Honeywell FC-UGAI01

01 Function and selected configuration

Product function

Honeywell FC-UGAI01 separates hazardous-area field circuits from the safe-side interface while transferring a current measurement into the safety system. The selected terminal arrangement determines whether a transmitter is connected as a current source or current sink.

Selected configuration

Single analog-input barrier channel, CC-UGIA01 backplane interface, 24 V DC supply. Mechanical keying and screwless backplane mounting support the correct barrier placement. Field connections are made through the three-tier terminal blocks on CC-UGIA01; the safe-side assembly uses a 37-pin DSUB interface.

Functional path

Field transmitter	FC-UGAI01 isolation	CC-UGIA01 interface	Safety-system input

Signal transfer	One 4-20 mA channel; HART with specified source-mode wiring
Isolation	Three-way separation; power/DCS-to-field rating 1500 V AC
Field interface	Two- or three-wire source mode; two-/four-wire sink mode

Open-wire fault transparency supports fault recognition beyond the isolating barrier. At 20 deg C the transfer accuracy is +/-20 microamps, while the available field voltage is 16 V at a 20 mA load. These values must be assessed with the actual transmitter and wiring.

FC-UGAI01 / Technical operating envelope

02 Technical operating envelope

Analog channels	1
Signal range	4-20 mA
Supply	24 V DC
Rated supply current	55 mA at 24 V DC
Power dissipation	1 W at 24 V DC / 20 mA loop
Power/DCS-to-field isolation	1500 V AC
Transfer accuracy at 20 deg C	+/-20 microamps
Field voltage at 20 mA	16 V

Short-circuit current	23.5 mA
Open-wire current	<150 microamps
HART connections	Two-/three-wire current-source mode
Safe-side connector	37-pin DSUB on CC-UGIA01
Protection	IP20
Operating temperature	-40 to +70 deg C
Humidity	5-95%; non-condensing
Functional safety capability	SIL 2, IEC 61508

The 16 V field value is stated at 20 mA. Isolation, safety capability and operating limits describe different boundaries; none alone approves a complete hazardous-area or safety-loop design.

Ambient influence

Relative to 20 deg C, influence is below 2 microamps per deg C from -30 to +70 deg C, and below 6 microamps per deg C from -40 to -30 deg C.

Connection boundary

Mechanical keying establishes module placement. The safe-side DSUB and field terminal blocks belong to the matched backplane; they are not loose connectors on an independent multi-channel input card.

FC-UGAI01 / System integration and applications

03 System integration and applications

Two-wire transmitter input

Transfer a 4-20 mA source signal with HART through the A(+)/B(-) field connection.

Three-wire source interface

Use A(+)/B(-)/C where the approved transmitter circuit requires three-wire current-source wiring.

Externally powered current sink

Use the B(-)/C arrangement for the specified two- or four-wire 4-20 mA sink connection.

Safety marshalling assembly

Integrate the keyed barrier with the supported backplane and safety-input path.

System and supply context

FC-UGAI01 is the single-channel barrier within a compatible CC-UGIA01 marshalling assembly. Backplane, system interface and field transmitter must be selected together.

Application boundary

Use the barrier for compatible analog input loops requiring galvanic isolation and the approved hazardous-area interface. Safety capability and entity parameters require a complete loop assessment.

Which FC-UGAI01 terminal arrangements support HART?

A(+)/B(-) for a two-wire current source and A(+)/B(-)/C for a three-wire current source support 4-20 mA with HART. The B(-)/C current-sink arrangement is specified for 4-20 mA transfer.

FC-UGAI01 / Engineering selection decisions

04 Engineering selection decisions

How many analog loops does Honeywell FC-UGAI01 isolate?

One. The CC-UGIA01 backplane can accommodate multiple barriers, but its assembly capacity must not be treated as the channel count of a single FC-UGAI01.

What transmitter voltage is available through FC-UGAI01 at full loop current?

The field side provides 16 V at 20 mA. Compare the transmitter minimum voltage and the circuit voltage drops with this available level.

Why does the FC-UGAI01 accuracy statement include a temperature condition?

The +/-20 microamp transfer accuracy is specified at 20 deg C. Ambient influence is below 2 microamps per deg C from -30 to +70 deg C and below 6 microamps per deg C from -40 to -30 deg C.

Does installing FC-UGAI01 alone establish a SIL 2 safety function?

No. SIL 2 describes the barrier capability. The complete loop, field device, input system, wiring, proof-test arrangements and application design must satisfy the required safety function.

Check transmitter headroom	Assess the 16 V available at 20 mA against device and cable requirements.
Prove fault transfer	Test open-wire recognition at the actual receiving channel under controlled conditions.

FC-UGAI01 / Configuration boundary and references

05 Configuration boundary and references

Lifecycle and support

The current manufacturing and OEM support stages for FC-UGAI01 require confirmation from Honeywell. Apter Power availability is confirmed separately.

Replacement assessment

Match the FC-UGAI01 barrier, backplane, terminal mode and safety-input arrangement. Do not substitute FC-UGAI02 parameters or assume a different barrier is interchangeable.

Document roles

Use the original manufacturer excerpt for its preserved technical tables and drawings. This product brief explains configuration and selection boundaries. The independent installation guide organizes preparation, connection, testing and handover. It does not replace the applicable manufacturer installation instructions.

Technical basis

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

Related product navigation

- Honeywell FC-QPP-0002
- Honeywell FC-SAI-1620M
- Honeywell FC-SDO-0824

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

Product enquiries