Honeywell FC-UGAI01

01 Define the barrier and safety-loop boundary

1 Identify the complete marshalling path

Locate the FC-UGAI01 barrier and its CC-UGIA01 backplane position before disconnecting a loop. Record the field transmitter, cable, terminal arrangement and receiving safety-input channel. One barrier handles one analog input; do not confuse the number of positions in the assembly with the channel count of the individual isolator.

2 Review the approved hazardous-area design

Compare the field-device approval, barrier entity parameters, cable characteristics and installation requirements with the approved loop design. The 1500 V AC isolation value is not a permissible field operating voltage. Use the applicable intrinsic-safety assessment rather than treating galvanic isolation alone as permission to connect any hazardous-area transmitter.

3 Control the safety-function interruption

Identify the safety function affected by the analog input and arrange the approved maintenance state before disturbing the circuit. Retain the configured engineering range and diagnostic thresholds. Agree how a simulated fault will be recognized and how the loop will be returned to service without leaving a temporary override in place.

Barrier	FC-UGAI01; one analog channel
Assembly	CC-UGIA01 backplane and intended position
Acceptance basis	Approved loop design and input configuration

FC-UGAI01 / Prepare mounting, terminals and transmitter mode

02 Prepare mounting, terminals and transmitter mode

1 Check keyed module placement

Inspect the module and backplane connectors and confirm the mechanical keying before seating the barrier. The module uses screwless backplane mounting. Do not force an incompatible keyed position or compensate for damage by changing the connection arrangement. Retain the terminal identification and field-wire labels so each conductor can be restored to its intended circuit.

2 Choose the source-mode connection

For a compatible two-wire current source, use the A(+)/B(-) arrangement; a three-wire source uses A(+)/B(-)/C. These specified source-mode connections support 4-20 mA with HART. Confirm the transmitter wiring and supply arrangement before connection rather than inferring the correct terminals solely from the number of conductors present.

3 Distinguish the current-sink arrangement

The B(-)/C connection supports the specified two- or four-wire current-sink mode for 4-20 mA. Do not carry the source-mode HART claim into this arrangement. Trace the external transmitter power and signal return separately, then compare the completed circuit with the approved drawing before restoring any source of electrical energy.

Two-wire source	A(+), B(-); HART supported
Three-wire source	A(+), B(-), C; HART supported
Two-/four-wire sink	B(-), C; 4-20 mA

FC-UGAI01 / Verify electrical headroom and cabinet conditions

03 Verify electrical headroom and cabinet conditions

1 Assess supply demand in the assembly

Verify the 24 V DC supply arrangement and include the 55 mA rated barrier current in the relevant power budget. Dissipation is 1 W at 24 V DC with a 20 mA loop. Assess the populated assembly and cabinet together; the rating of one barrier does not establish the capacity or thermal performance of the complete installation.

2 Check field voltage at the maximum signal

The available field voltage is 16 V at a 20 mA field current. Compare this with transmitter operating requirements and cable voltage drop at the required load. A transmitter that works at a low current may lose its operating margin near full scale, so a single low-range reading is not a sufficient commissioning test.

3 Respect environmental and insulation boundaries

The barrier operating range is -40 to +70 deg C with 5-95% non-condensing humidity. IP20 requires a suitable installed enclosure and does not describe outdoor weather protection. Verify separation and wiring practices for the intended hazardous-area design; avoid applying an insulation-test method that could damage connected electronic devices or bypass their approved isolation boundaries.

Supply	24 V DC; 55 mA rated
Field headroom	16 V at 20 mA
Dissipation condition	1 W at 24 V DC / 20 mA loop

FC-UGAI01 / Prove analog transfer, communication and faults

04 Prove analog transfer, communication and faults

1 Compare the complete measurement path

Apply an approved input reference at several points across the intended range and compare the receiving value with the configured engineering scale. The barrier transfer accuracy is +/-20 microamps at 20 deg C. Include the field device, receiving input and ambient influence when judging overall loop accuracy; the barrier value alone is not a complete system-error allowance.

2 Test HART only in the supported circuit

Where source-mode HART is required, verify communication through the actual installed source connection without changing the analog input interpretation. Check device identity and the expected signal path under the site procedure. A successful 4-20 mA measurement does not prove HART communication, and a successful HART exchange does not prove the configured engineering scale.

3 Check open-wire fault propagation

Under the approved test plan, verify that an open-wire condition is recognized at the receiving safety-input path. The barrier specifies open-wire current below 150 microamps and supports fault transparency. Compare the actual receiver indication with its configured threshold and response, then restore the circuit and prove that the fault clears correctly.

Analog proof	Reference current to receiving engineering value
HART proof	Supported source-mode path only
Fault proof	Open-wire current and receiver response

FC-UGAI01 / Resolve discrepancies and return the loop to service

05 Resolve discrepancies and return the loop to service

1 Separate wiring faults from configuration errors

If the received value is wrong, first compare the actual source/sink terminal arrangement, loop supply and transmitter headroom with the approved design. Then check receiver scaling and fault thresholds. Do not adjust the input range merely to hide a wiring or supply problem; retain the failed test condition so the cause can be distinguished from its symptom.

2 Review temperature-related differences

Use the 20 deg C accuracy condition as the reference and account for ambient influence when evaluating a measured offset. The stated influence differs below -30 deg C. Record the relevant operating conditions and instrument uncertainty, rather than treating every deviation from a single bench reading as proof of barrier failure.

3 Retain the accepted loop identity

Remove temporary overrides according to the site procedure and confirm the safety input is back in its intended operating state. Retain the full FC-UGAI01 identity, backplane position, transmitter mode, receiver channel and accepted tests. Future replacements must preserve the approved loop assessment; a mechanically similar barrier is not automatically an equivalent safety component.

Technical basis: Universal Marshalling Solution for Safety, EP-DOCX-SCA-SMSC-100 Release 310 Version 2.0, March 2021.

Related product navigation

- Honeywell FC-SDI-1624
- Honeywell FC-SDOL-0424
- Honeywell FC-PSU-240516 V1.1

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