

# ISFET pH combination electrode

Type 201050

## Brief description

The ISFET pH combination electrode can provide accurate and stable pH measurements in a vast number of industrial applications. The main features of this sensor are its sturdy design and its fast response time. The sensor works without a glass membrane. Measurement of the pH value is based on ISFET (ionselective field-effecttransistor) technology.

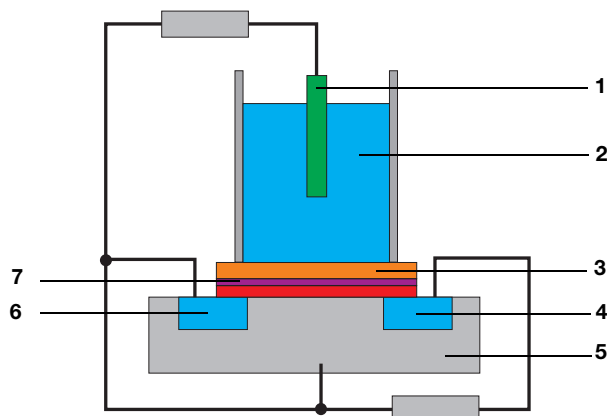
## Areas of application

- Food and drinks industry
- Dairies, cheese factories
- Hygienic production processes to meet 3-A requirements<sup>1</sup>
- Pharmaceuticals and
- In all hygienic production processes

## Function

A semi-conductor chip - the ISFET - takes on the function of the familiar glass membrane of normal combination electrodes. This measuring chip is embedded in a stable plastic body. This ensures a long service life in a variety of different media. When in operation, voltage is applied to the measuring chip. The extent of the current between source and drain is determined by the pH-sensitive gate. With a transmitter (such as the JUMO AQUIS 500 pH), the current can be displayed as a pH-Wert or used for control.

## Block diagram



- |   |                      |
|---|----------------------|
| 1 Reference electrode                                   | 2 Measurement medium |
| 3 Gate region with H <sup>+</sup> ion-sensitive coating | 4 Drain (N)          |
| 5 Silicon substrate (P)                                 | 6 Source (N)         |
| 7 Insulation  |                      |



Type 201050/04...

Type 201050/

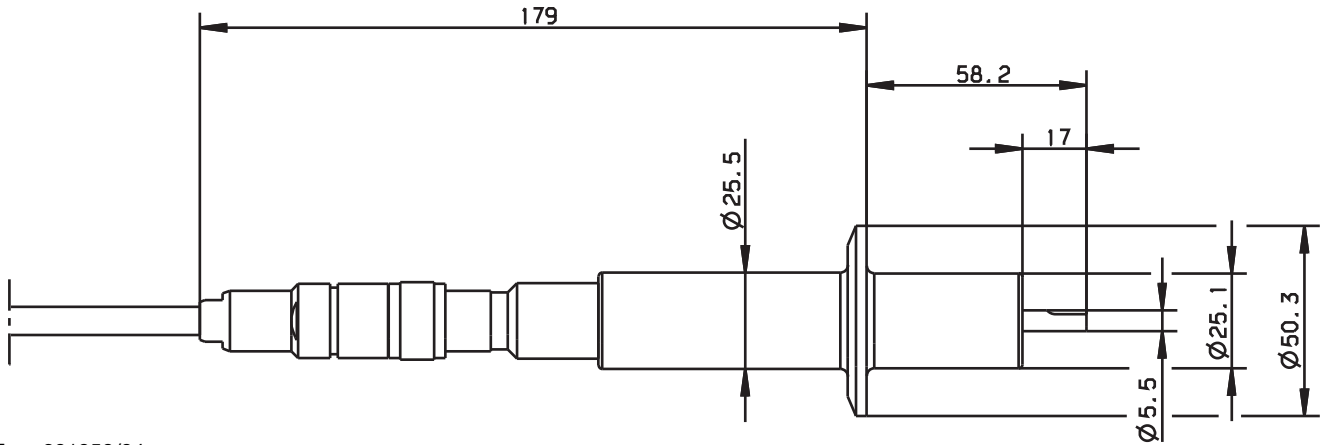
## Key features

- Break-resistant
- Good response rate
- High measuring accuracy even at low temperatures
- Stable measurement values
- Can be used without a fitting
- Not susceptible to "dry-running"
- Excellent shelf life

