



Sirius

Microprocessor-based, dual channel control unit for installation in safe area and hazardous area, ATEX classified (Zone 1 / 21).



Sirius

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Microprocessor-based, dual channel control unit for installation in safe area and in hazardous area

Sirius is an extremely advanced microprocessor-based control unit, able to manage one or two channels and that can be interfaced with all ADEV analysers and transmitters.

In addition, it also allows to acquire and manage input signals from various types of sensors and transmitters, such like flow rate sensors, pressure transmitters, temperature sensors, etc..

Sirius is a device designed for field application and it is provided into a die casting IP65 Aluminum housing for wall mounting. Available for safe area and for Hazardous area..

The instrument integrates a wide graphic LCD display with auto-range visualization, independently from the current output range selection.

The multi-language firmware (Italian, English, French, German, Spanish) combined with an intuitive menu allows the operator to make all settings and calibrations in a very easy and quick manner.

The menu includes 21 ranges (9 ranges in ppm and 12 ranges in percent). All ranges are field selectable by menu. Additionally, it's possible to set a feely configurable range by the user on whichever value on both start of the scale and full scale (for each channel).

The RS485 can be set in SLAVE or MASTER mode. SLAVE mode is used when the Sirius is to be connected to the customer Master device. While the MASTER mode is used to drive external ADEV I/O board and implement the number of relays outputs and digital inputs, when necessary (e.g., for autocalibration, diagnostics, modification of range by remote, etc...).

Sirius is designed for indoor and outdoor installation, in safe area and classified Zone 1 / Zone 21 (ATEX certified).

Universal Base Control Unit

for Field Installation





Main Features

- Optical through-the-glass buttons allowing menu operation without opening the housing
- Graphical LCD Display with visualization in Auto-Range independently from the current output range selection
- Use friendly menu and intuitive interface
- Microprocessor Technology
- 2 analog inputs / 2 isolated analog outputs / 3 relays / 2 digital inputs, and serial interface RS485 ModBus RTU (all integrated)
- Increaseable with further 8 relays and 4 digital inputs
- Advanced functions available such as autocalibration and cross sensitivity compensation
- ModBus RTU Master or Slave selectable by menu
- Ranges selectable from menu by the user
- Connectable with all ADEV analysers and transmitters (and also other brands)
- NAMUR error indication

Advanced Functions

Double Channel

Sirius is a double channel control unit and so it can manage 2 separate analysers or multi-parametric instruments (e.g. an infrared analyser measuring 2 gases).

Consequently, the measuring page can be configured to display one or two channels at the same time.

Autocalibration

Sirius is equipped with a menu that allows to enable the automatic calibration and to set its operative parameters, just like the calibration period and purging times for the pipes during the passages of phase.



Compensations

Sirius can be equipped with cross sensitivity compensation function, useful to compensate the effect of one or more interfering gases on the reading. This function can operate in dynamic mode (by the acquisition of the signal that measure the interferent) or in manual mode (setting in the menu a static average value of the interferent).

Barometric pressure compensation function is also available (connecting an external sensor).

Virtual Channel

It's possible to use the channel 2 as a virtual channel, simulating a reading that can operate as value for manual cross sensitivity compensation (if the option is active), or can be just a fix value at which the analog output of channel 2 is forced.

Alarms Dashboard and Advanced Diagnostics

All active alarm events are easily visible thanks to a dedicated page of the main menu.

Again, the diagnostics menu provides all the necessary information to allow the user having the situation always under control.

Multi-Language Menu

At order, the menu language can be selected between the 5 most popular ones.



