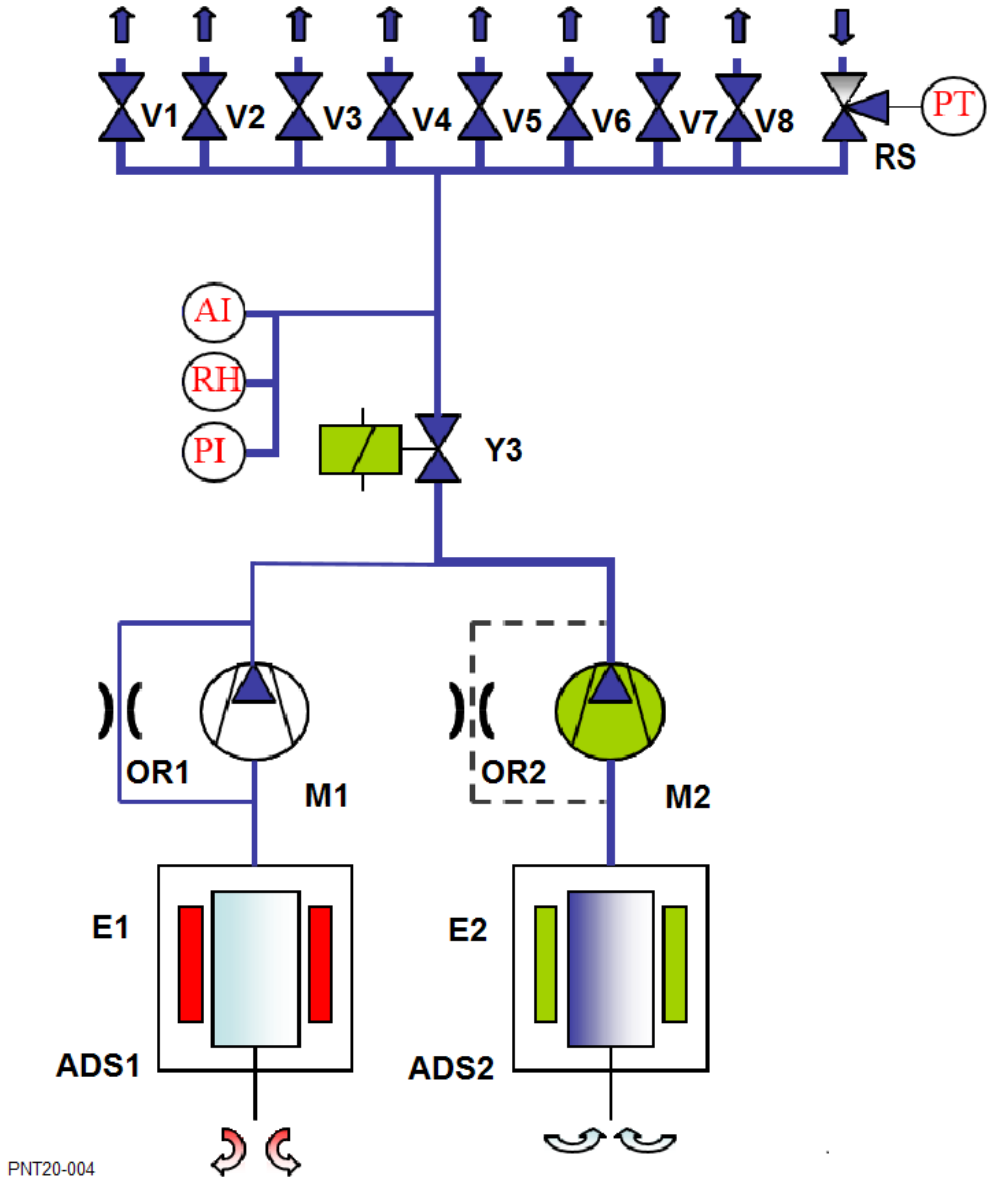
Subject	Value	Remark
Power supply standard	48Vdc (with optional adaptor 0281544)	90-264Vac 50/60Hz)
Max. power consumption	55W	

4. Functional Description

This section gives a brief description of the operational function of the air dryer.

Drying

See the typical process flow diagram in which adsorber (ADS2) is drying and (ADS1) is regeneration. The air to be dried will be sucked by a compressor (M2)through one adsorber (ADS2). The water vapor is adsorbed by the desiccant and the air flows via the compressor (M2) and solenoid valve (Y3) to the system.
After pre-settedtime the two adsorbers will change their function.
The system pressure can be read from the digital display (PI)and remotely as well.
The system pressure is maintained by the pressure transducer (PT) that switches the compressor ON and OFF.
When system pressure drops below minimum, a low pressure alarm will be activated.The pressure transducer is factory set.



Typical flow diagram

Regeneration

Two phases can be distinguished during the regeneration of the adsorber, the heating phase and the cooling phase.

During the regeneration, a small volume of dried air (called: purge-air) will be branched from the compressor outlet line and led to the regenerating adsorber (ADS1). An orifice (OR1) is mounted in this branch to limit the dried air quantity. This purge-air flows through the adsorber which is to be regenerated. During the heating phase the heater (E1) is energized. The heat releases the moisture from the desiccant and the purge air transports the moist air out of the air dryer.
The compressor (M2) will run continuously during the heating phase, however may switch off in the cooling phase. The heating phase is followed by the cooling phase.During this phase, the heater (E1) is switched off. The compressor is operated dependent of system pressure, the cooling phase can be extended, because compressor may switch off because system pressure is above pre-setted value.

After the completion of the cooling phase, the adsorber is ready to be used for drying.
The drying, heating and cooling process is monitored and stored in the controller.
The controller on the printed circuit board will, even when the mains power is lost or switched off, remember the remaining drying time of the cylinder and continue the drying cycle after switching on the power again.

Cycle

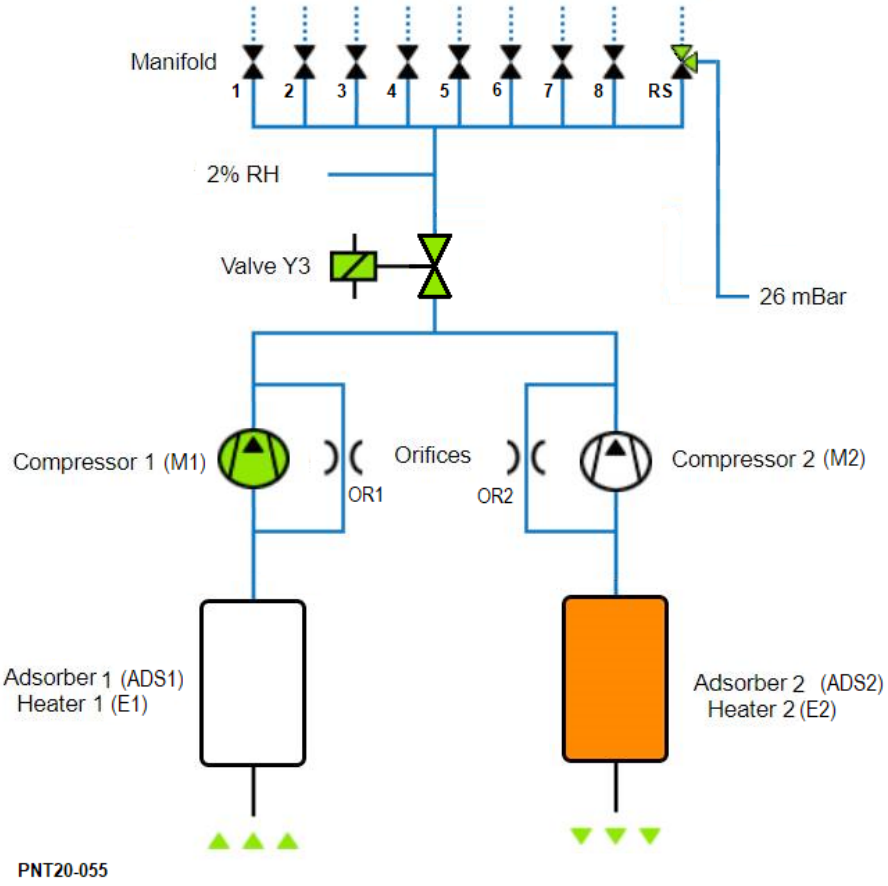
The cycle time of the dryer is 12 hours. Cycle time is defined as the sum of the drying time and the time to remove the water from the adsorber and cool it down. The dryer is continuously operating. However, if pressure in system is above set pressure and the heating phase is finished, the compressor may stop.
The following steps can be distinguished within a cycle:

Seq.	Adsorber 1	Adsorber 2	Time
1	Heating	Drying	3 hrs
2	Cooling		≥ 3 hrs
4	Drying	Heating	3 hrs
5		Cooling	≥ 3 hrs
6	Back to step 1		

Since the compressor may switch off, during the cooling phase, a ‘duty cycle’ can be distinguished for the compressor. The duty cycle is the total measured time valve-Y3 is activated per hour operation. The duty cycle is the average of the past 24hrs of this value.

Remote Sense

The working pressure of the EtsilineCommPact is standardly measured between solenoid valve Y3 and the outlet manifold. In some circumstances it is desired to measure the working pressure further in the antenna system. In that case you connect a return hose to the remote sense input. The remote sense valve RS needs to be pulled out to measure the remote presssure and pushed in to measure the internal manifold pressure.



Page left blank intentionally for 2 sided printing purposes

5. Installation

Installation, operation, maintenance and repair shall only be performed by authorized, trained and skilled employees.

Receiving and unpacking

Short Shipment or Incorrect Material Claims

All claims for shortage or incorrect material must be made within thirty (30) days after its receipt at jobsite and the package is opened for condition check. Please review all invoices and shipping documents carefully for possible shortages.
When the air dryer is shipped included AC power adaptor, you will find it in the box of the unit.

Shipping Damage Claims

Equipment must be carefully inspected immediately upon receipt for possible damage incurred during shipment.

In the event that the equipment has sustained visible external damage or it is suspected that internal damage may have occurred, immediately enter a claim with the shipping carrier and notify us. Any indication or damage or careless handling by the carrier should be noted on the delivery receipt. Obtaining the delivery man's signed agreement to any noted damages will facilitate any future insurance claims.

In all cases of damage, visible or suspected, contact your local representative or the factory before attempting to install subject equipment.

Connecting to the system

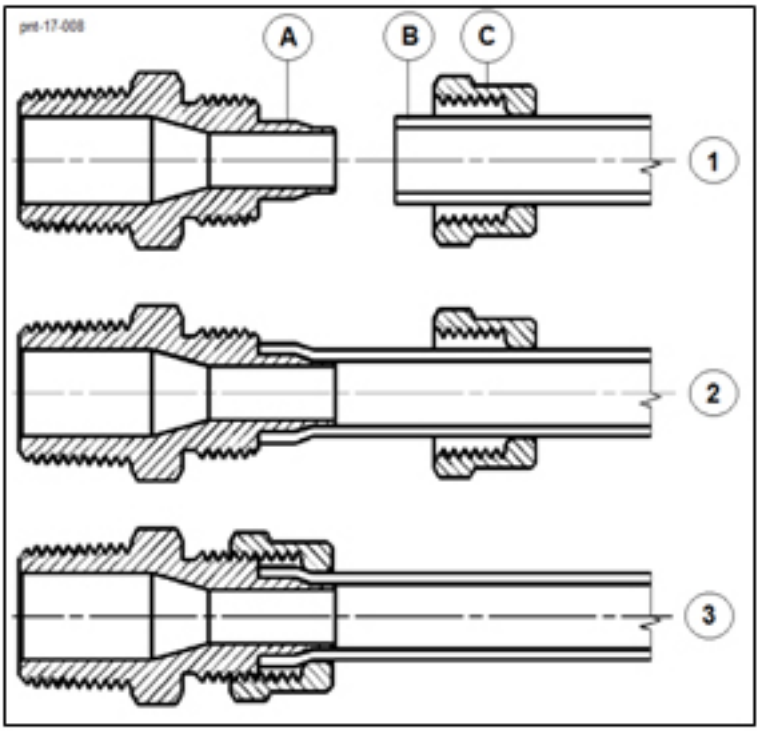
	Do not connect the electrical main supply during installation

- Place the air dryer at a location where air is clean and where the temperature of the air never exceeds the minimum or maximum values.
- Provide enough space around the air dryer so that the purge air can circulate freely.
- Safety devices, protecting covers or insulations on the air dryer are never to be dismantled
- or adjusted.
- To ensure a trouble-free operation, the air dryer has to be mounted in the rack, or wall and floor with additional brackets.
- Make sure while assembling that all tubes and connections are clean.
- Check the electrical connections of the dryer. Verify that the electrical and alarm connections comply with the regulations.

Tubing

There are 2 possible types of connectors: 8mm OD - 6 mm ID and 3/8”OD - 1/4”ID.

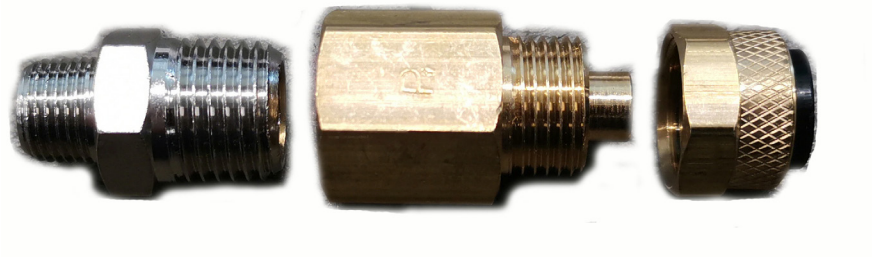
6 - 8 mm connectors



- Plugs and caps (if any) must be removed before connecting the tubing.
- No external force is allowed on air inlet and outlet pipes and the connected tubing should not be under tension.
- The tubing must have the correct diameter.
- Connect the air tubes to the connectors of the dryer.
  - Disassemble nut C from connector A
  - Slide nut C over air tube B (see 1)
  - Push flexible hose over end-tube of connector A until it cannot slide any further (see 2)
  - Re-assemble nut C to coupling A and tighten nut by hand (see 3). Slight extra tightening by using pliers is recommended.

NOTE	Make sure to use hose with correct dimension and enough flexibility. Only then leakages are prevented

3/8” - 1/4” connectors



1/8 to 1/4 NPT adapter Connector Nut

Connecting the tubing is the same for this type of connector, however, an adapter coupling 1/8 NPT to 1/4 NPT is required.
Also, the connector is of the Female type.

Connectors fitted to the Etsiline Commpact

Electrical installation

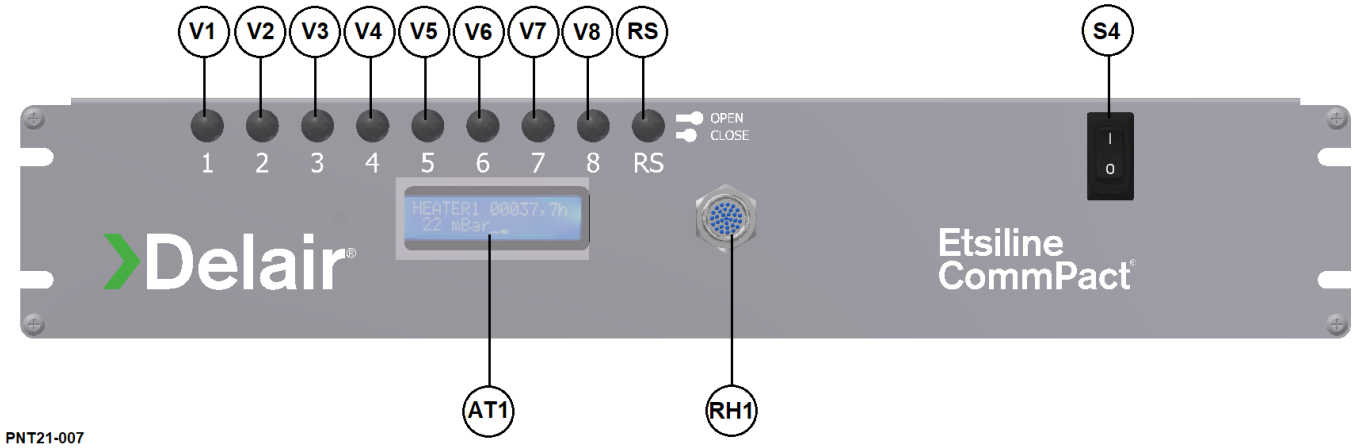
- Make sure the unit is switched OFF when connected to the mains.
- For position of connectors see chapter 6
- Connect Ethernet cable (minimally Cat 5e) to connector CON4 on back side of unit
- Connect alarm cable to extension plug CON10 (included in delivery) and connect it to panel mounted inlet CON9.
- In case the unit is equiped with the redundancy option, an addition chassis socket CON19 is installed at the back of the unit. This connector allows two redundant units to work together.
- In case the unit is to be supplied by 48Vdc, connect supply cable to cable socket CON7 (included in delivery) and connect it to panel mounted inlet CON8. After mounting fixate connection by tightening central screw M2.5.
- Suitable cable OD is 4.5 to 6mm. conductor size max 0,75mm²
- In case the unit is delivered with 90-264Vac 50/60Hz adaptor option (0281544), connect supply cable to cable socket CON7 (included in delivery) and connect it to panel mounted inlet CON8.

Page left blank intentionally for 2 sided printing purposes

6. Operating instructions

Control panel

All controls are positioned on the front side of the unit. See below figure with the identification of each control;



AT1 Digital display

Top line shows status of the process. These are the possibilities;

Heater 1;	adsorber 1 is in heating phase
Cooling 1;	adsorber 1 is in cooling phase
Heater 2;	adsorber 2 is in heating phase
Cooling 2;	adsorber 2 is in cooling phase
Low Pr;	pressure is below set value. Alarm activated
High Pr;	pressure is above set value. Alarm activated
Pump Al;	pump running time exceeds pre-set value. (only during cooling phase)
High RH;	humidity exceeds set value. An alarm is activated. Available as option only.

Furthermore, running hours and pressure are displayed alternately.

