Honeywell

Technical Information

Universal Marshalling Solution Specification

EP-DOCX-SCA-R300

Release 300

November 2020, Version 2

Revision History

Revision	Date	Description
1	May 2020	R200- UGIA – GIIS 16 Channel Assembly & Non-IS Isolators Addition updates
2	November 2020	R300 – GIIS Barriers' Entity Parameter Update

Table of Contents

1. Product Introduction Summary

1.1. Overview

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

1.2. Scope

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

- Universal Signal Conditioning Assembly 24 VDC
- Pass Through Adapter 24 VDC
- Digital Input Relay Adapter 24 VDC
- Digital Output Relay Adapter 24 VDC
- Universal Low Level Adapter – RTD & TC

1.3. Definitions

- **Universal Signal Conditioning Assembly (USCA):** An assembly that holds the 16 adapter, 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.

2. Features

Universal Marshaling Solution provides standardized marshalling for central and distributed installations using signal conditioning assemblies. The signal conditioning assemblies handle 16 I/Os including disconnect, fusing as default, and when needed signal conditioning adapters (SCA) including isolation, intrinsic safety, relay, and other functions can be plugged in optionally. The SCA supports flexible wiring configurations without the need for custom wiring.

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The unique features of Series C I/O include:

- Three level flexible field terminations are provided to cater to various field wiring requirements.
- The Signal Conditioning Adapters are plugged into the USCA to eliminate the need for a separate installation of isolators, relays, signal converters and barriers.
- USCA has integral (optional) fuse and knife disconnect for easier plant installation and maintenance.
- D-Sub connector is provided on the USCA for interfacing with the Series IOTA.
- Field power from Series-C IOTA via the mass termination cable is supplied through the USCA.
- Optional power connector is provided to supply power to the active signal conditioning adapters.
- Optional 16 plug and play Signal Conditioning Adapters.
- Vertical mounting for more effective wiring since most field wiring applications require entry from the top or bottom of the cabinet.
- An LED for a quick visual cue to draw the Maintenance Technician’s eye to important status information of relay and active signal conditioning adapters.

USCAs combine multiple functions into a single piece of equipment:

- Plug and Play adapters for optional signal conditioning.
- On-board flexible termination of process signals.
- On-board connection to Series C IOTAs.
- On-board Field power distribution.
- USCA receives 24 VDC power.

3. Universal Marshalling Solution Sizing

In virtually all configurations, the Universal Marshaling Solution provides useful, maintainable process equipment connections in a smaller footprint than existing competitors and Honeywell equivalent products. Installing signals conditioning adapters contribute to overall total installed cost savings.

USCA has a standard size for passive and active signal conditioning. The 16 channel USCA is 198mm (H) X 137mm (W) X 145 mm (D).

3.1. Functions

- **Universal Signal Conditioning Assembly (USCA)** – CC-USCA01 is a back plane assembly which can accommodate 16 signal conditioning modules. Field side terminals of each channel is provided with integrated fuse and knife disconnect function. DCS side interface is provided through a single mass termination cable (MTC) which connects all 16 channels. CC-USCA01 is DIN rail mountable.
- **Universal Pass Through Adapter (UPTA)** – CC-UPTA01 is a single channel pass through module which allows direct connectivity between DCS field terminals (both live & return) and the field device. This module does not require external power to operate.
- **Digital Input Relay Adapter (UDIR)** - CC-UDIR01 is a single channel relay input module for low voltage applications. Coil side of the relay interfaces with the field device and the contact side gets connected to DCS. This module does not require external power to operate.
- **Digital Output Relay Adapter (UDOR)** - CC-UDOR01 is a single channel relay output module for low voltage applications. Contact side of the relay interfaces with the field device and the coil side gets connected to DCS. This module does not require external power to operate.
- **LLI - Low Level Input Adapter(LLAI) -** CC-ULLIO1 is a single channel low level analog input module which supports temperature measurement using TC or RTD Sensors. This module is suitable for the majority of process and control applications in thermal industries. This module does not require any external power to operate and mainly driven from the 4-20mA loop. This gets connected to Series C Analog Input (HART/NON HART) and UIO module connected to DCS.

4. Universal Marshalling Solution Dimensions

IOTA Sizing is nominal (6in = 152mm, 9in =228mm, 12in =304mm, 18in = 457mm)I/O modules are associated with their respective IOTAs in the table below. An I/O Module is supported by one or more IOTAs.

I/O Module	Description	Height	Length	Depth
CC-USCA01	Universal Signal Conditioning Assembly	198 mm	137 mm	148 mm
CC-UPTA01	Universal Pass Through Adapter	10 mm	85.5 mm	118 mm
CC-UDIR01	Digital Input Relay Adapter	10 mm	85.5 mm	118 mm
CC-UDOR01	Digital Output Relay Adapter	10 mm	85.5 mm	118 mm
CC-ULLI01	Universal Low Level Input Adapter	10 mm	85.5 mm	118 mm
CC-UAIA01	Universal Analog Input Isolator	10 mm	85.5 mm	141.5 mm
CC-UAOA01	Universal Analog Output Isolator	10 mm	85.5 mm	141.5 mm
CC-UDXA01	Universal Digital Input/Output Isolator	10 mm	85.5 mm	141.5 mm
CC-UGAI01	Universal Analog Input Barrier	10 mm	85.5 mm	141.5 mm
CC-UGAO01	Universal Analog Output Barrier	10 mm	85.5 mm	141.5 mm
CC-UGDA01	Universal Digital Input/Output Barrier	10 mm	85.5 mm	141.5 mm

5. Specifications

Specifications for Universal Marshalling Solution are shown below.

For information on environmental specifications, please refer to the Series-C Platform Specification and Technical data sheet EP03-520-xxx.

6. Universal Signal Conditioning Assembly CC-USCA01

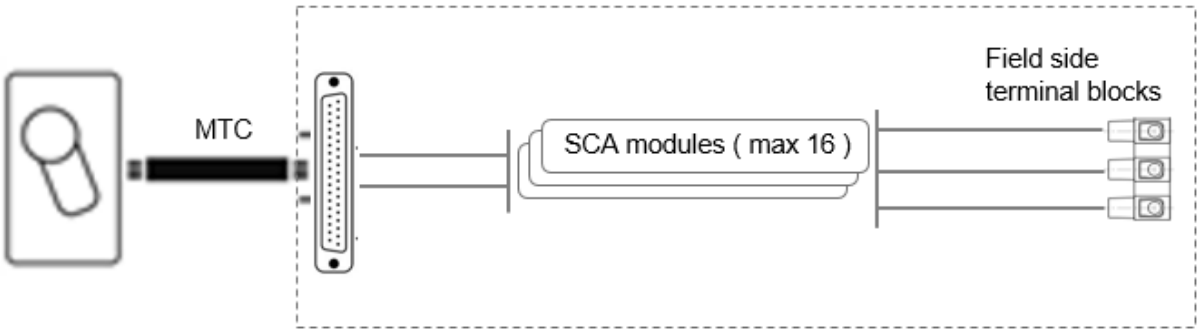
6.1. Function

CC-USCA01 is a back plane assembly which can accommodate 16 signal conditioning modules. Field side terminals of each channel is provided with integrated fuse and knife disconnect function. DCS side interface is provided through a single mass termination cable (MTC) which connects all 16 channels. CC-USCA01 is DIN rail mountable.

6.2. 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 (MTC) for 16 channel system side interface
- Screw less assembly to the base plate
- Compatibility with Honeywell IO families : Series C module & Universal IO

6.3. Connections



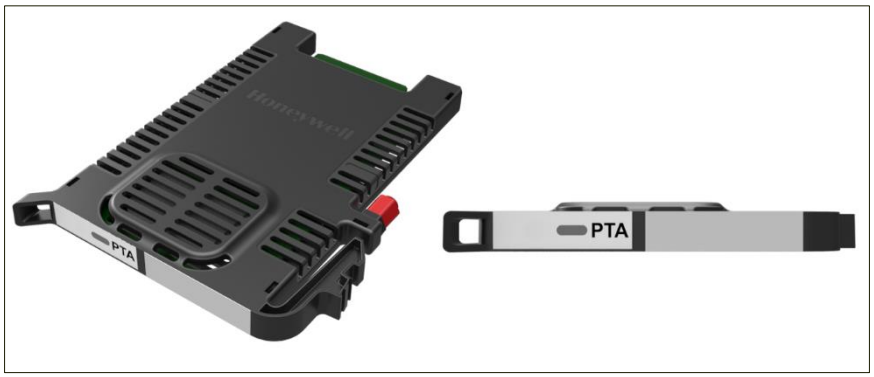
6.4. Detail Specifications – Universal Signal Conditioning Assembly

Parameter	Specifications
Physical Specification	
Dimensions	198mm (Height) , 134.5mm(Width), 149.5mm (Depth)
Assembly option	DIN rail mount using base plate
Ambient Conditions	
Ambient temperature (operation)	-40 degree C to + 70 degree C
Ambient temperature (storage/transport)	-40 degree C to + 85degree 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	1.2A
Power indication	Green LED
Interface to DCS	37 pin DSUB (For MTC 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; 60079-15
EMC directive	IEC 61326-1 2012
ATEX	Ex nA nC IIC T4 Gc
IEC Ex	Ex nA nC IIC T4 Gc
UL, USA/Canada	Class I, Div. 2, Groups A, B, C, D T4 Class I, Zone 2, IIC T4
Compliance	RoHS

7. Universal Pass Through Adapter CC-UPTA01

7.1. Function

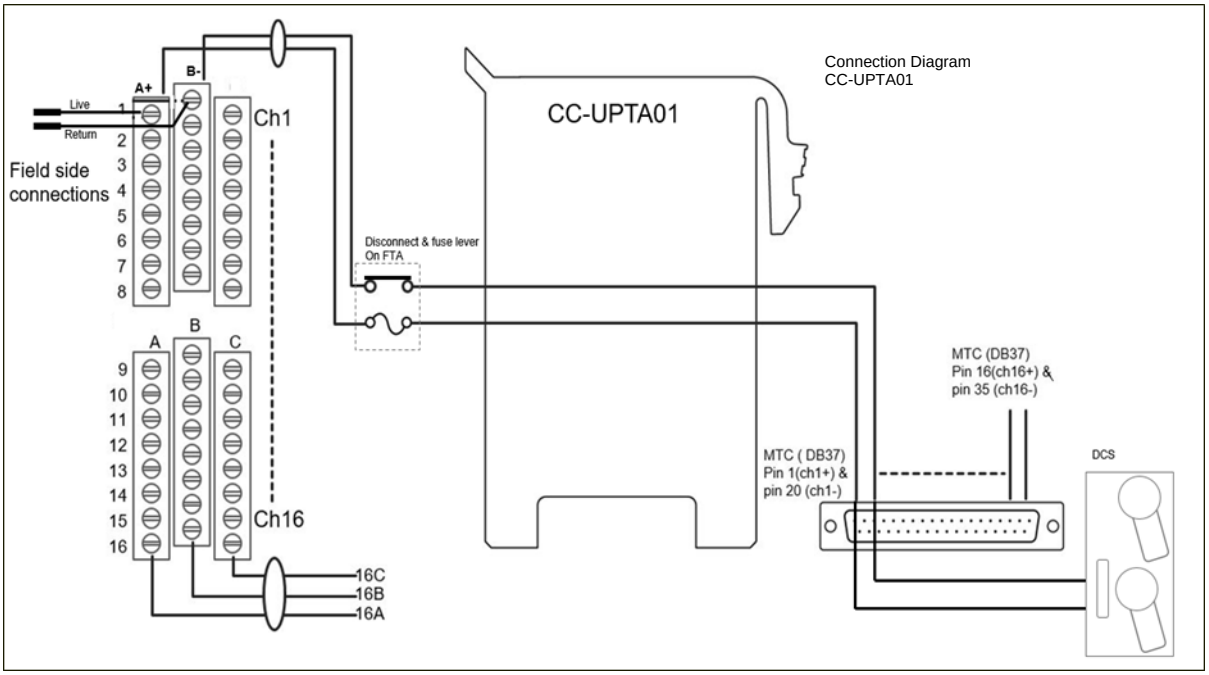
CC-UPTA01 is a single channel pass through module which allows direct connectivity between DCS field terminals (both live & return) and the field device. This module does not require external power to operate and is applicable with the CC-USCA01.



