LAUPER INSTRUMENTS JCP-300 Series JCT Gas Detection User Manual

Contents

LAUPER INSTRUMENTS JCP-300 Series JCT Gas Detection

Product Information

The JCP-300 and JCP-310 portable sample gas conditioning systems are designed to reduce the dew point of wet sample gases to enhance analysis results. These systems ensure reliable conditioning of sample gases, making analyzers highly available in continuous operation with low maintenance. The JCP-300/JCP-310 sample gas conditioning systems come in a modular design built into portable housing. The basic unit includes a heat exchanger and a condensate pump for drain.

PRODUCT Model Overview

The JCP-300 Series comes with the following features:

- Gas heat exchanger
- Cooling system
- Acid dosing pump
- Condensate removal system
- Filter element
- Sample gas pump
- Temperature display
- Flow meter with needle valve
- Condensate detection
- Stainless steel sample gas inlet
- Temperature controller for heated sample line

PRODUCT Technical Data

The JCP-300 Series has the following technical specifications:

- **Power supply:** 100-240 V AC, 50/60 Hz
- **Operating temperature range:** -10°C to +50°C

- **Dimensions:** 350 x 200 x 420 mm (W x H x D)
- **Weight:** 16 kg

Order Codes
The following order codes are available for the JCP-300 Series:

Model	Order Code
JCP-300	12345
JCP-310	67890

Installation Instructions

Follow the instructions below to install the JCP-300 Series:

1. Unpack the unit and check for any damages or missing parts.
2. Mount the unit in a suitable location, following the installation instructions included in the manual.
3. Connect the sample gas inlet to the source of the gas to be analyzed.
4. Connect the condensate drain to a suitable disposal system.
5. Perform a leakage test to ensure that all connections are secure.
6. Connect the electrical cables to a suitable power supply.

Usage Instructions

To use the JCP-300 Series, follow these steps:

1. Ensure that the unit is properly installed and connected to the sample gas source and power supply.
2. Press the power button to turn on the unit.
3. Set the desired temperature using the temperature controller for the heated sample line.
4. Monitor the temperature display to ensure that the temperature is at the desired level.
5. Start the analysis process using your analyzer.
6. Monitor the flow meter to ensure that the sample gas is flowing at the desired rate.
7. Perform regular maintenance as described in the manual to ensure optimal performance of the unit.
8. When finished, turn off the unit using the power button.

Introduction

JCP-300 and JCP-310 portable sample gas conditioning systems are used to reduce the dew point of wet sample gases. They ensure reliable conditioning of sample gases to enhance analysis results. Because water va-pours are suppressed, analyzers can be used in continuous operations with high availability at low maintenance. JCP-300 / JCP-310 sample gas conditioning systems are of modular design and built into a portable housing. The basic unit includes the heat exchanger and a condensate pump for drain. Proven modules are assembled into

various instrument versions:

- Filter element
- Condensate pump
- Sample gas pump
- Temperature display
- Flow meter with needle valve
- Condensate detection
- Stainless steel sample gas inlet
- Acid dosing
- Temperature controller for heated sample hose

General safety information
Sample gas coolers are sophisticated devices intended for use by qualified personnel only. It is necessary that this manual has been read and understood by those who will install, use and maintain this equipment. Operation of the sample gas cooler has to be done also according to the effective security regulations and rules for accident prevention. Nonobservance may lead to personal injury and or ma-terial damage. JCT does not take liability for non observance of security advices, rules and laws which are referenced in this manual. This includes installation, operation, maintenance and service and also if it is not written in this manual. JCT Analysentechnik GmbH is not responsible for arbi-trary changes on the device neither for inappropriate operation or use. If hazardous free operation of the module is not possible, the user must stop operation and prevent further use.

The reasons for putting the module out of order are:

- Unit is visibly damaged
- if the equipment does not work any longer
- incorrect storage under inappropriate conditions
- if the device has been subject to frequent moving

Intended use
The sample gas cooler is designed for use in gas analysis systems only. Please observe the technical specifications regarding ambient and supply conditions and admissible pressure and temperature limits. The unit is not suitable for operation in hazardous areas. The appliance may not be used for ignitable gas/air mixtures.

Model Overview

JCP-300 standard performance including JSR-25 condensate pump

Heat exchanger	JHEX-4 heat exchanger aluminium coated	1									
	JHEX-4 heat exchanger PVDF	2									
	JHEX-4 heat exchanger Duran glass	3									
	Heat exchanger SS-GLY (helical style)	5									
Filtration	without		0								
	fine dust filter JF-1		1								
Sample gas pump	without			0							
	sample gas pump JSP			1							
Flow meter with needle valve	without				0						
	flow meter with needle valve				1						
Condensate detector	without					0					
	condensate detector					1					
Temperature display for heat exchanger	without						0				
	temperature display for heat exchanger						1				
Acid dosing pump	without							0			
	acid dosing pump							1			
Temperature controller for heated sample line	without								0		
	temperature controller for heated sample line Pt100								1		
	temperature controller for heated sample line TC type K								2		
Power supply	230 VAC 50/60 Hz									A	
	115 VAC 50/60 Hz									B	
Special version											XY

JCP-310 high performance including JSR-25 condensate pump

Heat exchanger	JHEX-4 heat exchanger aluminum coated	1									
	JHEX-4 heat exchanger PVDF	2									
	JHEX-4 heat exchanger Duran glass	3									
	JHEX-4 heat exchanger stainless steel	4									
Filtration	without		0								
	fine dust filter JF-1		1								
Sample gas pump	without			0							
	sample gas pump JSP			1							
Flow meter with needle valve	without				0						
	flow meter with needle valve				1						
Condensate detector	without					0					
	condensate detector					1					
Temperature display for heat exchanger	without						0				
	temperature display for heat exchanger						1				
Acid dosing pump	without							0			
	acid dosing pump							1			
Temperature controller for heated sample line	without								0		
	temperature controller for heated sample line Pt100								1		
	temperature controller for heated sample line TC type K								2		
Power supply	230 VAC 50/60 Hz									A	
	115 VAC 50/60 Hz									B	
Special version											XY

Function

The portable JCP-300 and JCP-310 sample gas conditioning systems are built in a robust carrying and mobile unit case made of reinforced plastic. All parts needed for operation or maintenance are placed on the front panel. Gas

connections are generally on the front panel.

