

Operating instructions

RT-UG 10000-PSC

***Pressurisation equipment
with twin compressor system***



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Important!

It is imperative to read and observe the safety instructions prior to start up!

Technical specifications

Pressurization System Type	RT-UG 10000-PSC
Output power (with cable pressure set at 0.5 bar)	10000 NI/h, 0 .. -20 %
Number of compressors	2
Number of cylinders	4
Engine RPM	1425 min ⁻¹
Operating voltage	230/400 V, 3 Phases
Frequency	50 Hz
Current consumption of both compressors	approx. 10.0 A
Working pressure of compressors	max. 7.5 bar
Opening pressure safety valve "compressor"	8.0 bar ± 10 %
Working pressure On-Off	3.0 .. 5.0 bar
Opening pressure safety valve "high-pressure"	7.0 bar
Output pressure is adjustable (customised)	2.0 bar
Opening pressure safety valve "output pressure"	2.5 bar ± 10 %
Dew point of output air (typical)	≤ -20 °C
Regeneration air mass	approx. 3300 l/h ±10 %
Regeneration time drying agent container	60 s
Content air storage tank	2 x 40 l
Ambient temperature limit	+1 °C .. +40 °C
Ambient humidity limit	0 .. 90 % rel. humidity, non condensing
Signal LEDs (standard)	Operation (DC), Humidity monitoring off (F off), Test (system fault)
Signal output (floating)	Fault (Accumulative A)
Workplace-related emission value	79 dB(A)
Measurement uncertainty dB(A)	± 2.3 dB(A)
Measuring system	DIN 45635 section 1
Measuring conditions	in the room
Measurements: Width x Depth x Height	750 x 650 x 1250 mm
Weight	approx. 195 kg

All pressure specifications are seen as gauge pressure specifications.

Ordering data

Scope of supply

- Pressurization system RT-UG 10000-PSC, consisting of
 - 1 solid metal cabinet with the following mounting parts:
 - 2 compressors, separate for self installation
 - 2 air storage tanks of 40 l each
 - 1 air dryer system
 - various control, measuring and display elements
- Condensate surge tank with hose (Option)
- Operating instruction
- CE Declaration of Conformity

Marking

The pressurization systems are clearly marked by the content of the name plate including technical specifications and manufacturer's instructions. The nameplate is located on the front of the system, on the right above the control and display panel (1) (see pages 14/15).

Accordance with the applicable regulations is validated with the enclosed CE Declaration of Conformity (see the back of this operating instruction).



Name	: Pressurisation System
Type	: RT-UG 10000-PSC
Serial number	: as delivery note
Order number	: 075438.100
Year of manufacture	: 20xx
Operating voltage	: 230/400 V, 50 Hz
Power consumption	: max. 10 A

LANCIER Monitoring GmbH,
Gustav-Stresemann-Weg 11, D-48155 Münster



Symbols used



Attention Danger!

This symbol warns of the health risks up to threatening injuries or death.



Warning Danger of electric voltage!

This symbol warns of the health risks up to threatening injuries or death caused by electric voltage.



Turn power off!

This symbol indicates that electrical components and systems must be disconnected prior to maintenance and repair work and also protected against resetting.



Wear protective gloves!

This symbol indicates that protective gloves must be worn during the works described.



Wear safety glasses!

This symbol indicates that safety glasses must be worn during the works described.



Note for disposal!

This symbol indicates that the resulting waste must be disposed ecologically and not become domestic waste.



Warning of automatic start-up!

This symbol indicates that parts of the system, for example the compressor, can start automatically. Risk of injury!



Warning of a hot surface!

This symbol indicates that the surfaces of the marked system, for example the compressor, cooler or their screw connections may be hot. There is a risk of burns.

Legal provisions

Liability

The information, data and references specified in this operating instruction were up-to-date on the day of print. Claims on systems already supplied can only be asserted conditionally from details, illustrations and descriptions.

LANCIER Monitoring GmbH assume no liability for damages and disruption of operations, which may result from:

- Non compliant use
- Arbitrary change to the equipment
- Improper work on and with the equipment
- Operating and setting error
- Disregarding existing standards, directives and accident prevention regulations
- Disregarding operating instruction

Warranty

- Warranty takes place according to the general terms and conditions of LANCIER Monitoring GmbH.
- Warranty claims must be asserted to LANCIER Monitoring GmbH immediately upon detecting a fault or failure.
- The warranty terminates in all cases where also no liability claims can be asserted.

General

This operating instruction is valid for the pressurization system RT-UG 10000-PSC and its variants.

It shall help you to get to know the product and contains important information to operate the system safely, properly and economically, to make use of the range of functions, to lessen repair costs and down times, as well as to increase the reliability and service life of the equipment.

Furthermore, this manual will enable you to carry out maintenance and repair work on the pressurization system yourself for daily use.

It contains safety instructions, which must be observed.

During operation, other instructions must be observed if necessary for components to be installed optionally, such as flow meter, distribution devices etc.

The operating instruction is supplemented with instructions on the basis of current national regulations on accident prevention and environmental protection.

The operating instruction must always be on hand at the point where the equipment is used, complete and in legible condition.



The operating instruction shall be read and applied by anyone assigned to work with/on the system, e.g. during

- **operation, including installation, setting up, fault repair in the production flow, removal of production waste, care, disposal of materials.**
- **Maintenance (servicing, inspection, repair)**
- **Transportation**

Besides the instruction manual and the accident prevention regulations applicable in the country and site of use, the recognised specialised rules for safe and professional work shall also be observed.

This documentation was compiled with the utmost diligence, taking the existing regulations into consideration. However, variations cannot be excluded. LANCIER Monitoring reserves the right to make technical modifications to the pressurization system without prior notification and assumes no legal responsibility or liability for damages, which may arise.

Any necessary changes are promptly incorporated into the current versions of this operating instruction.

Conventional use

Pressurization system RT-UG 10000-PSC

- is solely intended for use as a system to compress and dry purified air, to supply cables or cooling water lines.
- is solely fit for compressing and drying purified air to be supplied to cables and cooling water lines.
- shall only be used for the purposes validated by LANCIER Monitoring.
- shall only be operated under the conditions stipulated in this operating instruction.
- shall only be operated with the settings and variants stipulated in this operating instruction.

The automatic operation of the system permits unsupervised, steady use.

Any other use is not classed as conventional. The manufacturer takes no responsibility for any resulting damages. The operator alone bears the risks!

Arbitrary changes in design or system rebuild are prohibited without the written consent of the manufacturer, as are modifications and interventions in the control programme, the compressor and settings of the drying process, as well as the pressures used.

Compliance with the stipulated operating, servicing and repair conditions also form part of conventional use.

Safety instructions



Important!

**It is imperative to read and observe the safety instructions prior to start up.
The operating instruction must always be stored within reach.**

For the safety of persons in charge

Operator

Operator is any natural or legal person, who uses the equipment or on whose instructions the equipment is used.

The operator or his safety officer must guarantee, that

- all relevant regulations, references and laws are adhered to.
- only qualified employees work on and with the equipment
- employees have the operating instruction available during all works and abide by this.
- non-qualified employees are forbidden from working on and with the equipment, as well as installation and servicing. The necessary accident prevention and safety instructions must be adhered to.

Qualified employees

Qualified employees are persons who are authorised by the person in charge for equipment safety based on their training, experience, instruction and knowledge on relevant standards and provisions, accident prevention regulations and operating conditions, to carry out operations required and be able to identify and prevent possible dangers.

Staff qualification

Operations	Briefed person	Briefed person with technical training	Electro specialists
Initial commissioning	-	-	✓
Operation	✓	✓	✓
Fault repair			
- mechanic	-	✓	✓
- electrical	-	-	✓
Cleaning	✓	✓	✓
Servicing	-	✓	✓
Work on the electrics	-	-	✓
Packaging / transportation	✓	✓	✓

General safety instructions

These safety instructions are not exhaustive. For questions and problems please contact the customer service department at LANCIER Monitoring.

- Always store the operating instruction within reach!



Accident prevention!

Risk of damage!

- The system is classed as state-of-the-art at the time of start-up and essentially reliable.
- The system must only be operated in technically-sound condition, with the protective devices enabled. The operating instruction should be observed properly, conscious of risks and safety.
- The area surrounding the system shall be kept clean and tidy. Contaminations and obstructions of the equipment's function, as well as restrictions in the freedom of movement of operating personnel, can lead to operational faults and accidents.
- The operating personnel are obliged to check the equipment and its function groups at least once a week for damages and faults. Changes, including those to the operating behaviour, which affect the safety, shall be reported and corrected immediately.
- Risks for persons, the equipment itself and for other material assets emanate from the equipment, if
 - non-qualified personnel work on and with the equipment
 - the equipment is not used conventionally
 - the equipment is set or connected incorrectly
- The equipment must be set and fitted so that it fulfils its function for proper and conventional use in fail-safe operation, representing no danger.
- Suitable measures must be taken so that an equipment breakdown does not result in any damage to persons or property.
- Specific faults which may compromise safety have to be corrected immediately!
- The pressurization system RT-UG 10000-PSC must only be installed, operated, serviced and repaired by persons who have been briefed on the potential dangers.
- Refittings, modifications or rebuilds of the equipment are strictly prohibited! Always consult LANCIER Monitoring in any case.
- The electricity supply and other works/repairs to the system's electrical fittings must only be carried out by electric specialists.
- Keep all safety instructions and danger warnings on the system in legible condition!
- Do not undo or open screw connections and tank, before the system is depressurised. Open to bleed the safety valve "high-pressure" (25)



Risk of injury!

Wear protective goggles when opening safety valve (25).

- Do not operate, service or repair the system with wet hands!
- Do not touch the drying agent with wet hands - heat build-up!
- Do not open the drying agent container before it is depressurised!
- Adhere to the terms stipulated or specified in the operating instruction for periodic inspections/maintenance.
- After any maintenance and repair work check all unfastened screw connections.
- Disconnect the operating voltage main switch prior to maintenance and repair works.
- After connecting electricity: Take caution with live components!
- For works on opened system: Take caution with heated components!
- Only use original LANCIER Monitoring replacement parts!



Accident prevention!

- Use personal protective equipment and wear close-fitting work clothes and work safety footwear!
- When using drying agents wear work gloves and safety glasses!
- Always tie back long hair, do not wear loose clothing or jewellery including rings!



Note for disposal!

Dispose of used drying agents in accordance with the regulations applicable in the country and site of use.

Safety instructions for electrical works



Deadly risk!

The operating voltage necessary for the system can have fatal consequences if live parts are touched!

- If a short circuit occurs there is the risk of sparking and fire.
- The system connection shall be dimensioned adequately to avoid overload.
- The operating voltage supply line must be equipped with a main switch (e. g. according to VDE 0113) and 16 A back-up fuses by the customer.
- In the event of failure in the electrical power supply the system must be disconnected immediately.
- Active live parts of the electrical system must not be worked.



Deadly risk!

Before commencing work with system parts, which are supplied with electrical power, switch system to zero potential on the main control switch and safeguard against unexpected resetting! Otherwise there is danger through electric voltage!

- Only use original fuses with stipulated current.
- The electrical system must be in sound condition and checked regularly. Defects, such as loose connections etc. shall be reported and remedied immediately.
- The switching cabinet as well as all connection and terminal boxes shall always be kept closed. Access for the purpose of inspection and maintenance of electrical equipment is only permitted to authorised personnel (see chapter "qualified personnel")
- The active parts of the electrical equipment must be protected against direct contact according to their voltage, frequency, usage category and place of operation by insulation, position, arrangement or permanent fittings.
- The electrical equipment must feature protection in direct contact according to its voltage, frequency, type of use and place of operation, so that in the case of a fault, there is protection available against dangerous touch voltage.

Safety instructions for works on compressed air lines and pressure tanks



Deadly risk!

The pressures necessary for the equipment can lead to injuries. During repair works on compressed air components, pressure lines and tanks to be opened shall be depressurised.



The air storage tank must be inspected at regular intervals. This inspection must take place according to customary regulations.



Risk of injury!

Wear eye protection when working on pressurised components or when venting and blowing air.

Safety instructions for working with drying agents



Deadly risk!

The pressures necessary for the equipment can lead to injuries. During repair works on compressed air components, pressure lines and tanks to be opened shall be depressurised.



Risk of injury!

- The drying agent has an absorbing effect and can lead to shrinkage after long contact with skin.
- In contact with water the drying agent generates heat, which can lead to mucosa and skin burns.



Risk of injury!

Wear protective gloves when working with drying agents.



Risk of injury!

Wear safety glasses when working with drying agents.

Safety instructions for working on the compressor



Risk of injury!

Take care near very hot components, e.g. the compressor, cooler, screw connections!



Warnung vor automatischem Anlauf!

Dieses Symbol weist darauf hin, dass Teile der Anlage, beispielsweise der Kompressor, automatisch anlaufen können. Verletzungsgefahr!

Protective devices



Protective devices serve to ensure the health and safety of those who work on the systems and to protect the systems from damage. They must be checked regularly.

- The systems may only be put into operation with fully operational protective devices.
- The systems' electrical components are fitted with a screwed-on covering which must be in place while the system is in operation.
- The protective devices must shield all moving and electrical parts from the operating personnel and must never be bypassed or disabled.



Prior to commissioning the systems, you must ensure that the protective devices are in place and fully functional.

Protective devices may only be removed once

- the systems have come to a complete standstill,
- measures have been put in place to stop the systems from restarting.

Remaining dangers



The dangers emanating from the equipment, occur during work inside the metal cabinet and within the actual boundaries of the equipment, if the equipment has to be started up, e.g. for

- maintenance
- refitting
- fault diagnostics and remedy



In maintenance and refitting work, for which the equipment has to be started up, a second person should always be present to disconnect the equipment in an emergency situation. Always carry out work with greatest care and attention!

The following dangers must be considered:

- Risk of injury from being drawn into and caught in the compressor within its entire range of motion.
- Risk of injury from crushing and trapping of the upper and lower limbs when assembling and dismantling the systems.
- Risk of injury from crushing and trapping of the upper and lower limbs when transporting the systems.
- Risk of injury from incorrect lifting.
- Risk of injury from hot surfaces.
- Risk of injury when opening pressurised components.
- Risk of injury due to incorrect interventions in the system's electrical components.

Inspection prior to starting-up:

The operator arranges for the system's installation and equipment to be checked:

- Testing by qualified persons, if the pressure PS (bar) x volume V (l) \leq 200
- Testing by an approved monitoring body, e.g. TÜV, if the pressure PS (bar) x volume V (l) $>$ 200
(PS = the maximum permissible pressure for the pressure vessel; volume = pressure vessel volume)

Service conditions

Temperatures

- Ambient temperature limit: +1 °C to + 40 °C
Sound function is guaranteed in this temperature range.
- Temperatures outside of this range do not guarantee the functionality of the equipment.

Ambient conditions

- Ambient humidity limit 0 to 90 % rel. humidity, non condensing
- Ambient media, especially chemically aggressive ones, might affect seals, hoses, cables and other plastic elements.

Installation conditions

- The equipment should be installed in a dry, dust and frost-free room, while adhering to the general guidelines for work places.
- Furthermore, the equipment must be installed on a firm, load-bearing and level ground.



Accident prevention – risk of explosion!

The system must not be set up and operated in potentially explosive areas, e.g. battery rooms, as explosive hydrogen can be generated when batteries are being charged.

The system must not be set up and operated in areas where it could draw in flammable, corrosive or poisonous gases.

Transportation



Accident prevention!

The equipment may only be transported with sufficient means of transportation. It must be fixed securely during transportation. Avoid knocks to the equipment.

The equipment can be moved on a pallet to in-plant transport via an elevating platform truck or forklift truck. When moving the equipment mind the weight to prevent it from tipping or rolling.

- When moving the equipment keep the lifting height as low as possible.
- When moving the equipment pay attention that all electrical and pneumatic connections (also to the wiring harness and if required, reserve air storage tank) are disconnected.
- Observe the safety regulations for handling the elevating platform truck or forklift truck when moving equipment.

Storage

General information on storage

- If the equipment is not installed and started up immediately, it must be stored under appropriate storage conditions in a dry, dust and frost-free indoor area, protected from sunlight.
- If the cooler is to be stored for a longer period of time, any residues of condensed water should be blown out, and the system should be wrapped in plastic or foil.
- The storage time should not exceed one year.

Disposal

Disused LANCIER Monitoring pressurisation equipments must NOT be disposed as domestic waste or to the environment.

Please send the old depressurised system back to LANCIER Monitoring GmbH for professional recycling or disposal.

Contact::

LANCIER MONITORING GmbH

Phone: +49 (0) 251 674 999-0

Fax: +49 (0) 251 674 999-99

E-Mail: mail@lancier-monitoring.de

Shipping address:

LANCIER MONITORING GmbH

Gustav-Stresemann-Weg 11

48155 Münster

Functionality of pressurization system RT-UG 10000-PSC

Once commissioned the system works fully automatically. Any malfunctions that occur are shown on the display via plain text and colour changes and also by LEDs in the "Pressurisation System Controller" (PSC) control module. In addition, these fault signals can also be forwarded to an external control centre.

The compressor draws in external air and compresses this to approx. 7 bar. Then the compressed air is channelled in the air dryer, alternatively by two drying agent containers, in which the air is dehumidified. In doing so, the air is only dried in one drying agent container, while at the same time in another drying agent container the existing drying agent is regenerated by a branch current of the already dried air. The humid regeneration air is collected in the condensate surge tank.

The air dried in this way is stored in the air storage tank with a pressure between 3.0 and 5.5 bar. A pressure monitor ensures sufficient compressed air in the air storage tank, in which it switches the compressor on and off. The existing air pressure in the air storage tank can be read on the "high pressure" manometer.

The amount of air consumed is calculated by using the drop in pressure over a certain period of time and shown on the PSC display. Small leaks and the pressure reducer's internal consumption only marginally affect the accuracy.

A built-in pressure reducer reduces the compressed air stored in the air storage tank to the required cable pressure, which can be read out on the "cable pressure" manometer.

This pressure-reduced air reaches the distribution device of the connected cable network via a shut-off valve and nozzle. To ensure that the system works properly, the dried compressed air is checked continuously for its humidity content. The compressors are switched off if the dew point calculated by the PSC rises above -20 °C. A system "Error" signal is then generated.

The pressure in the air storage tanks is monitored continuously. If it rises to above 7.0 bar, the pressure is released via a safety valve.

The pressure supplied to the distribution devices is also monitored continuously. If it exceeds the set cable pressure by a preset value, the pressure is released via a safety valve.

The PSC controls the air dryer's solenoid valves in such a way that the drying and regeneration processes are evenly shared by both vessels. This prevents the dryer from "drowning" even during periods of minimal air consumption.

In addition, both solenoid valves are switched in such a way that the compressors can start up without pressure.