7.2. Features

- Single channel Pass Through Adapter
- 2 wire AI/AO/DI/DO
- System powered field I/O
- HART Pass Through
- Interface with conventional Series C IOMs and Universal Input Output Module

7.3. Connections

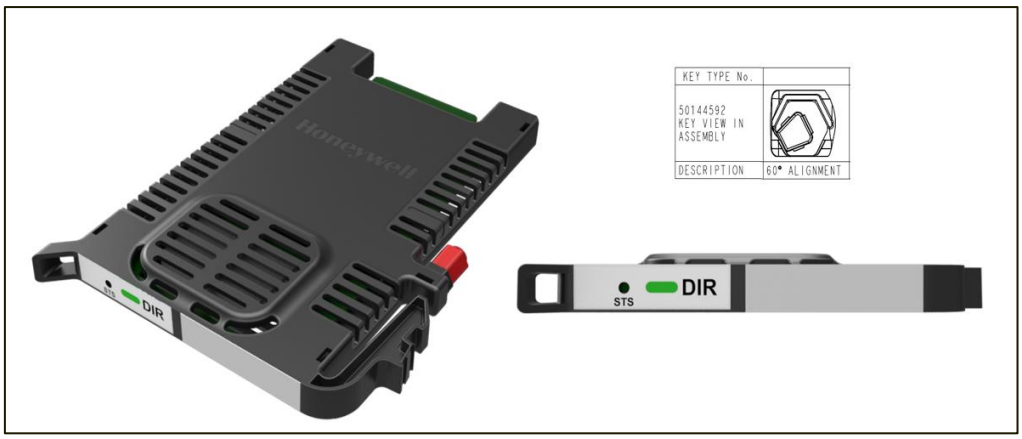


7.4. Detail Specifications – Universal Pass Through Adapter

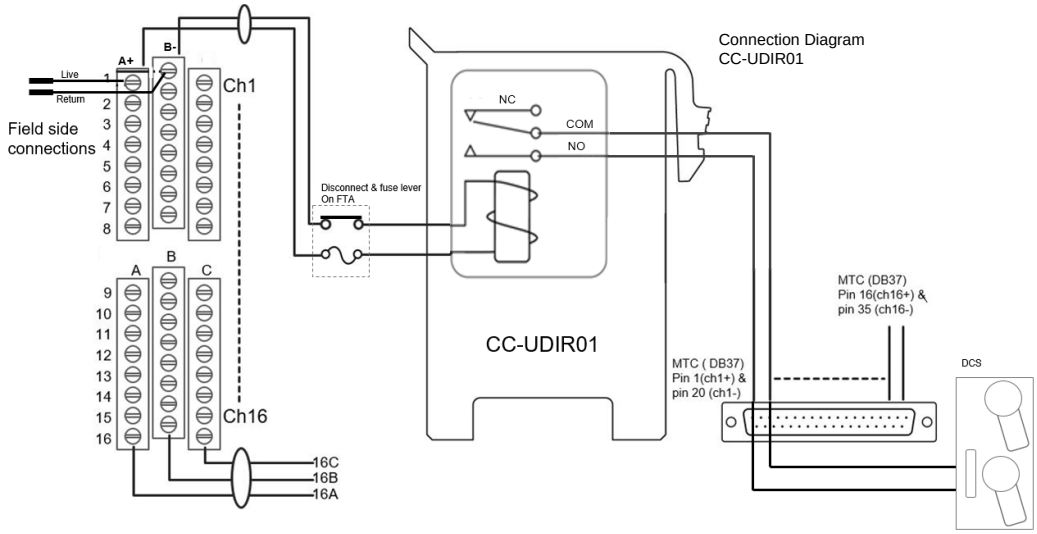
Parameter	Specifications
Physical Specification	
Dimensions	118 mm (D) x 85.5 mm (W) x 10.0mm (H)
Assembly option	Back plane mount, screw less
Indicators	None
Connections	2 signal lines from DCS to field side
Ambient Conditions	
Ambient temperature (operation)	-40 degree C to + 70 degree C
Ambient temperature (storage/transport)	-40 degree C to + 85degree 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	1.2A
Compliance	
Ingress protection	IP20 as per IEC 60529
Flammability rating	V0 as per UL 94
Conformance	ANSI/ISA 60079-0; 60079-15
EMC directive	IEC 61326-1 2012
ATEX / IECEx	Ex ec IIC T4 Gc Ex ic IIC T4 Gc
USA/Canada	Class I Division 2, Group A, B, C, D, T4 Ex ic IIC T4 Gc Class I, Zone 2 AEx ic IIC T4 Gc Class I Division 2, Group A, B, C, D, T4 Ex ec IIC T4 Gc Ex nA IIC T4 Gc Class I, Zone 2 AEx ec IIC T4 Gc Class I, Zone 2 AEx nA IIC T4 Gc
Compliance	RoHS

8. Universal Digital Input Relay Adapter CC-UDIR01

CC-UDIR01 is a single channel relay input adapter for low voltage applications. Coil side of the relay interfaces with the field device and the contact side gets connected to DCS. This module does not require external power to operate and suitable to operate with CC-USCA01.



8.1. Connections



8.2. Detailed Specifications – CC-UDIR01

Parameter	Specifications
Physical Specification	
Dimensions	118 mm (D) x 85.5 mm (W) x 10.0mm (H)
Assembly option	Backplane mount, screw less
Mistake proofing	By mechanical Keys
Indicators	Coil side activity indicator

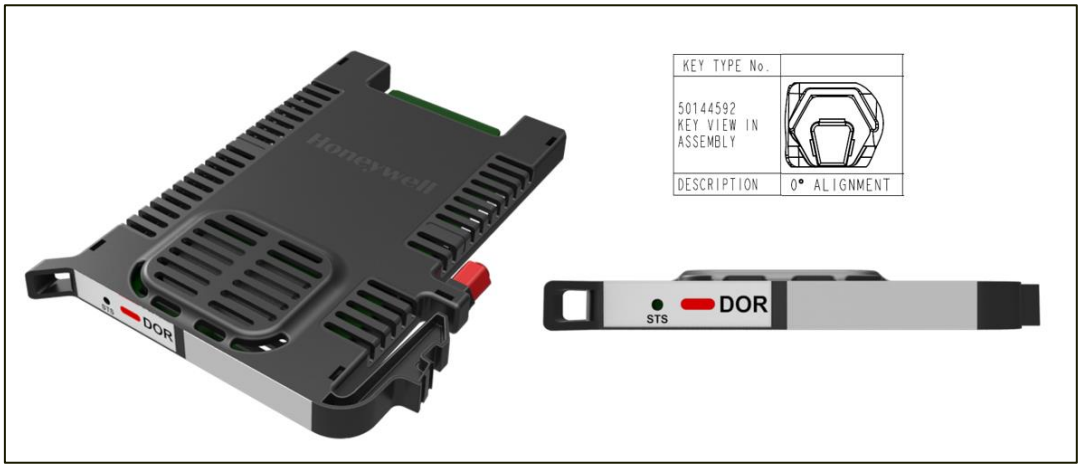
Ambient Conditions	
Ambient temperature (operation)	-40 degree C to + 70 degree C
Ambient temperature (storage/transport)	-40 degree C to + 85degree C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Vibration	Non-Operational 1g 10Hz to 150Hz, Operational 0.5g 10Hz to 150Hz
Shock	5g operational, 15g Non-Operational
Electrical Specifications	
Coil Voltage	24V DC
Typical Input Current	8.0 mA
Power dissipation	200mW
Coil Side Protection	Reverse Polarity Protection
Coil Side Indicator	Status LED - Green
Typical Response Time	7 ms
Typical Release Time	8 ms
Coil Side Power	NA
Contact Type	SPDT with dedicated screw terminals on backplane for “COM” & “NO”
Contact Material	AgSnO2, gold plated
Contact side switching voltage	24 VDC
Contact side Minimum Switching Current	10 mA
Contact Maximum continuous current	500 mA
Mechanical Endurance of Relay	5 million operations
Coil to Contact Isolation	1500 VAC RMS
Compliance	
Ingress protection	IP20 as per IEC 60529
Flammability rating	V0 as per UL 94
Conformance	ANSI/ISA 60079-0; 60079-15
EMC directive	IEC 61326-1 2012
ATEX, IEC Ex	Ex ec nC IIC T4 Gc
USA/Canada	Class I Division 2, Group A, B, C, D, T4 Ex ec nC IIC T4 Gc Ex nA nC IIC T4 Gc Class I, Zone 2 AEx ec nC IIC T4 Gc Class I, Zone 2 AEx nA nC IIC T4 Gc
Compliance	RoHS