Gas heat exchanger
The JHEX-4 heat exchanger consists of a cylindrical body. The gas flow is designed to bring the wet gas as often as possible in contact with the cooled surfaces. The manner in which the gas circulates causes laminar as well as turbulent flow that enhances the separation of the condensate. The outside of the heat exchanger is thermo-insulated. This prevents the condensation of humid air on the outside of the heat exchanger.

Cooling
For cooling of the gas heat exchanger, Peltier elements are used. This element is mounted in the upper part of the heat exchanger. Due the Peltier effect the sample gas energy is extracted via the heat exchanger and transferred through a heat pipe to the cooling fins. High-volume airflow fans are used for the continuous removal of waste heat to the environment. Sophisticated control electronics provide by means of a temperature sensor a stable dew point.

NOTE
The functions and options described in this chapter are depending on model configuration.

Acid dosing pump
The metering pump is used to add reagents, e.g. phos-phoric acid. The metered addition with the metering pump takes place in front of the first cooling step, to reduce possible, minor elutriation of sulphur dioxide in the sample gas cooler even further.
Pump capacity: 6 ml/h

Condensate removal
To ensure continuous removal of condensate the JCP-300 units are equipped with the JSR-25 condensate pump (approx. capacity 0,30 l/h).

CAUTION!
To avoid leakage of the condensate pump the operating pressure must be between 85 – 220 kPa abs. The tubing of the condensate pump is subject to wear and has to be checked regularly and replaced, if necessary.

Filter element
Fine dust particles are separated from the sample gas by a filter. Filter elements are available in glass fiber or PTFE materials (porosity 2 µm).

CAUTION!!
Stop the sample gas pump before opening the filter housing. Open the filter housing only under pressure-less conditions. The filter element is tight only if the O-ring sea-ling in filter cap is in place.

Sample gas pump
The sample gas pump forwards the sample gas through the gas conditioner to the analyzer. It can be turned on/off via a switch on the front panel. In case of alarm condition, the pump is locked automatically.

Temperature display
To monitor the heat exchanger temperature, the instrument is equipped with a digital display that shows the temperature or an error if the temperature limits are exceeded.

Flow meter with needle valve
To adjust and display the gas flow, the instrument is equipped with a flow meter with an integrated needle valve.

CAUTION!!
Never close the needle valve completely to avoid system damage.

Condensate detection
The built-in electronic module monitors an eventually occurring wet sample gas with the condensate sensor KW1. It turns of the power supply of the sample gas pump. Failure indication is done by color changing of the green status LED “Condensate” to red.

CAUTION!
In case condensate detection occurs, the cause must be corrected immediately. To check or clean the sensor, open the nut and remove the sensor downwards. Equally, dry the gas path downstream the heat exchanger. Check the unit for leaks before starting the op-eration.

CAUTION!
Condensate may contain hazardous substances! Wear appropriate protective clothing!

Stainless steel sample gas inlet
A sample gas inlet of stainless steel SS316 is required to connect a heated sample hose.

Temperature controller for heated sample line
To control a heated sample line the models with large housing can be equipped with a temperature controller.

Technical data

Number of gas paths	1
Operation	
Flow rate	max. 250 l/h
Gas temperature inlet PVDF heat exchanger Stainless steel heat exchanger	max. +140°C max. +180°C
Dew point inlet	max. +80°C
Ambient temperature JCP-300 JCP-310	+5… +40 °C +5… +50 °C
Cooling capacity JCP-300 JCP-310	max. 30W max. 60W
Operating pressure with condensate pump	0,5…2,2 bara
Ready for operation	< 15 min
Pressure drop at max. flow rate	3 mbar

Dew point reference data

Flow rate per gas path	60 l/h
Outlet dew point	factory setting: +5°C; adjusta- ble range +0,5°C…+7,5° C
Gas temperature inlet	+140°C
Dew point inlet	+55°C
Ambient temperature	+20°C
Dew point stability	±0,1 K

Construction

Dimensions over all	561 x 457 x 262 mm (W x H x D)
Installation	portable
Operating position	open case, vertical heat ex- changer
Weight	depending on model up to 22 kg
Housing, colour	hard case with trolley function, polypropylene, yellow
Gas wetted parts (depending on heat exchanger)	aluminium coated, PVDF,SS316Ti, FFKM, Duran glass
Dead volume per gas path	67 ml
Connection sample gas inlet	SS316 Fitting DN 4/6
Connection sample gas outlet / condensate outlet	PVDF Fitting DN 4/6
Approval / Sign	CE

Electrical

Supply voltage	230 VAC 50/60 Hz +/-10% or 115 VAC 50/60 Hz +/-10%
Power consumption (depending on load and ambient temperature) JCP-300 JCP-310	heated sample line max. 1800 W + 95…210 VA 95…580 VA
Supply connection	Schuko to IEC Plug, l = 2 m
Cooling element	Peltier
Fusing (built in IEC plug)	Lead fuse T2A
Protection class closed case transport operation open case	IP65 (EN 60529) IP 20 (EN 60529)
On-time	100 %
Diagnostic- / operation indicator	1x bicolour LED
Diagnostic- / operation indicator option: condensate detector	1x bicolour LED
Alarm set points	<0 / >+10°C
Alarm delay	0,5 sec
Response threshold condensate detector (option)	factory setting 12 kΩ adjustable 2… 30 kΩ
Connection heated sample line	7pin Binder series 693
Max. load heated sample line	230 VAC 10A max. 2200W
Temperature sensor for heated sample line	TC type „K“ (Ni/CrNi) or RTD Pt100 (IEC751)

Subject to change without notice

Order codes

For spare part orders please submit component description and part. no. and also serial number registered on type plate of the appliance.

