

## C220, Pt Temperature Sensor according to DIN EN 60751

Temperature range -196 °C to +150 °C

- Ideal for cryo temperatures
- Excellent long term stability and low drift
- High accuracy and interchangeability
- High thermal shock resistance
- Free of hysteresis

The C220 thin-film Pt-RTD provides the ideal curve characteristics of ceramic wire-wound RTDs with the added benefits of high vibration resistance and lower cost. High long-term stability, excellent thermal shock resistance and a hysteresis-free operating temperature range of -196 °C to +150 °C offer an ideal solution for chemical & pharmaceutical processing, cryogenics, analytical equipment, and cold chain monitoring.

Nominal Resistance $R_0$ [ $\Omega$ ]	Tolerance Class	Order Number	Packaging
Pt100	F 0.3 (B)	32207399	VCI-Plastic bag

The measuring point for the nominal resistance is 8 mm from the end of the sensor body.

### Temperature Range of Tolerance Class

Validity of Class F 0.3 (B) -196 °C to +150 °C

### Temperature Coefficient

TCR = 3850 ppm/K

### Response Time

Water ( $v = 0.4$  m/s):  
 $t_{0.5} = 0.06$  s  
 $t_{0.9} = 0.2$  s

Air ( $v = 2$  m/s):  
 $t_{0.5} = 3$  s  
 $t_{0.9} = 13$  s

### Measuring Current

Pt100  $\Omega$ : 0.3 to 1 mA  
 (self-heating has to be considered)

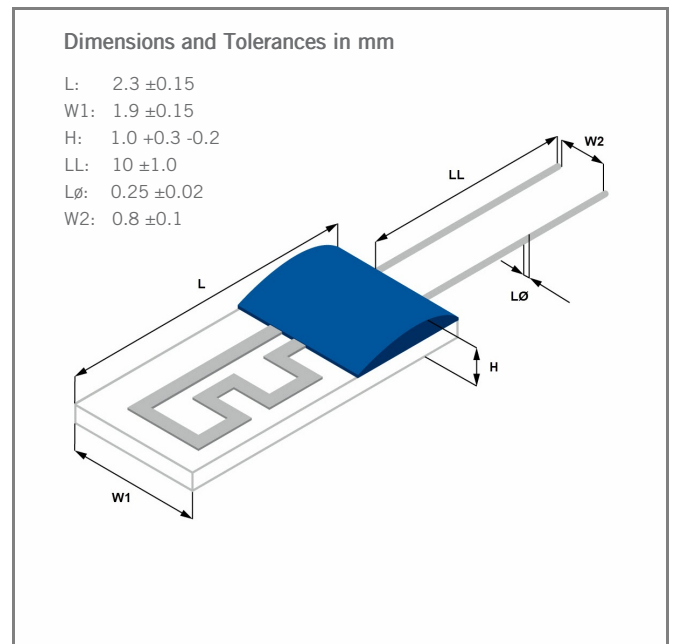


Image for illustration purposes only  
 Color, shape and forming of fixing drop may vary

## C220, Pt Temperature Sensor according to DIN EN 60751

Temperature range -196 °C to +150 °C

---

### Long-Term Stability

The drift of the resistance value at 0 °C after a storage for 1000 hours in air at the declared upper temperature limit is not more than the tolerance value of the declared tolerance class according DIN EN 60751.

Typical drift of R(0 °C) is 0.03 % after 1000 hours at +150 °C.

### Self-Heating

0.4 K/mW at 0 °C

### Insulation Resistance

> 100 MΩ at 150 °C

### Vibration Resistance

At least 40 g acceleration at 10 to 2000 Hz, depends on installation

### Shock Resistance

At least 100 g acceleration with 8 ms half sine wave, depends on installation

### Connection Technology

Brazing

### Lead Type

AgPd

### Tensile Strength of Leads

≥ 8 N

### Packaging

VCI-Plastic bag

Alternative packaging forms on request

### Storage Life

Min. 12 months (in original packaging)

### Note

Other tolerances, values of resistance and wire lengths are available on request.

