Universal Process Cabinet (UPC) Hazloc Manual

51156760 Rev C

Change History

Rev	Approval Date	ECN	Author	Change Description
A	31-Mar-2020	2020-1423	A. Test	Initial Release
B1	13-Jan-2021		A. Test	Update for GIIS solutions
B	05-Apr-2021	2021-1484	A. Test	Update for GIIS solutions
C	23-Aug-2021	2021-3821	A. Test	Clerical Updates

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1. Introduction

Purpose and Content of this Manual

This manual applies to the installation of the UPC configured systems within hazardous locations (Hazloc). This manual includes certification information relative to CSA Group, IECEx and ATEX regarding:

1. The appearance and meaning of each certification mark that appears on the label(s) affixed to the product.
2. Instructions for installation and use of the product within potentially explosive atmospheres.

2. Intended Use

The Universal Process Cabinet (UPC) allows the Series-C Universal I/O-2 and/or LLAI and/or CN100 to be installed in a remote location. The UPC protects I/O equipment, power supplies, Fiber Optic Extenders (FOEs), and Field Termination Assemblies.

NOTE: Additional information regarding the use of this product is included within the Universal Process Cabinet Planning, Installation, and Service Guide (EPDOC-X637).

3. General Certification Overview

CE Mark Conformity:

Refer to the issued UPC EU DoC for applicable EU directives the Universal Process Cabinet is in conformity with.

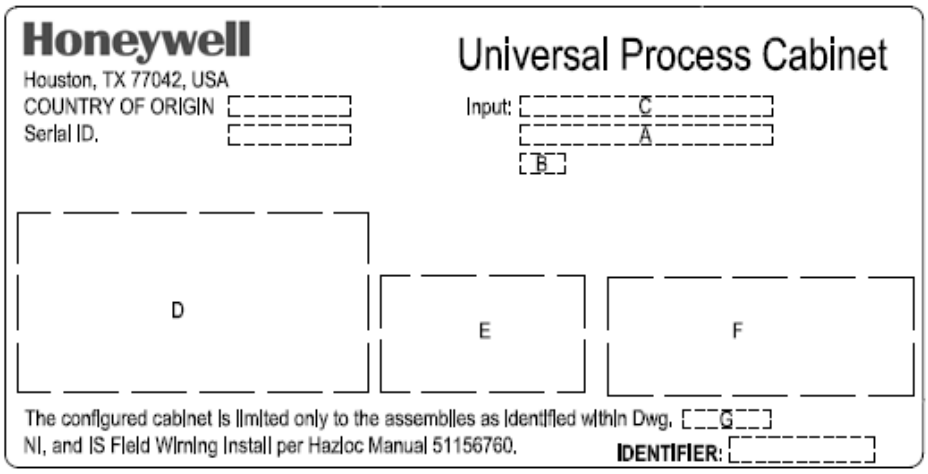
UPC LABELS:

The following information is provided as part of the labeling of the UPC:

- Name and Address of the manufacturer: Honeywell, Houston, TX 77042 USA.
- Serialization
- Country of Manufacturing location:

COUNTRY OF ORIGIN
USA, BULGARIA, CHINA or INDIA

Certification Label (51156387 Tabs 300-331):



TEXT LEGEND:

A. Ambient Range
B. Ingress Protection
C. Input Ratings
D. CSA Certification Number
E. IECEx Certification Number
F. ATEX Certification Number
G. Assembly Drawing Number

1.3m UPC LABEL CONFIGURATION TAB 300-307

TAB	DESCRIPTION	POWER BACK PLATE ASSEMBLY REFERENCE	A	B	C
300	UPC SYSTEM LABEL, SS CABINET	50154548-002	Ta = -40°C TO +40°C	IP66	100-240VAC, 10A X2, 47-63Hz
301	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-002	Ta = -20°C TO +50°C.. +55°C	IP66	100-240VAC, 10A X2, 47-63Hz
302	UPC SYSTEM LABEL, SS CABINET	50154548-004	Ta = -40°C TO +40°C	IP66	100-240VAC, 10A X2, 47-63Hz
303	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-004	Ta = -20°C TO +50°C.. +55°C	IP66	100-240VAC, 10A X2, 47-63Hz
304	UPC SYSTEM LABEL, SS CABINET	50154548-008	Ta = -40°C TO +40°C	IP66	110-240VAC, 10A X2, 50-60Hz
305	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-008	Ta = -20°C TO +50°C.. +55°C	IP66	110-240VAC, 10A X2, 50-60Hz
306	UPC SYSTEM LABEL, DC INPUT, SS CABINET	50154548-010	Ta = -40°C TO +40°C	IP66	24VDC, 27A, X2
307	UPC SYSTEM LABEL, DC INPUT, SS CABINET WITH FANS	50154548-010	Ta = -20°C TO +50°C.. +55°C	IP66	24VDC, 27A, X2