Technical Specification

Sirius Control Unit

Analog and Digital I/O

Model	Sirius
Analog Inputs	2 x universal differential inputs adjustable and linearizable Resolution: 24 bits ; Accuracy: 0.01% of range; Scanning time: 400 ms Input Impedance: >10 Mohm differential Isolations: 1.5kVAC (1 min) from all stages No isolation between analog inputs
Analog Outputs	2 x 4-20 mA isolated active/passive outputs (load 500 Ω) Resolution: 16 bits; Accuracy: 1 uA FS; Scanning time: 50 ms Isolations: 1.5kVAC (1 min) from all stages
Linearity	\pm 1% of FS
Namur	NAMUR NE 43 error indication on analog outputs in case of out of scale
Relays (integral)	N°3 relays SPDT. Contact rating: 0.25A @ 250 VAC ; 1A @ 30 VDC Default relay status: NOT triggered when in alarm 3 terminals for each relay allows the N.O. / N.C. connection (on customer preference)
Digital Inputs (integral)	N°2 PNP type, 5...30 VDC
Additional I/O	N°8 relays SPDT + N°4 digital inputs PNP type (on external boards)
Serial Interface	RS485 ModBus RTU (Master / Slave). 2-wires connection Impedance: 120 ohm Speed: 4800...115200 bps Parity: NONE, ODD, EVEN, MARK, SPACE Isolation: 1.5k VAC (1 min) from all stages Max No. of Nodes: 256 Default Settings: Speed 38400; Parity NONE; ModBus address 1
HART	Optional HART protocol 7.0 over imposed on analog 4-20 mA output

Interface

Model	Sirius
Ranges	Freely menu selectable between 21 pre-set ranges (9 ranges in ppm and 12 range in %) Plus one range totally customizable (for each channel)
Unit of Measure	% / ppm + other 42 units of measure (to be specified at order)
Display	2.5" backlit graphic LCD display. Visualization in ppm, % or auto-range (menu settable)
Display Resolution	<u>Visualization in ppm:</u> 0.001 below 10 ppm 0.01 between 10,01 and 999,99 ppm 0.1 between 1000,0 and 9999,9 ppm No decimal points above 10000 ppm <u>Visualization in %:</u> 0.001 below 10% with range within 10% FS 0.01 below 10% with range higher than 10% FS
Buttons	Optical through-the-glass buttons allowing menu operation without opening the housing
Diagnostics	Alarm / diagnostic indications on Display

Technical Specification

Sirius Control Unit

Functions

Model	Sirius
Base Functions	Acquisition, linearization and visualization on display. Oxygen calculation on the basis of Nernst's law for zirconia sensors
Temp. Compensation	Cold Joint (CJ) for temp. compensation of thermocouples (for zirconia sensors only)
Autocalibration (optional)	Zero/Span automatic calibration function
Cross Sensitivity (optional)	Cross sensitivity compensation function, achievable by acquisition of an analog input from the measuring device of the interfering components or by manual setting of an average value or correction factor in the menu
Pressure Compensation (optional)	Pressure compensation function. It is required the acquisition of the signal from an external pressure sensor (not included)

Operative Specifications

Model	Sirius
Operative Temperature	-20°C...+60°C
Storage Temperature	-20°C...+60°C
Relative Humidity	0...95% RH non condensing
Power Supply	16...30 VDC / 14...26 VAC, < 4W
Connection Ports	N°2 threaded holes 3/4" NPT-F ; N°1 threaded hole 1/2" NPT-F
Wiring Connections	Removable screw terminals pace 5.08 mm (on the inner PCB). Max conductor section: 2.5 mmq

