IO-Link capacitive proximity sensors

Sensors
Carlo Gavazzi is proud to introduce this series of high-quality capacitive sensors to meet the demands of a new industrial era; an era that requires devices with enhanced capabilities and new ways of accessing, communicating and processing data. The Carlo Gavazzi IO-Link sensors combine their excellent features with the benefits of the IO-Link standard, which opens up the access to detailed information, advanced functionality, and flexibility.

The IO-Link system provides significant advantages including enhanced data availability and workability, remote configuration and automatic parameter settings, advanced diagnostics, simplified installation and easy sensor replacement.

Get ready for the era of Industry 4.0 and the Industrial Internet of Things!

**Data availability down to the field level**
Using IO-Link, the sensors can deliver their data directly into the control system very efficiently.

**Device identification**
Each IO-Link sensor has an IODD (IO Device Description), which describes the sensor, its capabilities and parameters, process data, diagnosis data and user interface configuration. Furthermore, each sensor is equipped with an internal ID.

**Automatic parameter settings**
Initial setup of a new sensor is smooth and easy using previously stored parameters. Once a sensor has been replaced, the IO-Link master simply transmits parameters stored from the old sensor.
Universal, smart and easy

Centralised configuration and data management
IO-Link enables fast configuration and dynamic change of the sensor parameters on the fly, which considerably reduces downtime in case of product changeover and increases flexibility and diversity of the installation.

Simplified installation
An IO-Link system requires just standard, unshielded 3-wire cables, and a standardised uniform interface for sensors and actuators drastically reduce the complexity of the installation process. In addition, the automated parameter reassignment simplifies sensor replacement in case of defects and prevents incorrect settings. The IO-Link-enabled sensor acts as a standard sensor when installed in a non-IO-Link system, so the same sensor can be stocked for both standard I/O (SIO) applications and IO-Link applications.

Predictive maintenance
Advanced and detailed diagnostics mechanisms are one of the main features of the IO-Link sensors. Moreover, the sensors continuously deliver data on their condition and are able to detect defects at an early stage or predict when a machine needs repair or replacement of spare parts. Instead of unnecessary, frequent preventive maintenance, service is need-based, and the risk of machine stoppages is significantly reduced.

What is IO-Link?
IO-Link is a universal, open communication standard protocol that allows IO-Link-enabled devices to exchange, collect and analyse data and convert it into actionable information.

IO-Link is recognised worldwide as an international standard (IEC 61131-9), and it is today considered as the “USB interface” for sensors and actuators in the industrial automation environment.

Plug and play
When the IO-Link sensor is connected to an IO-Link port, the IO-Link master sends a wake-up request to the sensor, which automatically switches to IO-Link mode, and a point-to-point bidirectional communication automatically starts between the master and the sensor.

Operating modes
The IO-Link-capable sensor can operate in two different modes; SIO mode (standard I/O) or IO-Link mode.

• SIO mode: the sensor works as a traditional sensor, and pin 4 acts as an ordinary digital output. SIO mode ensures backwards compatibility with standard sensor systems.

• IO-Link mode: exchange of data between sensor and IO-Link master takes place, and pin 4 is used for the transmission of IO-Link-related data.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L+</td>
<td>24 V</td>
</tr>
<tr>
<td>2</td>
<td>OUT</td>
<td>Sensor dependent</td>
</tr>
<tr>
<td>3</td>
<td>L-</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>C/Q</td>
<td>Communication/switching signal</td>
</tr>
</tbody>
</table>

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
IO-Link capacitive proximity sensors

IO-Link functions

Fully configurable

IO-Link provides the first globally standardised interface for communication with the sensor. Once you have connected the sensor to the IO-Link port, you can access a multitude of configuration parameters and advanced functionalities. This way, the sensor can be tailored to meet your individual needs and requirements at a given time. The settings can also be stored in the master and can always be changed if the need occurs, or they can be smoothly transferred to a new sensor in case of sensor replacement.

1. Outputs/inputs
   The sensor has two I/O terminals.

2. NPN, PNP, Push-pull, External input
   The I/O terminals can be configured as: NPN, PNP, push-pull or external input (only output 2).

