C-3130, C-3130.x.(Ex) Conductometer – concentration meter with inductive sensor

Conductivity transmitter (analyzer) is designed as a single-unit one-channel monoblock or split measuring instrument which consists of an electronic unit and a sensor and is installed directly on a controlled facility: a pipeline or a tank.

The sensor is structurally connected to an electronic unit or can be placed at a distance of up to 9 m from the electronic unit.

Inductive analyzer sensor, proximity, made of a material with a high chemical resistance to acids and alkalis. A strong design and smooth surface of the sensor, as well as flow-through hole of a big diameter provides a low probability of contamination and a possibility of the sensor easy cleaning, possibility to work with contaminated liquids.

A built-in temperature sensor provides a temperature compensated measurement of the solutions concentration.

It is designed for measurement and monitoring of high values of specific electric conductivity (SEC), salts, alkalis and acids solutions.

Basing on known dependencies between the SEC and the analyzed component concentration, transmitters can be used as concentration meters and salinity meters (C-3130.K).

Application: heat power industry, chemical, petrochemical, pulp and paper, food processing, dairy, brewing and other industries. In the dairy and brewing industry, it can be used as an indicator of phase separation: water - milk, water - washing solution, etc.

The analyzer can be used in the local Modbus (RTU, ASCII) network (option) or be connected to the measuring instrument by means of a current loop (option).

Additional functions:

-manual or automatic selection of one of three measuring ranges;

-temperature compensation mode selection: disabled, enabled, setting of reference temperature and temperature rates;

- SEC (concentration) measured parameters and the temperature showing at display;

-simplified calibration with one solution;

-linear approximation of output specification (for C-3130.K) in case the solution concentration has a non-linear dependence of SEC.

Analyzers C-3130.x.(Ex) (in the “I” enclosure) have an explosion protection type "flameproof enclosure" provided with a marking "1Ex d IIB T6 X".

BASIC TECHNICAL SPECIFICATIONS

Measuring range:
- C-3130 ..... (0..10); (0..100); (0.. 1000) mS/cm
- C-3130.K ..... (0..99%); (0..230) g/l (see the order reference code)

Basic accurancy:
- -for SEC analyzers (conductivities) in all the ranges 2.0%
- - for concentration analyzers (concentration meters), depending on the range ..... at least 5.0% (shall be specified when ordering)

Operating temperature for sensors:
- -SI 315 ..... (5...80) °C
- -ES-1-A ..... (5...105) °C
- -AST-37HT ..... (5...150) °C

Reference temperature for termocompensation [1] ..... shall be specified when ordering
- -default ..... 25 °C

Sensor material ..... SI 315 – PVDF; ES-1-A - PP; AST-37HT - PEEK

Electronic unit enclosure material «I» ..... aluminum alloy

Electronic unit enclosure material «S» SS321L/SS316L

Pressure of analyzed liquid, MPa, max:
- - SI-315 0,3
- - ES-1-A 0,6
- -AST-37HT ..... max 1,6 MPa (105^{O}C); max 0,7 MPa(150^{O}C)

Water and dust protection IP65

Explosion protection 1ExdIICBT6X

Climatic version ..... (-40..+50) °C

Resistance to mechanical influences in accordance with GOST R 52931 (Rus) V2

Indicator ..... LED, four-digit, seven-segment

Indicator color ..... green/red

Output signals:

-analogue ..... (0...5) or (4...20) mA (in accordance with the order)

-digital ..... interface RS-485 ModBus protocol

Transmitter connection ..... three or four-wire cable, wires cross-section — at least 0.35 mm2

Communication line length ..... max 800 m

Power supply ..... DC (12..36) V

Power consumption ..... max *3 VA*

1) The reference temperature (° C) and the temperature coefficient (% per ° C) are set programmatically.

At the request of the consumer, the manufacturer specifies a specific measuring range. The user can reconfigure the conductometer to a different range within this model.

At the request of the consumer, another measurement range can be set in the concentration meters intended for measuring the concentration in accordance with the normalized relationship between the SEC and the concentration of the analyte in the solution.

At the request of the consumer in the concentration meters, indication can be setted in percent or grams per liter in accordance with the normalized relationship between the SEC and the concentration of the analyte in the solution.