Parts.no **consumables**

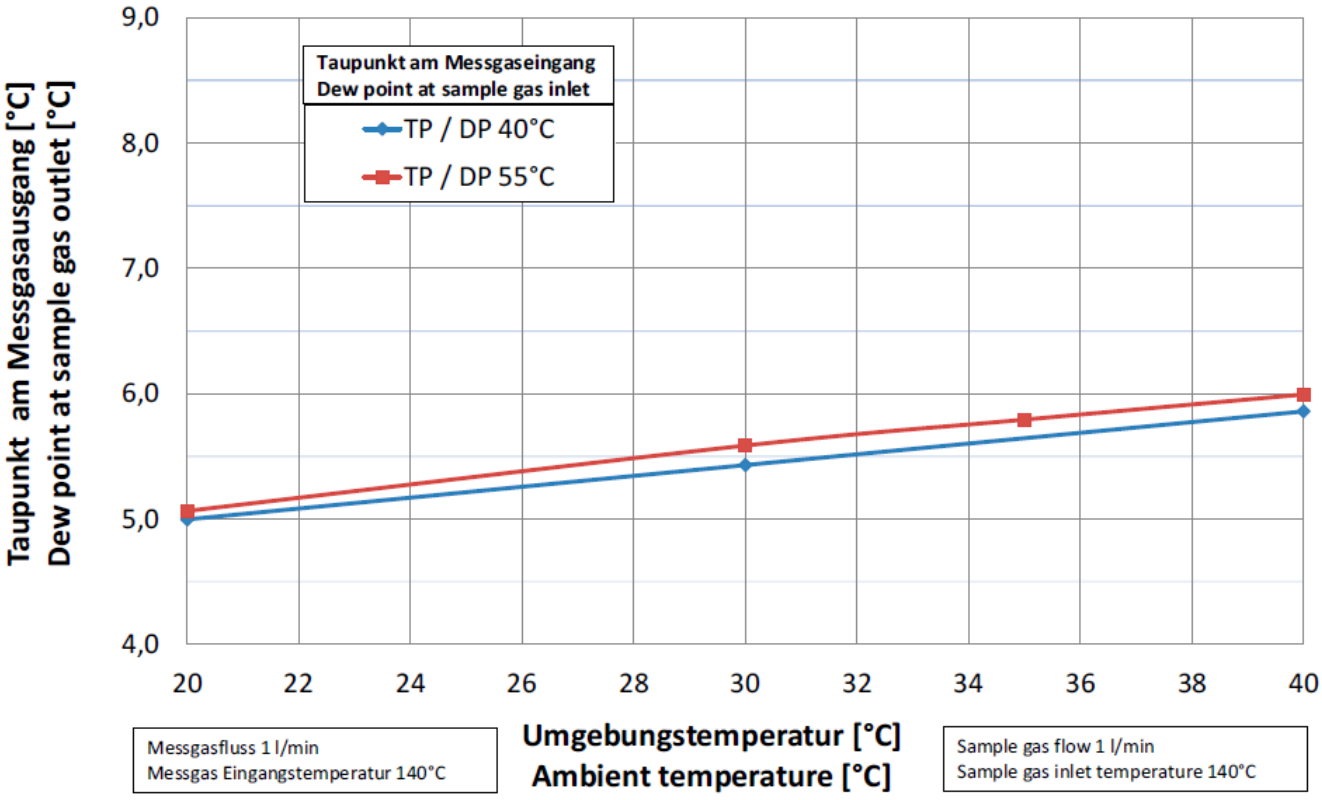
12.90392	Hose set condensate pump (5 pcs.)
K1233009A	Pulley holder condensate pump
K1233011	Tubing cover
17.00002	Filter element glas fiber (5 pcs.)
17.00003	Filter element PTFE (3 pcs.)
17.90001	O-ring seal for filter housing (3 pcs.)
12.90431	Consumables set for diaphragm sample gas pump (membrane, 2 gaskets, 2 valves)
K3233001	Metering pump complete
12.90396	Hose set metering pump

Spare parts

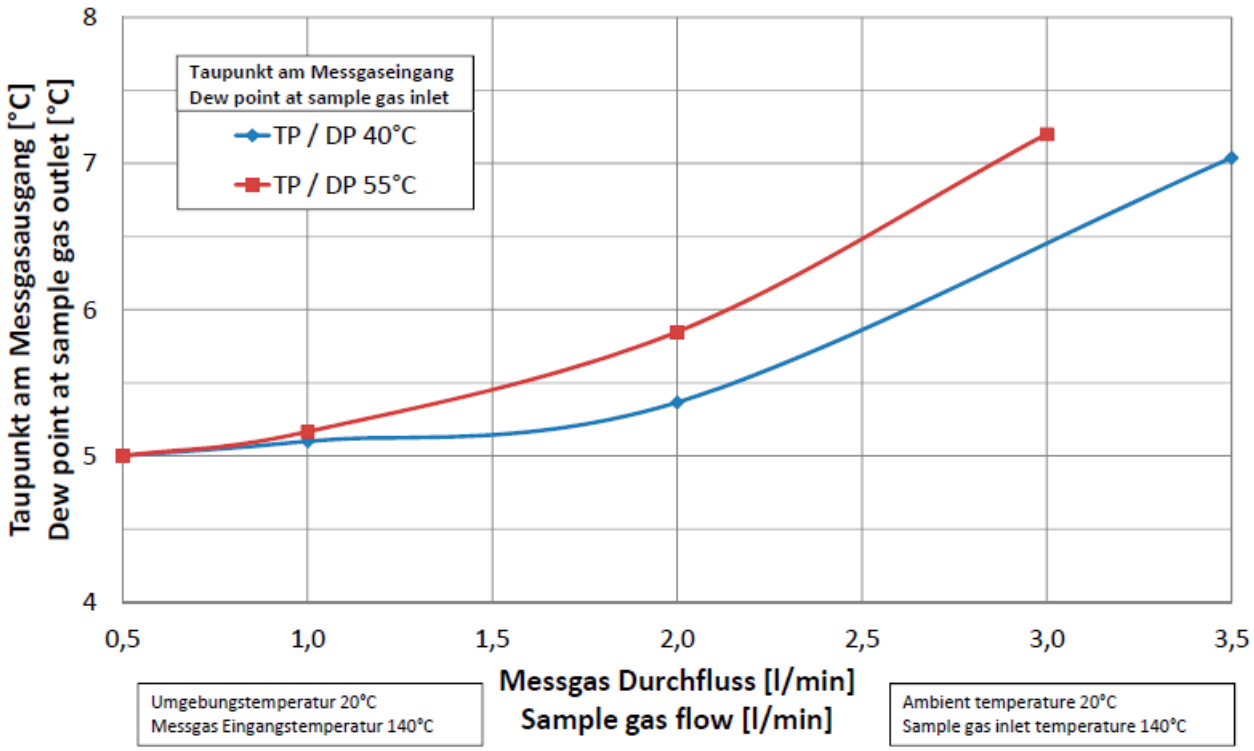
K1004600	Fan 230 VAC
K1004605	Fan 115 VAC
K1204323	Peltier – controller JPCU-1
K1204360	Condensate detector electronic KW-2
17.04000	Condensate sensor KW-1
K1250001	Temperature sensor
K1233002A	Condensate pump complete
K1233200	Diaphragm sample gas pump 230 VAC
K1233201	Diaphragm sample gas pump 115 VAC