3. Normally open (N.O.)
   Normally closed (N.C.)
   The output can be configured to normally open or normally closed.

4. Timer function
   It is possible to activate different timer functions: ON delay, OFF delay, ON and OFF delay or one shot (leading edge or trailing edge).

5. Predictive maintenance
   The sensors can provide information about their basic status during normal operation, for instance increasing contamination (dust build-up). Maintenance can be required before a system fails and costly machine downtime is avoided.

6. Power cycles
   Counts and store how many times the sensor has been powered up since its creation.

7. Operation hours
   Counts and store number of hours of power connected since its creation.

8. Operation cycle
   Count number of sensor detections (SSC1) since its creation.

9. Low temperature
   Two different specifics are measured:
   1. The lowest temperature the sensor has been exposed to since its creation (stored in sensor).
   2. The lowest temperature the sensor has been exposed to since last power-up.

10. High temperature
    Two different specifics are logged:
    1. The highest temperature the sensor has been exposed to since its creation (stored in sensor).
    2. The highest temperature the sensor has been exposed to since last power-up.

Additional logging functions

The Carlo Gavazzi capacitive IO-Link sensors offer additional logging functions for advanced diagnostics mechanisms making both real-time and historic data available.
### IO-Link functions

#### Selectable output/input functions

**11. Detection filter**

It is a stabilising filter that increases the immunity of the variation of the sensor’s measurements and media. The detection filter can be set to measure the average value of additional 1 to 255 measurements.

**12. External input**

The external input can be controlled by outputs from sensors or PLC’s.

**13. Temperature alarm**

The sensor can be configured to give an alarm if the temperature exceeds or drops below a preset value (Tmax or Tmin).

**14. Dust alarm**

The sensor can be configured to give an alarm if the contamination level exceeds a preset value of choice.

**15. SSC1**

The Switching Signal Channel 1 (SSC1) output can be configured to the following four detection modes: Single-point mode, two-point mode, windows mode and adjustable hysteresis. Two individual setpoints and hysteresis can be set.

**16. SSC2**

The Switching Signal Channel 2 (SSC2) output can be configured to the same modes as SSC1. Two individual setpoints and hysteresis can be set.

### Switch point mode

**17. Switch point mode**

SSC1 and SSC2 can be configured to single-point mode, two-point mode, windows mode, adjustable hysteresis.

### Logic functions

**18. Logic functions**

In the logic function block the selected signals from the input selector can be added a logic function directly without using a PLC – making decentral decisions possible. The logic functions available are: AND, OR, XOR and Gated SR-FF.

### Analogue output

**19. Analogue output**

16 bit Analogue Output by IO-Link representing the Dielectric value measured by the sensor.

### Approval

**20. Quality of run**

The quality of run value informs about the actual sensing performance compared to the set-points of the sensor, the higher the value the better quality of detection.

**20. Quality of teach**

The quality if teach value informs about how well the actually teach procedure was done, meaning the margin between the actual setpoints and the environmental influence of the sensor.

### Protection

**4th Generation TRIPLESHEILD™ technology**

- ECOLAB® IP69K

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
CA18/30CA series

IO-Link sensors in PBT housing

Features and functions

CA18CAF..IO Flush

M12 plug

30% glass reinforced PBT housing

120°C on sensing face

All versions are available as cable or M12 plug versions.

CA18CAN..IO Non-Flush

Cable

CA30CAF..IO Flush

M12 plug

30% glass reinforced PBT housing

120°C on sensing face

All versions are available as cable or M12 plug versions.

CA30CAN..IO Non-Flush

Cable

Back part of the sensor

Multturn sensitivity adjustment for SCC1 only

Yellow LED
- Output
- Short circuit
- Timer

Green LED
- Power
- Stability
- IO-Link communication

Interchangeable housing length

For flexibility and compatibility, the new sensors, whether flush or non-flush, share the same length.
The Capacitive CA18/30CA IO-Link Family