EXTERNAL WIRING

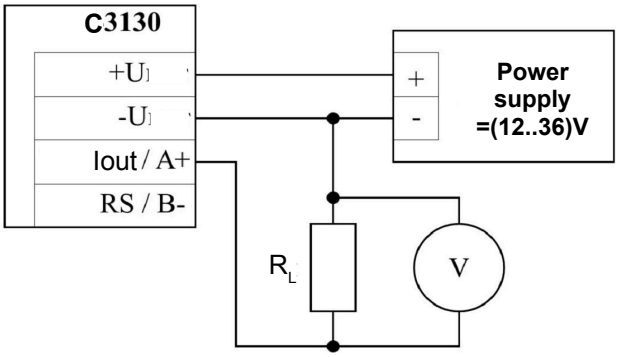


Figure 1. Scheme of external connections of conductometers with current output

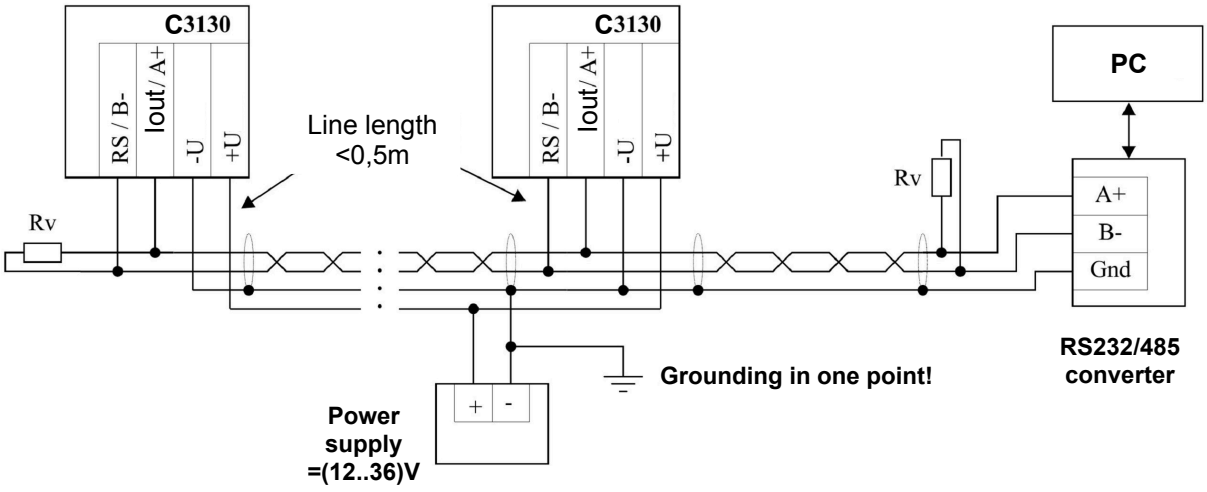


Figure 2. Scheme of connection conductometers into the Modbus network

ENCLOSURE DIMENSIONS

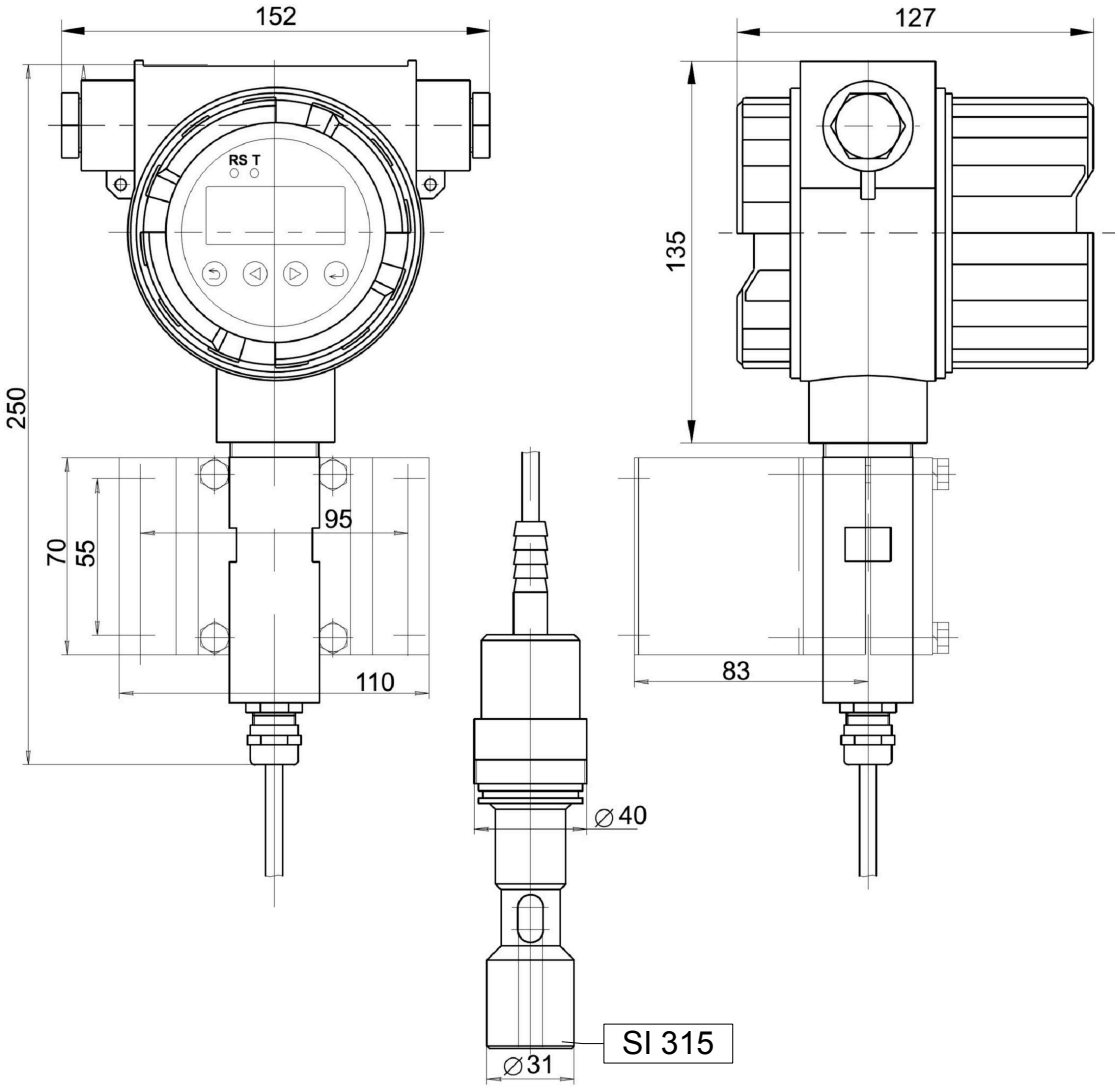
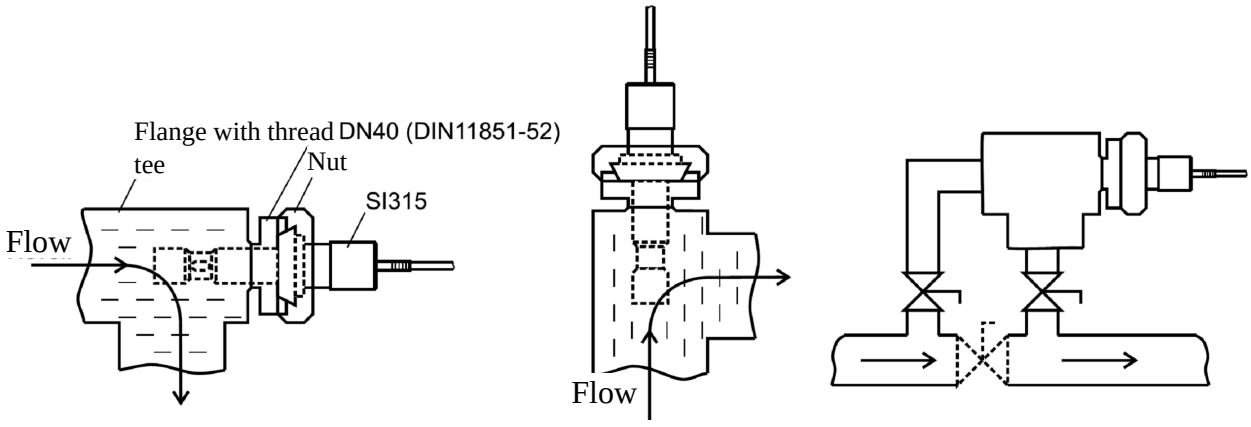