TAB	D	E	F	G
300	15.70041441X Cl.I, Div.2 Grp. ABCD; T4 ANI Cl.I, II, III, Div.2 Grp ABCDFG; T4 Cl.I, Zn.2, AEx\Ex ec nC IIC T4 Gc Cl.I, Zn.2, AEx\Ex ec nC [lc] IIC T4 Gc	Ex ec nC IIC T4 Gc Ex ec nC [lc] IIC T4 Gc IECEx SIR 15.0122X	II3G Ex ec nC IIC T4 Gc II3(3)G Ex ec nC [lc] IIC T4 Gc Sira 15ATEX2341X	50152846
301				50152846
302				50152846
303				50152846
304				50152846
305				50152846
306				50152846
307				50152846

1.3m UPC LABEL CONFIGURATION TAB 308-315

TAB	DESCRIPTION	POWER BACK PLATE ASSEMBLY REFERENCE	A	B	C
308	UPC SYSTEM LABEL, SS CABINET	50154548-002	Ta = -40°C TO +40°C	IP66	100-240VAC, 10A X2, 47-63Hz
309	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-002	Ta = -20°C TO +50°C.. +55°C	IP66	100-240VAC, 10A X2, 47-63Hz
310	UPC SYSTEM LABEL, SS CABINET	50154548-004	Ta = -40°C TO +40°C	IP66	100-240VAC, 10A X2, 47-63Hz
311	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-004	Ta = -20°C TO +50°C.. +55°C	IP66	100-240VAC, 10A X2, 47-63Hz
312	UPC SYSTEM LABEL, SS CABINET	50154548-008	Ta = -40°C TO +40°C	IP66	110-240VAC, 10A X2, 50-60Hz
313	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-008	Ta = -20°C TO +50°C.. +55°C	IP66	110-240VAC, 10A X2, 50-60Hz
314	UPC SYSTEM LABEL, DC INPUT, SS CABINET	50154548-010	Ta = -40°C TO +40°C	IP66	24VDC, 27A, X2
315	UPC SYSTEM LABEL, DC INPUT, SS CABINET WITH FANS	50154548-010	Ta = -20°C TO +50°C.. +55°C	IP66	24VDC, 27A, X2

TAB	D	E	F	G
308				50152846
309	15.70041441X C US			50152846
310	Class I Division 2 Group ABCD; T4			50152846
311	ANI Class I, II, III Division 2, Group ABCDFG	Ex ec nC [ic][la Ga] IIC T4 Gc Ex ec nC [ic] IIC T4 Gc Ex ec nC IIC T4 Gc IECEx SIR 15.0122X	0344 II3 (3)(1)G Ex ec nC [ic][la Ga] IIC T4 Gc CSANe 21ATEX3076X	50152846
312	AIS Class I, II, III Division 1, Group ABCDEFG Entity			50152846
313	Class I Zone 2, AEx\Ex ec nC [ic] [la Ga] IIC T4 Gc			50152846
314	Class I Zone 2, AEx\Ex ec nC [ic] IIC T4 Gc			50152846
315	Class I Zone 2 AEx\Ex ec nC IIC T4 Gc			50152846

1.3m UPC LABEL CONFIGURATION TAB 316-323

TAB	DESCRIPTION	POWER BACK PLATE ASSEMBLY REFERENCE	A	B	C
316	UPC SYSTEM LABEL, SS CABINET	50154548-002	Ta = -40°C TO +40°C	IP66	100-240VAC, 10A X2, 47-63Hz
317	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-002	Ta = -20°C TO +50°C.. +55°C	IP66	100-240VAC, 10A X2, 47-63Hz
318	UPC SYSTEM LABEL, SS CABINET	50154548-004	Ta = -40°C TO +40°C	IP66	100-240VAC, 10A X2, 47-63Hz
319	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-004	Ta = -20°C TO +50°C.. +55°C	IP66	100-240VAC, 10A X2, 47-63Hz
320	UPC SYSTEM LABEL, SS CABINET	50154548-008	Ta = -40°C TO +40°C	IP66	110-240VAC, 10A X2, 50-60Hz
321	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-008	Ta = -20°C TO +50°C.. +55°C	IP66	110-240VAC, 10A X2, 50-60Hz
322	UPC SYSTEM LABEL, DC INPUT, SS CABINET	50154548-010	Ta = -40°C TO +40°C	IP66	24VDC, 27A, X2
323	UPC SYSTEM LABEL, DC INPUT, SS CABINET WITH FANS	50154548-010	Ta = -20°C TO +50°C.. +55°C	IP66	24VDC, 27A, X2

