Nice

CO Alarm-Control

CO and temperature sensor

EN - Instructions and warnings for installation and use

1 WARNINGS AND GENERAL PRECAUTIONS

- **CAUTION! – This manual contains important instructions and warnings for personal safety.** Carefully read all parts of this manual. If in doubt, suspend installation immediately and contact Nice Technical Assistance.
- **CAUTION! – Important instructions: keep this manual in a safe place to enable future product maintenance and disposal procedures.**
- **CAUTION! – Any use other than that specified herein or in environmental conditions other than those stated in this manual is to be considered improper and is strictly forbidden!**
- **CAUTION! – Apparatus may not prevent the chronic effects of carbon monoxide exposure. The apparatus will not fully safeguard individuals at special risk.**
- **CAUTION! – Risk of malfunctioning as a result of tampering with the device.**
- The product's packaging materials must be disposed of in full compliance with local regulations.
- Never apply modifications to any part of the device. The manufacturer declines all liability for damage caused by makeshift modifications to the product.
- Do not expose this product to moisture, water or other liquids.
- This product is designed for indoor use only. Do not use outside!
- This product is not a toy. Keep away from children and animals!
- If the battery is leaking and the contained material is ingested, rinse mouth and surrounding area with clear water. Seek medical attention right away.
- Failure to observe recommendations included in this manual may cause risk to life and health or result in malfunction of the device.
- The manufacturer will not be held responsible for any loss or damage resulting from not following instructions of the manuals.

⚠ General carbon monoxide information!

Carbon monoxide (CO) is a colourless, odourless, and tasteless poison gas that can be fatal when inhaled. It is produced when liquid, solid, or gas fuel is burned.

Symptoms of carbon monoxide poisoning:

- The early symptoms of carbon monoxide poisoning can be confused with flu-like symptoms: headache, dizziness and nausea. Breathing carbon monoxide causes these symptoms even in healthy people. It can also cause sleepiness, vision problems (including blurred vision), ringing in the ears, aching arms and legs, irregular breathing, fatigue and confusion. At very high levels, it causes loss of consciousness and death.
- Some external factors, eg. exposure to high concentration of basic (non-acidic) gases, silicone vapors, hydrogen sulfide or sulfuric acid gas, organic vapors, contact with water, dust and oil mist, or dew condensation may affect the reliability of the device operation.
- This device may not protect from long-term exposure to low levels of carbon monoxide which can also lead to neurological symptoms.
- The device is not a substitute for appropriate ventilation and exhaust systems.
- If there is any question as to the cause of an alarm, it should be assumed that the alarm is due to a dangerous level of carbon monoxide and the dwelling should be evacuated.
- The remote alarm silencing function should only be used within sight of the apparatus.

2 PRODUCT DESCRIPTION

CO Alarm-Control is an ultra-light, compact, battery-powered carbon monoxide detector, designed to be placed on a wall.

Its high sensitivity allows to detect the presence of the carbon monoxide (CO) gas at the early stage in order to prevent carbon monoxide poisoning.

Alarm is signalled with a built-in siren, blinking LED indicator and by sending commands to Z-Wave™ network devices.

Additionally, the device is equipped with a temperature sensor.

Main features

- compatible with any Z-Wave™ or Z-Wave Plus™ Controller
- supports protected mode (Z-Wave network security mode) with AES-128 encryption
- wall-mounted
- battery-powered
- completely wireless
- alarm signalled with a built-in siren and LED diode
- built-in temperature sensor

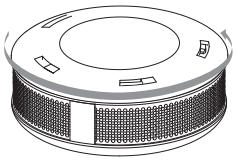
CO Alarm-Control is a fully compatible Z-Wave Plus™ device.

This device may be used with all devices certified with the Z-Wave Plus certificate and should be compatible with such devices produced by other manufacturers. All non-battery operated devices within the network will act as repeaters to increase reliability of the network. The device is a Security Enabled Z-Wave Plus product and a Security Enabled Z-Wave Controller must be used in order to fully utilize the product.