Performance diagrams

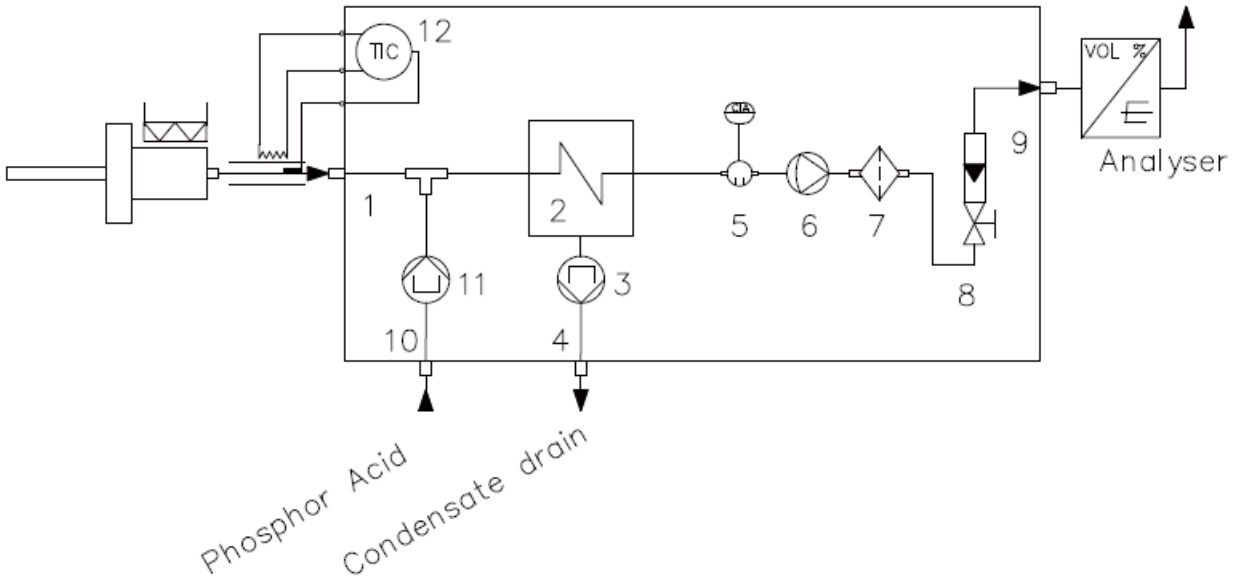
UT Performance – 20-40°C – 1 l/min



Flow Performance



Flow Chart



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K1250001	Temperature sensor
K1233002A	Condensate pump complete
K1233200	Diaphragm sample gas pump 230 VAC
K1233201	Diaphragm sample gas pump 115 VAC

Installation, unpacking

Check instrument for any damage caused by shipping. If any damage is established, contact the carrier and distributor immediately. Check instrument and any other parts against order.

Installation instructions

- Disconnect mains before working on electrical part of equipment.
- Keep sufficient clearance around the unit for main-tenance and the ventilation of the sample gas cooler.
- The equipment has to be connected and grounded according to the local rules and regulations.
- The device is designed for portable use. Pay attention to adequate ventilation especially in closed rooms.

Mounting

- Observe positioning according to specification.
- Protect the unit from excessive exposure to sunlight or extreme sources of heat and against rain and dirt.
- Connect the inlet and outlet of the sample gas heat exchanger (s) and check for leaks.
- Connect the condensate outlet to the condensate collection system and check for leaks.

Sample gas connection
Connect DN 4/6 mm tubing with nut and ferrule at the “IN” and “OUT” gas connections. Tighten fittings stalwart only!

NOTE
It is recommended to install 20 cm Teflon hose for pre-cooling in front of the sample gas inlet. Use only filtered sample gas.

Condensate drain
Connect DN 4/6 mm tubing with ferrule and nut at the pump fitting.

CAUTION!
The condensate is often acidic. Appropriate safety measures at the draining point should therefore be taken and regulations for the disposal of acid liquids should be ad-hered to! Wear appropriate protective clothing!

K1004600	Fan 230 VAC
K1004605	Fan 115 VAC
K1204323	Peltier – controller JPCU-1
K1204360	Condensate detector electronic KW-2
17.04000	Condensate sensor KW-1
K1250001	Temperature sensor
K1233002A	Condensate pump complete
K1233200	Diaphragm sample gas pump 230 VAC
K1233201	Diaphragm sample gas pump 115 VAC

NOTE
The condensate drain must be connected with a leakage free condensate vessel which is installed below the instrument. Remove the condensate periodically. Appro-priate safety instruction and regulations disposal of acid liquids should be adhered.