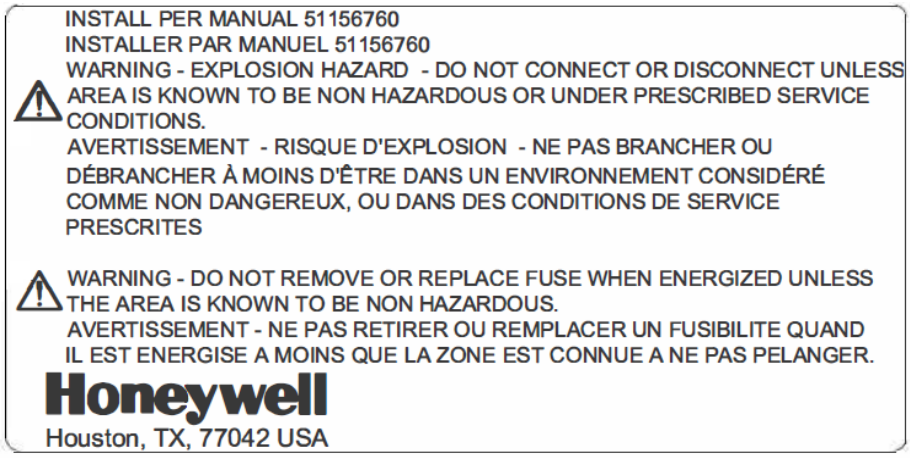
TAB	D	E	F	G
316				50152846
317				50152846
318				50152846
319	OMIT	Ex ec nC IIC T4 Gc Ex ec nC [ic] IIC T4 Gc IECEx SIR 15.0122X	II3G Ex ec nC IIC T4 Gc II3(3)G Ex ec nC [ic] IIC T4 Gc Sira 15ATEX2341X	50152846
320				50152846
321				50152846
322				50152846
323				50152846

1.3m UPC LABEL CONFIGURATION TAB 323-331

TAB	DESCRIPTION	POWER BACK PLATE ASSEMBLY REFERENCE	A	B	C
324	UPC SYSTEM LABEL, SS CABINET	50154548-002	Ta = -40°C TO +40°C	IP66	100-240VAC, 10A X2, 47-63Hz
325	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-002	Ta = -20°C TO +50°C.. +55°C	IP66	100-240VAC, 10A X2, 47-63Hz
326	UPC SYSTEM LABEL, SS CABINET	50154548-004	Ta = -40°C TO +40°C	IP66	100-240VAC, 10A X2, 47-63Hz
327	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-004	Ta = -20°C TO +50°C.. +55°C	IP66	100-240VAC, 10A X2, 47-63Hz
328	UPC SYSTEM LABEL, SS CABINET	50154548-008	Ta = -40°C TO +40°C	IP66	110-240VAC, 10A X2, 50-60Hz
329	UPC SYSTEM LABEL, SS CABINET WITH FANS	50154548-008	Ta = -20°C TO +50°C.. +55°C	IP66	110-240VAC, 10A X2, 50-60Hz
330	UPC SYSTEM LABEL, DC INPUT, SS CABINET	50154548-010	Ta = -40°C TO +40°C	IP66	24VDC, 27A, X2
331	UPC SYSTEM LABEL, DC INPUT, SS CABINET WITH FANS	50154548-010	Ta = -20°C TO +50°C.. +55°C	IP66	24VDC, 27A, X2

