



RUKS ENGINEERING LTD

ENERGY MANAGEMENT & IAQ DEVICE

SENSOR & CONTROLLER TO MINIMIZE VOC, ODOR & CIGARETTE SMOKE & REDUCE ENERGY CONSUMPTION BY HVAC SYSTEM



US UL LISTED AS ENERGY MANAGEMENT SYSTEM

CONTROZONE CZ6 SC & CZ6 C

Watchdog of your Air Quality & Operating Cost

Made in Canada



Ruks ControZone CZ6 range of Sensor and or Controller offers reliable, efficient and cost effective solution to track and or control VOC in your indoor environment and reduce energy used by HVAC system. Duct, plenum or space mounting options offer total flexibility to suit all applications.

CZ6 SC SENSOR CONTROLLER

A watchdog of your air quality, The Sensor Module continuously tracks weighted average concentration of indoor VOC and odor. Delivers signal to built in Variable Load Controller. This provides variable voltage to modulate IAQ devices, to eliminate or minimize offending VOC, odor and cigarette smoke. LED lamps provide visual indication of prevailing VOC level. Fully factory wired in

one neat 18 G CRS Powder Coated Satin Finish enclosure. Only field wiring required are input and output power cables, and interlock wiring. All in one enclosure renders installation easy, economical and quick.

CZ6 CONTROLLER

Standalone Controller. Modulates input voltage 110 V (220 V) to variable voltage 0 to 110 V (0 to 220 V), based on input analog signal 0 to 10 VDC, from any source; VOC, Temperature, Pressure, RH, occupancy Monitor or any Transducer. Selector switch provides option to bypass voltage regulator, if full applied voltage is required. Fully factory wired in one neat, compact 18 G CRS Powder Coated Satin Finish enclosure. Installation is quick, easy, and cost effective.

- Use CZ6 SC or CZ6 C to Monitor, Modulate, or Control any IAQ device; Ruks Ozone Generators, Heat Recovery Wheels, Demand Load Ventilation, Fresh and Exhaust Fans and Dampers, to provide fine modulation.
- Use CZ6 SC or CZ6 C to provide improved IAQ, combined with reduced HVAC plant size and reduced operating cost. Savings achieved provide quick ROI.

CZ6 Series - Your Silent Partner in Quality & Economy



US UL LISTED & CE Certified



UL Listed as Energy Management Equipment

This equipment is not intended to be used as life saving device

MODE OF OPERATION

CZ6 SC SENSOR CONTROLLER

Sensor Module responds to rapid changes in TVOC and provides variable 0 to 10 VDC analog signal. Factory preset signal strength to indicate 1 level for clean room and 3 levels of pollution. Baseline of Sensor is factory set to clean room conditions. Adjustable sensitivity control provides flexibility to set baseline to customize user's requirements. Set sensitivity is retained in the event power is lost, or if system is turned off for maintenance. Sensor is suitable to read multiple VOC present indoor and deliver signal based on TVOC. HMOS sensor element is ideally suited for 24/7 online operation, and requires no recalibration. Provides 0 to 10 VDC analog signal for interface to BMS/BAS.