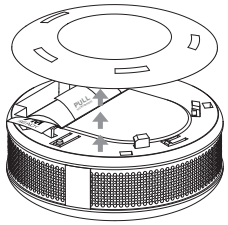
3 BASIC ACTIVATION

- Recommended height of installation is dependant on the purpose of the room and height at which head typically is.
- CO Alarm-Control may operate as a stand-alone carbon monoxide detector or may be used in cooperation with Z-Wave Controller (eg. Yubii Home) as a part of smart home system.

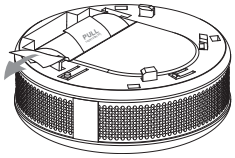
1. Turn the cover counter-clockwise.



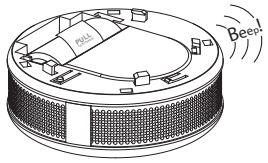
2. Take off the cover.



3. Remove the paper strip protecting the battery.



4. Proper powering up will be confirmed with a short beep.



5. Add the device (as described in section “Adding the device”) if you want to use it in the Z-Wave network.
6. Mount the cover on a wall.
7. Attach the device to its cover.
8. Turn the device clockwise to close it.

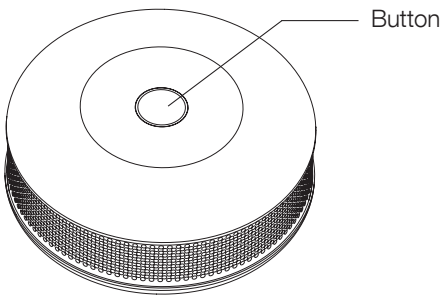
4 ADDING THE DEVICE

- Adding in security mode must be performed up to 2 meters from the controller.
- In case of problems with adding the device, please reset the device and repeat the adding procedure.
- When changing the Sensor’s location, it’s recommended to wake up the device and reconfigure the Z-Wave network by clicking the button.

Adding (Inclusion) - Z-Wave device learning mode, allowing to add the device to existing Z-Wave network.

To add the device to the Z-Wave network **manually**:

1. Place the device within direct range of the Z-Wave controller.
2. Set the main Z-Wave controller in (security/non-security) adding mode (see the controller’s manual).
3. Quickly, triple click the button located on the casing.
4. Wait for the device to be added into the system.
5. Successful adding will be confirmed by the Z-Wave controller’s message.



Z-Wave status

When powered, the device will indicate Z-Wave status with colour of LED:

- **Green** - the device is already added to the Z-Wave network.
- **Red** - the device is not added to any Z-Wave network.

5 REMOVING THE DEVICE

Removing (Exclusion) - Z-Wave device learning mode, allowing to remove the device from existing Z-Wave network.

To remove the device from the Z-Wave network:

1. Place the device within direct range of the Z-Wave controller.
2. Set the main Z-Wave controller in remove mode (see the controller's manual).
3. Quickly, triple click the button located on the casing.
4. Wait for the removing process to end.
5. Successful removing will be confirmed by the Z-Wave controller's message.

Note. Removing the device from the Z-Wave network restores all the default parameters of the device.

