seitron Americas

NEW

INDUSTRIAL GAS DETECTORS

www.seitronamericas.com

Seitron designs and manufactures detectors for methane gas, LPG, gas vapors and CO (Carbon Monoxide) for use in commercial premises and the process industry.

Definitions

- **v/v**: Is a way to express the concentration of a gas as a percentage of gas volume with respect to the total volume occupied by the mixture. Example: 1 liter of gas in 1 cubic meter (1000 liters) has a concentration of 1/1000 = 0.001 = 0.1% v/v (see fig. A)
- **LEL** (Lower Explosive Limit): Is the gas concentration value below which the mixture cannot explode due to physical reasons. Since'the gas concentration transmitters and gas detectors are designed for use in a concentration range which is LOWER than the LEL, their measuring range is usually expressed as a percentage of the LEL (see fig. B)
  LEL CH4 (G20 mixture) = 4.4% v/v = 100% LEL CH4 - LEL LPG (G30 mixture) = 1.35% v/v = 100% LEL LPG
- **ppm** (parts per million): is a way to express the gas concentration as a fraction of the total volume occupied by the mixture (in 1 cubic meter 1 ppm is equivalent to 1 cm cube).

Full Range: Is the maximum concentration of gas measured by the device. It is usually expressed either in %LEL or in ppm (parts per million)

- **50% LEL**: for use in commercial premises or in thermal power plants, where such concentration is unlikely to occur.
- **100% LEL**: for use in industrial process plants, often even in ATEX classified areas.
- **500 ppm**: is the usual measurement range for toxic gases such as CO (Carbon Monoxide).

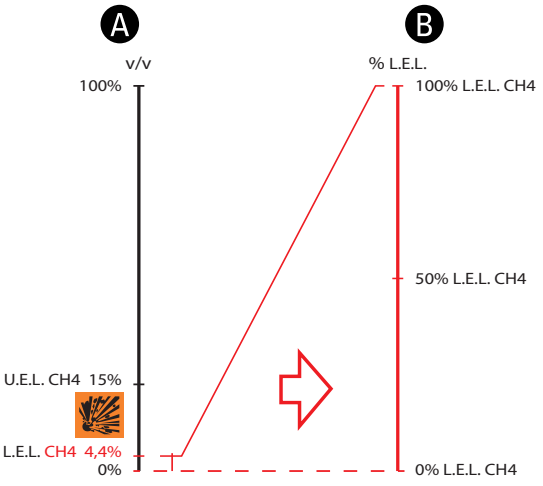
Signal output: Describes the type of electrical signal delivered by the device in order to communicate the measured concentration to the control device connected to it.

- **4..20 mA**: Is an analog standard widely used in industrial devices. The device sets on the output 'loop' a current value that ranges from 4 mA (0% of the Full Range) to 20 mA (100% of the Full Range). Other current values set in the loop may have different meanings (eg .: 2 mA = Fault Device). The advantages of this system are mainly:
  - Great immunity to electrical noise
  - Possibility to detect the status of interrupted 'loop' (equivalent to 0 mA).
- **Modbus** ®: Is a digital standard for transmitting data simply and easily and is adaptable to any control systems based on PLC or PC. The measured values are available in special 'registers' that are polled in 'master-slave' fashion by the PLC or PC.

Housing: Describes the material and the features of the device housing.

- **Plastic**: Polycarbonate (PC) housing for industrial use. Suitable for commercial or light industrial premises where no ATEX classified areas are present.
- **Metal:** Sintered stainless steel container for industrial use. Suitable for light commercial or industrial environments where there are no ATEX classified areas.
- **ATEX Metal**: Assembly featuring both the container and the 'nose' as ATEX Certified and therefore are provided with the proper certificate that allows installation in ATEX classified areas (usually Zone 1). Even the production is subject to specific controls and surveillance acted by a certified body (IMQ in case of Seitron).

