C3-NET Multi SENSOR

State-of-the-art gas sensor with integrated digitalized electronic PCB

Desctiption

C3-NET sensor is the newest solution for working in closed and open areas, with two digital outputs, 4-20 mA and Modbus outputs, builts in poliamide enclosure.

There is possible to apply electrochemical sensor, IR sensor or pellistor to electronic board. C3-NET plastic enclosure is avaliable in standard version and with additional dust or splash filter.

The mached sensor is mounted in special protective capsule witch holds this sensor in correct position for optimum performance.

Flexible construction of plastic enclosure allows the possibility of moutage of full range of standard catalyst, electrochemical and semicouductor sensors for the detection of oxygen, toxic gases and flammable gases. Two-parts C3-NET body enables easy sensor replacement. Bottom part of enclosure has M42X1.5 thread for easy mounting of accessories or sensor assembly. Top part has M25x1,5 thread for mounting in a protected space.

Combustible dust and/or IP protection avaliable on requeat using separate adapter.

Features

- Tree versions of implementation
  - OPEN or M12 (Modbus RTU or CANOPEN output standard), for direct intelligent connection of the sensor with control and management systems
  - CLOSE, with a mounting console, too with WIFI or Bluetooth communication
- Two digital TTL outputs with configurable alarm thresholds in OPEN version or two relays 0,5A in CLOSE version
- 4-20 mA output for connection to analog systems
- RS485 (Modbus) or CANOPEN to work in digital systems
- Additional error signal / correct operation (OPEN and CLOSE versions)
- Compatible with IR, EC and pellistor sensors
- The system is delivered in a set with a configured and calibrated sensor. A non-standard version is available on request. Simple on-site calibration.
- System management software via Modbus RTU, CANOPEN, WIFI, Bluetooth
- A stainless steel sensor housing is also available for special applications.

Technical specification

Sensors:	IR, electrochemical, pellistors
Analog output:	4-20 mA
Standard digital input/output:	RS485
Direct alarm's output:	2 x TTL in OPEN 2 x NO/NC in CLOSE n/o in M12
Output signals: Additional error signal / correct operation (CLOSE versions only)	
Power:	24VDC as standard, 10-30 VDC
Current consumtion @12V	45-65 mA @EC 65-85 mA @CT 78-85 mA @IR
Current consumtion @24V	25-45 mA @EC 40-60 mA @CT 40-50 mA @IR

Range:	Depending on used sensor
Response time:	Depending on used sensor
Calibration:	Digitally, via RS485 or CAN OPEN interface, using laptop, portable calibration module, MB system or SCADA

Operating conditions:

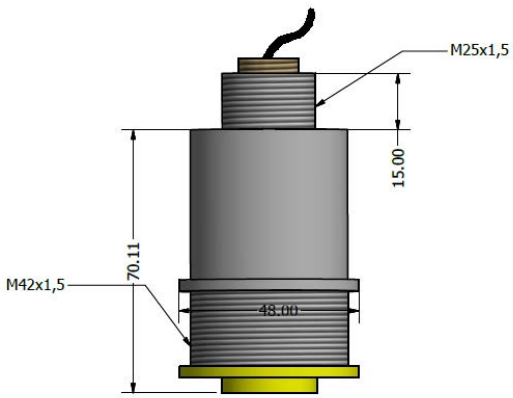
Working temperature:	Depending on sensor used
Humidity:	20-90% RH, non-condesing
Pressure range:	90-110 kPa

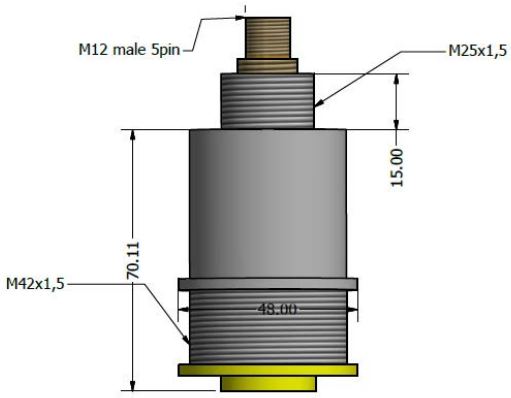
Wires coding

The cable is attached and flooded in the sensor head.
OPEN version has 14-wires cable, in PVC insulation, adapted for individual connection.
CLOSE version uses dedicated output cable for connection to the junction box.
M12 version has the output in M12 IP67 standard.