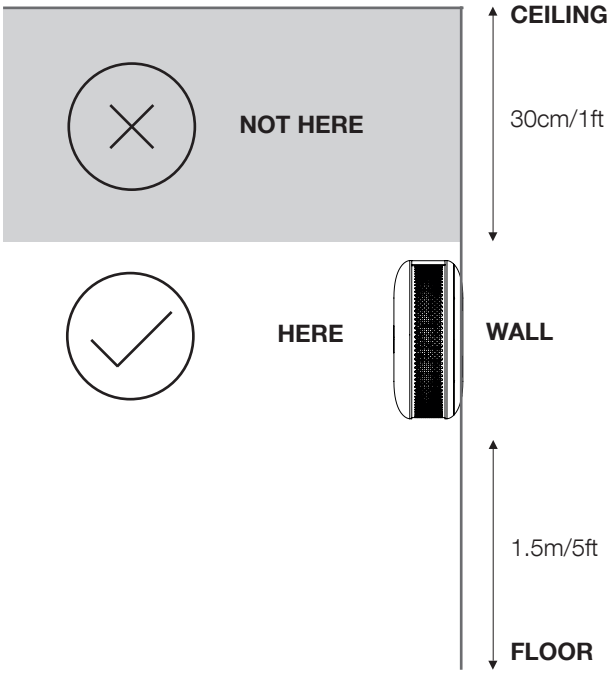
6 PHYSICAL INSTALLATION

⚠ **Read before installation and heed all the warnings!**

- The device should be installed below the ceiling level.
- The device should be installed on the wall, at least 30 cm (1 ft) away from the corners.
- The device should not be installed: in a bathroom, next to heat sources, within range of kids, obstructed from possible carbon monoxide sources, in direct sunlight.
- The device should be installed by a qualified installer.
- Do not paint the device.
- The device should be cleaned with a slightly damp cloth or moistened tissue.
- Remember to add the device to the Z-Wave network prior to installation, as the adding procedure must be performed within the direct range of the controller.

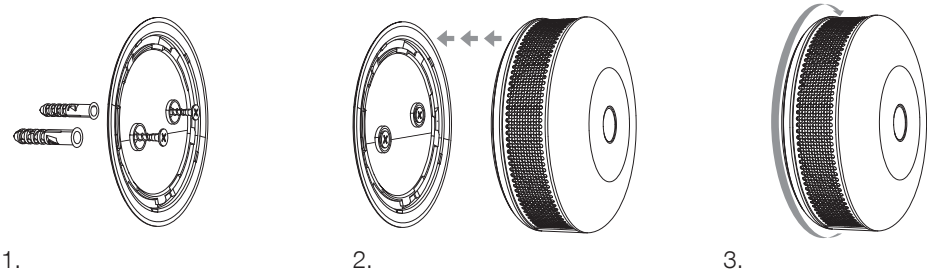
6.1 - Place of installation

- Recommended height of installation is dependant on the purpose of the room and height at which head typically is.



6.2 - Installation on the wall

1. Mount the cover on a wall.
2. Attach the device to its cover.
3. Turn the device clockwise to close it.



7 OPERATING THE DEVICE

7.1 - Menu

Menu allows to perform Z-Wave network actions. In order to use the menu:

1. Press and hold the button for 3 seconds.
2. You should hear a short signal while the LED diode blinks white.
3. Release the button.
4. Wait for the device to indicate desired menu position with a colour:
   - White - confirm the start of the firmware update process
   - Green - send the current state of CO Alarm
   - Magenta - Z-Wave network's range test
   - Yellow - the device reset
5. Press the button to confirm selection.

Note. CO Alarm-Control must be detached from the wall and battery level must be greater than 30% of its full capacity to perform the firmware update process.

7.2 - Waking up the device

CO Alarm-Control needs to be woken up to receive information about the new configuration from the Z-Wave controller, like parameters and associations. To wake up the sensor manually click the button located on the casing.

7.3 - Self-test

⚠ **If the self-test procedure does not result in emitting sound and red light signal, replace the device.**

1. Press and hold the button.
2. The LED indicator will glow white and you will hear a short beep.
3. Release the button when you hear the first alarm sequence.
4. Move away from the device to protect your hearing.

Note. The alarm is very loud! Only the first alarm sequence is quieter.

7.4 - Resetting the device to factory defaults

Reset procedure allows to restore the device back to its factory settings, which means all information about the Z-Wave controller and user configuration will be deleted.

1. Press and hold the button.
2. Release the button when LED indicator glows white and short beep sounds.
3. Click the button when LED indicator glows yellow.
4. After few seconds the device will be reset (confirmed by red LED indicator and long beep).

Note. Resetting the device is not the recommended way of removing the device from the Z-Wave network. Use the reset procedure only if the primary controller is missing or inoperable. Certain device removal can be achieved by the procedure of removing described in section "Removing the device".

