C 310
Capteur multifonction

2 inputs for interchangeable probes
2 analogue outputs (4 wires) 0/5-10 V or 0/4-20 mA*
4 visual (dual-color LEDs) and audible alarms
Simultaneous display of 1 to 4 parameters

Features
- 1 location for interchangeable SPI-2 board
- Trend indicator
- 4-relay board (optional)
- 24 Vdc/Vac or 115/230 Vac power supply
- Outputs diagnostic
- Ethernet communication (optional)
- MODBUS network RS485 system (optional)
- ABS housing with stainless steel front, IP65, with or without backlit graphic display
- “¼ turn” system mounting with wall-mount plate

Possible optional measurements
The following probes and boards are available as option for C310 transmitters. For further details please see the technical datasheet of probes for class 310 transmitters.

<table>
<thead>
<tr>
<th>Probes and boards</th>
<th>Plages de mesure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel or polycarbonate hygrometry / temperature probe</td>
<td>From 0 to 100%RH and from -40 to +180°C (according to probe)</td>
</tr>
<tr>
<td>Air velocity vane probe: air velocity / temperature / airflow</td>
<td>From -5 to 35 m/s (according to probe) From -20 to +80°C From 0 to 99 999 m³/h</td>
</tr>
<tr>
<td>Air velocity hotwire probe: air velocity / temperature / airflow</td>
<td>From 0 to 30 m/s From -20 to +80°C From 0 to 99 999 m³/h</td>
</tr>
<tr>
<td>Omnidirectional probe: air velocity / temperature</td>
<td>From 0 to 5 m/s and from 0 to 50°C</td>
</tr>
<tr>
<td>Pt100 1/3 DIN temperature probe</td>
<td>From -50 to +180°C / From -20 to +80°C</td>
</tr>
<tr>
<td>CO / temperature probe</td>
<td>From 0 to 500 ppm and from 0 to 50°C</td>
</tr>
<tr>
<td>CO₂ / temperature probe</td>
<td>From 0 to 20 000 ppm and from 0 to 50°C</td>
</tr>
<tr>
<td>Pressure / atmospheric pressure board</td>
<td>From -100 to +10 000 Pa (according to boards) / from 800 to 1100 hPa</td>
</tr>
<tr>
<td>Relays board</td>
<td>4 relays 3 A with 3-point terminal blocks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C310-BO</td>
<td>Multifunction transmitter, 24 Vac/Vdc power supply, with display</td>
</tr>
<tr>
<td>C310-BN</td>
<td>Multifunction transmitter, 24 Vac/Vdc power supply, without display</td>
</tr>
<tr>
<td>C310-HO</td>
<td>Multifunction transmitter, 115-230 Vac power supply, with display</td>
</tr>
<tr>
<td>C310-HN</td>
<td>Multifunction transmitter, 115-230 Vac power supply, without display</td>
</tr>
</tbody>
</table>

*2 additional outputs (optional)
## General features

### Power supply
- 24 Vac / Vdc ±10%
- 100-240 Vac, 50-60 Hz

*Warning: risk of electric shock*

### Outputs
- 2 x 0/4-20 mA or 2 x 0-5/10 V (4 wires)
- Optional additional outputs: 2 x 0/4-20 mA or 2 x 0-5/10 V
  - (additional consumption for 24 V model: 1 VA / for 115-230 V model: 2 VA)
- Common mode voltage <30 VAC
- Maximum load: 500 Ohms (0/4-20 mA)
- Minimum load: 1 K Ohms (0-5/10 V)

### Galvanic isolation
- Inputs (power supply) and outputs (on 115 Vac/230 Vac models)
- Device fully protected by DOUBLE ISOLATION or REINFORCED ISOLATION
- Outputs (on 24 Vac/Vdc models)

### Consumption with probe and without option
- C310-BO and C310-BN: 6 VA
- C310-HO and C310-HN: 8 VA
- (CO2 probe additional consumption for 24 V and 115-230 V models: 2 VA)

### Raccordement électrique
- Bornier à vis pour câbles de 0.05 à 2.5 mm² ou de 30 à 14 AWG ; Réalisé suivant les règles de l’art

### Relays (optional)
- 4 RCR relays. NO: 5A / NC: 3A / 240 Vac
  - (additional consumption for 24 V model: 5 VA / for 115-230 V model: 8 VA)

### Communication RS485 (option)
- Numérique : protocole Modbus RTU, vitesse de communication configurable de 2400 à 115200 Bauds

### Communication Ethernet (option)
- Module de communication Ethernet permettant la transmission, la supervision et la maintenance des capteurs au travers d’un réseau Ethernet en 10 BASE-T et 100 BASE-TX LAN/WAN supportant le protocole TCP/IP
  - (consommation supplémentaire modèle 24 V et 115-230 V : 1 VA)

### Audible alarm
- Buzzer (70 dB at 10 cm)

### Environment and type of fluid
- Air and neutral gases

### Conditions of use
- °C/%%RH/m
  - From -10 to +50°C. In non-condensing condition.
  - From 0 to 2000 m

### Storage temperature
- From -10 to +70°C

### Security
- Protection class 2; Pollution degree 2; Overvoltage category 2

### European directives
- 2014/30/EU EMC; 2014/35/EU Low Voltage;
- 2011/65/EU RoHS II; 2012/19/EU WEEE

### General features

- Material: ABS V0 as per UL94
- Protection: IP65
- Display: Graphic from 1 to 4 lines, 240 x 128 px;
  - Size: 86 x 51 mm, Backlit
  - Height of digits:
    - Values: 10 mm; Units: 5 mm
- Cable gland: In polyamide for cables 09 mm maximum
- Weight: 700 g

### Relays and alarms

The C 310 transmitter has 4 independent and configurable alarms: these are visual and audible alarms and it is possible to couple them with 4 relays (optional).