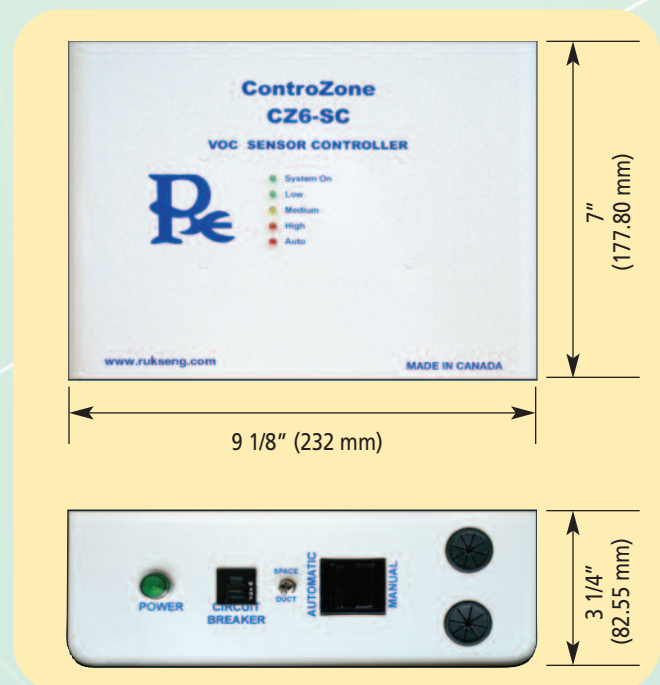
Controller Module accepts 0 to 10 VDC from Sensor Module and regulates input line voltage 110 V (220 V) to provide variable line voltage, proportionally to level of VOC detected. Variable voltage is used to modulate any IAQ device. System mounted On/Off Switch, Auto Bypass Switch, and Power On Light offer operational flexibility.

Sensor and Controller modules are factory wired and housed in 18 G CRS Powder Coated Satin Finish enclosure. Minimizes field wiring to input and output power wiring and electrical interlock cables (if used).

CZ6 CONTROLLER

Identical to Controller Module described in CZ6 SC. Accepts 0 to 10 VDC input signal from any device, and regulates input voltage 110 V (220 V) to variable output voltage, based on signal voltage. Unit mounted On/Off Switch, Auto Bypass Switch, and Power On Light offer operational flexibility. Housed in 18 G CRS Powder Coated Satin Finish enclosure. Minimizes field wiring to input and output power cables and interlock wires if electrical interlocking is needed. Input voltage may be from Ruks CZ8 series IAQ monitors, or any Sensing or Transducer device.

CZ6 SC AND CZ6 C ARE SUITABLE TO REDUCE ENERGY USED BY HVAC SYSTEM, AND OPERATE ANY IAQ DEVICE: OZONE GENERATORS, HEAT RECOVERY WHEELS, FRESH AIR, SUPPLY AIR OR EXHAUST AIR FANS AND DAMPERS, OR DEMAND LOAD VENTILATION.



CZ6 SC with dimensions



PRODUCT SPECIFICATIONS

CZ6 SC

Size: 9-1/8" x 3-1/4" x 7" (H) / 232 mm x 82.55 mm x 177.80 mm (H)

Weight: 2.22 lbs (1 Kg)

Enclosure: 18 G CRS Powder Coated Satin Finish Enclosure

Mounting: Space or Duct or Plenum

SENSOR MODULE

Sensor Type: Heated Metal Oxide Semi Conductor (HMOS)

Gases Detected: Total VOC (TVOC) in indoor space, air ducts, and air streams

Output Channels: 4 Channels; Clean, Low, Medium, High, TVL of OSHA

Rating: Continuous operation in covered space

LED Lamps: 5 - System On, Low, Medium, High, Auto

Sensor Output Voltage Signal: 0 to 10 VDC Analog approximately proportional to TVOC detected

Calibration Gas: Isobutylene 100 ppm or 1000 ppm

Initial Warm up Period: Approximately 3 Minutes

Sensor Life: In excess of 15 years (subject to proper use and care)

Response Time: Almost Instantaneous.

Operating Range: 0 to 100% RH non condensing

Power Source to Sensor: Internally provided

BMS/BAS Interface: 0 to 10 VDC Analog

CONTROLLER MODULE

Input Signal: 0 to 10 VDC from Sensor Module

Input Voltage: 110 V, 1 Ph, 60 Hz (or 220 V, 1 Ph, 50 Hz)

Output: Variable 0 to 110 V (or 0 to 220 V)

Power: 150 W

Rating: Continuous Operation

Terminals: 3 for incoming power, 3 for variable voltage outgoing power to drive IAQ device, and 4 for electrical interlock