8.3. IO Modules supported

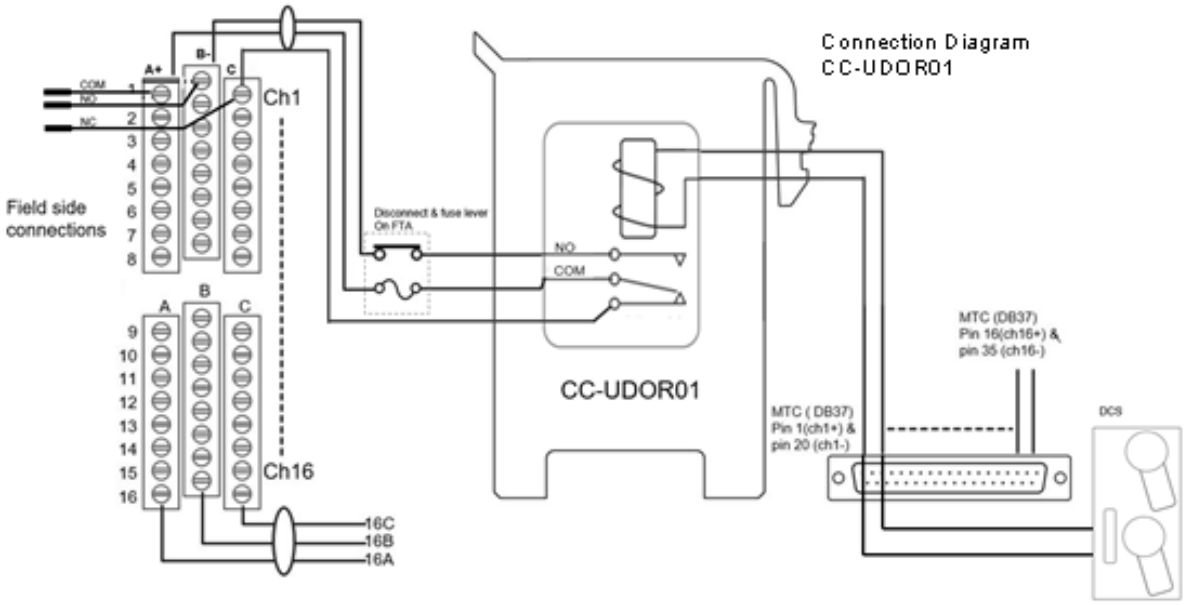
Sl. No.	IO module	IOTA	IO type	Description
1	CC-PDIL01	CC-TDIL01, CC-TDIL11	DI-24	Low Voltage Digital Input (24 volts DC)
2	CC-PDIS01	CC-TDIL01, CC-TDIL11	DI-SOE	Low Voltage Digital Input (24 volts DC)
4	CC-PDIL51	CC-TDIL51, CC-TDIL61	DI-24	Low Voltage Digital Input (24 volts DC)
5	CC-PUIO31	CC-TUIO31, CC-TUIO41	UIO-2	UIO-2

9. Universal Digital Output Relay Adapter CC-UDOR01

CC-UDOR01 is a single channel relay output module for low voltage applications. Contact side of the relay interfaces with the field device and the coil side gets connected to DCS. This module does not require external power to operate and suitable to operate with CC-USCA01.



9.1. Connections



9.2. Detailed Specifications – CC-UDOR01

Parameter	Specifications
Physical Specification	
Dimensions	118 mm (D) x 85.5 mm (W) x 10.0mm (H)
Assembly option	Back plane mount, screw less

Mistake Proofing	By mechanical Keys
Indicators	Coil side activity indicator
Ambient Conditions	
Ambient temperature (operation)	-40 degree C to + 70 degree C
Ambient temperature (storage/transport)	-40 degree C to + 85degree 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
Electrical Specifications	
Coil Voltage	24V DC
Coil Typical Input Current	8,00 mA
Power dissipation	200mW
Coil Side Protection	Reverse Polarity Protection
Coil Side Indicator	Status LED – Green
Typical Response Time	7 ms
Typical Release Time	8 ms
Coil Side Power	NA
Contact Type	SPDT with dedicated screw terminals on backplane for COM, NO & NC
Contact Material	AgSnO2, gold plated
Contact side switching voltage	24 VDC
Contact side minimum Current	10mA
Contact Continuous Current	1 A
Contact Inrush current	2 A
Contact Side Load Types	Inductive, Resistive
Mechanical Endurance of Relay	5 million operations
Coil to Contact Isolation	1500 VAC RMS
Compliance	
Ingress protection	IP20 as per IEC 60529
Flammability rating	V0 as per UL 94
Conformance	ANSI/ISA 60079-0; 60079-15
EMC directive	IEC 61326-1 2012
ATEX, IEC Ex	Ex ec nC IIC T4 Gc
UL, USA/Canada	Class I Division 2, Group A, B, C, D, T4 Ex ec nC IIC T4 Gc Ex nA nC IIC T4 Gc Class I, Zone 2 AEx ec nC IIC T4 Gc Class I, Zone 2 AEx nA nC IIC T4 Gc

Compliance	RoHS

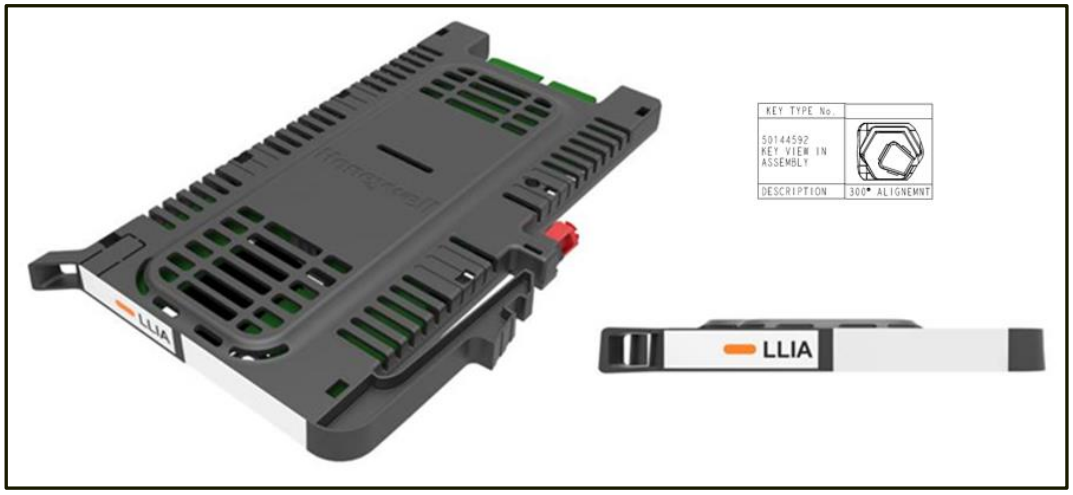
9.3. IO modules supported

Sl. No.	IO module	IOTA	IO type	Description
1	CC-PDOB01	CC-TDOB01, CC-TDOB11	DO-24B	Bussed Low Voltage Digital Output (24 volts DC)
2	CC-PUIO31	CC-TUIO31, CC-TUIO41	UIO-2	UIO-2

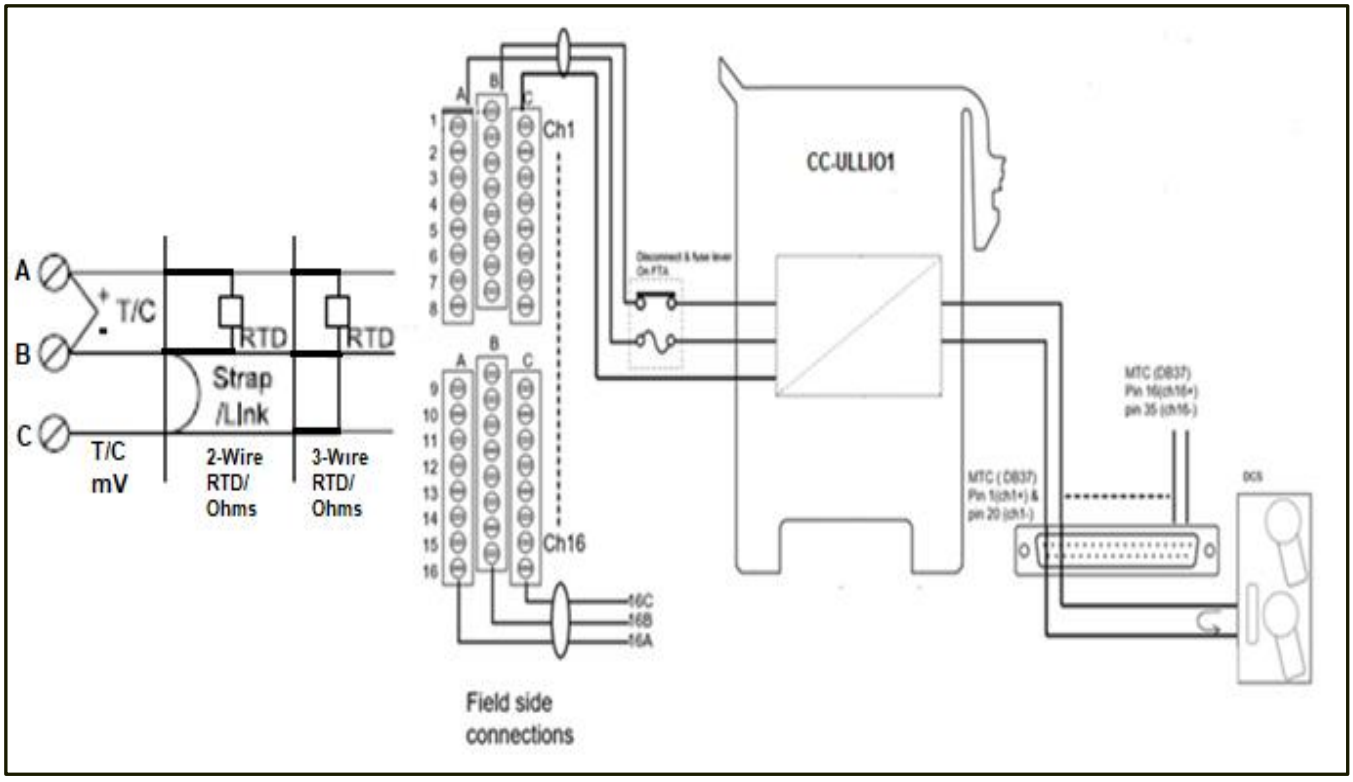
10. Low Level Input Adapter CC-ULLI01

CC-ULLI01 is a single channel low level analog input module which supports universal input measurement mainly, Thermocouple, Millivolts ,RTD and OHMS and provides 4-20mA output proportional to the measured variable.

The adapter module supports 3 input terminals that can be configured either as 2Wire/ 3Wire RTD /Ohms Or TC/ mV inputs . CC-ULLI01 offers a galvanic isolation between Field side and Control side and suitable for use with CC-USCA01. The adapter has in built cold junction compensation for Thermocouple measurements and provides comprehensive diagnostics for TC/RTD sensors. The measurement and configuration of the adapter is supported from Experion .



