

JUMO tecLine Ci

Inductive conductivity and temperature sensor for hygienic applications

Brief description

The sensor detects the electrolytic conductivity of a process liquid. The sensor uses the inductive principle of measurement. An integrated, fast-response (Pt1000) temperature probe detects the process temperature at the same time. The overall construction of the sensor conforms to EHEDG standards. The joint and gap-free design and the high quality of the finish meet the highest standards for hygienic processes. The quality of the PEEK (polyetheretherketone) body material is approved for food use. Certain versions can be supplied with an EHEDG certificate.

A vast number of process connections are available to ensure flexibility in systems, and can even be used as spare equipment for older instruments.

The sensor is primarily designed for use in food and drink installations. But where the body material is suitable, it can also be used in other industries. Customized variants (OEM versions) are available on request.

Because it measures inductively, the sensor is practically maintenance-free, compared with the conductive method; deposits and grease or oil film on the surface of the sensor have virtually no effect on measuring accuracy. The JUMO tecLine Ci sensor is designed for connection to the JUMO AQUIS 500 Ci transmitter, as per data sheet 202566.

Typical areas of application:

Dairies, breweries, soft drinks manufacturing/bottling, mineral springs, drinking water, liquid food production, CIP/SIP systems, other rinsing and cleaning processes, measuring the concentration of acids, lyes and cleaning chemicals, etc.

Product advantages:

- EHEDG-compliant sensor design enhances hygiene safety
- Materials are FDA/food-use approved
- A variety of process connection variants
- A fast-response, internal temperature sensor
- Constructed without seals (parts coming into contact with the medium)



Type 202941/10-686-...



Type 202941/10-607-...

Approvals/marks of conformity





Technical data

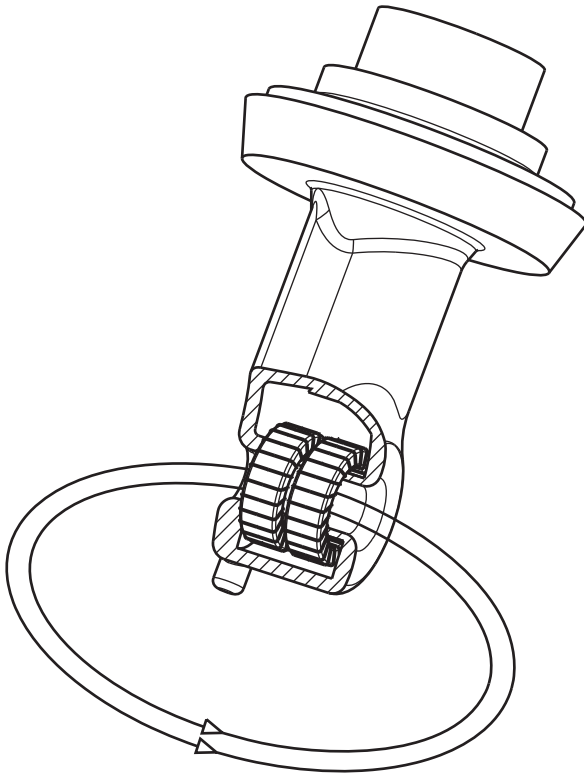
| | |
|--|---|
| Conductivity measurement principle | Inductive |
| Conductivity measuring range | 0 - 500 µS/cm to 0 - 2000 mS/cm (depending on connected transmitter) |
| Conductivity accuracy for measuring range: | |
| 0 - 500 µS/cm | ≤ 1% |
| 0 - 1000 µS/cm | ≤ 1% |
| 0 - 2000 µS/cm | ≤ 0.5% |
| 0 - 10 mS/cm | ≤ 0.5% |
| 0 - 20 mS/cm | ≤ 0.5% |
| 0 - 50 mS/cm | ≤ 0.5% |
| 0 - 100 mS/cm | ≤ 0.5% |
| 0 - 200 mS/cm | ≤ 0.5% |
| 0 - 100 mS/cm | ≤ 0.5% |
| 0 - 500 mS/cm | ≤ 0.5% |
| 0 - 1000 mS/cm | ≤ 1% |
| 0 - 2000 mS/cm | ≤ 1% |
| Cell constant | dependent on design: k = 5.0 1/cm or k = 5.15 1/cm |
| Temperature sensor | Pt1000, Class A |
| t₉₀ temperature¹ | ≤ 26 s |
| Permissible ambient temperature | -10 to +60°C |
| Permissible storage temperature | -20 to +75°C |
| Enclosure protection² | IP67 |
| Permissible medium temperature³ In operation For short periods (sterilization) | -10 to +125°C ≤ 150°C (≤ 60 min, ≤ 5 bar) |
| Permissible process pressure³ at +20°C at +80°C at +125°C at +150°C at -10 to +150°C | 12 bar 10 bar 8 bar 5 bar (≤ 60 min) min. -0.1 bar |
| | |
| Sensor material in contact with medium not in contact with medium | dependent on design: PEEK, 1.4301 stainless steel, AISI 304, EPDM dependent on design: 1.4301 stainless steel, AISI 304, PA6.6 GF30, PUR, FPM, CuZn |
| Process connection | see order details / dimensions |
| Electrical connection Connection type Socket Socket material Cable material Cable lengths Permissible temperature | JUMO tecLine Ci type conductivity sensors are suitable for connection to JUMO AQUIS 500 Ci type inductive conductivity transmitters/controllers! fixed connection cable M12 socket CuZn, PA6.6 GF30, PUR outer sleeve: PUR 5 m; 10 m (standard); 15 m; 20 m; 25 m; 30 m (no other lengths available) -20 to +75°C |
| Approvals/marks of conformity | EHEDG (for type 202941/10-686-...) |