This picture shows the concentration of gas in% v/v (volume over volume), with highlighted the concentration range within which the explosion might happen. For gas methane (CH4), this range is from 4.4% v/v (LEL) to 15.0% v/v (UEL – Upper Explosive Limit)



The picture in red highlights, zooming it to 100%, only the range of gas concentration below the Lower Esplosive Limit (LEL) for methane gas (CH4).
This scale is normally used for gas detectors because it focuses only to the range of concentration to be monitored for the purpose of the explosion hazard control.

INTERFACES

4..20mA

Fault in current loop:	0.0 mA
ZERO:	4.0 mA
Full range:	20.0 mA

Maximum resistance applicable as load at current loop output (4..20 mA) when supply voltage is 12V= -15% is 350 ohm.

Relays

Supply voltage:	12 Vdc
Maximum absorption:	80 mA @ 12 Vdc
Contact rating:	3 x 2 A 250 V~ (voltage free)

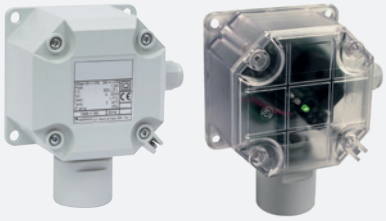
Modbus ®

Interface:	RS485.
Parameters:	19200, 8, N, 1.
Communication protocol:	Modbus® RTU (rif.: www.modbus.org)

CASE

PLASTIC HOUSING

Filter: Sinterised PE
Case: ABS V0 - ABS HB
Dimensions: W5.3 H4.8 D2.5 in
W134 H124 D67 mm
Protection rating: IP54



PART #: SY-X

ATEX METAL FOR C.A. ZONES

Filter: Sinterised stainless steel
Case: Die-cast Aluminum
Dimensions: W6.5 H4.6 D3.5 in
W165 H117 D90 mm
Protection rating: IP6X

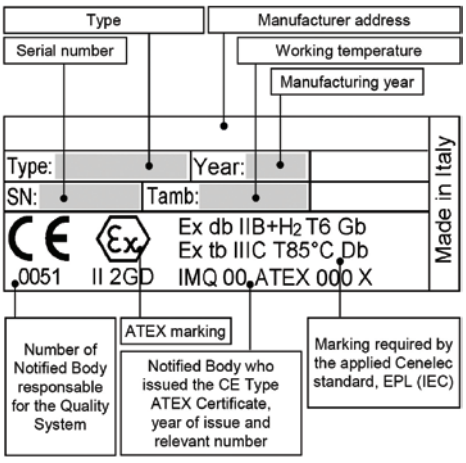
CE 0051
Ex
II 2G Ex db IIC T6 Gb
II 2D Ex tb IIIC T85°C Db

PART #: SW-X

CE 0051
Ex II 2GD
Ex db IIB+H_2 T6 Gb
Ex tb IIIC T85°C Db
IMQ 15 ATEX 0003 X

PART #: SX-X

LABELLING



0051: Number of the Notified Body responsible for the Quality System (IMQ).

II 2GD: Equipment for surface plants (II) with the presence of gas (G) or dust (D) of Category 2 suitable for zone 1 or 21 and, with redundance, for zone 2 or 22.

Ex d: Equipment with ATEX Ex d protection mode (flameproof housing).

IIB+H2: Equipment of group IIB suitable for all gas substances of group IIB as well as for H2 (Hydrogen). A device of group IIB + H2 is also suitable for areas with gas of group IIA and IIB.

T6: Temperature class of equipment (maximum surface temperature 85° C). A device with temperature class T6 is also suitable for substances with higher temperature class (T5 .. T1).

Gb: EPL: Equipment Protection Level according to IEC. 'Gb' stands for 'high protection level (b) for areas with Gas (G)'.

Ex tb: Equipment with ATEX Ex tb's type of protection for dusts (with housing - high level of protection).

IIIC: Equipment suitable for the use in presence of conductive powder of the group IIIC.