C220 and C420 Pt elements are optimized for low-temperature use. To avoid a potential tolerance shift, the elements should not be exposed to temperatures exceeding 150 °C during storage, assembly, or use.

Due to random sample measurements, a bending of connection wires may occur (called V-shape). This bending is batch-dependent and has no influence on the functionality of the platinum measuring resistor.



The information provided in this data sheet describes certain technical characteristics of the product, but shall not be qualified or construed as quality guarantee (Beschaffheitsgarantie) in the meaning of sections 443 and 444 German Civil Code. The information provided in this data sheet regarding measurement values (including, but not limited to, response time, long-term stability, vibration and shock resistance, insulation resistance and self-heating) are average values that have been obtained under laboratory conditions in tests of large numbers of the product. Product results or measurements achieved by customer or any other person in any production, test, or other environment may vary depending on the specific conditions of use.

The customer is solely responsible to determine whether the product is suited for the customer's intended use; in this respect YAGEO Nexensos cannot assume any liability. The sale of any products by YAGEO Nexensos is exclusively subject to the General Terms of Sale and Delivery of YAGEO Nexensos in their current version at the time of purchase, which is available under [www.yageo-nexensos.com/tc](http://www.yageo-nexensos.com/tc) or may be furnished upon request. This data sheet is subject to changes without prior notice.

YAGEO Nexensos GmbH, Reinhard-Heraeus-Ring 23, 63801 Kleinostheim, Germany

## C220, Pt Temperature Sensor according to DIN EN 60751

Temperature range -196 °C to +150 °C

- Ideal for cryo temperatures
- Excellent long term stability and low drift
- High accuracy and interchangeability
- High thermal shock resistance
- Free of hysteresis

The C220 thin-film Pt-RTD provides the ideal curve characteristics of ceramic wire-wound RTDs with the added benefits of high vibration resistance and lower cost. High long-term stability, excellent thermal shock resistance and a hysteresis-free operating temperature range of -196 °C to +150 °C offer an ideal solution for chemical & pharmaceutical processing, cryogenics, analytical equipment, and cold chain monitoring.

Nominal Resistance $R_0$ [ $\Omega$ ]	Tolerance Class	Order Number	Packaging
Pt100	F 0.3 (B)	32207399	VCI-Plastic bag

The measuring point for the nominal resistance is 8 mm from the end of the sensor body.

### Temperature Range of Tolerance Class

Validity of Class F 0.3 (B) -196 °C to +150 °C

### Temperature Coefficient

TCR = 3850 ppm/K

### Response Time

Water ( $v = 0.4$  m/s):  
 $t_{0.5} = 0.06$  s  
 $t_{0.9} = 0.2$  s

Air ( $v = 2$  m/s):  
 $t_{0.5} = 3$  s  
 $t_{0.9} = 13$  s

### Measuring Current

Pt100  $\Omega$ : 0.3 to 1 mA  
 (self-heating has to be considered)