Leakage test

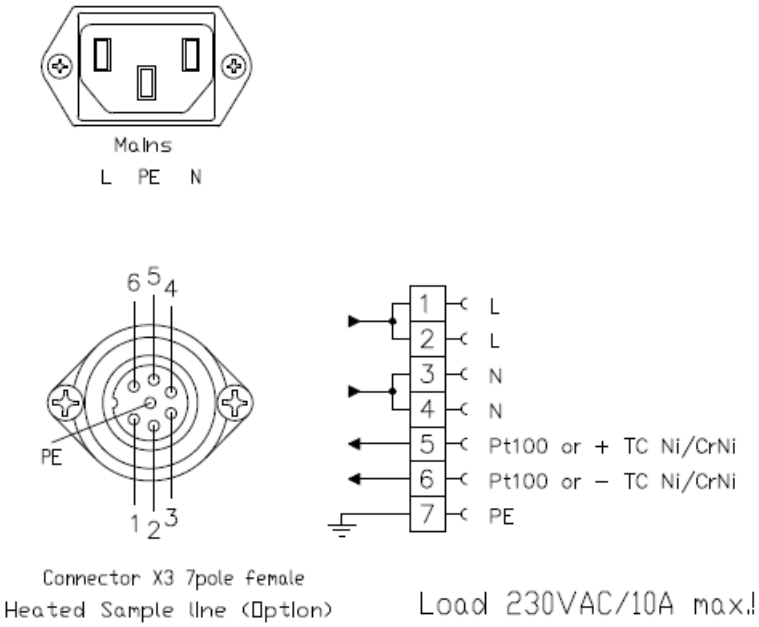
CAUTION!
Check all gas connections against leakage after the tub-ing installation.

Electrical connections

- Check local voltage, frequency and power consump-tion against type plate.
- The appliance is equipped with a standard IEC unit plug.
- Ensure that the maximum permissible conductor temperatures are not exceeded by suitable selection of cables and means of running them.
- The operator must provide suitable stress relief.
- Grounding has to be done on site according local rules and regulations.
- The unit plug has a built in lead fuse 5 x20 mm.

Always operate contacts under specified ratings. For connection of inductive and capacitive loads use suitable protection circuits (e.g. recovery diodes for inductive and serial resistance for capacitive loads). Relays are illustrated in current less conditions (fail-safe).

Connector plug / terminal strip



CAUTION

- Correct setup of temperature controller for used heated sample line with thermocouple model „K“ (Ni / Cr Ni) or RTD Pt100 has to be considered. Also wiring!
- Check correct power voltage and max. current values (8A) of the line. Connect heated sample line voltage free only.

CAUTION

This unit is operated with mains power. During operation, some parts of the unit are energized with dangerous

voltage! Removing the cover will expose live parts. Before repair or maintenance disconnect from mains. Isolation testing with high voltage is not allowed and can lead in unit damage. Only qualified staff who have been trained according to this manual should operate and maintain this instrument. For certain and safe operation the instrument needs to be transported carefully, be part of a well planned application, installed correctly as well as operated and maintained according to these instructions. Requirements of qualifications of staff: Qualified staff in the sense of this manual and/or the warning references are persons, who are familiar with setup, mounting, start-up and operating of this product and have sufficient qualifications.

Startup

1. Check of the proper installation.
2. Review the equipment for damage.
3. Check for leaks.
4. Check for upright position.
5. Connect condesate drain and fill acid dosing reservoir with reagent (option).
6. Set up pneumatic and electrical coonections for heated hose.
   CAUTION!Before switching on the device check rated type plate voltage against line voltage.
7. Connect power supply. The instrument starts cooling. The fan must run and the Peltier status LED must be illuminated red. The optional" temperature display shows “error 1”. After approx. 15 minutes the operating temperature is reached. The LED colour changes to green and the temperature dis-play shows the actual temperature. As long the Peltier status indicator LED lights up red, the cur-rent cooler temperature is not in the permissible range from 0…10°C. If the Peltier status LED blinks red, a temperature sensor defect is de-tected. After the appliance has reached the oper-ating conditions the gas flow can be introduced.

NOTE
It is possible that there is remaining condensate from the factory test left in the cooler. (water) Keep in mind maximum flow rate of sample gas versus dew point at gas inlet.

CAUTION!
Non-compliance with the control steps can lead to seri-ous hazards or property damage and personal injury!

Operation

With the switch “PUMP” the sample gas pump can be turned on. The needle valve of the flow meter (option) allows regu-lating the sample gas flow.

CAUTION!
Never close the needle valve completely to avoid dama-ges.

Temperature controller heated sample line

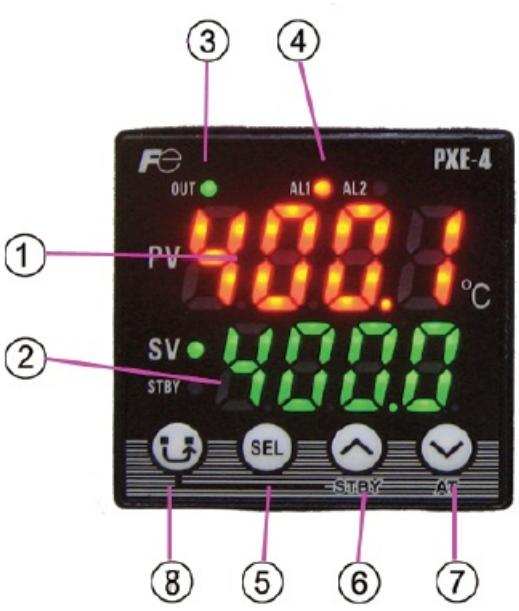
General
The controller JPXE-4 can be used in combination with a heated sample gas line with RTD Pt100 or TC NiCrNi (depending on the ordered configuration). If all relevant parameters are stated a used defined configuration may be ordered also. For operation, it might only be necessary to change the set value SV for the temperature. All other parameters stay unchanged for the versions of 115 VAC and 230 VAC supply voltage. If the controller is not preconfigured, you need to define all described parameters and additionally the cycle time. Afterward you need to start Auto-tuning (AT) to calculate the PID parameters.

