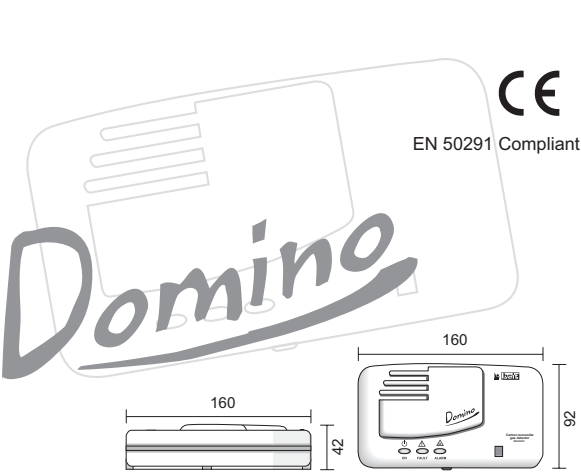
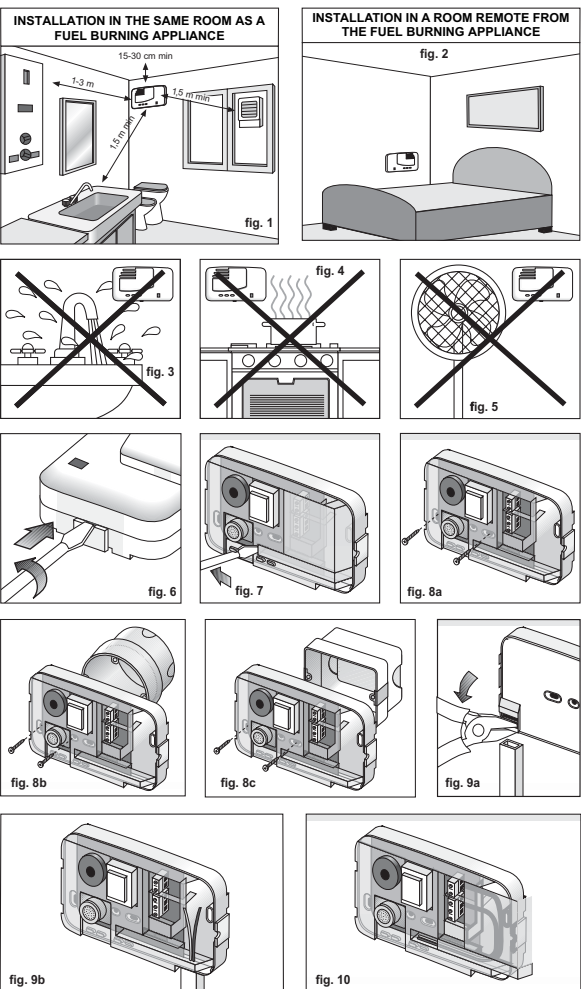




CARBON MONOXIDE DETECTOR
FOR DOMESTIC PREMISES
Type A with solenoid valve control



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USER AND INSTALLATION MANUAL

GENERAL

"Domino" gas detector for carbon monoxide (B10-DM03 and B10-DM03R) use an electrochemical cell sensor inserted in a highly reliable and low-consumption (2 VA) electronic control circuit. Domino gas detectors are fitted with the exclusive B95-CA3 sensor module, which is replaced every 5 years instead of the entire detector, giving considerable savings.

Designed and tested in compliance with the EN 50291 European Standard to intervene exclusively in the presence of a specific carbon monoxide concentration in the air, they also withstand temperature and humidity variations normally present in the household. Each Domino detector is tested and calibrated with sample gas to intervene within the limits prescribed by the EN 50291 European Standard.

Thanks to their reliability, if used and installed in accordance with the indications of this user manual, they will intervene in the event of a dangerous carbon monoxide concentration for at least 5 years without causing false alarms. However, the B95-CA3 sensor module must be replaced 5 years after the installation since it may no longer be able to respond to the concentrations prescribed by the European Standard.

CAUTION!

- Read carefully the following instructions before installation. In particular, read and remember the warnings detailing emergency actions in case of alarm.
- Keep the instructions booklet for future consultation.
- Tampering or incorrect closing of the detector may cause risks of electric shock.
- Installation of the detector does not obviate the need to observe all regulations concerning features, installation and use of gas equipment, ventilation of rooms and evacuation of combustion products required by national law and other legal dispositions.
- Installation of gas appliances and the cut-off device must conform with the current dispositions of national law.

