

Polygraphische innovative  
Technik Leipzig

# Operating Manual

## IPA CONTROL EXACT

for Controlling Isopropyl Alcohol Concentration



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## 1. Field of Application

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This device serves to control the isopropyl alcohol concentration in the dampening solution from offset printing presses. The measurement is made by hand externally from the dampening solution preparation system. Temperature compensation calculations are not necessary. With the help of the heatable measuring dish, the dampening solution is tempered before every measurement which assures a high measurement accuracy.

The dampening solution can be taken from any point in the dampening solution circulation of the printing press.

## 2. Operating Principle

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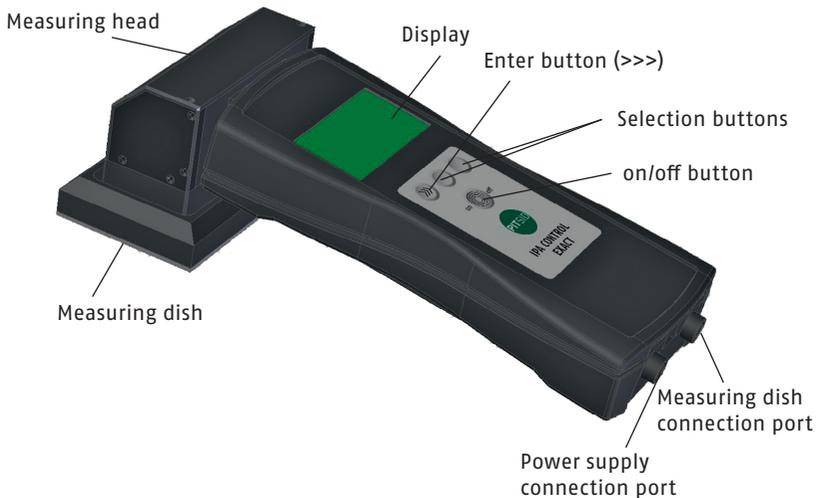
The IPA CONTROL EXACT measuring device operates based on the principle of gas extraction with a subsequent gas analysis.

A dampening solution sample is taken from the printing press and is poured in the measuring dish. Then, the measuring head of the hand-held device is placed in the measuring dish so that the resulting IPA-air mixture above the dampening solution is channelled to the gas sensor.

This sensor determines the isopropyl alcohol content of the gas. The IPA concentration in the dampening solution is calculated based on the measured liquid temperature and the sensor signal.

### 3. Device Configuration, Control Elements

- The measuring device consists of a hand-held device with a measuring head and a cable-connected heatable measuring dish. Electrical power is supplied by the provided plug-in power supply unit. All of the buttons necessary for operation are found on the hand-held device. Input prompts (operating instructions) and measurement results are shown on the display.



### 4. Measurement Procedure and Proper Handling

*Attention: Before beginning a measurement, it should be assured that the measuring device is acclimatised to the temperature of the measuring environment. Otherwise large measurement errors can occur due to the formation of condensation in the measuring head. Please be aware of this especially in the cold and hot times of the year!*

- Place the hand-held device and the measuring dish on a stable and flat surface and connect the two together. Do not yet place the measuring head in the measuring dish. Turn on the measuring device by shortly pressing the on/off button.

- After turning on, the temperature is checked making sure that the device is within the allowable operating temperature range (15–30 °C) and is ready for measurement. The current device temperature and a corresponding message is shown on the display.
- When an allowable operating temperature is reached, the following message is shown on the display, "*Detection of ambient temperature*". The measuring head is still not allowed to be submerged in the dampening solution. By confirming the request, the actual ambient temperature is saved and the device is ready for measurement. The main menu is shown in the display with the following items:
  - *Measure*
  - *Service*
- By using the selection buttons, navigate to "*Measure*" and press the enter button „>>>“. The actual measurement does not yet begin, however.
- Fill the measuring dish with 25 ml of dampening solution immediately before the measurement. Use the delivered tool for taking a precise sample in order to avoid overflowing, which could cause the measuring dish to overflow when the measuring head has been placed. An accurate amount also avoids an unnecessarily long warm-up time.
- Now place the measuring head inside the measuring dish. The frame of the measuring head should rest evenly on the heating plate. This is assured due to the construction of the measuring device when placed on an even surface. Do not place any additional underlays underneath the measuring dish or the hand-held device!
- Begin the measurement by pressing the enter button „>>>“.
- The dampening solution will then be warmed-up to a temperature between 20 °C and 25 °C. The message "*Heating phase*" as well as the actual and target temperature is shown on the display. **Attention:** The measuring dish heating plate will become hot during the heating phase! Do not touch the heating plate! Do not start a measurement without dampening solution in the measuring dish!

