



## ISFET pH probe for vials and test tubes

Sentron offers a comprehensive line of high quality meters and probes for glass-free pH measurement. The SI meter and probe line is created around our proprietary ISFET pH sensor that offers accurate and reliable pH measurement for demanding applications.

The MicroFET pH probe is a probe with a barrel diameter of just 3 mm (0.1"), ideally suited for pH measurement in narrow vials. Thanks to its barrel length of 110 mm (4.3") it can also reach to the bottom of long vials and test tubes. Applications for which Sentron's customers use the MicroFET pH probe include laboratory testing, monitoring of DNA sequencing and monitoring of biochemical reactions.

### ISFET = glass-free

The MicroFET probe contains Sentron's non-glass ISFET (Ion Sensitive Field Effect Transistor) pH sensor. This sensing component is Sentron's proprietary design and has been improved continuously over the past 15 years.

In contrast to conventional glass pH electrodes, ISFET pH sensors are robust and do not require wet storage. This makes them well suited for many environmental, food and pharmaceutical applications. Even in areas like education or in laboratories, where glass pH electrodes can be used, ISFET pH measurement technology offers a much more durable and reliable solution.

### Fast response time

ISFET pH sensors are fast because they measure directly at the surface. Sentron's SI series probes can give stable readings in less than 5 seconds for almost all samples.

### Extremely robust

Sentron probes are built from high quality ABS, PVC and PEEK materials. They are resistant to many aggressive solutions and can withstand rugged use. At the same time, they are light weight and easy to handle.

The probes have a polymer body snap-on type connector. Unlike DIN and bayonet type connectors, there are no moving parts nor screw thread that can be damaged.

The position of the ISFET and reference electrode has been designed to be clog and pollution resistant. In the event debris has accumulated on the sensor it can be easily cleaned with water and a brush.

Sentron probes are provided with protection against Electrostatic Discharge (ESD) ensuring measurements continue even in harsher electrostatic environments.

### Easy handling

The ergonomic design makes the probe easy to hold. Its reduced weight and soft flexible cable allow it to be manipulated freely.

### Comprehensive probe line

The MicroFET is part of a comprehensive probe line that meets a broad range of pH measurement needs.

**ConeFET:** Robust general purpose probe. 3280-010

**CupFET:** Probe for measurements of small liquid samples. 3200-010

**LanceFET:** Steel tipped probe for penetration and measurement of non-liquids such as meat and fruit. 2270-010

**LanceFET+H:** Equal to LanceFET but with large handle for additional grip. 2274-010

**MiniFET:** Compact and sturdy probe with a 5mm (0.2") diameter barrel, ideal for embedded application. 9202-010

**MicroFET:** Laboratory probe with a very small 3mm (0.1") diameter barrel that fits test tubes and mini-cuvettes. 9270-010

## Highlights

- ISFET = glass-free
- Fast response time
- Extremely robust
- Easy handling

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### About Sentron

Sentron is an innovative technology company specialized in the development and production of small sensors for medical and analytical applications. The company leverages more than 15 years of experience to develop and produce its high quality ISFET pH and pressure sensors. Peripheral equipment for the sensors, like measurement instruments, are designed, developed and produced in house as well.

Sentron is ISO 13485: 2003 certified for the development, manufacture and sales of sensors, subassemblies and meters for the determination of physical and chemical measured values in the engineering field, including medical applications.

Sentron is part of Wellingq, a Dutch high tech company with activities in sensing and medical devices. Please visit [www.wellingq.com](http://www.wellingq.com) for more information.

Please contact one of our distributors or visit our website for more information about the company, potential applications and for probes and accessories available for the pH meter.