85°C: Temperature class of the equipment for use with powders: maximum surface temperature: 85 ° C.

Db: EPL: Equipment Protection Level. 'Db' stands for 'high level of protection (b) for areas with dust (D)'.

IMQ 00: Notified Body that issued the Certificate of Compliance of the Type (IMQ) and year of issuance.

ATEX 0000: Number of certificate in the year of issue.

X: Special conditions of use (see Safety Instructions).

Industrial Range Transmitters

0051 IMQ 15 ATEX 0003 X

II 2G Ex db IIB+H_2 T6 Gb
II 2D Ex tb IIIC T85°C Db

Gas	Working Range	Output signal	Certificate	Part #
Methane	50% L.E.L.	4..20mA + Modbus	IMQ 15 ATEX 003 X	SX MX 14M1Y
	100% L.E.L.	4..20mA + Modbus	IMQ 15 ATEX 003 X	SX MX 16M1Y
LPG	50% L.E.L.	4..20mA + Modbus	IMQ 15 ATEX 003 X	SX GX 14M1Y
	100% L.E.L.	4..20mA + Modbus	IMQ 15 ATEX 003 X	SX GX 16M1Y
Gas Vapor	50% L.E.L.	4..20mA + Modbus	IMQ 15 ATEX 003 X	SX VX 14M1Y
	100% L.E.L.	4..20mA + Modbus	IMQ 15 ATEX 003 X	SX VX 16M1Y
CO	0 .. 500 ppm	4..20mA + Modbus	IMQ 15 ATEX 003 X	SX CX 11M1Y

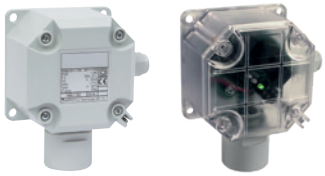
Easy Maintenace, Field Replaceable Sensor

0051 IMQ 20 ATEX 0006

II 2G Ex db IIC T6 Gb
II 2D Ex tb IIIC T85°C Db

Gas	Working Range	Output signal	Certificate	Part #
Methane	50% L.E.L.	4..20mA	IMQ 20 ATEX 006	SW MX 1411
LPG	50% L.E.L.	4..20mA	IMQ 20 ATEX 006	SW GX 1411
Gas Vapor	50% L.E.L.	4..20mA	IMQ 20 ATEX 006	SW VX 1411

Base Range Transmitters



Gas	Working Range	Output signal	Case	Part #
Methane	50% L.E.L.	4..20mA + Modbus	gray plastic	SY MN 24B
		4..20mA + Modbus + Relay + Buzzer + LED	transparent plastic	SY MN 04R
	100% L.E.L.	4..20mA + Modbus	gray plastic	SY MN 26B
		4..20mA + Modbus + Relay + Buzzer + LED	transparent plastic	SY MN 06R
LPG	50% L.E.L.	4..20mA + Modbus	gray plastic	SY GN 24B
		4..20mA + Modbus + Relay + Buzzer + LED	transparent plastic	SY GN 04R
	100% L.E.L.	4..20mA + Modbus	gray plastic	SY GN 26B
		4..20mA + Modbus + Relay + Buzzer + LED	transparent plastic	SY GN 06R
Gas Vapor	50% L.E.L.	4..20mA + Modbus	gray plastic	SY VN 24B
		4..20mA + Modbus + Relay + Buzzer + LED	transparent plastic	SY VN 04R
	100% L.E.L.	4..20mA + Modbus	gray plastic	SY VN 26B
		4..20mA + Modbus + Relay + Buzzer + LED	transparent plastic	SY VN 06R
CO	0 .. 500 ppm	4..20mA + Modbus	gray plastic	SY CN 21B
		4..20mA + Modbus + Relay + Buzzer + LED	transparent plastic	SY CN 01R

All transmitters are compatible with the RY M02M0, RY M02M1, RY M02M2, RY K01M control units.
There is only one exception: SW-X transmitters do not work with the RY K01M control unit.