### Available settings:
- Selection of the parameter (pressure, air velocity, temperature, ...)
- Time-delays duration from 0 to 600 s
- Alarm action : rising edge, falling edge, monitoring or state of the transmitter
- Operating mode of the relays : negative or positive safety (optional)
- Activation of the audible alarm (buzzer) that can be acknowledged by the front keypad (optional)

### Ethernet board (optional)

An Ethernet board can put on a C 310 transmitter allowing for each transmitter to have a specific configurable IP address. So the user can remotely interrogate the transmitter, retrieve data, modify the configuration, ...

It is also possible to integrate C 310 transmitters into a computer network via the RJ45 connection located at the bottom of the transmitter.

### Modbus protocol (optional)

Class 310 transmitters can be linked in one network operating on a RS485 home bus.

The RS 485 digital communication is a 2-wire network, on which the transmitters are connected in parallel. They are connected to a PLC/BMS via the RTU Modbus communication system. Since the C310 can be configured with the keypad, the MODBUS enables remote configuration, to measure 1 or 2 parameters or to see the status of the alarms...
Electrical connections as per NFC15-100 standard

This connection must be made by a trained and qualified technician. Whilst making the connection, the transmitter must not be energized. The presence of a switch or a circuit breaker upstream the device is compulsory.

- For 24 Vdc power supply models:
  - 0/4-20 mA current output connection:
  - 0-5/10 V voltage output connection:

- For 115 Vac or 230 Vac power supply models:
  - For 24 Vdc power supply models:
  - 0/4-20 mA current output connection:
  - 0-5/10 V voltage output connection:

- For 24 Vac power supply models:
  - Type of power supply of the transmitter
  - Pressure connection (optional)
  - Probes connection
  - Cable glands

For 24 Vdc/Vac power supply models:
- 0/4-20 mA current output connection:
- 0-5/10 V voltage output connection:

For 115 Vac or 230 Vac power supply models:
- Modbus connection (d) (optional)
Configuration

Class 310 transmitters allows you to set all the parameters managed by the transmitter: units, measuring ranges, alarms, outputs, channels... via the different methods shown below:

- **Via keypad, only on models with display.** A code-locking system for keypad guarantees the security of the installation. See configuration manual.
- **Via software (optional):** simple and user-friendly. See LCC-S user manual.
- **Via Modbus (optional):** configuration of all parameters from your PC, via the supervision or data acquisition software.
- **Via Ethernet (optional):** configuration of all parameters from your PC, via the supervision or data acquisition software.

Mounting

To install the transmitter on a wall, fix the stainless steel plate to the wall (drilling: Ø8 mm, screws and wall-plugs supplied). Insert the transmitter on the plate (see A on the drawing below) by aligning it at 30°. Rotate the housing in clockwise direction until you heard a “click” which confirms that the transmitter is correctly installed. Open the housing, lock the clamping system of the housing on the plate with the screw (see photo below). To remove the transmitter from the fixing plate, do not forget to remove this screw.

![Diagram of mounting](image)

Maintenance

Avoid aggressive solvents. When cleaning rooms or ducts with products containing formol, protect the transmitter.

Calibration

**Outputs diagnostics:** with this function, you can check with a multimeter (or on a regulator/display, or on a PLC/BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 0 mA, 4 mA, 12 mA and 20 mA.

**Certificate:** transmitters are supplied with an individual adjusting certificate and can be supplied with a calibration certificate as an option.

Precautions for use

Please always use the device in accordance with its intended use and within parameters described in the technical features in order not to compromise the protection ensured by the device.

Options and accessories

<table>
<thead>
<tr>
<th>Name</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration software with USB cable</td>
<td>LCC-S</td>
</tr>
<tr>
<td>SQR/3 function: (square root extraction) function for the calculation of air velocity and airflow</td>
<td>-</td>
</tr>
<tr>
<td>Calibration certificate</td>
<td>-</td>
</tr>
<tr>
<td>RS 485 Protocol Modbus digital output</td>
<td>RS5</td>
</tr>
<tr>
<td>2 additional analogue outputs</td>
<td>Q2S</td>
</tr>
<tr>
<td>4 relays board</td>
<td>C4R</td>
</tr>
<tr>
<td>Ethernet network board</td>
<td>CETHE</td>
</tr>
<tr>
<td>High resolution (example in pressure: 0.1 Pa) with SP12-100 board</td>
<td>HRP</td>
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</tbody>
</table>

ℹ️ Only the accessories supplied with the device must be used.

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