8 VISUAL INDICATIONS & ACOUSTIC SIGNALS

CO Alarm-Control is equipped with a LED diode and a buzzer, signalling menu position and status of the device.

Table A1 - Device status indications

4 x BEEP every 5s	**4 x RED BLINK every 5s**	**Detected presence of carbon monoxide which can kill you!**	**1. Open the windows** **2. Move to fresh air!** **3. Contact emergency services**
1 x BEEP	1 x YELLOW BLINK every 30s	Low battery level	Replace battery
2 x BEEP every 60s	2 x YELLOW BLINK every 60s	Sensor error, DOES NOT DETECT CARBON MONOXIDE	Reset device, replace if no effect
3 x BEEP every 60s	3 x YELLOW BLINK every 60s	End of lifespan	Reset device, replace if no effect
3 x BEEP every 30s	1 x BLUE BLINK every 30s	Heat alarm	Be cautious of fire
1 x BEEP	1 x WHITE BLINK	Tamper alarm	Check housing
—	1 x GREEN BLINK every 60s	Device powered	—
1 x BEEP	1 x GREEN BLINK after powering	Added to Z-Wave	—
1 x BEEP	1 x RED BLINK after powering	Not added to Z-Wave	—
1 x BEEP	1 x MAGENTA BLINK	Out of range	Check Z-Wave
—	CYAN BLINKING	Firmware update	Wait for completion

9 OPERATING THE DEVICE

⚠ Using batteries other than specified may result in explosion. Dispose of properly, observing environmental protection rules. Use only type of battery specified in this manual and keep proper polarity!

CO Alarm-Control can be powered with CR123A (included) battery. Estimated battery life with device on default settings is 3 years (tested with Panasonic Industrial Lithium).

9.1 - Checking battery level

CO Alarm-Control automatically warns about low battery with one yellow blink and a short beep, when battery level is low.

9.2 - Replacing the battery

In order to replace the battery:

1. Remove the device from the cover by turning it counter-clockwise.
2. Pull the paper strip to take out the battery.
3. Press and hold the button for at least one second.
4. Insert a new CR123A battery observing the polarities shown inside.
5. Attach the device to its cover by turning it clockwise and perform the battery test described above.

10 ASSOCIATIONS

Association (linking devices) - direct control of other devices within the Z-Wave system network e.g. Dimmer, Relay Switch, Roller Shutter or scene (may be controlled only through a Z-Wave controller).

Association allows direct transfer of control commands between devices, is performed without participation of the main controller and requires associated device to be in direct range.

The device provides the association of seven groups:

1st association group – “Lifeline” reports the device status and allows for assigning single device only (main controller by default).

2nd association group – “CO Alarm” is assigned to the device status - devices in this group will be switched on/off when CO Alarm status changes.

3rd association group – “CO Alarm” is assigned to the device status - devices in this group will receive notification when CO Alarm status changes. Useful for devices that can trigger alarms.

4th association group – “CO Level” is assigned to measured CO level - devices in this group will be switched on/off after exceeding the level of CO concentration specified in parameter 14.

5th association group – “Tamper Alarm” is assigned to the tamper - sends tamper alarm and cancellation frames to the associated devices.

6th association group – “CO Alarm BC” is assigned to the device status - devices in this group will receive sensor alarm frames when CO Alarm status changes. Provides backward compatibility with controllers not supporting Z-Wave Plus protocol.

7th association group – “Tamper Alarm BC” is assigned to the tamper - sends tamper alarm and alarm cancellation frames to the associated devices. Provides backward compatibility with controllers not supporting Z-Wave Plus protocol.

Notes:

- 2nd and 4th association groups use BASIC CC, but the device does not repond to GET commands.
- CO Alarm-Control in 2nd to 7th group allows to control 5 regular or multichannel devices per an association group.
- “Lifeline” group is reserved solely for the controller and hence only 1 node can be assigned.
- It is not recommended to associate more than 10 devices in general, as the response time to control commands depends on the number of associated devices. In extreme cases, system response may be delayed.

Notification report:

The device uses Notification Command Class to report different events to 1st association group (Lifeline).