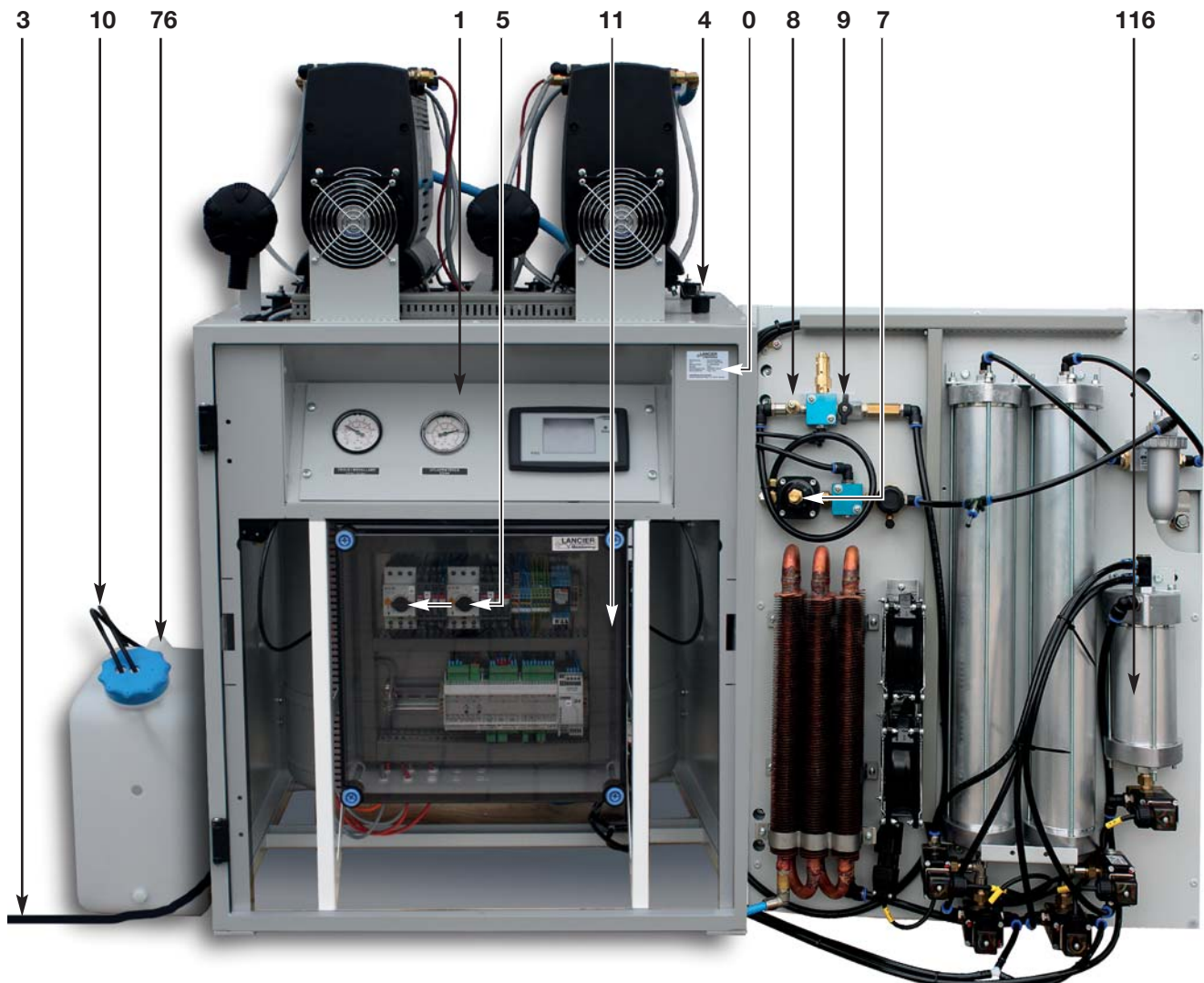
After a short power interruption or if one or both motor protection switches have been activated, the control system waits for a fixed, programmed venting time before restarting the compressors. This prevents the compressors from starting against pressure.

Product description

Product marking, connection and operation RT-UG 10000-PSC

- | | |
|---|--|
| <p>0 Product marking
The nameplate is located on the top right on the front panel of the control cabinet.</p> <p>1 Control and display panel</p> <p>3 Connecting cable AC</p> <p>4 Equipment output</p> <p>5 Motor protective switch [Q4] and [Q5]
for manually switching the individual compressors on and off. Protects the motors from excessive current consumption by means of built-in protective relays.</p> <p>7 Pressure reducer [12.1]
reduces the high-pressure to the designated output pressure. Preset.</p> | <p>8 Testing valve "cable pressure" [7.1]
is used to check the preset cable pressure.</p> <p>9 Shut-off valve "Cable pressure" [13.1]
is used to open or close the pressurised air flow to the consumers.</p> <p>10 Condensate discharge hose</p> <p>11 Connecting block cover</p> <p>76 Condensate surge tank (Option)</p> <p>116 Cyclone water separator</p> |
|---|--|

The code designations specified in squared brackets [] correspond to the pneumatic and electrical plans in the annex.



Display panel

12 "Cable pressure" manometer [11.2] displays the pressure of the air that flows to the outlet.

13 "High pressure" manometer [11.1] displays the pressure in the air storage tank [9.1].

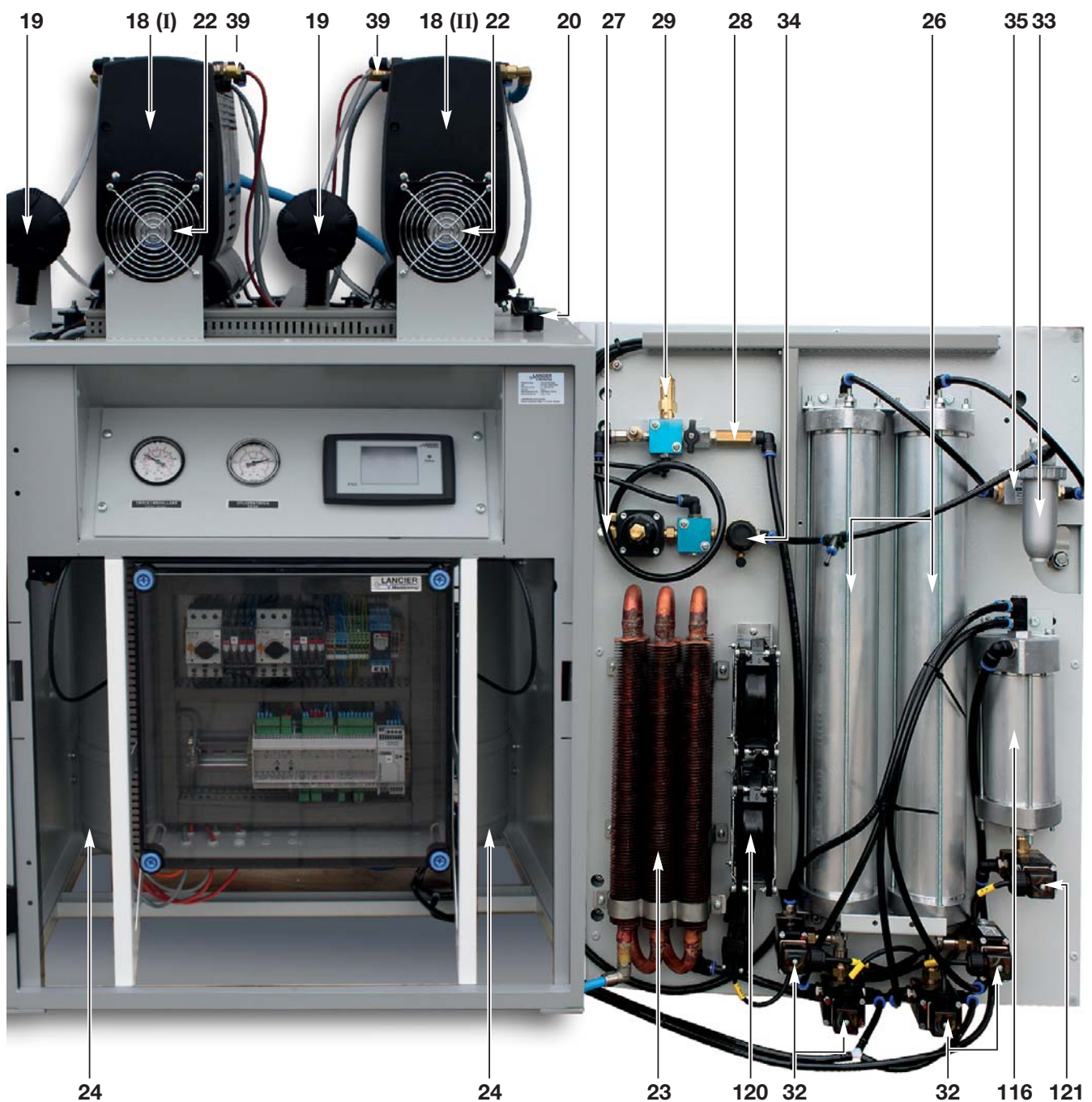
14 PSC control display shows the most important system parameters and allows for their manipulation.

The code designations specified in squared brackets [] correspond to the pneumatic and electrical plans in the annex.



Pressurised air supply, storage, drying and monitoring

- 18 Compressors [2.1]** condense the air drawn in at approx. 7.5 bar. Left compressor I right compressor II
- 19 Air intake filter of the compressors [1.1]**
- 20 Rubber/metal oscillating buffers**
- 21 Safety valve "compressor" [10.1]** protects the compressor against excessive pressure.
- 22 Four Fans [E1]** ventilate the compressors in a temperature-controlled manner.
- 23 Cooler [3.1]** for the compressor exhaust air.
- 120 Fans [E5 - E6]** for the cooler [3.1], temperature-controlled parallel to the compressor fans (22).
- 24 Air storage tank [9.1]** stores the dried pressurised air.
- 25 Safety valve "high pressure" [10.4]** protects the air storage tank (24) [9.1] against excessive pressure.
- 26 Air dryer [5.1]** dries the pressurised air alternatively in one of the two containers, while the drying agent is regenerated in the other container.
- 116 Cyclone water separator [20.1]** dehydrates the cooled compressed air in the cyclone process.
- 27 Nozzle - output air „cable pressure“ [14.1]**
restricts the air flow to the outlet, so as to prevent exceeding the maximum quantity delivered to the equipment.
- 28 Non-return valve [4.1]** prevents a reversed flow of pressurised air from the distribution device.
- 29 Safety valve "cable pressure" [10.5]** protects the pressurised air consumer load against excessive pressure.



32 Solenoid valves for air dryer [left: Y1.1 and Y1.2, right: Y2.1 and Y2.2]

control the air flow alternatively by one of the two drying agent containers and lead the regeneration air flow from the passive drying agent container outside (to condensate surge tank).

121 Solenoid valve for cyclone water separator

controls the water drain to the outside (to the condensate surge tank).

33 Micro filter [1.5] protects the control and measurement devices from contaminations.**34 Pressure limiting valve [8.1]**

opens when the air flow has reached a pressure of 5.5 bar after leaving the air dryer **(26)** [5.1].

35 Double non-return valve [6.1]

routes the dried pressurised air in the active drying agent container to the air storage tank **(24)** [9.1] and returns a part of the air flow for regeneration of the drying agent into the passive drying agent container.

37 The multifunctional sensor measures the pressure, temperature and humidity of the generated air.

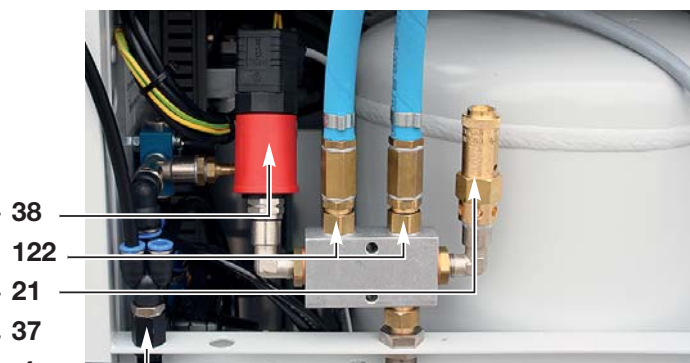
The values are used to calculate the dew point of the generated air. Once the upper limit is reached, the PSC triggers an "F" (humidity) error and switches the system off.

38 Sensor compressor pressure for the PSC.**39 Sensor compressor temperature** for the PSC.**122 Backpressure valve compressor**

prevents compressors from back-flowing air.

4 Equipment output

The code designations specified in squared brackets [] correspond to the pneumatic and electrical plans in the annex.

Right side view**Back**

38
122
21
37
4
25
24
23

Electrics

5 Motor protective switch [Q4]

to manually switch the compressors on and off, features a built-in protective relay to protect the motors from excessive current consumption.

72 Motor contactors [K1] and [K2]

switches the compressor s(18) [2.1] on and off after the switching of the PSC (73).

73 PSC control module

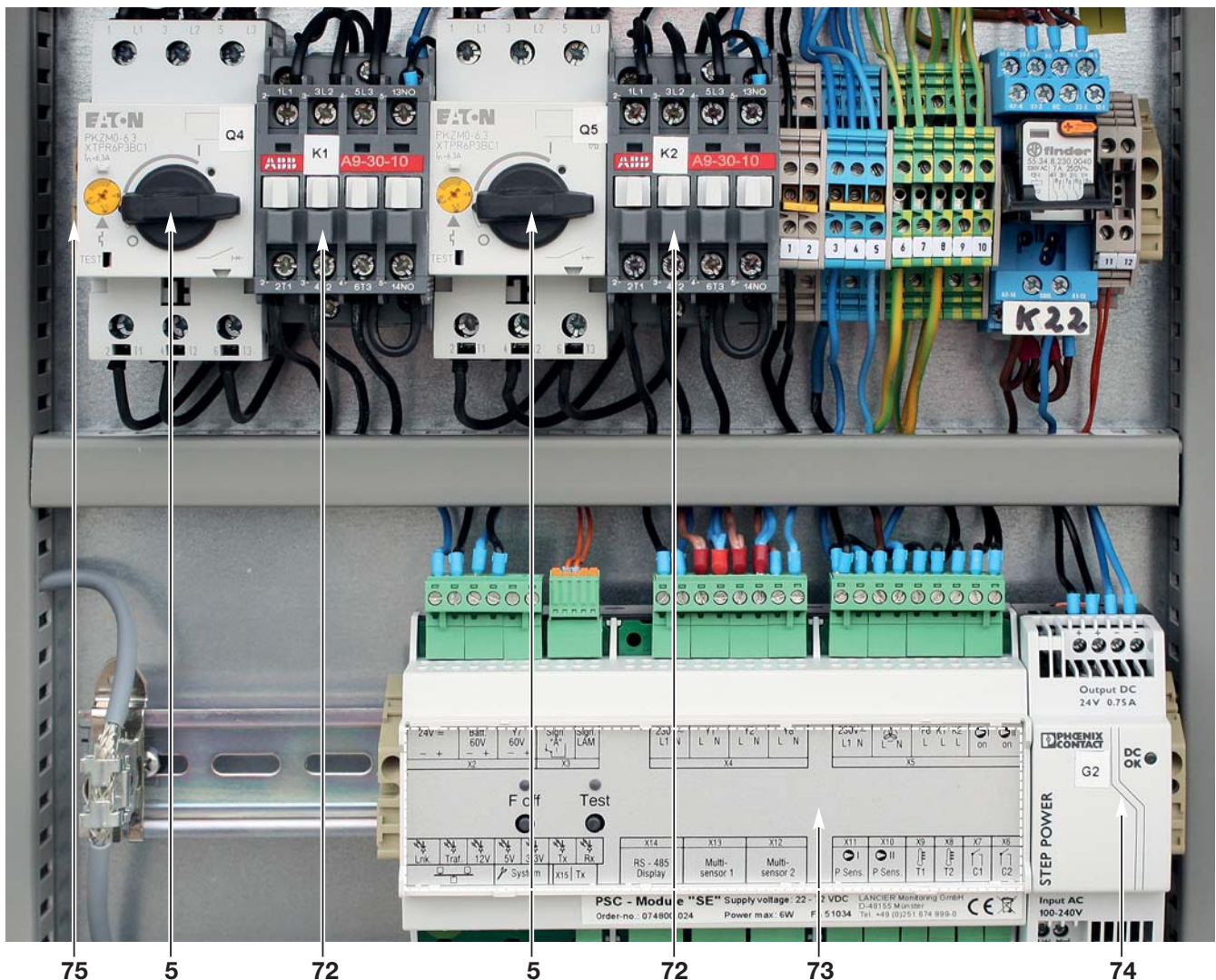
controls all of the pressurisation system's processes, e.g. it:

- Switches the solenoid valves (32) [Y1.2 bis Y2.2] to change the drying agent containers at timed intervals.
- Switches the compressors on and off via the motor contactors (72) [K1] and [K2].
- Switches the six fans (22/120) on and off via a relay [K22].
- Switches the group output signal "A" (fault) potential free, if one of the faults "F" or "T" is present or if the AC system voltage has failed. The group output signal's individual signals depend on the equipment.

74 Power supply unit 230 V AC/24 DC

For the power supply of the PSC control module (73).

75 Terminal block [X1]



PSC control module

The PSC control module monitors and controls the most important functions of the compressed air system. Certain alarm states are switched as common alarm "A" for remote alarming.

47 Signal LED „DC“

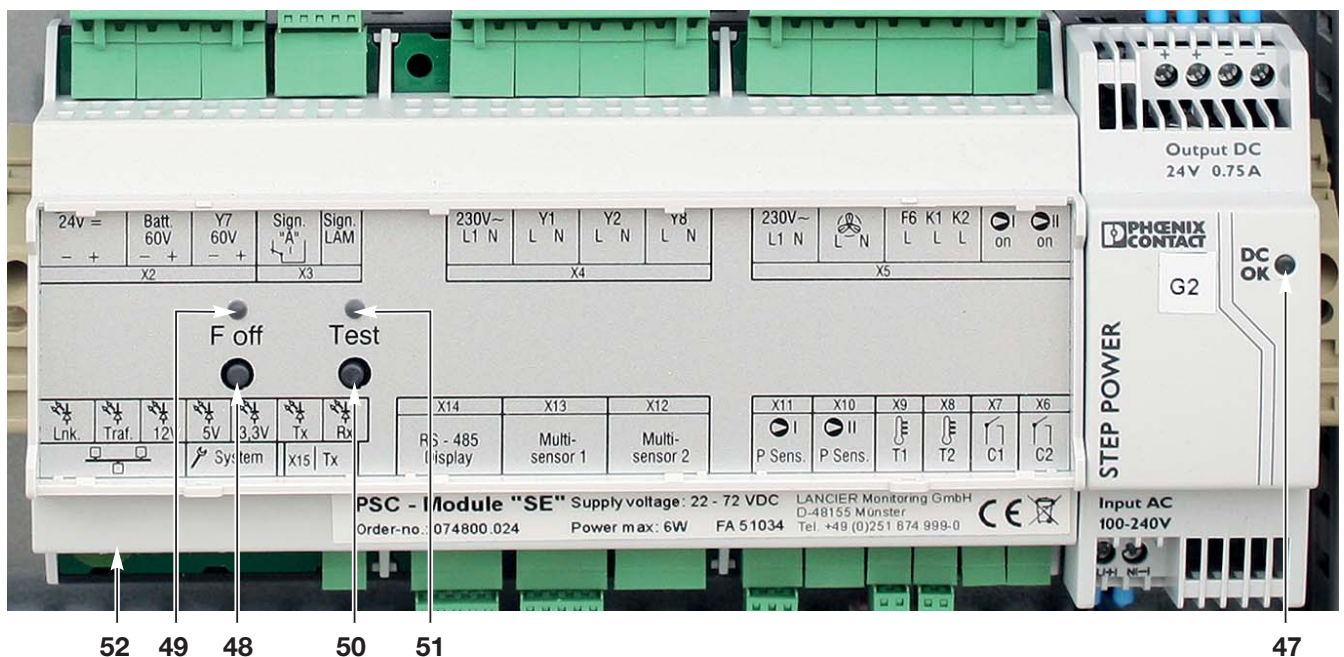
48 The „F off“ button has the same function as the [F off] button on the display. In the further course it is assumed that the display key is always pressed.

49 Signal-LED „F off“

50 „Test“ button: triggers the common alarm "A" in the remote signaling

51 Signal LED „Test“

52 Ethernet socket for integrating the system into the UMS or a company intranet.



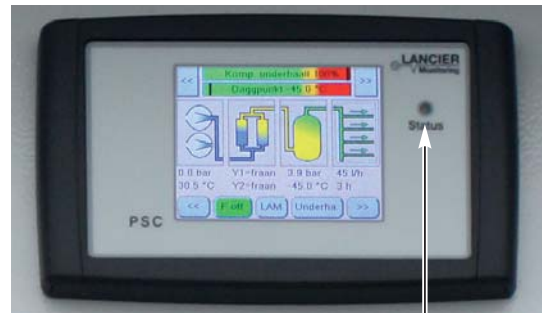
Operation of the PSC control display

Das PSC-Steuerdisplay (14) ermöglicht die Anzeige und Bedienung der wichtigsten Anlagenparameter.



Attention!

The "F off" soft key may only be pressed in the event of a fault. Otherwise, the pressurisation system's proper function cannot be guaranteed (see page 25)!



15

15 Status LED

shows the system's status.

LED lights up **green**: Normal, faultless operation.

LED flashes **red**: There is a serious error in the pressurisation system.

LED is off: There is no voltage present or there is a communication error with the PSC control module.