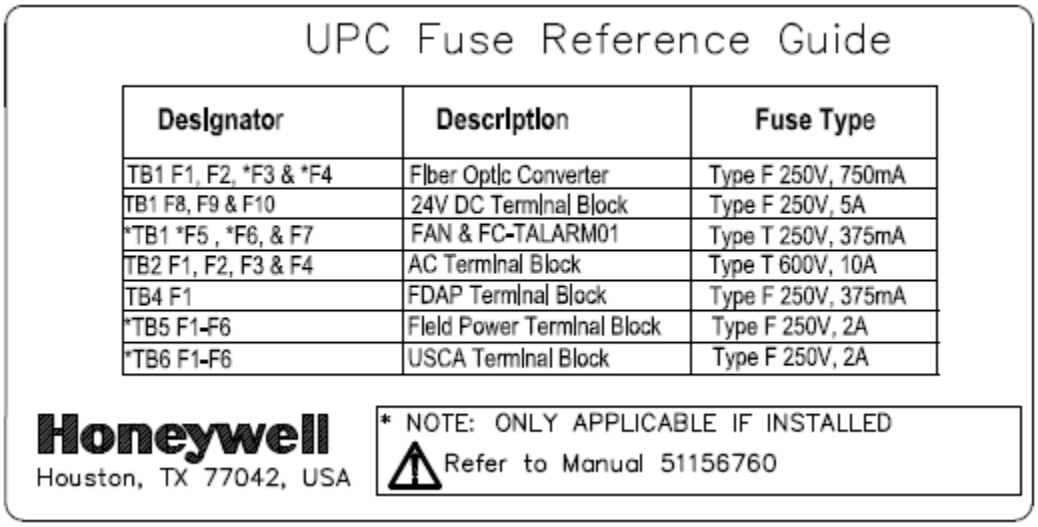
TAB	D	E	F	G
324	OMIT	Ex ec nC [ic][la Ga] IIC T4 Gc Ex ec nC [ic] IIC T4 Gc Ex ec nC IIC T4 Gc IECEx SIR 15.0122X	CE 0344 II3 (3)(1)G Ex ec nC [ic][la Ga] IIC T4 Gc CSANe 21ATEX3076X	50152846
325				50152846
326				50152846
327				50152846
328				50152846
329				50152846
330				50152846
331				50152846

Warning Label (51156388-200):



NOTE: Prescribed service conditions can be found in Section 14, Service and Maintenance

Fuse Label (51156389-300):



UPC Fuse Reference Guide

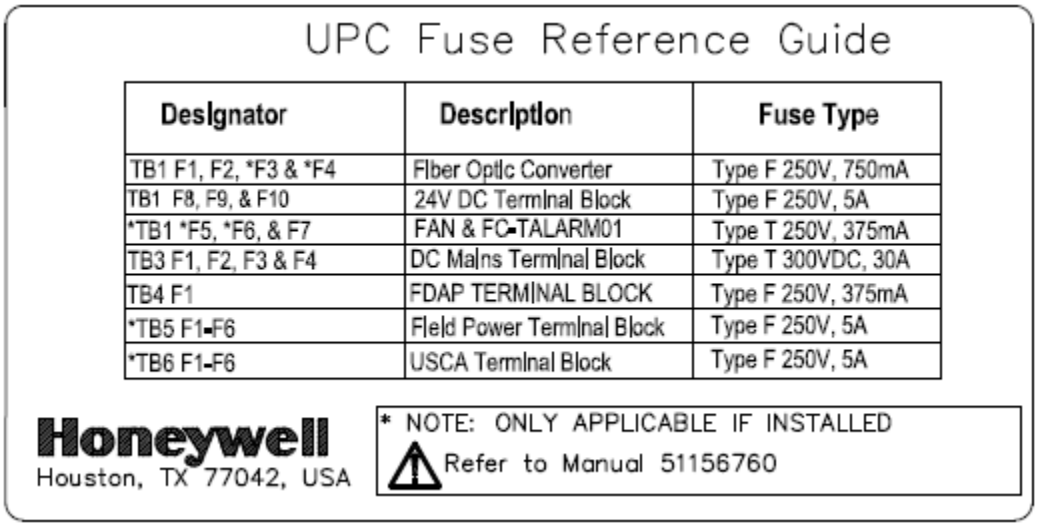
Designator	Description	Fuse Type
TB1 F1, F2, *F3 & *F4	Fiber Optic Converter	Type F 250V, 750mA
TB1 F8, F9 & F10	24V DC Terminal Block	Type F 250V, 5A
*TB1 *F5 , *F6, & F7	FAN & FC-TALARM01	Type T 250V, 375mA
TB2 F1, F2, F3 & F4	AC Terminal Block	Type T 600V, 10A
TB4 F1	FDAP Terminal Block	Type F 250V, 375mA
*TB5 F1-F6	Field Power Terminal Block	Type F 250V, 2A
*TB6 F1-F6	USCA Terminal Block	Type F 250V, 2A