<table>
<thead>
<tr>
<th>Connection</th>
<th>Flush</th>
<th>Non-Flush</th>
<th>Flush</th>
<th>Non-Flush</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable</td>
<td>CA18CAF08BPA2IO</td>
<td>CA18CAN12BPA2IO</td>
<td>CA30CAF16BPA2IO</td>
<td>CA30CAN25BPA2IO</td>
</tr>
<tr>
<td>Plug</td>
<td>CA18CAF08BPM11O</td>
<td>CA18CAN12BPM11O</td>
<td>CA30CAF16BPM11O</td>
<td>CA30CAN25BPM11O</td>
</tr>
<tr>
<td>Sensing distance</td>
<td>0 - 8 mm</td>
<td>0 - 12 mm</td>
<td>0 - 16 mm</td>
<td>0 - 25 mm</td>
</tr>
<tr>
<td>Adjustable distance</td>
<td>2 - 10 mm</td>
<td>3 - 15 mm</td>
<td>2 - 20 mm</td>
<td>4 - 30 mm</td>
</tr>
</tbody>
</table>

- M18 / M30 DC IO-Link 4th Generation TRIPLESHIELD™
- Connection: Flush, Non-Flush
- Cable: CA18CAF08BPA2IO, CA18CAN12BPA2IO, CA30CAF16BPA2IO, CA30CAN25BPA2IO
- Plug: CA18CAF08BPM11O, CA18CAN12BPM11O, CA30CAF16BPM11O, CA30CAN25BPM11O
- Sensing distance: 0 - 8 mm, 0 - 12 mm, 0 - 16 mm, 0 - 25 mm
- Adjustable distance: 2 - 10 mm, 3 - 15 mm, 2 - 20 mm, 4 - 30 mm

- IO-Link: Transmission type: COM2 (38.4 k baud), Revision: 1.1, SDCI standard: IEC 61131-9, Profiles: Smart sensor (Process Data Variable, Device Identification), SIO mode: Yes, Required master port type: A, Min. process cycle time [ms]: 5
- Selectable function output 1: NPN, PNP, or Push-Pull
- Selectable function output 2: NPN, PNP, Push-Pull, External input or External teach
- Diagnostic: Operation hours, Power cycles, Detection cycles max. and min., Temperatures, Short-circuit, maintenance, No of Parameter change.
- Logic functions: AND, OR, X-OR, Gated SR-FF
- Timer functions: ON Delay, OFF delay, ON+OFF delay and One shot
- Sensitivity control: Trimmer input, Teach by wire or by IO-Link
- Rated operational voltage (Ue): 10 to 40 V DC (ripple included)
- No load supply current (I): ≤ 20 mA
- Minimum operational current (I): ≤ 0.5 mA
- OR-State current (I): ≤ 100 μA
- Voltage drop, digital (Ud): ≤ 1.0 V DC @ 200 mA DC
- Capacitive load: 100 nF @ 200 mA
- Frequency of operating cycles (f): 50 Hz
- Response time (t): 10 ms
- Power on delay (tv): 300 ms
- Hysteresis (adjustable): 6% to 15% to 7% to 10%
- Sensor protection: Short circuit (A), reverse polarity (B) and transients (C)
- Electrostatic discharge: Contact discharge: > 40 kV, Air discharge: > 40 kV (IEC 61000-4-2)
- Electrical fast transients/burst: ±4kV/5kHz (IEC 61000-4-4, EN 60947-1)
- Surge: Power supply: > 2kV [with 500 Ω], Sensor output: > 2kV [with 500 Ω] (IEC 61000-4-5)
- Wire conducted disturbances: > 20 Vms (IEC 61000-4-6)
- Power frequency magnetic fields: Continuous: > 60 A/m, 75.9 μtesla. Short time: > 600 A/m, 759 μtesla (IEC 61000-4-8)
- Radiation-EMC: > 20 V/m (IEC 61000-4-3)
- Shock: 30G / 11 ms. 3 positive and 3 negative in X, Y and Z direction (EN 60068-2-27)
- Drop test: 2 times from 1m, 100 times from 0.5m (EN 60068-2-31)
- Degree of protection: IP 67, IP 68, IP 69K (EN 60529, EN 60947-1; DIN 40050-9)
- NEMA type: 1, 2, 4, 5, 6, 6P, 12 (NEMA 250)
- Ambient temperature: Operating: -30°C to +85°C (22°C to 185°F). Storage: -40°C to +185°F (40°C to +185°F)
- Max. temperature on sensing face: 120°C (248°F)
- CE marking: According to EN 60947-5-2
- Approvals: cULus (UL508), ECOLAB
- Overvoltage category: III (IEC60664, EN 60947-1)
- Pollution degree: 3 (IEC60664/60664A, EN 60947-1)
- MTTF: 114 years @ 40°C (104°F) / 98 years @ 40°C (104°F)
- Tightening torque: ≤ 2.6 Nm
- Cable: PCV, grey, 2 m, 4 x 0.34 mm², Ø=5.2 mm, Oil proof
- Connector: M12, 4-pin
- Dimensions: Cable and Plug: M18 x 70 mm, M30 x 61 mm
- Weight incl. packaging: Cable version ≤ 150 g, Plug version ≤ 75 g