¹ EN 60751

² EN 60529

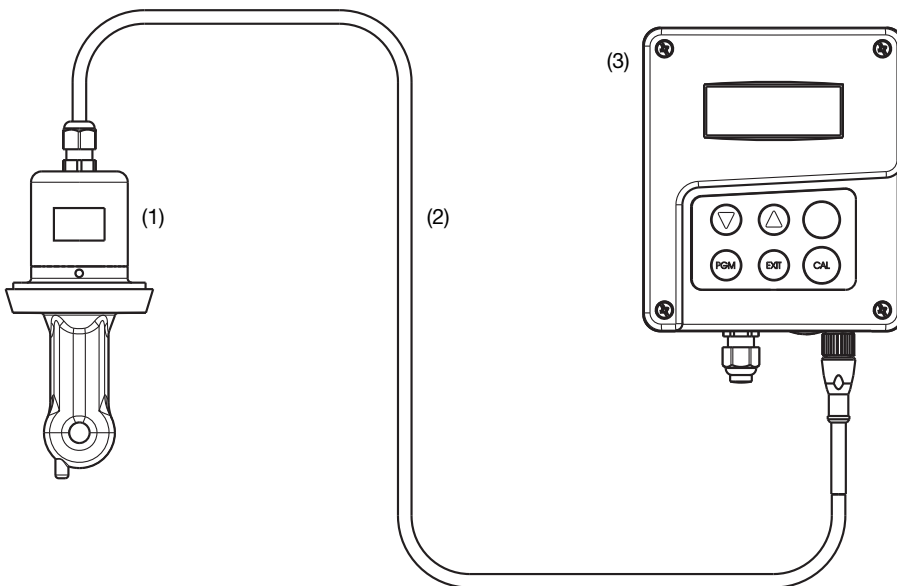
³ Note: Temperature, pressure and sample medium affect the life of the cell!

Principle of measurement



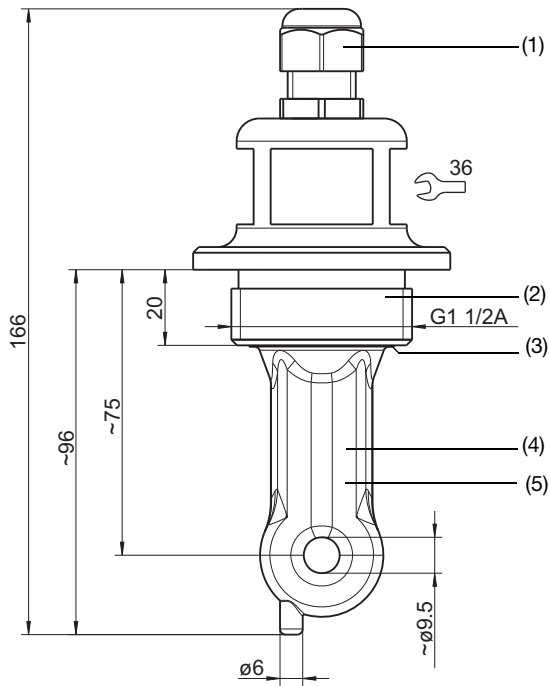
Conductivity is measured by an inductive probe. Sinusoidal AC voltage supplies the transmitter coil. Current is induced in the receiver coil, subject to the conductivity of the liquid to be measured. The current is proportional to the conductivity of the medium. The cell constant of the inductive probe depends on the geometry. The cell constant can also be affected by the parts in close proximity to it. Use the "installation factor" parameter on the transmitter to correct this effect.

