



Polygraphische innovative  
Technik Leipzig

# Operation Manual IPA Control III

for Controlling Isopropyl Alcohol Concentration



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Subject to technical modifications.

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# 1 General Information





This operation manual supports you in the setup, operation and maintenance of the hand-held measuring device IPA Control III. It contains important information which, if followed, will ensure safe use.

Familiarise yourself carefully with this document before using the measuring device to avoid personal injury and material damage. Always keep the document close to the measuring device so that you can refer to it throughout the full life of the device.

Improper usage is any application or use of the measuring device that deviates from or goes beyond the instructions given in this operating manual. Modifications, bypasses or shutting down of individual components of the measuring device are not permitted.


In case of improper use of the measuring device, any liability on the part of the manufacturer is excluded. General safety and accident prevention regulations remain valid in addition to these operating instructions.

## 1.1 Symbols

 <b>Caution</b>	<b>Caution!</b> Slight to moderate personal injury can occur
<b>IMPORTANT</b>	Property damage can occur
	Important information for operating the measuring device
	<b>NOTE!</b> Note or tip on using the device
	<b>Cross-Reference</b> See also!
<b>Service</b>	Labels, Menus, Panels, Buttons

## 2 Improper Use and Restrictions

*Isopropanol, also known as isopropyl alcohol, 2-propanol, propan-2-ol or IPA for short, is used in offset printing as an essential ingredient in the dampening solution and to improve print quality and stability.*

 <b>Caution</b>	Isopropanol liquid and vapour are highly flammable. Isopropanol causes strong eye irritation and can cause drowsiness and dizziness with its narcotic effect. Consider the instructions in the safety data sheet!
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The IPA Measuring Device was developed for determining the isopropanol concentration in the range from 0 vol% to 15 vol% in the dampening solution of offset printing presses. It is used outside the dampening solution system. The dosing syringe supplied can be used to extract dampening solution from all accessible points in the dampening solution system of the offset press to determine its isopropanol content.

The measuring device can be used at an ambient temperature in the range of 15 °C to 30 °C. The dampening solution temperature should not be outside the range of 5 °C to 25 °C (➔ Chapter 4 Technical Data).





The proper use of the IPA Measuring Device also includes the use of the heatable measuring dish, which allows the dampening solution to be heated to 20 °C.

The IPA Measuring Device is not waterproof and not dustproof. It should only be used in dry indoor areas.

To detect the IPA concentration, only the sensor head is placed in the dampening solution in the measuring dish. The dampening solution sample should not be allowed to enter the inside of the sensor head.

<b>IMPORTANT</b>	Do not directly place the sensor head into the dampening solution system of your printing press. Liquid can get into the inside of the sensor head.
<b>IMPORTANT</b>	Measurements of samples containing more than 20 vol% of IPA or other flammable liquids may affect the function of the sensor.
<b>IMPORTANT</b>	Chemical substances near the measuring device that contain sulphur compounds, heavy metal compounds, silicone or silicon compounds can cause permanent damage to the gas sensor.

### 3 Safety Instructions

 <b>Caution</b>	Improper use can cause damage to property and personal injury.
 <b>Caution</b>	Not following these operating instructions can cause damage to property and personal injury.
 <b>Caution</b>	The unauthorised opening of even individual system components can cause damage to property and personal injury.
 <b>Caution</b>	If the safe operation of the device is not possible, the measuring device must be deactivated or may not be put into operation. Secure such a device against any use!
<b>IMPORTANT</b>	The device conforms to protection class II. The device has an ingress protection rating of IP 30.

Further safety instructions, which refer to specific procedures, can be found in the running text.

## 4 Technical Data

Gas sensor measurement principle	Pellistor (Catalytic)
Measuring range	0.0 vol% to 15.0 vol% IPA
Resolution	0.1 vol% IPA
Measuring accuracy (for water/ IPA mixtures)	≤ 1.0 vol% IPA (+20 °C to +26 °C)
Dampening solution temperature	+5 °C to +25 °C
Amount of dampening solution sample	25 ml
Ambient temperatures	Operation: +15 °C to +30 °C Storage: -10 °C to +60 °C
Humidity	5 % - 95 % (non-condensing)
Duration of measurement	60 s + heating time (depends on dampening solution temperature)
Power supply	Plug-in power supply unit (Input 230 V~/50 Hz; Output: 24 V=; 1.6 A)
Automatic shutdown	After 5 min. without input operation
Dimensions (L x W x H)	Hand-held measuring device: 255 mm x 100 mm x 64 mm Measuring dish: 122 mm x 68 mm x 19 mm
Weight	Hand-held measuring device: 0.50 kg Measuring dish: 0.15 kg



## 5 The Measuring Device

### 5.1 Scope of Delivery

- Hand-held measuring device IPA Control III
- Heatable measuring dish
- Dosing syringe for taking the dampening solution sample
- Wide-necked bottle 50 ml with graduation and screw cap
- Plug-in power supply unit (Input 230 V~/50 Hz; Output: 24 V=; 1.6 A)
- Transport case
- Operation manual



All parts of the measuring device were inspected before delivery. Nevertheless, check the delivery after unpacking for completeness and transport damage. Contact the supplier or manufacturer in case of damage or missing system components.