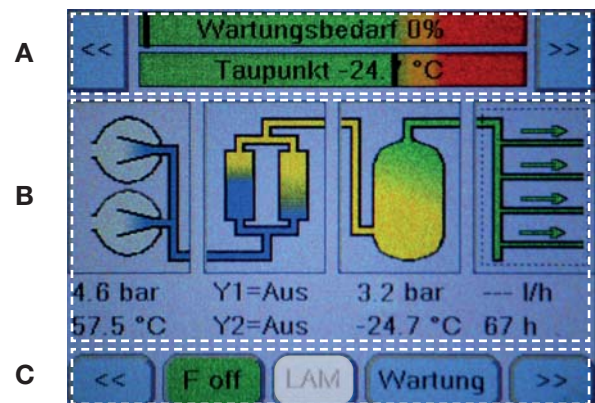
Operation

The PSC control display is divided into 3 lines:

A Information and error overview

B System status

C Control and setting elements



A: Information and error overview

The maintenance status, error messages and system parameters are displayed here.

The following values can be called up one after the other using the "Forward" [>>] button:

- **Maintenance requirement and dew point** (standard display) >> **Operating hours** >> **System temperature** >> **System voltage AC connection** >> **Signal voltage DC connection** >> **Status of contact input 1** >> **Status of contact input 2** >> **Status of contact input LAM** (signalling from an external, mobile pressurisation system) >> **System type** >> **Maintenance requirement and dew point ...**

The values can be called up in reverse order using the "Back" [<<] button.

In the event of an alarm, **error messages** (red) or **warning notifications** (orange) are displayed here.

B: System status

An overview of the states of the most important components and their parameters is displayed here across four columns. If there are warnings or alarms, the respective components are highlighted in **orange** (warning) or **red** (alarm).

1. **Compressors** with the compressor pressure and temperature
2. **Air dryers** with the status of the solenoid valves [Y1] and [Y2]
3. **Air storage tank** with the pressure in the air storage tank and dew point information
4. **Air distributor** with the air consumption and system operating hours

C: Control and setting elements

This is where the control elements are displayed.

The following control elements can be called up one after the other using the "Forward" [>>] button:

- **[F off]** (deactivation of the humidity monitoring function) **[LAM]** (without function for this system configuration) **[Wartung]** (standard display) >> **[Netzwerk] [Uhr] [Typ]** >> **[Service] [Diagnose]** >> **[F off] [LAM] [Wartung] ...**

The control elements can be called up in reverse order using the „Back” [<<] button.

Mounting

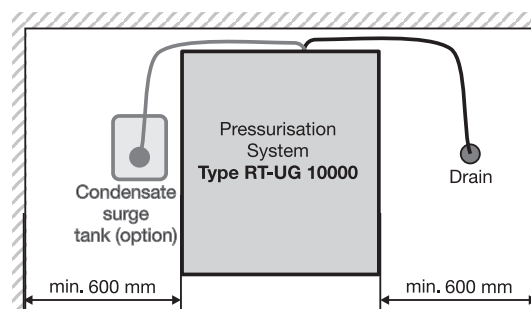
Setting up the system

The pressurisation system RT-UG 10000-PSC is designed to be located at floor level. The floor must be constructed for exposure to dynamic stresses and strains. LANCIER Monitoring assumes no liability whatsoever for wall mounting.

The place of mounting should be dry and swept clean.

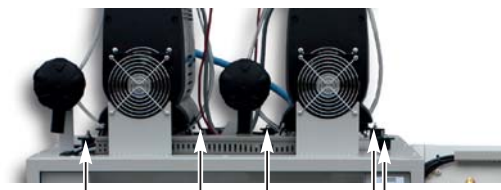
The system must be upright and perpendicular.

To do this, adjust the four height-adjustable feet.

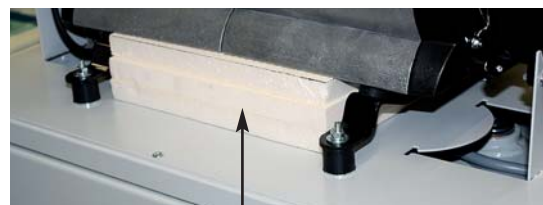


Remove transportation lock

- Loosen all 4 screws of the rubber-metal oscillating buffers (20) for each compressor.
- Pull out and remove the transport lock (foam) from under the compressors.
- Tighten all 4 screws of the rubber-metal oscillating buffers (20) for each compressor.



20



S

Connect the condensate surge tank

- Place the surge tank (76) underneath the equipment.
- Guide both condensate discharge hoses (10) for the condensate from the air dryer (26) and the cyclone water separator (116) to the condensate surge container (76).
- Push both condensate discharge hoses (10) onto the hose nozzles of the condensate surge container (76) and screw tight with the union nuts.
- The ventilation openings in the cover must remain free!



10 76

- ! Both condensate discharge hoses (10) should not be led into a common hose so that the escaping air flows do not negatively influence each other.

Electrical connection



Deadly risk!

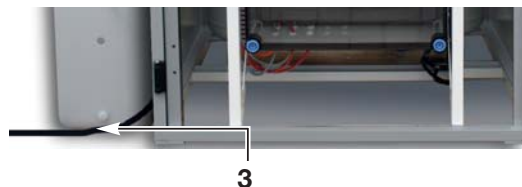
Electrical connection must only be made by electrical specialists!
After connecting electricity: Take caution with live components!

Operating voltage AC

- Before connection to the mains supply mind that the power supply voltage complies with the operating voltage of the compressor (**18**) (see name plate (**0**))!
- The following security relevant elements must be supplied for electrical connection:
 - **main switch with emergency stop function** according to IEC/EN60204-1, VDE 0113 Part 1
 - **nominal voltage** 400 V three phases, neutral and grounding conductor
 - **overcurrent protection device** for each phase maximum 16 A (Neozed fuses or circuit breaker characteristic B)
 - residual-current-operated protective device (**RCD**)
- Check fuse setting of motor protective switch (**5**) (see page 27)!
- Connect connecting cable AC (**3**) as follows:

5-core with 3-phases

- PE (protective earth) to green/yellow
 - N (neutral) to blue
 - L1 (Phase) to black
 - L2 (Phase) to black
 - L3 (Phase) to brown
- See circuit and wiring diagram page 67.



Check compressor's rotating direction

To ensure that the system runs as smoothly as possible, the direction of rotation of the two compressors should be opposite.

- Turn both motor protective switches (**5**) to „I“
 - compressors (**18**) start.
- VCarefully insert a flexible cable tie or similar through the ventilation grids of the two compressors (**18**) one after the other.
 - So you can see the direction of rotation.
- Otherwise swap two phases at the main switch and check the directions of rotation again.



Signal output

- According to requirements connect the signal output line to the connecting block (**75**) [X1 11.1] and [X1 12.1] as per the wiring diagram (see page 67).

Ethernet connection

The pressurisation system's RT-UG can be connected to the company Intranet via the PSC control module.

To do this, strip an approximately 3 cm long section of the shielded Ethernet cable used for this purpose at a point approximately 25 cm in front of the connector that connects to the PSC control module.

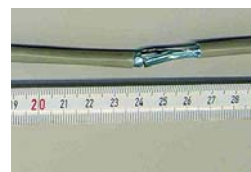
ATTENTION!

The cable's shielding must not be damaged.

Attach the stripped area of the cable to the top-hat rail via the earth terminal of the multifunctional sensor's supply line. In this way, the Ethernet cable is grounded to prevent disruptive EMC interference.

Now connect the Ethernet cable to the PSC control module's Ethernet socket (**52**).

The network configuration should only be carried out in close cooperation with the network administrator and is described on page 40!



52



ATTENTION!

Neither the Ethernet cable nor any existing cable used to forward system signals may exceed a total length of 30 metres.

Start-up



Deadly risk!
Do not operate the equipment with damp hands!
Take caution with live components!



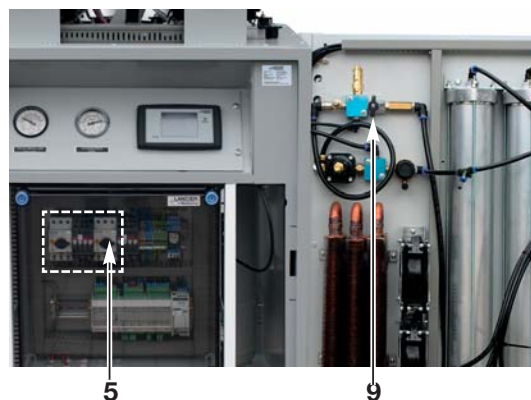
Risk of injury!
Take caution with heated components!

Before start-up

The connecting hose is not yet connected to the consumer load.

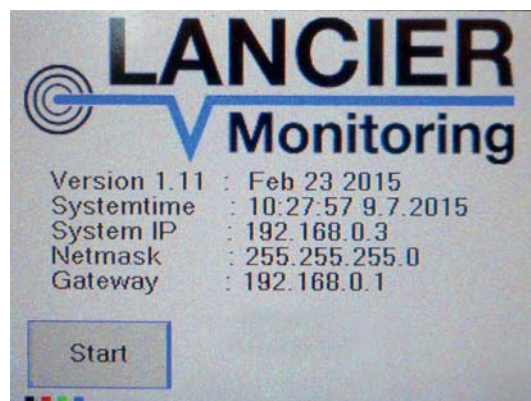
- Open cabinet door
- Close shut-off valve "cable pressure" (9).
- The main switch (customer installation) is switched on.

Turn both motor protection switches (5) to "I".
and switch on the main switch.



Check LEDs at PSC control module (73)

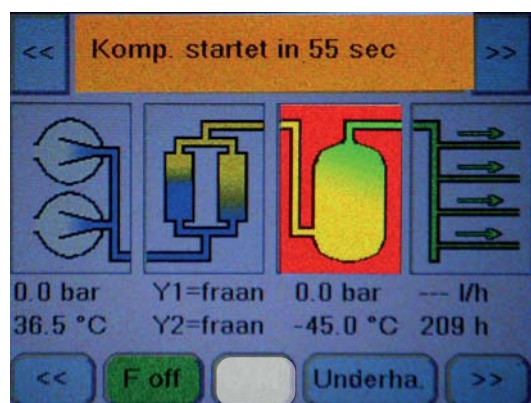
- The signal LED „F off“ (49) lights up **green**.
- The signal LED „Test“ (51) lights up **red**.
- The signal LED „DC“ (47) lights up **green**.
- The PSC display starts up and reads out the system data.
The display may vary depending on the system.



- The PSC display then shows the system status.
- The signal LED „Status“ (15) next to the display flashes **red**.
- The compressors start up after a short time. (If the dew point is above -20°C , the system must be run dry.)

Indications of the the PSC display (14)

- All four system status fields are shown with a coloured background that shows their status.
- The [F off] button has a **green** background (humidity monitoring is active).
- The currently measured values are displayed.



Note:

After the initial start-up or after maintenance and adjustment work, the warnings "Compressor pressure error", "Air storage tank pressure error" or "Air volume error" may appear.

These notifications usually go out once the switch-off pressure has been reached for the first time following the switch on.

The compressors' (18) and air cooler's (23) fans (22) are temperature-controlled and only start once the cylinder head temperature reaches 60°C . They switch off again once the cylinder head temperature drops below 55°C .

**Attention!**

If the PSC display shows only dashes "---" for at least one of the "Dew point", "Tank pressure" or "Tank temperature" values, then there is a cabling error or defect in the multisensor – check the cabling and, if necessary, replace the multisensor.

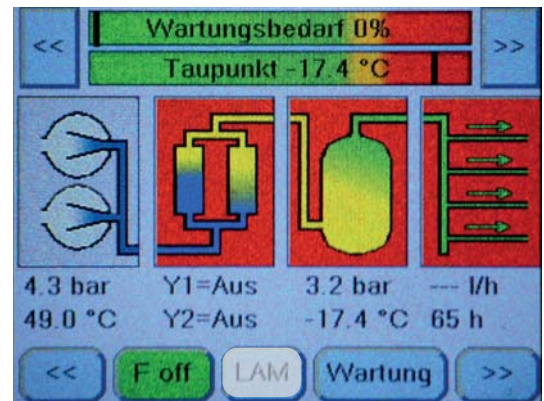
Observe "cable pressure" manometer (12)

- The maximal admissible cable pressure of the connected cable network must not be exceeded when the shut-off valve "cable pressure" (9) is closed (if necessary set cable pressure - see page 27).

**Observe "high pressure" manometer (13)**

- at 5.0 bar the compressor switches off.

If the compressors do not start and the system status fields are highlighted in red, a humidity error has occurred. The dew point is above -20°C and the system must run dry.

**Let the equipment "run dry"****Troubleshooting!**

If the compressors do not run, this may be due to hose lines and air dryer becoming damp after long idle period.

- The [**F off**] button in the PSC display (14) is highlighted in **green**.
- The system fields dryer, boiler and air distributor of the system status are highlighted in **red** = the humidity of the output air is impermissibly high, the calculated dew point is above -20°C .

**Risk of death!**

The buttons on the PSC control module may only be operated by a qualified electrician. Other operators must use the buttons on the PSC display.

- Open safety valve "high pressure" (25).
- Press button [**F off**] in the PSC display.
- The compressors start.
- The button [**F off**] in the PSC display is highlighted in **red** = no humidity monitoring.



25

After a while

- The system fields dryer, boiler and air distributor of the system status are **no longer highlighted in red** = the compressed air is dry.
- The [**F off**] button in the PSC display is still highlighted in **red** = no humidity monitoring.

**Warning!**

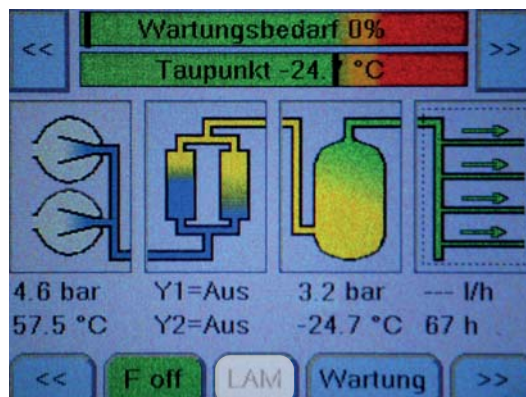
The [F off] key deactivates the electronic humidity monitoring.

It may only be operated if there is a fault, the "high pressure" safety valve (25) is open and the shut-off valve (9) to the consumers is closed.

The electronic humidity monitoring must be reactivated immediately after trouble-shooting in order to ensure proper function of the pressurisation equipment.

In order to get immediate humidity monitoring, the "F off" operation must be overridden:

- Press button [F off] in the PSC display.
- The [F off] button in the PSC display (14) is now highlighted in **green**.
= humidity monitoring is active.
- Close safety valve "high pressure" (25).
- Then carry out function testing.



The humidity monitoring activates itself automatically after approx. 2 operating hours of the compressors, if the „F off“ operation is not determined manually.

Function testing / setting of components

After start-up always test the equipment for correct function!

In the case of function error, in spite of correcting the setting, see pages 59 and following "Causes and remedying of faults".

For function testing or setting, in the case of some components the cabinet door must be open and the connecting block cover plate (11) unscrewed.

The inspections or settings shall partly be carried out when the equipment is on.



Deadly risk!

Do not operate the equipment with damp hands!

Take caution with live components!



Risk of injury!

Take caution with heated components!

Check and set reference value motor protective switch back-up fuse

Check setting of BOTH motor protective switches

Reference value of setting screw (78):

RT UG 10000-PSC:

400 V, 50 Hz: approx. 6.0

Change setting



Deadly risk!

Switch off the operating voltage at the external main switch and secure it against being switched on again unintentionally !!

- Then with a small screw driver turn the setting screw (78) approximately to the setting indicated above.
- Switch on operating voltage again.



78



Hint!

The motor protective switch must be set approx. 1.0 A above power consumption of the compressor motor (18) (see compressor name plate).

Due to the use of different motors in the compressor production, values other than those specified may exist, especially after a compressor has been replaced.

Sample:



RT-UG 10000-PSC (at 50 Hz): 5.0 A + 1.0 A = 6.0 A

JUN-AIR

Gast Manufacturing, Inc

Check and set cable pressure (pressure reducer)

Setpoint value cable pressure

- is set according to the customer order.

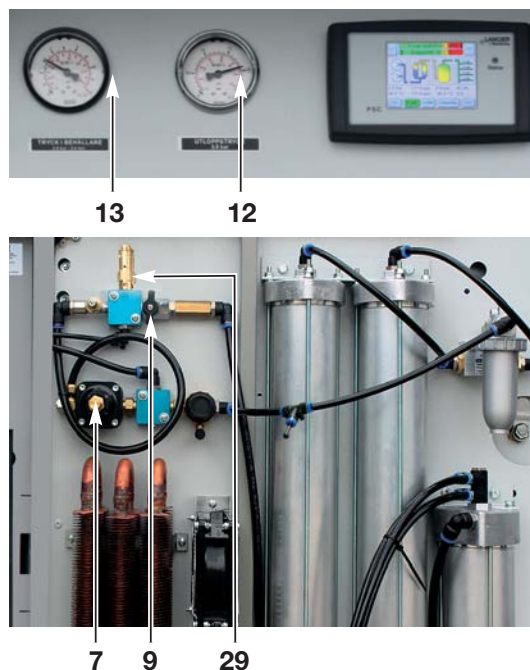
Check cable pressure

- Switch on operating voltage.
- Close shut-off valve (9).
- Manometer "cable pressure" (12) must display the required cable pressure.

otherwise:

Set cable pressure to the value in keeping with the order

- Operating voltage is switched on.
- shut-off valve (9) is closed.
- Turn the setting screw of pressure reducer (7) with screw driver until the manometer "cable pressure" (12) displays the cable pressure according to the order.



Warning!
Warning!

The safety valve "cable pressure" opens independently of the preset cable pressure at 2.5 bar.

Checking the multisensor

The multisensor (37) monitors the three parameters pressure, temperature and humidity in the entrance of the air storage tank. The values are used to calculate the dew point of the generated air. Once the upper limit has been reached, the PSC triggers an "F" (humidity) error and switches the system off.



Deadly risk!

Working on open, live equipment!

- Do not operate the equipment with damp hands!
- Caution: live components!

Setpoint value switching pressure

Compressors **On** = 3.0 bar
 Off = 5.0 bar

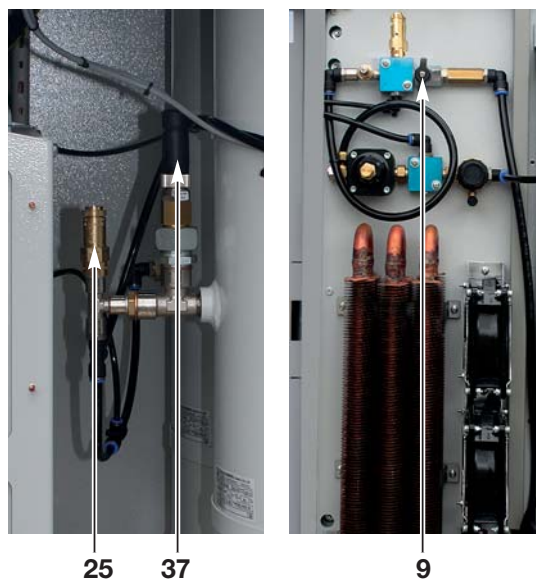


Risk of injury!

Wear safety glasses.

Check switch values

- Switch on operating voltage.
- Close shut-off valve (9).
- Open safety valve "high pressure" (25) and observe manometer "high pressure" (13).
 - with a pressure drop below **3.0 bar** the compressors must start.
- Close safety valve "high pressure" (25) and observe manometer "high pressure" (13).
 - with a pressure increase to **5.0 bar** and furthermore the compressor must switch off.



Check and set pressure limiting valve



Deadly risk!

Working on open, live equipment!

- Do not operate the equipment with damp hands!
- Caution: live components!



Risk of damage!

Dryer and humidity shut-off work reliably only, if the pressure limiting valve (34) is set properly.

Check opening pressure



Deadly risk!

Switch off the operating voltage at the external main switch and secure it against being switched on again unintentionally !!



Risk of injury!

Prior to operation, depressurise the equipment by opening the safety valve "high pressure" (25)!



Risk of injury!

Wear safety glasses.