CAUTION!

Incorrect setup parameters can lead to malfunctions and / or physical damage of the device.

Betriebszustand Status	Status LED Condensate Grün [1] green [1]	Status LED Condensate Rot [1] red [1]	Status LED Condensate blinkt [1] blinking [1]	Status LED Peltier Grün green	Status LED Peltier Rot red	Status LED Peltier blinkt blinking
Sensorkurzschluss KW-1 Shorten sensor KW-1	☐	☐	☒			
Kondensaterkennung Condensate detection	☐	☒	☐			
Temperaturalarm Temperature alert				☐	☒	☐
Temperatursensor Kurzschluss/ Unter- brechung Temperature sensor shorted / broken				☐	☐	☒
Normalbetrieb Regular operation	☒	☐	☐	☒	☐	☐

führen.



K1004600	Fan 230 VAC
K1004605	Fan 115 VAC
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K1250001	Temperature sensor
K1233002A	Condensate pump complete
K1233200	Diaphragm sample gas pump 230 VAC
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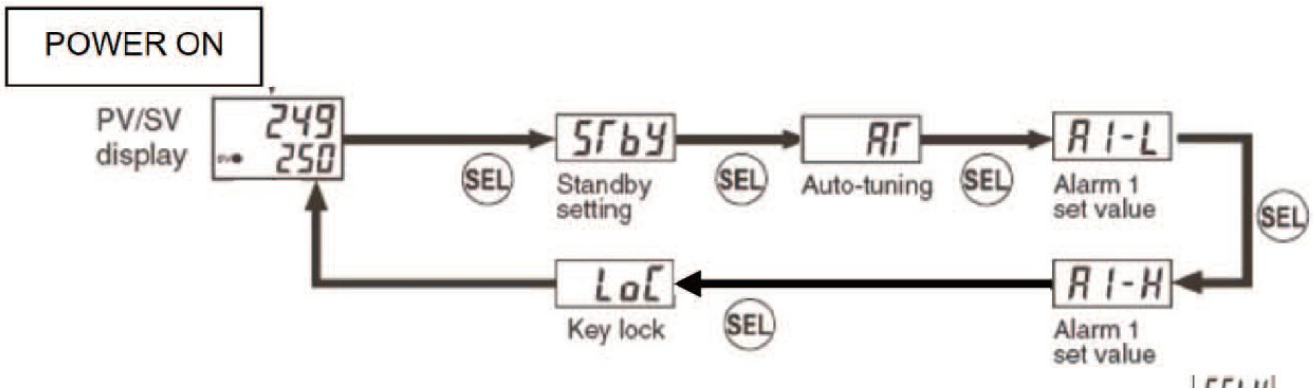
Access to the parameters

1. Power ON / Operation Mode PV (Process value) and SV (Setting value) are displayed. This mode also allows to a change SV and alarm set point.
2. Press the “Block key” to access Setup Mode. The Setup Mode allows setting the parameters for the device. 4 Channels are available.

Channel	**Parameter Name**	**Overview**
Operation Parame ter	Operation	Regular mode of operation Sets the parameters for operation
Ch1	Control (PID)	Sets the parameters concerning controls
Ch2	Setup	Sets the parameters concerning input/ output
Ch3	Alarm	Sets the parameters concerning the alarm function
Ch4	Environmental Parameters (Confi g.)	Sets the parameters concerning setup definitions fo r the controller

3. Description of Modes



4. 4. Adjustment of temperature-range Press SEL to enter the Operation Mode. The Display shows. Standby setting

Press SEL two times to set the alert low. The display shows. AL-L Alarm 1 set value (Example: 20°C up/ down) Press SEL one time to open the menu für alert-high The display shows. AL-H Alarm 1 set value Press SEL one times to open the loc menu. In the Menu, it is possible to lock the forward adjusted parameters. Key-Lock Setting-Range

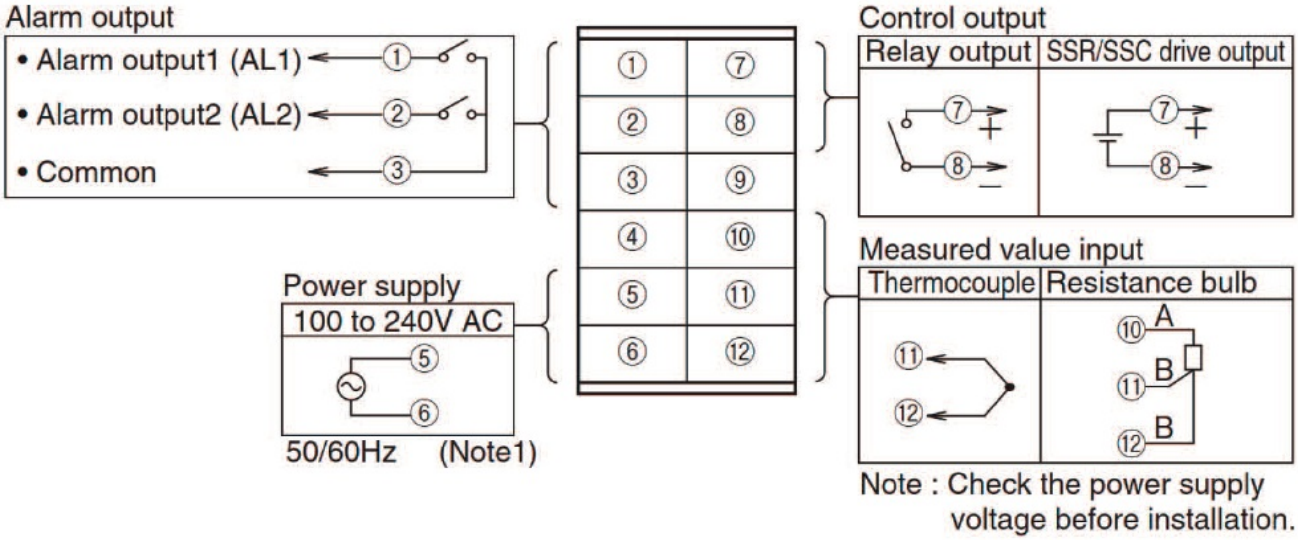
- **OFF:** Change of settings is available from the front panel.
- **ALL:** No parameters can be changed.
- PArA :Only the SV setting can be changed.