Physical Specifications

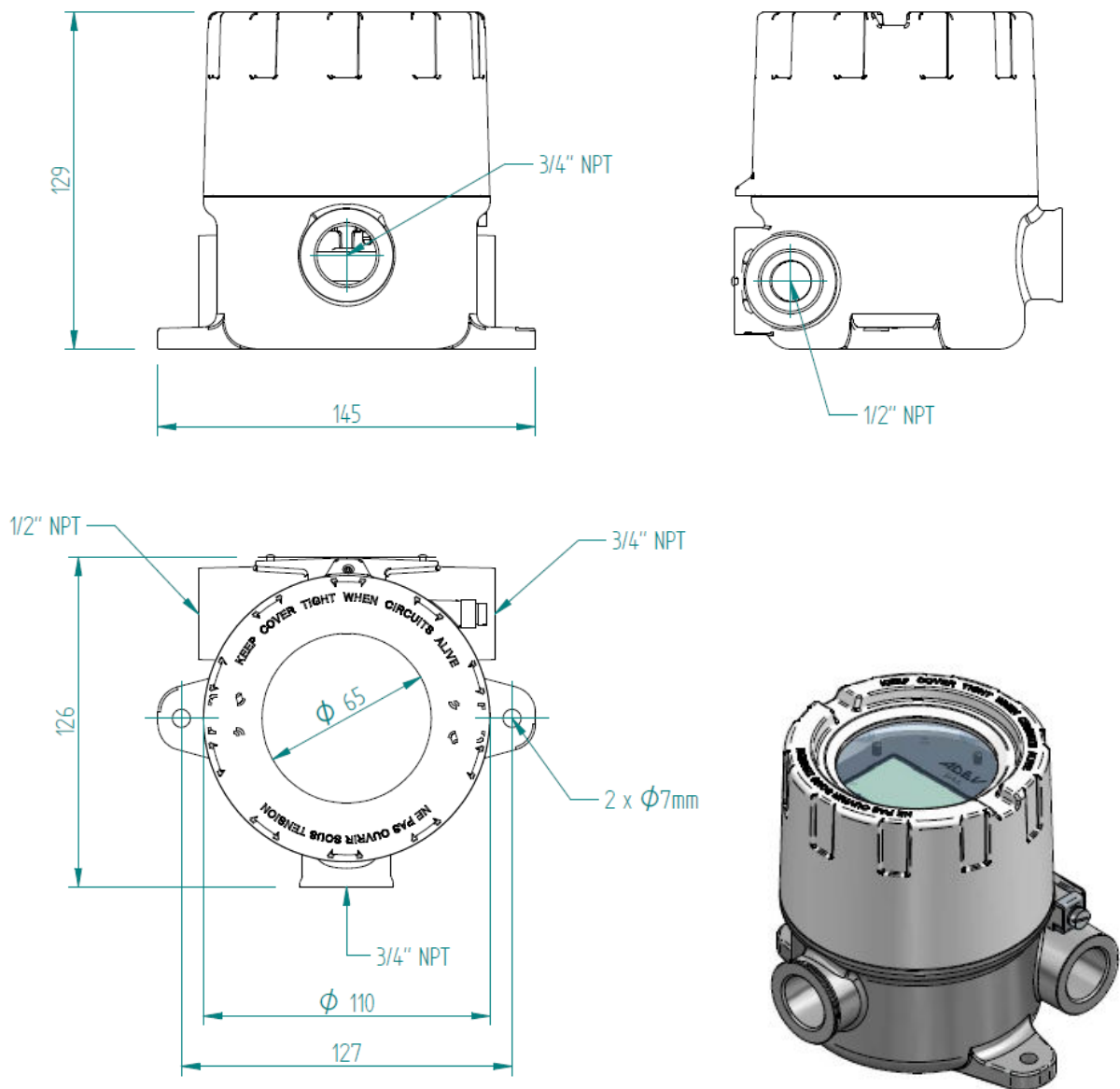
Model	Sirius
Housing Material	Standard: die casting Aluminum housing. RAL 9006 (back) / RAL 9010 (window cover) On request: in SS316
Seal Material	VQM rubber
Mounting	Wall / plate mounting
Protection	IP65
Dimensions	Refer to dimensional layout
Weight	~ 3 kg

EU Directives Compliance

Model	Sirius
Low Voltage	Directive 2014/35/EU
EMC	Directive 2014/30/EU
ATEX	Directive 2014/34/EU (only for Ex-Proof version)

Dimensional Layout

Sirius Control Unit



Quotes expressed in mm

ATEX Marking

ATEX certification for Zone 1 / Zone 21 with protection mode:



II 2 G D Ex db IIC T6 Gb
Ex tb IIIC T70°C Db
IP65

ATEX Certificate Number **CESI 23 ATEX 010 X**

Technical Specification

Expansion Modules and I/O Boards

ADV8RO4DI
P.N. A50045



I/O module for DIN rail
Mounting in safe area

ADV84RD
P.N. A44114



I/O board in die casting IP65 Aluminum
housing for installation in safe area

ADV84RD-X
P.N. A44116

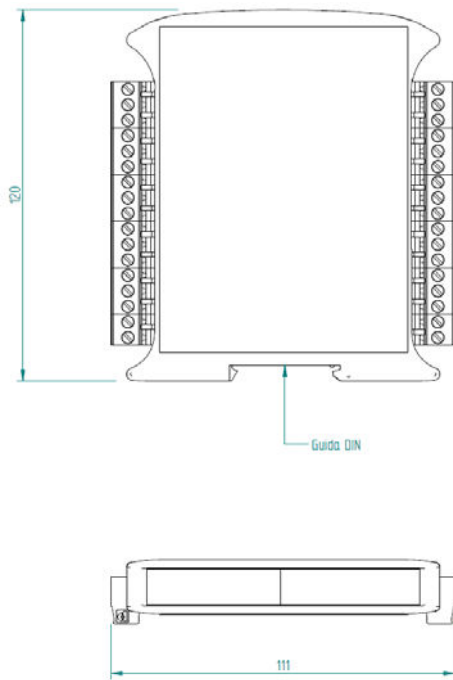


I/O board in Ex-Proof die casting IP65 Aluminum
housing for installation in Zone 1 / Zone 21

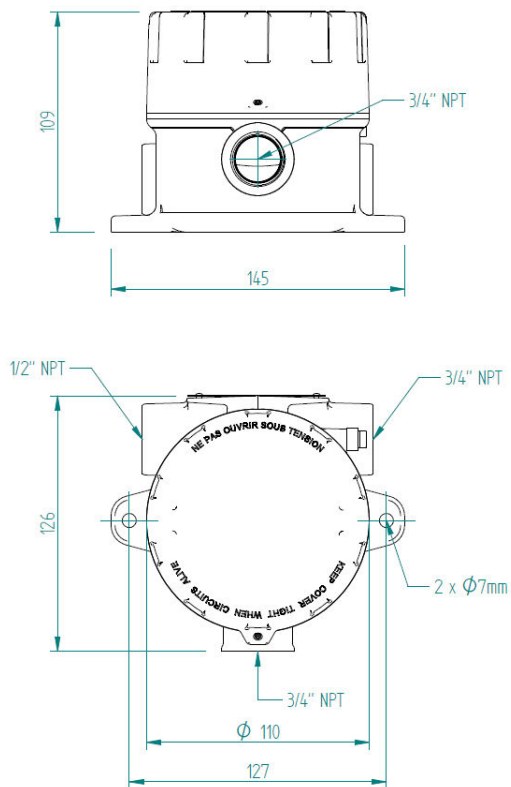
Model	ADV8RO4DI P.N. A50045	ADV84RD P.N. A44114	ADV84RD-X P.N. A44116
Installation	Safe area	Safe area	Hazardous area Zone 1 / 21 Protection Mode: II 2 G D Ex db IIC T6 Gb Ex tb IIIC T70°C Db IP65
Operative Temperature	-20°C....+70°C	-20°C....+60°C	-20°C....+60°C
Storage Temperature	-20°C....+70°C	-20°C....+60°C	-20°C....+60°C
Holes	Terminal strips	N°2 threaded holes 3/4" NPT-F N°1 threaded hole 1/2" NPT-F	
Housing Material	ABS auto-extinguishing	Standard: die casting Aluminum. RAL 9006 (back) / RAL 9010 (window cover). On request: in SS316	
Seal Material	No O-ring	VQM rubber	
Mounting	Din rail with spring	Wall / plate mounting	
Protection	IP20	IP65	
Weight	~ 150 gg	~ 3 kg	
Relays	N°8 relays SPDT. Contact rating: 0.25A @ 250 VAC ; 1A @ 30 VDC Default relay status: NOT triggered when in alarm 3 terminals for each relay allows the N.O. / N.C. connection (on customer preference)		
Digital Inputs	N°4 PNP type, 5...30 VDC		
Serial Interface	RS485 ModBus RTU (Master / Slave). 2-wires connection Impedance: 120 ohm Speed: 4800....115200 bps Parity: NONE, ODD, EVEN, MARK, SPACE Isolation: 1.5k VAC (1 min) from all stages Max No. of Nodes: 256 Default Settings: Speed 38400; Parity NONE; ModBus address 1		
Relative Humidity	0...95% RH non condensing		
Power Supply	9...30 VDC / 11...25 VAC, < 2,6W		
Wiring Connections	Removable screw terminals pace 5.08 mm (on the inner PCB). Max conductor section: 2.5 mmq		
Dimensions	Refer to dimensional layout		
Low Voltage	Directive 2014/35/EU		
EMC	Directive 2014/30/EU		
ATEX	Directive 2014/34/EU (only for Ex-Proof version)		