Second line shows information on Ethernet connection

RH1 Moisture indication

The dryer is standard provided with a moisture indicator (RH1). The moisture indicator consists of a housing with thread, inspection glass and indicating adsorbent. From the front side the color of the adsorbent can be observed. This adsorbent is in contact with process air and will adsorb moisture from it. The color of the adsorbent is dependent of the amount of water adsorbed. Thus the color is an indication of the relative humidity of the process air. Color will change from blue to pink with increasing humidity;

Number		Relative humidity
Blue – light blue		abt. 10% relative humidity or lower
Light blue – lavender		abt. 20% relative humidity
Lilac		abt. 30% relative humidity
Lilac – pink		abt. 35% relative humidity
Pink		abt. 40% relative humidity or higher

A moisture indicator showing a relative humidity >10% does not necessarily mean that desiccant of dryer needs to be exchanged. It may well be an indication for other causes for example, timer sequence problems, heater breakdown, purge air block-up etc. Please refer to the Fault finding section starting from page 26 to seek for possible causes and resolutions.
Under most operating conditions, the moisture indicator should always show blue color. If not, then the dryer is probably malfunctioning.

Indicator filled with adsorbent which is impregnated with 11% w/w cobalt dichloride (CoCl2). The amount of cobalt dichloride is very small, however, cobalt II chloride is categorized as a hazardous substance to health and environment..The applicable Material Safety Data Sheet ican be found in chapter 11 “MSDS-sheets”.

WARNING

- Poisonous substances and danger

ENVIRONMENT

- Follow instructions for disposal of equipment

Don’t remove the desiccant from the indicator. Replace the indicator and treat it as hazardous waste according local and/or national risks legislation.

S4 Power switch
Switch to turn ON (I) and OFF (0) the air dryer.

V1..V8 Port OPEN-CLOSE actuator

With valve V1 V8 each connection positioned on back side of the unit can be opened/closed. Closed valves don't supply dry air anymore to the system.

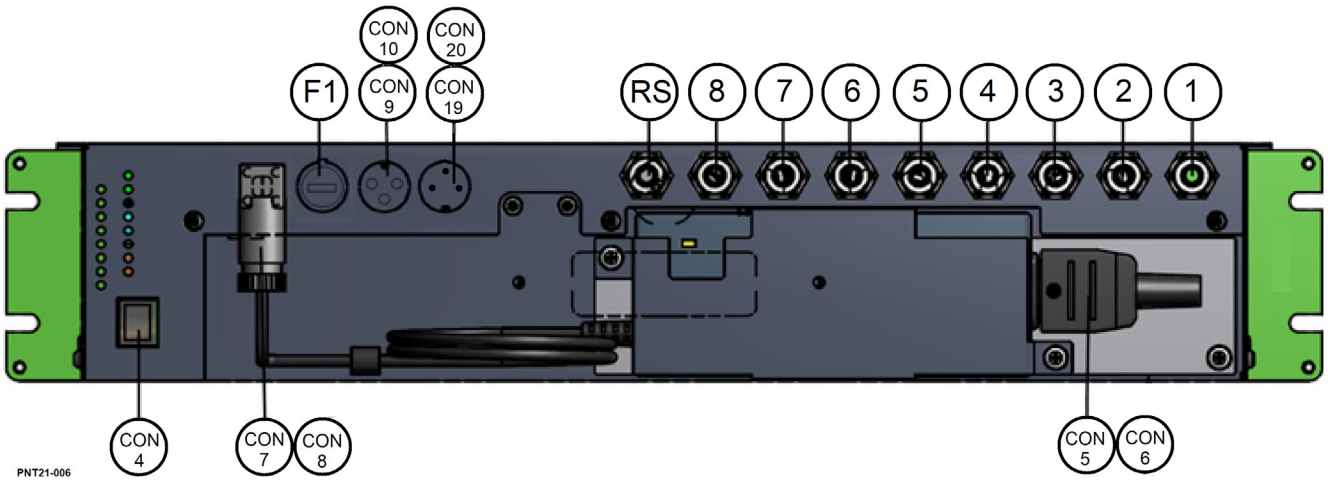
RS Remote Sense open/close actuator

With valve RS in open position (pulled out) the unit will measure the external air pressure connected to RS port. With valve RS in closed postion (pushed in) the unit will measure the internal air pressure.

Connections and fuse

Fuse and connections are positioned on the back side of the unit.

⚠	Opening of the unit may only be carried out, when unit is switched OFF and disconnected from power supply. Wait enough time to led the unit cool off, before opening the unit.

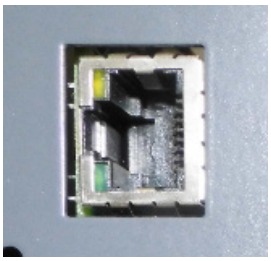


Outlet 1…8 Dry air outlet connection

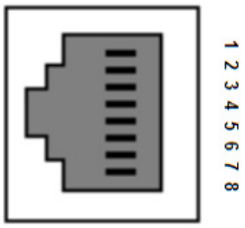
Hose connection to system. Connection number corresponds to OPEN-CLOSE valve on front of the unit. When corresponding valve is opened, dry air is delivered to the system. Suitable for flexible hoses with internal diameter 6mm and outside diameter of 8mm.

Connection RS Remote sense connection

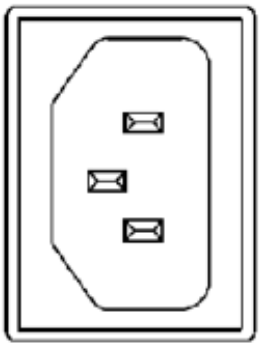
Standard the working pressure is measured at the outlet manifold of the dehydrator. With the Remote Sense Input it is possible to measure the pressure at another location of the system (e.g. near the antenna). You need to connect the Remote Sense Input by a hose with the nipple where you want to measure the pressure. The dehydrator can be operated based on the working pressure at that particular location. By pulling out the RS valve, the pressure is measured through the remote sense input.



CON4Internet connection

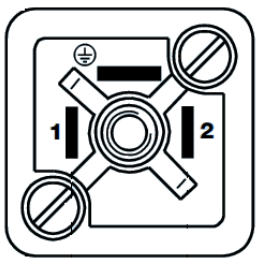


.



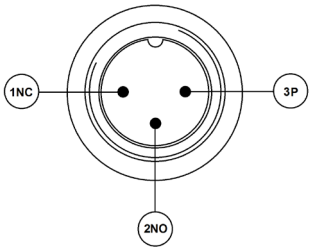
CON5 CON6

Main voltage connector
[Only applicable with option 0281544]
Female socket CON6 included in delivery.
3-pole (phase-neutral-earth) connection suitable for 90-264Vac/1/50-60Hz – 90W.



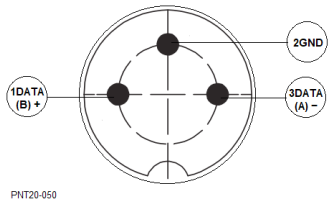
CON7

CON8 48Vdc Supply connector
Female socket CON7 included in delivery.
3-pole connection suitable for 48Vdc.
Pin 1: +, Pin 2: -, 3 earth



CON9 CON10

Alarm connector
Connector for external alarm. Potential free contact.
PIN configuration (cable part) on solder side view



CON19 CON20

Communication connector. (optional)
Connector for communication between master and slave in case redundant option is applicable.
PIN configuration (cable part) on solder side view

F1 Fuse

Fuse holder for 2A-fuse-slow(20 mm) which protects the heater elements. Twist to open.

Before start-up

Check that:

- All tubes and/or pipes in the air dryer are in proper condition, firmly attached and do not rub against each other or against other components..
- There are no leaks.
- All fixings are firmly attached.
- The electrical connections are secured and in proper condition.
- The air outlet valve and the air system, i.e. pipes, joints, manifolds, valves, tubes etc. arein proper condition without any wear or defect.

Starting

To start up the dryer:

1. Connect the dryer to the mains power supply.
2. Set power switch to “I”.
3. Open the valves of the connected outlets.
4. Check the connections of the dryer for air leaks.
5. Check the nominal working pressure on the display.
6. Check the low pressure alarm contact by creating a leakage. To do this, open one of the remaining valves or disconnect one of the air tubes.

The low pressure alarm switch is activated after delay of approx. 1 min.

Stopping

1. Switch off the dryer by means of the on-off switch
2. Disconnect the dryer from the power supply.
3. Close all the ball valves.

Power failure

After power failure the unit will re-start automatically and proceed with the cycle where it was interrupted. All settings remain stored in the controller of the unit

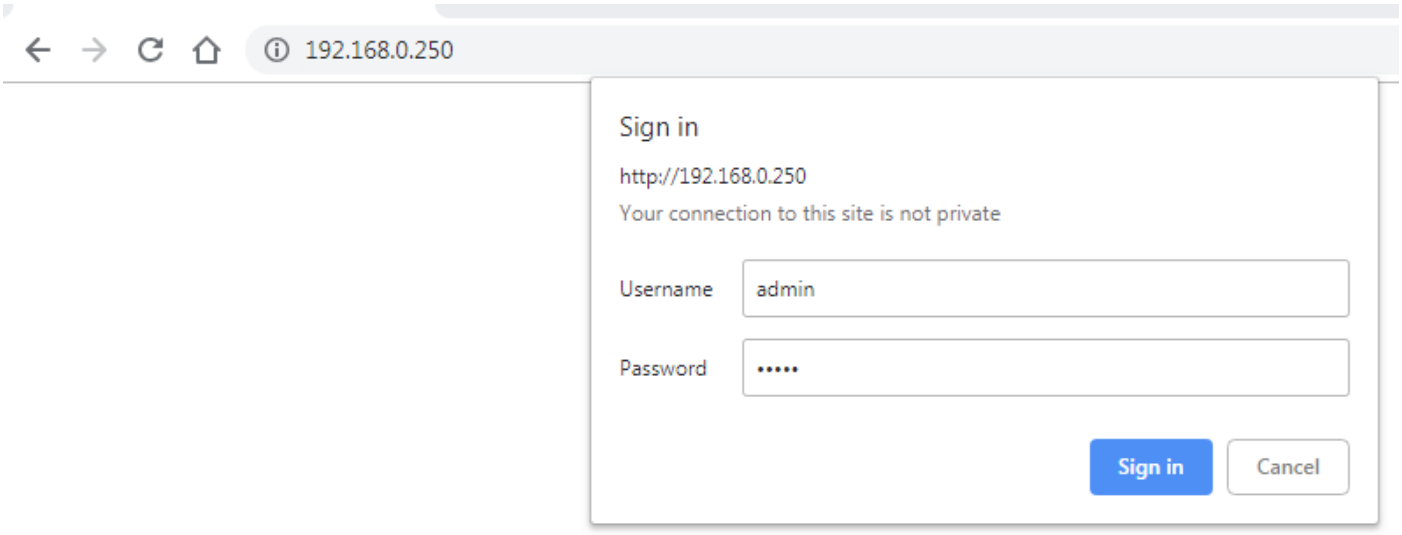
Internet interface

Log-ON

By connecting the delair® EtsilineCommPact to internet it is possible to check the status of the dehydrator and change parameters like working pressure and alarms.

After start-up of the dehydrator you read on the display (line 2) the IP address of the unit. After you have filled in the IP address in your web browser (preferable Google Chrome), you need to fill in your Username and Password. The default username and password for software revision of ETSI010202 and higher are:

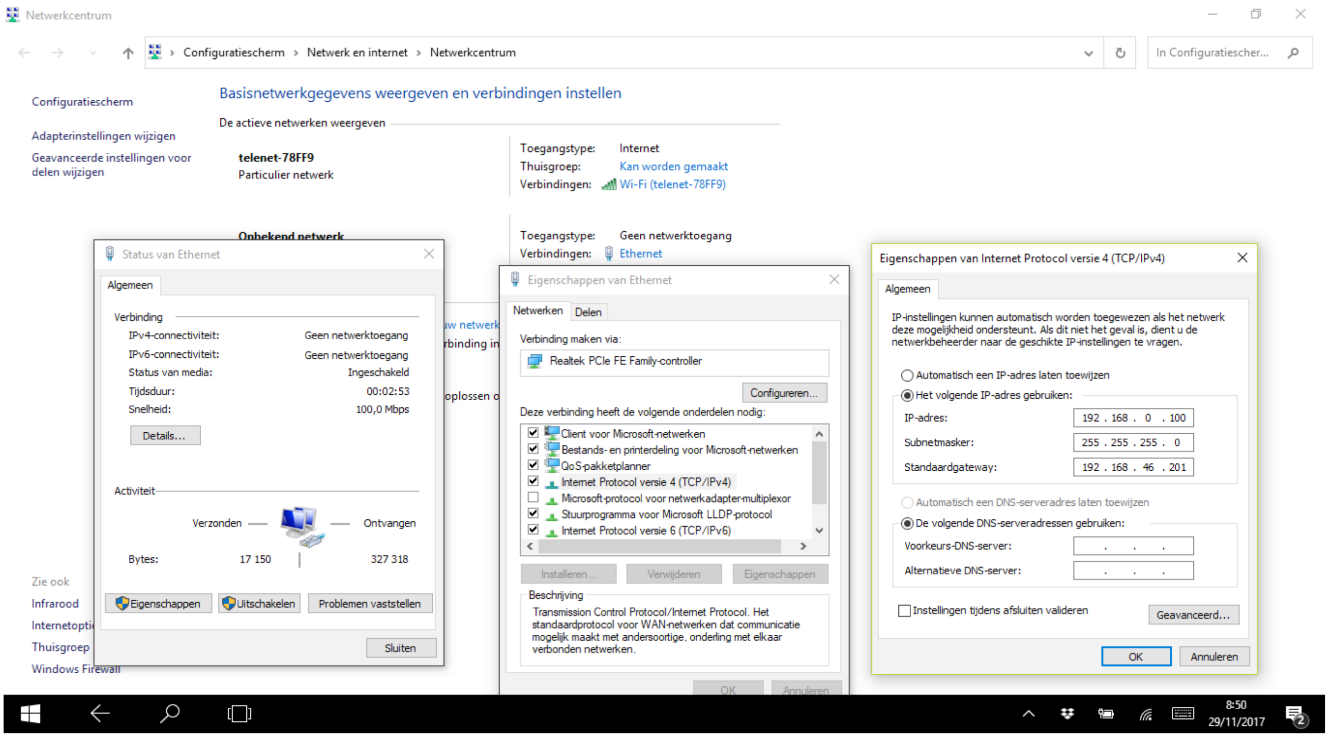
Username : admin
Password : admin



PNT-18-030

If your computer doesn't recognize the static IP address of the dehydrator (192.168.0.250)you need to change the IP address of your computer to 192.168.0.100.

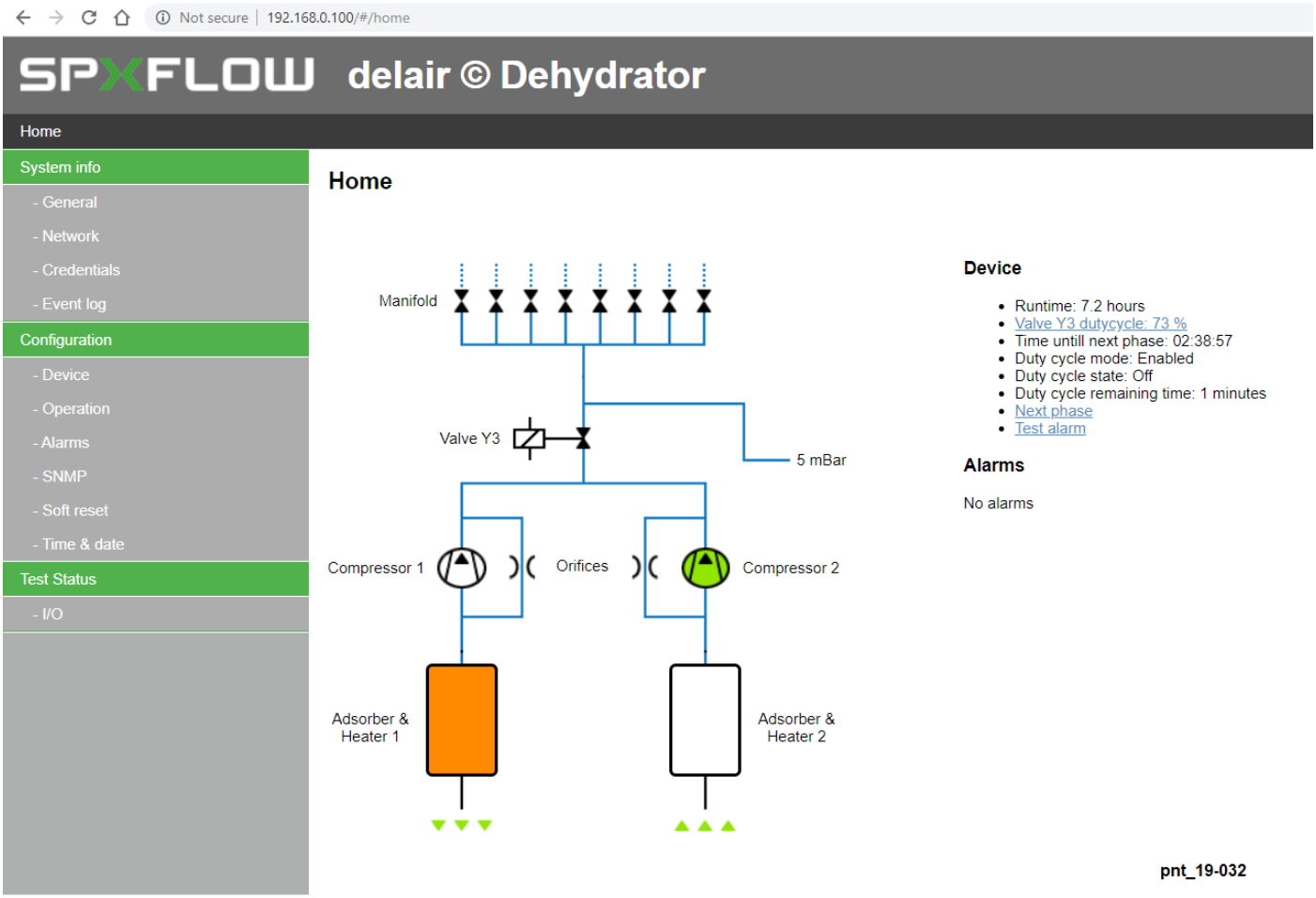
You will find a short demo video on the enclosed USB-stick