10.1. Connections



10.2. Detail Specifications – Low Level Input Adapter

Parameter	Specification
Input / Output Model	CC-ULLI01 - Universal Low Level Input Module
Number of channels	1

Parameter	Specifications
Physical Specification	
Dimensions	141.5mm (L) x 85.5mm (W) x10mm (H).
Assembly option	Back-plane mount, screw less
Mistake Proof	By mechanical Keys
Power Supply	
Powering mode	Loop Powered
Power Consumption	400 mW
Power dissipation	400 mW
Electrical Isolation	
Galvanic isolation between DCS to Field	1500 VDC
DCS Side Interface	
DCS side connections	37 pin DSUB connector on CC-USCA01
Interface to DCS	4 to 20mA, CC-ULL01 in sink mode.
Field Side Interface	
Field Terminals	Through 3 tier terminal blocks on CC-USCA01
Sensor Inputs Supported	TC, Millivolts, Ohms ,RTD (2Wire, 3Wire)
Sensor Types – Thermocouple	B, C ,E, J, K, N , R, S, T, L (ITS -90)
Sensor Types – RTD	Pt100, Pt200 (α = 0.00385) --- Per IEC751 Ni 120 (α = 0.00672) --- Edison Curve #7 Pt 50 ,Pt100 (α = 0.00391) --- GOST 6651-94 Cu50, Cu100 (α = 0.00496) --- GOST 6651-94 Cu50, Cu100 (α = 0.00428) --- GOST 6651-94
Millivolts Ranges	-7 to 22 mV , -20 to 125 mV
Ohms Range	0 to 500 Ohms , 0 to 2K Ohms
Lead Wire Resistance	RTD: 25 Ohms / line

Performance Specifications	
Reference Accuracy @ 25 **° C**	**RTD :** ± 0.65 **° C** **Thermocouple :** ± 0.1 % to 0.15% Of Full Span (**° C)**
Cold Junction Accuracy	± 1.0 °C
Ambient Temperature Effect	**Output D/A:** 0.0045 % of span/°C **TC :** 0.02°C /°C + 0.0045% of span/°C **RTD :** (Pt100,Ni120,Pt50,Cu50,Cu100) and 500 Ohms : 0.015°C /°C + 0.0045% of span/°C (Pt200) and 500 Ohms : 0.030°C /°C + 0.045% of span/°C **Span :** Span of full scale range of RTD and TC.
Output Failure Modes	**Normal Limits:** 3.8 – 20.8 mA **Failure Mode:** ≤ 3.6 mA and ≥ 21.5 mA
Sensor Diagnostics	Sensor Input Open (RTD / Ohms , TC / mV) Sensor Input Short (RTD only)
Configuration	
Sensor Configuration / Diagnostics	From Experion System
Default Factory Configuration	K – Type TC
Measurement Units Supported	Deg C (default) , Deg F, Kelvin , Percentage
Ambient Conditions	
Ambient temperature (operation)	-40^0 C to + 70^0 C
Ambient temperature (storage/transport)	-40^0 C to + 85^0 C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Mechanical	
Vibration	Non-Operational 1g 10Hz to 150Hz Operational 0.5g 10Hz to 150Hz
Shock	15g Non-Operational, 5g operational.
Compliance	
Ingress protection	IP20 as per IEC 60529
Flammability rating	V0 as per UL 94
Conformance	ANSI/ISA 60079-0; 60079-15, 60079-7
EMC directive	IEC 61326-1 2012
IEC Ex / ATEX Marking	II 3G Ex ec IIC T4 Gc Ex ec IIC T4 Gc
NA Marking	Cl.I, Div.2 Gr A-D, T4 Cl.I, Zn2, AEx/Ex nA IIC T4 Gc Cl.I, Zn2, AEx/Ex ec IIC T4 Gc
Compliance	ROHS

10.3. Input Types and Ranges

Input Type	Maximum Range Limits		Standards
RTD (2 , 3 wire)	**° C**	**° F**	
Pt100 (α =0.00385)	-200 to 850	-328 to 1562	IEC751:1990
Pt200 (α =0.00385)	-200 to 850	-328 to 1562	IEC751:1990
Ni 120[5] (α=0.00672)	-80 to 260	-112 to 500	Edison Curve #7
Pt50[5] (α =0.00391)	-200 to 600	-328 to 1112	GOST 6651-94
Pt100[5] (α =0.00391)	-200 to 600	-328 to 1112	GOST 6651-94
Cu 50[5] (α=0.00426)	-50 to 200	-58 to 392	GOST 6651-94
Cu 100[5] (α=0.00426)	-50 to 200	-58 to 392	GOST 6651-94
Cu 50[5] (α=0.00428)	-200 to 200	-328 to 392	GOST 6651-94
Cu 100[5] (α=0.00428)	-200 to 200	-328 to 392	GOST 6651-94
Thermocouples	**° C**	**° F**	
B	200 to 1820	392 to 3308	ANSI / ASTM E-230 (ITS-90)
C	0 to 2300	32 to 4172	ANSI / ASTM E-230 (ITS-90)
E	-200 to 1000	-328 to 1832	ANSI / ASTM E-230 (ITS-90)
J	-200 to 1200	-200 to 2192	ANSI / ASTM E-230 (ITS-90)
K	-200 to 1370	-328 to 2498	ANSI / ASTM E-230 (ITS-90)
N	-200 to 1300	-328 to 2372	ANSI / ASTM E-230 (ITS-90)
R	-50 to 1760	-58 to 3200	ANSI / ASTM E-230 (ITS-90)
S	-50 to 1760	-58 to 3200	ANSI / ASTM E-230 (ITS-90)
T	-250 to 400	-418 to 752	ANSI / ASTM E-230 (ITS-90)
L	-200 to 800	-328 to 1472	GOST R 8.585-2001

Other Input Types	Maximum Range Limits	Reference Accuracy (+/-)
Millivolts (Range 1)	-7 to 22 mV	0.017 mV
Millivolts (Range 2)	-20 to 125 mV	0.051 mV
Ohms (Range 1)	0 to 500 Ohms	0.47 Ohms
Ohms (Range 2)	0 to 2000 Ohms	0.71 Ohms

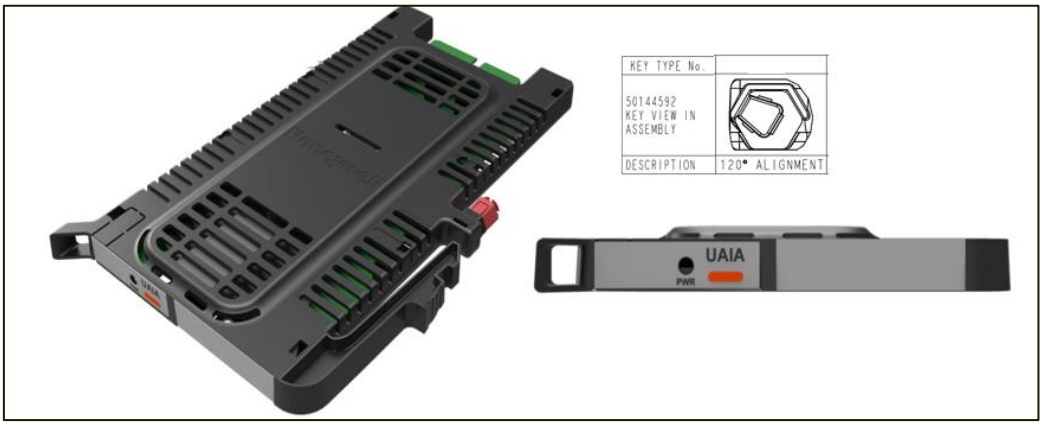
Compliance	
Ingress protection	IP20 as per IEC 60529
Flammability rating	V0 as per UL 94
Conformance	ANSI/ISA 60079-0; 60079-15
EMC directive	IEC 61326-1 2012
ATEX	Ex nA nC IIC T4 Gc
IEC Ex	Ex nA nC IIC T4 Gc
UL, USA/Canada	Class I, Div. 2, Groups A, B, C, D T4 Class I, Zone 2, IIC T4
Compliance	RoHS

10.4. IO module support

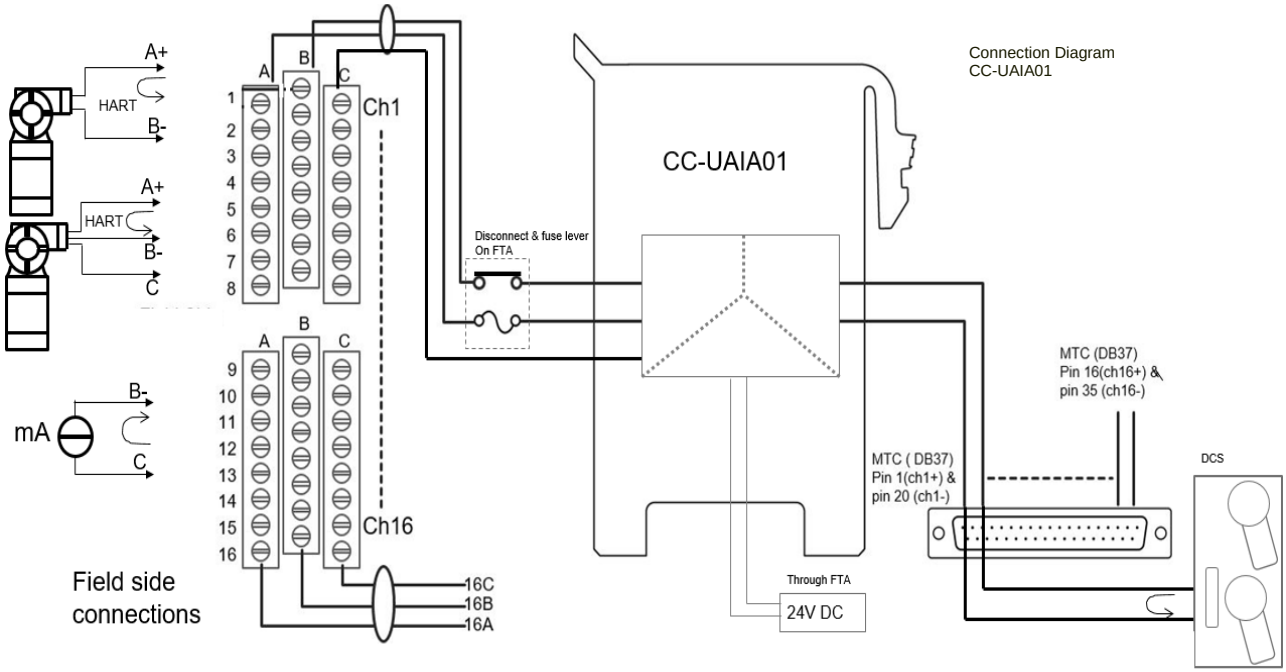
Sl. No	IO module	IOTA	IO type	Description
1	CC-PUIO31	CC-TUIO31, CC-TUIO41	UIO-2	Universal IO Module 2

11. Universal Analog Input Isolator CC-UAIA01

CC-UAIA01 is a single channel Galvanically Isolated Analog Input module which is suitable for use with CC-USCA01. This module supports 4-20mA and HART. CC-UAIA01 offers 3 way isolation, fault transparency for field side open wire conditions and reverse polarity protection.