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
CA18/30EAF series
IO-Link sensors in stainless steel housing
Features and functions

CA18EAF..IO Flush

- M12 plug
- Stainless steel AISI316L housing
- 120°C on sensing face

CA18EAN..IO Non-Flush

- Cable

Back part of the sensor

- Multturn sensitivity adjustment for SCC1 only

CA30EAF..IO Flush

- M12 plug
- Stainless steel AISI316L housing
- 120°C on sensing face

CA30EAN..IO Non-Flush

- Cable

Back part of the sensor

- Multturn sensitivity adjustment for SCC1 only

Interchangeable housing length

For flexibility and compatibility, the new sensors, whether flush or non-flush, share the same length.

For flexibility and compatibility, the new sensors, whether flush or non-flush, share the same length.

Yellow LED
- Output
- Short circuit
- Timer
- Find my sensor

Green LED
- Power
- Stability
- IO-Link communication
- Find my sensor

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
### The Capacitive CA18/30EA IO-Link Family

#### M18 / M30 DC IO-Link 4th Generation TRIPLESHIELD™

<table>
<thead>
<tr>
<th>Connection</th>
<th>Flush</th>
<th>Non-Flush</th>
<th>Flush</th>
<th>Non-Flush</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M18</strong></td>
<td><strong>M30</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable</td>
<td>CA18EAF08BPA2IO</td>
<td>CA18EAN12BPA2IO</td>
<td>CA30EAF16BPA2IO</td>
<td>CA30EAN25BPA2IO</td>
</tr>
<tr>
<td>Plug</td>
<td>CA18EAF08BPM1IO</td>
<td>CA18EAN12BPM1IO</td>
<td>CA30EAF16BPM1IO</td>
<td>CA30EAN25BPM1IO</td>
</tr>
</tbody>
</table>

#### Sensing distance
- 0 - 8 mm
- 0 - 12 mm
- 0 - 16 mm
- 0 - 25 mm

#### Adjustable distance
- 2 - 10 mm
- 3 - 15 mm
- 2 - 20 mm
- 4 - 30 mm

#### IO-Link
- Transmission type: COM2 (38.4 k Baud)
- Revision: 1.1
- SDCI standard: IEC 61131-9
- Profiles: Smart sensor (Process Data Variable, Device Identification), SIO mode: Yes
- Required master port type: A
- Min. process cycle time [ms]: 5

#### Selectable function output 1
- NPN, PNP or Push-Pull

#### Selectable function output 2
- NP, PNP, Push-Pull, External input or External teach

#### Diagnostic
- Operation hours, Power cycles, Detection cycles: max. and min. Temperatures, Short-circuit, maintenance, No of Parameter change

#### Logic functions
- AND, OR, X-OR, Gated SR-FF

#### Timer functions
- ON Delay, OFF delay, ON+OFF delay and One shot

#### Sensitivity control
- Trimmer input, Teach by wire or by IO-Link

#### Rated operational voltage (Ue)
- 10 to 40 V DC (ripple included)

#### No load supply current (I0)
- ≤ 20 mA

#### Minimum operational current (Imin)
- ≤ 0.5 mA

#### OR-State current (I)
- ≤ 100 µA

#### Voltage drop, digital (U)
- ≤ 1.0 V DC @ 200 mA DC

#### Capacitive load
- 100 nF @ 200 mA

#### Frequency of operating cycles (f)
- 50 Hz

#### Response time tON or tOFF
- 10 ms

#### Power on delay (t)
- 300 ms

#### Hysteresis (adjustable)
- 14% to 15%
- 8% to 10%

#### Led indications
- Yellow LED steady: Output ON and signal stability
- Green LED flashing: Short-circuit, timer indication and teach
- Green LED flashing: IO-Link mode
- Green and Yellow LEDs flashing: Find my sensor

