

Brief Operating Instructions for TZID-C With Software Rev. 1.1 and Lower

Commissioning

1. Turn on the air supply to the positioner.
2. Apply the 4...20 mA analog input signal to the positioner.
3. Check for proper mounting: refer to instruction manual if needed.
 - Open front dust cover from positioner to access the local control keys.
 - Press and hold **MODE**.
 - Additionally briefly press **↑** or **↓** until mode **1.3 MAN_SENS** is displayed.
 - Release **MODE**.
 - Press **↑** or **↓** to move the actuator to its mechanical limit stops in both directions, and note the values.
The angle of rotation on the display is indicated in degrees. Recommended positions of limit stops:
 - > -28° and < +28° for linear actuators
 - > -57° and < +57° for rotary actuators
 - Adjust the mounting position of the positioner in relation to the actuator if required.

Configuration

4. Switch to the configuration level:
 - Press and hold **↑** or **↓** simultaneously.
 - Additionally briefly press **ENTER**.
 - Wait until the countdown from **3** to **0** is completed.
 - Release **↑** or **↓**.The device will automatically go to program level “**P1.0**”
5. Select the actuator type “**ROTARY**” or “**LINEAR**” using **↑** or **↓**.

Note: This Step must be done prior to Autoadjust (Step 6)

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6. Start *Autoadjust*:

- Press and hold **MODE**
- In Addition briefly press **↑** until "**P1.1**" is indicated.
- Release **MODE**.
- Press **ENTER** and keep it pressed until the countdown from **3** to **0** is finished.
- Release **ENTER** *Autoadjust* is now activated; the complete process will take a few minutes.
- When the message "**COMPLETE**" is displayed to indicate successful Autoadjust, briefly press **ENTER** to acknowledge. It is also possible that Auto-adjust is cancelled due to errors detected during this procedure; the applicable error message is displayed. Refer to Instruction manual for error codes and details.

7. Save the settings:

- Press and hold **MODE**.
- In addition, briefly press **↑** until **P1.4 "EXIT"** is indicated.
- Release **MODE**.
- Select **NV_SAVE** using **↑** or **↓**.
- Press and hold **ENTER** until the countdown from **3** to **0** is completed, then release **ENTER**. The settings are saved in the non-volatile memory, and the positioner returns to the operating level.

Selecting the Operating Mode

Mode 1.1: Fixed control

- Press and hold **MODE**.
- Additionally briefly press **↑** as often as required until level **1.1 "CTRL_FIX"** is displayed.
- Release **MODE**
- Positioner is now active in the **FIXED** control mode.

Mode 1.2: Adaptive Control

- Press and hold **MODE**.
- Additionally briefly press **↑** as often as required until level **1.2 "CTRL_ADV"** is displayed.
- Release **MODE**
- Positioner is now active in the **ADAPTIVE** control mode.



QUICK-START

Advantage of Adaptive Control Mode:

The positioner incorporates a unique “**Adaptive Control**” mode that will allow a “Selftune” function within the positioner to determine the best control parameters for the application (This process is independent of the PID control settings needed in the DCS or controller to obtain loop control stability). The positioner will optimize the control performance by adjusting the control parameters automatically as the dynamic conditions of the valve changes due to process load demand changes.

In any application the process control performance is largely dependent on the control valve and the condition of the valve. For this reason the valve needs to be in a “good” condition to ensure the optimum performance of the Adaptive control mode.

Any deterioration of valve performance due to increased friction stick of the valve stem, cylinder shaft or stem/diaphragm leakage will cause the positioner to “adapt” to the changed valve condition in a attempt to optimize the performance, however, this optimization does not represent dynamic process changes, in this case the positioner will consistently optimise until the stem friction or deterioration has increased to an undesirable level. In this case the positioner is unable to provide reliable control due to problems beyond its control. If the “TIME OUT” diagnostic alarm of the positioner is active the positioner will provide a binary output as an alarm function when the set point is not reached within the preset time. This “time-out” time can be adjusted. Refer to instruction manual “Alarm messages” for details.

In the case of the “**Fixed Control**” mode, the positioner will consistently position the valve with the control parameters detected during the AUTOSTROKE process. It may become a consideration by the user to switch from the “Adaptive Control” to the “Fixed Control” mode once the TZID-C was optimized as explained above.

The TZID-C also allows the user to access the control parameters manually via the front push buttons on the TZID-C or via the ABB Smart Vision software tool to perform custom optimization that may be required in some extreme cases when the standard AUTOSTROKE or Adaptive Control was not able to optimize the application.

The TZID-C Positioner is now ready for operation.

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