Netwerkcentrum
Configuratiescherm › Netwerk en internet › Netwerkcentrum
In Configuratiescher...
Configuratiescherm
Adapterinstellingen wijzigen
Geavanceerde instellingen voor delen wijzigen
Basisnetwerkgegevens weergeven en verbindingen instellen
De actieve netwerken weergeven
telenet-78FF9
Particulier netwerk
Toegangstype: Internet
Thuisgroep: Kan worden gemaakt
Verbindingen: Wi-Fi (telenet-78FF9)
Onbekend netwerk
Toegangstype: Geen netwerktoegang
Verbindingen: Ethernet
Status van Ethernet
Algemeen
Verbinding
IPv4-connectiviteit: Geen netwerktoegang
IPv6-connectiviteit: Geen netwerktoegang
Status van media: Ingeschakeld
Tijdsduur: 00:02:53
Snelheid: 100,0 Mbps
Details...
Activiteit
Verzonden
Ontvangen
Bytes: 17 150 327 318
Eigenschappen
Uitschakelen
Problemen vaststellen
Sluiten
Eigenschappen van Ethernet
Netwerken
Delen
Verbinding maken via:
Realtek PCIe FE Family-controller
Configureren...
Deze verbinding heeft de volgende onderdelen nodig:
Client voor Microsoft-netwerken
Bestands- en printerdeling voor Microsoft-netwerken
QoS-pakketplanner
Internet Protocol versie 4 (TCP/IPv4)
Microsoft-protocol voor netwerkadapter-multiplexor
Stuurprogramma voor Microsoft LLDP-protocol
Internet Protocol versie 6 (TCP/IPv6)
Installeren...
Verwijderen
Eigenschappen
Beschrijving
Transmission Control Protocol/Internet Protocol. Het standaardprotocol voor WAN-netwerken dat communicatie mogelijk maakt met andersoortige, onderling met elkaar verbonden netwerken.
OK
Annuleren
Eigenschappen van Internet Protocol versie 4 (TCP/IPv4)
Algemeen
IP-instellingen kunnen automatisch worden toegewezen als het netwerk deze mogelijkheid ondersteunt. Als dit niet het geval is, dient u de netwerkbeheerder naar de geschikte IP-instellingen te vragen.
Automatisch een IP-adres laten toewijzen
Het volgende IP-adres gebruiken:
IP-adres: 192 . 168 . 0 . 100
Subnetmasker: 255 . 255 . 255 . 0
Standaardgateway: 192 . 168 . 46 . 201
Automatisch een DNS-serveradres laten toewijzen
De volgende DNS-serveradressen gebruiken:
Voorkeurs-DNS-server:
Alternatieve DNS-server:
Instellingen tijdens afsluiten valideren
Geavanceerd...
OK
Annuleren
Zie ook
Infrarood
Internetopti
Thuisgroep
Windows Firewall
8:50
29/11/2017

pnt-18-031

Homepage

After log-on you see the homepage of the dehydrator.



Homepage

On this homepage you see the status of the dehydrator with the alarms. The green colored items are activated. An activated heater colors orange.

Device	
Runtime	Total operation time of the dehydrator
Valve Y3 duty cycle*	Duty Cycle of the dehydrator
Standby, waiting for start command*	In case the dryer is in redundant standby (optional).
Duty cycle mode* Enabled or Disabled	Indicates if the forced duty cycle is enabled or disabled.
Duty cycle state* On / Off	Indicates if the dryer is active or not during the forced duty cycle.
Time until next phase	Count down to the next sequence of the dehydrator
Next phase	Switch over to new sequence
Test alarm:	Will deactivate the alarm relay for 60 seconds

* See chapter 4 Functional description cycle

Seq.	Adsorber 1	Adsorber 2	Time
1	Heating	Drying	3 hrs
2	Cooling		≥ 3 hrs
4	Drying	Heating	3 hrs
5		Cooling	≥ 3 hrs
6	Back to step 1		

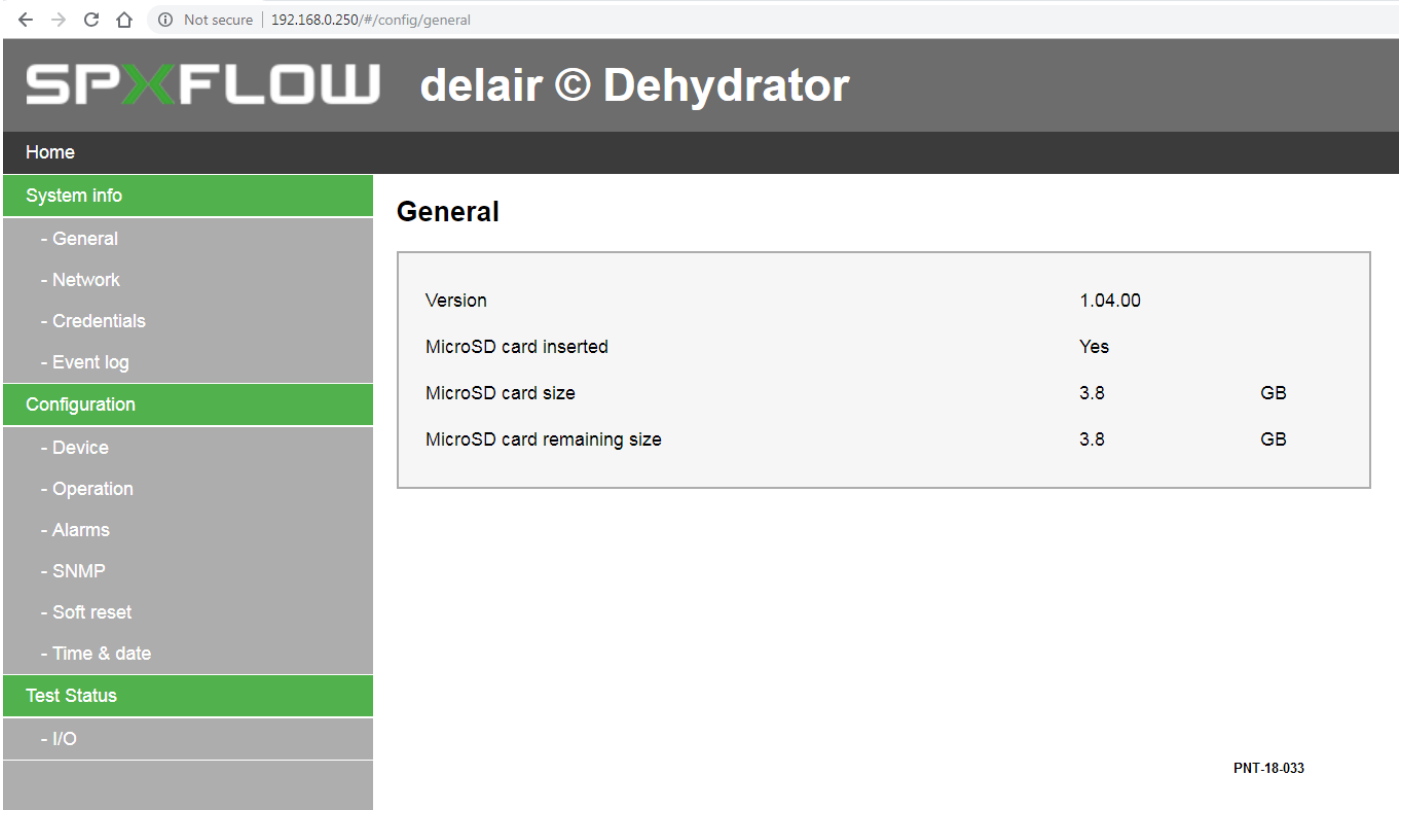
Cycle subdivision

Alarms
Low, high pressure alarm
Compressor run time alarm
Humidity alarm (in case optional Humidity sensor is installed)
RED.AL Will prevent to switch to this dryer. (in case redundancy option is installed)
COM.AL. Indicates there is no communication between the two redundant units (in case redundancy option is installed)

System info

General

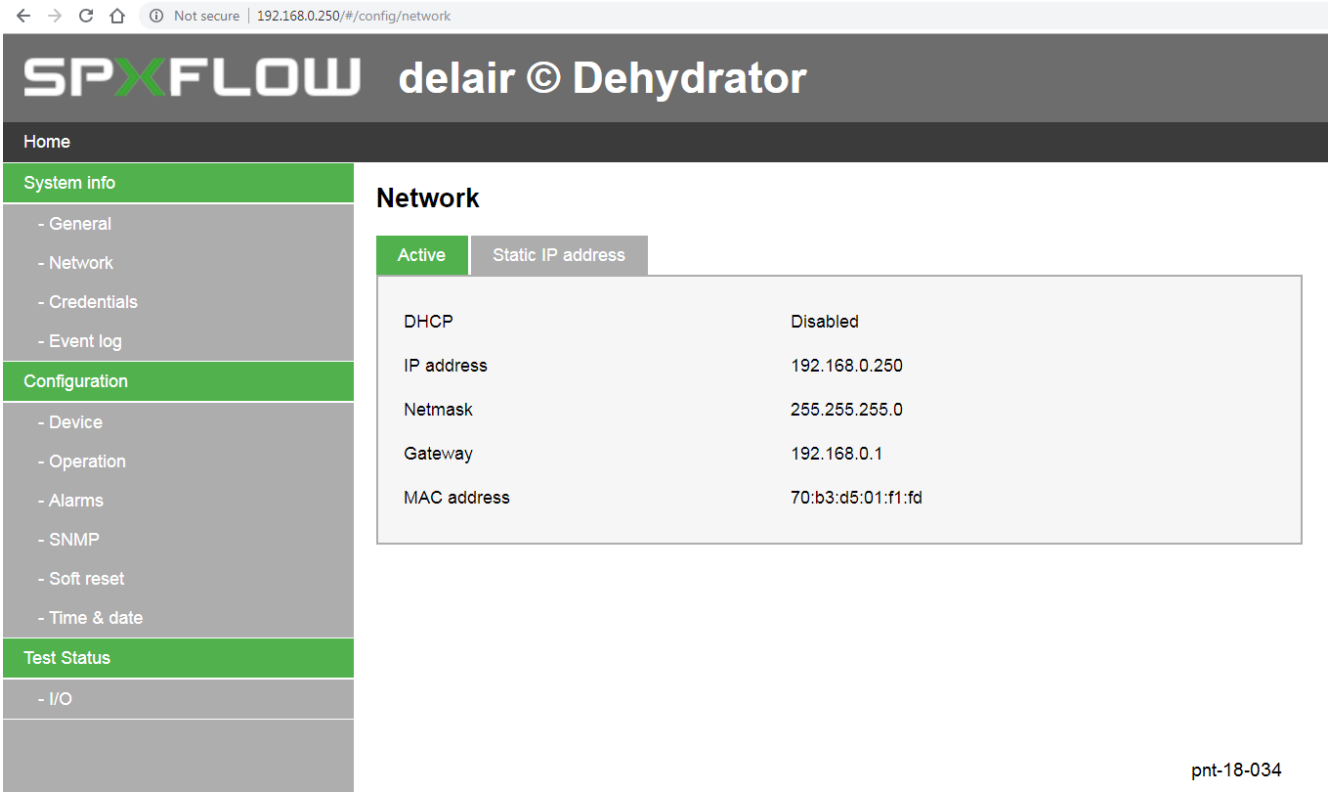
Latest version of the software; Valid from software version V1.08.XX