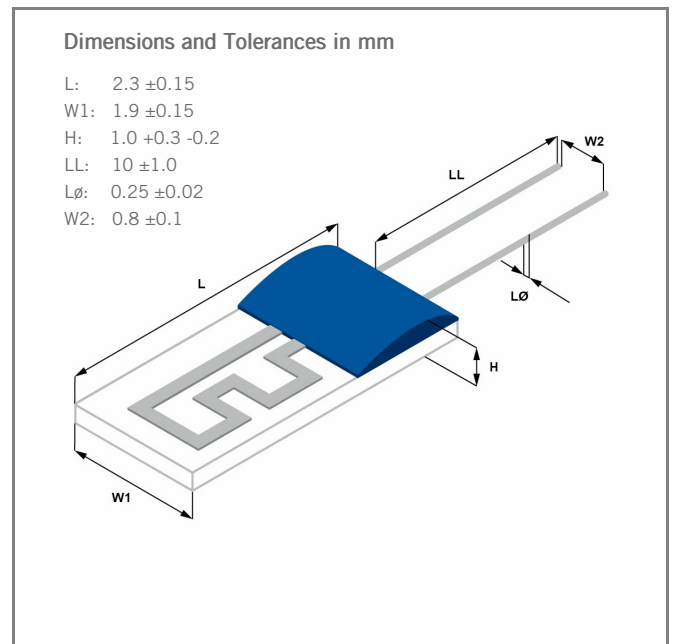


Image for illustration purposes only  
 Color, shape and forming of fixing drop may vary

## C220, Pt Temperature Sensor according to DIN EN 60751

Temperature range -196 °C to +150 °C

---

### Long-Term Stability

The drift of the resistance value at 0 °C after a storage for 1000 hours in air at the declared upper temperature limit is not more than the tolerance value of the declared tolerance class according DIN EN 60751.

Typical drift of R(0 °C) is 0.03 % after 1000 hours at +150 °C.

### Self-Heating

0.4 K/mW at 0 °C

### Insulation Resistance

> 100 MΩ at 150 °C

### Vibration Resistance

At least 40 g acceleration at 10 to 2000 Hz, depends on installation

### Shock Resistance

At least 100 g acceleration with 8 ms half sine wave, depends on installation

### Connection Technology

Brazing

### Lead Type

AgPd

### Tensile Strength of Leads

≥ 8 N

### Packaging

VCI-Plastic bag

Alternative packaging forms on request

### Storage Life

Min. 12 months (in original packaging)

### Note

Other tolerances, values of resistance and wire lengths are available on request.

C220 and C420 Pt elements are optimized for low-temperature use. To avoid a potential tolerance shift, the elements should not be exposed to temperatures exceeding 150 °C during storage, assembly, or use.

Due to random sample measurements, a bending of connection wires may occur (called V-shape). This bending is batch-dependent and has no influence on the functionality of the platinum measuring resistor.



The information provided in this data sheet describes certain technical characteristics of the product, but shall not be qualified or construed as quality guarantee (Beschaffheitsgarantie) in the meaning of sections 443 and 444 German Civil Code. The information provided in this data sheet regarding measurement values (including, but not limited to, response time, long-term stability, vibration and shock resistance, insulation resistance and self-heating) are average values that have been obtained under laboratory conditions in tests of large numbers of the product. Product results or measurements achieved by customer or any other person in any production, test, or other environment may vary depending on the specific conditions of use.

The customer is solely responsible to determine whether the product is suited for the customer's intended use; in this respect YAGEO Nexensos cannot assume any liability. The sale of any products by YAGEO Nexensos is exclusively subject to the General Terms of Sale and Delivery of YAGEO Nexensos in their current version at the time of purchase, which is available under [www.yageo-nexensos.com/tc](http://www.yageo-nexensos.com/tc) or may be furnished upon request. This data sheet is subject to changes without prior notice.

YAGEO Nexensos GmbH, Reinhard-Heraeus-Ring 23, 63801 Kleinostheim, Germany

YAGEO Nexensos GmbH, Germany  
Web: [www.yageo-nexensos.com](http://www.yageo-nexensos.com)  
Contact: [nexensos.america@yageo.com](mailto:nexensos.america@yageo.com)

Document: 20002219738 | Part 001 | Version 02 | Status: 03/2023

Page 2 of 2

## C416, Pt Temperature Sensor according to DIN EN 60751

Temperature range -196 °C to +500 °C

- Extended operating temperature range from -196 °C to 500 °C
- Excellent long term stability and low drift
- High accuracy and interchangeability
- High thermal shock resistance
- Free of hysteresis

The C416 thin-film Pt-RTD provides the ideal curve characteristics of ceramic wire-wound RTDs with the added benefits of high vibration resistance and lower cost. High long-term stability, excellent thermal shock resistance and a hysteresis-free operating temperature range of -196 °C to +500 °C offer an ideal solution for aerospace, cryogenics, superconductivity, chemical & pharmaceutical processing, analytical equipment, and other applications.