Setpoint value opening pressure = 5.5 bar

- Unscrew blind cover (83) from the pressure limiting valve (34).
- Connect the hose end of the LANCIER Monitoring RT test manometer (calmed glycerine manometer, LANCIER order no. 074482.000) to it.
- Close safety valve "high pressure" (25).
- Switch on operating voltage
 - The RT test manometer(13) must increase by 6.0 ± 0.1 bar.



If there is no test manometer

- Unscrew blind cover (83) from the pressure limiting valve (34).
- Unfasten hose connection from the manometer "high pressure" (13).*
- Connect the supplied testing hose to the pressure limiting valve (34) and the manometer "high pressure" (13) (so the manometer "high pressure" (13) can be used as a test gauge).
- Close safety valve "high pressure" (25).
- Switch on operating voltage
 - The manometer "high pressure" (13) must increase by 6.0 ± 0.1 bar.



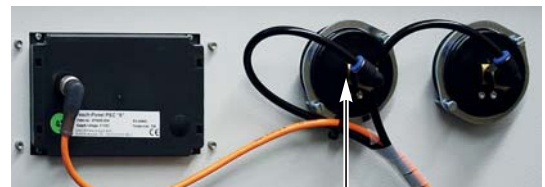
34 83

*) Notes on releasing and connecting the pneumatic hoses on page 46!

otherwise:

Set setpoint value opening pressure of pressure limiting valve

- Pull setting knob (34) back and turn until the manometer "high pressure" (13) displays the setpoint value.
- Press on the setting knob (34) again and allow it to lock into place.



13

Restore operating status

- Switch off operating voltage!
- Depressurise the equipment by opening the safety valve "high pressure" (25)!
- Remove testing hose.*
- Insert hose on manometer "high pressure" (13) again and screw in tightly.
- Screw on blind cover (83) on the pressure limiting valve (34).
- Close safety valve "high pressure" (25).
- Switch on operating voltage again
- Check all threaded hose coupling for impermeability.

*) Notes on releasing and connecting the pneumatic hoses on page 46!

Check humidity monitoring



Deadly risk!

Working on open, live equipment!

- Do not operate the equipment with damp hands!
- Caution: live components!

Check switching function



Deadly risk!

Switch off the operating voltage at the external main switch and secure it against being switched on again unintentionally !!



Risk of injury!

Prior to operation, depressurise the equipment by opening the safety valve "high pressure" (25)!



Risk of injury!

Wear safety glasses.

- Close shut-off valve (9).
Wait until the compressors have switched off and the compressor pressure has dropped to 0.
- Loosen the connection hose (85) between the cyclone water separator (116) and the solenoid valve Y1.1 (32) on the solenoid valve (32) *.
- Remove the plug of the T-piece (86) on the connection hose (88) between the pressure limiting valve (34) and the fine filter (33) and thus close the open connection of the solenoid valve Y1.1 (32).
- Connect the connecting hose (85) that was previously loosened to the T-piece (86) of the connecting hose (88)* to bypass air drying.
- Open the "high pressure" safety valve (25) and empty the tank.
- Switch on the operating voltage:
- *After a short time, the value of the dew point changes in the PSC display. If the dew point exceeds -20°C , the system switches off and all system information is highlighted in red on the PSC display.*
- Close the "high pressure" safety valve (25) again.

*) **HN**otes on releasing and connecting the pneumatic hoses on page 46!



Restore operating status



Deadly risk!

Switch off the operating voltage at the external main switch and secure it against being switched on again unintentionally !!



Risk of injury!

Prior to operation, depressurise the equipment by opening the safety valve "high pressure" (25)!



Risk of injury!

Wear safety glasses.

- Detach the connection hose (85) from the T-piece (86) of the connection hose (88) *.
- Remove the plug (87) from the solenoid valve Y1.1 (32) and use it to close the T-piece (86) of the connecting hose (88).
- Reinsert the connection hose (85) between the cyclone water separator (116) and the solenoid valve Y1.1 (32) on the solenoid valve (32) *.
- Switch on the operating voltage.

If the compressor fails to start, allow the equipment to "run dry":



Risk of death!

The buttons on the PSC control module may only be operated by a qualified electrician. Other operators must use the buttons on the PSC display.

- Open safety valve "high pressure" (25).
- Press button [F off] in the PSC display.
- The compressors start.
- The button [F off] in the PSC display is highlighted in **red** = no humidity monitoring.



25

After a while

- The system fields dryer, boiler and air distributor of the system status are **no longer highlighted in red** = the compressed air is dry.
- The [F off] button in the PSC display is still highlighted in **red** = no humidity monitoring.



Warning!

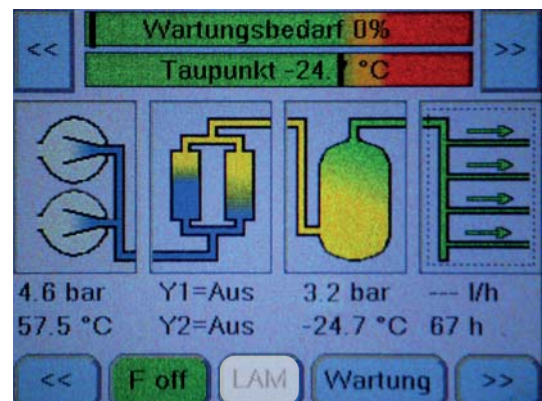
The [F off] key deactivates the electronic humidity monitoring.

It may only be operated if there is a fault, the "high pressure" safety valve (25) is open and the shut-off valve (9) to the consumers is closed.

The electronic humidity monitoring must be reactivated immediately after trouble-shooting in order to ensure proper function of the pressurisation equipment.

In order to get immediate humidity monitoring, the "F off" operation must be overridden:

- Press button [F off] in the PSC display.
- The [F off] button in the PSC display (14) is now highlighted in **green**. = humidity monitoring is active.
- Close safety valve "high pressure" (25).
- Then carry out function testing.



The humidity monitoring activates itself automatically after approx. 2 operating hours of the compressors, if the „F off“ operation is not determined manually.

After the function testing



Deadly risk!

Switch off the operating voltage at the external main switch and secure it against being switched on again unintentionally !!

- Remount connecting block cover (11).

Check clock pulse air dryer change-over



Deadly risk!

Working on open, live equipment!

- Do not operate the equipment with damp hands!
- Caution: live components!

Setpoint value

The clock pulse of the air dryer change-over is system-dependent factory preset in the PSC control module (73):

- 60 s ± 10 %



Risk of injury!

Wear safety glasses.

Check clock pulse

- Switch on operating voltage.
- Open safety valve "high pressure" (25).
- The compressor (18) must run.
- Measure clock pulse.

The PSC (73) controls the solenoid valves of the air dryer in the clock pulse regarding the compressor run time. The change of the valves is visualised by the LEDs „Y1“ and „Y2“ on the PSC and audible by the sudden escape of regeneration air into the condensate surge tank (76).

Set clock pulse

- The clock pulse is factory preset and can be altered by the manufacturer only.

Check the switching point of the solenoid valve of the cyclone water separator

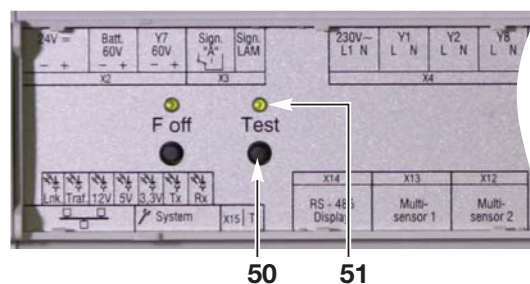
- The solenoid valve (121) vents the water separator (116) shortly before the compressor shut-off pressure of 5.0 bar is reached for 1-2 seconds.
- Venting can be recognized by the flashing red LED of the coil connector of the solenoid valve (121) and by the sudden outflow of condensate through the condensate drainage hose (10).

If the system does not reach the shutdown pressure of 5.0 bar for a longer period of time, the cyclone water separator (116) is vented cyclically every 60 minutes.

Check signalisation

Check external signalisation

- Switch on operating voltage.
- Press button „Test“ (50) at the PSC control module (14) .
 - the signal LED „Test“ (51) lights up **red**.
 - Alarm "A" must occur in the remote control room.



Operation On - Off



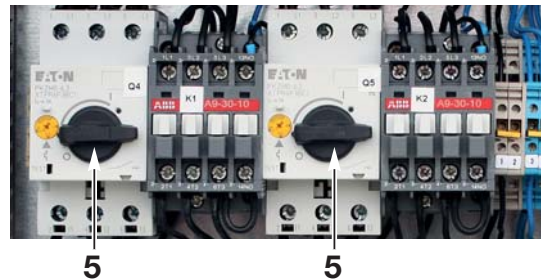
Deadly risk!
Do not operate the equipment with damp hands!
Take caution with live components!



Risk of injury!
Take caution with heated components!

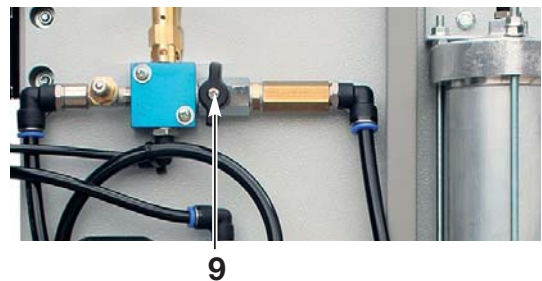
Connection equipment pneumatics

- Turn both motor protection switches (5) to "0" (switch off).
- **Turn off the main switch!**
- Open cabinet door.
- Close shut-off valve (9).
- Establish pneumatic connection to pressurised air consumers at equipment output (4).



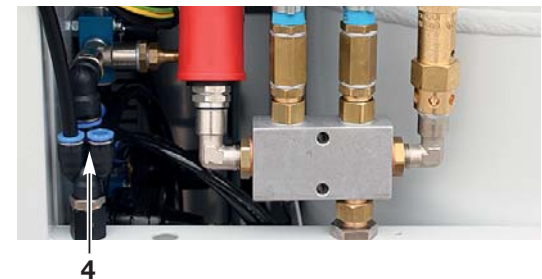
Normalbetrieb

- Turn on the main switch.
- Turn both motor protection switches (5) to "1" (switch on).
- Wait until the equipment is charged.
 - *The compressor switches off at 5.0 bar.*
- Open shut-off valve (9)
 - *the compressors automatically switches on and off when reaching the lower and upper pressure values*
- Mount the connecting block cover (11) and close the cabinet door.



Shut down the RT-UG system for a longer period of time

- Blow out compressor cooler (23) with pressurised air
- Turn both motor protection switches (5) to "0" (switch off).
- **Turn off the main switch!**
- Depressurise equipment!
 - Open shut-off valve (9) for this.
- Remove connecting hoses from the connection nozzle (4).
- Close shut-off valve (9) again.
- If necessary, branch off electrical connections.



Operation of the PSC display

The PSC control module monitors and controls the pressurisation system's most important functions. Certain alarm states are switched as a common alarm "A" for remote alarming.

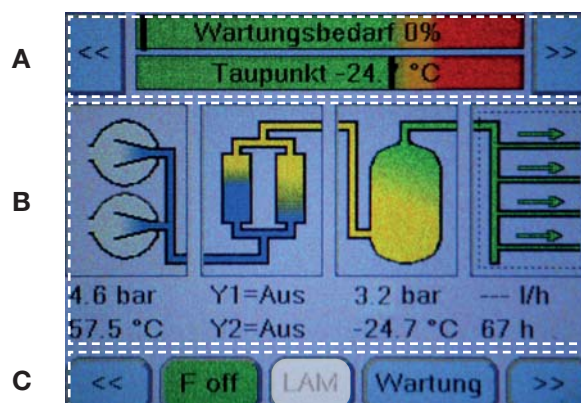
The system functions are operated and the system parameters are set via the PSC control display's touch-screen.

To save energy, the display switches itself off automatically after 15 minutes of inactivity. The display is reactivated simply by touching it.

Structure of the display content

The PSC control display is divided into 3 lines:

- A** Information and error overview
- B** System status
- C** Control and setting elements



A: Information and error overview

Here, the maintenance status, error messages, notices and system parameters are displayed.

The most important system parameters can be called up one after the other using the "Forward" [>>] and "Back" [<<] buttons:

B: System status

An overview of the states of the most important components and their parameters is displayed here across four columns. If there are warnings or alarms, the respective components are highlighted in **orange** (warning) or **red** (alarm).

1. **Compressors** with the compressor pressure and temperature
2. **Air dryers** with the status of the solenoid valves [Y1] and [Y2]
3. **Air storage tank** with the pressure in the air storage tank and dew point information
4. **Air distributor** with the air consumption and system operating hours

C: Control and setting elements

This is where the control elements are displayed.

The control elements can be called up one after the other using the "Forward" [>>] and "Back" [<<] buttons.

Functions

Normal operation

Start display

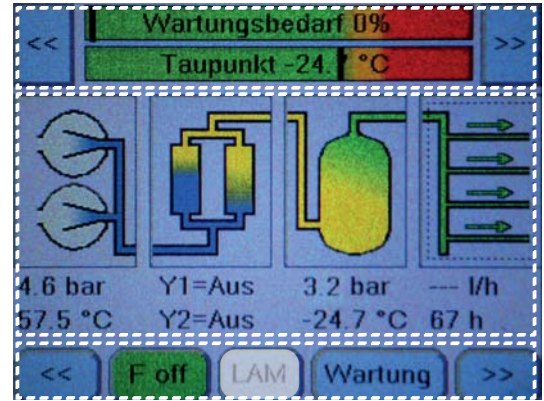
The most important system parameters are shown as an overview in the start display.

In the upper part "**A: Information and error overview**", the maintenance requirement (based on the compressor and system runtime) and the dew point are shown in a clear text format and graphically with markers.

In the middle part "**B: System status**", the main components are displayed along with those measurement values that are most important for the system evaluation:

- Compressor pressure and temperature
- Air dryer solenoid valve position
- Air storage tank pressure and outlet air temperature
- System outlet: Air consumption and system operating hours

If one of the components is in a warning or alarm state, it is highlighted in **orange** or **red**.



Information and error overview

The display's upper part shows the maintenance status, error messages and system parameters are displayed.

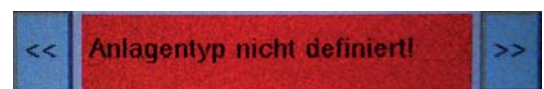
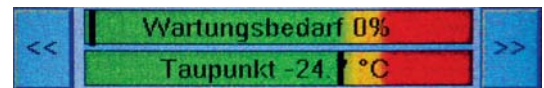
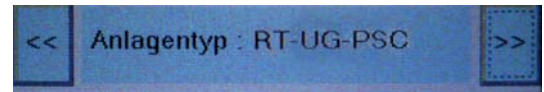
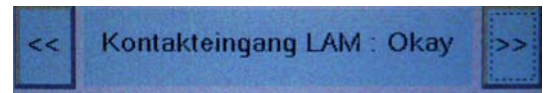
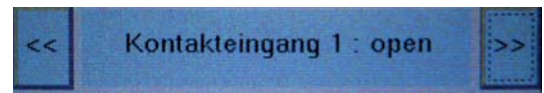
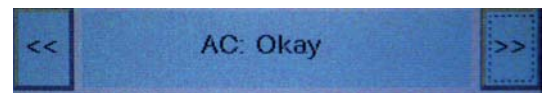
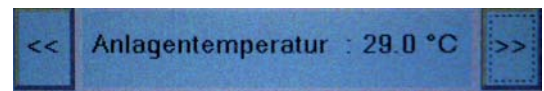
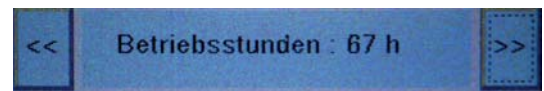
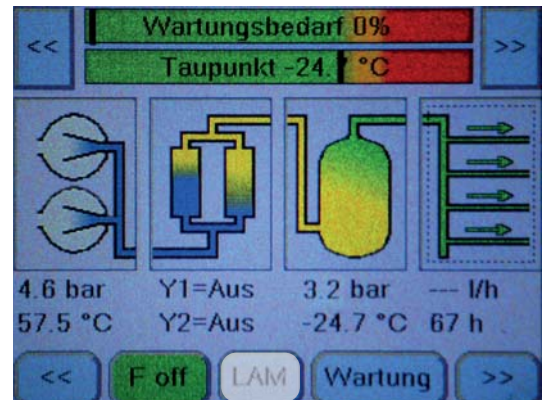
In the event of an alarm, **error messages** are displayed here, e.g. "Contact input LAM: Error".

The most important system parameters can be called up one after the other using the "Forward" [>>] and "Back" [<<] buttons.

When the "Forward" [>>] button is pressed, the information appears in the following order:

1. Operating hours for the entire system.
2. System temperature: The temperature in the system.
- 3 The connected system voltage AC.
4. The states of the contact inputs 1 and 2 (open or closed) one after the other.
5. The status of the contact input LAM for a mobile pressurisation system's signalling (does not function on this system).
6. The pressurisation system type.
7. Return to the home screen.

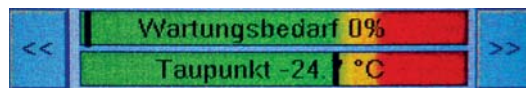
Here, in the event of an alarm, **error messages** are displayed immediately on the start display, e.g. "System type not defined". As a result, the maintenance status and system parameters are not visible.



Maintenance requirements

For needs-based maintenance, the PSC display has a display that shows the system's wear-related maintenance requirements.

As long as the **marker** (vertical black bar) sits in the **green range** of the "Maintenance required" field, no maintenance is required.



Every system configuration is assigned a typical compressor output, e.g. RT-UG 10000-PSC.

The amount of air released during the compressor's runtime (from the switch-on pressure of 3 bar to the switch-off pressure of 5 bar) is a benchmark of compressor quality. This factor deteriorates with increasing operating hours due to the natural wear and tear that affects the compressors, air filters, etc.

As a result, the vertical black marker moves towards the orange/red area of the maintenance requirement field.

The same applies if the amount of air required by the consumer device increases.

If this progresses, **maintenance should be scheduled once the orange area is reached.**

If the marker suddenly jumps from the green area into the orange or even the red area, it can be assumed that an error has occurred that must be eliminated immediately, e.g. due to

- leaks in the system's air-filled areas,
- a maladjusted pressure reducer nozzle (7),
- reduced compressor performance (wear, check cabling, replace the compressor, if necessary).

Dew point

For a dryer in an RTUG-PSC system with a fresh molecular sieve, the typical dew point of the decompressed air is $< -45^{\circ}\text{C}$.

As the molecular sieve ages and the dew point is thereby increased, the marker in the "Dew point" field will also slowly shift towards **orange** (approx. -24°C) or **red** (approx. -20°C).

If the marker suddenly jumps from the green area into the orange or even the red area, it can be assumed that an error has occurred that must be eliminated immediately, e.g. due to

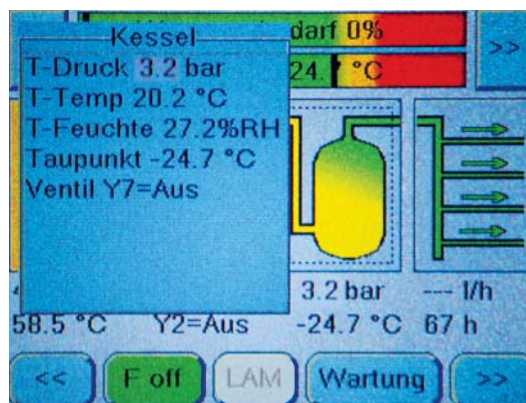
- a malfunctioning solenoid valve
- leaks in the dryer, etc.

System status

In the middle of the display, an overview of the states of the most important components and their parameters is displayed across four columns. If there are warnings or alarms, the respective components are highlighted in orange (warning) or red (alarm).

By pressing on one of the components, the respective component's measured parameters are displayed in a pop-up window.

Pressing the component again closes the pop-up window.



If a component is highlighted in orange or red due to a warning or alarm message, pressing on the respective component first displays the reason for the alarm.

The respective component's measured parameters only appear once the component is pressed again.

Pressing the component once more closes the pop-up window.



Control and setting elements

The control elements for the pressurisation system are found in the display's lower area.

Those that are most important for the F off switching, signalling for a mobile system and maintenance are found on the start display.

The control elements can be called up one after the other using the "Forward" [>>] and "Back" [<<] buttons.

