CAD

CLEAN & ASEPTIC DESIGN

CAD POSITION REGULATOR

MANUAL AND SAFETY INSTRUCTIONS
CODE: XACT-SEND-POS1-XCU01



RATTIINOX

ASEPTIC EQUIPMENT - DESIGN & SUPPLIER

Introduction

This manual concerns the position regulator: XACT-SEND-POS1-XCU01

This user manual contains important information for installing, operating and maintenance of the position regulator. Read the manual closely and follow the instructions contained in it. For reference, you may keep a copy of the manual.
The Pneumatic Valve Position regulator is not a standalone device. It is meant to be integrated in a larger installation.
When installed/connected differently than described in this manual, Rattiinox will not be responsible for any damage or harm created by or to the position regulator.

The data in this manual is based on the latest information and may be subject to changes.
We can modify our products and any related item such as documentation at any time, without notification. Rattiinox General Conditions also apply.

All the information present in this manual is to be used for installing and operating the position regulator. All technical and technological information as well as any drawings and technical specifications remain our property and may not be copied or reproduced to any other third party.

INDEX

1. Functions	4
2. General data	4
3. Symbols/Safety regulations	5
4. Installing the position regulator	4
5. Open/Close	10
6. Swap feedback	11
7. Error description	12
8. Electrical data	13
9. Wiring diagram	14
10. Dismounting	14
11. Maintenance	14
12. Cleaning the exterior	15
13. ATEX label	15
14. Repair	16

1. Functions

The **XACT-SEND-POS1-XCU01** is a positioner designed for the automatic control of pneumatic process valves. It enables precise actuator control for **CAD valves**. The position regulator can be calibrated by pressing the calibration button on the valve position regulator. When the position regulator calibrates it will adjust its values to the valve it is mounted on.

The position regulator has the following features:

- Automatic calibration.
- Direct I/O connection.
- Control through 4-20mA and 0-10V available.
- Contact free measuring.
- Visual feedback on position regulator through display.
- Easy replacement of the electronics.

2. General data

MECHANICAL DATA			
Body material		:	POM
Colour body		:	Black
Screw cover		:	Polycarbonate
Colour cover		:	Smoked transparent
Air connector (2x) Thread Tube Ø		: : :	Brass nickel plated 1/8" 1/8" GAS 6mm
Supply pressure	[bar]	:	5.5 - 7
Nominal airflow	[Nl/min]	:	27
Silencer		:	Sintered bronze
Stroke range		:	Linear 5-70mm, Rotating 270°
Ambient temperature	[°C]	:	-10 … +50 (non-freezing air)
Relative humidity	[%]	:	≤ 80
IP rating		:	IP67 (with cover)
Dimensions	[HxD mm]	:	115 x 70

3. Symbols/Safety regulations

	Sign that warns for a possible electric shock.
	General warning sign.
	Refers to additional manuals/datasheets.
	Additional information.
	Advice: We advise you to wear suitable protection clothing, (such as gloves and goggles) when you use cleaning products.

Safety regulations:

- Installation, maintenance and repairs must only be carried out by qualified personnel.
- After maintenance or repair, the unit must be tested before it is put back into service.
- Cleaning should be done in such a way that no water or other fluids can enter any electrical parts of the position regulator.

The user must ensure that:

- Working conditions are safe.
- The instruction manual is available.

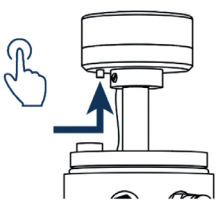
4. Installing the position regulator:

This instruction is specifically for the installation of the unit on a pneumatic actuator and not for the integration into the system.

Installation:

1. Place the mounting kit on the actuator and make sure it is securely screwed to the actuator.
2. Place the CADA1246 (See image on page 8) on the mounting kit and securely screw it to the mounting kit.
3. Secure the position regulator by tightening the setscrews located in the base plate.
4. Check gently if it is fixed motion-free on the actuator. No force should be used for this checking.
5. Connect the air supply to Port 1 (standard 6mm tube).
6. Pipe up positioner to actuator using Port 2.
7. Plug in the electrical connector to the position regulator.
8. Open the air supply.