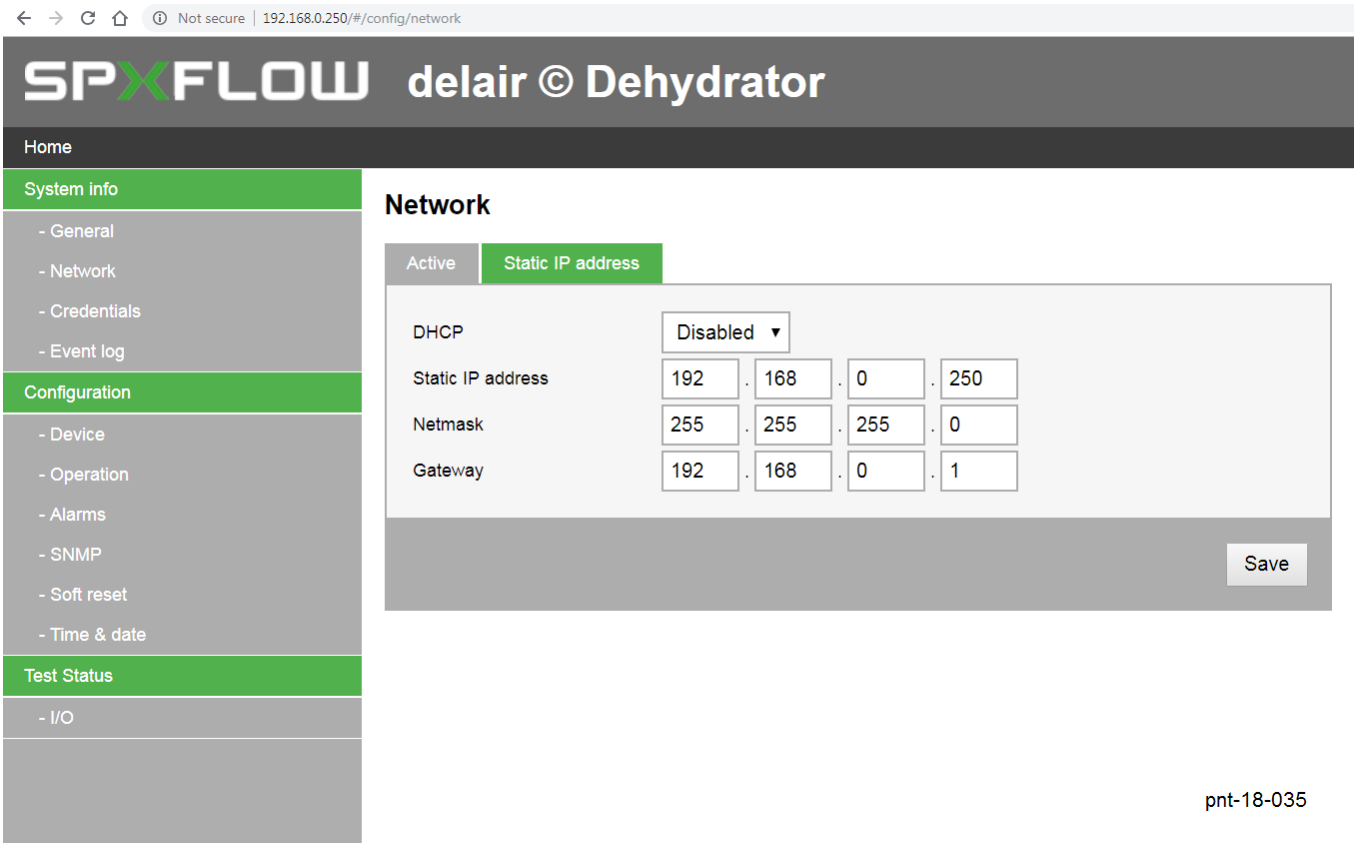
Software version

Network

Network information

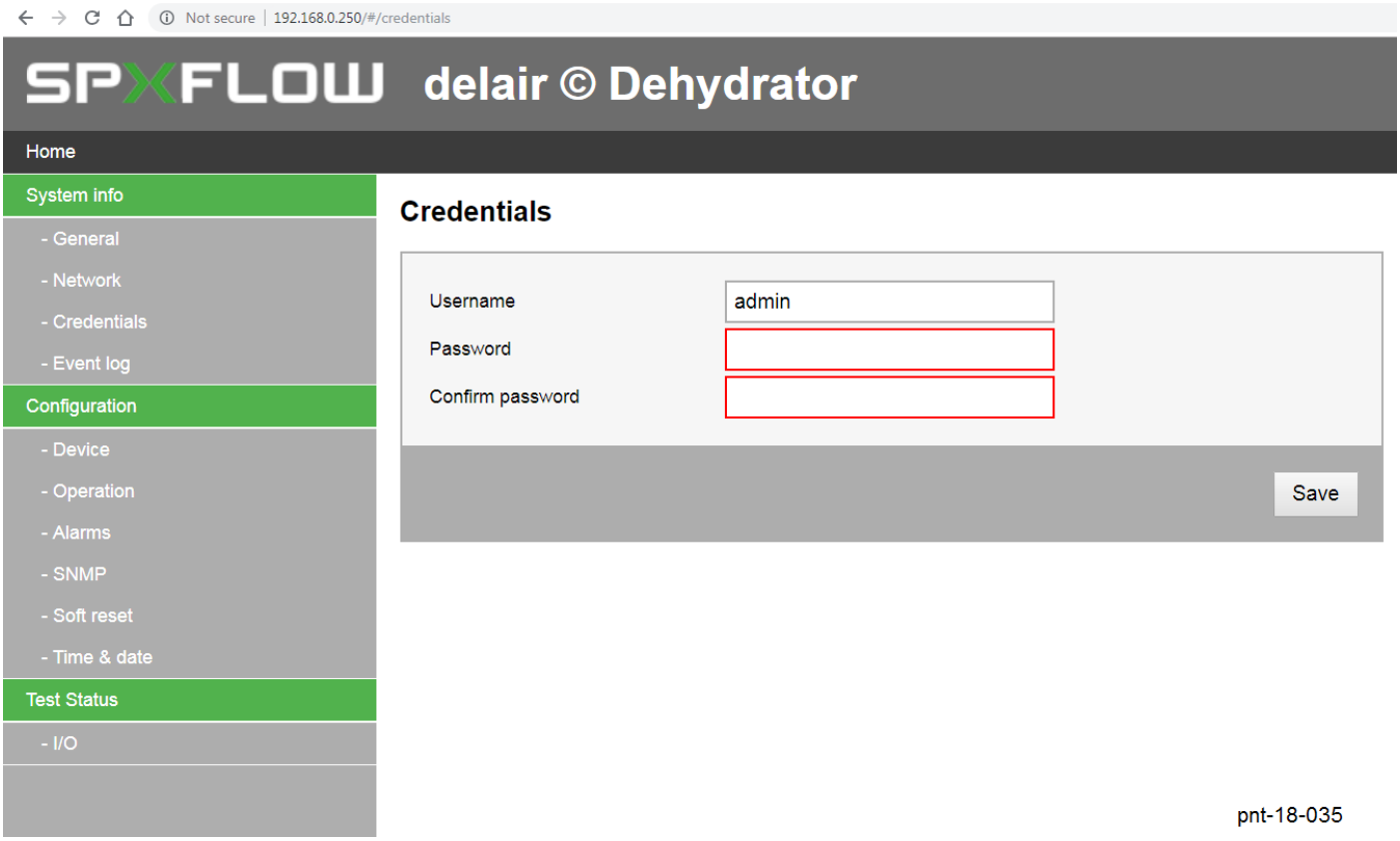


Network



Network information

Credentials



Credentials

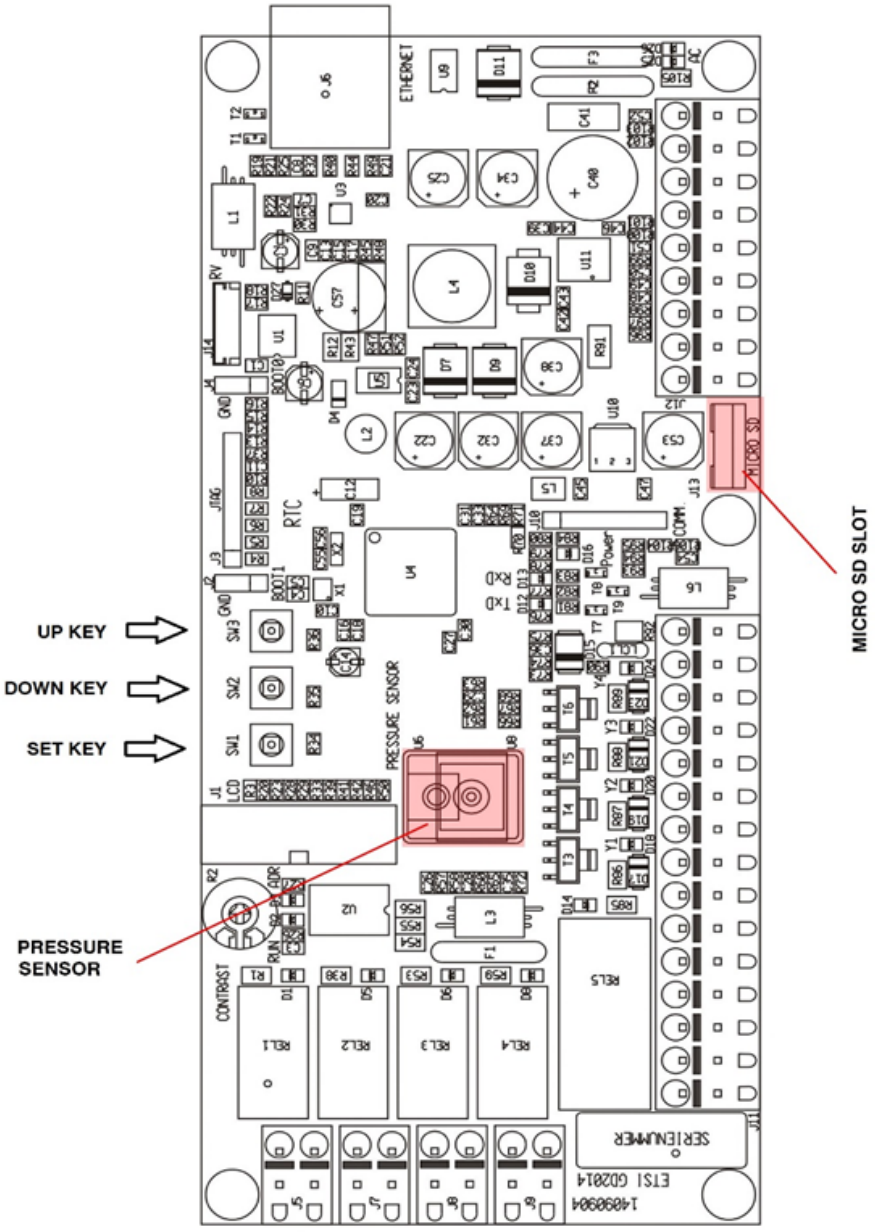
Default

Username : admin
Password : admin

We suggest to change the username and password immediately at fist log-on.

The SOFT reset has no impact on the set credentials.

Reset to default username and password by a HARD reset on the PCB of the CommPact.



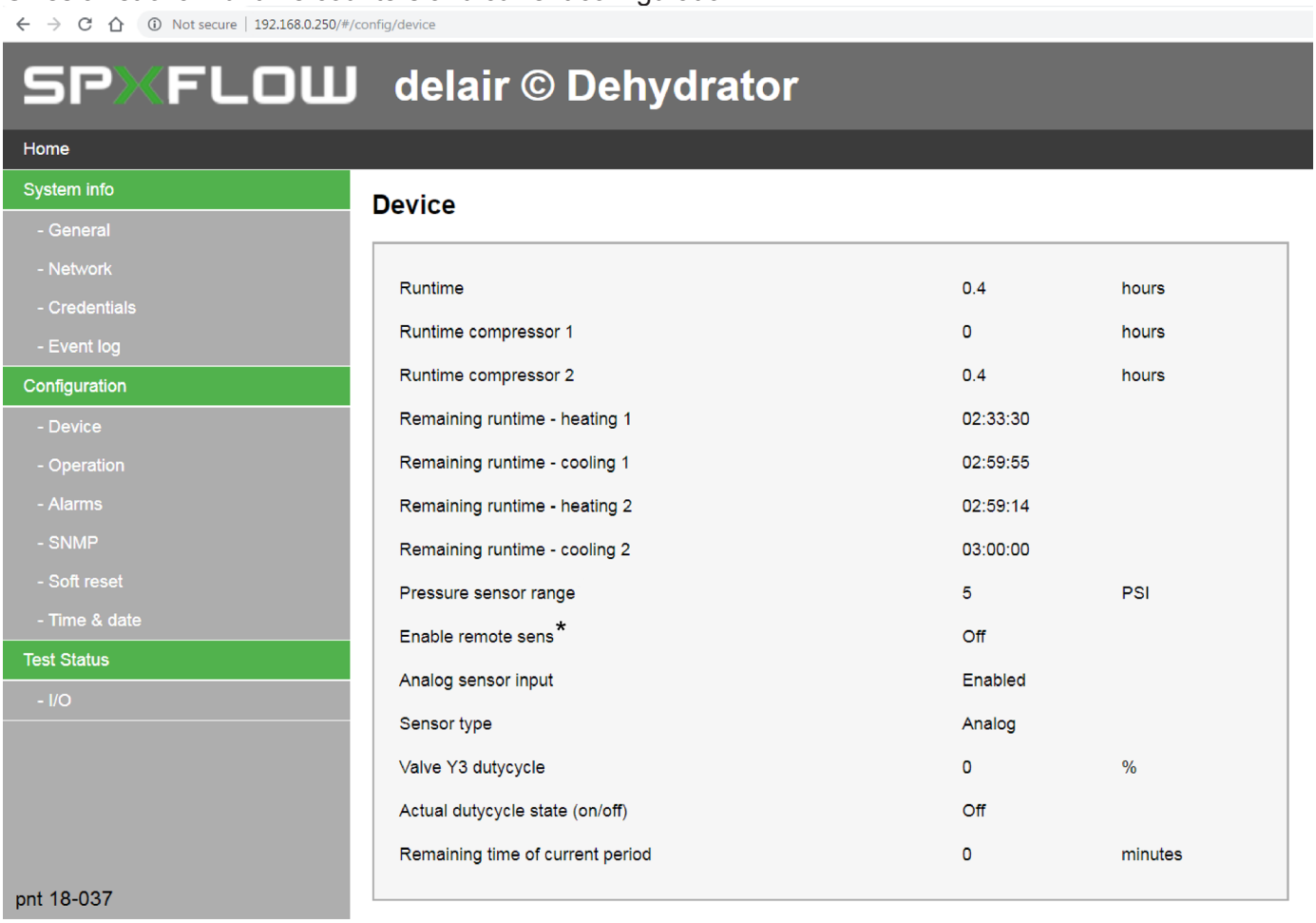
After a hard reset, all settings will be overwritten with default settings.
To apply a hard reset, disconnect power to the CommPact. Press and hold the set key and power the unit again. The display starts to count down. Hold the set key until the dehydrators starts up again. The “run” led will blink a few times, this indicates the settings are overwritten. The hard reset has been executed.

IMPORTANT	This action cannot be undone.

Configuration

Device

Gives a list of all runtime counters and current configuration.



Device configuration

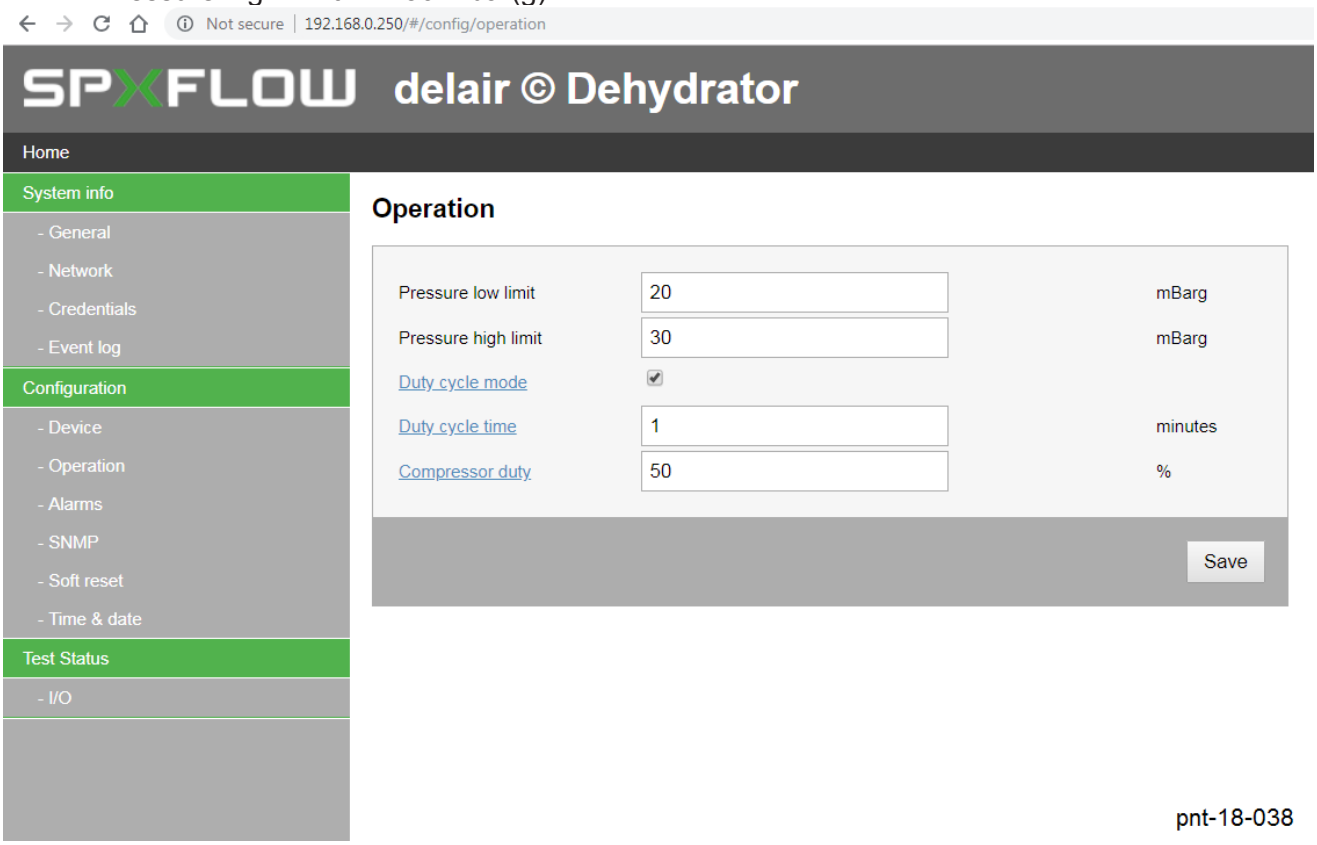
* In Etsiline Commpact the Remote Sense is manually operated via valve RS located in the front panel.

Operation

In these fields the low and high operational pressure can be changed, within the design limits of 0 – 100 mbar(g)

Default

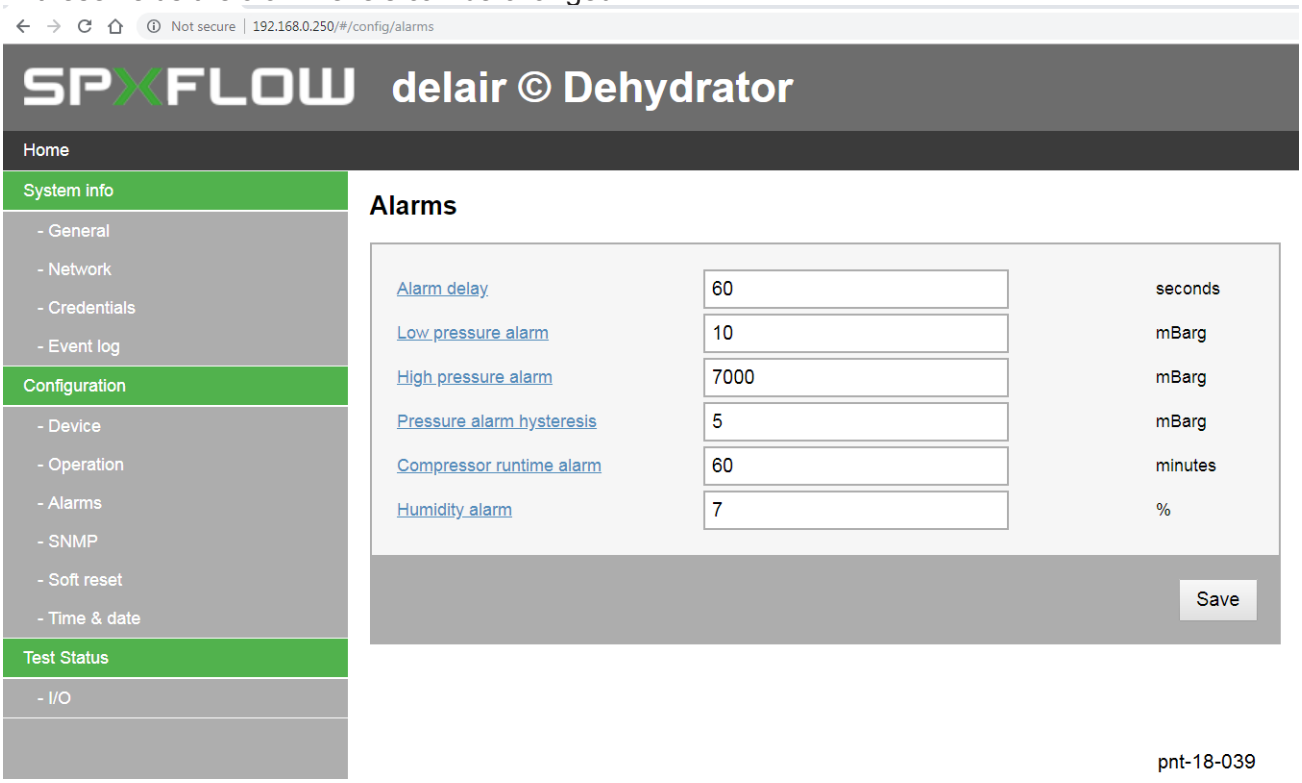
Pressure low limit : 20 mbar(g)
Pressure high limit : 30 mbar(g)



Operation

Alarms

In these fields the alarm levels can be changed.



Alarms

Alarm delay:
When an alarm restores within de delay time, no alarm signal will be given.

Low pressure alarm:
When the measured pressure drops under this level, a low pressure alarm is given.

High pressure alarm:
When the measured pressure rises to this level, a high pressure alarm is given.
(Switched off, by default setting on 7.000 mbar(g))

Alarm pressure hysteresis:
Setting of the hysteresis of the low and high pressure.