When the "Forward" [>>] button is pressed, the information appears in the following order:

1. Setting options for network addresses, time/date and system type.
2. Access to the service and diagnostic areas.

Operation of the [F off] button

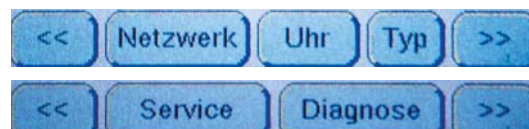
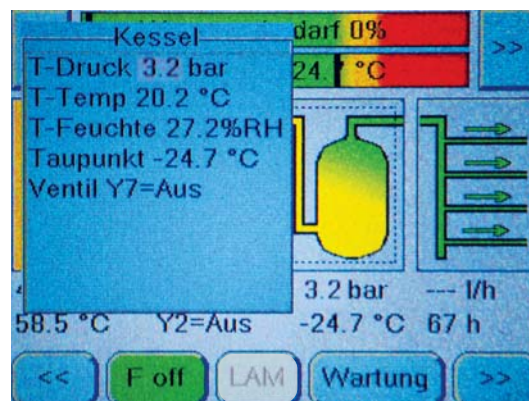
In the event that the pressurisation system produces excessively humid air, e.g. due to a longer period of inoperation, it has to run dry. Detailed instructions on how to do this can be found on page 25.

Operation of the [Wartung] button

Pressing the [**Wartung**] button prevents false alarm signals from being sent to the remote monitoring system during maintenance work (see page 46).

Once the maintenance work has been completed, the [**Wartung**] button must be pressed once more to reactivate the signalling.

If this does not happen, the [**Wartung**] button will reset itself automatically after 8 hours and thereby activate the signalling automatically.



Operation of the [Netzwerk] button

Pressing the [**Network**] button opens the settings options for the network addresses.

The following addresses can be edited:

System IP:

A freely editable IP address for the pressurisation system in the network.

Gateway:

The gateway's IP address (access device to the network) can be freely edited.

Netmask:

Fundamentally, the subnet mask (netmask) indicates at which bit the address must be divided. The bits masked by the network mask or specified by the prefix length (network portion) are identical for all hosts (computers) in a subnetwork.

A freely editable subnet mask address for the base module in the network.

Trap 1 and 2:

Defines the destination IP addresses to be used in the event of a fault to which a "Trap" SNMP message is sent directly.

The second settings page is reached by pressing the  (forward) button.

Here, you can change the following settings:

Serial No.:


A freely editable serial number of the pressurisation system.

Equipment No.:

A freely editable system number.

Tx Address:

The pressurisation system's address in the Tx bus.

Press the  (back) button to return to the first settings page.

Access to the editing function for the network addresses is password protected to prevent unauthorised changes.



Important!

To avoid network errors, the network configuration should only be carried out in close cooperation with the network administrator!

To edit, press any button, e.g. [**System-IP**].

- The password hint appears.

Press the [**Passwort**] button.

- The password input mask appears.

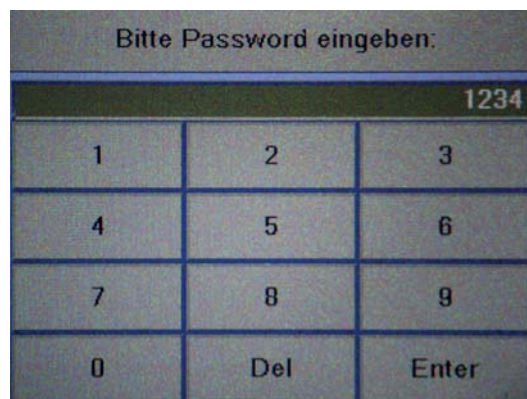
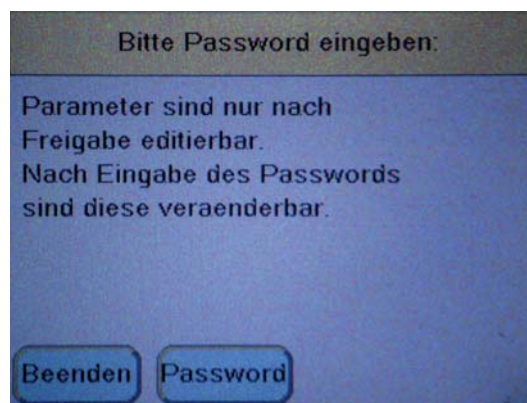
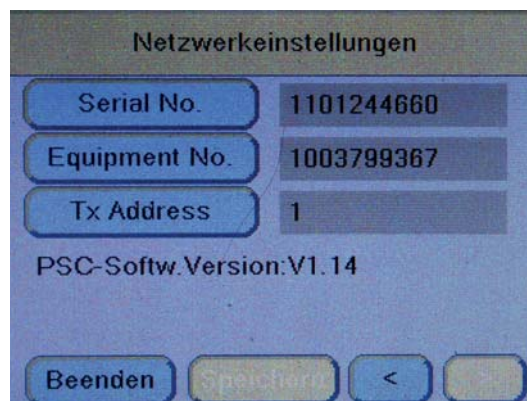
Use the keyboard to enter the fixed password "1234" and confirm it by pressing the [**Enter**] button.

Pressing the [**Del**] button deletes erroneous entries.

- Confirmation of the correct password entry appears.

Press the [**Beenden**] button.

- The network overview appears.



To edit settings, press the corresponding button, e.g. [**System-IP**].

- The input mask for the IP address appears.

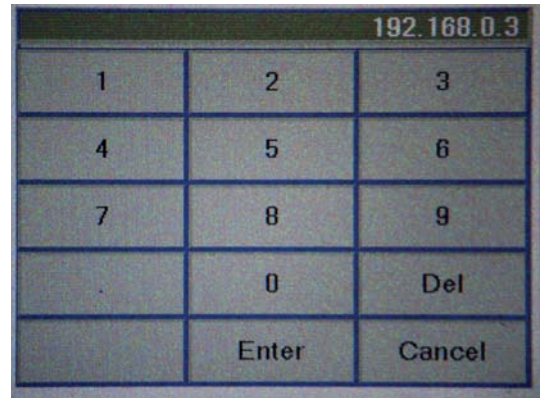
Use the keyboard to enter the network address and confirm it by pressing the [**Enter**] button.

- The input mask for the IP address appears.

Additional IP addresses can be edited without re-entering the password.

Pressing the [**Del**] button deletes erroneous entries.

Pressing the [**Cancel**] button cancels the entry.



The [Speichern] button must be pressed to accept the changes!

Operation of the [Uhr] button (set clock)

Pressing the [**Uhr**] button opens the setting options for the date and time.

To change the time, the [**Setzen**] button must be pressed.

First, the hour appears with a dark background.

This value can be increased by pressing the [**Plus**] button. Pressing the [**Minus**] button decreases the value. Once the correct value has been reached, the [**Setzen**] button must be pressed. This immediately saves the value, and the cursor jumps to the minute value, which can be set as described above.

All other values (seconds, day, month and year) are set in the same way.

Pressing the [**Beenden**] button exits the setting options for the time.



Operation of the [Typ] button

Pressing the [**Typ**] button opens the setting options for the pressurisation system type.

Access to the editing function for the system type is password protected to prevent unauthorised changes.

The password is entered as described in chapter "Network operation" on page 37.

Another system type can then be selected.

The type selected via the radio button must match the existing system, so that all parameters correspond to reality and the system functions properly.

Pressing the [**Beenden**] button exits the setting options for the pressurisation system type.



Operation of the [Service] button

Pressing the [**Service**] button opens the service module.

Here, the total operating hours of the system and the compressors can be changed, e.g. if a system's PSC control module has been replaced, so the current values can be entered.

Access to the editing function for the operating hours is password protected to prevent unauthorised changes.

To edit, press any button, e.g. [**Anl. Betriebst.**].

- *The password hint appears.*

Then proceed as described in chapter "Network operation" on page 37.

The [Speichern] button must be pressed to accept the changes!

All preset system parameters can also be displayed in the service module.

To do this, the [**Settings**] button at the bottom right must be pressed.

The following values can be read off.

Display 1

- Compressor switch-on pressure.
- Compressor cut-out pressure.
- Compressor start time.

Pressing the [**vor**] button opens

Display 2

- Duty cycle of the solenoid valve for air dryer Y1.
- Duty cycle of the solenoid valve for air dryer Y2.
- Pause duration of the solenoid valves for air dryers Y1 and Y2.
- Overrun time of the solenoid valves for air dryers Y1 and Y2.

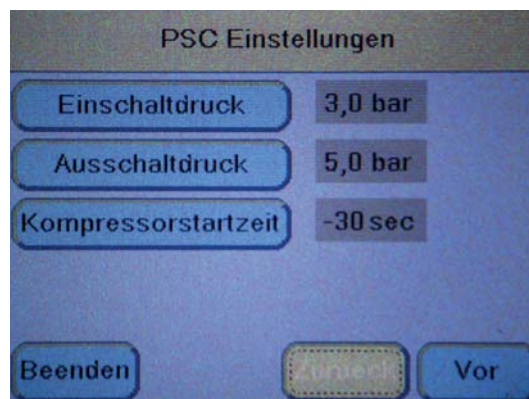
Pressing the [**vor**] button opens

Display 3

- Volume of the air storage tank.
- Limit value for the dew point, beyond which the system switches off with a humidity error.
- Maximum continuous runtime of the compressors (0 = runtime control is deactivated, no automatic shutdown of the compressors during continuous operation).

Pressing the [**zurück**] button opens the previous display respectively.

Pressing the [**Beenden**] button exits the settings display.



Operation of the [Diagnose] button



Attention, wear eye protection!

Incorrect operation can lead to increased system pressures. Then there is a danger that a hose may burst or that the safety valves on the Air storage tank and compressors blow air.

The compressors may only ever be started after a dryer valve (Y1 or Y2) has been activated via the K1 or K2 contactor!

Pressing the [**Diagnosis**] button opens the system's manual operation.

Here, some components can be switched on and off manually to detect errors.

Pressing the [**Handbetrieb**] button opens the personal protection notification: "Protective equipment must be worn during any work to minimise health risks. All warning notices must be observed". This notification must be confirmed by pressing the [**OK**] button.

The [**Handbetrieb**] button is now highlighted in red.

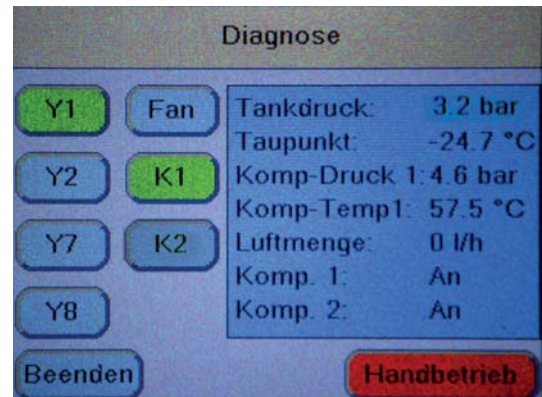
Now, the individual components can be switched on by pressing the associated button, e.g. [**Y1**] for the solenoid valve of air dryer Y1.

The background colour of the active button changes from light blue to green.

Pressing the [**Beenden**] button exits the manual operation.

It is not necessary to switch off the individually activated components.

Note: "Y7" has no function in this system.



Settings after the replacement of the PSC control module

Before the PSC control module is replaced, it is essential to note down the

- **operating hours**
- **system operating hours** and
- **compressor operating hours.**

If the PSC module no longer allows this, the operating hours can also be viewed on the LANCIER-UMS system.

The description of how to programme the existing operating hours into the new PSC module can be found on page 39.

If the PSC control module has been replaced, e.g. due to a defect, no pressurisation system type has been defined yet.

In the upper display area "**Information and error overview**", the warning message "**System type not defined**" appears highlighted in red **and the system is inoperative.**

In order to be able to commission the system, a system type must first be defined, as described in chapter "Using the [**Typ**] button" on page 38.

Commissioning then takes place as described from page 23 onwards.



Configuration of the PSC module via the Ethernet

The PSC module can also be configured via a web interface using an Internet browser. To do this, its Ethernet socket (52) must be connected to a PC or laptop via an Ethernet cable. The required IP address can be determined in the PSC display in the [**Network**] menu item.

Once the IP address has been entered into the browser's address field, the connection is established.

The start page overview appears:

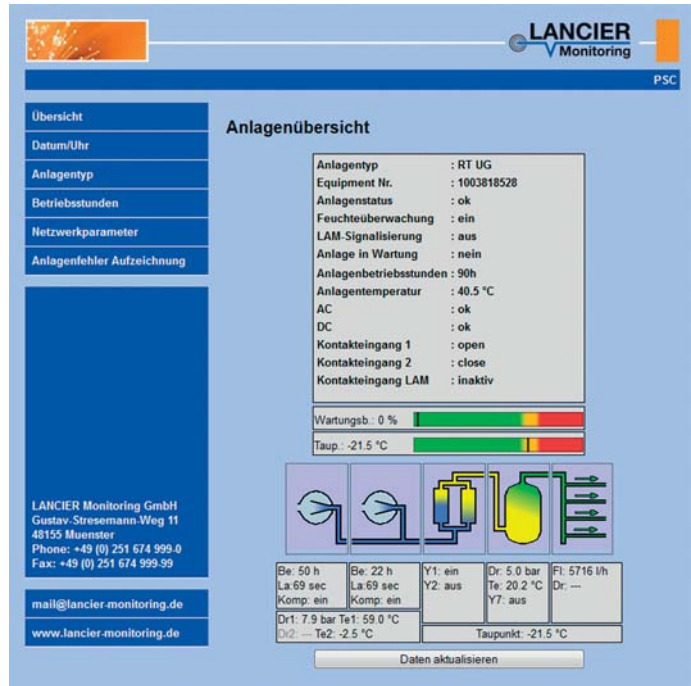
Menu item Overview

General information about the pressurisation system and display of all current measurement data.

The graphic elements in the lower half of the display behave as described for the PSC display:

If there are warnings or alarms, the respective components are highlighted in **orange** (warning) or **red** (alarm).

The measured values can be read out again at any time using the [**Daten aktualisieren**] button.



Menu item Date/time

Here, the internal clock settings for the date and time can be configured.

Time format: HH:MM:SS

Date format: DD.MM.YYYY

Time zone, UTC+: HH:MM

The edited values must be saved by clicking on the [**Einstellungen speichern**] button.



Menu item System type

Here, the pressurisation system can be configured. The type selected via the radio button must match the existing system, so that all parameters correspond to reality and the system functions properly. The amended value must be saved by clicking on the [**Einstellungen speichern**] button.

Menu item Operating hours

Here, the total operating hours of the system and the compressors can be changed, e.g. if a system's PSC control module has been replaced, so the current values can be entered.

The value for compressor 2 can only be changed for system types with two compressors. Otherwise, it is greyed out.

The amended values must be saved by clicking on the [**Einstellungen speichern**] button.

Menu item Network parameters

Here, the display colours can be changed.



Important!

To avoid network errors, the network configuration should only be carried out in close cooperation with the network administrator.

Access to the network parameters is password protected.

User: http

Password: http

Description of the network parameters

MAC address

The MAC address (unique product identifier) of the PSC module cannot be edited.

Hostname

A freely editable name for the PSC module in the network

Serial no.

Entry of the serial number (see type plate).

This entry is compulsory in order to be able to register the PSC module on the UMS server.

Equipment no.

Entry of the user's own system number.

Tx bus address

If the PSC module is to be integrated into the LANCIER monitoring system, it requires a unique Tx bus address that can be entered here.

The Tx bus address must have a value between 1 and 127, (inclusive). Each address may only be assigned once per Tx bus.

Every addressable component must be tested for

proper function and coding using the LANCIER test box (order no. 050833.000). The steps required to do this are described in the operating instructions of the test box.



Attention!

To prevent later malfunctions, never put addressable sensors into operation without checking them first!

„Enable DHCP” checkbox

The Dynamic Host Configuration Protocol (DHCP) allows for the network configuration to be assigned to clients via a server. This setting is deactivated ex works, as fixed IP addresses should be used for security reasons.

If the checkbox is activated (ticked), no further network settings are required, the corresponding input fields are greyed out.

IP address

A freely editable IP address for the PSC module in the network.

The IP address must not match any IP addresses that already exist in the network.

Subnet mask

The subnet mask (netmask) indicates at which bit the address must be divided. The bits masked by the network mask or specified by the prefix length (network portion) are identical for all hosts (computers) in a sub-network.

A freely editable subnet mask address for the PSC module in the network.

Gateway

The gateway's IP address (access device to the network) can be freely edited.

Trap 1 and 2

Defines to which destination IP addresses a direct SNMP message "Trap" is sent in the event of a fault.

SNTP

The Simple Network Time Protocol (SNTP) is a standard tool for synchronising clocks in computer systems via packet-based communication networks. The PSC module can obtain the current time via the IP address entered here.

All amended values must be saved by clicking on the [**Einstellungen speichern**] button.

The **software version** with **revision status** can be found below the input mask.

If settings have been amended and saved, the PSC will automatically restart (reboot) with the new settings.



The screenshot shows the LANCIER Monitoring PSC interface. The main heading is "Reboot In Progress...". Below it, a message states: "Your settings were successfully saved, and the RM-Basic Module is now rebooting to configure itself with the new settings." A specific IP address is provided: "Your PSC Module is now located at: <http://10.0.0.125/>".

Under "Reconnection Instructions", there are two numbered points:

- 1. Did you change the hostname, IP or MAC address?**
It is necessary to clear the address caches in your web browser and OS. From the command prompt in Windows, enter "nbtstat -R" to clear the hostname cache, close your current web browser, open a new web browser, and then try to access the web address above.
- 2. Did you try the IP address?**
Try accessing the board directly at the IP address shown on the display. (ex: enter "http://192.168.5.23/" into your browser). If this fails, then the IP address you set is not reachable.

On the left side, there is a navigation menu with the following items: Übersicht, Datum/Uhr, Anlagentyp, Betriebsstunden, Netzwerkparameter, and Anlagenfehler Aufzeichnung. At the bottom left, contact information for LANCIER Monitoring GmbH is provided: Gustav-Stresemann-Weg 11, 48155 Muenster, Phone: +49 (0) 251 674 999-0, Fax: +49 (0) 251 674 999-99, email: mail@lancier-monitoring.de, and website: www.lancier-monitoring.de.

Menu item System error recording

Here, the last 16 system events can be read out in a list format.



The screenshot shows the LANCIER Monitoring PSC interface with the "Anlagenfehler Aufzeichnung" menu item selected. The main heading is "Anlagenfehler Aufzeichnung". Below it, a list of 16 system events is displayed, each with a unique error ID, date, time, and description.

The list of events is as follows:

- Err-008 - 02.07.2015 16:17:05 - Gesamtluftmenge nicht berechnet
- Err-004 - 02.07.2015 16:17:05 - Anlagenstatus Alarm
- Err-001 - 02.07.2015 16:17:05 - Neustart
- Err-051 - 02.07.2015 14:58:45 - Feuchteüberwachung ein
- Err-007 - 02.07.2015 14:58:36 - Gesamtluftmenge ok, 5716l/h
- Err-003 - 02.07.2015 14:55:53 - Anlagenstatus ok
- Err-004 - 02.07.2015 14:53:02 - Anlagenstatus Alarm
- Err-003 - 02.07.2015 14:53:01 - Anlagenstatus ok
- Err-050 - 02.07.2015 14:53:01 - Feuchteüberwachung aus
- Err-008 - 02.07.2015 14:53:01 - Gesamtluftmenge nicht berechnet
- Err-004 - 02.07.2015 14:53:01 - Anlagenstatus Alarm
- Err-001 - 02.07.2015 14:53:01 - Neustart
- Err-003 - 02.07.2015 14:52:54 - Anlagenstatus ok
- Err-050 - 02.07.2015 14:52:54 - Feuchteüberwachung aus
- Err-008 - 02.07.2015 14:52:54 - Gesamtluftmenge nicht berechnet

On the left side, the navigation menu is visible, with "Anlagenfehler Aufzeichnung" highlighted. The contact information for LANCIER Monitoring GmbH is also present at the bottom left: Gustav-Stresemann-Weg 11, 48155 Muenster, Phone: +49 (0) 251 674 999-0, Fax: +49 (0) 251 674 999-99, email: mail@lancier-monitoring.de, and website: www.lancier-monitoring.de.