### Specifications

|   | ConeFET<br>3280-010  | CupFET<br>3200-010 | LanceFET<br>2270-010         | LanceFET+H<br>2274-010 | MinifET<br>9202-010 | MicroFET<br>9270-010 |
|---|--|--------------------|------------------------------|------------------------|---------------------|----------------------|
| <b>General description</b>  |  |                    |                              |                        |                     |                      |
| General fluids ( <i>low viscosity</i> )                             | ✓  | ✓                  | ✓                            | ✓                      | ✓                   | ✓                    |
| Semi fluids ( <i>low to medium viscosity</i> )                      | ✓  | ✓                  | ✓                            | ✓                      | ✓                   | ✓                    |
| Pastes and semi solids ( <i>medium to high viscosity</i> )          | ✓  |                    | ✓                            | ✓                      |                     |                      |
| Piercing applications ( <i>normal to medium force penetration</i> ) |  |                    | ✓                            | ✓                      |                     |                      |
| ( <i>high force and stabbing penetration</i> )                      |  |                    | ✓                            | ✓                      |                     |                      |
| General beakers and containers                                      | ✓  | ✓                  | ✓                            | ✓                      | ✓                   | ✓                    |
| Deep containers (up to 140 mm)                                      | ✓  | ✓                  | ✓                            | ✓                      |                     | ✓                    |
| Small sample volumes (one drop ~20 µl)                              |  | ✓                  |                              |                        |                     | ✓                    |
| Narrow vials / test tubes (as small as Ø 3 mm)                      |  |                    |                              |                        |                     | ✓                    |
| <b>pH</b>   |  |                    |                              |                        |                     |                      |
| Sensor  | Glass-free Ion Sensitive Field Effect Transistor (ISFET) semiconductor |                    |                              |                        |                     |                      |
| Range   | pH 0.00...14.00  |                    |                              |                        |                     |                      |
| Drift ( <i>total after 24 hours in pH7 @ 25°C</i> )                 | Max. 0.14 pH   |                    |                              |                        |                     |                      |
| <b>Reference system</b>   |  |                    |                              |                        |                     |                      |
| Type  | non-flow   |                    |                              |                        |                     | non-flow             |
| Diaphragm   | porous PTFE  |                    |                              |                        |                     | ceramic              |
| Reference solution  | gelled KCl   |                    |                              |                        |                     | gelled KCl           |
| <b>Temperature</b>  |  |                    |                              |                        |                     |                      |
| Sensor  | PT1000   |                    |                              |                        |                     | NTC                  |
| Accuracy  | +/- 0.5 °C (0.9 °F)  |                    |                              |                        |                     | +/- 5.0 °C (9.0 °F)  |
| Range   | 0...80 °C (32...176°F)   |                    |                              |                        |                     | 0...80 °C            |
| <b>Physical properties</b>  |  |                    |                              |                        |                     |                      |
| Tip   |  |                    |                              |                        |                     |                      |
| <b>Dimensions</b>   |  |                    |                              |                        |                     |                      |
| Total length  | 183 mm (7.2")  | 183 mm (7.2")      | 190 mm (7.5")                | 223 mm (8.8")          | 83 mm (3.3")        | 160.5 (6.3")         |
| Barrel length (immersible)  | 137 mm (5.4")  | 134 mm (5.3")      | 144 mm (5.7")                | 52 mm (2.0")           | 36 mm (1.4")        | 110 mm (4.3")        |
| Barrel diameter   | 10 mm (0.4")   | 10 mm (0.4")       | 10 mm (0.4")                 | 10 mm (0.4")           | 5 mm (0.2")         | 3 mm (0.1")          |
| Cable length  | 1600 mm (63")  | 1600 mm (63")      | 1600 mm (63")                | 1600 mm (63")          | 1600 mm (63")       | 1600 mm (63")        |
| <b>Materials</b>  |  |                    |                              |                        |                     |                      |
| Tip/barrel  | PEEK / ABS   |                    | PEEK + Stainless steel point |                        | PEEK / ABS          | PEEK                 |
| Handle, strain relief, cable and connector                          | PVC  |                    | PVC                          |                        | PVC                 | PEEK                 |
| <b>Weight</b>   |  |                    |                              |                        |                     |                      |
|   | 53 gr. (1.9 oz)  | 53 gr. (1.9 oz)    | 53 gr. (1.9 oz)              | 198 gr. (7.0 oz)       | 20 gr. (0.7 oz)     | 29 gr. (1.0 oz)      |
| <b>Operation / storage</b>  |  |                    |                              |                        |                     |                      |
| Temperature   | 0...80 °C (32...176 °F)  |                    |                              |                        |                     |                      |
| Humidity  | 30%...80% Relative humidity  |                    |                              |                        |                     |                      |
| <b>Protection rating</b>  |  |                    |                              |                        |                     |                      |
| Connector   | IP68 (connector IP67)  |                    |                              |                        |                     |                      |
| Meter compatibility   | 5-pin, push-pull<br>SI meter series                                    |                    |                              |                        |                     |                      |