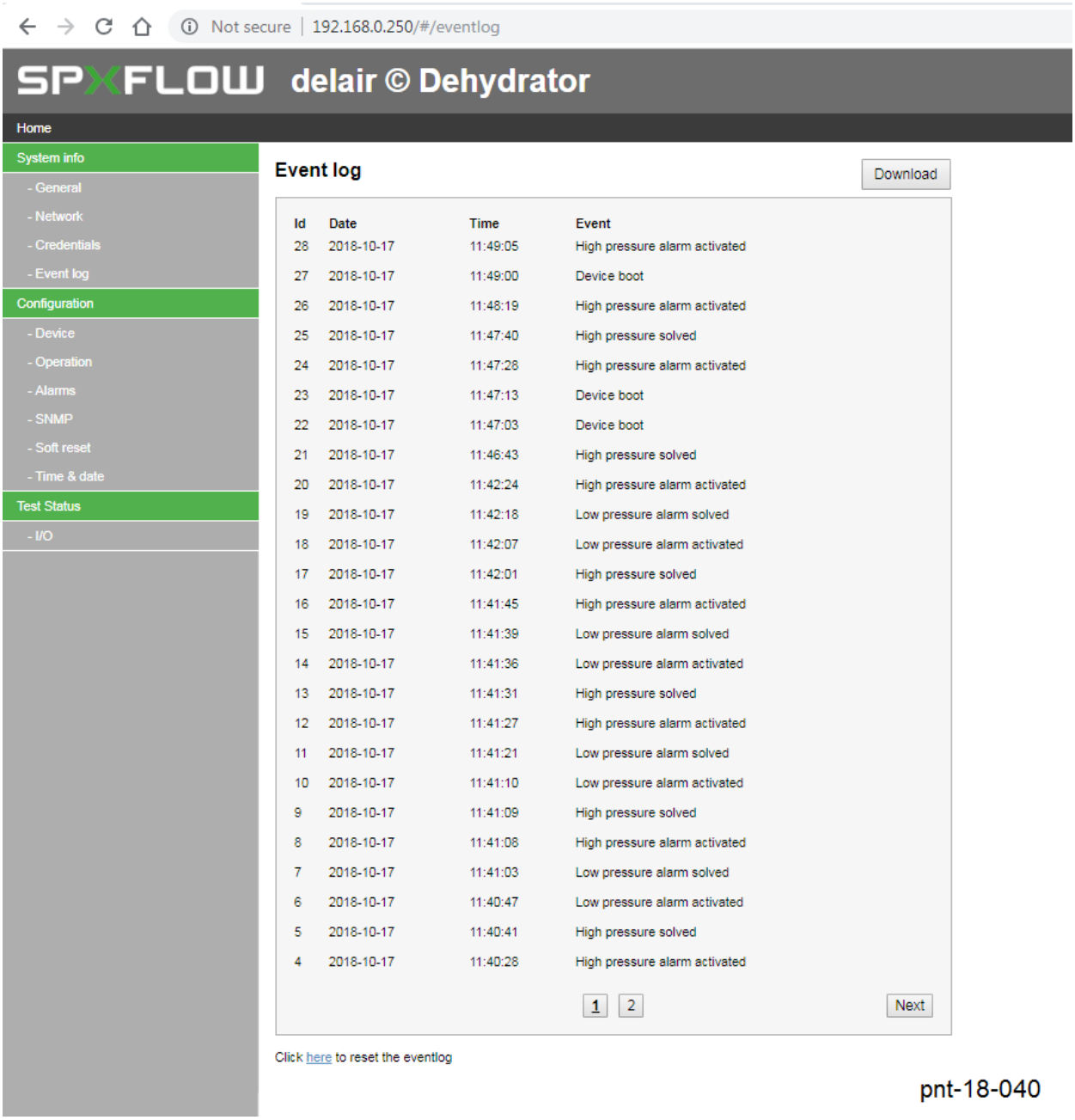
Compressor runtime alarm:
When de compressor runs more than the set running hours, a run time alarm is given

Humidity alarm (only in case the optional humidity sensor is installed.):
Humidity alarm is set on 7% RH, which is a Dew point of -15°C at 22°C ambient

NOTE	The PCB (Control board) has been designed for multiple types of air dryers. At the change of settings, you will notice that the setting range is wider than the design limits of the delair® EtsilineCommpact. For the design limitations of this unit please refer to table “parameter settings” in this section

Event log

In this field the latest events are logged.
The events stored can be downloaded via the download button, this will generate a komma separated value file. Available in you download folder. A copy of this file will be stored on the internal SD card of the Etsi-CommPact.



Event log

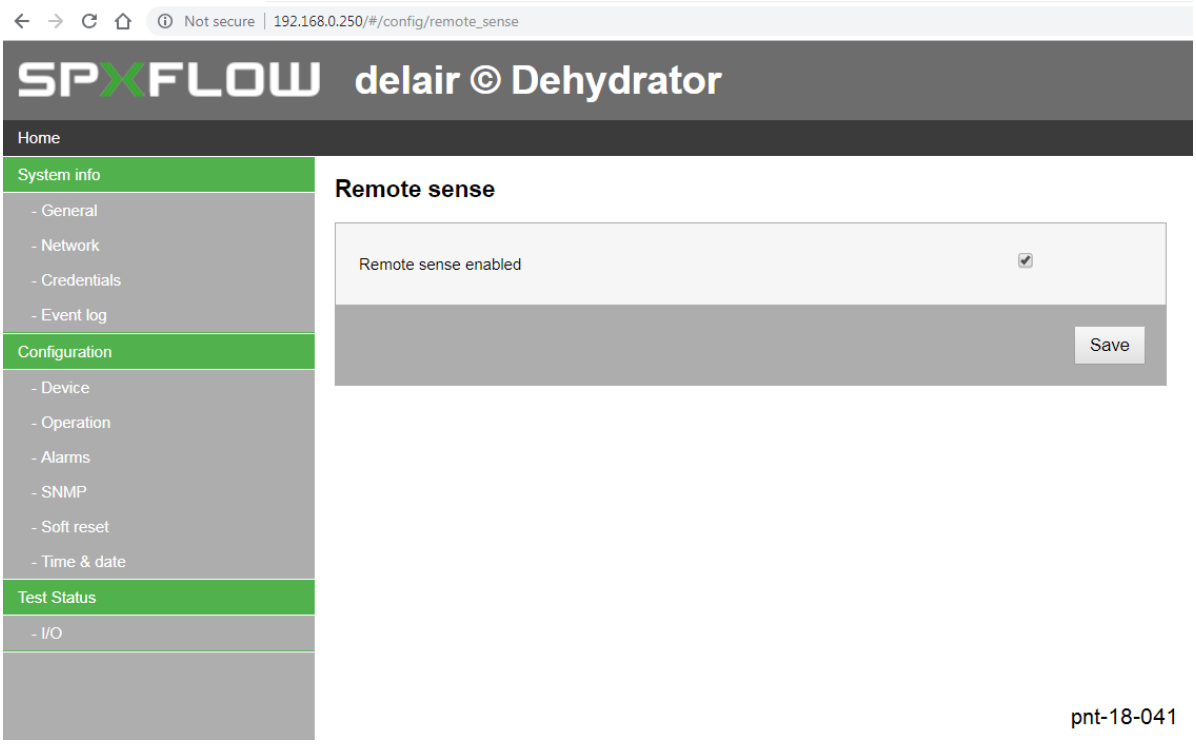
The event log file has the following format:

Event ID	YYYY-MM-DD	HH:MM	Event code	Event description

A soft reset will not delete the event log.
A hard reset will delete the events displayed in the browser, but will not affect the event log available for download.
The complete eventlog can be deleted via the “Click here to reset the eventlog” option in the browser page.

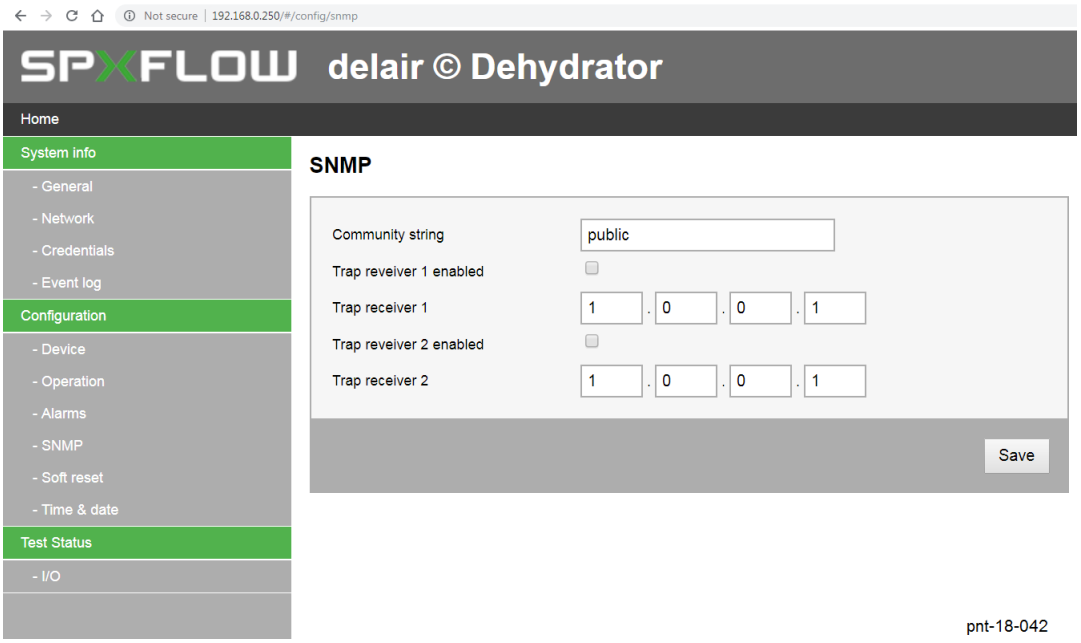
Remote Sense

The working pressure of the EtsilineCommPact is standard measured between solenoid valve Y3 and the outlet manifold. In some circumstances it is desired to measure the working pressure further in the antenna system. In that case you connect a return hose to the remote sense input. In the Etsiline Commpact the manual valve RS has to be pulled out for remote sense operation.
As the RS option is manually operated, below screen is not applicable for the Etsiline Commpact dryer.



Remote sense

SNMP

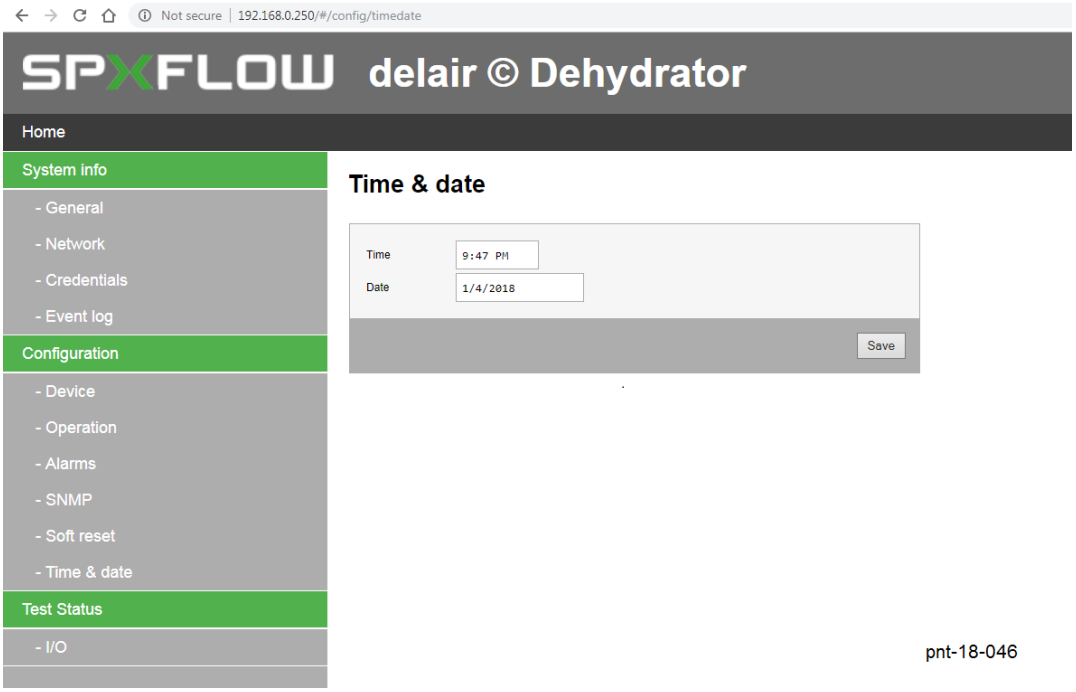


SNMP

The delair® EtsilineCommPact supports the SNMPv1. The standard community string is “public”. The community string can be adapted with this SNMP menu. Two SNMP trap destinations can be enabled and switched on/off.
The full description of the SNMP interface is found in the SPX-MIB file.

Time & Date

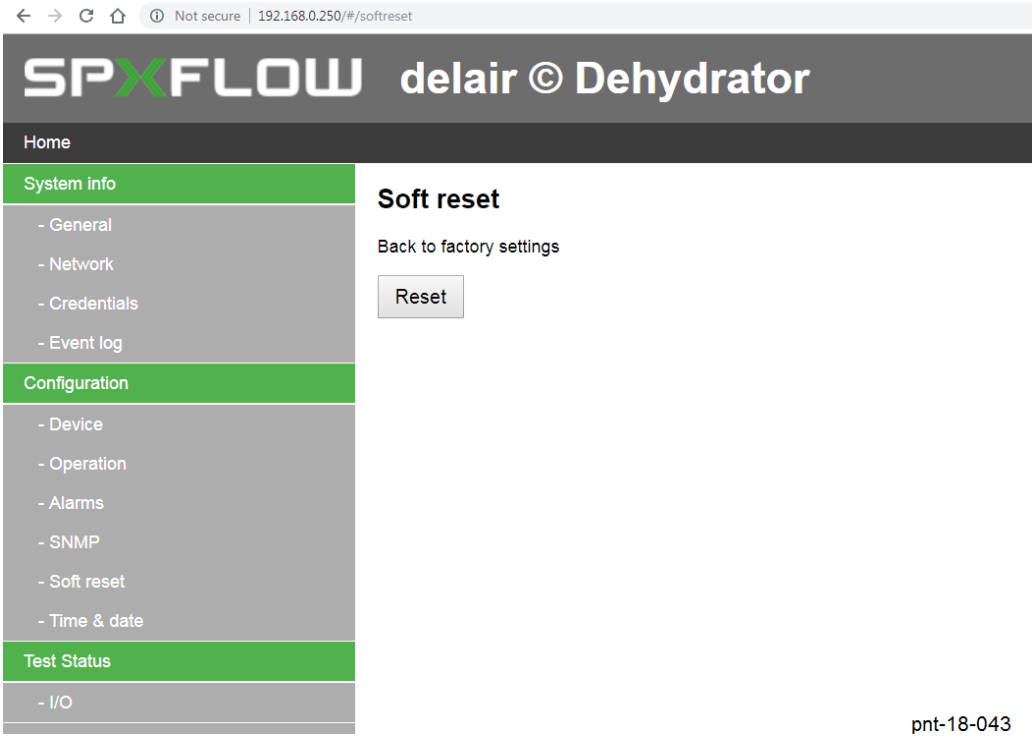
Adjusts/sets the time and date of the control board internal clock. Will reset when the dryer was powerless for a long time.
Time and date are stored in the event log.



Time and date

Soft reset

The soft reset brings all settings made by web interface back to the default settings.
The username and password will not change to default nor will the event log be affected.

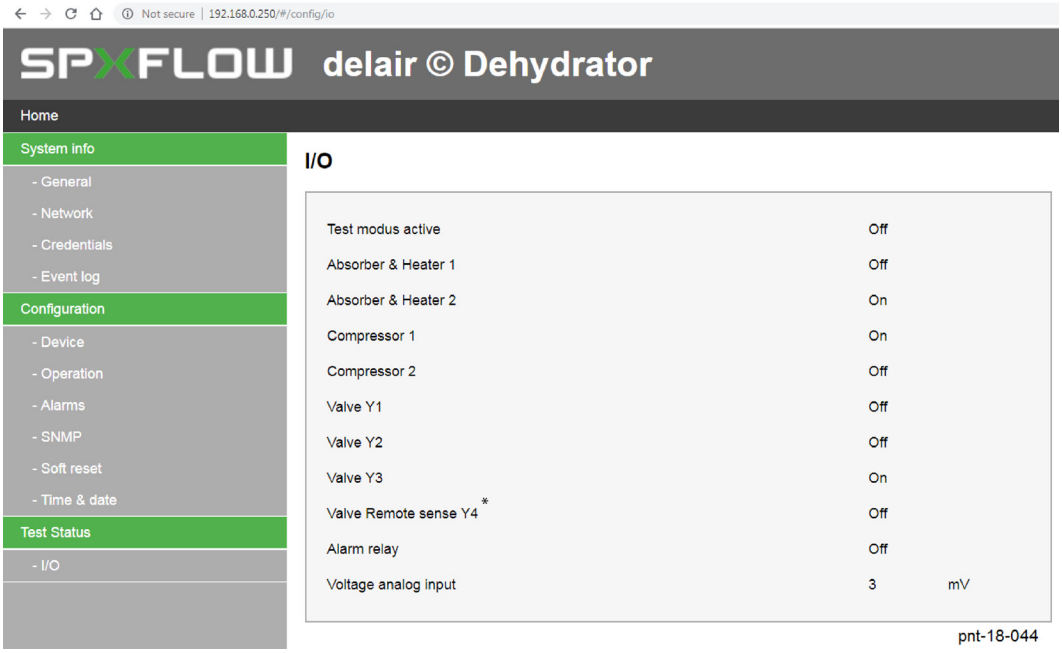


Soft reset

Test status

I/O

This is the overview of the current status of the relays, digital outputs and the test modus.



Test status

* In Etsiline Commpact the Remote Sense is manually operated via valve RS located in the front panel, not via valve Y4.

Parameter settings

Browser menu	Parameter	Default Setting	Design Limits / remarks
Netwerk_Static IP address	DHCP	Disabled	To switch DHCP-setting (On –Off) The air dryer will request network for an IP-address. In case the DHCP is switched OFF than the air dryer will take over the set IP-adress, netmask and gateway. The IP-address then is STATIC.
	Static IP address	192.168.0.250	Sets the static IP Address
	Netmask	255.255.255.0	Sets the staictNetmask Address
	Gateway	192.168.0.1	Sets the static Gateway Address
Credentials	Username	admin	Sets the username
	Password	admin	Sets the password
	Confirm password	admin	Confirms the password
Operation	Pressure low limit	20 mbar(g)	Lower limit (compressor on) When system pressure drops below this setting, supply valve Y3 and, dependent of other conditions, compressor is switched ON
	Pressure high limit	30 mbar(g)	High limit (compressor off) When system pressure exceeds this setting, supply valve Y3 and, dependent of other conditions, compressor is switched OFF During heating cycle compressor is always ON and only feed valve Y3 is switched OFF. Ensure this pressure is always higher than the Press. low limit.
	Duty cycle mode	Off	Duty cycle will allow the user to limit the “ON” time of the built in compressor of the Etsi. Skip from value “ON” to “OFF” and press set-key
	Duty cycle time	1 min	Sets the cycle time of the duty cycle. (0 – 60 minutes). Setting is only active when duty cycle mode is enabled
	Compressor duty	50%	Percentile “ON” time of the compressor. (10% - 100%) With a duty cycle time of 3 minutes and a duty cycle time of 30%. The compressor will run for 54 seconds and will stop for 126 seconds. Setting is only active when duty cycle mode is enabled.