### 5.2 Storage and Transport

The measuring device must be stored away from dust and moisture. For safe and practical transport, the transport case included in the scope of delivery holds the measuring device and accessories. Avoid storing the measuring device near sensor damaging substances → (Chapter 2 Improper Use and Restrictions).

#### IMPORTANT

Avoid strong impacts and shocks to the device. They can cause damage to the sensor.

### 5.3 Device Layout

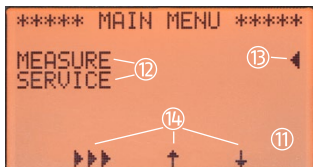
The measuring device consists of the hand-held device with sensor head and a heatable measuring dish connected by cable. The power supply is realized by the plug-in power supply unit included in the delivery.



- ① Hand-held device
- ② Sensor head
- ③ Heatable measuring dish
- ④ Plug-in power supply unit
- ⑤ Control panel
- ⑥ Input button
- ⑦ Selector buttons
- ⑧ Return button



- ⑨ Connector plug-in power supply unit
- ⑩ Connector heatable measuring dish
- ⑪ Display
- ⑫ Menu options
- ⑬ Selector
- ⑭ Operating information



## 5.4 Control Elements and Connections

All buttons required for operation are placed on the control panel of the hand-held device. Input prompts, operating information and measurement results are shown in the display.

	The return button switches the device on or off or exits a selected menu option.
	The enter button executes the selected menu option.
	The Selector buttons allow for selecting a menu option.
	Connection power supply (2-pole)
	Connection heatable measuring dish (3-pole; white coated)
	Press and hold the return button  to switch off the device.

## 5.5 Operating Principle

The hand-held measuring device IPA Control III analyses the gas phase above the dampening solution sample. First, the dampening solution sample is taken from the printing press and filled into the measuring dish. The sensor head, which is immersed in the dampening solution, leads the resulting IPA-air mixture above the dampening solution to a gas sensor inside the measuring device. The IPA concentration of the dampening solution sample will be calculated and displayed based on the measured temperature of the dampening solution and the signal of the gas sensor.


## 6 Measurement

### 6.1 Preparation for Measurement



Before starting a measurement, the temperature of the measuring device should equalize to the ambient temperature. Condensation of gas components or a strongly changing device temperature during the measurement process can falsify the measurement result.




Place the hand-held device and the measuring dish on a stable, level surface. At first, the sensor head shall **not** be placed in the measuring dish. Connect all cables.

The measuring device is switched on by briefly pressing the return button .



The display shows the check of the permissible operating temperature (15 °C to 30 °C) as well as the current ambient temperature. After a short warm-up phase, the ambient temperature is recorded and will be saved after confirming the query "Measuring head placed beside measuring cup?". To confirm, follow the operating instructions on the display. Then the display shows the **Main Menu** with the menu options **Measure** and **Service**.

The device is ready for use.

### 6.2 Measure

Navigate with the selection buttons   to the menu option **Measure** in the main menu. Confirm your choice with the enter button . The submenu **Measure** appears. The measuring process has not been started yet.


1. Fill the measuring dish with 25 ml of the dampening solution sample to be tested. Dose the dampening solution sample using the dosing syringe or the wide-neck bottle, which have graduations in millilitres.

	An overfilled measuring dish can overflow when the measuring head is immersed. Soak up the liquid with suitable absorbent materials. Prevent the dampening solution sample from entering the drainage system.
	Overfilling the measuring dish prolongs the following heating phase and may lead to an abortion of the measuring process after 150 s. The measuring process must be restarted.
<b>IMPORTANT</b>	If the measuring dish is overfilled, the dampening solution can get into the sensor head and cause damage to the sensor and/or the measuring device.

2. Immerse the sensor head in the filled measuring dish. The frame of the sensor head should lie evenly on the heating plate of the measuring dish. The correct position is ensured by the design of the measuring device when the device is placed on a flat surface. Additional objects are not required to be placed under the measuring dish and/or the hand-held device.

Start the measuring process with the enter button >>> now.

3. During the heating phase, the dampening solution is warmed to a temperature of 20 °C. The device displays "Heating phase" as well as the target temperature and the current temperature of the dampening solution.


 <b>Caution</b>	During the heating phase, the heating plate of the measuring dish becomes hot. Do not touch the heating plate!
<b>IMPORTANT</b>	Do not start the measuring process without dampening solution in the measuring dish!