11.1. Connections



11.2. Detailed Specifications - UAIA01

Parameter	Specification
Input / Output Model	CC-UAIA01 - Analog Input Isolator Module
Number of channels	1

Parameter	Specifications
Physical Specification	
Dimensions	141.5mm (L) x 85.5mm (W) x10mm (H).
Assembly option	Back-plane mount, screw less
Mistake Proofing	By mechanical Keys
Power Supply	
Power supply	24V DC
Rated Current	55mA at 24V
Power Consumption	1.32W
Power dissipation	1W. At 24V DC with 20mA Loop curent
Power Indication	Green LED
Electrical Isolation	
Power/DCS to Field	1500 VAC
DCS side interface	
DCS side connections	37 pin DSUB connector on CC-USCA01
Voltage Input	24V DC
Interface to DCS	4 to 20mA with HART, CC-UAIA01 in sink mode.
Current in open wire condition	<150uA
Field side interface	
Field Terminals	Through 3 tier terminal blocks on CC-USCA01
Transfer accuracy at 20^0C	≤ +/- 20uA
Short circuit current	23.5mA
Available voltage at max load	16V at 20mA
Field interface	A(+), B(-) : CC-UAIA01 in 2 wire current source mode Supports 4-20mA with HART A(+), B(-), C : CC-UAIA01 in 3 wire current source mode Supports 4-20mA with HART B(-), C : CC-UAIA01 in 2 wire / 4 wire current sink mode Supports 4-20mA
Influence of ambient temperature	Influence of ambient temperature reference to $+20^0$C -30^0C to $+70\ ^0$C : < 2uA / ^{0}C -40^0C to $-30\ ^0$C : < 6uA / ^{0}C
Ambient Conditions	
Ambient temperature (operation)	-40^0 C to + 70^0 C
Ambient temperature (storage/transport)	-40^0 C to + 85^0 C
Permissible humidity (operation)	5 % .-. 95 % (non-condensing)
Mechanical	
Vibration	Non-Operational 1g 10Hz to 150Hz

	Operational 0.5g 10Hz to 150Hz
Shock	15g Non-Operational, 5g operational.
Compliance	
Ingress protection	IP20 as per IEC 60529
Flammability rating	V0 as per UL 94
Conformance	ANSI/ISA 60079-0; 60079-15, 60079-7
EMC directive	2014/30/EU (IEC 61326-1 2012)
ATEX	Ex eC IIC T4 Gc
IEC Ex	Ex eC IIC T4 Gc
USA/Canada	Class I Division 2, Group A, B, C, D, T4 Ex ec nC IIC T4 Gc Ex nA nC IIC T4 Gc Class I, Zone 2 AEx ec nC IIC T4 Gc Class I, Zone 2 AEx nA nC IIC T4 Gc
Compliance	RoHS

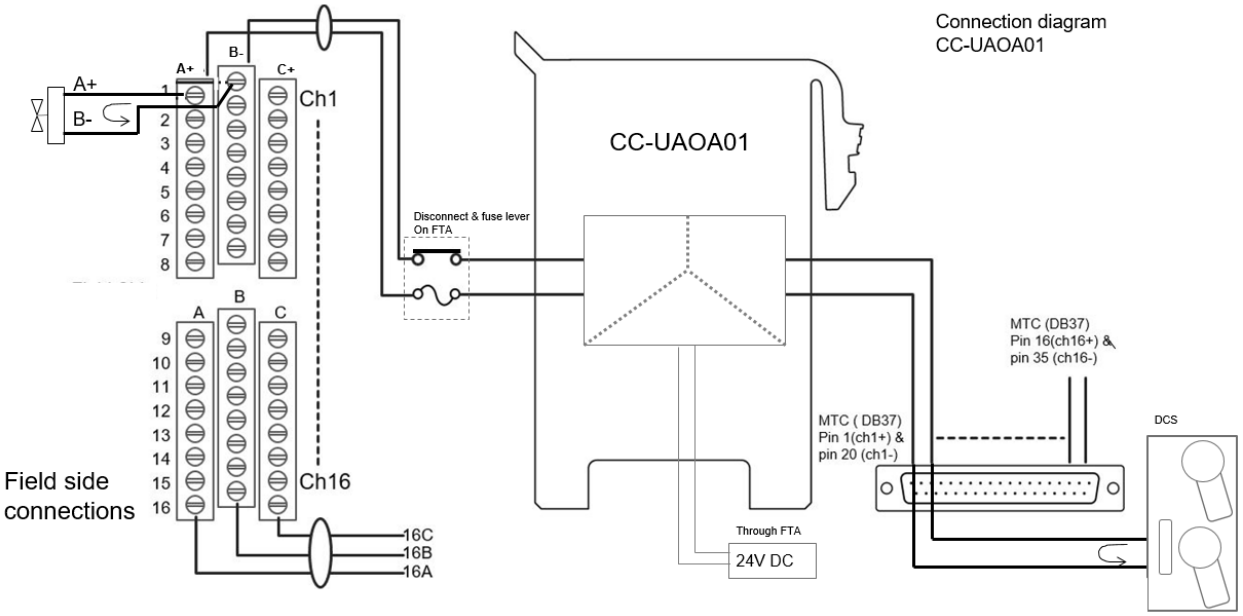
11.3. IO modules supported

Sl. No.	IO module	IOTA	IO type	Description
1	CC-PAIH01	CC-TAIX01, CC-TAIX11 DC-TAIX01, DC-TAIX11	AI-HART	High Level Analog Input with HART
2	CC-PAIH02	CC-TAIX01, CC-TAIX11	AI-HART	High Level Analog Input with HART
3	CC-PAIX02	CC-TAIX01, CC-TAIX11	AI-HL	High Level Analog Input with Differential/Single-ended non-HART
4	CC-PAIX01	CC-TAIX01, CC-TAIX11	AI-hl	High Level Analog Input with Differential non-HART
5	CC-PAIN01	CC-TAIN01,CC-TAIN11 DC-TAIX51, DC-TAIX61	AI-hl	High Level Analog Input with non-HART 1 Modem, High Level Analog Input with HART
6	CC-PUIO31	CC-TUIO31,CC-TUIO41, DC-TUIO31,DC-TUIO41	UIO-2	UIO-2
7	CC-PAIH51	CC-TAIX51,CC-TAIX61 DC-TAIX51, DC-TAIX61	AIH	High Level Analog Input with HART

12. Universal Analog Output Isolator CC-UAOA01

CC-UAOA01 is a single channel Galvanically Isolated Analog Output module which is suitable for use with CC-USCA01. This module supports 4-20mA and HART. CC-UAOA01 offers 3 way isolation, fault transparency for field side open wire conditions and reverse polarity protection.

12.1. Connections



12.2. Detailed Specifications – CC-UAOA01

Parameter	Specification
Input / Output Model	CC-UAOA01 - Analog Output Isolator Module
Number of channels	1

Parameter	Specifications
Physical Specification	
Dimensions	141.5mm (L) x 85.5mm (W) x10mm (H).
Assembly option	Back-plane mount, screw less
Mistake Proofing	By mechanical Keys
Power Supply	
Power supply	24V DC
Rated Current	55mA at 24V
Power Consumption	1.32W at 20mA
Power dissipation	1.22W at 24V DC with 20mA loop current & 250 ohm load
Power Indication	Green LED
Electrical Isolation	
Power/DCS to Field	1500 VAC
DCS side interface	
Control side connections	Through DB37 connector on CC-USCA01
Voltage Input	24V DC
Interface to DCS	4 to 20mA with HART, CC-UAOA01 in sink mode.
Field side interface	
Field Terminals	Through 3 tier terminal blocks on CC-USCA01
Transfer accuracy at 20^0C	≤ +/- 20uA
Max load	650 ohms
Field interface	A(+), B(-) : 4-20mA with HART
Influence of ambient temperature	Influence of ambient temperature reference to $+20^0$C -30^0C to $+70\ ^0$C : < 2uA / ^{0}C -40^0C to $-30\ ^0$C : < 6uA / ^{0}C
Open wire	Fault transparency for open wire
Ambient Conditions	
Ambient temperature (operation)	-40 degree C to + 70 degree C
Ambient temperature (storage/transport)	-40 degree C to + 85degree C
Permissible humidity (operation)	5 % .-. 95 % (non-condensing)
Mechanical	
Vibration	Non-Operational 1g 10Hz to 150Hz, Operational 0.5g 10Hz to 150Hz.
Shock	15g Non-Operational, 5g operational.
Compliance	
Ingress protection	IP20 as per IEC 60529

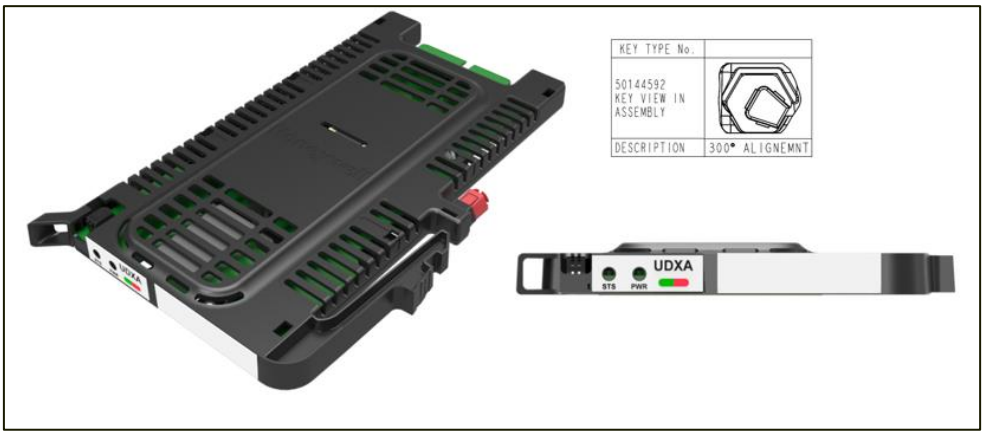
Flammability rating	V0 as per UL 94
Conformance	ANSI/ISA 60079-0; 60079-15, 60079-11
EMC directive	2014/30/EU (IEC 61326-1 2012)
ATEX	Ex eC IIC T4 Gc
IEC Ex	Ex eC IIC T4 Gc
USA/Canada	Class I Division 2, Group A, B, C, D, T4 Ex ec IIC T4 Gc Ex nA IIC T4 Gc Class I, Zone 2 AEx ec IIC T4 Gc Class I, Zone 2 AEx nA IIC T4 Gc
Compliance	RoHS

12.3. IO modules supported

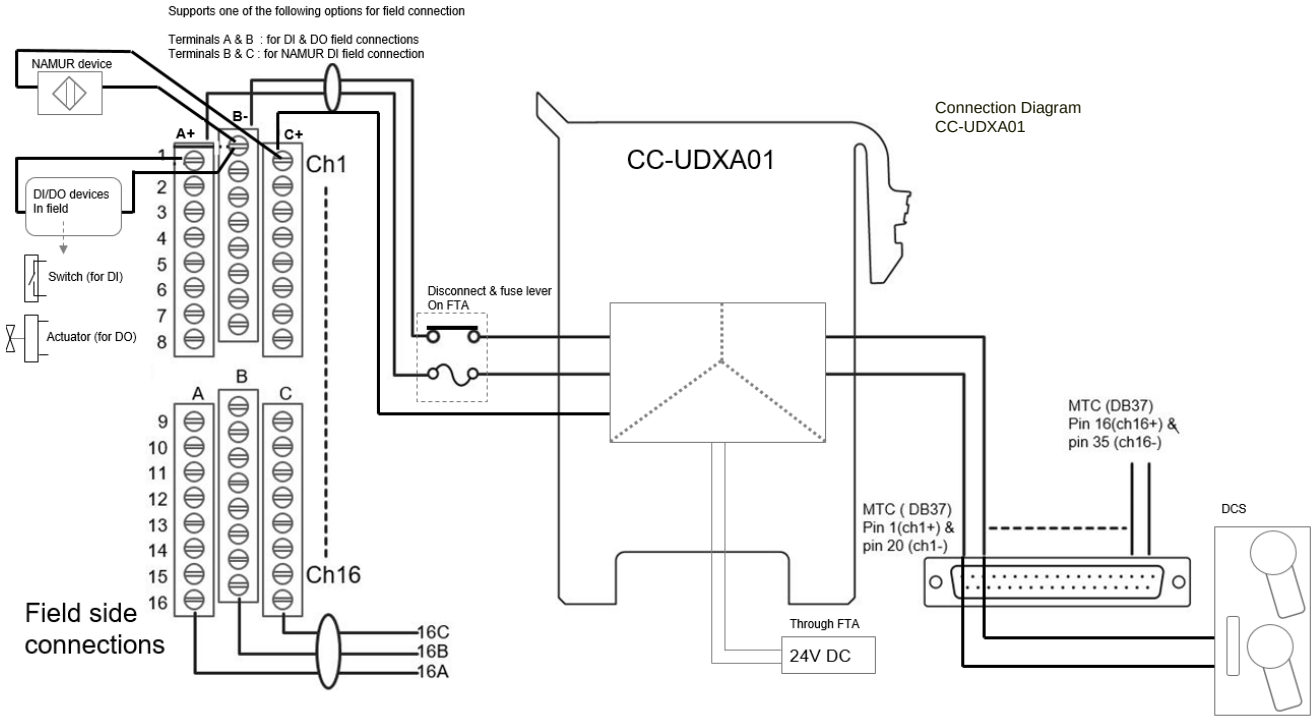
Sl. No.	IO module	IOTA	IO type	Description
1	CC-PAON01	CC-TAON01,CC-TAON11 DC-TAOX51, DC-TAOX61	AO	Analog Output with non-HART
2	CC-PAOX01	CC-TAOX01, CC-TAOX11	AO	Analog Output with non-HART
3	CC-PAOH01	CC-TAOX01,CC-TAOX11 DC-TAOX01, DC-TAOX11	AO-HART	Analog Output with HART
3	CC-PAOH51	DC-TAOX51, DC-TAOX61	AO-HART	Analog Output with HART
4	CC-PUIO31	CC-TUIO31, CC-TUIO41 DC-TUIO31, DC-TUIO41	UIO-2	UIO-2