Measurement section setup

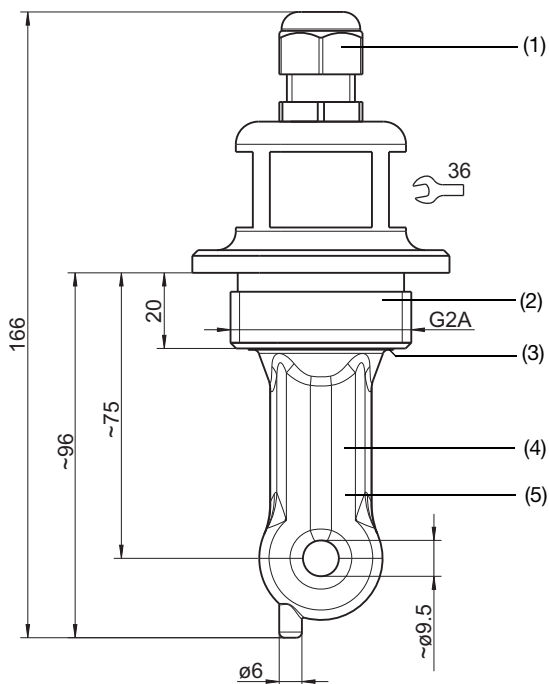


- (1) JUMO tecLine Ci, hygienic inductive conductivity and temperature sensor
- (2) Cable (JUMO tecLine Ci component)
- (3) JUMO AQUIS 500 Ci, transmitter/controller for conductivity, concentration and temperature