After arriving at the target temperature, the heating phase is finished.

4. The measuring phase starts. The device displays "Measuring phase" and the remaining measuring time. The measuring phase stops after 60 s.
5. The determined IPA concentration of the dampening solution sample is displayed in vol% IPA.

Empty the measuring dish after each measuring procedure. Wipe carefully dry the sensor head and the measuring dish, e.g. with an absorbent cloth (➔ Chapter 6.3 Information on Measurement Accuracy; ➔ Chapter 8 Maintenance).

<b>IMPORTANT</b>	Always dispose of IPA contaminated materials in accordance with local, regional, national and international regulations.
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After leaving the submenu **Measure** with the return button , the device is ready for use again. The device shuts down automatically after 5 minutes if no new measurement is started.

### 6.3 Information on Measurement Accuracy

The determined IPA concentration is not strongly influenced by other dampening solution additives and alcohol substitutes within the considered measurement accuracy.

However, residual liquids in the measuring dish or on the sensor head can falsify the dampening solution sample.

Condensation phenomena in the sensor head indicate a supersaturation of the gas phase of one or more gas components depending on the device temperature.

In this case, the gas sensor only registers the concentration of max. saturation in the gas phase, i.e. the indicated IPA concentration is lower than it actually is.


The device has been calibrated for use in an ambient temperature range of 20 °C to 26 °C. Strongly deviating ambient conditions can also influence the measurement result.

## 7. Calibration



Over time, the permanent interaction of the gas sensor with its environment can result in deviations between the real and determined IPA concentration.


We recommend checking the device regularly (e.g. every three months) and calibrating it if necessary (➔ Chapter 8 Maintenance). The check is carried out with test or calibration solutions of known IPA concentration. Prepare the test solutions yourself or order 10 vol% IPA calibration solution from the device manufacturer, PITSID GmbH (Contact: ➔ Chapter 10 Repair).

In case of minor deviations of the determined value from the target, the device can be calibrated by a skilled user. Larger deviations should be corrected with a new basic calibration by the manufacturer after the causes have been clarified (➔ Chapter 10 Repair).



	Only skilled users should carry out the calibration.
<b>IMPORTANT</b>	Calibration has an immediate effect on the measured values! Incorrect calibration results in incorrect values! The manufacturer accepts no liability for incorrect calibrations.

### To perform the calibration:

1. Reference Measurement: Zero-Point Adjustment
  - a) Measure an IPA-free sample of the dampening solution (➔ Chapter 6 Measurement).
  - b) Use the return button  to switch to the main menu.
  - c) Save the determined offset in the main menu.  
Choose **Service >>>**  
**Calibration >>>**  
**0 Vol.-% IPA >>>**  
Confirm the query with **Yes**
2. Reference Measurement: Correction of Sensitivity Loss
  - a) Measure a 10 vol% IPA test or calibration solution (➔ Chapter 6 Measurement)
  - b) Use the return button  to switch to the main menu.
  - c) Save the determined correction factor in the main menu.  
Choose **Service >>>**  
**Calibration >>>**  
**10 Vol.-% IPA >>>**  
Confirm the query with **Yes**

	Saving the correction of a reference measurement occurs <b>after</b> the measurement.
<b>IMPORTANT</b>	The existing correction value is permanently overwritten with the correction value of the new reference measurement.
<b>IMPORTANT</b>	The reset function sets both correction values back to the basic calibration of the manufacturer: Offset to zero point: 0 Vol.-% IPA, Correction of the sensitivity loss at 10 Vol.-% IPA: 1. Existing correction values are permanently overwritten. To adjust necessary corrections, the calibration procedure must be repeated!
<b>IMPORTANT</b>	After completing the work, check the result of your calibration with the test or calibration solutions.

If a calibration has failed, it should be repeated after checking for possible errors. The most frequent cause is incorrect IPA concentrations in test solutions. If errors still occur even after carefully checking possible sources of error during recalibration, the device may be defective. In this case, please contact the manufacturer (➔ Chapter 10 Repair).

	You can exit the submenu <b>Calibration</b> without making any changes by pressing <b>Cancel</b> or the return button  .
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## 8 Maintenance

The hand-held device IPA Control III requires only little maintenance. Nevertheless, it should be serviced at regular intervals. In addition to cleaning the measuring head and measuring dish directly after a measurement (➔ Chapter 6.2 Measuring), smaller contaminants on the ABS plastic housing can be easily removed with commercially available cleaners. Avoid aggressive or even abrasive cleaners so as not to destroy the surface of your device. Use only damp cloths to remove residues.

<b>IMPORTANT</b>	No liquid may penetrate the measuring head or the measuring device. This can damage the gas sensor or the measuring device.
<b>IMPORTANT</b>	Never hold the opening of the measuring head upwards or flush it out with a liquid!