13. Universal Digital Input/output Isolator - CC-UDXA01

CC-UDXA01 is a single channel Digital Input Output galvanic Isolator module which is suitable to use with CC-USCA0. CC-UDXA01 modules are self- configuring and work seamlessly with both Digital Input and Digital Output devices. No additional configuration is required to switch between Digital Inputs and Digital Outputs. CC-UDXA01 also supports NAMUR Digital Inputs. CC-UDXA01 offers 3-way isolation, fault transparency for field side open wire conditions reverse polarity protection and is provided with field status and power indication LEDs.



13.1. Connections



13.2. Detailed Specifications - CC-UDXA01

Parameter	Specification
Input / Output Model	CC-UDXA01 - Digital Input/Output Isolator Module
Number of channels	1 (Digital Input/output)

Physical Specification	
Dimensions	141.5mm (L) x 85.5mm (W) x10mm (H).
Assembly option	Back-plane mount, screw less
Mistake Proofing	By mechanical Keys
Power Supply	
Terminals	
Supply	24V DC
Rated Current	<= 22mA @ 7.5mA Load (DI) <= 67mA @ 40mA Load (DO)
Power Consumption	525mW @ 7.5mA Load (DI) 1.608W @ 40mA Load (DO)
Power Dissipation	1.1W at 24V supply, 300Ω output load
Power Indication	Green LED
Electrical Isolation	
Power/DCS to Field	1500 VAC
Digital Input mode	
Field interface	
Field Terminals	Through 3 tier terminal blocks on CC-USCA01 A(+), B(-) for DI dry contacts C(+), B(-) for DI NAMUR Sensor
Input Type	DI NAMUR Sensor (IEC/EN 60947-5-6), Dry Contacts
DI NAMUR Open Source Voltage	10V, 1KΩ Series Resistance
Current Output (Low Current Mode)	<= 8mA, Source Mode
Current for Guaranteed ON Condition	> 2.1mA
Current for Guaranteed OFF Condition	< 1.2mA
Status Indication LED	GREEN: DI ON RED : DI OFF OFF : Open Wire
DCS side interface	
DCS side connections	37 pin DSUB connector on CC-USCA01
Voltage Input	24V DC
Current Input	Sink Mode ON >2.1mA … <7mA OFF < 1.2mA Open Wire < 100uA
Settling Time	< 1ms
Digital Outputs mode	
Field interface	
Field Terminals	Through 3 tier terminal blocks on CC-UGIA01 A+(+), B-(-) for DO

Output Type	Solenoid Valves, Relays Coils, Alarms
DO Open Source Voltage	~21.5V
Current Output (High Current Mode)	12V/40mA at 300Ω load
Current Output Limit (High Current Mode)	48mA max
Current Output Limit (Low Current Mode)	8mA max
DCS side interface	
DO On/OFF Voltage Thresholds	ON → 18 … 30V OFF → 0 ... 5V
DO On/OFF Current	Sink Mode ON >2.1mA … <7mA OFF : 1mA Open Wire < 100uA
Response Time	< 1ms
Ambient Conditions	
Ambient temperature (operation)	-40^0 C to + 70^0 C
Ambient temperature (storage/transport)	-40^0 C to + 85^0 C
Permissible humidity (operation)	5 % .-. 95 % (non-condensing)
Mechanical	
Vibration	Non-Operational 1g 10Hz to 150Hz, Operational 0.5g 10Hz to 150Hz.
Shock	15g Non-Operational, 5g operational.
Compliance	
Ingress protection	IP20 as per IEC 60529
Flammability rating	V0 as per UL 94
HAZLOC Conformance	EN/IEC/ANSI/ISA 60079-0; 60079-7, 60079-15
EMC directive	2014/30/EU (IEC 61326-1 2012)
ATEX	Ex eC nA IIC T4 Gc
IEC Ex	Ex eC nA IIC T4 Gc
USA/Canada	Class I Division 2, Group A, B, C, D, T4 Ex ec IIC T4 Gc Ex nA IIC T4 Gc Class I, Zone 2 AEx ec IIC T4 Gc Class I, Zone 2 AEx nA IIC T4 Gc
Compliance	RoHS

13.3. Additional Configuration

CC-UDXA01 additionally supports configurations with a use of a DIP switch* located in the front panel of the module.

Switch	Position	Configuration	Specification
1	Up	Field Current Output	Low Current Mode
	Down		High Current Mode

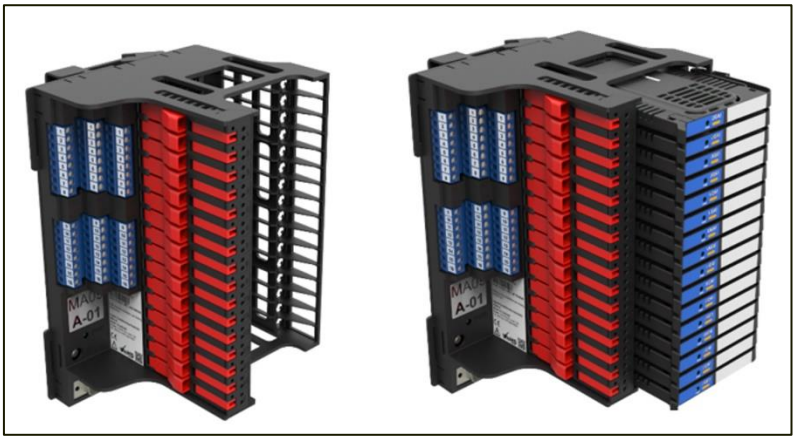
* This is a dual pole switch, second pole is reserved for future

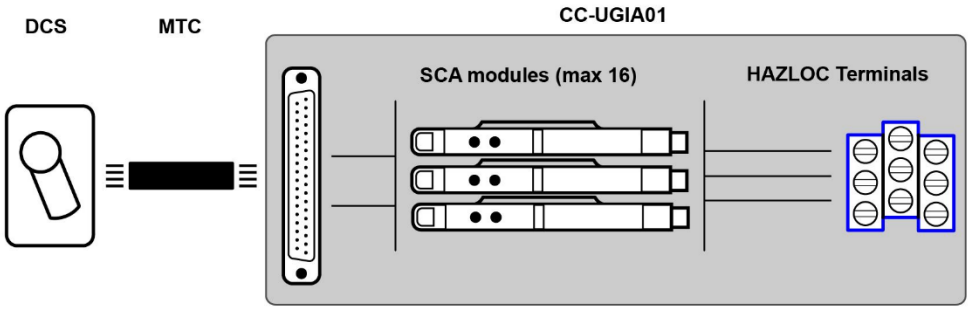
13.4. Supported IO modules

Sl. No.	IO module	IOTA	IO type	Description
1	CC-PDIL01	CC-TDIL01, CC-TDIL11 DC-TDIL01, DC-TDIL11	DI-24	Low Voltage Digital Input (24 volts DC)
2	CC-PDIS01	CC-TDIL01,CC-TDIL11	DI-SOE	Low Voltage Digital Input (24 volts DC)
3	CC-PDOB01	CC-TDOB01,CC-TDOB11 DC-TDOB01,DC-TDOB11	DO-24B	Bussed Low Voltage Digital Output (24 volts DC)
4	CC-PDIL51	CC-TDIL51, CC-TDIL61 DC-TDIL51, DC-TDIL61	DI-24	Low Voltage Digital Input (24 volts DC)
5	CC-PDIS51	DC-TDIL51, DC-TDIL61	DI-SOE	Low Voltage Digital Input SOE (24 volts DC)
6	CC-PUIO31	CC-TUIO31,CC-TUIO41 DC-TUIO31,DC-TUIO41	UIO-2	UIO-2

14. Universal Signal Conditioning Assembly CC-UGIA01

Universal Signal conditioning assembly (IS version) is a DIN rail mounted integrated back plane which can host 16 compatible signal conditioning modules to provide suitable intrinsically safe field connection for the respective channels. UGIA integrates with DCS through a single mass termination cable (MTC) at safe area and provides 3 dedicated screw terminals for each of the channels for HAZLOC side cabling. UGIA is equipped with built in fuse and disconnect for the field side interface.





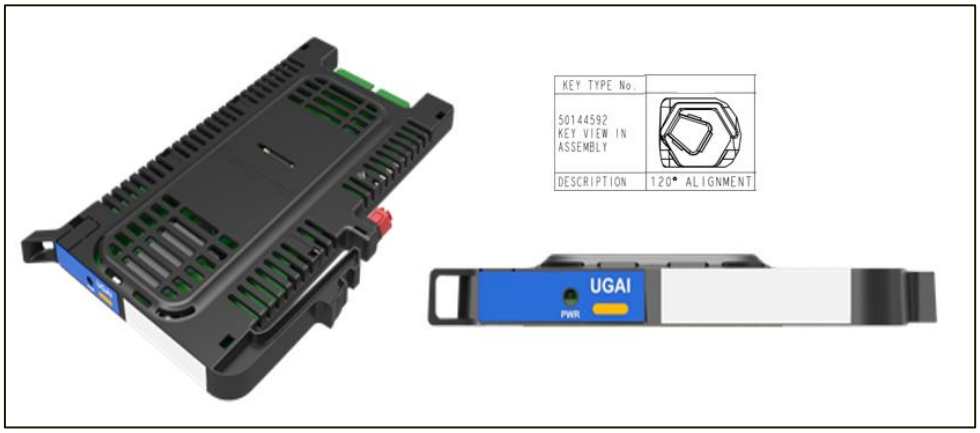
14.1. Detailed Specifications - CC-USCA01

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)	-40^0 C to $+70^0$ C
Ambient temperature (storage/transport)	-40^0 C to $+85^0$ 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.