Nominal Resistance $R_0$ [ $\Omega$ ]	Tolerance Class	Order Number	Packaging
Pt100	F 0.3 (B)	32208519	Blister reel

The measuring point for the nominal resistance is 8 mm from the end of the sensor body.

### Temperature Range of Tolerance Class

Validity of Class F 0.3 (B) -196 °C to +500 °C

### Temperature Coefficient

TCR = 3850 ppm/K

### Response Time

Water ( $v = 0.4$  m/s):  
 $t_{0.5} = 0.07$  s  
 $t_{0.9} = 0.25$  s

Air ( $v = 2$  m/s):  
 $t_{0.5} = 3.2$  s  
 $t_{0.9} = 14$  s

### Measuring Current

Pt100  $\Omega$ : 0.3 to 1 mA  
 (self-heating has to be considered)

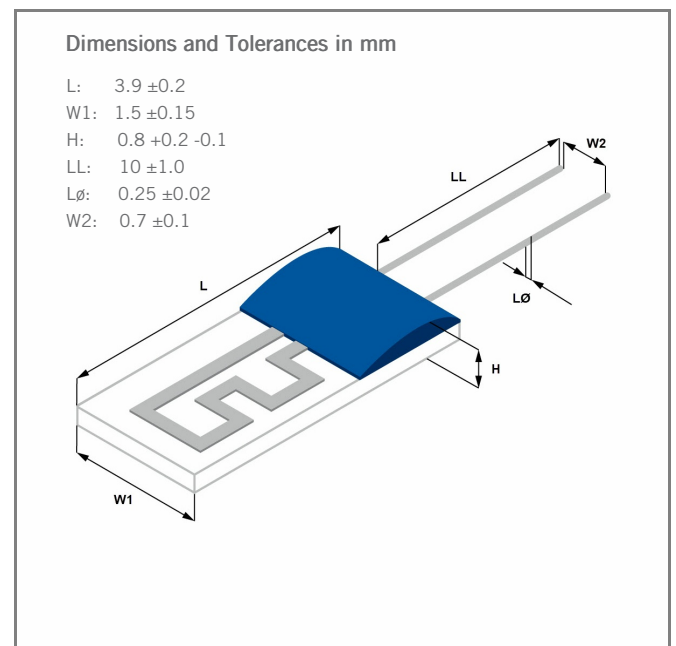


Image for illustration purposes only  
 Color, shape and forming of fixing drop may vary

## C416, Pt Temperature Sensor according to DIN EN 60751

Temperature range -196 °C to +500 °C

### Long-Term Stability

The drift of the resistance value at 0 °C after a storage for 1000 hours in air at the declared upper temperature limit is not more than the tolerance value of the declared tolerance class according DIN EN 60751.

Typical drift of R(0 °C) is 0.03 % after 1000 hours at +500 °C.

### Self-Heating

0.4 K/mW at 0 °C

### Insulation Resistance

> 100 MΩ at 20 °C

> 2 MΩ at 500 °C

### Vibration Resistance

At least 40 g acceleration at 10 to 2000 Hz, depends on installation

### Shock Resistance

At least 100 g acceleration with 8 ms half sine wave, depends on installation

### Connection Technology

Brazing, Soft Soldering

### Lead Type

AuPd

### Tensile Strength of Leads

≥ 5 N

### Packaging

Blister reel

Alternative packaging forms on request.

### Storage Life

Min. 12 months (in original packaging)

### Note

Other tolerances, values of resistance and wire lengths are available on request.

Due to random sample measurements, a bending of connection wires may occur (called V-shape). This bending is batch-dependent and has no influence on the functionality of the platinum measuring resistor.