Honeywell
Houston, TX 77042, USA

* NOTE: ONLY APPLICABLE IF INSTALLED
Refer to Manual 51156760

NOTE: The warnings listed in Section 10 must be regarded when replacing fuses. Always replace the fuse with the same type and rating

Fuse Label (51156389-310):



UPC Fuse Reference Guide

Designator	Description	Fuse Type
TB1 F1, F2, *F3 & *F4	Fiber Optic Converter	Type F 250V, 750mA
TB1 F8, F9, & F10	24V DC Terminal Block	Type F 250V, 5A
*TB1 *F5, *F6, & F7	FAN & FC-TALARM01	Type T 250V, 375mA
TB3 F1, F2, F3 & F4	DC Mains Terminal Block	Type T 300VDC, 30A
TB4 F1	FDAP TERMINAL BLOCK	Type F 250V, 375mA
*TB5 F1-F6	Field Power Terminal Block	Type F 250V, 5A
*TB6 F1-F6	USCA Terminal Block	Type F 250V, 5A

Honeywell
Houston, TX 77042, USA

* NOTE: ONLY APPLICABLE IF INSTALLED
Refer to Manual 51156760

NOTE: The warnings listed in Section 10 must be regarded when replacing fuses. Always replace the fuse with the same type and rating.

4. Max Allowable Configuration Limits

Table 1:

Limits per Installed Power Supply [5]	Ambient Temp Range (Ta)	Max Allowable Field Output Current (Amp) [1]	Max Allowable Power Dissipation (Watt) [2] [3]
QUINT4-PS/1AC/24DC/20/+ or QUINT4-PS/24DC/24DC/20/SC/+	-40°C to +40°C	20	80 [4]
	-20°C to +50°C…+55°C	20-16 [1a]	80-70 [2a]
	-20°C **to +55**°C	4	101.04
51454235-100 w/ 51198685-100 or FC-PSUNI2424	-40°C to +40°C	16	50 [4]
	-20°C to +50°C…+55°C	16-10 [1b]	50-30 [2b]

(1) **NOTE:** Table 4 can be utilized to calculate the total Field Output Current for the UPC. The total calculated output current shall not exceed the applicable Max Allowable Field Output Current listed in Table 1.

a) **Linear Derating for Output Current:** 0.8A/°C, for Ta = +50°C…+55°C
b) **Linear Derating for Output Current:** 1.2A/°C, for Ta = +50°C…+55°C
c) Reference Table 2a for current rating per VIPER IOA type
d) Reference Table 2b for current rating per SCA (Single Conditioning Assembly) Module type.

(2) **NOTE:** Table 5 can be utilized to calculate the total Power Dissipation (Wattage) for FTA's within the UPC. The total Power Dissipation shall not exceed the applicable Max Allowable Power Dissipation listed in Table 1.

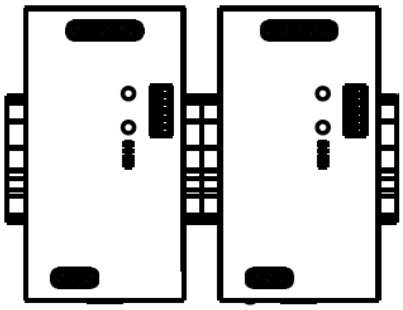
a) **Linear Derating for Power Dissipation:** 2W/°C, for Ta = +50°C…+55°C
b) **Linear Derating for Power Dissipation:** 4W/°C, for Ta = +50°C…+55°C
c) Reference Table 2a for Wattage equations per VIPER IOA type
d) Reference Table 2b for Wattage values per SCA (Single Conditioning Assembly) Module type.

(3) **NOTE:** Calculating Power Dissipation is not required when the following configurations are used.

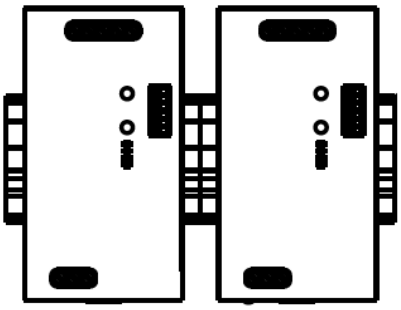
a) Field Terminal Block (51202684) with AI/AO/DI/DO signal types.
b) VIPER Terminal Block Assembly Base (51454988) with IOA FEED-THRU/EX installed and supporting AI/AO/DI signal types.
c) Universal Signal Conditioning Assembly (CC-USCA01) with Pass Through Adaptor (CC-UPTA01) installed and supporting AI/AO/DI signal types.