DESCRIPTION

OPERATING LIGHTS

The Domino detector has four light indications on the front panel. Those lights are distinguished by the colour and by the corresponding symbol:

- Green light:** Indicates that the detector is powered on.
- Yellow Light:** indicates a fault or the absence/incompatibility of the B95-CA3 sensor module.
- Red Light:** indicates a carbon monoxide concentration in the air equal or higher than the alarm threshold.
- Blue Light:** indicates that the B95-CA3 sensor module life is expired and it must be replaced.

	Green led	Yellow led	Red led	Blu led	Relay	Buzzer
Powered off	OFF	OFF	OFF	OFF	OFF	OFF
Test	ON	ON	ON	ON	ON	ON
Stand-by	ON	OFF	OFF	OFF	OFF	OFF
Detector fault	ON	ON	OFF	OFF	OFF	OFF
B95-CA3 module fault	ON	Blinking	OFF	OFF	OFF	OFF
B95-CA3 module not installed/wrong	ON	Blinking	OFF	OFF	OFF	Blinking
Alarm in course	ON	OFF	ON	OFF	ON	ON
Alarm withdrawn	ON	OFF	Blinking	OFF	OFF	*(JP1)
B95-CA3 module life near to 5 years	ON	OFF	OFF	Blinking	OFF	OFF
B95-CA3 module life exceeding 5 years	ON	Blinking	OFF	Blinking	OFF	OFF

*JP1 is the jumper you set to store the alarm relay condition. If you set it to position 1 (see Fig. 15.) the relay will restore normal condition when the alarm is over. If you set it to position 2 (see Fig. 16.) alarm is stored and relay stays in alarm condition. To restore it to normal condition, press the T/R button (Reset.)

POWERING ON

When powered on, an automatic detector test starts (as described in the "TEST" chapter); the automatic test is then followed by the detector initialisation process which lasts 2 seconds. During test and initialisation all the detector lights are on; when the yellow, red, and blue lights switch off, test and initialization have been successfully completed and the detector is operative.

ALARM

If the hazardous carbon monoxide concentration, indicated by the red light, remains above the alarm threshold for at least 10 seconds, a powerful audible alarm (buzzer) is activated and the relay for the solenoid valve is energised. The audible alarm and the control relay switch off when the carbon monoxide concentration in the air returns below the alarm threshold, while the detector will remain in the "alarm withdrawn" condition (red light flashing) until the T/R button is pressed.

FAULT

Three alarm types can be identified:

- Intermittent buzzer and yellow light flashing: the B95-CA3 sensor module has been removed, or an incompatible sensor module has been installed in the detector.
- Yellow light on: identifies a fault on the main unit.
- Yellow light flashing: identifies a fault on the B95-CA3 sensor module.

TEST

The detector is fitted with a test/reset (T/R) button (fig. 11); to perform the test procedure, press the T/R button and maintain it pressed for at least 2 seconds. Yellow, red, and blue lights will turn on, then the relay and the buzzer will be activated. The test function does not check the correct alarm threshold but it is designed to check the electrical operations of the detector and the solenoid valve control.

Calibration is fixed and set in factory with test gas for each detector. This ensures, in normal operating conditions, the intervention of the detector within the minimum and maximum limits provided by the EN 50291 European Standard for at least 5 years.

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INSTALLATION GUIDE

Installation must be performed by qualified personell, who will install the detector in compliance with the instructions of this manual and the indications contained in the EN 50292 Europen Standard, regarding the installation of carbon monoxide detectors in domestic premisses. In any case, current standards and laws covering installation must be observed.

Before proceeding, make sure that the detector is suitable for carbon monoxide, by reading the technical specifications on the detector unit; also make sure that the gas detector power supply matches that of the mains supply.

WHICH ROOM?

Ideally, a detector should be installed in every room containing a fuel burning appliance. Additional detectors may be installed to ensure that adequate warning is given for occupants in other rooms, by locating detectors in:

- Remote rooms, in which the occupants spend considerable time whilst awake and from which they may not be able to hear an alarm from detectors in another part of the premises;
- In every sleeping room.

However, if there is a fuel burning appliance in more than one room and the number of detectors is limited, following points should be considered when deciding where best to put the apparatus:

- Locate the detector in a room containing a fueless or open-fluted appliance;
- Locate the detector in a room where the occupants spend most time.