Terminal Block: Provided in the unit

Operating RH Range: 0 to 100% RH non condensing

3 LED Lamps: Power On, Auto, Manual
Power Source to Controller: Provided internally

Wiring between Sensor and Controller

Modules: Provided internally

Field Wiring: Cables for Power In, Power Out, and Interlocks (if used)

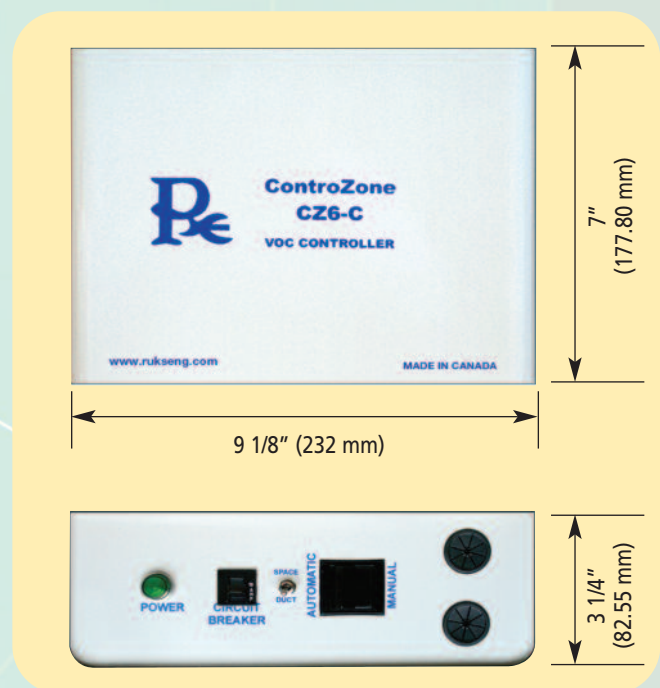
CZ6 C

Size: 9-1/8" x 3-1/4" x 7" (H) / 232 mm x 82.55 mm x 177.80 mm (H)

Weight: 2.22 lbs (1 Kg)

Enclosure: 18 G CRS Powder Coated Satin Finish Enclosure

All other relevant details are same as Controller Module of CZ6 SC



CZ6 C with dimensions



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TECHNICAL SPECIFICATIONS

AUTO VOC SENSOR CONTROLLER CZ6-SC PRODUCT SPECIFICATIONS

1. Regulation of IAQ device or Fresh Air Damper shall be automatically modulated and controlled by Ruks ControZone CZ6 SC, comprising Auto VOC Sensor and Variable Load Controller modules. They shall be housed in one neat, compact, 18G CRS Powder Coated Satin Finish Enclosure.
2. Sensor and Controller shall be rated for continuous operation.
3. It shall be suitable for operation in air 0 to 100% RH non condensing.
4. Wiring between Sensor and Controller Modules, and for powering the Sensor element shall be factory provided within the enclosure.

SENSOR MODULE

5. Sensor element shall be HMOS, rated for continuous online, 24/7 uninterrupted operation, without requiring recalibration.
6. The Sensor shall be factory calibrated to Isobutylene gas 100 (or 1000) PPM for full span, and controlled clean air for zero span. Factory stamped calibration certificate with date of calibration shall accompany each unit.
7. The VOC Sensor shall be capable of detecting broad range of commonly occurring VOC in indoor applications. Each gas sensed is related by the sensor to its corresponding concentration value to isobutylene.
8. The Sensor shall provide 4 distinct signals, one each for Clean, Low, Medium and High levels of concentration of the polluting VOC. The Sensor shall have 5 LED displays to provide visual indication for the 4 levels, and warm up phase. It shall be possible to field adjust sensitivity of the sensor.
9. The sensor shall provide 0 to 10 VDC analog proportional output, for interface to Automated Building Management System.
10. In the event of power failure, or if the system is turned off, the Sensor shall retain the pre set sensitivity.
11. The sensor shall be provided with device to adjust the 4 levels of pollution, one for each, independent of one another.