Servicing

General comments

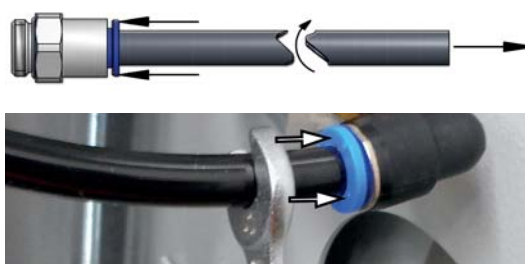
- Follow the maintenance guidelines and intervals accurately, so that the equipment stays in sound operating condition.
- The terms specified for maintenance intervals must be adhered to!
- **If necessary, observe the notes on the "maintenance required" of the PSC display (page 35).**
- Maintenance works may only be carried out by skilled personnel!
- Test air storage tank regularly in accordance with the regulation on pressure tanks!
- Allow system testing to be carried out regularly in accordance with DIN/VDE 0701/0702, BGV A2 (this testing can also be commissioned at LANCIER-Monitoring).
- Only use original LANCIER Monitoring replacement parts!
- After maintenance works tighten all loosened screw joints again!
- The individual operating elements (**figures in brackets**) are described in full in the preceding chapters and are no longer illustrated here.

Handling of the plug connections for pneumatic hoses

Disconnect

- To release the pressureless hose, press the blue pressure ring against the coupling and pull the hose out of the coupling with a slight twisting motion.

Tip: The use of a suitable open-end wrench makes it easier to press down the blue pressure ring.



Establish connection

- Insert the angled hose into the coupling as far as it will go.
- Check the tight fit of the pneumatic hose by pulling briefly.



Recommended maintenance every 2000 hours of operation or annually



Deadly risk!

Working on open, live equipment!

- Do not operate the equipment with damp hands!
- Caution: live components!

1. Interrupt signal output

to avoid the forwarding of fault signalisation effected by servicing works

- Press button [**Wartung**] in the PSC display (14).
- Button [**Wartung**] is highlighted in orange.

2. Before servicing

- Open cabinet door.
- Close shut-off valve (9).

3. Test and if necessary set cable pressure

- he procedure is described in detail on **page 27**.

4. Test the multi-sensor (36) switching point

- The procedure is described in detail on **page 27**.

5. If the cooling fins are dirty, blow out the cooler (23) with compressed air.



6. Clean air intake filter of the compressor (18)



Deadly risk!

Switch off the operating voltage at the external main switch and secure it against being switched on again unintentionally !!



Risk of injury!

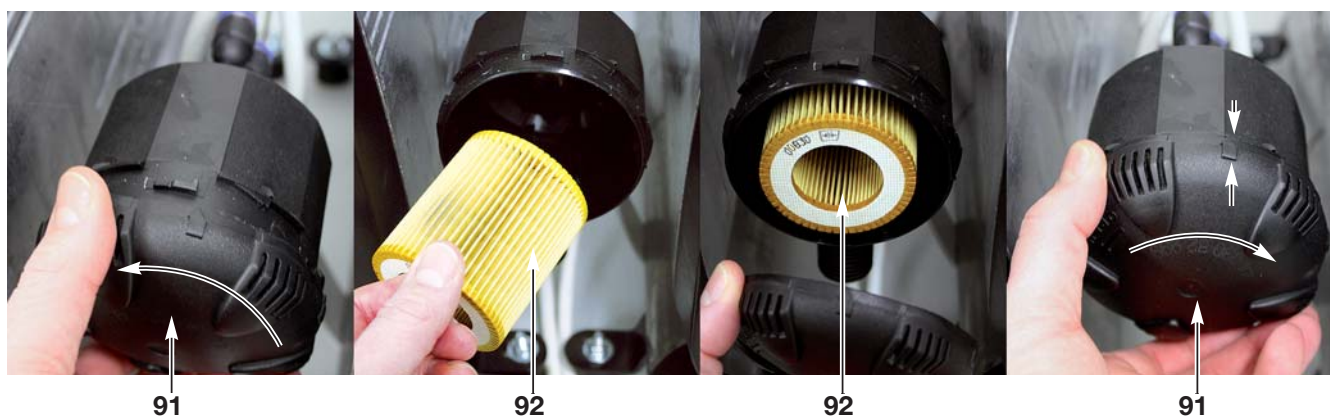
Caution with heated components!



Risk of injury!

Wear protective goggles when blowing out devices.

- Turn and pull filter cap (91) to the left (anti-clockwise).
- Pull out filter cartridge (92) and then blow with pressurised air or beat it.
- Renew filter cartridge (92) in the case of heavy contamination.
- Insert filter cartridge (92).
- Put on filter cap (91) and turn right (clockwise).
- Carry out maintenance works on the other air intake filter.



7. Start up equipment again

- Switch on operating voltage.
- Open shut-off valve (9).
- Close cabinet door.

8. Measure humidity of air

- e. g. with psychrometer or digital humidity and temperature analyser DFP (order no.:072773.000)

9. Activate the signal output again

- Press button [**Wartung**] in the PSC display (14) .
- The button [**Wartung**] i button is highlighted in **blue** again.



Recommended maintenance every 4000 hours of operation or every 2 years

1. Carry out maintenance "2000 operating hours"

- see page 46 and 47, **work step 1. to 6.**
- **Do not** restart equipment.



Deadly risk!

Switch off the operating voltage at the external main switch and secure it against being switched on again unintentionally !!



Risk of injury!

Prior to operation, depressurise the equipment by opening the safety valve "high pressure" (25)!



Risk of injury!

Wear safety glasses.

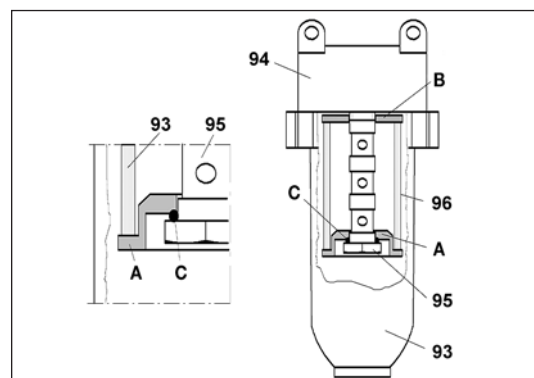
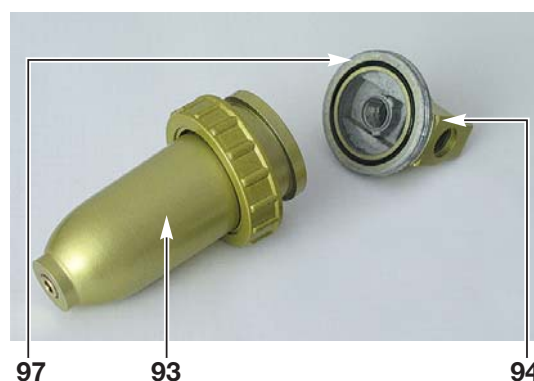


Risk of injury!

Take caution with heated components!

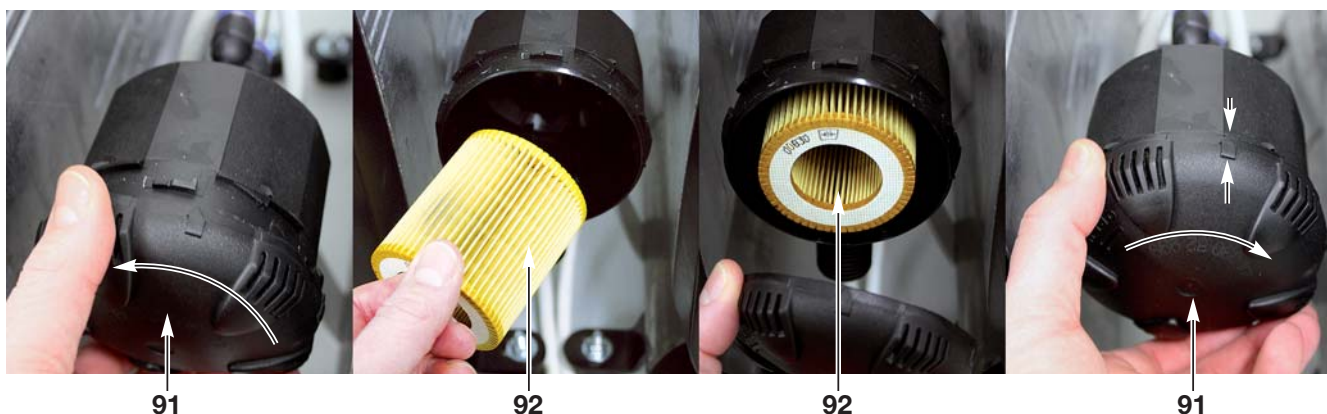
2. Change micro filter element (96) of micro filter (33)

- Detach micro filter:
Remove filter cup (93) by loosening the connecting nut from the filter head (94).
- Unfasten hollow grub screw (95) with micro filter element (96).
- Remove micro filter element (96) and replace with new one.
- Clean seals (97), (A), (B) and (C), if necessary replace worn seals.
- Cover hollow grub screw (95) with O-ring (C) and then with seal (A).
- Screw hollow grub screw (95) together with micro filter element (96) and seal (B) again into the filter head (94).
- Clean filter cup (93), keep dust-free.
- Attach filter cup (93) by tightening the connecting nut on the filter head (94).



3. Change the air intake filter of the compressors

- Turn and pull filter cap (91) to the left (anti-clockwise).
- Pull out filter cartridge (92) and then blow with pressurised air or beat it.
- Renew filter cartridge (92) in the case of heavy contamination.
- Insert filter cartridge (92).
- Put on filter cap (91) and turn right (clockwise).
- Carry out maintenance works on the other air intake filter.



4. Servicing air dryer

4.1 Unscrew drying agent container (26)

- Unscrew all hose lines from the drying agent containers (26). Note the hose affiliation for reassembly.
 - Pull out the coil connector of the solenoid valve (32).
 - Unscrew upper assembly bracket (99) with the drying agent containers (26) and take both out.
- Service kit "dryer":** LANCIER order no.: 074669.000



4.2 Disassemble drying agent container



Risk of injury!

Do not touch the drying agent with wet hands, heat build-up!

- Unscrew nuts (D) of upper cover (E).
- Place drying agent container on the head.
- Remove lower cover (F) with the mounting bolts (G) from the cylinder tube (H).
- Pour out drying agent (I).
- Remove upper cover (E) from the cylinder tube (H) and take out pressure spring (J).
- Press out upper filter disc (K) with sealing ring (L).
- Take out o-rings (M), PE sealing rings (N) and filter cone (O) from the covers.



Note for disposal!

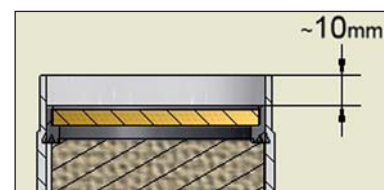
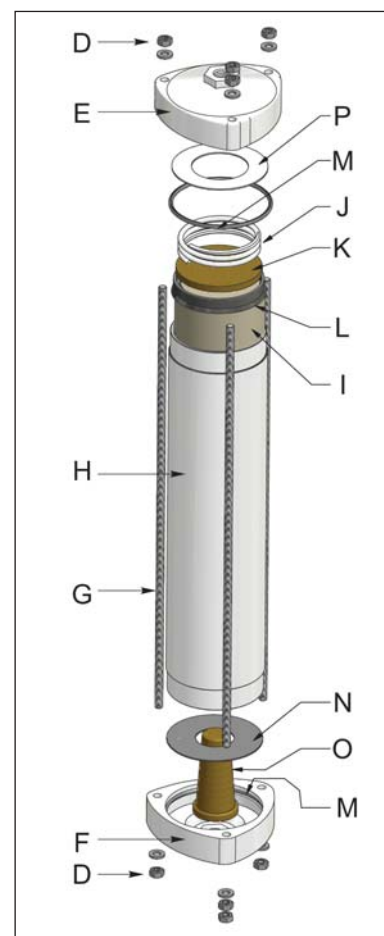
Dispose of used drying agents in accordance with the regulations applicable in the country and site of use.
EAK code: 060 899

4.3 Clean drying agent container

- Dry clean all parts
- Replace worn o-rings (M).
- Replace filter discs (K) and filter cone (O).
- Replace worn sealing rings (L) and (N).

4.4 Assemble drying agent container

- Insert new filter cone (O), PE sealing rings (N) and O-rings (M) in the over cover (F).
- Put cylinder tube (H) on the lower cover (F).
- Pour in new drying agent (molecular sieve) (I): approx. 1500 g per drying agent container. Tap lightly on the cylinder tube with the shaft of a hammer, to avoid cavity formation.
- Insert new filter disc (K) with lubricated sealing ring (L) in the cylinder tube (H) and stand back from about 10mm (see fig.).
- Place pressure spring (J) on the filter disc (K).
- Place PE sealing ring (N) and O-ring (M) in the upper cover (E).
- Insert upper cover (E) on the cylinder tube (H) and tighten with the nuts (D) as much as possible.



4.5 Check solenoid valves

Check solenoid valves for proper operation and replace them at least after 8000 operational hours.

Service kit for 5 solenoid valves: LANCIER order no.:075462.000

4.6 Remount drying agent container

- Insert the stud bolts of the drying agent container (26) into the mounting holes of the upper mounting bracket remaining in the system .
- Screw the mounting bracket (99) with the drying agent container (26) back onto the rear wall of the cabinet.
- Screw all hose lines again onto the drying agent containers (26) and put the coil plug back onto the solenoid valves (32).

5. Servicing micro filter

5.1 Change micro filter element (96) of micro filter (33) see page 48.



Important!

After mounting, reset pressure limiting valve correctly (see page 28)!



6. Cyclone water separator

- Remove connecting hoses and connecting cable of solenoid valve (118).
- Dismantle assembly bracket with the cyclone water separator (116) and take both out.
- Disassemble cyclone water separator (116).
- Clean cyclone water separator (116) and check for residues
 - especially at air intake (To do this, dismantle the screw connection bracket and then fasten it again if necessary).
- Replace O-rings and grease them slightly.
- Re-assemble cyclone water separator(116).
- Re-mount cyclone water separator(116) with assembly bracket into the system.
- Replace worn out braking element if necessary.
- Re-connect connecting hoses and solenoid valve (118) and check for switching ability.



116 118

For the following operation start up the equipment again:

- Connecting hose (4) is disconnected from air consumer.
- Close shut-off valve (9).
- Connect power supply.
- Turn motor protective switch (5) to „I“.

8. Function testing

Carry out function testing, see pages 26 - 31.

9. Test impermeability

Test all hose connections of the whole system for impermeability.

10. Reset the maintenance counter for the compressor and air dryer in the PSC display (see page 39, "Operation of the [Service] button)

11. After maintenance

- If necessary, re-establish connection to consumer load and open shut-off valve (9).
- Close door.

12. Start up equipment again

- Switch on operating voltage.
- Open shut-off valve (9).
- Close cabinet door.

13. Measure humidity of air

- e. g. with psychrometer or digital humidity and temperature analyser DFP (order no.:072773.000)

14. Activate the signal output again

- Press button [**Wartung**] in the PSC display (14) .
- The button [**Wartung**] i button is highlighted in **blue** again.



Causes and remedy of faults

Signal		Fault	
A measured value without meaningful content appears in the PSC display (14): "----".		The PSC does not receive any usable sensor signals.	
Possible Cause	Remedy		
The sensor associated with the measured value is incorrectly connected.	Check cabling and repair if necessary.		
The sensor associated with the measured value is defective.	Replace sensor.		
Signal		Fault	
The status LED (15) of the PSC display (14) is off. The PSC display (14) is dark and does not respond to touch.		The system does not receive any AC voltage.	
Possible Cause	Remedy		
Plug (3) is not plugged in, main switch (5) is switched off.	Insert plug (3), switch on main switch (5).		
One of the pre-fuses or FI has tripped.	Check fuse and fault protection switch (FI), repair if necessary.		
Error in the wiring of the AC power supply line.	Check the cabling of the supply line and repair if necessary.		
PSC supply voltage (24 V) is interrupted.	Check 16 A backup fuse and external connections. Check the cabling of the internal power supply unit, if necessary replace the defective power supply unit.		
PSC display wiring is faulty.	Check connection cable between PSC control and PSC display.		
PSC display is defective.	Replace PSC display.		
PSC control module is defective.	Replace PSC control module.		

Signal		Fault	
<p>The status LED (15) of the PSC display (14) flashes red and the value for the dew point is above -20 ° C.</p> <p>The fields "Air dryer", "Boiler" and "Air distribution" are highlighted in red.</p> <p>If the dryer symbol is pressed, the pop-up window appears with the message "Dew point error".</p> <p>After pressing again, the measurement data of the dryer appear.</p>		<p>The dew point of -20 ° C has been exceeded.</p>	
Possible Cause		Remedy	
Maintenance of the (26) air dryer has not been carried out.	Perform maintenance of the air dryer (26) (Page 49).		
The pressure limiting valve (34) is incorrectly set or defective.	Set the pressure limiting valve (34) correctly (Page 28), replace if necessary.		
The nozzles of the double check valve (35) are dirty.	Check the regeneration air volume, clean or replace the nozzles if necessary.		
The piston of the double check valve (35) is stuck.	Perform maintenance of the double check valve (35), replace if necessary.		
The solenoid valves (32) of the air dryer are not electrically activated or at the wrong time.	<p>Check cycle times (Page 31).</p> <p>Observe solenoid valves Y1 and Y2 (32), check wiring and coil connectors of the solenoid valves.</p> <p>Note: Valves and compressors can be switched separately in the diagnostic mode of the PSC display (Page 40).</p>		
The coils of the solenoid valves (32) are defective or their membranes are worn.	<p>Check solenoid valves and replace if necessary.</p> <p>Note: Valves and compressors can be switched separately in the diagnostic mode of the PSC display (Page 40).</p>		
For systems with an optional cyclone water separator:	Clean the cyclone water separator (116) (Page 50).		
The water separator (116) is dirty, the solenoid valve (118) of the separator is not working properly.	<p>Check wiring, coil connector and solenoid valve (118) of the water separator (116), replace solenoid valve if necessary.</p> <p>Note: Valves and compressors can be switched separately in the diagnostic mode of the PSC display (Page 40).</p>		
Regeneration air cannot flow out unhindered.	<p>Check the regeneration air hose for kinks or bruises.</p> <p>Quick-release couplings or grommet on the condensate container are clogged.</p>		

Signal		Fault	
<p>The status LED (15) of the PSC display (14) flashes red and the value for the dew point is above -20 ° C.</p> <p>The fields "Air dryer", "Boiler" and "Air distribution" are highlighted in red.</p> <p>If the dryer symbol is pressed, the pop-up window appears with the message "Dew point error".</p> <p>After pressing again, the measurement data of the dryer appear.</p>		<p>Only "---" appears as a measured value for dew point, tank pressure, tank temperature and tank humidity.</p>	
Possible Cause		Remedy	
The multi-sensor (37) does not provide realistic measured values	Check wiring of multisensor (37) and replace if necessary.		