Calibration with display:

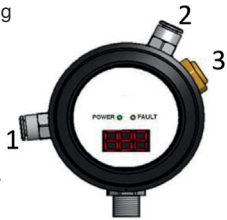


1. Remove the screw cover.
2. Press and hold the calibration button for approximately 4 seconds, until “CAL” appears on the display, then release the button. The button is located under the electronic module.
3. Wait until the position regulator stops the calibrating and shows the current position of the actuator (0%).
4. Put the screw cover back on to the position regulator.
5. The position regulator is now calibrated and ready to be used.

Mounting video tutorial

https://www.youtube.com/watch?v=oRchYOlj5EE

Normally plug-on fittings are installed for 6mm air tubing



When installing the tubes make sure that:

- *The tubing and connections are free of dust and dirt.*
- *The appropriate tube diameter is used.*
- *The tubes are long enough.*
- *The tubes are cut with a "tube cutter".*

PNEUMATIC CONNECTION		
Port	Description	POM
1	Supply	P
2	Actuator	A
3	Release	R

Ensure that the XACT-SEND-POS1-XCU01 is mounted securely in place to prevent any malfunctions caused by moving the position regulator.

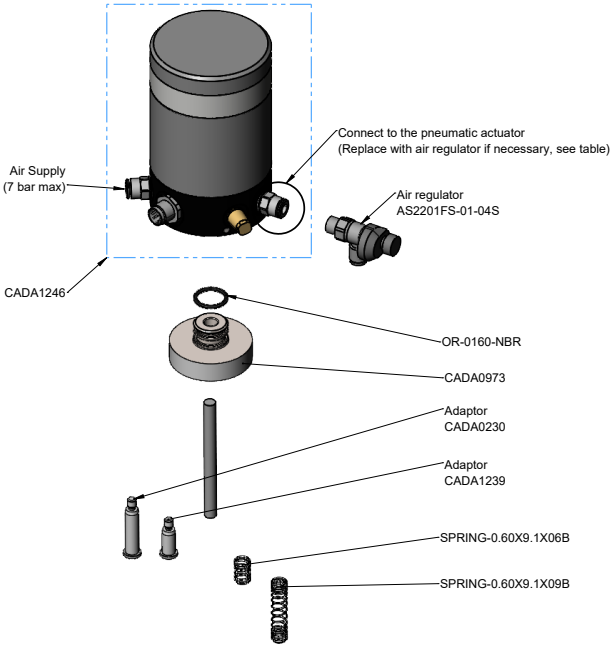
Avoid excessive stress on the threads and use only the provided kit. Improper assembly can lead to leaks and potential damage to the components. Ensure correct installation to maintain optimal performance and durability.

Avoid magnetic fields around the positioner. This may affect the functionality of the position regulator.

Be careful while connecting and disconnecting electronic connectors. There is a risk of an electric shock when not handled properly.

While calibrating, the position regulator will fully open and close the actuator for proper calibration. Make sure that this cannot cause any harm or damage.

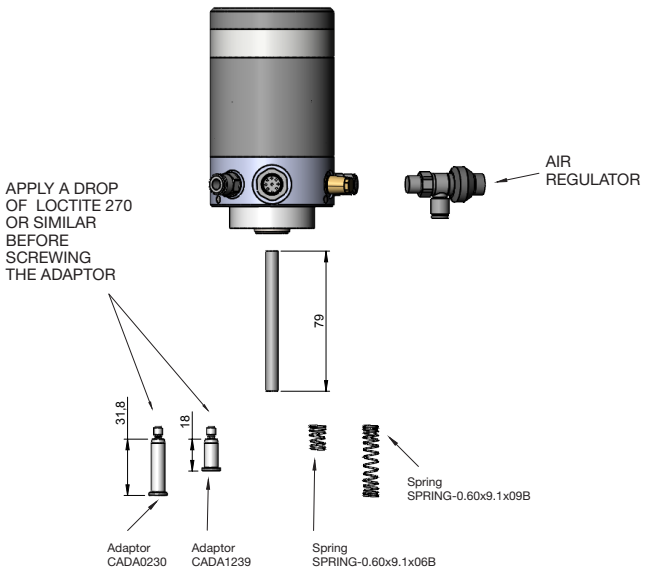
Please read the manual before use the positioner