RY M02M2
2 channel control unit

RY M02M1
4 channel control unit

RY M02M0
8 channel control unit

CE 0051 II (2)G [Ex Gb] II

INDUSTRIAL CONTROL UNIT WITH 2 .. 8 ZONES - 4..20 mA

Industrial gas detection control unit in 9-module DIN container, capable of monitoring the concentration of gas up to a maximum of 8 zones. A 4 .. 20 mA transmitter can be connected indiscriminately for each zone for the detection of LPG, Natural Gas, Carbon Monoxide (CO) or gas vapor.

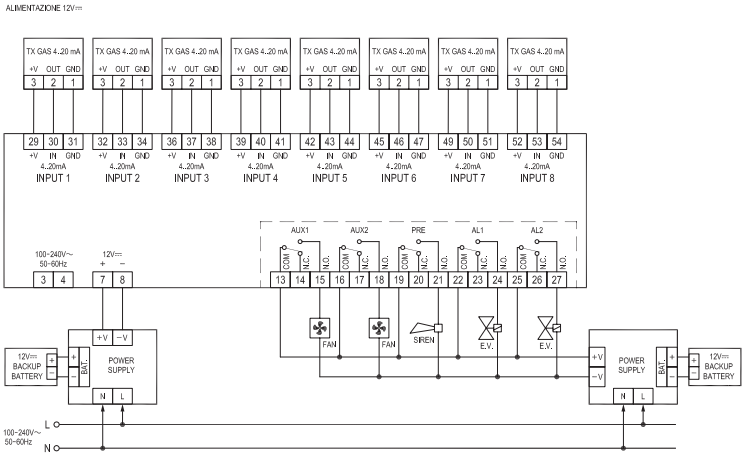
TECHNICAL FEATURES

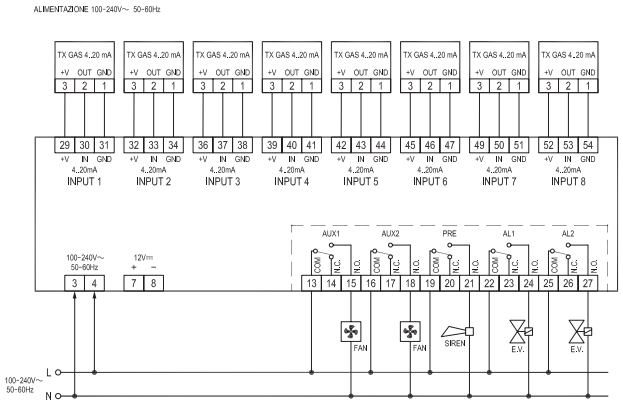
Power supply:	12..24 V o 100..240 V , 50..60 Hz
Versions:	2/4/8 outputs
Manages transmitters:	CO, LPG, Methane (CH4) and Gas Vapors (n-octane)
Display:	LCD 2 x 16
Mounting:	Din bar 9 modules
Outputs:	1 Relay Pre-Alarm 1 Relay Alarm 1 1 Relay Alarm 2 2 Relays auxiliary
Contacts rating:	5 x 8A 250V~ cosϕ =1
Events:	Open, Fault, Pre-Alarm, Alarm 1, Alarm 2
Pre-Alarm threshold range:	Methane, L.P.G. and Gas vapor OFF / 1%..100% LEL CO OFF / 1 .. 999 ppm
Alarm 1 threshold range:	Methane, L.P.G. and Gas vapor OFF / 1%..100% LEL CO OFF / 1 .. 999 ppm
Alarm 2 threshold range:	Methane, L.P.G. and Gas vapor OFF / 1%..100% LEL CO OFF / 1 .. 999 ppm
Fault:	activate the buzzer and the yellow blinking.
Pre-Alarm:	activate the buzzer, the yellow and red blinking leds.
Alarm 1:	activate the buzzer, the yellow and red fixed light leds.
Alarm 2:	activate the buzzer, the yellow and red fixed light leds.
Dimensions:	6.2L x 3.5A x 2.8P in - 158L x 90A x 71P mm
Compliant with performance std:	EN 60079-29-1: 2016
ATEX Certificate:	IMQ 20 ATEX 004 X
Protection grade:	IP20