Dimensional Layout

DIN Rail I/O Expansion Module P.N. A50045



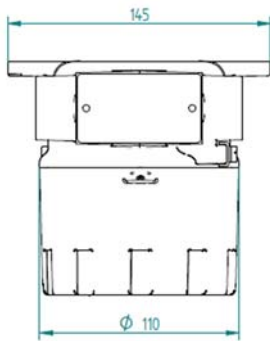
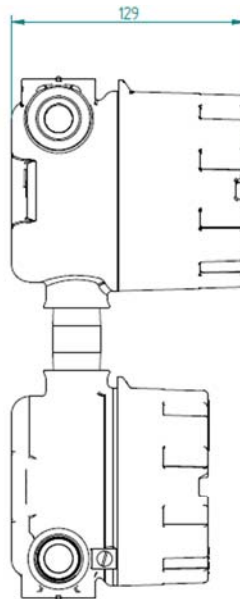
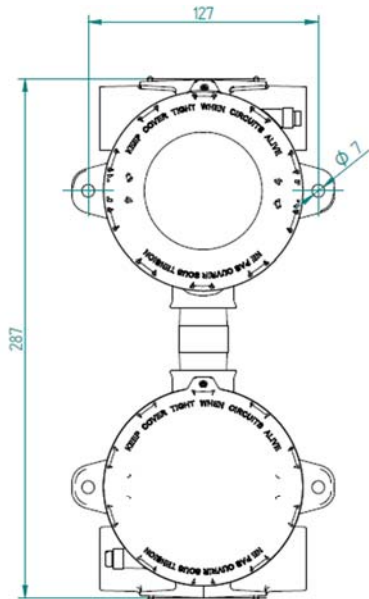
I/O Expansion Boards P.N. A44114 / A44116