FOR ATEX APPLICATION:



Actuator Size	Adaptor	Air regulator (YES/NO)	Spring
1/2” (A12)	CADA1239	YES	SPRING-0.60X9.1X06B
3/4” (A19)	CADA1239	YES	SPRING-0.60X9.1X06B
1” (A25)	CADA0230	NO	SPRING-0.60X9.1X09B
1.1/2” (A38)	CADA0230	NO	SPRING-0.60X9.1X09B
2” (A50)	CADA1239	NO	SPRING-0.60X9.1X09B
2.1/2” (A63)	CADA1239	NO	SPRING-0.60X9.1X09B
3” (A76)	CADA1239	NO	SPRING-0.60X9.1X09B
4” (A00)	CADA1239	NO	SPRING-0.60X9.1X09B



5. Open/Close

Functionality of the position regulator:

This chapter described the way the position regulator operates.
Next to this there is an explanation of the different states and feedbacks the position regulator gives back.

Air flow:

When the solenoid in the position regulator is de-activated the airflow towards the position regulator is blocked.
The actuator output is connected to the release of the position regulator.
This state causes air to flow out of the actuator.
The position regulator will go to this state also when the power is disconnected.

Electrical feedback(s):

The XACT-SEND-POS1-XCU01 standard mode of operation uses the following rule: the actuator is closed when it is in its extended position.
The operating mode can be inverted by following the instructions on the next page.

Position Regulator: Visual feedback.

Close	Mid-way	Open
		

This range is then divided over a percentage from 0 to a 100%. The starting position will be shown as 0%.

6. Swap feedback

When you receive your positioner, the unit will have a standard program for calibration. While the unit is calibrating it will automatically calibrate the correct position for normally open and normally closed valves with the feedback on the display where closed is 0% and open is 100% and 4mA is closed and 20mA is open. When you decide that you want to switch this, meaning 0% is open and 100% is closed or 4mA is open and 20mA is close you can override the standard calibration values.

To do so you press and hold the calibration button. After approximately 3 seconds it will say “CAL” on the display. You keep holding the button down until “End” is flashing on the display.

Now you have reached the menu to override the standard calibration.

To switch between programs or change a selected value press the button.

To select a program you want to change or to confirm your settings hold the button down for about 3 seconds.

The following table shows the different programs and the possibilities you have for programming:

Display current program	Description:	Display extended (last digit blinking)	Description:
	End menu and continue standard program		
	Switch display feedback		Closed = 0%
			Closed = 100%
	Switch mA control signal		Closed = 4mA
			Closed = 20mA
	Reset settings to the calibrated values		

7. Error description

Before trying the solutions mentioned below, please ensure that the unit is mounted securely onto the actuator (this includes the mounting kit).
The unit needs to complete its calibration on the actuator it is placed on for proper operation.

Displayed Error:	Description:	Possible cause:	Solution:
	mA input fault.	The mA signal has fallen out of the effective range (4-20 mA)	Check the mA input signal strength.
	Position regulator did not reach its designated position.	Position regulator has been placed on a different actuator and has not been calibrated.	Calibrate the position regulator by holding the calibration button until “CAL” appears on the display.
		No air flow.	Check air connections.
			Check for pressure on the air inlet.
		Actuator is leaking.	Solve leakage.
		Valve is blocked.	Check valve clearance.
		Position regulator moved on the actuator.	Reposition the position regulator and secure its position with the screws.
	Magnetic interference.	The unit is experiencing magnetic interference.	Remove nearby magnets when possible.
			Re-calibrate if the magnets cannot be removed.
	Actuator did not move while calibrating.	No air flow.	Check air connections.
			Check for pressure on the air inlet.
		Actuator is leaking.	Solve leakage.
		Valve is blocked.	Check valve clearance.

While calibrating, the controller will fully open and close the actuator for proper calibration. Make sure that this cannot cause any harm or damage.

Avoid excessive stress on the threads and use only the provided kit.
Improper assembly can lead to leaks and potential damage to the components.
Ensure correct installation to maintain optimal performance and durability.