Check the zero-point adjustment and the sensitivity loss to ensure the full functionality of your measuring device regularly (➔ Chapter 7 Calibration). Small deviations between real and determined IPA concentration can be corrected with the device-internal calibration. At longer intervals, a basic calibration by the manufacturer is recommended.


## 9 Service

Navigate with the selection buttons ↓↑ to the menu option **Service** of the main menu. Confirm your choice with the enter button >>>. The submenu **Service** appears.

The menu option **Language** gives you the possibility to choose between German and English for prompts, information and instructions on how to operate the device.

The menu option **Device Test** carries out a functional test. It is used exclusively for diagnostic purposes to detect and eliminate defects. Measured values for the gas sensor voltage and the temperature are displayed. The recirculation motor in the measuring head generates a gas flow.



Pressing the return button  ends the functional test.

	The measuring dish is not heated during the functional test!
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Useful information on the operation of individual components can be found under the menu option **Parameters**.

The menu option **Calibration** is used to save the correction values of the reference measurements. (➔ Chapter 7 Calibration).

## 10 Repair

	Repairs and service on the measuring device may only be carried out by the manufacturer.
	After contacting, send the device with a short description of the error to the manufacturer.

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## 11 Disposal

PITSID Polygraphische innovative Technik Leipzig GmbH takes responsibility for the disposal of old devices of the IPA Control III series that have been sent in. If you dispose of it yourself, you must comply with the current guidelines and safety regulations.



The hand-held measuring device IPA Control III must be disposed of as electronic waste in accordance with the current regulations. PITSID Polygraphische innovative Technik Leipzig GmbH is registered in the WEEE directive (Waste Electrical and Electronic Equipment) register under WEEE reg. No. DE73410149.

## Appendix

### CE Declaration of Conformity

The PITSID – Polygraphische Innovative Technik Leipzig GmbH  
Mommsenstraße 2  
D-04329 Leipzig

as manufacturer and distributor for the product declares:

Name: IPA Measuring Device

Series: IPA Control III

As of device number: IMG-0319

on the basis of

- the EMC Directive 2014/30/EU of the European Parliament and of the Council of February 26, 2014 on the harmonization of the laws of the member states relating to electromagnetic compatibility,
- the RoHS Directive 2011/65/EU of the European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment,
- the Directive 2014/35/EU of the European Parliament and of the Council of February 26, 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits,
- the Directive 2001/95/EC of the European Parliament and of the Council of December 3, 2001 on general product safety,
- the Directive 2009/125/EC of the European Parliament and of the Council of October 21, 2009 establishing a framework for the setting of ecodesign requirements for energy-related products,



that the product described above corresponds in its design and construction as well as in the version placed on the market to the provisions of the EU directives mentioned. If the product is changed without knowledge from the manufacturer, this declaration becomes invalid.

Compliance with the following harmonized standards is confirmed:

EN 61326-1:2013: Electrical measuring, control, regulating and laboratory devices – EMC requirements – Part 1: General requirements

IEC 61010-1:2010: Safety regulations for electrical measuring, control, regulating and laboratory devices – Part 1: General requirements

Complete technical documentation is available. The operation manual for the product is available in German (original) and English.

Leipzig, 04.08.2022



Dr.-Ing. Thomas Kaulitz

Managing Director

## Warranty

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There is a warranty for the product within the scope of the contractual terms and conditions. There is no warranty in the following cases:

- Accidental or willful damage
- Damage due to ignoring the documentation
- Unauthorized changes to hardware or software

The warranty is no longer valid if changes are made to the product by the customer or a third party without consulting PITSID Polygraphische Innovative Technik Leipzig GmbH. This also applies to independent repairs or repairs carried out by third parties.

## Troubleshooting

Error	Cause	Action
The device cannot be switched on	No supply voltage	Connect the supplied plug-in power supply unit.
		Plug the supplied power supply unit into the socket.
	Plug-in power supply unit defect	Contact the manufacturer
	Device defect	Contact the manufacturer
The device cannot be switched off	User error	Press and hold the return button
	Device defect	Unplug the plug-in power supply unit from the socket. Contact the manufacturer
Ambient temperature too high	Ambient temperature: > 30 °C	Comply with operating conditions
Dampening solution sample too warm	Temperature of the dampening solution sample: > 26 °C	Comply with operating conditions
Aborting the heating phase	Heating time: > 150 s	Restart the measuring process
	Measuring dish defect (No temperature change)	Contact the manufacturer
Measuring dish not connected	Measuring dish not connected	Connect the measuring dish to the hand-held device
IPA concentration is too high	IPA concentration of the dampening solution sample: > 15 vol% IPA	Dilute the dampening solution sample (Note! The measured value then corresponds to the diluted dampening solution sample).



If the error cannot be fixed, contact the manufacturer (→ Chapter 10 Repair).