- **ACCESSORIES**

AC AL010
Power Supply 100 .. 240V 50 .. 60Hz

AC IV01
Interface 0..12V => 0..5V





RY K01M

32 channel Modbus® control unit

- **ACCESSORIES**

AC AL010

Power Supply 100 .. 240V 50 .. 60Hz

AC IMB2

Modbus® RTU Interface

AA SW20

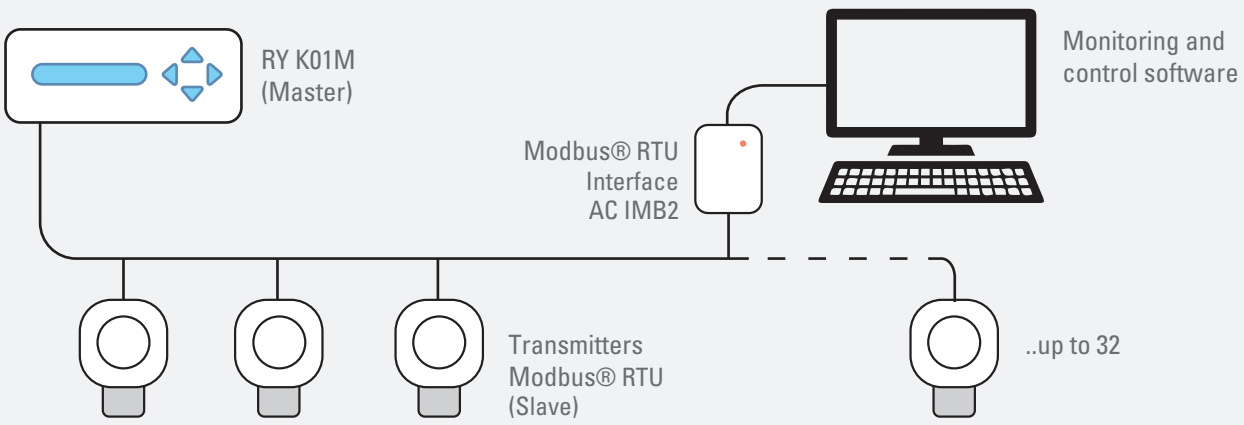
Multizone GAS systems monitoring software

INDUSTRIAL CONTROL UNIT WITH 32 ZONES

This device is a "MASTER" control unit for detecting gas leaks with MODBUS® RTU communication protocol. Up to 32 transmitters (slaves) can be connected to the control unit. Each transmitter is able to detect a specific gas and can communicate its status via the appropriate MODBUS® registers.

TECHNICAL FEATURES

Power supply	230V~ 50/60 Hz
Outputs	1 Relay Pre-Alarm 1 Relay Alarm 1 1 Relay Alarm 2 2 Relays auxiliary
Contacts rating:	5 x 8A 250V~ cosϕ =1
Events:	Open, Fault, Pre-Alarm, Alarm 1, Alarm 2
Pre-Alarm threshold range:	Methane, L.P.G. and Gas Vapors OFF / 1%..100% LEL CO OFF / 1 .. 999 ppm
Alarm 1 threshold range:	Methane, L.P.G. and Gas Vapors OFF /1%..100% LEL CO OFF / 1 .. 999 ppm
Alarm 2 threshold range:	Methane, L.P.G. and Gas Vapors OFF / 1%..100% LEL CO OFF / 1 .. 999 ppm
Fault:	activate the buzzer and the yellow blinking.
Pre-Alarm:	activate the buzzer, the yellow and red blinking leds.
Alarm 1:	activate the buzzer, the yellow and red fixed light leds.
Alarm 2:	activate the buzzer, the yellow and red fixed light leds.
Dimensions:	6.2L x 3.5A x 2.8P in - 158L x 90A x 71P mm
Protection grade:	IP20



Multizone Gas Systems monitoring software

Windows software for the management and monitoring of RYK01M control units connected through ACIMB2 gateways.
The user-friendly interface allows to display each control unit as a stand-alone tab. Here the user can find the configuration parameters of the unit and visualize the data collected by the detectors connected to that specific unit.