Dimensions

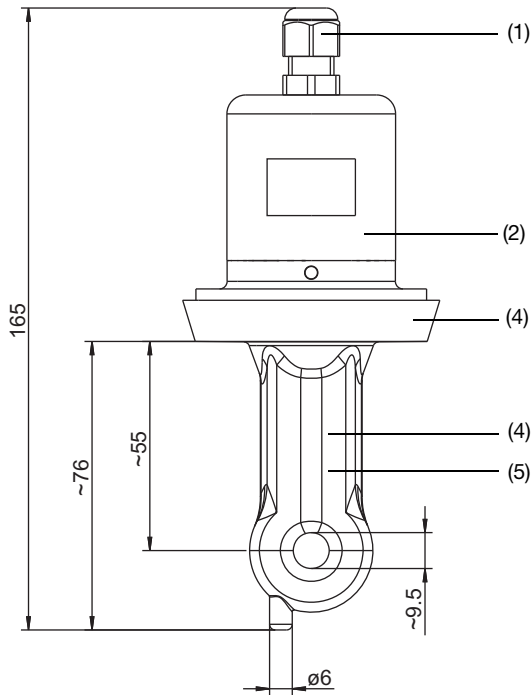


Type 202941/10-108-...
G1 1/2" thread

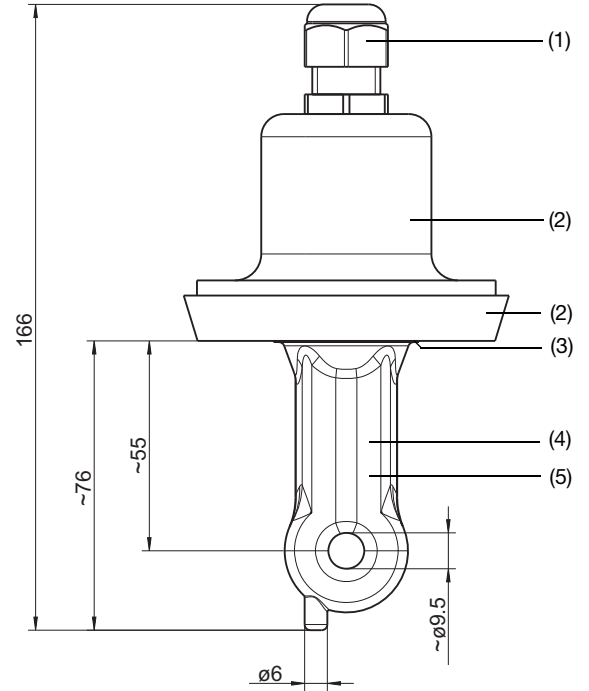


Type 202941/10-110-...
G2 thread

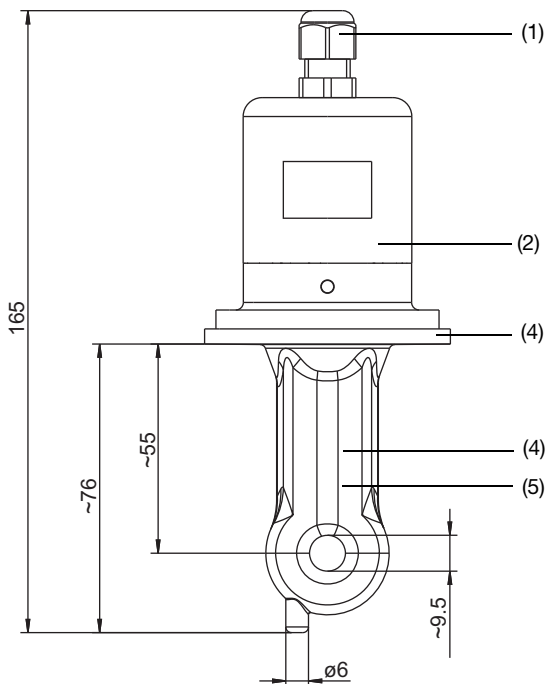
- (1) PA6, CR, NBR
- (2) 1.4301 stainless steel, AISI 304
- (3) EPDM
- (4) PEEK
- (5) Cell constant $k = 5.0^{1/cm}$



**Type 202941/10-607-...
 MK DN50 milk cone**



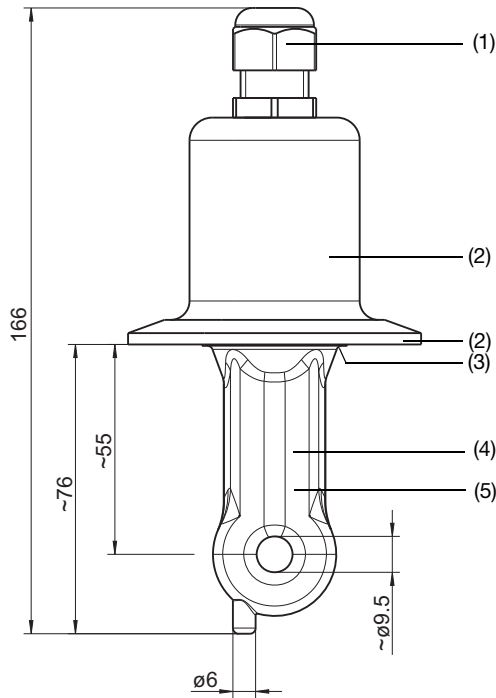
**Type 202941/10-608-...
 MK DN65 milk cone**



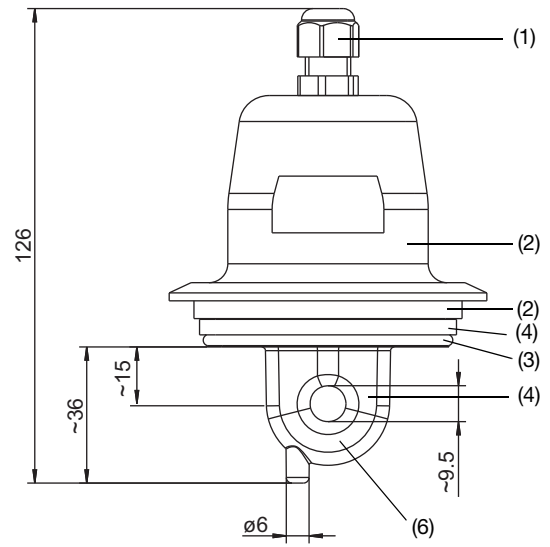
**Type 202941/10-690-...
 2" SMS**

(Union nut (🔧) < 200Nm) not included in delivery)