5. Adjustment of temperature-sensor Two types of temperature sensors are possible to use with the JPXE4:

Press ⟲ two times to reach Ch 2 (Setup Channel)
Press 1x SEL to enter the menu of Ch 2
The submenu is shown on the display. PuT Input type
Use ⌃⌄ buttons to select the temperature sensor.

Pt2	Pt100 with decimal point
t2	Thermocouple with a decimal point

6. Connection of Pt100 with a decimal point



For Pt100 connection shorten pins 11 and 12 and connect sensor between 10 and 11.

End of operation

For models with sample gas pump, shut down the sample gas flow through the sample gas conditioning system by switching off sample gas pump; keep system at operation for at least 10 min. (pumping residual condensate). Afterwards shut down sample gas conditioning unit by disconnecting mains.

Demounting

- Shut down the sample gas flow with the external sample gas pump.

- Disconnect units supply at site.
- Unscrew fittings and disconnect all gas connections.
- Remove the probe from the process flange.
- Disconnect the condensate drain.
- Store and dispose of with expertise.

Recycling

The unit contains elements that are suitable for recycling and components that need special disposal. You are therefore requested to make sure that the unit will be recycled by the end of its service life.

Maintenance and service

NOTE

If an item is returned to JCT Analysentechnik, for main-tenance or repair reasons, it will only be accepted with accompanied “Return Authorisation” and “Decontamination Statement”, fully completed and signed. This is to ensure the security of JCT staff. The forms including a valid “Return Authorisation Number” (RAN) are available on request at the JCT service department or for down-load on the JCT website. JCP sample gas conditioning units are designed for long-term continuous operation with a minimum of main-tenance requirements. Maintenance is limited to cleaning the cooling fins with compressed air, and a periodical check of sample gas pump, filter and condensate pump tubing against leak-age and condition. The device is equipped with a maintenance plate to note the years of maintenance work.

NOTE
JCT recommends that you contact your regional representative to let perform service work by qualified staff only.

CAUTION!
Before any maintenance or repair work is performed on an opened instrument, the power supply must be disconnected. Any repair and adjustment work on the open and powered up instrument shall only be performed by qualified staff who are fully trained and familiar with the dangers involved! The dispose of the exchanged parts must respect the current environmental, safety and technical regulations.

Cleaning of cooling fins
Remove the back panel and clean the cooling fins with compressed air or a soft brush.

Filter element
Check the filter element in the filter housing and replace it periodically. Before reinstalling the filter cap check also the O-ring seal.

CAUTION!
Open filter housing only when the sample gas pump is turned off and the system is not under pressure.

Diaphragm and valves of sample gas pump
The Diaphragm and valves of the sample gas pump are consumables. They should be replaced if the flow capacity is insufficient. Only qualified staff can do this mainte-nance. Open the instrument and follow the instructions inside of the spare part package.

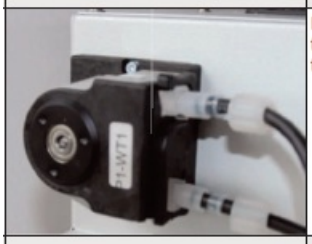
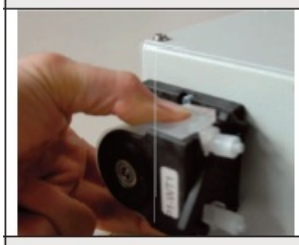
Condensate pump
The pump hose, pulley holder, and tubing cover are consumables. They have to be replaced regularly depending on operating conditions: pump hoses at the latest after 6 months, pulley holder and tubing cover at the latest after 12 month.

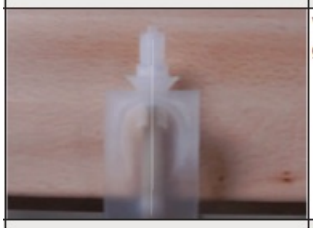
For replacing condensate pump hoses following actions are necessary:

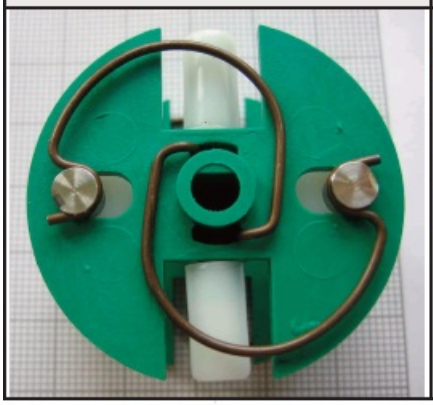
- Switch sample gas cooler off (disconnect mains).

CAUTION!
Condensate may contain hazardous or corrosive substances! Wear appropriate protective clothing!

Pump tube replacement details

	Step 1
	Remove both Viton tubes by loosing the fitting nuts by counter clockwise rotation
	Step 2
	Pull off both condensate pump tubes from fittings
	Step 3
	Remove tubing cover including the pump tube by rotation of lock-clip clockwise
	View Uninstalled tubing cover with pump tube

	Step 4
	Remove the pump tube set (including end parts) from guide rail of tubing cover and replace by a new pump tube set
	View guide rail tubing cover in detail
	Step 5
	Mount the tubing cover on the pump head, place both end parts in the rail until they snap in
	Step 6
	Twist back the lock-clip counter clock-wise until both ends snap in properly
	Step 7
	Check the correct pump tube and lock-clip position Install Suction and Pressure tubes again and tighten nuts stalwart.