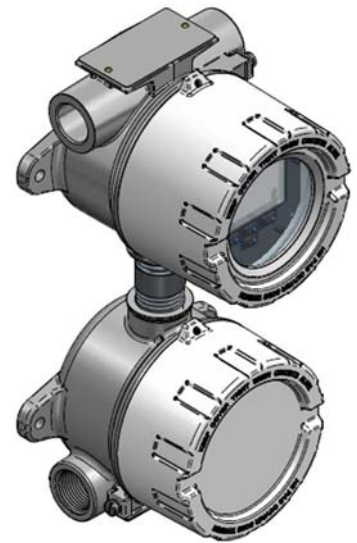
Quotes expressed in mm

Dimensional Layout

Sirius Connected to I/O Boards A44114 / A44116

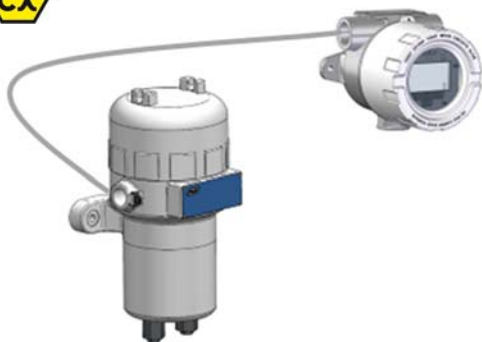


Quotes expressed in mm



Flexibility of Installation

Installation in Hazardous Area



Installation in Safe Area



Ordering

Sirius Control Unit

Universal Control Unit	Sirius
Version								
General Purpose IP65	G							
Explosion Proof (ATEX)	X							
Analog Input 1								
Linear and non-linear sensors		LIN						
Zirconia sensors (process-heated) [Note 1]		ZRH						
Zirconia sensors (self-heated)		ZRL						
Triple Range		TRR						
Special		999						
Analog Input 2								
Not active				000				
Linear and non-linear sensors		LIN						
Thermocouple type B				TCB				
Thermocouple type S				TCS				
Thermocouple type K				TCK				
Thermocouple type J				TCJ				
Thermocouple type R				TCR				
Thermocouple type E				TCE				
Thermocouple type N				TCN				
Thermocouple type T				TCT				
Triple Range				TRR				
Special								
Autocalibration								
Autocalibration not active						N		
Autocalibration active [Note 2]						Y		
Cross Sensitivity Compensation								
Cross Sensitivity Compensation not active							N	
Cross Sensitivity Compensation active							Y	
Integral Modules								
None								N
Integral HART module [Note 3]								H
Input adapter module [Note 4]								A
Special								9
Menu Language [Note 5]								
English (default)								EN
Italian								IT
German								DE
French								FR
Spanish								ES



Notes

[Note 1]

Selecting zirconia (process-heated sensors) for analog output 1, the analog output 2 must be necessarily a thermocouple.

[Note 2]

Sirius is equipped with n°3 relays. Autocal function needs the use of 1 or 2 relays (depending if only zero, only span or zero + span calibration is performed) dedicated to driving the solenoid valves. These relays cannot be assigned to other alarm functions. If more relays are needed, they can be added thanks to external I/O boards (optional)

[Note 3]

HART conversion module is able to acquire analog output 4-20 mA proportional to the gas range only and retransmit as 4-20 mA + HART over imposed

[Note 4]




This device operates as galvanic insulation module and could be used (in rare cases) to manage input signals that must be kept isolated.

[Note 5]

Menu language must be selected at order (not adjustable in field)

Ordering

Expansion Modules and I/O Boards

Code	Description	Image
A50045	I/O module for DIN rail mounting in safe area	
A44114	I/O board in die casting IP65 Aluminum housing for installation in safe area	
A44116	I/O board in Ex-Proof die casting IP65 Aluminum housing for installation in Zone 1 / Zone 21	

Accessories

Code	Description	Material	Diameter	Image
A46016	Pen to operate on optical keys	AISI 316	N.A.	
A37518	ATEX plug with 1/2" NPT thread	Nickel-plated brass	N.A.	
A37612	ATEX plug with 3/4" NPT thread	Nickel-plated brass	N.A.	
A37522	General purpose cable gland for safe area. Thread 1/2" NPT	Nickel-plated brass	7 ÷ 10,5 mm	
A37520	Resinable cable gland (ATEX) for armored cable. Thread 1/2" NPT	Nickel-plated brass	5,5 ÷ 13 mm	
A37521	Non-resinable cable gland (ATEX) for armored cable. Thread 1/2" NPT	Nickel-plated brass	5,5 ÷ 13 mm	
A37494	Resinable cable gland (ATEX) for non-armored cable. Thread 1/2" NPT	Nickel-plated brass	5,5 ÷ 13 mm	
A37389	Non-resinable cable gland (ATEX) for non-armored cable. Thread 1/2" NPT	Nickel-plated brass	5,5 ÷ 13 mm	
A37453	General purpose cable gland for safe area. Thread 3/4" NPT	Nickel-plated brass	7 ÷ 10,5 mm	
A37614	Resinable cable gland (ATEX) for armored cable. Thread 3/4" NPT	Nickel-plated brass	5,5 ÷ 13 mm	
A37598	Non-resinable cable gland (ATEX) for armored cable. Thread 3/4" NPT	Nickel-plated brass	5,5 ÷ 13 mm	
A37418	Resinable cable gland (ATEX) for non-armored cable. Thread 3/4" NPT	Nickel-plated brass	5,5 ÷ 13 mm	
A37599	Non-resinable cable gland (ATEX) for non-armored cable. Thread 3/4" NPT	Nickel-plated brass	5,5 ÷ 13 mm	
A37672	Resinable nipple (ATEX) 3/4" - 3/4" NPT	Nickel-plated brass	N.A.	

Contacts



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