TRANSMITTER ADAPTERS FOR GAS CALIBRATION

COD	DESCRIPTION
AC AD05	Aluminum adapter for SX-N, SY-N and SW-X transmitters calibration
AC AD06	Aluminum adapter for ATEX SX-X transmitters calibration

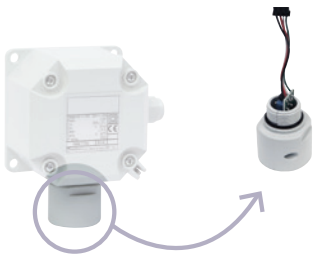
INTERFACES and ACCESSORIES FOR TRANSMITTERS

COD	DESCRIPTION
AC IR01	Interface: 2 Relay, Led, Buzzer for SY transmitters
AC TP01	3/4" NPT PLUG FOR ATEX SX series transmitters

SENSORS FOR TRANSMITTERS

COD	DESCRIPTION
AC MG04	LPG gas sensor for gas transmitter SXGX14-
AC MM04	Methane gas sensor for gas transmitter SXGX14-
AC MV04	Gas Vapors gas sensor for gas transmitter SXGX14-

REPLACEABLE SENSORS FOR TRANSMITTERS IN PLASTIC CASE



COD	*GAS*			
	Gas Vapors	CO	LPG	METHANE
AC MC08	--	0..500 ppm	--	--
AC MG02	--	--	0..50% L.E.L	--
AC MG07	--	--	0..100% L.E.L.	--
AC MM02	--	--	--	0..50% L.E.L.
AC MM07	--	--	--	0..100% L.E.L.
AC MV02	0..50% L.E.L.	--	--	--
AC MV07	0..100% LIE	--	--	--

ENTRY LEVEL RANGE

Seitron gas leak detection products in the Entry Level line are specifically designed for use in non classified environments and where the performance requirements are not particularly stringent in terms of concentration range and intervention level or by operating temperature range. It is a whole range of gas leak detectors and related control units designed for use in small boiler rooms, in material stockrooms, small garages and other commercial environments and is effective for detecting any gas leaks and the subsequent actuation of a solenoid valve for gas cut-off.

The intervention levels are factory set at a threshold much lower than the Lower Explosive Limit, typically around 10% of the LEL, thus granting the necessary safety for the countermeasures to be adopted.

The technology used for the sensors can be, depending on the model, both semiconductor and catalytic.
These are available in a wide range that includes:
- Stand-alone detectors, with or without internal sensor.
- Detectors wired to each other for expanding the number of detection zones.
- Detectors with outputs for pre-alarm and alarm.
- Detectors for methane (CH4), LPG and carbon monoxide (CO).
- Detectors with the possibility of wiring external pushbuttons for manual reset and alarm.
- Control unit and display of the status of the wired detectors.
- Control unit both for wall mount and for DIN rail mount.

Some versions have a reset button which allows the use of automatic valves for gas interception, thus granting for reopening of the gas flow only after human intervention. The range is completed by a set of accessories such as gas shut-off valves and optical-acoustic indicators.