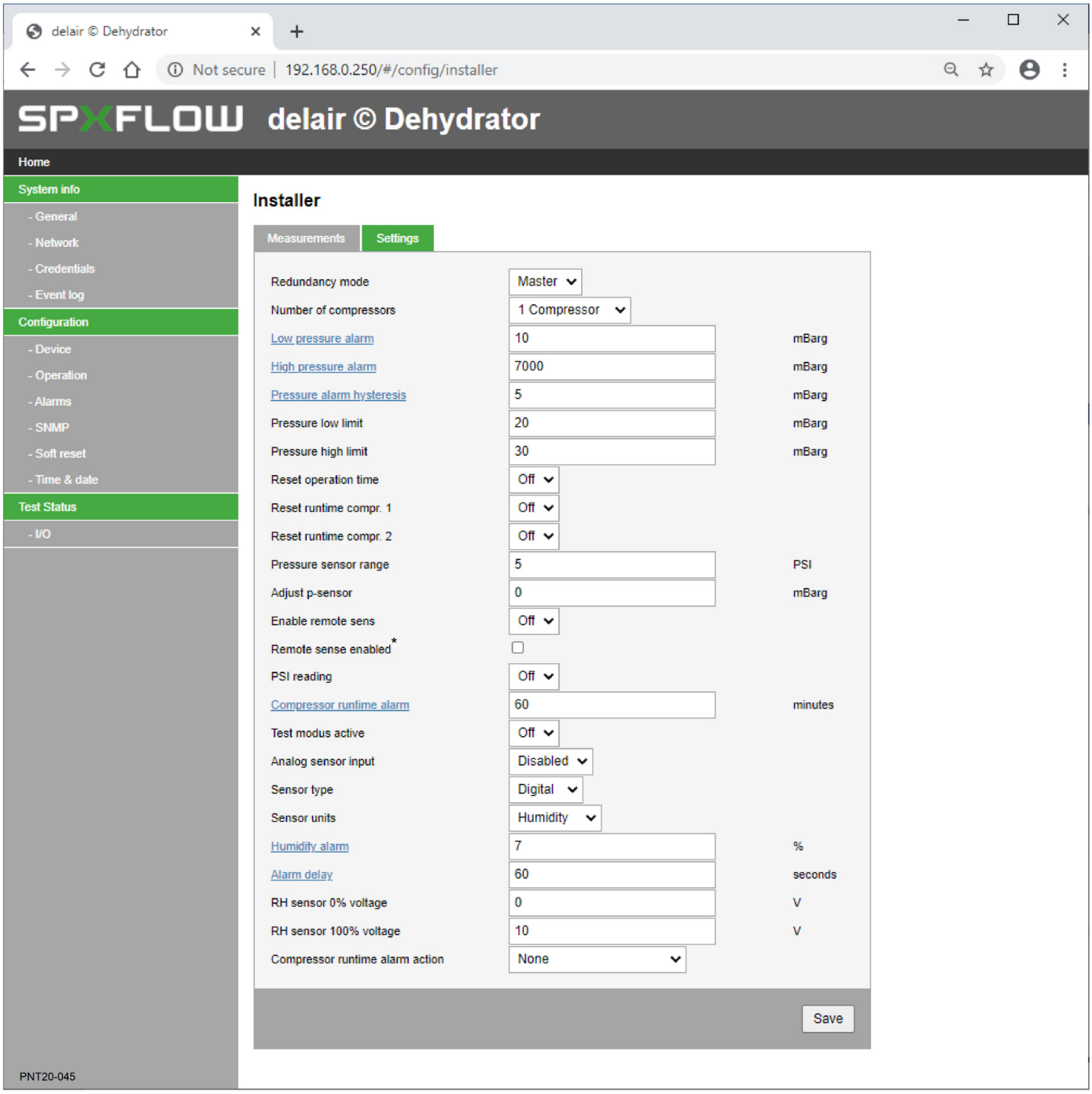
Browser menu	Parameter	Default Setting	Design Limits / remarks
Alarms	Alarm delay	60 sec	Alarm delay. (1 - 900 seconds). Once a discrepancy is found (low pressure, high pressure, max. time compressor, unsuccessful BiT, high RH%), all the alarms will be activated after the actual adjusted delay. Then a message is shown on the display and the alarm relay is activated. When the alarm restores within this delay, there will be no active alarms.
	Low pressure alarm	10 mbar(g)	Low Pressure alarm (0 – 7000 mbar) Lower limit (alarm on) In case system pressure drops below this setting, LOW PR., alarm is displayed and alarm contact switches. This alarm has an adjustable time delay of 0-900 sec. Refer to alarm delay section below. Minimum pressure will not be monitored if duty cycle mode is enabled.
	High pressure alarm	7000 mbar(g)	High alarm pressure (0 – 7000 mbar) Higher limit (alarm on) In case system pressure exceeds this setting, HIGH PR., alarm is displayed and alarm contact switches. This alarm has an adjustable time delay of 0-900 sec. Refer to alarm delay section below.
	Pressure alarm hysteresis	5 mbar(g)	Pressure alarm difference for low and high pressure alarm (5-250 mbar). Hysteresis (alarm off) Example: (figures are default settings) Lower press.alarm + Press.alarmhyst. = Low alarm off at 10 mbar + 5 mbar = 15 mbar High press.alarm – Press.alarmhyst = High alarm off at 30 mbar -5mbar = 25 mbar
	Compressor run-time alarm	60 minutes	Excessive run time compressor (0 – 60 min.) When the compressor operates beyond adjusted time limit, an excessive air consumption alarm will be generated. Alarm is only activated during “COOL1” or “COOL2” period and not function during the “HEATER1” or “HEATER2” regeneration period. Display would indicate “PUMP AL.” if this setting is exceeded
	Humidity alarm (optional)	7%	Humidity alarm setting (5-100%) When system humidity exceeds this setting, an alarm “HIGH RH” will be displayed after preset-ted time-delay. Alarm setting only possible with a RH-sensor and will not alarm in case a DP-sensor is installed.

Browser menu	Parameter	Default Setting	Design Limits / remarks
SNMP	Communication string	Public	
	Trap receiver 1 enabled	Disable button	
	Trap receiver 1	1.0.0.1	
	Trap receiver 2 enabled	Disable button	
	Trap receiver 2	1.0.0.1	
Installer	Redundancy mode	Off	Off: in case redundancy option is not installed or not activated, Master/slave: one unit shall be set as master the second unit must set as slave. Unit will run a full cycle and then change to the stand-by unit. In case of an alarm the standby unit will be started. In case of a communication alarm both units will run. Alarms generated will be reset when the second unit solves the issue, the redundancy alarm has to be solved manually in the web-browser. The humidity alarm is delayed for 1 hour, to allow the unit to recover from a dew point issue. It is advised that all operational and alarm settings for the Master and the Slave unit are identical.
	Number of compressors	2	Number of compressors within the system (1-2)
	Low pressure alarm	10	Low Pressure alarm (0 – 7000 mbar) Lower limit (alarm on) In case system pressure drops below this setting, LOW PR., alarm is displayed and alarm contact switches. This alarm has an adjustable time delay of 0-900 sec. Refer to alarm delay section below. Minimum pressure will not be monitored if duty cycle mode is enabled.
	High pressure alarm	7000	High alarm pressure (0 – 7000 mbar) Higher limit (alarm on) In case system pressure exceeds this setting, HIGH PR., alarm is displayed and alarm contact switches. This alarm has an adjustable time delay of 0-900 sec. Refer to alarm delay section below.
	Pressure alarm hysteresis	5	Pressure alarm difference for low and high pressure alarm (5-250 mbar). Hysteresis (alarm off) Example: (figures are default settings) Lower press.alarm + Press.alarmhyst. = Low alarm off at 10 mbar + 5 mbar = 15 mbar High press.alarm –Press.alarmhyst= High alarm off at 30 mbar -5mbar = 25 mbar

Browser menu	Parameter	Default Setting	Design Limits / remarks
Installer	Pressure low limit	20 mBarg	Lower limit (compressor on) When system pressure drops below this setting, supply valve Y3 and, dependent of other conditions, compressor is switched ON
	Pressure high limit	30 mBarg	High limit (compressor off) When system pressure exceeds this setting, supply valve Y3 and, dependent of other conditions, compressor is switched OFF During heating cycle compressor is always ON and only feed valve Y3 is switched OFF. Ensure this pressure is always higher than the Press.low limit.
	Reset operation time	Off	Reset the running hours of the unit
	Reset runtime compr. 1	Off	Resets the running hours of compressor 1
	Reset runtime compr. 2	Off	Resets the running hours of compressor 2
	Pressure sensor range	5 PSI	Pressure sensor range (1-150PSI)
	Adjust P-sensor	0 mbarg	Pressure sensor correction (-200 - +200mbar) With this function an offset to the actual reading can be set. This value will be added/ subtracted from the actual pressure measurement.
	Enable remote sense	Off *	To enable remote sensing (On – Off) Enabling this only makes sense if this option is installed. Remote sensing is the option to measure the pressure downstream the air dryer (in system) instead of at the discharge of the air dryer. * In Etsiline Commpact the Remote Sense is manually operated via valve RS located in the front panel, not via valve Y4.
	Remote sense enabled	Disable button	No function
	PSI reading	Off	PSI Read-out (On - Off) Switch between PSI (On) and mbar read-out (Off). Functions assignments settings always in mbar's
	Compressor runtime alarm	60 minutes	Excessive run time compressor (0 – 60 min.) When the compressor operates beyond adjusted time limit, an excessive air consumption alarm will be generated. Alarm is only activated during "COOL1" or "COOL2" period and not function during the "HEATER1" or "HEATER2" regeneration period. Display would indicate "PUMP AL." if this setting is exceeded
	Test modus active	Off	Test mode (On – Off) This function puts the unit in test mode. All I/O are frozen in the current state. I/O can be changed with below test functions.
	Analog sensor input	Disabled	Selects whether an analog sensor is installed (Off-On) Switches the relative humidity or dew point sensor ON or OFF. Only applicable for installations with RH-sensor
	Sensor type	Digital	Analog / Digital
	Sensor units	Humidity	Units for humidity (RH – DP) Switches between a RH-sensor and a DP-sensor
	Humidity alarm (optional)	7%	Humidity alarm setting (5-100%) When system humidity exceeds this setting, an alarm "HIGH RH" will be displayed after presetted time-delay. Alarm setting only possible with a RH-sensor and will not alarm in case a DP-sensor is installed.

Browser menu	Parameter	Default Setting	Design Limits / remarks
Installer	Alarm delay	60 seconds	Alarm delay. (1 - 900 seconds). Once a discrepancy is found (low pressure, high pressure, max. time compressor, unsuccessful BiT, high RH%), all the alarms will be activated after the actual adjusted delay. Then a message is shown on the display and the alarm relay is activated. When the alarm restores within this delay, there will be no active alarms.
	RH sensor 0% voltage	0 V	RH 0% voltage (0 – 10V) Sets the sensor output voltage that corresponds with a measured value of 0% RH.
	RH sensor 100% voltage	10 V	RH 100% voltage (0 – 10V) Sets the sensor output voltage that corresponds with a measured value of 100% RH.0 – 10 V
	Compressor runtime alarm action	None	What action should be taken if the runtime of the compressor exceeds the the Compressor runtime alarm setpoint
			None: No action, continue the cycle. Stop Compressor: Stops the compressor and supply dry air. Activate duty cycle mode: Let the compressor run in fixed duty cycle as set in "Operation" section.

IP-address/#/config/installer



Installer menu

* In Etsiline Commpact the Remote Sense is manually operated via valve RS located in the front panel, not via valve Y4.

IMPORTANT	The PC/Laptop needs to have Windows 7 or higher. Windows asks with a pop-up permission to apply the software. If the pop-up doesn't appear, open de software as administrator, by clicking right on the installer icon and choose "Run as administrator"