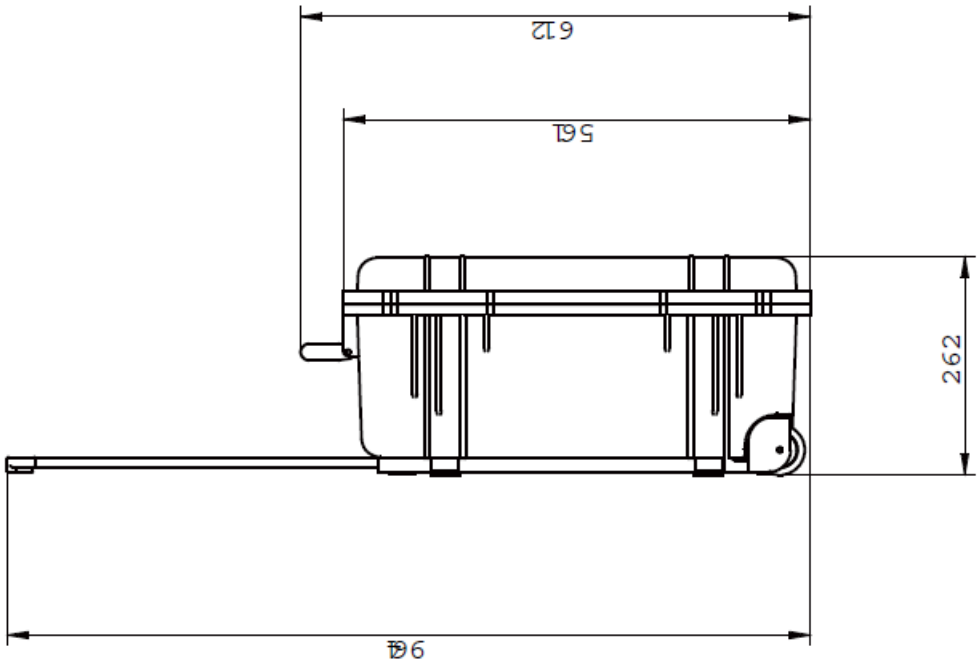
	Step 1
	Uninstall tubing cover with pump tube (see tube replacement step 1-3) Locate and open the two screws for pump head fixing and pull pump head with pulley holder off.
	Step 2
	Push pump housing with new pulley holder slightly back on the axle, shafts-houlder showing to the front. Take care that all four springs are in the correct position. Fix pump housing with the two screws. Reinstall tubing cover with pump tube.

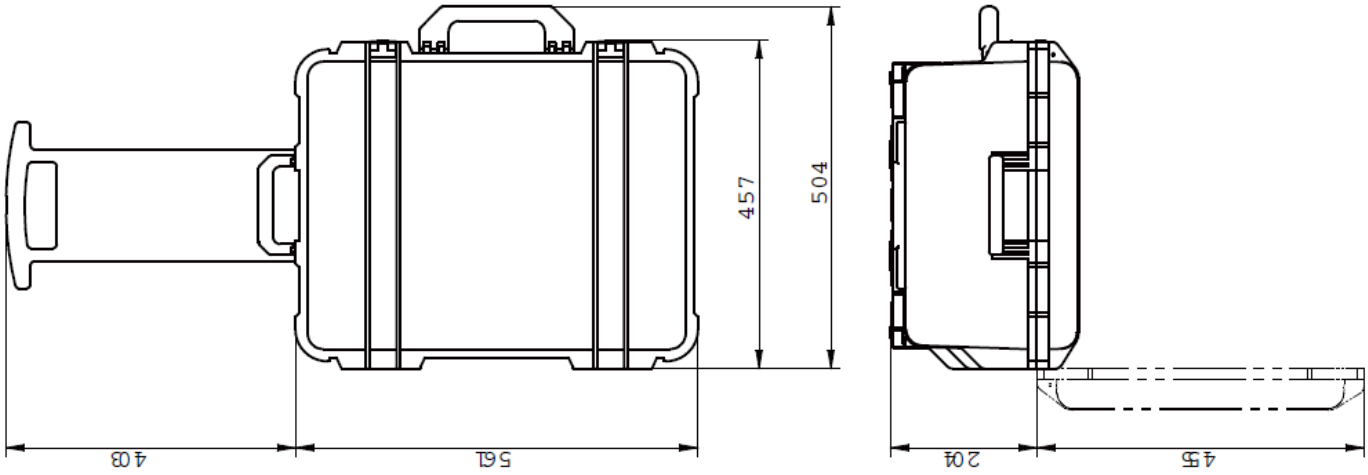
Fault diagnostic checklist

Malfunction	**Cause / remedy**
Status LED dark	• Check power supply Check appliance fuse • Control electronic defective, Replacement by service
Temperature above 10°C	• Peltier defective Call JCT service
	• Sample Gas flow too high Reduce sample gas flow,
	• Ambient temperature too high Check specification
	• Cooling fins dirty Clean cooling fins
	• Fan defective Replace fan by qualified staff Call JCT service
Temperature below 0°C	• Control electronic defective Call JCT service • Ambient temperature too low
Wet sample gas	• Sample gas flow too high Reduce sample gas flow rate, check specification
	• Cooling fins dirty Clean cooling fins

	• Fan defective Replace fan by qualified staff, call JCT service
	• Jamming condensate pump Replace tube set and/or pulley holder, call JCT service
	• Condensate drain jammed Horizontal use only, Condensate tube kinked or blocked
blocked sam- ple gas flo w	• Fouling caused by not yet separated dust or sublimate Use of pre filter Clean sample gas tubes and sample gas heat exchanger Check compatibility before using cleaning agents
	• Frozen condensate Ambient temperature < +1°C Heat up installation site
Condensate- alarm	• Eliminate the cause (see wet flue gas) Remove condensate sensor by unscre- wing nut and pulling downwards, clean and dry sensor

Dimensions





Maintenance report

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Activity	performed by	Date	Signature
Condenser cleaned			
Replacement of pump tubes of c ondensate pump			

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Documents / Resources

	**LAUPER INSTRUMENTS JCP-300 Series JCT Gas Detection** [pdf] User Manual JCP-300 Series JCT Gas Detection, JCP-300 Series, JCT Gas Detection, Gas Detection, Detection

References

- suche.ch
- Home | Lauper Instruments