Honeywell

Technical Information

Universal Marshalling Solution for Safety Systems Specification



EP-DOCX-SCA-SMSC-100

Release 310

March 2021, Version 2.0

1. Product Introduction Summary

1.1. Overview

This document provides technical information for the various components of the Universal Marshalling Solution for Safety Systems Release R100.

1.2. Scope

The following Universal Marshalling Solution items are included in this document.

- CC-USCA01, Universal Signal Conditioning Assembly 24 VDC
- CC-UPTA01, Pass Through Adapter 24 VDC
- FC-UDI501, Digital Input with 5K resistor Adapter 24 VDC SIL 3
- FC-UIR501, Digital Input Relay with 5K resistor Adapter 24 VDC SIL1
- FC-UDIR01, Digital Input Relay Adapter 24 VDC SIL 3
- FC-UDOR01, Digital Output Relay Adapter 24 VDC SIL 3
- FC-UDOF01, Digital Output Relay Adapter F&G 24 VDC SIL 3
- FC-UAIA01, Analog Input, 3 wire, 4-20Ma SIL 3
- FC-UAIS01, Analog input Sink, 3 wire, 4-20mA SIL 2
- FC-UDIN01, Namur proximity switch input SIL 2
- FC-UDNS01, Namur Safety proximity switch input SIL 2
- FC-UGAI01, Analog Input Barrier, SIL 2
- FC-UGAO01, Analog Output Barrier, SIL 2
- FC-UGDA01, Digital Input/Output Barrier, SIL 2
- CC-UGIA01, Universal Signal Conditioning Assembly IS 24 VDC
- FC-USCA01, Universal Signal Conditioning High Current Assembly 24 VDC

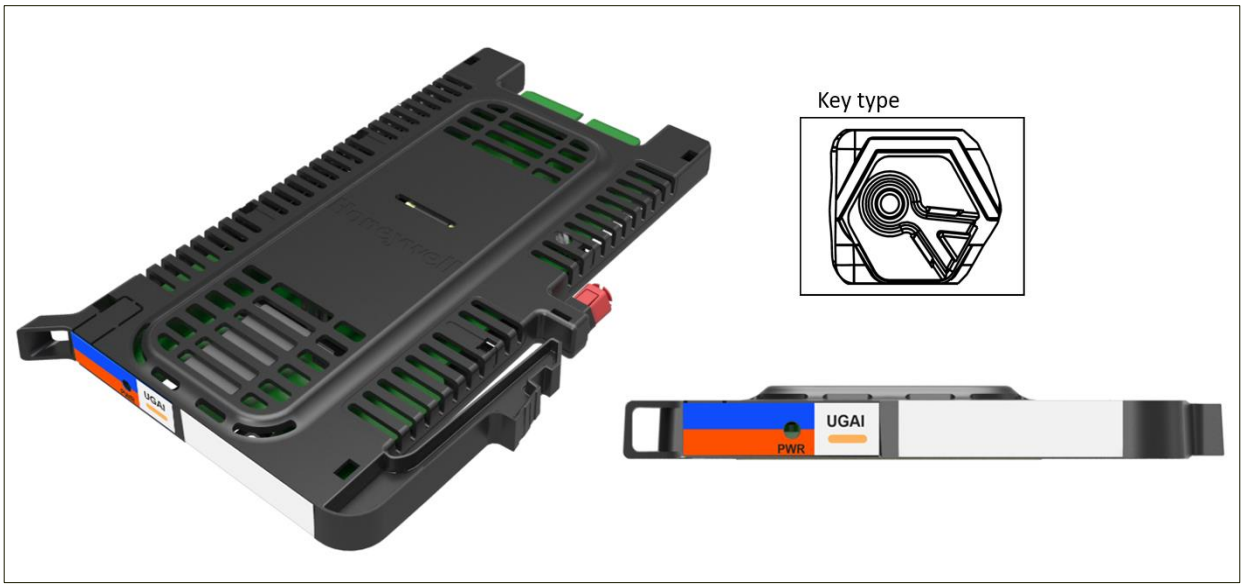
1.3. Definitions

- **Universal Signal Conditioning Assembly (USCA):** An assembly that holds the 16 adapters, the connections for field wiring and mass termination cable connector
- **Input Output Termination Assembly (IOTA):** An assembly that holds the IOM and the connections for field wiring,
- **Input Output Module (IOM):** A device that contains most of the electronics required to perform a specific I/O function. The IOM plugs onto the IOTA.