RI M01RM
Methane

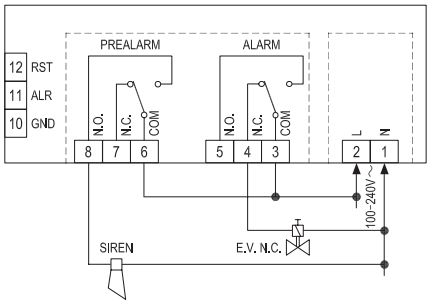
RI G01RM
LPG

GAS DETECTOR FOR MULTI-POINT SYSTEMS

This gas detector is able to detect different gases:
the RI G01RM version is LPG-sensitive while the RI M01RM version detects Methane (CH4); it is also possible to connect up to 10 detectors in cascade via the 3 dedicated terminals. The device is able to signal gas concentrations far below the hazard thresholds and other conditions relating to the state, via 4 LEDs and an internal buzzer. Possibility to connect one or more external buttons for the activation of a manual alarm. Possibility to connect one or more external buttons for system reset after an alarm.

TECHNICAL FEATURES

Power supply:	100 - 240V ~ 50/60 Hz
Power consumption:	3 VA
Sensor Type:	Catalytic
Contact rating:	Pre-alarm relay: 3 (2) A 250V ~ SPDT
	Relay Alarm: 3 (2) A 250V ~ SPDT
Gas detected:	RIG01M: LPG
	RIM01M: Methane
Degree of protection:	IP 54
Dimensions (including cable glands):	5.2 x 4 x 2.4 in - 134 x 100 x 62 mm (L x H x D)



ACCESSORIES

AC SR01

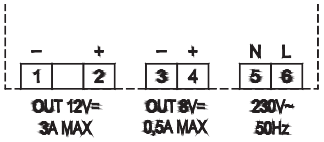
Electronic 76dB horn with 21W flasher.
12V-24V power supply

ACC SRL 220

Electronic 70dB horn with 25W flasher.
220V~power supply

ACC SGB 12

Back-up battery for RGY 000 MBP4, RXA 01M, RS 00 21, RGI 000 MSX4, RGI 000 LBXD, RGI 000 MBX2, RGI 001 MSX2. 8V-12V outputs. Battery life ~3 hours (depending on the loads connected).



ACAL010

Power Supply 100 .. 240V 50 .. 60Hz

N.O. ELECTRO-VALVES

Cut-off electro-valves for gas with manual reset. Normally open. During normal operation there is no electrical consumption. Power consumption: 19VA. Max working pressure 7.2 PSI - 500mBar.

All Parts are available in:

- 12 Vdc, 12 Vac/50-60 Hz
- 24 Vdc, 24 Vac/50-60 Hz
- 110 Vac/50-60 Hz

Coupling	Coupling type
DN15 (1/2")	Threaded
DN20 (3 /4")	Threaded
DN25 (1")	Threaded
DN32 (1"1/4)	Threaded
DN40 (1"1/2)	Threaded
DN50 (2")	Threaded

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seitron Americas

LOW ELECTRICAL CONSUMPTION ELECTRO-VALVES

Cut-off electro-valve for gas with manual reset. Low electrical consumption (2 W) or compact size. Normally open (BA, RA) and normally closed (RC). Max working pressure 7.2 PSI - 500mBar.

All Parts are available in:
- 12 Vdc, 12 Vac/50-60 Hz
- 24 Vdc, 24 Vac/50-60 Hz
- 110 Vac/50-60 Hz

Coupling	N.O./N.C.	Coupling type
DN15(1/2")	N.O.	Threaded
DN20(3/4")	N.O.	Threaded
DN25(1")	N.O.	Threaded

N.C. ELECTRO-VALVES

Cut-off electro-valves for gas with manual reset. Normally closed: must be continuosly powered to allow the gas flow. Power consumption: 19VA. Max working pressure 7.2 PSI - 500mBar.

All Parts are available in:
- 12 Vdc, 12 Vac/50-60 Hz
- 24 Vdc, 24 Vac/50-60 Hz
- 110 Vac/50-60 Hz

Coupling	Coupling type
DN15(1/2")	Threaded
DN20(3/4")	Threaded
DN25(1")	Threaded
DN32(1"1/4)	Threaded
DN40(1"1/2)	Threaded
DN50(2")	Threaded