



Compost  
Systems

Measurement technology

# Measuring tools

*Temperature, windrow gases and composting parameters*





# Digital thermometer

Reliable process management without overheating!

Our digital thermometer provides an exact and extremely fast overview of the composting process.



The temperature is one of the most significant parameters for composters. The material suitability, state of decomposition and more can be assessed by temperature progression. It is therefore important to continuously monitor the temperature of your compost windrows: Temperatures up to 65 °C should be reached but not exceeded permanently. Windrows that are overheated for long periods of time struggle with nutrient losses and poor compost quality. In addition, legislation in most countries requires the temperature to be recorded every working day as proof of sanitization.

## Technical data

Accuracy:	+ / - 1.0 °C
Graduation:	0.1 °C
Measuring range:	- 50 °C to 1,150 °C
Sensor type:	PT 100
Probe material:	stainless steel
Probe length:	Standard 800 mm (1,200 or 1,500 mm available on request)

### Scope of supply:

Measuring device with probe, 2x AA battery



# TML Cloud and IOT Probe

Automate your temperature measurements!

The new temperature measuring probe from Compost Systems makes your life easier. With the latest LTE Cat Narrowband technology, you can send the temperature of your compost to the internet.

The temperatures recorded by the probe at an adjustable interval are transferred to the cloud via the mobile network. With the simple, easy-to-understand user interface of the METIZ App, you always have access to your data and can download it at any time. Fulfill your recording obligations in accordance with the Compost/ Biodegradable Waste Ordinance and the Animal Material Act. Obtain valuable details to better manage your composting process and ensure high quality.



## Technical data

	TML1s-Cloud	TML1-Cloud	TML3-Cloud
Measuring zones:	1	1	3
Probe length:	1,055 mm	1,895 mm	
Weight:	~ 1.3 kg	~ 1.7 kg	
Measuring range:	- 20 °C to + 100 °C (accuracy + / - 0.5 °C)		
Sensor type:	digital temperature sensor		
Measuring interval:	freely adjustable		
Probe material:	stainless steel		
Protection class:	IP68 (1 m WC)		





# Digital carbon dioxide measuring device including temperature measuring

The ideal partner for your process monitoring!

It is important to have an overview of several parameters of your compost windrow during the decomposition process. That is why we offer a combination measuring device for our customers that is both compact and easy to use. Our device simultaneously measures the carbon dioxide concentration (CO<sub>2</sub>) and the temperature.

The measurement of CO<sub>2</sub> and temperature can be carried out by any employee on the composting site itself. CO<sub>2</sub> and temperature are measured via two independent probes. The sensors have a fast response time, high accuracy and a long service life. The measured values are clearly shown on the display.



## Technical data

Measuring range CO<sub>2</sub>: 0 - 20 Vol.-%

Measuring range temperature: 0 - 600 °C

### Scope of supply:

Digital carbon dioxide measuring device incl. battery and charger, hose set incl. filter tube, temperature probe, suction probe, silica gel

# Windrow gas instrument

Secure the aerobic rotting process.

You can obtain a meaningful overview of the decomposition process of biogenic materials by simultaneously measuring the oxygen (O<sub>2</sub>), carbon dioxide (CO<sub>2</sub>) and methane content (CH<sub>4</sub>) of the compost windrow. As oxygen is consumed, carbon dioxide is formed and, in the case of undesirable anaerobic decomposition, methane is also produced during the decomposition process as the microorganisms breathe. Especially in the case of unaerated compost windrows, the measurement of windrow gases is important in order to guarantee a sufficient oxygen supply and to better plan turning intervals. If the oxygen content drops too low, the process can collapse. In addition to high odour emissions, this also produces climate-relevant gases such as methane (CH<sub>4</sub>).

With our electronic windrow gas instrument, operators like you can get an overview of current process conditions. The instrument measures up to seven different gases simultaneously and is also easy to use and low-maintenance.

Our standard windrow gas instrument is equipped with three measuring sensors for measuring the most important composting parameters: oxygen (O<sub>2</sub>), carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>). The remaining sensor positions can be equipped with various sensors such as hydrogen sulfide (H<sub>2</sub>S) or ammonia (NH<sub>3</sub>). Additional sensors on request!

## Technical data

### Measuring range standard sensors

Oxygen O<sub>2</sub>: 0 - 25 Vol.-%

Carbon dioxide CO<sub>2</sub>: 0 - 100 Vol.-%

Methane CH<sub>4</sub>: 0 - 100 Vol.-%

### Measuring range optional sensors

Ammonia NH<sub>3</sub>: 0 - 200 ppm

Hydrogen sulfide H<sub>2</sub>S: 0 - 100 ppm

### Scope of supply:

Measuring device with suction probe, hose set, inductive charger, silica gel



# CMC soil and compost laboratory

Your basic equipment for quality assurance.

In order to obtain a high-quality product, the composting process must be optimally monitored and controlled. This requires meaningful compost parameters from your composting site. These can be easily measured with our CMC soil and compost laboratory.

When putting together this compact testkit, particular attention was paid to practical use, robustness, resistance to dirt and, of course, the selection of the individual components. It is particularly suitable for quick tests in the field or on the composting site, as it promptly shows you the current conditions in your compost. Easy sample preparation, simple test methods and fast, meaningful results provide you with immediate information, help you to make decisions and avoid errors.

You can exactly measure Nitrogen in its various forms (Nitrate  $\text{NO}_3^-$ , Nitrite  $\text{NO}_2^-$  and Ammonium  $\text{NH}_4^+$ ) as well as the pH value and sulphide ( $\text{S}^{2-}$ ). This allows the process to be optimized, the environment to be protected and the production of high-quality compost.



The CMC Testkit for soil and compost was compiled according to the strict criteria of Controlled Microbial Composting.

#### Scope of supply:

Instruction manual, reagents for sample preparation and analysis, electronic scale, filterpaper, various measuring beakers and accessories, robust and clearly laid out transport case with durable, high-quality and dirt-resistant foam, pH meter optionally available at an extra charge

# pH precision meter

The pH value is a decisive factor in composting. If the process is properly controlled, the pH value changes to the alkaline range after a few days. If the pH value remains below 7 for too long, this is a clear indication of a misguided process. To avoid incorrect values, the pH value should be measured as soon as possible after taking the sample. This eliminates many sources of error from the outset. You can also take immediate action without having to wait for the results of an analysis.

#### Technical data

Accuracy:	+ / - 0.02 pH
Graduation:	0.01 pH
Span:	0 - 14 pH
Power supply:	9 V battery

#### Scope of supply:

Measuring device with pH probe, 2x container with buffer capsules

#### Optional:

Various special electrodes, additional buffer capsules, analog output, 3 mol KCl solution for storing the probe, adapter for external probes, accessories for sample preparation



## Download your smart monitoring sheet

Use our free monitoring sheet for easy documentation and evaluation of your measured parameters.

This form helps you to assess the rotting condition and rotting progress. It automatically displays values that lie outside the limits for aerobic process control in accordance with ÖNORM S2205.



You can download the monitoring sheet here





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## International Compost Seminar

**Learn how to use our measuring devices in theory and practice!**

In our annual compost seminar, our experienced trainers impart their detailed knowledge of compost and soil to participants from all around the world. The program also includes the correct use of our measuring devices, the CMC soil and compost laboratory and the correct interpretation of the measured parameters.

If you are interested, please contact us at  
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- Plant components
- Compost covers
- Machine technology
- Container technology
- Measurement technology

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