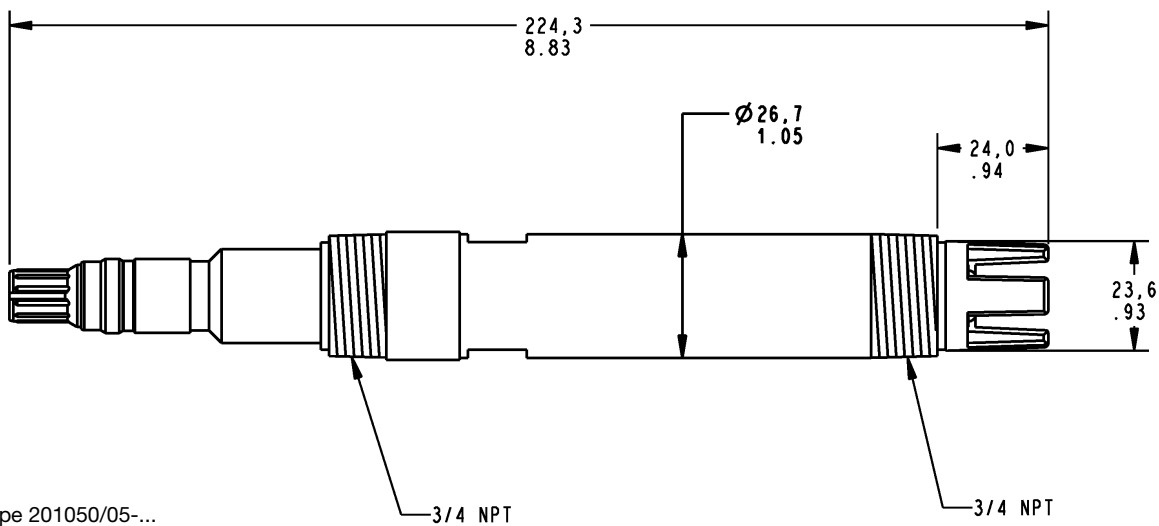
<sup>1</sup> 3-A Sanitary Standards define the standards for food-safe materials that also have to be suitable for cleaning and disinfecting. These standards should ensure product quality, thus safeguarding the health of the final consumer.



## Dimensions

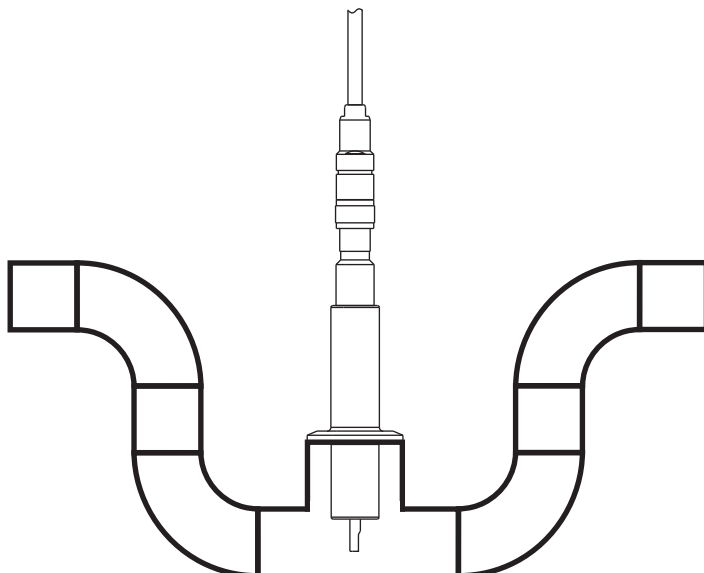


Type 201050/04-...



Type 201050/05-...

## Installation example



**Note**

When installed in tubing systems, the sensor should be mounted in the siphon, as shown.



## Electrical connection

to the JUMO AQUIS 500 pH transmitter/controller, as per data sheet 202560

Connection		Color	Terminal	Row
<b>Supply voltage for the cap adapter</b>				
Supply voltage ± 5 V DC, 5 mA		Blue Black Green	11 L+ 12 $\perp$ 13 L-	2
<b>pH sensor</b>				
Sensor Reference		White / black Shield	1 3 + 5 bridged	2
Resistance thermometer in 3-wire circuit, Pt 1000		White Red Red / black	8 9 10	

## Order details: ISFET pH combination electrode

201050 **(1) Basic type**  
ISFET pH combination electrode

**(2) Basic type extension**

	04	Version for hygienic applications
	05	Screw-in version
x x	<b>(3) Active component</b>	
	50	ISFET module
x x	<b>(4) Electrical connection</b>	
	28	VarioPin (VP) connector
x	<b>(5) Process connection</b>	
	145	3/4" NPT thread
x	615	1.5" clamp
	<b>(6) Fitting length</b>	
x	24	24 mm (for connection 145 only)
x	58,2	58.2 mm (for connection 615 only)
x x	<b>(7) Extra codes</b>	
	000	none

Order code	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample order	201050	04	50	28	145	24	000

**Note:**

The type code is a type designation, not a modular system.  
 If possible, choose items listed under "stock versions" or "production versions" for your orders.  
 We will have to technically inspect and approve a free combination of individual key features.  
 In case of doubt, please ask.

## Production versions (delivery 2 weeks after receipt of order)

Type	Brief description	Sales No.
201050/04-50-28-615-95/000	ISFET pH combination electrode, ceramic diaphragm, 1.5" clamp connection, 58.2 mm fitting length	20/00525411
201050/05-50-28-145-24/000	ISFET pH combination electrode, ceramic diaphragm, 3/4" NPT thread, 24 mm fitting length	20/00525415

## Accessories (delivery 2 weeks after receipt of order)

Type	Brief description	Sales No.
Cap adapter	Preamplifier, 6 m connecting cable, prefabricated	(PG 201090) 20/00525421
Cap adapter	Preamplifier, 15 m connecting cable, prefabricated	(PG 201090) 20/00525420