ABB V18345-2010421001

01 Plan the double-acting control loop

1 Confirm the selected pneumatic action

This order code selects double-acting fail-safe output. On loss of electrical power, output 1 depressurizes and output 2 pressurizes. Determine how those ports move the actual actuator; do not infer an open or closed valve position from the positioner label alone.

2 Establish a safe adjustment boundary

Auto Adjust and manual tests can move the final control element. Place the process in its approved maintenance state, clear the actuator travel area and identify stored pneumatic energy. Agree the allowed test range and recovery action with the responsible operator before energization.

3 Separate the two analog loops

Identify the 4–20 mA setpoint input and the selected two-wire 4–20 mA feedback circuit. Capture both terminal assignments and polarities. The feedback represents measured position and must not be confused with the signal commanding that position.

Actuator	Double-acting arrangement and port function identified
Process	Approved state for movement and power-loss tests
Loops	Setpoint and feedback circuits separately recorded

V18345-2010421001 / Prepare mechanical and air connections

02 Prepare mechanical and air connections

1 Choose the correct mounting kit

The housing includes a mechanical position indicator and supports the appropriate linear NAMUR or rotary VDI/VDE 3845 attachment. Verify the linkage geometry for the actuator. The linear operating angle is 25° to 45°; mechanical fit alone does not prove a valid feedback travel range.

2 Match every connection thread

The cable entry is 1/2-14 NPT and the air ports are 1/4-18 NPT. Inspect fittings and thread engagement before assembly. Avoid adapters or forced joints that can damage the connection or introduce leaks; use the installation-specific sealing method and routing.

3 Verify air quality and pressure

Use instrument air with maximum 5 µm particles, 5 mg/m³ particle density and 1 mg/m³ oil concentration. Keep the pressure dew point 10 K below operating temperature. Supply 1.4 to 6 bar while remaining below the actuator’s permitted maximum pressure.

Cable entry	1/2-14 NPT
Pneumatic ports	1/4-18 NPT
Air supply	1.4 to 6 bar with stated purity and dew point

V18345-2010421001 / Connect signals and adjust travel

03 Connect signals and adjust travel

1 Check input and feedback independently

Reconnect the separately identified analog circuits and verify polarity before applying the operating signal. Check both the command readback and actual feedback rather than assuming that correct valve movement proves the feedback loop is wired correctly.

2 Use the supported local interface

This code selects an LCI adapter connection without the optional FSK module for HART on the setpoint loop. Use the local panel or the appropriate LCI arrangement. Do not make a HART modem response a required acceptance test for an option that is not selected.

3 Run controlled Auto Adjust

Select the correct linear or rotary actuator type, ensure travel is permitted and start the appropriate adjustment procedure. Observe the display and actual movement. Verify the resulting direction and limits against the valve function instead of accepting completion solely because the adjustment routine stops.

Communication	Local panel or appropriate LCI arrangement
Movement	Correct actuator type and unobstructed travel
Adjustment	Direction and final limits checked on actual valve

V18345-2010421001 / Test the configured control response

04 Test the configured control response

1 Compare command and measured position

Apply a controlled sequence of setpoints across the permitted range and compare actual position, feedback current and display. Account for the selected characteristic curve and direction. A nonlinear configured characteristic should not be mistaken for an unexplained calibration error.

2 Review timing and dead band

Check the application settings for dead zone, tolerance band and travel-time prolongation. The configurable dead zone is 0.1 to 10%, while travel-time prolongation is available from 0 to 200 seconds for each direction. Use settings that meet the process response requirement.

3 Prove the fail-safe movement

With the process safely isolated, test the required power-loss response and verify actual valve travel. Check that output 1 and output 2 act on the intended chambers. Re-establish the normal control state and confirm feedback before allowing the valve to return to automatic service.

Tracking	Command, position and feedback agree with configuration
Timing	Both directions satisfy the application requirement
Fail-safe test	Actual valve direction and final state accepted

V18345-2010421001 / Diagnose and preserve settings

05 Diagnose and preserve settings

1 Separate air and signal faults

If the valve does not track the command, compare supply air, port routing, linkage travel and both analog circuits. A correct setpoint current does not establish sufficient pneumatic pressure or an intact mechanical connection. Identify the faulty part of the loop before changing adjustment parameters.

2 Retain the final parameter record

Record the characteristic curve, action direction, travel limits, dead zone, timing and accepted feedback results. Include the full V18345-2010421001 identity and actuator arrangement. Future service should restore the intended application settings rather than generic factory values.

3 Keep option boundaries visible

Do not add hazardous-area, HART-line or single-acting SIL claims to this double-acting order code. The original datasheet contains multiple alternatives; only the selected hardware and applicable general performance belong to this installation record.

Technical basis: ABB TZIDC Digital Positioner, DS/TZIDC-EN Rev. I.

Related product navigation

- ABB AI815 3BSE052604R1
- ABB AO810V2 3BSE038415R1
- ABB TU810V1 3BSE013230R1

These are related references, not confirmed substitutes or an automatically approved assembly.