If the domestic premises is a bedsit (a single room serving as both sitting and bedroom) then the detector should be put as far from the cooking appliances as possible but near to where the person sleeps. If the fuel burning appliance is in a room not normally used (for example a boiler room), the detector should be put just outside the room so that the alarm may be heard more easily.

WHERE IN THE ROOM?

If the detector is located in the same room as a fuel burning appliance, it should be installed (fig.1):

- On the wall close to the ceiling and at least 15 cm far from it;
- At a height greater than the height of any door or window;
- At a horizontal distance of between 1 m and 3 m from the potential source.

If the detector is located in sleeping rooms and in rooms remote from the fuel burning appliance, it should be installed relatively close to the breathing zone of the occupants.

In both cases, it should be possible to view all the light indicators when in the vicinity of the chosen location of the detector (fig.2).

WHERE NOT TO INSTALL THE DETECTOR

The detector should NOT be installed:

- In an enclosed space (for example in a cupboard or behing a curtain);
- Directly above a sink (fig.3);
- In the immediate vicinity of the cooking appliance (fig.4);
- Next to a door or window;
- Next to air extraction units or fans; (fig.5)
- Next to ventilation apertures or conducts, since the air flow generated could reduce the gas concentration in the vicinity of the detector compared with the effective gas concentration in the room.
- Where it can be obstructed (for example by furniture).
- Where dirt and excessive dust may clog the sensor air inlets and, in extreme cases, even damage the sensor element.
- In an area where humidity is constantly excessive (Domino detectors are guaranteed to operate in presence of up to 90% relative humidity without condensation).
- In an area where the temperature may drop below -10°C or exceed 40°C
- Everywhere outdoor.

OPENING THE DETECTOR

Press and turn delicately with a screwdriver in the notch on the right side of the detector to open the cover retaining hook (fig.6).

Remove the terminal board cover levering it with a screwdriver and then pulling it off with your hand to unhook it completely (fig.7).

FIXING

Wall mounted using the two wall plugs supplied; on round or square (2 modules) flush mounting boxes with fixing screw wheelbase of 60 mm, or on rectangular (3 modules) flush mounting boxes with fixing screw wheelbase of 83.5 mm (fig.8a / 8b / 8c).

CABLE FITTINGS

Power supply through external trunk 20x10 (fig.9a / 9b).

Power supply through in-wall wiring or through flush mounting box (fig.10).

WIRING

The detector must be connected to the mains through an appropriate switch, as required by EN 60335-1 European Standard, to ensure permanent function even when the room is not used (for example during holidays), in fact if there is not mains the detector cannot work. Make eletrical connections as follows:

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Connection to the power supply terminals and to the NO relay output of the normally open solenoid valve (fig. a).

Connection to the power supply terminals and to the NC relay output of the normally closed solenoid valve (fig. b).

fig. a

fig. b

CLOSING THE DETECTOR

Fit the terminal board protection cover making sure it is completely hooked. Fit the detector cover on the left side hooks and then lower it, making sure that the pins fit properly into the slots and then close completely on the right side hooks (fig. 10).

APPLICATION OF REPLACEMENT DATE LABEL

Apply on the the detector front cover the label supplied, containing the B95-CA3 sensor module replacement date (fig.13). Then fill out the pre-printed fields in the present booklet.

MAINTENANCE

B95-CA3 SENSOR MODULE REPLACEMENT PROCEDURE

To replace the B95-CA3 sensor module it is recommended that the following actions are followed:

- Make sure that the B95-CA3 sensor module purchased is compatible with carbon monoxide;
- Press and turn delicately with a screwdriver in the notch on the right side of the detector to open the cover retaning hook (fig.6)
- Remove the old sensor module pulling it off with hands (fig. 12)
- Plug-in the new sensor module making sure it is correctly connected
- Replace the old B95-CA3 sensor module replacement date with the new one included in the spare sensor module package;
- Fit the detector cover on the left side hooks and then lower it, making sure that the pins fit properly into the slots and then close completely on the right side hooks.

CAUTION!

A wrong installtion of the sensor module or the installation of an incompatible sensor module will generate a fault signal.

HEALTH EFFECTS OF CARBON MONOXIDE

Carbon monoxide (CO) is a colourless, odourless, non-irritating gas which is classified as a chemical asphyxiant whose toxic action is a direct result of the hypoxia produced by a given exposure.