8. Electrical data

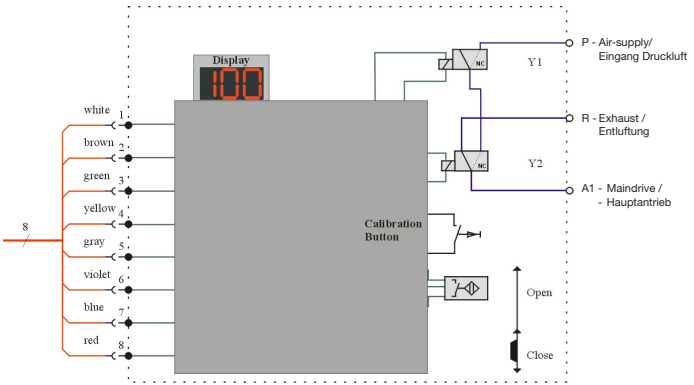
(4-20MA)			
Power supply	[V]	:	24 DC
Power Consumption	[W]	:	<1,5 or <50mA
Input	[mA]	:	4 – 20
Output	[mA]	:	4 – 20
Position OK feedback	[V/mA]	:	0 – 24 (input voltage) / 250
Fault feedback	[V/mA]	:	0 – 24 (input voltage) / 250
Connector		:	M12x1 male
No. of pins		:	8
Pin lay-out			Front view male connector
1. mA Input VCC		:	White
2. mA Output ground		:	Brown
3. mA Output VCC		:	Green
4. mA Input ground		:	Yellow
5. 24V DC		:	Grey
6. Position OK		:	Violet
7. Fault		:	Blue
8. Ground		:	Red



(0-10V)			
Power supply	[V]	:	24 DC
Power Consumption	[W]	:	<1,5 or <50mA
Input	[mA]	:	0 – 10
Position OK feedback	[V/mA]	:	0 – 24 (input voltage) / 250
Fault feedback	[V/mA]	:	0 – 24 (input voltage) / 250
Connector		:	M12x1 male
No. of pins		:	8
Pin lay-out			Front view male connector
1. mA Input VCC		:	White
2. Ground		:	Brown
3. NC		:	NC
4. mA Input ground		:	Yellow
5. 24V DC		:	Grey
6. Position OK		:	Violet
7. Fault		:	Blue
8. Ground		:	Red



9. Wiring diagram



10. Dismounting

1. Depressurize system
2. Remove air supply pipe from connection P
3. Remove piping between positioner and pneumatic actuator
4. Unlock 3 grub screws
5. Remove positioner
6. Unscrew and remove flange, keeping stem pulled

https://www.youtube.com/watch?v=4B_pWo5GUyI

11. Maintenance

In case of inappropriate operation or handling by unqualified personnel the manufacturer warrantee will not be valid.
Some parts of the position regulator should be checked on a regular basis. The interval between the checks depends on the surroundings of the position regulator but should not exceed a year time. The check includes, but is not limited to, the following parts:

- Screw cover.
- Air connection(s).
- Electrical connector.
- O-ring seal of the screw cover.
- Base plate.

Maintenance should be performed by trained and qualified personnel, preferably with knowledge of/and experience with the system.

12. Cleaning the exterior



Before applying cleaning liquids make sure that they do not damage the equipment.



In case the equipment is contaminated with acids or alkaline cleaner, we recommend rinsing with clean water within 30 minutes. Particular attention must be given to any opening(s) in order to prevent crack formation.



Be careful using liquids on the position regulator. When liquid gets inside the connector and/or position regulator this may cause a short circuit or an electric shock

13. ATEX label

CE Ex	**CAD POSITIONER AND SENSOR** **II 3G Ex ec IIC T3 Gc X** **Only with ATEX clip**	**XACT-SEND-POS1-XCU01** **SN: .....** **www.rattiinox.com**

14. Repair

The valve position regulator will function without maintenance and trouble if it is appropriately used. In the event of failure, you have the possibility of exchanging parts by your own personnel or to exchange the entire valve position regulator. The malfunctioning valve position regulator can be sent to the following address for repair or inspection.

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