#### Sensor protection
- Short-circuit (A), reverse polarity (B) and transients (C)

#### Electrical fast transients/burst
- ±4kV/5kHz (IEC 61000-4-2)
- Contact discharge: > 40 kV (IEC 61000-4-4, EN 60947-1)

#### Surge
- Power supply: > 2kV (with 500 Ω)
- Sensor output: > 25V (with 500 Ω) (IEC 61000-4-5)

#### Wire conducted disturbances
- > 20 Vrms (IEC 61000-4-6)

#### Power - frequency magnetic fields
- > 20 V/m (IEC 61000-4-3)

#### Vibration
- 30G /11 m/s² positive and negative in X, Y, and Z direction (EN 60068-2-27)
- Drop test:
  - 2 times from 1m, 100 times from 0.5m (NEMA 250)

#### Degree of protection
- IP 67, IP 68, IP 69K (EN 60529; EN 60947-1; DIN 40050-9)

#### Max. temperature on sensing face
- 120°C (248°F)

#### MBF
- 114.6 years @ 40°C (104°F)
- 98.3 years @ 40°C (104°F)

#### Material
- Body: Stainless steel AISI316L
- Front: PBT white, 30% glass reinforced
- Trimmer shaft: Nylon, blue
- Backpart: Grilamid TR55, black

#### Tightening torque
- ≤ 25 Nm
- ≤ 30 Nm

#### Cable
- PCV, grey, 2m, 4 x 0.34 mm², Ø=5.2 mm, Oil proof

#### Connector
- M12, 4-pin

#### Dimensions
- Cable and Plug: M18 x 70 mm
- Cable and Plug: M30 x 61 mm

#### Weight incl. packaging
- Cable version ≤ 170 g, Plug version ≤ 95 g
- Cable version ≤ 250 g, Plug version ≤ 175 g

#### Accessories, additional
- Connectors: CONB14NF-...W series
- Mounting brackets: AMB18-A...
- Connectors: CONB14NF-...W series
- Mounting brackets: AMB30-A...

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CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
Multiturn sensitivity adjustment for SCC1 only

CA18FAF..IO Flush
M12 plug
PTFE housing
120°C on sensing face
All versions are available as cable or M12 plug versions.

CA18FAN..IO Non-Flush
Cable

CA30FAF..IO Flush
M12 plug
PTFE housing
120°C on sensing face
All versions are available as cable or M12 plug versions.

CA30FAN..IO Non-Flush
Cable

Interchangeable housing length
For flexibility and compatibility, the new sensors, whether flush or non-flush, share the same length.

Features and functions

Yellow LED
• Output
• Short circuit
• Timer
• Find my sensor

Green LED
• Power
• Stability
• IO-Link communication
• Find my sensor

For flexibility and compatibility, the new sensors, whether flush or non-flush, share the same length.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
The Capacitive CA18/30FA IO-Link Family