CO is rapidly absorbed through the lungs, diffuses across the alveolar capillary membrane and is reversibly bound with haemoglobin as carboxyhaemoglobin (COHb). The affinity of haemoglobin for CO is over 200 times its affinity for oxygen. This reduces the oxygen carrying capacity of the blood, and also has an effect on the dissociation of oxyhaemoglobin, which further reduces the oxygen supply to the tissues. CO is chemically unchanged in the body, and is eliminated in expired air. The elimination is determined by the same factors that applied during absorption.

If the CO level in the inhaled air is constant, the level of COHb in the blood will approach an equilibrium state after several hours. However, the rate at which the equilibrium is reached depends on many factors; most important are the CO concentration and the duration of exposure.

The effects of different saturation blood COHb levels on healthy adults are shown in the following table.

% COHb	EFFECTS
0,3 - 0,7	Normal range in non-smokers
0,7 - 2,9	No proven physiological changes
2,9 - 4,5	Cardio-vascular changes in cardiac patients
4 - 6	Usual values in smokers, impairment in psychomotor tests
7 - 10	Cardio-vascular changes in non-cardiac patients
10 - 20	Slight headache, weakness, potential burden on foetus
20 - 30	Severe headache, nausea, impairment in limb movements
30 - 40	Severe headache, irritability, confusion, impairment in visual acuity, nausea, muscular weakness, dizziness
40 - 50	Convulsions and unconsciousness
60 - 70	Coma, collapse, death

A number of high risk groups are particularly sensitive to the effects of CO because of various organ impairments or specific changes, mainly:

- Those whose oxygen carrying capacity is decreased due to anaemia or other haemoglobin disorders;

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CAUTION!

This apparatus is designed to protect individuals from the acute effects of carbon monoxide exposure. It will not fully safeguard individuals with specific medical conditions. If in doubt consult a medical practitioner.

EMERGENCY ACTIONS

If the detector initiates an alarm signal it is recommended that the following actions are taken in the order given:

- Keep calm and open all doors and windows to increase the rate of ventilation. Stop using all fuel burning appliances and ensure, if possible, that they are turned off;
- If the detector continues to signal an alarm, even after being reset, then evacuate the premises. Leave the doors and the windows open, and only re-enter the building to operate periodically a detector reset until the alarm has stopped. In multi-occupancy and multi-storey premises, ensure that all the occupants are alerted to the risk;
- Get medical help for anyone suffering the effects of carbon monoxide poisoning, and advise that carbon monoxide inhalation is suspected;
- Telephone the appropriate appliance servicing and/or maintenance agency or, when necessary, the relevant fuel supplier on their emergency number, so that the source of carbon monoxide emissions can be identified and corrected. Unless the reason for the alarm is obviously spurious, do not use the fuel burning appliances again, until they have been checked and cleared for use by a competent person according to national regulations.

SPECIFICATIONS	
Model	B10-DM03
Modulo sensore di ricambio	B95-CA3(CO)
Reference standard	In compliance with GOST Certification A (with solenoid control)
Type	15 years from first installation date
Maximum detector lifetime	5 years from installation date ***
Maximum sensor lifetime	
Number of replacement of sensor module after first installation	2
B95-CA3 sensor module life	5 years
Alarm conditions****	50 ppm between 60 and 90 minutes 100 ppm between 10 and 40 minutes 300 ppm before less than 3 minutes
Power supply	230 Vac +/-10% 50Hz
Consumption	2 VA
Operating temperature	-10 + 40°C
Relative Humidity	30 - 90 % (non condensing)
Enclosure Rating	IP42
Relay	Sealed NO/NC/C 250V 5A
Sensor	Electrochemical cell (installed inside the B95-CA3 sensor module)
Audible alarm	>85 dBa at 1 m
Initialisation time	2 seconds
Dimensions	160 x 92 x 42
Weight	350 gr

*** In normal environmental conditions (25°C 40% Ur)

**** In compliance with CEI EN 50291 Par. 4.3.3 - Tab. 2)

TO BE FILLED IN BY THE INSTALLER

Installation date

Date of replacement of whole detector:

Installation room

Serial number

First B95-CA3 sensor module replacement date

Second B95-CA3 sensor module replacement date

Third B95-CA3 sensor module replacement date

Remember to apply on the detector front cover the label indicating the B95-CA3 sensor module replacement date (fig.11).