### California Proposition 65



## WARNING

WARNING: This product can expose you to chemicals including lead oxide, which is known to the State of California to cause cancer and birth defects or other reproductive harm, and including cobalt oxide, which is known to the State of California to cause cancer. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)



The information provided in this data sheet describes certain technical characteristics of the product, but shall not be qualified or construed as quality guarantee (Beschaffheitsgarantie) in the meaning of sections 443 and 444 German Civil Code. The information provided in this data sheet regarding measurement values (including, but not limited to, response time, long-term stability, vibration and shock resistance, insulation resistance and self-heating) are average values that have been obtained under laboratory conditions in tests of large numbers of the product. Product results or measurements achieved by customer or any other person in any production, test, or other environment may vary depending on the specific conditions of use.

The customer is solely responsible to determine whether the product is suited for the customer's intended use; in this respect YAGEO Nexensos cannot assume any liability. The sale of any products by YAGEO Nexensos is exclusively subject to the General Terms of Sale and Delivery of YAGEO Nexensos in their current version at the time of purchase, which is available under [www.yageo-nexensos.com/tc](http://www.yageo-nexensos.com/tc) or may be furnished upon request. This data sheet is subject to changes without prior notice.

YAGEO Nexensos GmbH, Reinhard-Heraeus-Ring 23, 63801 Kleinostheim, Germany

YAGEO Nexensos GmbH, Germany  
Web: [www.yageo-nexensos.com](http://www.yageo-nexensos.com)  
Contact: [nexensos.america@yageo.com](mailto:nexensos.america@yageo.com)

Document: 20002219358 | Part 001 | Version 02 | Status: 03/2023

Page 2 of 2

## C420, Pt Temperature Sensor according to DIN EN 60751

Temperature range -196 °C to +150 °C

- Ideal for cryo temperatures
- Excellent long term stability and low drift
- High accuracy and interchangeability
- High thermal shock resistance
- Free of hysteresis

The C420 thin-film Pt-RTD provides the ideal curve characteristics of ceramic wire-wound RTDs with the added benefits of high vibration resistance and lower cost. High long-term stability, excellent thermal shock resistance and a hysteresis-free operating temperature range of -196 °C to +150 °C offer an ideal solution for chemical & pharmaceutical processing, cryogenics, analytical equipment, and cold chain monitoring.

Nominal Resistance $R_0$ [ $\Omega$ ]	Tolerance Class	Order Number	Packaging
Pt1000	F 0.3 (B)	32207502	VCI-Plastic bag

The measuring point for the nominal resistance is 13 mm from the end of the sensor body.

### Temperature Range of Tolerance Class

Validity of Class F 0.3 (B) -196 °C to +150 °C

### Temperature Coefficient

TCR = 3850 ppm/K

### Response Time

Water ( $v = 0.4$  m/s):  
 $t_{0.5} = 0.08$  s  
 $t_{0.9} = 0.25$  s

Air ( $v = 2$  m/s):  
 $t_{0.5} = 3.5$  s  
 $t_{0.9} = 15$  s

### Measuring Current

Pt1000  $\Omega$ : 0.1 to 0.3 mA  
 (self-heating has to be considered)