<table>
<thead>
<tr>
<th>M18 / M30 DC IO-Link 4th Generation TRIPLESHIELD™</th>
<th>Connection</th>
<th>M18</th>
<th>M30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable</td>
<td>CA18FAF08BPA2IO</td>
<td>CA18FAN12BPA2IO</td>
<td>CA30FAF16BPA2IO</td>
</tr>
<tr>
<td>Plug</td>
<td>CA18FAF08BPM1IO</td>
<td>CA18FAN12BPM1IO</td>
<td>CA30FAF16BPM1IO</td>
</tr>
<tr>
<td>Sensing distance</td>
<td>0 - 8 mm</td>
<td>0 - 12 mm</td>
<td>0 - 16 mm</td>
</tr>
<tr>
<td>Adjustable distance</td>
<td>2 - 10 mm</td>
<td>3 - 15 mm</td>
<td>2 - 20 mm</td>
</tr>
<tr>
<td>IO-Link Transmission type:</td>
<td>COM2 (38.4 k baud)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revision: 1</td>
<td>SDCl standard: IEC 61131-9, Profiles: Smart sensor (Process Data Variable, Device Identification), S/O mode: Yes, Required master port type: A, Min. process cycle time (ms): 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selectable function output 1</td>
<td>NPN, PNP or Push-Pull</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selectable function output 2</td>
<td>NPN, PNP, Push-Pull, External input or External teach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic</td>
<td>Operation hours, Power cycles, Detection cycles max. and min. Temperatures, Short-circuit, maintenance, No of Parameter change.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logic functions</td>
<td>AND, OR, X-OR, Gated SR-FF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timer functions</td>
<td>ON Delay: OFF delay, ON+OFF delay and One shot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity control</td>
<td>Trimmer input, Teach by wire or by IO-Link</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated operational voltage (Ue)</td>
<td>10 to 40 V DC (ripple included)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No load supply current (I)</td>
<td>≤ 20 mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum operational current (I)</td>
<td>≤ 0.5 mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR-State current (I)</td>
<td>≤ 100 μA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage drop, digital (Ud)</td>
<td>≤ 1.0 V DC @ 200 mA DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacitive load</td>
<td>100 nF @ 200 mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of operating cycles (f)</td>
<td>50 Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time tON or tOFF</td>
<td>10 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power on delay (t)</td>
<td>300 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hysteresis (adjustable)</td>
<td>4%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>Sensor protection</td>
<td>Shortcircuit (A), reverse polarity (B) and transients (C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrostatic discharge</td>
<td>Contact discharge: &gt; 40 kV, Air discharge: &gt; 40 kV (IEC 61000-4-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical fast transients/burst</td>
<td>±4kV/5kHz (IEC 61000-4-4, EN 60947-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surge</td>
<td>Powersupply: &gt; 2kV (with 500 Ω), Sensor output: &gt; 25V (with 500 Ω) (IEC 61000-4-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire conducted disturbances</td>
<td>&gt; 20 Vrms (IEC 61000-4-6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power – frequency magnetic fields</td>
<td>Continuous: &gt; 60 A/m, 75 μ tesla. Shorttime: &gt; 600 A/m, 75 μ tesla (IEC 61000-4-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiated RF electromagnetic fields</td>
<td>&gt; 20 V/m (IEC 61000-4-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibration</td>
<td>10 to 150 Hz, 1 mm/15G in X, Y and Z direction (EN 60668-2-6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock</td>
<td>30G / 11 ms, 3 positive and 3 negative in X, Y and Z direction (EN 60668-2-27)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drop test</td>
<td>2 times from 1m, 100 times from 0,5m (EN 60668-2-31)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 67, IP 68, IP 69K (EN 60529; EN 60947; DIN 40050-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEMA type</td>
<td>1, 2, 4, 4X, 5, 6, 6P, 12 (NEMA 250)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>Operating: -30 to +85°C [22 to 185°F], Storage: -40 to +85°C [40 to +185°F]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. temperature on sensing face</td>
<td>120°C (240°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE marking</td>
<td>According to EN 60947-5-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approvals</td>
<td>cULus (UL508), ECOLAB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>III (IEC60664, EN 60947-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollution degree</td>
<td>3 [IEC60664/60664A, EN 60947-1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTTFd</td>
<td>114.6 years @ 40°C [104°F]</td>
<td>98.3 years @ 40°C [104°F]</td>
<td></td>
</tr>
<tr>
<td>Tightening torque</td>
<td>≤ 1 Nm</td>
<td>≤ 2 Nm</td>
<td></td>
</tr>
<tr>
<td>Cable</td>
<td>PCV, grey, 2 m, 4 x 0.34 mm², Ø=5.2 mm, Oil proof</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connector</td>
<td>M12, 4 pin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>Cable and Plug: M18 x 70 mm</td>
<td>Cable and Plug: M30 x 61 mm</td>
<td></td>
</tr>
<tr>
<td>Weight incl. packaging</td>
<td>Cable version ≤ 150 g, Plug version ≤ 75 g</td>
<td>Cable version ≤ 190 g, Plug version ≤ 106 g</td>
<td></td>
</tr>
<tr>
<td>Accessories, additional</td>
<td>Connectors: CONB14NF...-W-series</td>
<td>Connectors: CONB14NF...-W-series</td>
<td></td>
</tr>
<tr>
<td>Mounting brackets</td>
<td>AMB18-A... and AMB18-S...</td>
<td>Mounting brackets: AMB30-A... and AMB30-S...</td>
<td></td>
</tr>
</tbody>
</table>

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
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