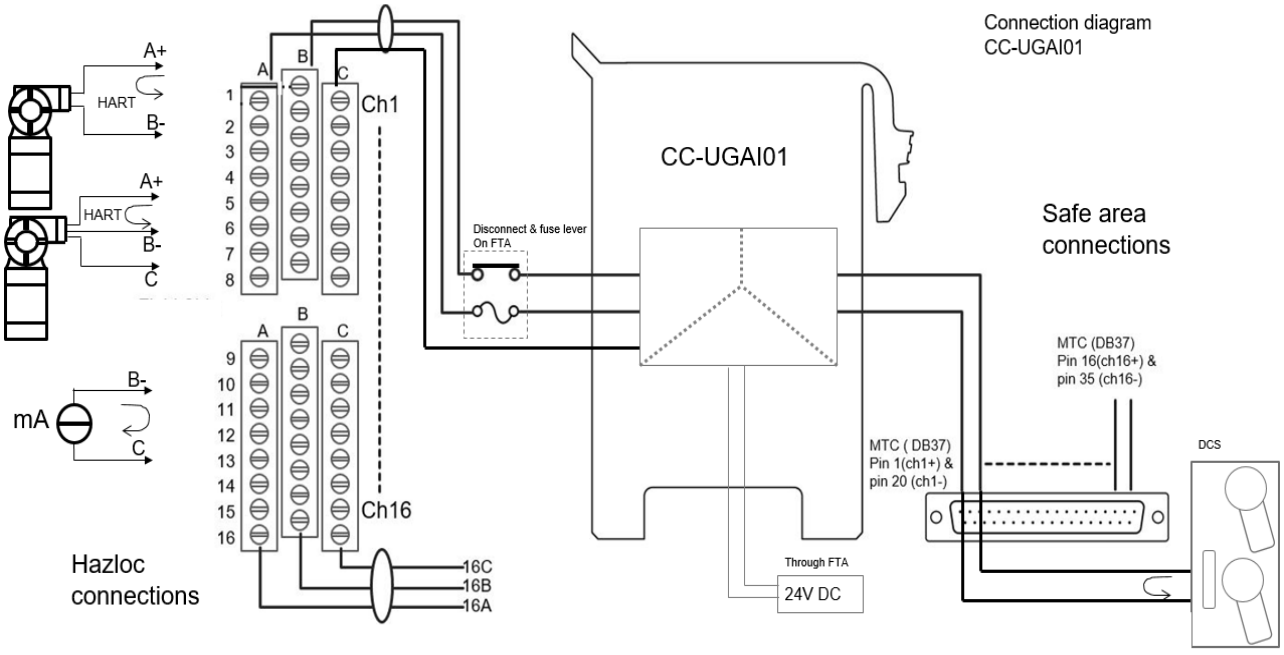
Enclosure and Mounting	
CC-UGIA01 components	a. Base plate b. Housing
CC-UGIA01 assembly	a. Mount base plate on DIN rail b. Snap housing to the baseplate
Electrical Specifications	
Power	24V DC
Max current	1.3A
Power indication	Green LED
Interface to DCS	MTC
Field side interface	Dedicated 3 terminals per channel
Field side wire gauge	12-24 AWG
Compliance	
Flammability rating	V0 as per UL 94
Protection level	IP20 (When modules are mounted)
HAZLOC Conformance	ANSI/ISA 60079-0; 60079-11, 60079-15, 60079-7
EMC directive	2014/30/EU (IEC 61326-1 2012)
ATEX	Ex nA nC IIC T4 Gc Ex nA [ia] IIC T4 Gc(when used with barrier modules)
IEC Ex	Ex nA nC IIC T4 Gc Ex nA [ia] IIC T4 Gc (when used with barrier modules)
USA/Canada	Cl. 1, Div. 2 Grp. ABCD; T4 Cl.1,Zn2, AEx\Ex nA nC IIC T4 Gc Cl.1,Zn2, AEx\Ex ec nC IIC T4 Gc
Compliance	RoHS

15. Universal Analog Input Barrier CC-UGAI01

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



15.1. Connections



15.2. Detailed Specifications - CC-UGAI01

Parameter	Specification
Input / Output Model	CC-UGAI01 - Analog Input Barrier Module
Number of channels	1

Parameter	Specification
Physical Specification	
	141.5mm (L) x 85.5mm (W) x10mm (H).
Assembly option	Back-plane mount, screw less
Mistake Proofing	By mechanical Keys
Power Supply	
Power supply	24V DC
Rated Current	55mA at 24V
Power Consumption	1.32W
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, CC-UGAI01 in sink mode.
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(-) : CC-UGAI01 in 2 wire current source mode Supports 4-20mA with HART A(+), B(-), C : CC-UGAI01 in 3 wire current source mode Supports 4-20mA with HART B(-), C : CC-UGAI01 in 2 wire / 4 wire current sink mode Supports 4-20mA
Influence of ambient temperature	Influence of ambient temperature reference to +200C -300C to +70 0C : < 2uA / 0C -400C to -30 0C : < 6uA / 0C
Ambient Conditions	
Ambient temperature (operation)	-40 degree C to + 70 degree C
Ambient temperature (storage/transport)	-40 degree C to + 85degree C
Permissible humidity (operation)	5 % .-. 95 % (non-condensing)
Mechanical	
Vibration	Non-Operational 1g 10Hz to 150Hz, Operational 0.5g 10Hz to 150Hz.

Shock	15g Non-Operational, 5g operational.
Compliance	
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)
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

15.3. IO modules supported

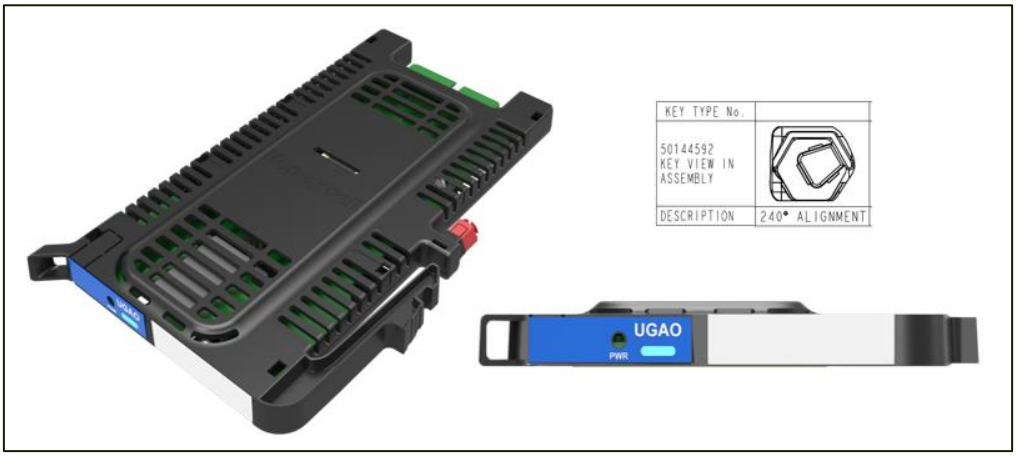
Sl. No.	IO module	IOTA	IO type	Description
1	CC-PAIH01	CC-TAIX01, CC-TAIX11 DC-TAIX01, DC-TAIX11	AI-HART	High Level Analog Input with HART
2	CC-PAIH02	CC-TAIX01, CC-TAIX11	AI-HART	High Level Analog Input with HART
3	CC-PAIX02	CC-TAIX01, CC-TAIX11	AI-HL	High Level Analog Input with Differential/Single-ended non-HART
4	CC-PAIX01	CC-TAIX01, CC-TAIX11	AI-hl	High Level Analog Input with Differential non-HART
5	CC-PAIN01	CC-TAIN01,CC-TAIN11 DC-TAIX51, DC-TAIX61	AI-hl	High Level Analog Input with non-HART 1 Modem, High Level Analog Input with HART
6	CC-PUIO31	CC-TUIO31,CC-TUIO41, DC-TUIO31,DC-TUIO41	UIO-2	UIO-2
7	CC-PAIH51	CC-TAIX51,CC-TAIX61 DC-TAIX51, DC-TAIX61	AIH	High Level Analog Input with HART

15.4. Entity Parameters

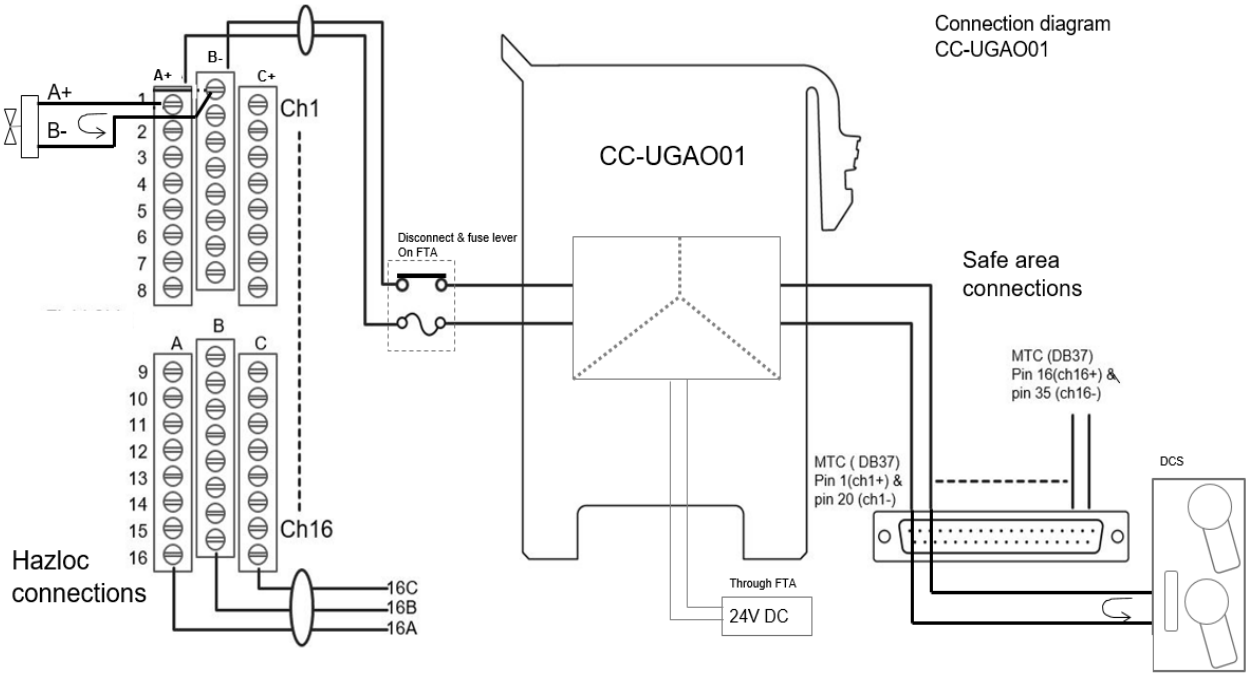
Parameter	Specification
Maximum Safe Voltage (Um)	250V
Uo	25.2 V
Io	114.13 mA
Po	712.7 mW

16. Universal Analog Output Barrier CC-UGAO01

CC-UGAO01 is a single channel Galvanically Isolated Analog Output Barrier module which is suitable for use with CC-UGIA0. This module supports 4-20mA and HART. CC-UGAO01 offers 3 way isolation, fault transparency for field side open wire conditions and reverse polarity protection.