Dimensions

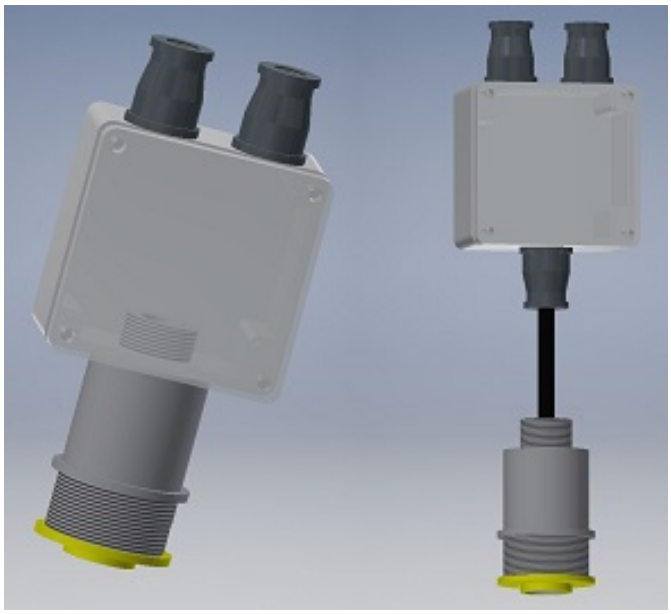
OPEN and M12 versions

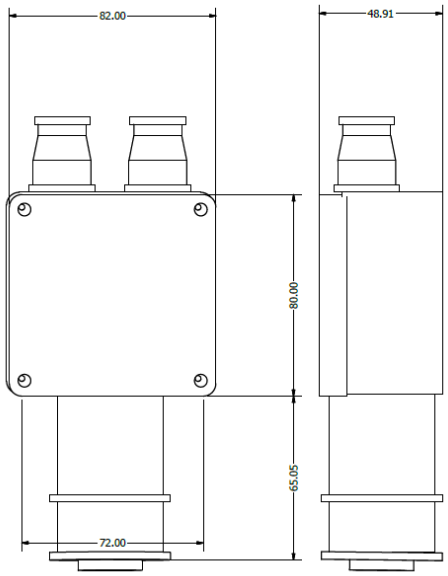




All dimensions w mm

CLOSE version





Part numbers

When making an order of the heads the customer must specify the basic properties that are needed for their specific application. This is made through the part number here below. The squared fields of the part number below can be modified according to the options on the right.

C3-NET [O1] - [EC] - [NO-30] - [SG] - [3m]

Avaliable options

GD = dust protection
SG = splash protection
Empty = standard

Sensor:
Type and code of sensor (see price list)

Type of PCB:
XXX = Electronic module
Empty = Without 4-20mA signal

Enclosure:
C1= CLOSE version
C1W= CLOSE version with WIFI
C1B= CLOSE version with Bluetooth
O1= OPEN version
OM12 - Modbus RTU M12 version
COM12 - CANOPEN M12 version

SIL2 certification

The electronics module has been tested for compliance with the IEC 61508-1 standard and received the SIL2 safety integrity level certificate for continuous operation.
The SIL levels, as a significant fault/error classification parameter, are used when designing devices that must meet above-standard safety requirements.

Examples of typical gas sensors

Warning: Full list of gas sensors is avaliable on the web-side.

Gas		Technology	Range	Sample marking
Hydrocarbons	HC	Pellistor	0-100% LEL	C3-NET-C1-PR-HC-D100-GD
Ammonia	NH_3	Pellistor	0-100% LEL	C3-NET-C1-PR-NH3-D100-GD
Hydrogen	H_2	Pellistor	0-100% LEL	C3-NET-C1-PR-H2-D100-GD
Methane	CH_4	NDIR	0-100% LEL (4,4%Vol)	C3-NET-C1-IR-CH4-D100-GD
Methane	CH_4	NDIR	0-100% LEL (5%Vol)	C3-NET-C1-IR-CH4-D100U-GD
Propane	C_3H_8	NDIR	0-100% LEL (1,7%Vol)	C3-NET-C1-IR-C3H8-D100-GD
Propane	C_3H_8	NDIR	0-100% LEL (2,1%Vol)	C3-NET-C1-IR-C3H8-D100-GD
Carbon Dioxide	CO_2	NDIR	0-5000 ppm	C3-NET-C1-IR-CO2-PL5000-GD
Carbon Dioxide	CO_2	NDIR	0-5% vol	C3-NET-C1-IR-CO2-5-GD
Sulfur Hexafluoride	SF_6	NDIR	0-1000ppm	C3-NET-C1-IR-SF6-PL1000-GD
R-134a	CH_2FCF_3	NDIR	0-1000ppm	C3-NET-C1-IR-R134A-PL1000-GD
Carbon Monoxide	CO	Electrochemical cell	0-300 ppm	C3-NET-C1-EC-CO-PL300-GD
Hydrogen Sulfide	H_2S	Electrochemical cell	0-100 ppm	C3-NET-C1-EC-H2S-PL100-GD
Ammonia	NH_3	Electrochemical cell	0-100 ppm	C3-NET-C1-EC-NH3-PL100-GD
Ammonia	NH_3	Electrochemical cell	0-1000 ppm	C3-NET-C1-EC-NH3-PL1000-GD
Nitrogen Dioxide	NO_2	Electrochemical cell	0-30 ppm	C3-NET-C1-EC-NO2-PL30-GD
Nitrogen Oxide	NO	Electrochemical cell	0-300 ppm	C3-NET-C1-EC-NO-PL300-GD
Chlorine	Cl_2	Electrochemical cell	0-10 ppm	C3-NET-C1-EC-CL2-PL10-GD
Sulfur Dioxide	SO_2	Electrochemical cell	0-20 ppm	C3-NET-C1-EC-SO2-PL20-GD
Oxygen	O_2	Electrochemical cell	0-25% vol	C3-NET-C1-EC-O2-25-GD

* if not specified LEL for methane is considered to be 5% Vol, while for propaneis considered to be 2,1%Vol.

Other gases and ranges are avaliable on the reguest.

The JBK Company has the policy of development and improvement of gas sensors. Therefore the specification of devices described in the bulletin may undergo developmental changes.