SNMP Communication; valid from software version V1.8.1

```
SPX-MIB DEFINITIONS ::= BEGIN

        IMPORTS
                enterprises, NetworkAddress, IpAddress
                        FROM RFC1155-SMI
                OBJECT-TYPE
                        FROM RFC-1212
                TRAP-TYPE
              FROM RFC-1215;

lWIP OBJECT IDENTIFIER ::= { enterprises 26381 }

spxCommPact OBJECT IDENTIFIER ::= { lWIP 1 }

measurements OBJECT IDENTIFIER ::= { spxCommPact 1 }

settings OBJECT IDENTIFIER ::= { spxCommPact 2 }

traps OBJECT IDENTIFIER ::= { spxCommPact 3 }

-- ********************************************************************************
-- .1.3.6.1.4.1.26381.1.1.X.port
-- non configurable parameters
-- ********************************************************************************

system OBJECT IDENTIFIER ::= { measurements 1 }

        version OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Software version"
                ::= { system 1 }

        microSDInserted OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "MicroSD card inserted"
                ::= { system 2 }

        microSDCapacity OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "MicroSD card capacity (1/10th GB)"
                ::= { system 3 }
```

```
        microSDCapacityRemaining OBJECT-TYPE
                SYNTAX  INTEGER
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “MicroSD card remaining capacity (1/10th GB)”
                ::= { system 4 }

ethernet OBJECT IDENTIFIER ::= { measurements 2 }

        dHCPEnabled OBJECT-TYPE
                SYNTAX  INTEGER {disabled(0), enabled(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “DHCP Enabled”
                ::= { ethernet 1 }

        ethernetState OBJECT-TYPE
                SYNTAX  INTEGER {disconnected(0), connected(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “Ethernet connection state”
                ::= { ethernet 2 }

        activeIP OBJECT-TYPE
                SYNTAX  IpAddress
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “Active IP address”
                ::= { ethernet 3 }

        activeNetMask OBJECT-TYPE
                SYNTAX  IpAddress
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “Active netmask”
                ::= { ethernet 4 }

        actoveGateway OBJECT-TYPE
                SYNTAX  IpAddress
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “Active gateway”
                ::= { ethernet 5 }
```

```
sensors OBJECT IDENTIFIER ::= { measurements 3 }

        pressure OBJECT-TYPE
                SYNTAX  INTEGER    (0..65535)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “Pressure sensor readout in mBarg”
                ::= { sensors 1 }

        humidity OBJECT-TYPE
                SYNTAX  INTEGER    (0..100)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “Relative humidity readout”
                ::= { sensors 2 }

        dewpoint OBJECT-TYPE
                SYNTAX  INTEGER    (9994000..10006000)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “Dewpoint sensor readout in 1/100th degree C -60 -> +60 range with 10.000.000 offset at 0
degrees”
                ::= { sensors 3 }

status OBJECT IDENTIFIER ::= { measurements 4 }

        runtime OBJECT-TYPE
                SYNTAX  INTEGER    (0..99999999)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “Device runtime in 1/10th hours”
                ::= { status 1 }

        compressor1Runtime OBJECT-TYPE
                SYNTAX  INTEGER    (0..99999999)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        “Compressor 1 runtime in 1/10th hours”
                ::= { status 2 }
```

```
compressor2Runtime OBJECT-TYPE
        SYNTAX  INTEGER    (0..99999999)
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Compressor 2 runtime in 1/10th hours"
        ::= { status 3 }

systemCurrentPhase OBJECT-TYPE
        SYNTAX  INTEGER    {heat1(0), cool1(1), heat2(2), cool2(3), pause(4), startup(5)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Current phase of the dryer's process"
        ::= { status 4 }

remainingRuntimeHeat1 OBJECT-TYPE
        SYNTAX  INTEGER    (0..10800)
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Remaining runtime in Heat1 phase in seconds"
        ::= { status 5 }

remainingRuntimeCool1 OBJECT-TYPE
        SYNTAX  INTEGER    (0..10800)
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Remaining runtime in Cool1 phase in seconds"
        ::= { status 6 }

remainingRuntimeHeat2 OBJECT-TYPE
        SYNTAX  INTEGER    (0..10800)
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Remaining runtime in Heat2 phase in seconds"
        ::= { status 7 }

remainingRuntimeCool2 OBJECT-TYPE
        SYNTAX  INTEGER    (0..10800)
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Remaining runtime in Cool2 phase in seconds"
        ::= { status 8 }
```

```
        y3DutyCycle OBJECT-TYPE
                SYNTAX  INTEGER    (0..100)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Valve Y3 dutycycle average over 24h"
                ::= { status 9 }

        pwmModeState OBJECT-TYPE
                SYNTAX  INTEGER {off(0), on(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "PWM mode current state"
                ::= { status 10 }

        pwmModeActiveTimeRemaining OBJECT-TYPE
                SYNTAX  INTEGER    (0..60)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "PWM mode time remaining in on state"
                ::= { status 11 }


alarms OBJECT IDENTIFIER ::= { measurements 5 }

        lowPressureAlarmState OBJECT-TYPE
                SYNTAX  INTEGER    {inactive(0), active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Low pressure alarm state"
                ::= { alarms 1 }

        highPressureAlarmState OBJECT-TYPE
                SYNTAX  INTEGER    {inactive(0), active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "High pressure alarm state"
                ::= { alarms 2 }

        compressorRuntimeAlarmState OBJECT-TYPE
                SYNTAX  INTEGER    {inactive(0), active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Compressor runtime alarm state"
                ::= { alarms 3 }
```

```
        humidityAlarmState OBJECT-TYPE
                SYNTAX  INTEGER    {inactive(0), active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Humidity alarm state"
                ::= { alarms 4 }

        testAlarmState OBJECT-TYPE
                SYNTAX  INTEGER    {inactive(0), active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Test alarm state"
                ::= { alarms 5 }

        compressorStoppedByTuntimeAlarmState OBJECT-TYPE
                SYNTAX  INTEGER    {inactive(0), active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Compressor stopped by runtime alarm state"
                ::= { alarms 6 }


testmode OBJECT IDENTIFIER ::= { measurements 6 }

        testmodeActive OBJECT-TYPE
                SYNTAX  INTEGER    {inactive(0), active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Indicates whether or not the device is in test mode"
                ::= { testmode 1 }

        analogInputVoltage OBJECT-TYPE
                SYNTAX  INTEGER    (0..10000)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Analog input voltage in mV"
                ::= { testmode 2 }

        relayHeater1Position OBJECT-TYPE
                SYNTAX  INTEGER    {open(0), closed(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Position of the relay"
                ::= { testmode 3 }
```

```
relayHeater2Position OBJECT-TYPE
        SYNTAX  INTEGER    {open(0), closed(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Position of the relay"
        ::= { testmode 4 }

relayPump1Position OBJECT-TYPE
        SYNTAX  INTEGER    {open(0), closed(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Position of the relay"
        ::= { testmode 5 }

relayPump2Position OBJECT-TYPE
        SYNTAX  INTEGER    {open(0), closed(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Position of the relay"
        ::= { testmode 6 }

valveY1OutputSignal OBJECT-TYPE
        SYNTAX  INTEGER    {off(0), on(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Position of the relay"
        ::= { testmode 7 }

valveY2OutputSignal OBJECT-TYPE
        SYNTAX  INTEGER    {off(0), on(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Position of the relay"
        ::= { testmode 8 }

valveY3OutputSignal OBJECT-TYPE
        SYNTAX  INTEGER    {off(0), on(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Position of the relay"
        ::= { testmode 9 }
```

```
        valveY4OutputSignal OBJECT-TYPE
                SYNTAX  INTEGER    {off(0), on(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Position of the relay"
                ::= { testmode 10 }

        relayAlarmPosition OBJECT-TYPE
                SYNTAX  INTEGER    {open(0), closed(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Position of the relay"
                ::= { testmode 11 }

configuration OBJECT IDENTIFIER ::= { measurements 7 }

        deviceConfiguration OBJECT-TYPE
                SYNTAX  INTEGER    {onePump(1), twoPumps(2)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Device hardware configuration"
                ::= { configuration 1 }

        pressureSensorRange OBJECT-TYPE
                SYNTAX  INTEGER    (1..150)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Pressure sensor range in PSI"
                ::= { configuration 2 }

        pressureSensorCalibration OBJECT-TYPE
                SYNTAX  INTEGER    (0..2000)
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Pressure sensor calibration value"
                ::= { configuration 3 }

        analogSensorInputEnabled OBJECT-TYPE
                SYNTAX  INTEGER    {disabled(0), enabled(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Analog sensor input is enabled"
                ::= { configuration 4 }
```

```
analogSensorConnectionType OBJECT-TYPE
        SYNTAX  INTEGER    {i2C(0), analogIn(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Select the analog sensor input"
        ::= { configuration 5 }

analogSensorUnits OBJECT-TYPE
        SYNTAX  INTEGER    {rH(0), dewpoint(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Analog sensor unit type"
        ::= { configuration 6 }

remotePressureSensorEnabled OBJECT-TYPE
        SYNTAX  INTEGER    {disabled(0), enabled(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "The remote pressure sensor is enabled"
        ::= { configuration 7 }

humiditySensorZeroVoltage OBJECT-TYPE
        SYNTAX  INTEGER    {0..100}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Set the output voltage level of the analog humidity sensor at 0% RH"
        ::= { configuration 8 }

humiditySensorMaxVoltage OBJECT-TYPE
        SYNTAX  INTEGER    {0..100}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Set the output voltage level of the analog humidity sensor at 100% RH"
        ::= { configuration 9 }

pwmModeEnabled OBJECT-TYPE
        SYNTAX  INTEGER    {disabled(0), enabled(1)}
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
                "Enable the PWM mode with forced dutycycle"
        ::= { configuration 10 }
```

```
        pwmModePeriod OBJECT-TYPE
                SYNTAX  INTEGER    {0..120}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Set the length of each PWM cycle period in minutes"
                ::= { configuration 11 }
        pwmModePercentave OBJECT-TYPE
                SYNTAX  INTEGER    {0..100}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Set the percentage of the PWM cycle period that should be active"
                ::= { configuration 12 }

redundancy OBJECT IDENTIFIER ::= { measurements 10 }

        mode OBJECT-TYPE
                SYNTAX  INTEGER    {off(0), master(1), slave(2)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Device redundancy configuration mode"
                ::= { redundancy 1 }

        cycleActiveFlag OBJECT-TYPE
                SYNTAX  INTEGER    {notActive(0), active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Device is running a redundancy cycle"
                ::= { redundancy 2 }

        cycleFinishedFlag OBJECT-TYPE
                SYNTAX  INTEGER    {notFinished(0), Finished(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Device has finished a redundancy cycle"
                ::= { redundancy 3 }

        alarmDuringCycleFlag OBJECT-TYPE
                SYNTAX  INTEGER    {notActive(0), Active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "An alarm was detected while the device was running a cycle"
                ::= { redundancy 4 }
```

```
        slaveCommunicationAlarmFlag OBJECT-TYPE
                SYNTAX  INTEGER    {notActive(0), Active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Redundant slave device was unable to communicate with the master"
                ::= { redundancy 5 }

        masterCommunicationAlarmFlag OBJECT-TYPE
                SYNTAX  INTEGER    {notActive(0), Active(1)}
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "Redundant master device was unable to communicate with the slave"
                ::= { redundancy 6 }


-- ****************************************************************************
-- .1.3.6.1.4.1.26381.1.2.X.port
-- Configurable parameters
-- ****************************************************************************


setup OBJECT IDENTIFIER ::= { settings 4 }

        operationLowPressureThreshold OBJECT-TYPE
                SYNTAX  INTEGER    (1..6500)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Indicates whether or not the device is in test mode"
                ::= { setup 1 }

        operationHighPressureThreshold OBJECT-TYPE
                SYNTAX  INTEGER    (5..7000)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Analog input voltage in mV"
                ::= { setup 2 }

        remoteSensorSwitch OBJECT-TYPE
                SYNTAX  INTEGER    {off(0), on(1)}
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Analog input voltage in mV"
                ::= { setup 3 }
```

```
alarmconfig OBJECT IDENTIFIER ::= { settings 5 }

        alarmDelay OBJECT-TYPE
                SYNTAX  INTEGER    (1..900)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        “Alarm activation delay in seconds”
                ::= { alarmconfig 1 }

        lowPressureLevel OBJECT-TYPE
                SYNTAX  INTEGER    (1..7000)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        “Low pressure alarm threshold in mBarg”
                ::= { alarmconfig 2 }

        highPressureLevel OBJECT-TYPE
                SYNTAX  INTEGER    (1..7000)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        “High pressure alarm threshold in mBarg”
                ::= { alarmconfig 3 }

        pressureAlarmHysteresis OBJECT-TYPE
                SYNTAX  INTEGER    (5..250)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        “Pressure alarm hysteresis in mBarg”
                ::= { alarmconfig 4 }

        compressorMaxRuntime OBJECT-TYPE
                SYNTAX  INTEGER    (0..120)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        “An alarm is triggered when the compressor runs for more then set time in minutes”
                ::= { alarmconfig 5 }

        humidityAlarmLevel OBJECT-TYPE
                SYNTAX  INTEGER    (5..100)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        “Maximum humidity alarm threshold percentage”
                ::= { alarmconfig 6 }
```

```
        compressorRuntimeAlarmAction OBJECT-TYPE
                SYNTAX  INTEGER    {none(0), stopCompressor(1), activateDutyCycleMode(2)}
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Stop the compressor when the compressor runtime alarm is triggered"
                ::= { alarmconfig 7 }

        restartCompressorAfterRuntimeAlarm OBJECT-TYPE
                SYNTAX  INTEGER    {off(0), on(1)}
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Reset the runtime alarm to allow the compressor to start pumping again"
                ::= { alarmconfig 8 }

datetime OBJECT IDENTIFIER ::= { settings 8 }

        time OBJECT-TYPE
                SYNTAX  INTEGER    (0..1439)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Time in minutes"
                ::= { datetime 1 }

        date OBJECT-TYPE
                SYNTAX  INTEGER    (101..1231)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Date in xx-yy where xx = month (1-12) and yy = day of month (1-31)"
                ::= { datetime 2 }

        year OBJECT-TYPE
                SYNTAX  INTEGER    (2000..2099)
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Year"
                ::= { datetime 3 }

ethernetsetup OBJECT IDENTIFIER ::= { settings 9 }

        dHCPEnabled OBJECT-TYPE
                SYNTAX  INTEGER {disabled(0), enabled(1)}
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "DHCP Enabled"
                ::= { ethernetsetup 1 }
```

```
        staticIP OBJECT-TYPE
                SYNTAX  IpAddress
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Static IP address"
                ::= { ethernetsetup 2 }

        staticNetMask OBJECT-TYPE
                SYNTAX  IpAddress
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Static netmask"
                ::= { ethernetsetup 3 }

        staticGateway OBJECT-TYPE
                SYNTAX  IpAddress
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Static gateway"
                ::= { ethernetsetup 4 }

redundancy OBJECT IDENTIFIER ::= { settings 10 }

        resetCycleAlarmFlag OBJECT-TYPE
                SYNTAX  INTEGER    {off(0), on(1)}
                ACCESS  read-write
                STATUS  mandatory
                DESCRIPTION
                        "Reset the redundant cycle alarm flag"
                ::= { redundancy 1 }



-- ************************************************************************
-- .1.3.6.1.4.1.26381.1.3.X
-- traps
-- ************************************************************************

        lowPressureAlarm TRAP-TYPE
                ENTERPRISE traps
                DESCRIPTION
                                        "Low pressure alarm"
                ::=1
```

```
        highPressureAlarm TRAP-TYPE
                ENTERPRISE traps
                DESCRIPTION
                                "High pressure alarm"
                ::=2

        compressorRuntimeAlarm TRAP-TYPE
                ENTERPRISE traps
                DESCRIPTION
                                "Compressor maximum runtime exceeded"
                ::=3

        relativeHumidityAlarm TRAP-TYPE
                ENTERPRISE traps
                DESCRIPTION
                                "Relative humidity has exceeded the threshold"
                ::=4

        testAlarm TRAP-TYPE
                ENTERPRISE traps
                DESCRIPTION
                                "Performing an alarm relay test. The alarm will be cleared within 30 seconds"
                ::=5

        redundantAlarmFlagAlarm TRAP-TYPE
                ENTERPRISE traps
                DESCRIPTION
                                "The redundant device has its alarmflag set"
                ::=6

        redundantSlaveCommunicationAlarm TRAP-TYPE
                ENTERPRISE traps
                DESCRIPTION
                                "The redundant slave is not able to communicate with the redundancy mas-
ter"
                ::=7

        redundantMasterCommunicationAlarm TRAP-TYPE
                ENTERPRISE traps
                DESCRIPTION
                                "The redundant master is not able to communicate with the redundancy
slave"
                ::=8

END
```

7. Trouble shooting

Fault	Cause	Action
Air Dryer does not run	Unit disconnected from the power supply	Check and remedy if necessary
	Power switch in off position	
	Main power connection unreliable	
	The main fuse is defective	
	The fuse of the unit is defective	

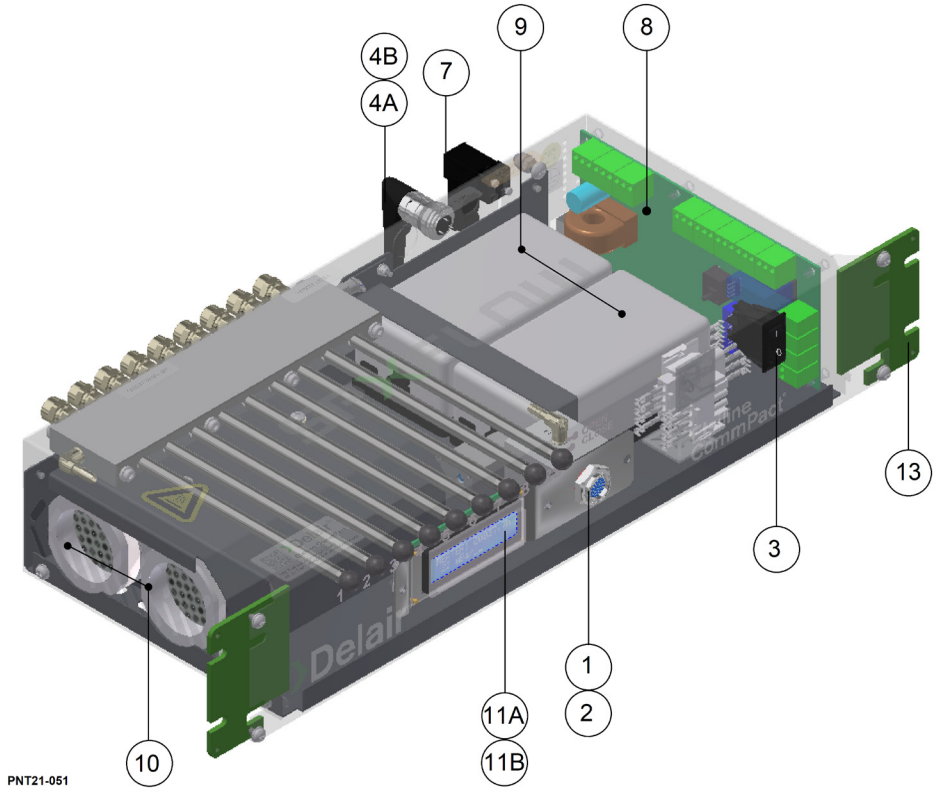
Fault	Cause	Action
Pressure too low	Air leakage in the connections between air dryer and system	Check and remedy if necessary
	System leakage too large	
	Pressure settings incorrect	
	Remote sense activated, but not connected	
	Air leakage between pump manifold block	
	One of the pumps is defect	
	Pressure transducer defect	

Fault	Cause	Action
Air Dryer switches on/off very frequently, approx. 20 times/ min. (so called “Hunting”)	Hose diameter to small related to hose length (>10 meter). Air resistance to high.	Use a larger hose diameter
	Air resistance caused by nipple inside diameter	Use nipples with larger inside diameter
	System leakage too large	Reduce the system air leakage
	Remote sense valve is pulled out but not connected.	Push in remote sense valve
	Operational pressure range too small	Increase the operational pressure range by adjusting the high and/or low pressure settings

Fault	Cause	Action
Display shows; ‘eth. Not avail”	The physical link between air dryer and network is missing.	Network cable not connected to air dryer
		Not connected to network (via switch or router)
Display shows; RED. AL.	Redundancy alarm flag is activated, the unit showing this alarm will be skipped in redundancy mode.	Solve the initial alarm that caused the redundancy alarm and reset the redundancy alarm in the web-browser.
Display shows; COM. AL.	Master is unable to communicate with slave.	Check wiring and connectors.
		Faulty communication board or faulty main controller board.

Page left blank intentionally for 2 sided printing purposes

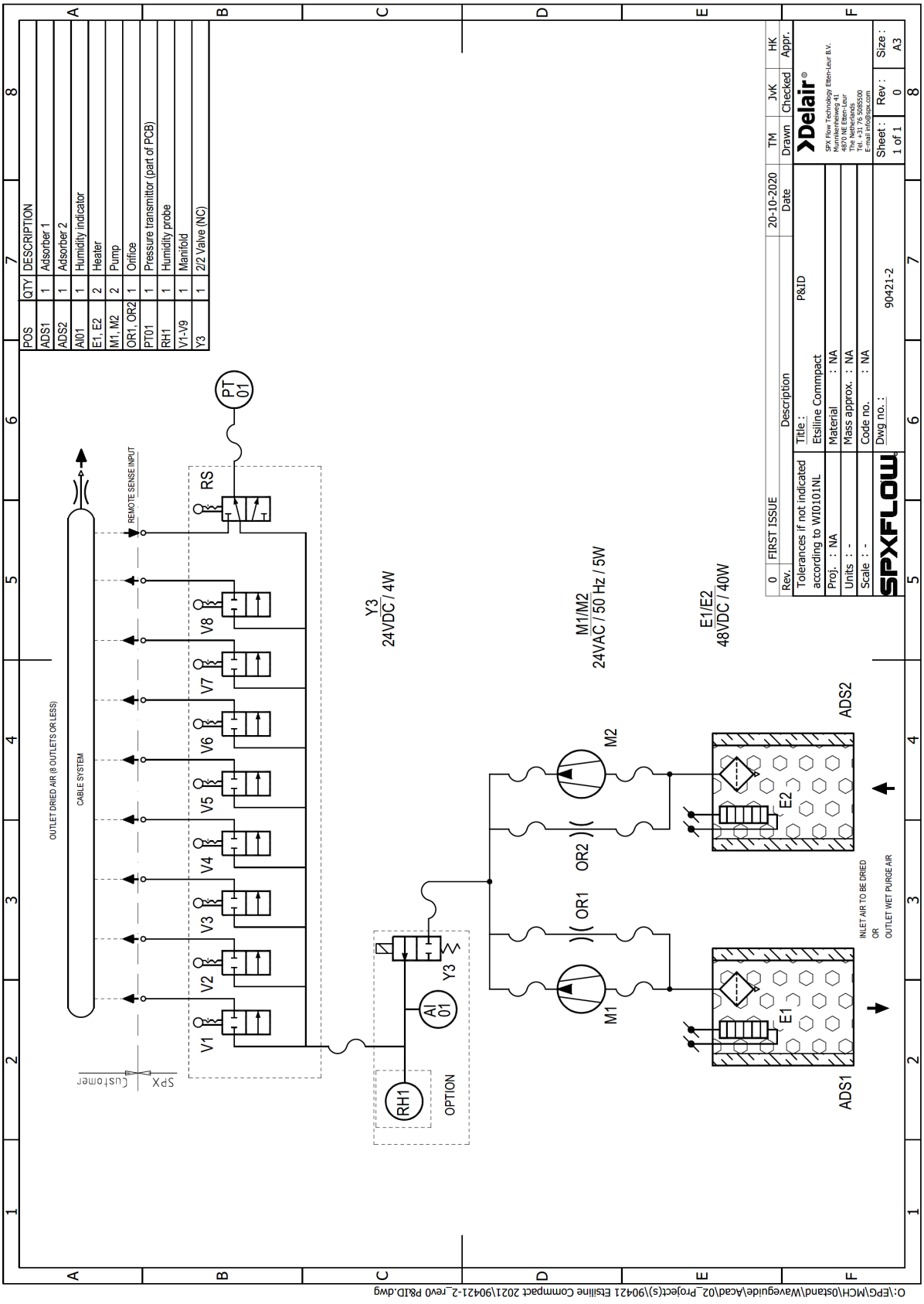
8. Spare parts



POS	DESCRIPTION	PARTNR	QNTY	REMARK
1	Humidity indicator	0148193	1	
2	Gasket for humidity indicator			
3	Switch ON/OFF	0281534	1	
4A	Alarm connector elbow (solder)	0268924	1	
4B	Alarm connector straight (screw)	0268910	1	Optional
5	Voltage Adaptor 60-264VAC/48VDC	0281544	1	Not on drawing
7	Connector power supply	0281532	1	
8	Printed circuit board+LCD display	0266401	1	
9	Airpump	0266403	2	
10	Adsorber with heater	0266410	2	
11A	Status display LCD	0266392	1	
11B	Status display OLED	0266411	1	Optional
13	Mouting bracket	0281502	2	