Table A2 - Notification reporting

Notification Type	Triggering Event
CO Alarm	1. Carbon monoxide detected, unknown location 2. Carbon monoxide test 3. Replacement required
Heat Alarm	Overheat detected, unknown location
Home Security	Tampering, product covering removed
Power Management	Replace battery soon
System	System hardware failure

11 ADVANCED PARAMETERS

The device allows to customize its operation to user’s needs using configurable parameters.

The settings can be adjusted via Z-Wave controller to which the device is added. The way of adjusting them might differ depending on the controller.

Wake up interval

CO Alarm-Control will wake up at each defined time interval and always try to connect with the main controller. After successful communication attempt, the device will update configuration parameters, associations, settings and then will go into Z-Wave communication standby.

After failed communication attempt (eg. no Z-Wave range) the device will go into Z-Wave communication standby and retry to establish connection with the main controller after the next time interval.

Setting wake up interval to 0 disables sending Wake Up notification to the controller automatically. Wake up may be still performed manually using the button.

Longer time interval means less frequent communication and thus a longer battery life.

Available settings: 0 or 3600-43200 (in seconds, 1h - 12h)

Default setting: 21 600 (every 6 hours)

Table A3 - CO Alarm-Control - Available parameters

Parameter:	2. Z-Wave notifications		
Description:	This parameter allows to set the actions which result in sending notifications to the Z-Wave network controller.		
Available settings:	0 - both actions disabled 1 - tampering (opened casing) 2 - exceeding the temperature 3 - both actions enabled		
Default setting:	0	Parameter size:	1 [byte]
Parameter:	3. LED diode indications		
Description:	This parameter allows to set the actions which result in LED diode indications. This parameter does not apply to the most important actions, such as CO Alarm, Malfunction Alarm and Low Battery Alarm. Parameter 3 values may be combined, e.g. 1+2+4=7 means that all actions will be active.		

Available settings:	0 - all actions disabled 1 - tampering (opened casing) 2 - exceeding the temperature 4 - lack of Z-Wave range		
Default setting:	0	Parameter size:	1 [byte]
Parameter:	4. Acoustic signals		
Description:	This parameter allows to set the actions which result in acoustic signals. This parameter does not apply to the most important actions, such as CO Alarm, Malfunction Alarm and Low Battery Alarm. Parameter 4 values may be combined, e.g. 1+2+4=7 means that all actions will be active.		
Available settings:	0 - all actions disabled 1 - tampering (opened casing) 2 - exceeding the temperature 4 - lack of Z-Wave range		
Default setting:	0	Parameter size:	1 [byte]
Parameter:	4. Acoustic signals		
Description:	This parameter allows to set the actions which result in acoustic signals. This parameter does not apply to the most important actions, such as CO Alarm, Malfunction Alarm and Low Battery Alarm.		
Available settings:	0 - all actions disabled 1 - tampering (opened casing) 2 - exceeding the temperature 4 - lack of Z-Wave range		
Default setting:	0	Parameter size:	1 [byte]
Parameter:	7. Associations in Z-Wave network security mode		
Description:	Parameter defines how commands are sent in specified association groups: as secure or non-secure. Parameter is active only in Z-Wave network security mode. It does not apply to 1st “Lifeline” association group. Parameter 7 values may be combined, e.g. 1+2=3 means that 2nd & 3rd group are sent as secure.		
Available settings:	1 - 2nd group sent as secure 2 - 3rd group sent as secure 4 - 4th group sent as secure 8 - 5th group sent as secure 16 - 6th group sent as secure 32 - 7th group sent as secure		
Default setting:	63	Parameter size:	1 [byte]
Parameter:	10. Commands sent to 2nd association group (CO Alarm)		
Description:	This parameter defines commands sent to devices associated in 2nd association group (CO Alarm). Values of specified commands may be set in parameters 11 and 12.		
Available settings:	1 - BASIC ON 2 - BASIC OFF 3 - BASIC ON & BASIC OFF		
Default setting:	3 (ON & OFF)	Parameter size:	1 [byte]
Parameter:	11. Value of BASIC ON command sent to 2nd association group		
Description:	This parameter defines the value of BASIC ON command sent to devices in 2nd association group after the CO Alarm activation.		
Available settings:	0-99 or 255		
Default setting:	255 (turn on)	Parameter size:	2 [bytes]
Parameter:	12. Value of BASIC OFF command sent to 2nd association group		
Description:	This parameter defines the value of BASIC OFF command sent to devices in 2nd association group after the CO Alarm cancellation.		
Available settings:	0-99 or 255		
Default setting:	0 (turn off)	Parameter size:	2 [bytes]
Parameter:	13. Commands sent to 4th association group (CO Level)		
Description:	This parameter defines commands sent to devices associated in 4th association group (CO Level). Values of specified commands may be set in parameters 16 and 19.		