- As soon as the necessary temperature is reached, the heating phase is ended and the actual measuring phase automatically takes place. The messages "*Measuring phase*" as well as the "*Time remaining*" are shown in the display.
- After the measuring phase has ended, the calculated IPA concentration of the liquid is shown expressed as a volume percent. If no new measurement is started, the device shuts off automatically after 5 minutes.
- Empty the measuring dish after every measurement and dry the measuring dish and the measuring head with an absorbing cloth. In this way, any residual dampening solution cannot influence any successive measurements and keeps the measuring device clean from contaminants.

### Information about the Measurement

- Measuring samples which have more than 20 vol% IPA or contain other flammable liquids can damage the sensor! Chemical substances which contain sulphur compounds (e.g. H<sub>2</sub>S), heavy-metal compounds (e.g. lead), silicon compounds or silicone compounds can also damage the sensor permanently!
- The gas sensor which is found inside the measuring head must not come into direct contact with liquids. For is reason:
  - Only make measurements with the measuring dish belonging to the device!
  - For drying the measuring head only use a dry, at the most a moistened cloth and wipe the inside area of the head. Do not accidentally trigger a measurement during cleaning!
  - Never hold the measuring head with the opening facing upwards and rinse it with a liquid (e.g. water)!
- Any IPA vapours and solvent vapours found near the device surroundings can distort the measurement results. Remove any substances or objects that can influence the measurement, e.g. cleaning rags soaked with solvent!

- If the dampening solution temperature drops below the set minimum temperature during the measuring phase, a new heating phase and then a new measuring phase will begin.
- Under extreme conditions (very low dampening solution temperature and low ambient temperature), it is possible that the maximum allowable heating time of 150 seconds will be reached. In this case, the measurement with the now pre-heated dampening solution will need to be manually restarted. A corresponding message will be shown on the display.
- A dampening solution temperature above 25 °C can similarly not be measured. In this case, the measurement should be restarted with a new, cooler dampening solution sample taken from the printing press.

## 5. Adjustment, Diagnosis

- Selecting "Service" in the main menu opens the service menu with the items:
  - Language
  - Device Test
  - ParametersUnder "*Language*" the operating language (English/German) can be chosen.
- Selecting "*Device Test*" performs a function test of the device. The current measured values for the gas sensor voltage and the temperature are shown. The motor in the measuring head is also started (audible). The function test is ended by pressing the on/off button.
- Under "*Parameters*" is an operating time counter for the individual device components.
- The menu items "*Device Test*" and "*Parameters*" are intended to be used for possible diagnoses or service issues and are not needed for normal operation.

## 6. Cleaning

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- Contaminants on the device can be removed using normal cleaning agents.
- The measuring head as well as the measuring dish should not be held or submerged under running water! The electrical components contained inside can be destroyed as a result.

## 7. Maintenance, Repairs

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- To ensure a high measurement accuracy, the device should be maintained regularly. We recommend a time interval of 1 year.
- Repairs and service measures are carried out solely by the manufacturer.

## 8. Transport, Storage

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- The device is to be operated and stored in a dust-free and moisture-free place. Only the measuring head is allowed to be immersed in the dampening solution-filled measuring dish.
- Mechanical stresses, impacts and drops are to be avoided with the device as they can cause a change to the sensitivity to the gas sensor.
- It is recommended to avoid extreme temperatures while transporting and storing the device. The device should acclimatise to room temperature for about 45 minutes before beginning measurements. Please be aware of this especially in the cold and hot times of the year!

## 9. Technical Data:

<b>Gas sensor measurement principle</b>	Heat tone (catalytic)
<b>Measurement range</b>	0.0 to 8.0 vol% IPA
<b>Dampening solution temperature</b>	+5 to +25 °C
<b>Dampening solution sample amount</b>	25 ml
<b>Operating temperature</b>	+15 to +30 °C
<b>Resolution</b>	0.1 vol% IPA
<b>Measurement accuracy (for water/IPA mixture)</b>	$\leq \pm 0.3$ vol% IPA
<b>Measurement time</b>	60 s in addition to heating time (dependant on dampening solution temperature)
<b>Power supply</b>	Electrical mains using provided plug-in power supply unit
<b>Automatic shut-off</b>	After 5 min operation without entry
<b>Dimensions (L x W x H)</b>	Hand-held device: 255 x 100 x 64 mm Measuring dish: 122 x 68 x 19 mm
<b>Weight</b>	Hand-held device: 0.50 kg Measuring dish: 0.15 kg
<b>Scope of delivery</b>	Hand-held device, heatable measuring dish, tool to take dampening solution samples, plug-in power supply unit, carrying case, operating manual