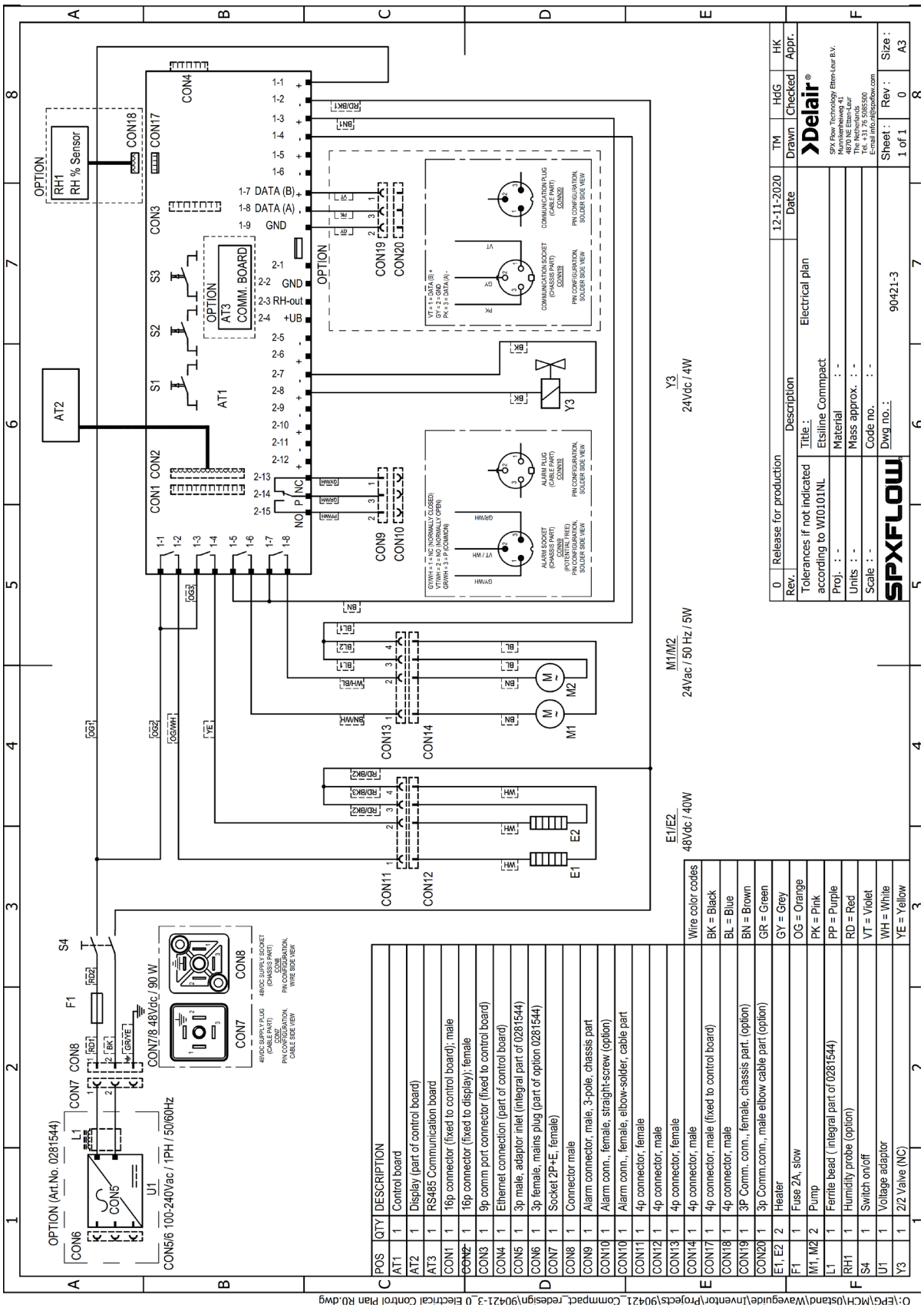
Page left blank intentionally for 2 sided printing purposes

9. Process & Instrumentation diagram



Page left blank intentionally for 2 sided printing purposes

10. Electrical control plan



POS	QTY	DESCRIPTION
AT1	1	Control board
AT2	1	Display (part of control board)
AT3	1	RS485 Communication board
CON1	1	16p connector (fixed to control board); male
CON2	1	16p connector (fixed to display); female
CON3	1	9p comm port connector (fixed to control board)
CON4	1	Ethernet connection (part of control board)
CON5	1	3p male, adaptor inlet (integral part of 0281544)
CON6	1	3p female, mains plug (part of option 0281544)
CON7	1	Socket 2P+E, female)
CON8	1	Connector male
CON9	1	Alarm connector, male, 3-pole, chassis part
CON10	1	Alarm conn., female, straight-screw (option)
CON10	1	Alarm conn., female, elbow-solder, cable part
CON11	1	4p connector, female
CON12	1	4p connector, male
CON13	1	4p connector, female
CON14	1	4p connector, male
CON17	1	4p connector, male (fixed to control board)
CON18	1	4p connector, male
CON19	1	3P Comm. conn., female, chassis part. (option)
CON20	1	3p Comm.conn., male elbow cable part (option)
E1, E2	2	Heater
F1	1	Fuse 2A, slow
M1, M2	2	Pump
L1	1	Ferrite bead (integral part of 0281544)
RH1	1	Humidity probe (option)
S4	1	Switch on/off
U1	1	Voltage adaptor
Y3	1	2/2 Valve (NC)

Wire color codes	
BK = Black	OG = Orange
BL = Blue	PK = Pink
BN = Brown	PP = Purple
GR = Green	RD = Red
GY = Grey	VT = Violet
	WH = White
	YE = Yellow

Page left blank intentionally for 2 sided printing purposes

11. MSDS-SHEETS

Number	Name
Cobalt II chloride.pdf	Safety Data Sheet Coblat Chloride Solution

Safety Data Sheet

according to 29CFR1910/1200 and GHS Rev. 3

Effective date : 02.21.2015

Cobalt Chloride Solution, 0.1M

SECTION 1 : Identification of the substance/mixture and of the supplier

Product name : **Cobalt Chloride Solution, 0.1M**

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: **S25851**

Recommended uses of the product and uses restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific
9 Barnhart Drive, Hanover, PA 17331

Supplier Details:

Fisher Science Education
15 Jet View Drive, Rochester, NY 14624

Emergency telephone number:

Fisher Science Education Emergency Telephone No.: 800-535-5053

SECTION 2 : Hazards identification

Classification of the substance or mixture:

Irritant
Skin sensitization, category 1
Respiratory sensitization, category 1

Health hazard
Germ cell mutagenicity, category 2
Carcinogenicity, category 1B
Reproductive toxicity, category 1B

Environmentally Damaging
Chronic hazards to the aquatic environment, category 2

Skin Sens. 1 H317
Resp. Sens. 1 H334
Muta. 2 H341
Carc. 1B H350
Repr. 1B H360
Aquatic Acute 2 H401
Aquatic Chronic 2 H411

Signal word :Danger

Hazard statements:
Harmful if swallowed
May cause an allergic skin reaction
May cause allergy or asthma symptoms or breathing difficulties if inhaled
Suspected of causing genetic defects
May cause cancer
May damage fertility or the unborn child
Toxic to aquatic life with long lasting effects

Precautionary statements:
If medical advice is needed, have product container or label at hand
Keep out of reach of children
Read label before use
Obtain special instructions before use
Avoid release to the environment
Do not handle until all safety precautions have been read and understood
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves/protective clothing/eye protection/face protection
Use personal protective equipment as required
In case of inadequate ventilation wear respiratory protection
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
IF exposed or concerned: Get medical advice/attention
Collect spillage
IF ON SKIN: Wash with soap and water
If skin irritation or a rash occurs: Get medical advice/attention
Specific treatment (see supplemental first aid instructions on this label)
Wash contaminated clothing before reuse
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
Store locked up
Dispose of contents and container to an approved waste disposal plant

Other Non-GHS Classification:

WHMIS

D2A 

D2B 

NFPA/HMIS

NFPA SCALE (0-4)

HMIS RATINGS (0-4)

SECTION 3 : Composition/Information on ingredients

Ingredients:		
CAS 7791-13-1	Cobalt (II) chloride, hexahydrate	2.38 %
CAS 7732-18-5	Deionized Water	97.62 %

Percentages are by weight

SECTION 4 : First aid measures

Description of first aid measures

After inhalation: Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen.Loosen clothing and place exposed in a comfortable position.Seek medical assistance if cough or other symptoms appear.

After skin contact: Wash hands and exposed skin with soap and plenty of water. Seek medical attention if irritation persists or if concerned.

After eye contact: Protect unexposed eye.Flush exposed eye gently using water for 15-20 minutes. Remove contact lenses while rinsing.Seek medical attention if irritation persists or concerned.

After swallowing: Rinse mouth with water.Do not induce vomiting. Never give anything by mouth to an unconscious person.Seek medical attention if irritation, discomfort, or vomiting persists.

Most important symptoms and effects, both acute and delayed:

Irritation.Shortness of breath.Headache.Nausea.Dizziness.;

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention provide SDS document to physician. Physician should treat symptomatically.

SECTION 5 : Firefighting measures

Extinguishing media

Suitable extinguishing agents: Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam.

For safety reasons unsuitable extinguishing agents:

Special hazards arising from the substance or mixture:

Irritating and highly toxic gases may be generated by thermal decomposition.

Advice for firefighters:

Protective equipment: Wear protective eyeware, gloves, and clothing. Refer to Section 8.

Additional information (precautions): Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing.

SECTION 6 : Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation.Ensure that air-handling systems are operational.Avoid contact with skin, eyes and clothing.

Environmental precautions:

Should not be released into environment.Prevent from reaching drains, sewer, or waterway.

Methods and material for containment and cleaning up:

Wear protective eyeware, gloves, and clothing. Refer to Section 8.Always obey local regulations.If necessary use trained response staff or contractor. Evacuate personnel to safe areas. Containerize for disposal. Refer to Section 13.Keep in suitable closed containers for disposal.Absorb spill with inert material (e.g. vermiculite, sand or earth).Neutralize spill with sodium bicarbonate.

Reference to other sections:

SECTION 7 : Handling and storage

Precautions for safe handling:

Avoid contact with skin, eyes, and clothing.Follow good hygiene procedures when handling chemical materials. Refer to Section 8.Follow proper disposal methods. Refer to Section 13.Do not eat, drink, smoke, or use personal products when handling chemical substances.

Conditions for safe storage, including any incompatibilities:

Store in a cool location.Keep away from food and beverages.Protect from freezing and physical damage.Provide ventilation for containers. Keep container tightly sealed. Store away from incompatible materials.

SECTION 8 : Exposure controls/personal protection



Control Parameters: 7791-13-1, Cobalt (II) chloride hexahydrate, ACGIH TLV: 0.02 mg/m3 TWA

Appropriate Engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.

Respiratory protection: Not required under normal conditions of use. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls.When necessary use NIOSH approved breathing equipment.

Protection of skin: Select glove material impermeable and resistant to the substance.Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves.Wear protective clothing.

Eye protection: Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).Safety glasses or goggles are appropriate eye protection.

General hygienic measures: Perform routine housekeeping.Wash hands before breaks and immediately after handling the product.Avoid contact with skin, eyes, and clothing.Before rewearing wash contaminated clothing.

SECTION 9 : Physical and chemical properties

Appearance (physical state,color):	Clear, Pink-Purple Liquid	**Explosion limit lower**: **Explosion limit upper**:	Not Determined Not Determined
Odor:	Odorless	**Vapor pressure**:	Not Determined
Odor threshold:	Not Determined	**Vapor density**:	Not Determined
pH-value:	Not Determined	**Relative density**:	Not Determined
Melting/Freezing point:	Not Determined	**Solubilities**:	Soluble in water
Boiling point/Boiling range:	Not Determined	**Partition coefficient (n-octanol/water)**:	Not Determined

Flash point (closed cup):	Not Determined	**Auto/Self-ignition temperature**:	Not Determined
Evaporation rate:	Not Determined	**Decomposition temperature**:	Not Determined
Flammability (solid,gaseous):	Non-flammable	**Viscosity**:	a. Kinematic:Not Determined b. Dynamic: Not Determined
Density: Not Determined			

SECTION 10 : Stability and reactivity

Reactivity: Nonreactive under normal conditions.
Chemical stability: Stable under normal conditions.May decompose if over-heated.
Possible hazardous reactions: None under normal processing.
Conditions to avoid: Incompatible materials.Excess heat.
Incompatible materials:potassium and metal halides.sodium dispersions.t-butyl hydroperoxide.strong mineral acids.
Hazardous decomposition products: Oxides of cobalt.

SECTION 11 : Toxicological information

Acute Toxicity:		
Oral:	LD50 Rat 766 mg/kg	7791-13-1
Dermal:	LD50 Rat >2,000 mg/kg	7791-13-1
Chronic Toxicity: No additional information.		
Corrosion Irritation: No additional information.		
Sensitization:		No additional information.
Single Target Organ (STOT):		No additional information.
Numerical Measures:		No additional information.
Carcinogenicity:		IARC: : Group 2B: Possibly carcinogenic to humans (Cobalt dichloride hexahydrate)
Mutagenicity:		In vitro tests showed mutagenic effects (Cobalt dichloride hexahydrate). Mouse - mammary gland - Mutation in mammalian somatic cells (Cobalt dichloride hexahydrate)
Reproductive Toxicity:		Presumed human reproductive toxicant. Presumed human reproductive toxicant (Cobalt dichloride hexahydrate)

SECTION 12 : Ecological information

Ecotoxicity

7791-13-1: Fish LC50 - Cyprinus carpio (Carp) - 0.33 mg/l - 96.0 h

7791-13-1: invertebrates EC50 - Daphnia magna (Water flea) - 1.1 - 1.6 mg/l - 48 h

7791-13-1: algae EC50 - Chlorella vulgaris (Fresh water algae) - 0.5 mg/l - 96 h

Persistence and degradability: Not determined.
Bioaccumulative potential: Not determined.
Mobility in soil: Not determined.
Other adverse effects: None identified.

SECTION 13 : Disposal considerations

Waste disposal recommendations:

Contact a licensed professional waste disposal service to dispose of this material.Dispose of empty containers as unused product.Product or containers must not be disposed together with household garbage. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations. Ensure complete and accurate classification.

SECTION 14 : Transport information

UN-Number

Not Regulated.

UN proper shipping name

Not Regulated.

Transport hazard class(es)
Packing group:Not Regulated.
Environmental hazard:
Transport in bulk:
Special precautions for user:

SECTION 15 : Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

None of the ingredients is listed

SARA Section 313 (Specific toxic chemical listings):

7791-13-1 Cobalt(II) Chloride Hexahydrate (Cobalt Compounds)

RCRA (hazardous waste code):

None of the ingredients is listed

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

7791-13-1 Cobalt(II) Chloride Hexahydrate (Cobalt Compounds)

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

Chemicals known to cause developmental toxicity:

None of the ingredients is listed

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients is listed

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients is listed

SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: . The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases:

Abbreviations and acronyms:

Effective date : 02.21.2015
Last updated : 03.19.2015

12. Declaration of conformity

EC declaration of conformity

With EC directives

2014/30/EU Electro Magnetic Compatibility Directive
2014/35/EU Low Voltage Directive
2011/65/EU RoHS directive

we,

SPX Flow Technology BV
Munnikenheiweg 41
4879 NE Etten-Leur
The Netherlands

declare that, under our sole responsibility for manufacture and supply, the products

EtsilineCommPact
SPX No. 0281400 up to and including 0281415

to which this declaration relates, is (are) in conformity with the provisions of the above directive using the following principal standards

EN ISO 12100:2010
EN 61000-3-2:2014
EN 61000-6-1:2007
EN 61000-6-2:2005
EN 61000-6-3:2007
EN 61000-6-4:2007
NEN-EN-ISO 13857:2008

Issued at Etten-Leur on 04/01/2021 by

Bram Peek, Site lead

Page left blank intentionally for 2 sided printing purposes

13. Helpline

Phone	**+31 76 5085568**
Fax	**+31 76 5085590**
E-mail	**info.nl@spxflow.com**
Web	**www.spxflow.com**

AIR DRYER Delair® Etsi-lineCommPact

AIR DRYER Delair SPX Flow Technology B.V.
Munnikenheiweg 41
4879NE - Etten-Leur
The Netherlands
Phone: +31 (0)76-508 5568
Fax: +31 (0)76-508 5590
E-mail: info.nl@spxflow.com
www.spxflow.com