LOAD CONTROLLER MODULE

12. Controller Module shall be solid state, mounted alongside the Sensor Module, in the same common enclosure. It shall be fully factory assembled and wired. Field provided connections shall be limited to wiring for power in, power out, and electrical interlocks (if used).
13. The Controller shall be suitable for accepting signals from the Sensor Module. Based on the signals received, it shall provide variable output to operate IAQ devices.
14. Input voltage to controller shall be 120 Volts, 1 Ph, 60 Hz (or 220 to 240 Volts, 1 Ph, 50 Hz). It shall be suitable for load rating of 15 Amps on 120 Volts, or 7.5 Amps on 220 Volts (choose any one).
15. Controller shall be provided with terminal block to connect incoming power, variable outgoing power, and for interlock to AHU motor or other air moving device, and to safety device such as high ozone cut out switch. In principle, the interlocks may be used for any field device chosen by user.

16. Controller shall be provided with rocker switch to choose Automatic or Manual Mode of operation. In the Manual Mode, voltage output of the Controller shall be 100% of input voltage, regardless of level of VOC or input voltage signal.
17. The controller element shall be IGBT to minimize voltage spikes.
18. Controller element shall have Current Limiter to prevent current spikes
19. Controller element shall be housed in Epoxy Compound Housing and epoxy shall be flame rated to UL 94 VO.
20. As this is a switching device, the outer enclosure shall be metal to prevent harmonic spikes.
21. The Sensor Controller shall be Listed to UL 916 Standard for Safety for Energy Management Equipment, and CE Certified.
22. The Sensor Controller shall be Ruks ControZone Model CZ6 SC. Country of manufacture shall be Canada.

AUTO VOC CONTROLLER CZ6-C PRODUCT SPECIFICATIONS

1. Control of driven device shall be by automatically varying output voltage delivered by Controller from 0 to 110 V (0 to 220 V), based on input analog signal voltage 0 to 10 VDC. Source generating analog voltage may be Ruks IAQ series CZ8 IAQ Monitor, or any other Sensing, Measuring or Transducer device.
2. All parts and components of the Controller shall be housed in one neat, compact, 18G CRS Powder Coated Satin Finish Enclosure.
3. Controller shall be solid state, fully factory assembled and wired. Field provided connections shall be limited to wiring for power In, power out, and electrical interlocks (if used).
4. Input voltage to controller shall be 120 Volts, 1 Ph, 60 Hz or 220 to 240 Volts, 1 Ph, 50 Hz (choose any one). It shall be suitable for load rating of 15 Amps on 120 Volts, or 7.5 Amps on 220 Volts (choose any one).
5. Controller shall be provided with terminal block to connect incoming power, variable outgoing power, and for interlock to AHU motor or other air moving device, and to safety device such as high ozone cut out switch. In principle, the interlocks may be used for any field device as chosen by user.
6. Controller shall be provided with LED display to indicate Power On, and Change Over Switch for Automatic and Manual Bypass operations.
7. Controller shall be provided with rocker switch to choose Automatic or Manual Mode of operation. In Manual Mode, voltage output of the Controller shall be 100% of input voltage, regardless of level of VOC, or input voltage signal from any other source.
8. The Controller element shall be IGBT, to maintain voltage spikes.
9. Controller element shall have Current Limiter to prevent current spikes.
10. Controller element shall be housed in Epoxy Compound Housing and epoxy shall be flame rated to UL 94VO.
11. As this is a switching device, the outer enclosure shall be metal to prevent harmonic spikes.
12. The Controller shall be Listed to UL 916 Standard for Safety for Energy Management Equipment, and CE Certified.
13. The Controller shall be Ruks ControZone Model CZ6 C. Country of manufacture shall be Canada.



UL Listed & CE Certified



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Specifications and other details subject to change without notice

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