4.12. Universal Safety Barrier Adaptor FC-UGAI01

Function

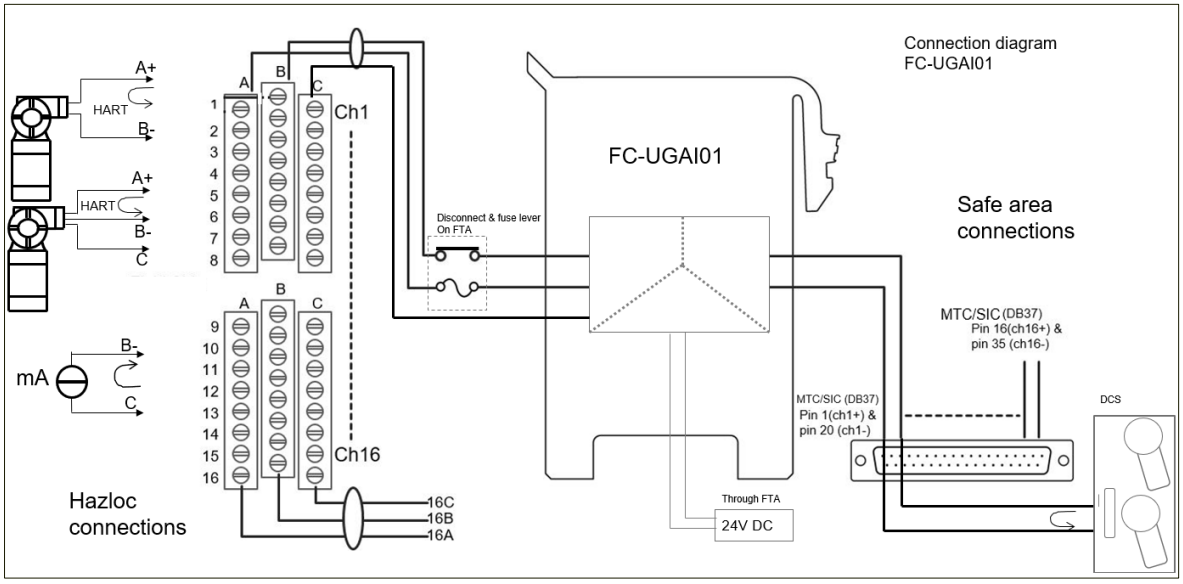
FC-UGAI01 is a SIL2 rated single channel Galvanically Isolated Analog Input Barrier module which is suitable for use with CC-UGIA0. This module supports 4-20mA and HART. FC-UGAI01 offers 3 way isolation, fault transparency for field side open wire conditions and reverse polarity protection.



Features

- Single channel Input.
- Safety

Connections



Detail Specifications

Parameter	Specifications
Physical Specification	
Dimensions	118mm (L) x 85.75mm (W) x10mm (H)

Assembly option	Backplane mount, screw less
Mistake Proof	By mechanical Keys
Indicators	NA
Ambient Conditions	
Ambient temperature (operation)	-40 °C to + 70 °C
Ambient temperature (storage/transport)	-40 °C to + 85 °C
Permissible humidity (operation)	5 % … 95 % (non-condensing)
Vibration	Non-Operational 1g 10Hz to 150Hz, Operational 0.5g 10Hz to 150Hz.
Shock	15g Non-Operational, 5g operational.
Enclosure and Mounting	
Assembly	Base plate and housing
Mounting	Base plate with DIN rail mount & snap housing to the base plate
Electrical Specifications	
Power supply	24V DC
Rated Current	55mA at 24V
Power dissipation	1W. at 24V DC with 20mA loop current
Power Indication	Green LED
Electrical Isolation	
Power/DCS to Field	1500 VAC
Safe side interface	
DCS side connections	37 pin DSUB connector on CC-UGIA01
Voltage Input	24V DC
Current Input	4 to 20mA with HART
Open wire current	<150uA
HAZLOC interface	
Field Terminals	Through 3 tier terminal blocks on CC-UGIA01
Transfer accuracy at 20^0C	+/- 20uA
Short circuit current	23.5mA
Available voltage at max load	16V at 20mA field side current
HAZLOC interface	A(+), B(-) : FC-UGAI01 in 2 wire current source mode Supports 4-20mA with HART A(+), B(-), C : FC-UGAI01 in 3 wire current source mode Supports 4-20mA with HART B(-), C : FC-UGAI01 in 2 wire / 4 wire current sink mode Supports 4-20mA
Influence of ambient temperature	Influence of ambient temperature reference to +20^0C -30^0C to +70 ^{0}C : < 2uA / ^{0}C -40^0C to -30 ^{0}C : < 6uA / ^{0}C