Available settings:	1 - BASIC ON 2 - BASIC OFF 3 - BASIC ON & BASIC OFF		
Default setting:	3 (ON & OFF)	Parameter size:	1 [byte]
Parameter:	14. CO level required for sending BASIC ON command to 4th association group		
Description:	This parameter defines the minimum level of CO concentration which exceeding will result in starting the timer set in parameter 15.		
Available settings:	25-400 - CO concentration level in ppm		
Default setting:	40 (40 ppm)	Parameter size:	2 [bytes]
Parameter:	15. Time required for sending BASIC ON command to 4th association group		
Description:	This parameter defines the time during which the level of CO concentration should remain above the value set in parameter 14 to send the BASIC ON command to 4th association group.		
Available settings:	0 - immediate sending of BASIC ON command 1-2880 (30s - 24h, in 30s steps)		
Default setting:	0	Parameter size:	2 [bytes]
Parameter:	16. Value of BASIC ON command sent to 4th association group		
Description:	This parameter defines the value of BASIC ON command sent to devices in 4th association group after exceeding the CO level set in parameter 14 through the time set in parameter 15.		
Available settings:	0-99 or 255		
Default setting:	255 (turn on)	Parameter size:	2 [bytes]
Parameter:	17. CO Level required for sending BASIC OFF command to 4th association group		
Description:	This parameter defines the level of CO concentration below which falling will result in sending the BASIC OFF command to 4th association group.		
Available settings:	10-400 - CO concentration level in ppm		
Default setting:	25 (25 ppm)	Parameter size:	2 [bytes]
Parameter:	19. Value of BASIC OFF command sent to 4th association group		
Description:	This parameter defines the value of BASIC OFF command sent to devices in 4th association group after falling below the CO level set in parameter 17.		
Available settings:	0-99 or 255		
Default setting:	0 (turn off)	Parameter size:	2 [bytes]
Parameter:	20. Temperature reporting time interval		
Description:	Time interval (in seconds) between consecutive reports of temperature (done by built-in temperature sensor). Short time interval means more frequent communication, which results in shortened battery life.		
Available settings:	0 - no periodical reports 10-1440 (5min - 12h, in 30s steps)		
Default setting:	0	Parameter size:	2 [bytes]
Parameter:	21. Temperature reporting hysteresis		
Description:	This parameter defines a minimum change in temperature resulting in a report being sent to the main Z-Wave controller.		
Available settings:	1-20 (0.5°C - 10°C, each 0.5°C)		
Default setting:	2 (1°C)	Parameter size:	1 [byte]
Parameter:	22. Threshold of exceeding the temperature		
Description:	This parameter defines the temperature level, which exceeding will result in sending actions set in parameters 2, 3 and 4.		
Available settings:	1-85 (1°C - 85°C, each 1°C)		
Default setting:	55 (55°C)	Parameter size:	1 [byte]
Parameter:	23. CO meter activation		
Description:	This parameter activates reporting the value of CO concentration level to the main Z-Wave controller.		
Available settings:	0 - disabled 1 - enabled		
Default setting:	1 (enabled)	Parameter size:	1 [byte]