16.1. Connections



16.2. Detail Specifications

Parameter	Specification
Input / Output Model	CC-UGAO01 - Analog Output Barrier Module
Number of channels	1
Physical Specification	

Dimensions	141.5mm (L) x 85.5mm (W) x10mm (H).
Assembly option	Back-plane mount, screw less
Mistake Proofing	By mechanical Keys
Power Supply	
Power supply	24V DC
Rated Current	55mA at 24V
Power Consumption	1.32W at 20mA
Power dissipation	1.22W at 24V DC with 20mA loop current & 250 ohm load
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
Interface to DCS	4 to 20mA with HART.
Wiring scheme	2 wire, CC-UGAO01 in sink mode.
HAZLOC side interface	
HAZLOC Terminals	Through 3 tier terminal blocks on CC-UGIA01
Transfer accuracy at 20^0C	+/- 20uA
Max load	650 ohms
HAZLOC interface	A(+), B(-) : 4-20mA with HART
Influence of ambient temperature	Influence of ambient temperature reference to +200C -300C to +70 0C : < 2uA / 0C -400C to -30 0C : < 6uA / 0C
Open wire	Fault transparency for open wire
Ambient Conditions	
Ambient temperature (operation)	-40 degree C to + 70 degree C
Ambient temperature (storage/transport)	-40 degree C to + 85degree C
Permissible humidity (operation)	5 % .-. 95 % (non-condensing)
Mechanical	
Vibration	Non-Operational 1g 10Hz to 150Hz, Operational 0.5g 10Hz to 150Hz.
Shock	15g Non-Operational, 5g operational.
Compliance	
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)
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

16.3. IO modules supported

Sl. No.	IO module	IOTA	IO type	Description
1	CC-PAON01	CC-TAON01,CC-TAON11 DC-TAOX51, DC-TAOX61	AO	Analog Output with non-HART
2	CC-PAOX01	CC-TAOX01, CC-TAOX11	AO	Analog Output with non-HART
3	CC-PAOH01	CC-TAOX01,CC-TAOX11 DC-TAOX01, DC-TAOX11	AO-HART	Analog Output with HART
3	CC-PAOH51	DC-TAOX51, DC-TAOX61	AO-HART	Analog Output with HART
4	CC-PUIO31	CC-TUIO31, CC-TUIO41 DC-TUIO31, DC-TUIO41	UIO-2	UIO-2

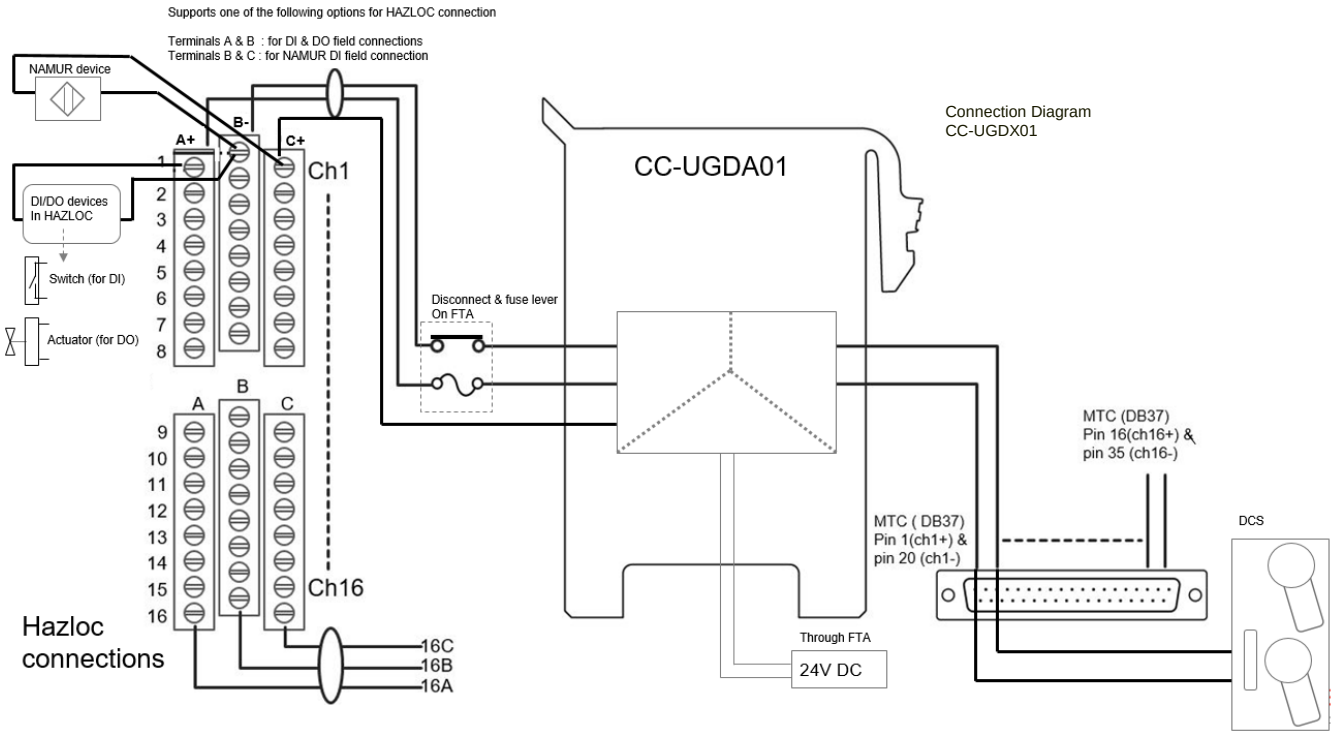
16.4. Entity parameters

Parameter	Specification
Maximum Safe Voltage (Um)	250V
Uo	25.2 V
Io	113.1 mA
Po	712.7 mW

17. Universal Digital Input/output Barrier - CC-UGDA01

CC-UGDA01 is a single channel Galvanically Isolated & Intrinsically safe Digital Input Output Barrier module which is suitable for use with CC-UGIA01. CC-UGDA01 modules are self -configuring and work seamlessly with both Digital Input and Digital Output devices. No additional configuration is required to switch between Digital Inputs and Digital Outputs. CC-UGDA01 also supports NAMUR Digital Inputs. CC-UGDA01 offers 3-way isolation, fault transparency for field side open wire conditions, reverse polarity protection and is provided with field status and power indication LEDs.

17.1. Connections



17.2. Detailed Specifications

Parameter	Specification
Input / Output Model	CC-UGDA01 - IS Digital Barrier Module
Number of channels	1 (Digital Input/output)
Physical Specification	
Dimensions	141.5mm (L) x 85.5mm (W) x10mm (H).
Assembly option	Back-plane mount, screw less
Mistake Proofing	By mechanical Keys
Power Supply	
Terminals	
Supply	24V DC
Rated Current	<= 22mA @ 7.5mA Load (DI) <= 67mA @ 40mA Load (DO)
Power Consumption	525mW @ 7.5mA Load (DI) 1.608W @ 40mA Load (DO)
Power Dissipation	1.1W at 24V supply, 300Ω output load
Power Indication	Green LED
Electrical Isolation	
Power/DCS to Field	1500 VAC
Digital Inputs mode	
HAZLOC interface	
HAZLOC Terminals	Through 3 tier terminal blocks on CC-UGIA01 A+(+), B-(-) for DI dry contacts C(+), B-(-) for DI NAMUR Sensor
Input Type	DI NAMUR Sensor (IEC/EN 60947-5-6), Dry Contacts
DI NAMUR Open Source Voltage	10V, 1KΩ Series Resistance
Current Output (Low Current Mode)	<= 8mA, Source Mode
Current for Guaranteed ON Condition	> 2.1mA
Current for Guaranteed OFF Condition	< 1.2mA
Status Indication LED	GREEN: DI ON RED : DI OFF OFF : Open Wire
Safe side interface	
DCS side connections	Through DB37 connector on CC-UGIA01
Voltage Input	24V DC
Current Input	Sink Mode ON >2.1mA … <7mA OFF < 1.2mA Open Wire < 100uA
Settling Time	< 1ms

Digital Outputs	
HAZLOC interface	
HAZLOC Terminals	Through 3 tier terminal blocks on CC-UGIA01 A+(+), B-(-) for DO
Output Type	Solenoid Valves, Relays Coils, Alarms
DO Open Source Voltage	~21.5V
Current Output (High Current Mode)	12V/40mA at 300Ω load
Current Output Limit (High Current Mode)	48mA max
Current Output Limit (Low Current Mode)	8mA max
Safe side interface	
DO On/OFF Voltage Thresholds	ON → 18 … 30V OFF → 0 ... 5V
DO On/OFF Current	Sink Mode ON >2.1mA … <7mA OFF : 1mA Open Wire < 100uA
Response Time	< 1ms
Ambient Conditions	
Ambient temperature (operation)	-40 0C to + 70 0C
Ambient temperature (storage/transport)	-40 0C to + 85 0C
Permissible humidity (operation)	5 % .-. 95 % (non-condensing)
Mechanical	
Vibration	Non-Operational 1g 10Hz to 150Hz, Operational 0.5g 10Hz to 150Hz.
Shock	15g Non-Operational, 5g operational.
Compliance	
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)
ATEX	Ex eC nA [ia Ga] IIC T4 Gc
IEC Ex	Ex eC nA [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

17.3. Entity parameters

Parameter	Specification
Maximum Safe Voltage (Um)	250V
HAZLOC Terminals	A(+), B(-) DI Dry Contact/DO
Uo	25.2 V
Io	129.4 mA
Po	816 mW
HAZLOC Terminals	C(+), B(-) DI NAMUR Sensor
Uo	12.6 V
Io	13.3 mA
Po	41.8 mW

17.4. Additional Configuration

CC-UGDA01 additionally supports configurations with a use of a DIP switch* located in the front panel of the module.

Switch	Position	Configuration	Specification
1	Up	Field Current Output	Low Current Mode
	Down		High Current Mode

* This is a dual pole switch, second pole is reserved for future

17.5. Supported IO modules

Sl. No.	IO module	IOTA	IO type	Description
1	CC-PDIL01	CC-TDIL01, CC-TDIL11 DC-TDIL01, DC-TDIL11	DI-24	Low Voltage Digital Input (24 volts DC)
2	CC-PDIS01	CC-TDIL01,CC-TDIL11	DI-SOE	Low Voltage Digital Input (24 volts DC)
3	CC-PDOB01	CC-TDOB01,CC-TDOB11 DC-TDOB01,DC-TDOB11	DO-24B	Bussed Low Voltage Digital Output (24 volts DC)
4	CC-PDIL51	CC-TDIL51, CC-TDIL61 DC-TDIL51, DC-TDIL61	DI-24	Low Voltage Digital Input (24 volts DC)
5	CC-PDIS51	DC-TDIL51, DC-TDIL61	DI-SOE	Low Voltage Digital Input SOE (24 volts DC)
6	CC-PUIO31	CC-TUIO31,CC-TUIO41 DC-TUIO31,DC-TUIO41	UIO-2	UIO-2

For more information
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