Figure 3. C-3130 with mount of the electronic unit on a wall



Note. The distance of the sensing element of the inductive sensor from the wall of the pipeline or reservoir is not less than 30 mm.

Figure 4. Installation examples of the inductive sensor SI 315 on the flow

ACCESSORIES

Holders used with C-3130 — see the chapter Holders for sensors

Proximity inductive sensors: ES-1-A, SI 315, AST-37HT

ORDER REFERENCE CODE:

C-3130. **x.** **x.** **x.** **x.** **x** **-x**

Explosion protection:

00	Without explosion protection
Ex	Type of protection "flameproof enclosure" - 1ExdIIBT6X

Indicator color:

G	Green
R	Red

Output Type:

A	Analog output (0 ... 5) mA, (0 ... 20) mA or (4 ... 20) mA
RS	Digital interface RS-485

Type of sensor and length of the submersible sensor:

sXXX	Submersible sensor, XXX: Length of the submerged part, mm

Housing material of the electronic unit of the transmitter:

I	Explosion proof aluminum alloy housing
S	Stainless steel housing

Measuring ranges:

1	(0...1); (0...10); (0...100); (0...1000) µS/cm
2	(0...1); (0...10); (0...100); (0...1000) mS/cm
K	H2SO4: (0...25) %; (95...100) %; HCl: (0...17) %, (23...50) % HNO3: (0...20) %, (35...70) %; Na2CO3 (0..5)%; CH3COOH (0..7)% HF (1..30)%; NH4NO3 (0..10)%; CaCl2 (0..10)% NaOH: (0...10) %; (20...40) %; KOH: (0...20) %; NaCl: (0...20) %; (0...230) g/l; NH4NO3: (0...100) g/l; Na2CO3: (0...5) %. For the submersible sensor, the measuring range shell be specified when ordering

Example of decoding an order:

"C-3130.1.I.s450.A.G-00 *- the conductometer C-3130.1 (measuring ranges 0 ... 1; 0 ... 10; 0 ... 100; 0..1000 µS / cm), the housing Electronic unit of the primary converter is made of aluminum alloy with powder coating, sensor type — submersible (submersible part is 450mm), analog output (4 ... 20) mA, the color of the indicator is green, without explosion protection ". Holder is HS-2.1-01 H=450*

When ordering, in addition to the order code, write, please a specific measuring range temperature range of liquid and reference temperature