Parameter:	25. CO level reporting hysteresis		
Description:	This parameter defines a minimum change in CO concentration level which results in sending a new value to the main Z-Wave controller.		
Available settings:	2-6 (10 ppm - 30 ppm, each 5 ppm)		
Default setting:	2 (10 ppm)	Parameter size:	1 [byte]
Parameter:	26. Threshold of CO meter activation		
Description:	This parameter defines the CO concentration level, which exceeding will result in sending a new value to the main Z-Wave controller, according to parameter 25 settings. Adjusting the value allows to get the accurate data in case of danger and helps to save the battery in normal conditions.		
Available settings:	10-255 (ppm)		
Default setting:	30 (30 ppm)	Parameter size:	2 [bytes]

Notes:

- Setting parameters 11, 12, 16, 19 to appropriate value will result in:
  - » 0 - turning associated devices off,
  - » 1-99 - forcing level of associated devices,
  - » 255 - setting associated devices to the last remembered state or turning them on.
- Parameter 14 value must be at least 4 ppm higher than parameter 17 value.
- Parameter 17 value must be at least 4 ppm lower than parameter 14 value.
- Values received by the controller may be used for graphs of CO concentration level.
- Parameter 25 is closely related to parameter 26.

12 TECHNICAL SPECIFICATIONS

The product CO Alarm-Control is produced by Nice S.p.A. (TV). Warnings: - All technical specifications stated in this section refer to an ambient temperature of 20 °C (± 5 °C) - Nice S.p.A. reserves the right to apply modifications to the product at any time when deemed necessary, while maintaining the same functionalities and intended use.

CO Alarm-Control	
Power supply	CR123A 3.0V battery (included)
Type of apparatus	Type B
Battery life	3 years on default settings (tested with Panasonic Industrial Lithium)
Lifespan under typical conditions	8 years
CO concentration measurement range	0 - 450 ppm
Measuring accuracy	±10ppm / ±5%
Alarm response times on default settings	50ppm 60-90min; 100ppm 10-40min; 300ppm <1.5min
Alarm siren sound level	85 dBA at 3 meters (10 feet)
Operating temperature	0 - 50°C
Operating humidity	10-95%RH without condensation
Dimensions (d x h)	65 x 28 mm
Conformity with	EN 50291-1:2018

- Radio frequency of individual device must be same as your Z-Wave controller. Check information on the box or consult your dealer if you are not sure.
- Using batteries other than specified may result in explosion. Dispose of properly, observing environmental protection rules.
- Replace the device before date on the front or if sensor error is detected.

Radio transceiver	
Radio protocol	Z-Wave (500 series chip)
Frequency band	868.4 or 869.8 MHz (EU) 921.4 or 919.8 MHz (ANZ)
Transceiver range	up to 50m outdoors up to 40m indoors (depending on terrain and building structure)
Max. transmit power	up to -5 dBm (EIRP)

(*) The transceiver range is strongly influenced by other devices operating at the same frequency with continuous transmission, such as alarms and radio headphones which interfere with the control unit transceiver.

13 PRODUCT DISPOSAL

This product is an integral part of the automation and therefore must be disposed together with the latter.
As in installation, also at the end of product lifetime, the disassembly and scrapping operations must be performed by qualified personnel. This product is made of various types of material, some of which can be recycled while others must be scrapped. Seek information on the recycling and disposal systems envisaged by the local regulations in your area for this product category.
Caution! – some parts of the product may contain pollutant or hazardous substances which, if disposed of into the environment, may cause serious damage to the environment or physical health.
As indicated by the symbol alongside, disposal of this product in domestic waste is strictly prohibited. Separate the waste into categories for disposal, according to the methods envisaged by current legislation in your area, or return the product to the retailer when purchasing a new version.
Caution! – local legislation may envisage serious fines in the event of abusive disposal of this product.

14 DECLARATION OF CONFORMITY

Hereby, Nice S.p.A., declares that the radio equipment type CO Alarm-Control is in compliance with Directive 2014/53/EU.
The full text of the EU declaration of conformity is available at the following internet address: http://www.niceforyou.com/en/support

Nice

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