

ENGINEERING FIELD GUIDE

Validate a Modbus register map before commissioning

A practical sequence for checking offsets, signedness, byte order and scaling before register values reach a dashboard.

01 Resolve address notation first

A manual may use a reference such as 40001 while a client expects a zero-based protocol address. Document the notation on both sides and test one known register. Do not apply an offset to the whole map until a known value confirms it. Use read functions during initial mapping.

02 Test values that reveal mistakes

Use a documented test condition that exposes sign and word order. A small positive integer can look correct under several wrong interpretations. Compare a negative value where supported, a non-integer engineering value and a counter transition. Capture raw bytes with the decoded result so the check can be repeated.

03 Keep scaling separate from transport

Record data type, register width, byte order, word order, scale and unit as separate fields. A pressure that is ten times too large may be a scale problem, not an endian problem. Validate at two or more points within the expected operating range and confirm the device behavior for invalid readings.

04 Save the acceptance evidence

For each critical tag, keep the device reference, raw response, expected result, observed result and test date. Confirm that timeout or exception responses produce a bad-quality state rather than a believable zero. Approve the map with the automation owner before any downstream report depends on it.

TEAM WORKSHEET

From checks to a decision.

Work through this page together. Assign an owner and evidence to each check.

Site / line

Date / version

Owner / team

Pilot boundary

☐ Resolve address notation first

Evidence / open issue / owner:

☐ Test values that reveal mistakes

Evidence / open issue / owner:

☐ Keep scaling separate from transport

Evidence / open issue / owner:

☐ Save the acceptance evidence

Evidence / open issue / owner:

Acceptance decision and next step

[] Accept [] Revise [] Hold

Acceptance criterion / result

Next action / owner / due date

Rollback trigger / plan

Project-specific support: aspdijital.com