Signal	Fault
<p>The status LED (15) of the PSC display (14) lights up green.</p> <p>The "Compressor" field is highlighted orange.</p> <p>If the compressor symbol is pressed, the pop-up window appears with the message "Runtime error".</p> <p>After pressing it again, the measurement data of the compressors appear successively.</p>	<p>The compressor run time is atypically long.</p> <p>The warning only goes out again when the switch-off pressure of the compressors is reached.</p>
Possible Cause	Remedy
The system is leaking.	Check hoses and screw connections for leaks.
The compressor performance is insufficient.	Check fans and ventilation channels, check compressors and replace if necessary.
Switching pressure of the multi-sensor (37) is incorrect.	Check cut-off pressure (Page 27), replace multi-sensor if necessary.
The safety valve "Compressor" (24) vents early.	Check opening pressure, replace defective safety valve if necessary.
The safety valve "High pressure" (25) vents.	Check hose lines for kinks and cooler (26) for blockages.
The set cable pressure is too high.	Close the safety valve (25), replace defective safety valve if necessary.
The safety valve "cable pressure" (29) vents.	Set the pressure reducer (7) (Page 27).
Solenoid valves of the dryer (32) do not close properly (membrane is broken).	Close the safety valve (29), replace defective safety valve if necessary.
Solenoid valve Y8 of the water separator (option) does not close properly (membrane is broken)	Check solenoid valves (32), replace if necessary.
Double check valve (35) is dirty or stuck.	Note: Valves and compressors can be switched separately in the diagnostic mode of the PSC display (Page 40).
The "output air" nozzle (27) is incorrectly adjusted.	Check the solenoid valve, replace if necessary (while the compressor is in operation, no air may escape from the hose from the solenoid valve (Y8) to the condensate surge tank).
The pressure limiting valve (34) is defective.	Note: Valves and compressors can be switched separately in the diagnostic mode of the PSC display (Page 40).
The motor protection switch (5) of a compressor has tripped.	Clean the double check valve (35).
The electrical connection of the compressor (18) is faulty.	Check nozzle, replace if necessary
One of the two compressors is no longer performing.	Replace pressure limiting valve (34).
	Compressor gets too hot: Check ventilation routes. Check compressor pressure.
	If the compressor bearing is damaged: replace the compressor. Set the motor protection switch (5) correctly: 6.0
	Check electrical compressor connection. Check the line coupling of the compressor feed line.
	Check the cabling of the compressors, check the compressors for leaks and replace if necessary.

Signal		Fault
<p>The status LED (15) of the PSC display (14) lights up green.</p> <p>The "Compressor" field is highlighted orange.</p> <p>If the compressor symbol is pressed, the pop-up window appears with the message "Pressure error".</p> <p>After pressing again, the measurement data of the compressors appear.</p>		<p>The typical compressor pressure is exceeded.</p> <p>Note:</p> <p>After commissioning the system, it can take two compressor running cycles until the pressure is built up correctly and realistic values are measured.</p> <p>In this case, no error remedy is required.</p>
Possible Cause	Remedy	
Compressor pressure is impermissibly high (it must not exceed 8.0 bar).	Set the pressure limiting valve (34) correctly (Page 28), replace if necessary.	
Solenoid valves (32) are defective.	Check solenoid valves (32) for perfect function and replace if necessary. Note: Valves and compressors can be switched separately in the diagnostic mode of the PSC display (Page 40).	
Double check valve (35) is dirty or stuck.	Check the double check valve (35) for clogging and replace if necessary.	
On and off switching values of the compressors (18) are not correct.	Check the on / off switching values (3 - 5 bar) of the compressors (Page 27).	
The cooler (23) is blocked.	Check the cooler (23) for pneumatic continuity.	
The micro filter (33) is blocked.	Check micro filter (33) for clogging (Page 48) and clean if necessary.	
The pneumatic resistance of the dryer (26) is too high.	The dryer (26) is clogged and needs servicing (Page 49).	
Hose lines blocked or kinked.	Check hoses for blockages and kinks, correct faults if necessary.	

Signal		Fault
<p>The status LED (15) of the PSC display (14) lights up green.</p> <p>The "Compressor" field is highlighted orange.</p> <p>If the compressor symbol is pressed, the pop-up window appears with the message "Temperature error".</p> <p>After pressing it again, the measurement data of the compressors appear one after the other.</p>		<p>The typical temperature at the compressor head or at the pressure outlet of the compressor (18) is exceeded.</p>
Possible Cause	Remedy	
Ventilation openings are closed.	Check ventilation grille for blockages, clean if necessary.	
Fan (22) does not work.	Clean fans (22) and ventilation grille. Check fan functions, repair if necessary. Note: The fans can be switched in the diagnostic mode of the PSC display (Page 40).	
The temperature sensor delivers incorrect values.	Check cabling, line coupling and switching relay K22 of the fans (22). Check sensor and replace if necessary.	

Signal		Fault
<p>The status LED (15) of the PSC display (14) lights up green.</p> <p>The "Compressor" field is highlighted orange. If the compressor symbol is pressed, the pop-up window appears with the message "Error compressor 1" and / or "Error compressor 2" with the subsequent message "Temperature sensor".</p>		<p>The fans (22/120) of the compressors (18) and the air cooler (23) run permanently.</p>
Possible Cause	Remedy	
The wiring or assembly of one or both temperature sensors (39) is faulty.	Check that the temperature sensors (39) on the compressor head (18) are correctly installed and firmly seated and repair if necessary.	

Signal		Fault	
<p>The status LED (15) of the PSC display (14) lights up green.</p> <p>The "Air distribution" field is highlighted orange. If the air distribution symbol is pressed, the pop-up window appears with the message "Air volume error".</p> <p>After pressing it again, the measurement data for the air distribution appear.</p>		<p>The total amount of air that the system can deliver has been exceeded.</p> <p>Note:</p> <p>After starting up the system or quickly manually opening the safety valve "high pressure" (25), it can take two compressor running cycles until the pressure is built up correctly and realistic values are measured.</p> <p>In this case, no error remedy is required.</p>	
Possible Cause		Remedy	
Cable pressure is incorrectly set or defective.	Check cable pressure reducer (7) and adjust if necessary (Page 27)		
Safety valve "Cable pressure" (29) is leaking or opens too early.	Check the safety valve "cable pressure" (29) and replace if necessary.		
Hose lines or screw connections are leaking.	Check hose lines and screw connections for leaks.		

What to do after "humidity fault"?

The PSC (73) has switched off the compressor (18), the humidity of the output air is impermissibly high.

Search for faults, remedy faults

1. Shut down operation

- Open cabinet door.
- Switch off the operating voltage at the external main switch and secure it against being switched on again unintentionally !!
- If necessary, press the [**Wartung**] button in the PSC display to suppress the signal forwarding.
*In this case, the [**Wartung**] button has an **orange** background.*
- Depressurise equipment!
 - Open safety valve "high pressure" (25) for this.
- Close safety valve "high pressure" (25).

2. Search for and remedy faults

Proceed according to the table "Causes and remedying of faults" from page 59.

*The status LED of the PSC display flashes **red**. The background of the three fields "dryer", tank "and" air outlet "are highlighted in **red**.*

The value for the dew point has risen above -20 °C.

3. Restart equipment and allow to run dry



Deadly risk!

**Do not operate the equipment with damp hands!
Caution with live components!**



Risk of injury!

Caution with heated components!

Normal mode

- Switch on operating voltage.
- Wait until the equipment is charged.
 - *The compressor switches off at 5.0 bar.*
- Open shut-off valve (9) and if necessary, shut-off valves (option) of pressurised air consumer,
 - *the compressor automatically switches on and off when reaching the lower and upper pressure values.*
- If necessary, press the [Maintenance] button in the PSC display to reactivate signal transmission.
*The [**Wartung**] button is then highlighted in **light blue** again.*



Caution!

If at least one of the values for "dew point", "tank pressure" or "tank temperature" is only shown with dashes "---" in the PSC display, there is a cabling error or a defect in the multi-sensor
- check cabling and replace the multi-sensor if necessary.

If the compressor fails to start, allow the equipment to "run dry":



Risk of death!

The buttons on the PSC control module may only be operated by a qualified electrician. Other operators must use the buttons on the PSC display.

- Open safety valve "high pressure" (25).
- Press button [F off] in the PSC display.
- The compressors start.
- The button [F off] in the PSC display is highlighted in **red**
= no humidity monitoring.



25

After a while

- The system fields dryer, boiler and air distributor of the system status are **no longer highlighted in red** = the compressed air is dry.
- The [F off] button in the PSC display is still highlighted in **red**
= no humidity monitoring.



Warning!

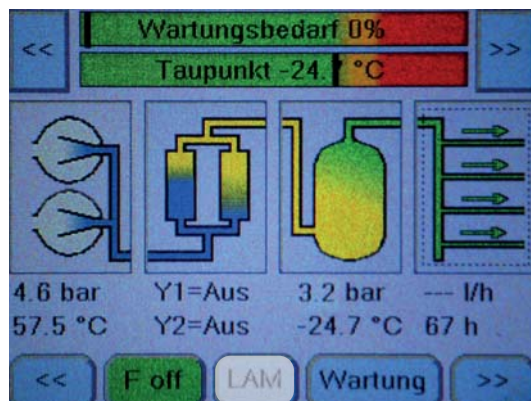
The [F off] key deactivates the electronic humidity monitoring.

It may only be operated if there is a fault, the "high pressure" safety valve (25) is open and the shut-off valve (9) to the consumers is closed.

The electronic humidity monitoring must be reactivated immediately after trouble-shooting in order to ensure proper function of the pressurisation equipment.

In order to get immediate humidity monitoring, the "F off" operation must be overridden:

- Press button [F off] in the PSC display.
- The [F off] button in the PSC display (14) is now highlighted in **green**.
= humidity monitoring is active.
- Close safety valve "high pressure" (25).
- Then carry out function testing.

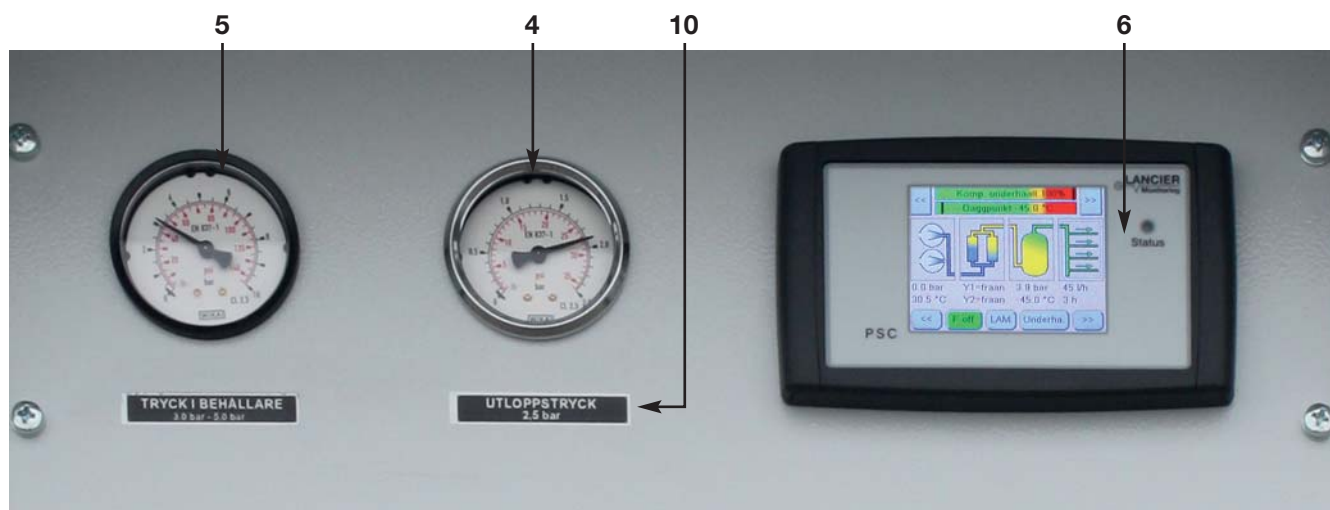
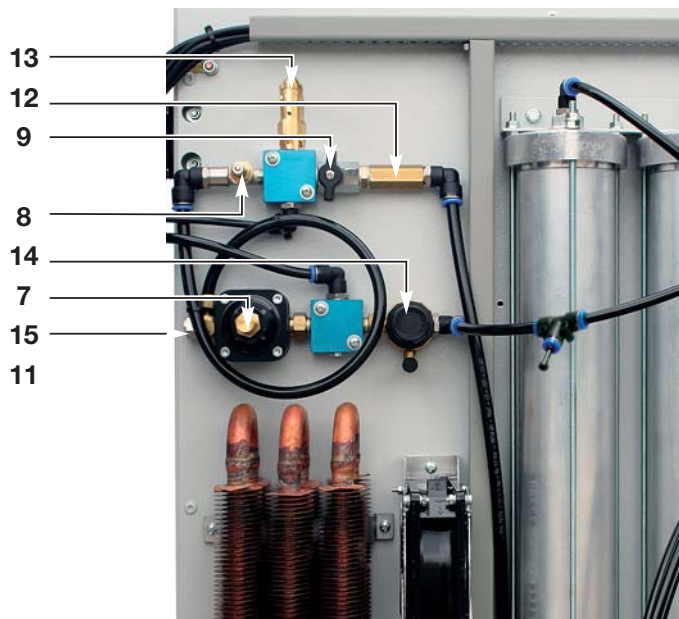


The humidity monitoring activates itself automatically after approx. 2 operating hours of the compressors, if the „F off“ operation is not determined manually.

Replacement parts

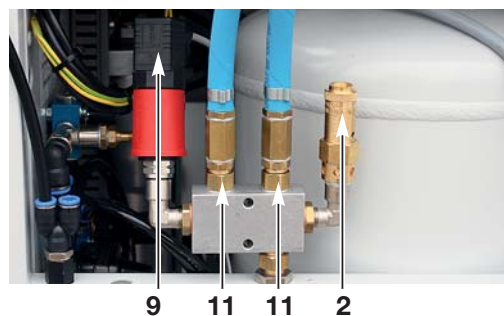
Display, operation

Item	Name	Order no.
0	4000 h Service package for air dryer (without solenoid valves)	074669.000
1	4000 h Service package for 2 compressors	075460.000
2	4000 h Service package for solenoid valves for air dryers and cyclone water separator	075462.000
3	Replacement air dryer (2 drying agent container + 4 solenoid valves + double non-return valve with micro filter)	075240.000
4	Manometer 0 - 2.5 bar	051205.000
5	Manometer 0 - 10 bar	048965.000
6	PSC-Display	075000.024
7	Pressure reducer	023385.000
8	Testing valve "cable pressure"	027708.000
9	Shut-off valve	049314.000
10	Label replacement GB compl.	073282.000
11	Multisensor	074986.000
12	Non-return valve	053093.000
13	Safety valve "cable pressure", 2.5 bar (when ordering replacement part specify cable pressure!)	075505.000
14	Pressure limiting valve	029048.000
15	Nozzle - output air (when ordering replacement part specify pressurisation system!)	024333.000
16	Door lock (no illustration)	020736.E00



Item	Name	Order no.
1	Rubber/metal oscillating buffer	016356.000
2	Safety valve "compressor", 8.0 bar	028000.000
3	Fan	110090.000
4	Cooler for compressor air	020076.000
5	Safety valve "high pressure" 7.0 bar	023791.000
6	Micro filter compl.	057411.000
7	Solenoid valve 3/2 way (when ordering replacement part specify voltage and frequency!)	019538.000
8	Double non-return valve	074661.000
9	Sensor compressor pressure	073153.000
10	Sensor compressor temperature	073155.024
11	Backpressure valve compressor	022075.000
12	PE hose 6/4	006827.000
13	PA hose 8/6	018499.000

The components on this page marked with "*" are an integral part of the service package named on page 58.



Double non-return valve

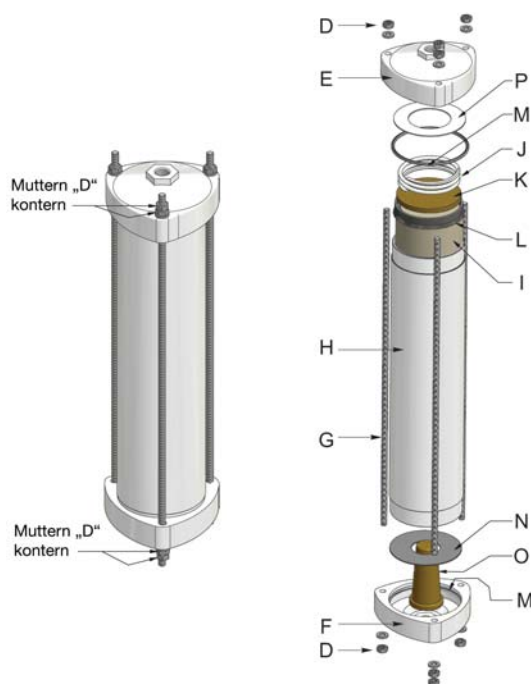
Item Name		Order no.
Double non-return valve compl.	RT-UG 10000-PSC	074661.000



Drying agent container

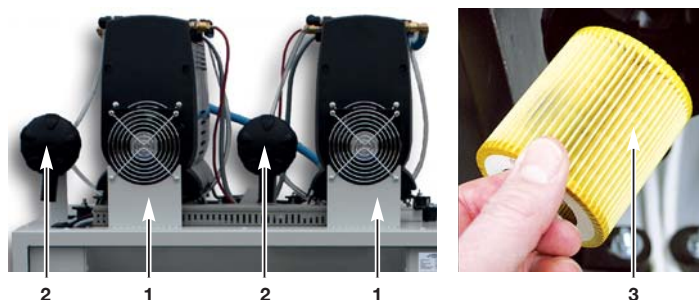
Item Name		Order no.
1 Drying agent container compl.		074668.000
I* Molecular sieve for 2 drying agent containers 2.25 kg + 1.00 kg		064786.000 + 022528.000
K* Upper filter disc		056714.000
L* Sealing ring for upper filter disc		056715.000
M O ring		002792.000
N* Bottom sealing ring		017260.000
O* Bottom filter cone		017259.000
P* Upper sealing ring		004173.000

The components on this page marked with "*" are an integral part of the service package named on page 58.



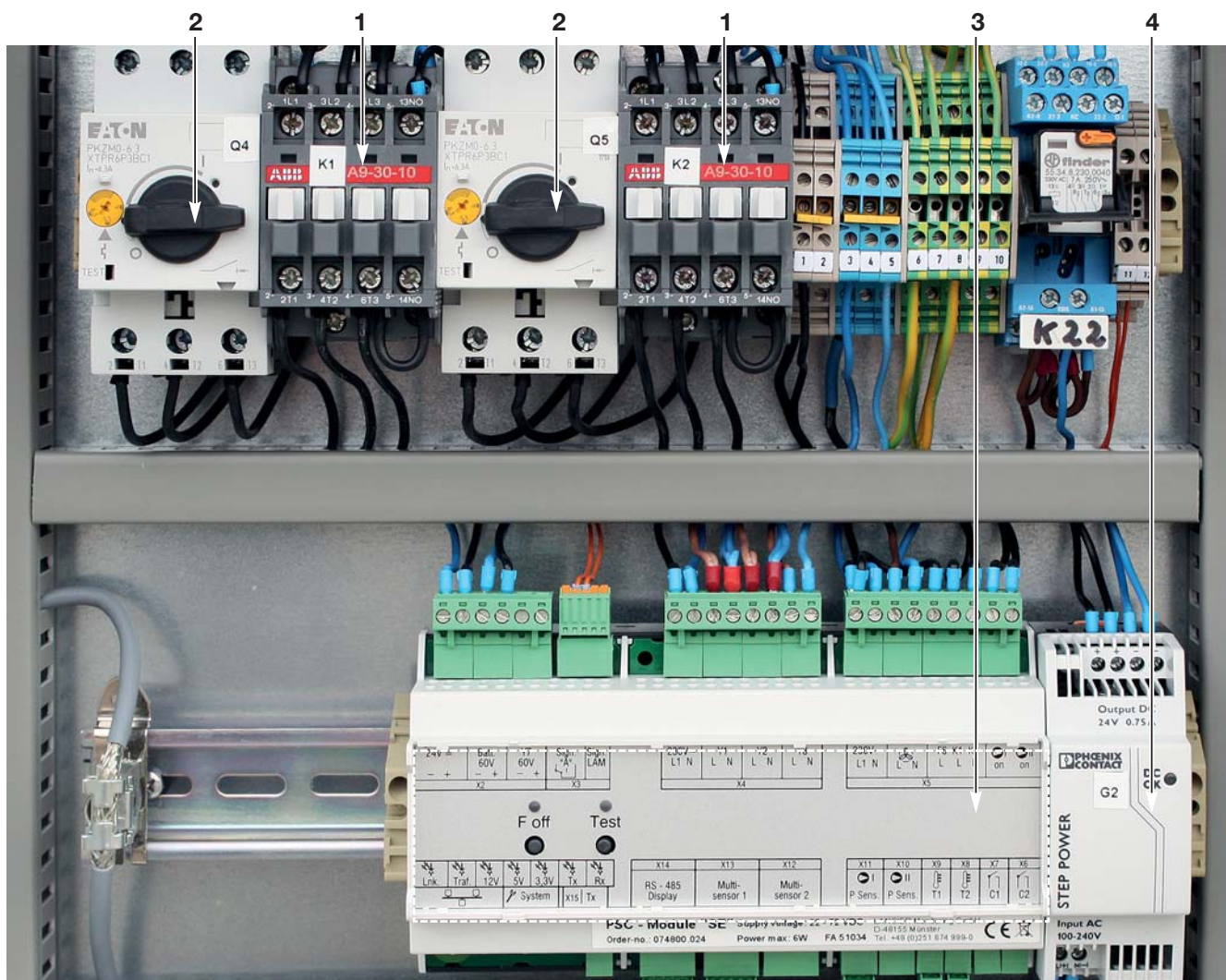
Compressor

Item Name		Order no.
1 Compressor type OF 1202 kompl. with ventilation grille		075487.000
2 Air intake filter complete		073871.000
3 Filter cartridge		073872.000



