

Digital positioner TZIDC

Instrument air filter system of the TZIDC



Reliable and efficient digital positioner with integrated maintenance-friendly air filters applicable in any industrial process.

TZIDC

Purpose

This document provides a description of the design structure of the internal air filter system in the TZIDC digital positioner. It gives information on the robustness of the TZIDC in reference to instrument air quality.

The TZIDC digital positioner is robust and features integrated filters to protect the pneumatic steps against contamination. The internal filters can be easily replaced and serviced on-site and operate trouble-free.

Additional Information

For more information on the subject or if you have any questions about the positioner products by ABB, please contact the person signed below.

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1 Air filter system TZIDC

Supply air quality

The TZIDC digital positioner requires compressed air as the energy source, the compressed air must meet the requirements of instrument air quality according to the following table. If the available instrument air does not meet this requirement, then a suitable external filter is needed in the supply line.

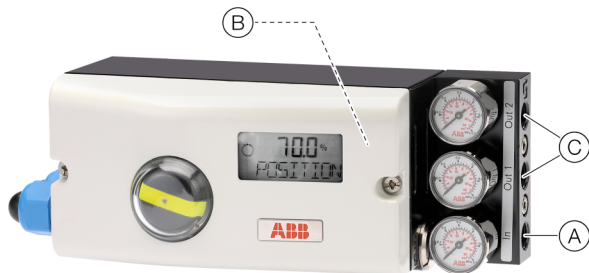
Instrument air *	
Purity	Maximum particle size: 5 µm
	Maximum particle density: 5 mg/m ³
Oil content	Maximum concentration 1 mg/m ³
Pressure dew point	10 K below operating temperature

* free of oil, water and dust in accordance with DIN / ISO 8573-1 Pollution and oil content in accordance with Class 3

Overview of air filter system

A unique feature of the TZIDC is the integrated and serviceable air filter system to protect the positioner from dust and contamination to help protect the internal parts of the positioner.

These internal filters cover the following 3 areas:



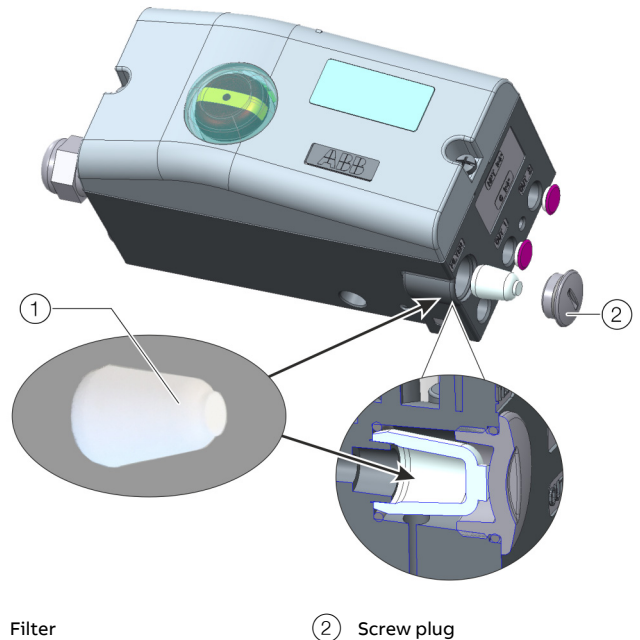
- (A) Supply air
- (B) Internal pneumatic module
- (C) Pneumatic Output 1 and 2

Figure 1: Overview air filter system

The TZIDC's internal air filter system as shown in Figure 1 help protects the positioner against dust and contaminants that may enter from the instrument air supply (A) or from the actuator (C) during operation. In addition to these filters the TZIDC incorporates a high quality sintered filter to protect the internal pneumatic module (B) from contamination.

Supply air filter (A)

The instrument air supply is filtered with this first stage filter to protect the TZIDC against dust and other contaminants from entering the positioner via the air supply.



- (1) Filter
- (2) Screw plug

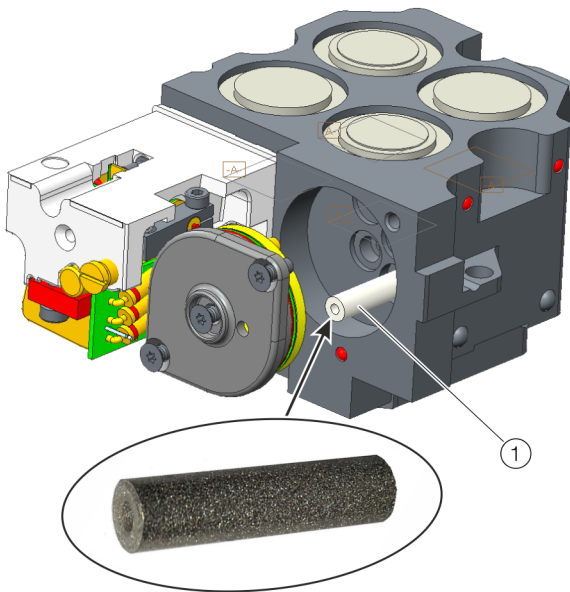
Figure 2: Supply air filter

This supply filter element (Figure 2, item (1)) is easily accessible for service or exchange from the outside by removing the screw plug (Figure 2, item (2)).

Internal pneumatic module **(B)**

The internal pneumatic module is additionally protected against dust and other elements through a high quality sintered filter (Figure 3, item ①) located inside the module.

The following 3D-CAD picture shows the pneumatic module with the sintered air filter partly removed for better visibility.



① Internal air filter

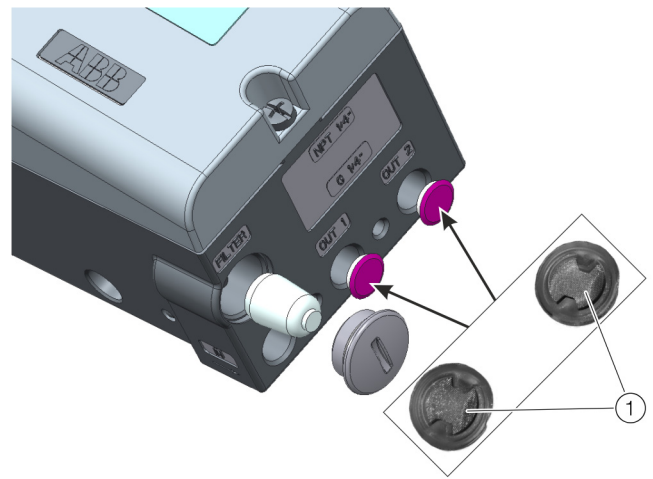
Figure 3: Pneumatic unit with internal air filter

This filter of the internal pneumatic module (Figure 3, item ①) is accessible for service or exchange by removing the module from the TZIDC housing and removing the pressure control stage cover and the internal components of the module.

Note that this level of service should only be done by a qualified and trained service person.

Pneumatic output **(C)**

The Out 1 & Out 2 air filter elements (Figure 4, item ①) protect the TZIDC from any debris and other particles that may be inside the actuator from entering the positioner during the decompressing sequence of the actuator when the air passes through the TZIDC.



① Output air filter

Figure 4: Output air filter

The output air filter elements (Figure 4, item ①) are located inside the OUT 1 and OUT 2 pneumatic ports and are easily accessible for service or exchange.

2 Summary

- The TZIDC digital positioner has an air filter system with 3 air filter areas.
- No competitor has this kind of innovative and systematic air filter system.
- The serviceability of the air filter systems is unique.

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