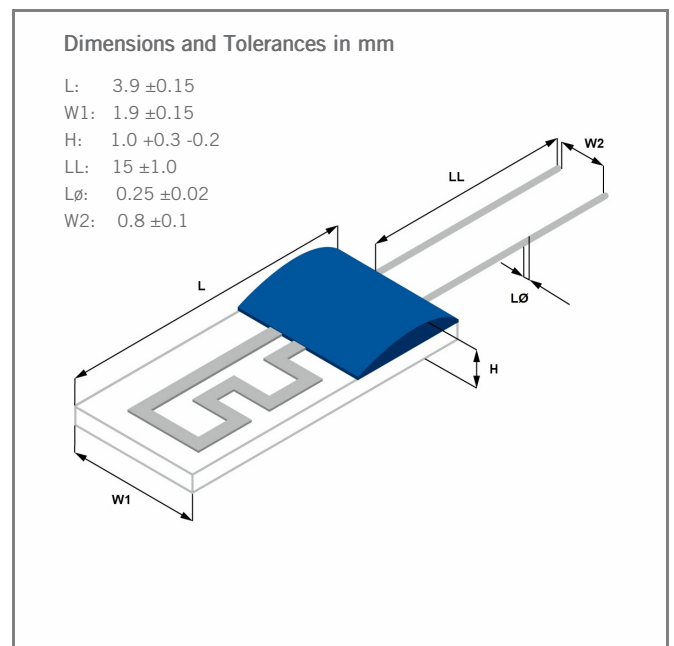


Image for illustration purposes only  
 Color, shape and forming of fixing drop may vary

## C420, Pt Temperature Sensor according to DIN EN 60751

Temperature range -196 °C to +150 °C

### Long-Term Stability

The drift of the resistance value at 0 °C after a storage for 1000 hours in air at the declared upper temperature limit is not more than the tolerance value of the declared tolerance class according DIN EN 60751.

Typical drift of R(0 °C) is 0.03 % after 1000 hours at +150 °C.

### Self-Heating

0.3 K/mW at 0 °C

### Insulation Resistance

> 100 MΩ at 150 °C

### Vibration Resistance

At least 40 g acceleration at 10 to 2000 Hz, depends on installation

### Shock Resistance

At least 100 g acceleration with 8 ms half sine wave, depends on installation

### Connection Technology

Soft Soldering

### Lead Type

AgPd

### Tensile Strength of Leads

≥ 8 N

### Packaging

VCI-Plastic bag

Alternative packaging forms on request.

### Storage Life

Min. 12 months (in original packaging)

### Note

Other tolerances, values of resistance and wire lengths are available on request.

C220 and C420 Pt elements are optimized for low-temperature use. To avoid a potential tolerance shift, the elements should not be exposed to temperatures exceeding 150 °C during storage, assembly, or use.

Due to random sample measurements, a bending of connection wires may occur (called V-shape). This bending is batch-dependent and has no influence on the functionality of the platinum measuring resistor.

### California Proposition 65



## WARNING

WARNING: This product can expose you to chemicals including lead oxide, which is known to the State of California to cause cancer and birth defects or other reproductive harm, and including cobalt oxide, which is known to the State of California to cause cancer.

For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

**RoHS**  
compliant

The information provided in this data sheet describes certain technical characteristics of the product, but shall not be qualified or construed as quality guarantee (Beschaffheitsgarantie) in the meaning of sections 443 and 444 German Civil Code. The information provided in this data sheet regarding measurement values (including, but not limited to, response time, long-term stability, vibration and shock resistance, insulation resistance and self-heating) are average values that have been obtained under laboratory conditions in tests of large numbers of the product. Product results or measurements achieved by customer or any other person in any production, test, or other environment may vary depending on the specific conditions of use.

The customer is solely responsible to determine whether the product is suited for the customer's intended use; in this respect YAGEO Nexensos cannot assume any liability. The sale of any products by YAGEO Nexensos is exclusively subject to the General Terms of Sale and Delivery of YAGEO Nexensos in their current version at the time of purchase, which is available under [www.yageo-nexensos.com/tc](http://www.yageo-nexensos.com/tc) or may be furnished upon request. This data sheet is subject to changes without prior notice.

YAGEO Nexensos GmbH, Reinhard-Heraeus-Ring 23, 63801 Kleinostheim, Germany

YAGEO Nexensos GmbH, Germany  
Web: [www.yageo-nexensos.com](http://www.yageo-nexensos.com)  
Contact: [nexensos.america@yageo.com](mailto:nexensos.america@yageo.com)

Document: 20002219724 | Part 001 | Version 02 | Status: 03/2023