Electrics

Item	Name	Order no.
1	Motor contactor / switch [K1] and [K2]	073610.000
2	Motor protective switch [Q4] and [Q5]	067952.000
3	PSC control module	074800.024
4	Power pack 230 V AC/24 DC	074009.000

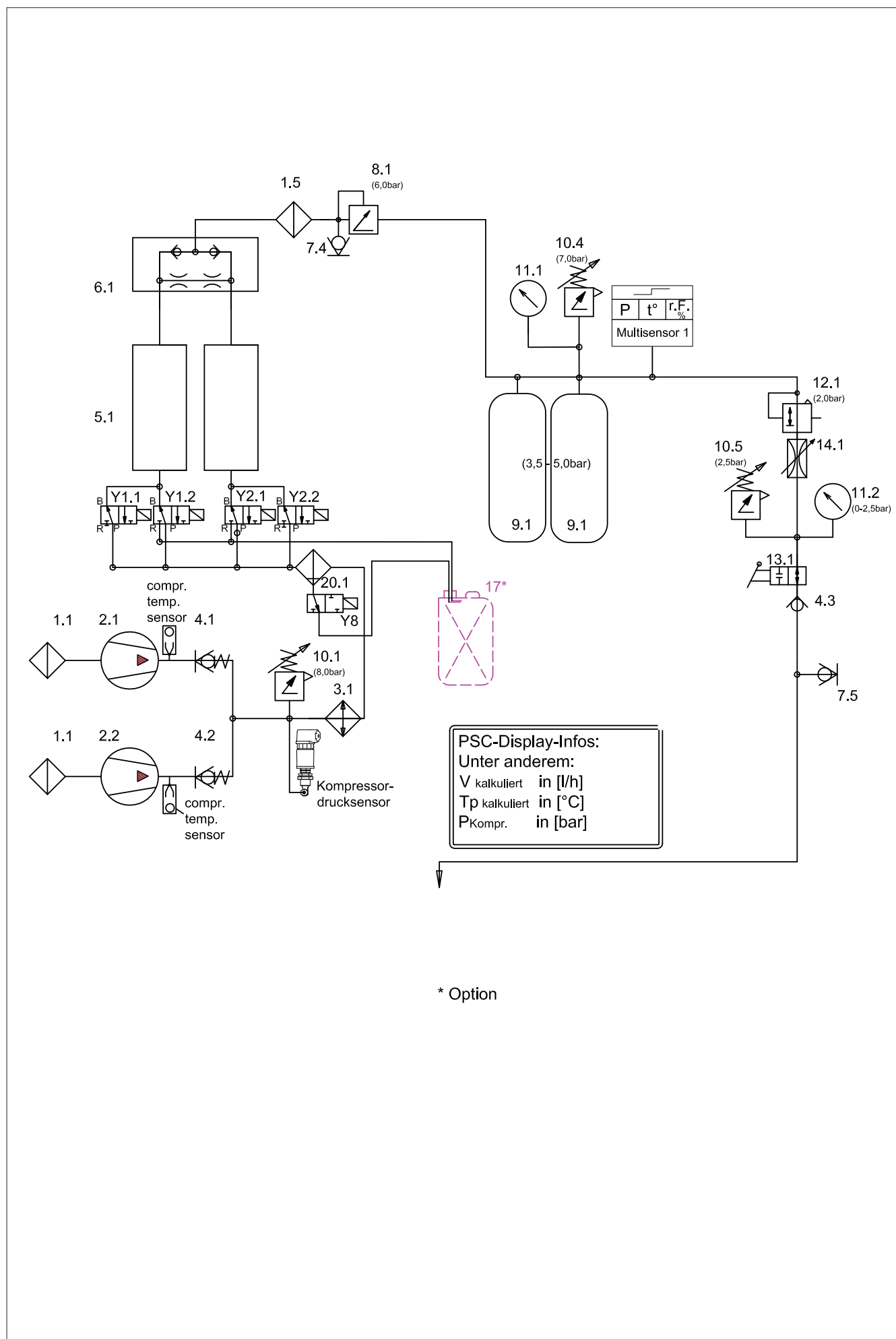


Plans

Equipment lists pneumatics RT-UG 10000-PSC

- | | |
|---|--|
| 1.1 Intake filter 1 | 12.1 Pressure reducer "Cable pressure" 1 |
| 1.2 Intake filter 2 | 12.2 Pressure reducer "Cable pressure" 2 |
| 1.3 Intake filter 3 | 12.3 Pressure reducer "Interim pressure" |
| 1.5 Micro filter 1 | |
| 1.6 Micro filter 2 | 13.1 Shut-off valve "Cable pressure" 1 |
| | 13.2 Shut-off valve "Cable pressure" 2 |
| 2.1 Compressor 1 | 13.3 Shut-off valve "High-pressure" |
| 2.2 Compressor 2 | 13.4 Shut-off valve "Kondensat" |
| 2.3 Compressor 3 | 13.5 3/2 way mini valve 1 |
| 2.4 Compressor with I.C.-engine | 13.6 3/2 way mini valve 2 |
| | 13.7 Shut-off valve "Interim pressure" |
| | 13.8 Shut-off valve of cable connection |
| 3.1 Cooling coil 1 | |
| 3.2 Cooling coil 2 | 14.1 Nozzle - output air „cable pressure“ 1 |
| 3.3 Cooling coil 3 | 14.2 Nozzle - output air „cable pressure“ 2 |
| | 14.3 Nozzle - output air „high-pressure“ |
| 4.1 Non-return valve 1 | 14.4 Pneumatic resistor |
| 4.2 Non-return valve 2 | 14.5 Injector "Aeration" |
| 4.3 Non-return valve 3 | |
| | 15.1 Total air flow meter "Cable pressure" (1) |
| 5.1 Drying agent container - Dryer 1 | 15.2 Air flow meter |
| 5.2 Drying agent container - Dryer 2 | 15.3 Air flow meter regenerated air |
| 5.3 Drying agent container - Dryer 3 | |
| | 16.1 Inspection glass |
| 6.1 Double non-return valve 1 | |
| 6.2 Double non-return valve 2 | 17 Condensate surge tank |
| 6.3 Double non-return valve 3 | |
| | 18.1 Hose coupling "Cable pressure" |
| 7.1 Testing valve "cable pressure" 1 | 18.2 Hose coupling "High-pressure" |
| 7.2 Testing valve "cable pressure" 2 | 18.3 Connection "Double equipment" |
| 7.3 Flange of test manometer | 18.4 Connection "Pressure transducer" 1 |
| | 18.5 Connection "Pressure transducer" 2 |
| 8.1 Pressure limiting valve 1 | 18.6 Connection "Test manometer" |
| 8.2 Pressure limiting valve 2 | |
| 8.3 Pressure limiting valve 3 | 19.1 Connecting hose |
| | |
| 9.1 Air storage tank 1 | 20.1 Cyclone separator |
| 9.2 Air storage tank 2 | 20.2 Cyclone-, water- and oil separator |
| 9.3 Air storage tank 3 | |
| 9.4 Reserve air storage tank | 21.1 Distributing regulator |
| | |
| 10.1 Safety valve "compressor" 1 | 22.1 Charcoal filter |
| 10.2 Safety valve "compressor" 2 | 22.2 Adsorber |
| 10.3 Safety valve "compressor" 3 | |
| 10.4 Safety valve "high pressure" | |
| 10.5 Safety valve "cable pressure" 1 | |
| 10.6 Safety valve "cable pressure" 2 | |
| 10.7 Safety valve "Interim pressure" | |
| | |
| 11.1 Manometer "High-pressure" | |
| 11.2 Manometer "Cable pressure" 1 | |
| 11.3 Manometer "Cable pressure" 2 | |
| 11.4 Manometer "Interim pressure" | |
| 11.5 Contact manometer "High-pressure" | |
| 11.6 Contact manometer "Cable pressure" | |

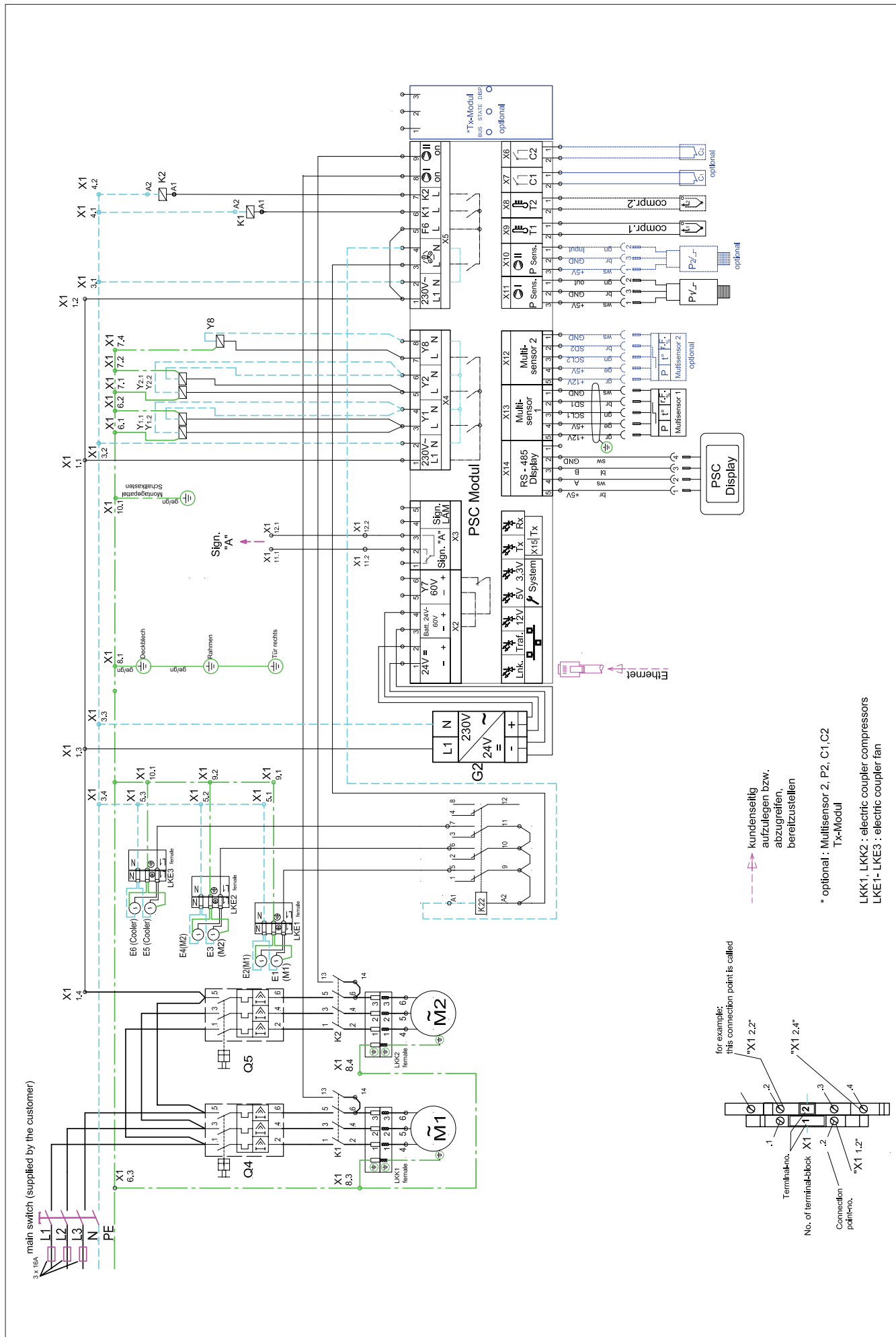
Pneumatics diagram RT-UG 10000-PSC, No. 075312.000



Equipment list electrics RT-UG 10000-PSC

A1	Humidity monitoring unit 1	M1	Motor - Compressor 1
A2	Humidity monitoring unit 2	M2	Motor - Compressor 2
A3	Humidity monitoring unit 3	M3	Motor - Compressor 3
A4	Control unit	M4	I.C.-engine
A5	Flow meter - Printed circuit board RT-UG	P1	Counter of operation hours - Compressor 1
A6	Flow meter - Integral part	P2	Counter of operation hours - Compressor 2
B1	Pressure switch "high pressure"	P3	Counter of operation hours - Compressor 3
B2	Pressure switch "Cable pressure (1) too low"	P4	Hygrometer 1
B3	Pressure switch "Cable pressure (1) too high"	P5	Hygrometer 2
B4	Pressure switch "Cable pressure 2 too low"	P6	Hygrometer 3
B5	Pressure switch "Cable pressure 2 too high"	P7	Counter of operation hours 1 with maintenance signal
B6	Pressure switch "Add compressor 2"	P8	Counter of operation hours 2 with maintenance signal
C1	Capacitor	P9	Counter of operation hours 3 with maintenance signal
E1	Fan 1	P10	Voltmeter
E2	Fan 2	Q1	Main switch AC
E3	Fan 3	Q2	Main switch DC
F1	Motor protective relay 1	Q3	Fused DC main switch DC
F2	Motor protective relay 2	Q4	Motor protective switch 1
F3	Motor protective relay 3	Q5	motor protective switch 2
F4	Thermal protection	Q6	motor protective switch 3
F6	Pressure monitor	S1	Programme switch 1
F7	Fuse	S2	Programme switch 2
F8	Overvoltage suppressor	S3	Programme switch 3
G1	Power pack 1	S4	Switch "F-aus" 1
G2	Power pack 2	S5	Switch "F-aus" 2
G3	Power pack 3	S6	Switch "F-aus" 3
G4	Battery	S7	Change-over switch
G5	Battery charger	S8	Door switch
G6	Bridge rectifier	S9	Key "W-Test"
H1	Signal-LED "AC"	V	Diode
H2	Signal-LED "DC"	X1	Connecting block 1
H3	Signal-LED "F"	X2	Connecting block 2
H4	Signal-LED "H"	X3	Connecting block 3
H5	Signal-LED "M"	X4	Connecting block 4
H6	Signal-LED "T"	X5	Connecting block 5
H7	Signal-LED "N" (or "N1")	X6	Power socket
H8	Signal-LED "N2"	Y1	3/2 way solenoid valve - Dryer 1
H9	Signal-LED "W"	Y2	3/2 way solenoid valve - Dryer 2
H10	Signal-LED "K" (or "K1")	Y3	4/2 way solenoid valve - Dryer 1
H11	Signal-LED "K2"	Y4	4/2 way solenoid valve - Dryer 2
H12	Signal-LED "G"	Y6	Humidity stop solenoid valve
H13	Signal-LED "A"	Y7	Non-return solenoid valve block
H14	Signal-LED "Fault"	Y8	Solenoid valve - Aeration
H15	Signal-LED "Signal interruption"		
K1	Contactor - Compressor 1		Short symbol for signals
K2	Contactor - Compressor 2	AC	= Operation AC
K3	Contactor - Compressor 3	DC	= Operation DC
K4	Power failure relay AC	F	= Humidity
K5	Signal relay "K"	H	= High-pressure
K6	Humidity detector relay 1	M	= Compressor failure
K7	Humidity detector relay 2	T	= Running time
K8	Humidity detector relay 3	N (or N1)	= Cable pressure (1)
K9	Time relay "Running time"	N2	= Cable pressure 2
K10	Signal relay "T"	W	= Maintenance
K11	Signal relay "A"	A	= Fault
K12	Signal relay "F"	G	= Cable filled
K13	Signal relay "M"	K (or K1)	= Cable fault (1)
K14	Signal relay "H"	K2	= Cable fault 2
K15	Signal relay "N"	S	= Fuse
K16	Time relay "8 min" 1	V	= Power failure AC
K17	Time relay "8 min" 2		
K18	Switch clock		
K19	Switching relay		
K20	Signal relay "W"		
K21	Time relay "Backlash"		
K22	Switching relay		
K23	Signal relay "V"		

Circuit and wiring diagram RT-UG 10000-PSC, No. 075496.024



* optional : Multisensor 2, P2, C1,C2 Tx-Modul

LKK1, LKK2 : electric coupler compressors
LKE1- LKE3 : electric coupler fan

for example:
this connection point is called

Terminalno. "X1 2,2"

No. of terminal-block "X1 2,4"

Connection pattern. "X1 1,2"

---> kundenseitig aufzulegen bzw. abzugreifen, bereitzustellen

Equipment list electrics RT-UG 10000-PSC

A1	Humidity monitoring unit 1	M1	Motor - Compressor 1
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A3	Humidity monitoring unit 3	M3	Motor - Compressor 3
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B4	Pressure switch "Cable pressure 2 too low"	P6	Hygrometer 3
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B6	Pressure switch "Add compressor 2"	P8	Counter of operation hours 2 with maintenance signal
C1	Capacitor	P9	Counter of operation hours 3 with maintenance signal
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F7	Fuse	S2	Programme switch 2
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G1	Power pack 1	S4	Switch "F-aus" 1
G2	Power pack 2	S5	Switch "F-aus" 2
G3	Power pack 3	S6	Switch "F-aus" 3
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G5	Battery charger	S8	Door switch
G6	Bridge rectifier	S9	Key "W-Test"
H1	Signal-LED "AC"	V	Diode
H2	Signal-LED "DC"	X1	Connecting block 1
H3	Signal-LED "F"	X2	Connecting block 2
H4	Signal-LED "H"	X3	Connecting block 3
H5	Signal-LED "M"	X4	Connecting block 4
H6	Signal-LED "T"	X5	Connecting block 5
H7	Signal-LED "N" (or "N1")	X6	Power socket
H8	Signal-LED "N2"	Y1	3/2 way solenoid valve - Dryer 1
H9	Signal-LED "W"	Y2	3/2 way solenoid valve - Dryer 2
H10	Signal-LED "K" (or "K1")	Y3	4/2 way solenoid valve - Dryer 1
H11	Signal-LED "K2"	Y4	4/2 way solenoid valve - Dryer 2
H12	Signal-LED "G"	Y6	Humidity stop solenoid valve
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K7	Humidity detector relay 2	T	= Running time
K8	Humidity detector relay 3	N (or N1)	= Cable pressure (1)
K9	Time relay "Running time"	N2	= Cable pressure 2
K10	Signal relay "T"	W	= Maintenance
K11	Signal relay "A"	A	= Fault
K12	Signal relay "F"	G	= Cable filled
K13	Signal relay "M"	K (or K1)	= Cable fault (1)
K14	Signal relay "H"	K2	= Cable fault 2
K15	Signal relay "N"	S	= Fuse
K16	Time relay "8 min" 1	V	= Power failure AC
K17	Time relay "8 min" 2		
K18	Switch clock		
K19	Switching relay		
K20	Signal relay "W"		
K21	Time relay "Backlash"		
K22	Switching relay		
K23	Signal relay "V"		

EC Declaration of Conformity

We declare under our sole responsibility, that the product

Make: LANCIER Monitoring
Type: Pressurisation System RT-UG 10000-PSC

to which this declaration refers, meets the relevant health and safety requirements of the following EC directives:

2006/42/EG	Machinery directive
2014/68/EU	Pressure tank directive
2014/35/EU	Low voltage directive
2014/30/EU	Electromagnetic compatibility

For proper implementation of the health and safety requirements named in the EC directives the following standard(s) and/or technical specification(s) have been consulted:

EN 12100-1 and 2	Machine safety
EN 60204-1	Electrical fittings of machines
EN 61000-6-1 and 2	Interference resistance (fault-free operation)
EN 61000-6-3 and 4	Emitted interference

Münster, 14.12.2021



Managing Director