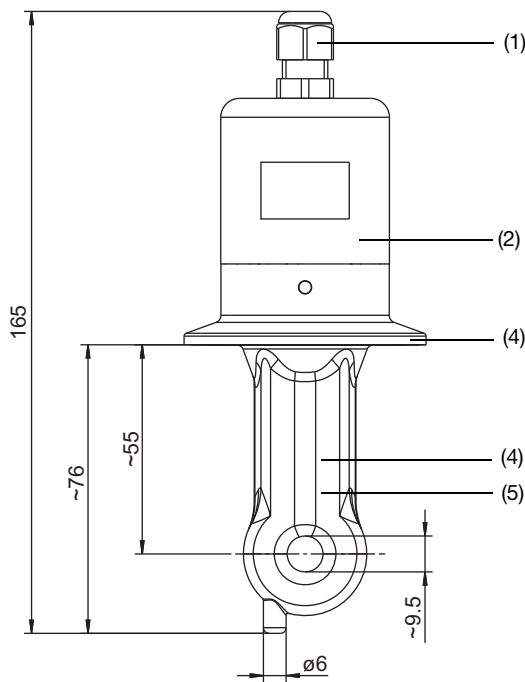
- (1) PA6, CR, NBR
- (2) 1.4301 stainless steel, AISI 304
- (3) EPDM
- (4) PEEK
- (5) Cell constant $k = 5.0^{1/cm}$



Type 202941/10-617-...
 2 1/2" clamp



Type 202941/10-686-...
 DN40/125 Varivent®



Type 202941/10-616-...
 2" clamp

- (1) PA6, CR, NBR
- (2) 1.4301 stainless steel, AISI 304
- (3) EPDM
- (4) PEEK
- (5) Cell constant $k = 5.0^{1/cm}$
- (6) Cell constant $k = 5.15^{1/cm}$



Order details: **JUMO tecLine Ci**
 Hygienic inductive conductivity and temperature sensor

(1) Basic type

202941 JUMO tecLine Ci

(2) Basic type extension

10 Hygienic design, internal Pt1000 temperature sensor

(3) Process connection

- 108 G1 1/2" thread
- 110 G2" thread
- 607 MK DN50 milk cone^{1, 4}
- 608 MK DN65 milk cone^{1, 4}
- 616 2" clamp^{2, 3, 4}
- 617 2 1/2" clamp^{2, 4}
- 686 DN40/125 Varivent® (hygienic version)⁴
- 690 2" SMS⁴

(4) Immersion length

0000 none

(5) Electrical connection

21 M12 socket on fixed cable

(6) Length of fixed cable

- 10 10 m (standard length)
- 20 20 m
- 30 30 m

(6) Extra codes

000 none

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|----------------------|--------|------|-------|--------|------|------|-------|
| Order code | | | | | | | ... |
| Order example | 202941 | / 10 | - 607 | - 0000 | - 21 | - 10 | / 000 |

^a DIN 11851
^b ISO 2852
^c DIN 32676
^d Installation material (ring nut, retaining clamp, etc.) not included in delivery!

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 Internet: www.jumo.net



Stock versions (delivery 3 working days after receipt of order)

| Type | Designation | Sales No. |
|------------------------------|--|-------------|
| 202941/10-108-0000-21-10/000 | JUMO tecLine Ci, G1 1/2" thread, 10 m fixed cable | 20/00544059 |
| 202941/10-110-0000-21-10/000 | JUMO tecLine Ci, G2" thread, 10 m fixed cable | 20/00544060 |
| 202941/10-607-0000-21-10/000 | JUMO tecLine Ci, MK DN50 milk cone, 10 m fixed cable | 20/00543048 |
| 202941/10-617-0000-21-10/000 | JUMO tecLine Ci, 2 1/2" clamp, 10 m fixed cable | 20/00544062 |
| 202941/10-686-0000-21-10/000 | JUMO tecLine Ci, DN40/125 Varivent [®] , 10 m fixed cable | 20/00544063 |
| 202941/10-690-0000-21-10/000 | JUMO tecLine Ci, 2" SMS, 10 m fixed cable | 20/00544064 |

Accessories (delivery 3 working days after receipt of order)

| Designation | Sales No. |
|---|-------------|
| Weld-on threaded adapter DN50, DIN 11 851 (mating component for process connection -607), (PG 209791) | 20/00085020 |
| Ring nut DN50, DIN 11 851 (PG 209791) | 20/00343368 |
| Ring nut DN65 DIN 11 851 (PG 209791) | 20/00362956 |
| Ring nut SMS DN2" (PG 209791) | 20/00345162 |
| Calibration adapter for inductive conductivity measurement, type 202711/21 (PG 202711) | 20/00543395 |

Note

The following are required for the initial commissioning of the sensor and transmitter/controller or when replacing components:

- Transmitter/controller e. g. JUMO AQUIS 500 Ci, data sheet 202566
- JUMO tecLine Ci inductive conductivity and temperature sensor
- Calibration adapter for inductive conductivity measurement, type 202711/21, data sheet 202711