Compliance	
SIL rating	SIL 2 as per IEC 61508
Ingress protection	IP20 as per IEC 60529
Flammability rating	V0 as per UL 94
HAZLOC Conformance	ANSI/ISA 60079-0; 60079-15, 60079-11, 60079-7
EMC directive	2014/30/EU (IEC 61326-1 2012)
Functional safety	SIL2 (IEC 61508)
ATEX	Ex ec [ia Ga] IIC T4 Gc
IEC Ex	Ex ec [ia Ga] IIC T4 Gc
USA/Canada	Class I Division 2, Group A, B, C, D, T4 Ex ec [ia Ga] IIC T4 Gc Ex nA [ia Ga] IIC T4 Gc Class I, Zone 2 AEx ec [ia Ga] IIC T4 Gc Class I, Zone 2 AEx nA [ia Ga] IIC T4 Gc
Compliance	RoHS

IO modules supported

	IO module	IOTA	IO type	UMS to DCS cable
1	FC-RUSIO3224	IOTA-(N)R24	Universal Safety I/O)	MTC
2	FC-PUIO01	TUIO11	Universal Safety I/O)	SIC

Entity parameters

Parameter	Specification
Maximum Safe Voltage (Um)	250V
Uo	25.2 V
Io	113.13 mA
Po	712.7 mW

4.15. Universal IS Signal Conditioning Assembly CC-UGIA01

Function

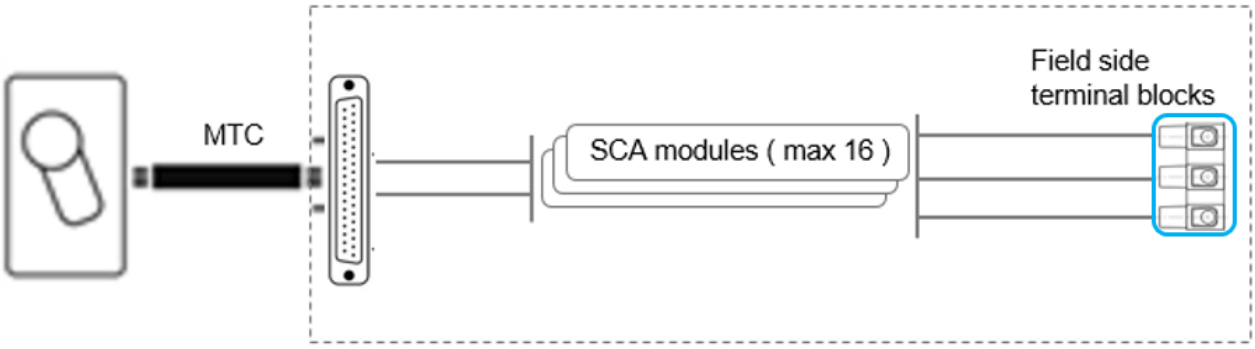
CC-UGIA01 is a back-plane assembly which can accommodate 16 IS barrier modules. Field side terminals of each channel is provided with integrated fuse and knife disconnect function. Safety System side interface is provided through a single mass termination cable (SIC) which connects all 16 channels. CC-UGIA01 is DIN rail mountable.



Features

- Integrated fuse and disconnect function for field side interfaces
- Fuse blown indication for field side fuses
- Disconnect function with current measurement terminals
- 2 wire or 3 wire interface towards field for each channel
- 24V DC power with LED indication
- Mass termination cable (SIC) for 16 channel system side interface
- Screw less assembly to the base plate
- Compatibility with Honeywell IO families: Series C module and Universal IO

Connections



Detail Specifications – Universal Signal Conditioning Assembly

Parameter	Specifications
Physical Specification	
Dimensions	199mm (H) x 140mm(W) x 135mm (D)
Assembly option	DIN rail mount using base plate
Ambient Conditions	
Ambient temperature (operation)	-40 °C to + 70 °C

Ambient temperature (storage/transport)	-40 °C to + 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Vibration	Non-Operational 1g 10Hz to 150Hz, Operational 0.5g 10Hz to 150Hz
Shock	5g operational, 15g Non-Operational
Enclosure and Mounting	
Assembly	Base plate and housing
Mounting	Base plate with DIN rail mount & snap housing to the base plate
Electrical Specifications	
Power	24V DC
Max current	1.3A
Power indication	Green LED
Interface to Safety System	37 pin DSUB (For SIC cable)
Field side interface	Dedicated 3 terminals per channel
Field side wire gauge	12-24 AWG
Compliance	
Flammability rating	V0 as per UL 94
Protection level	IP20 (When modules are mounted)
Conformance	ANSI/ISA 60079-0; 60079-11, 60079-15
EMC directive	2014/30/EU (IEC 61326-1 2012)
Compliance	RoHS