(4) **NOTE:** The following SCA Barriers & Isolators are not available for this configuration: CC-UGAI01, CC-UAIA01, CC-UGAO01, CC-UAOA01.

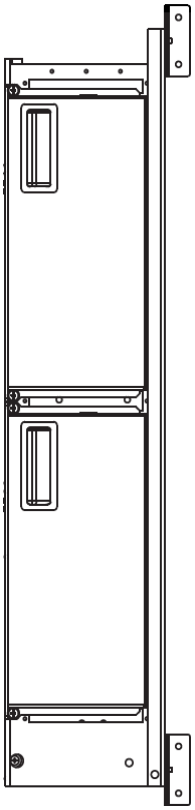
(5) **NOTE: Installed Power Supply Part Number and Image Cross Reference**



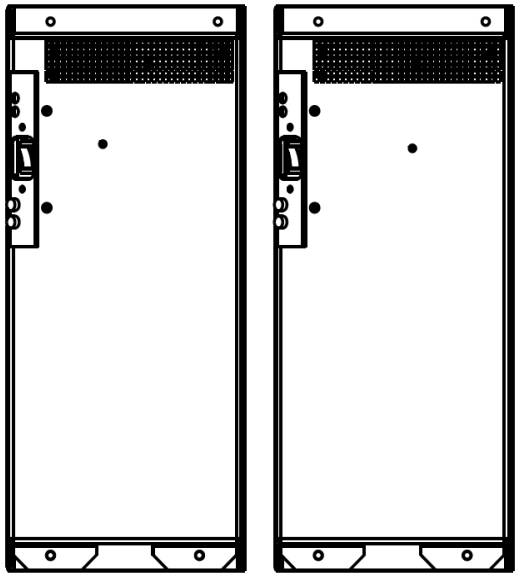
Model #: QUINT4-PS/1AC/24DC/20/+



Model #: QUINT4-PS/24DC/24DC/20/SC/+



Part #: 51454235-100 & 51198685-100



Part #: FC-PSUNI2424

Table 2a: Power Dissipation Values and Equations - VIPER

Complete VIPER Power Dissipation is based on the calculated sum of power dissipated for all IOAs installed. Utilize the values/equations listed below to calculate the power dissipation per installed IOA.

Known Variables:	***P(W)*** *= Power Dissipated in Watts* ***Isig*** *= Current (A) value for UIO signal* ***Ipwr*** *= Total Field Current (A)*

Model Number	Field Terminal Rating	Power Dissipation Per IOA
IOA FEED-THRU/EX (1)	1A	$P(W) = 0.2 * Isig^2$
IOA AI/AO/BFI/DS/0.5A/EX	0.5A	**2 wire:** $P(W) = 0.6 * Isig^2$ **3 or 4 wire:** $P(W) = 0.6 * Isig^2 + 0.4 * Ipwr^2$
IOA DI/DO/BFI/DS/1.0A/EX	1A	**2 wire,** $\mathbf{P(W)} = 0.5 * Isig^2$ **3 or 4 wire,** $\mathbf{P(W)} = 0.5 * Isig^2 + 0.3 * Ipwr^2$
IOA RPSS-I-I/HART/EX	24mA	$P(W)=1.25$
IOA REL 24V DO/BFI/3.0A/EX	1A	**Field Powered Equation:** $P(W)= 0.35 + (0.11 * Ipwr^2)$ **Intermarshall Powered Equation:** $P(W)= 0.35 + (0.19 * Ipwr^2)$
IOA REL 24V DI/BFI/1.0A/EX	1A	**Field Powered:** $P(W)=0.20$ **Intermarshall Powered Equation:** $P(W)= 0.20 + (0.25 * Ipwr^2)$
IOA REL 120V DO/BFI/3.0A/EX	1A	**Field Powered Equation:** $P(W)= 0.35 + (0.11 * Ipwr^2)$ **Intermarshall Powered Equation:** $P(W)= 0.35 + (0.19 * Ipwr^2)$
IOA REL 120V DI/1.0A/EX	1A	**Field Powered:** $P(W)=0.47$ **Intermarshall Powered Equation:** $P(W)= 0.47 + (0.25 * Ipwr^2)$
IOA REL 230V DO/BFI/NO/3.0A/EX	1A	**Field Powered Equation:** $P(W)= 0.35 + (0.09 * Ipwr^2)$ **Intermarshall Powered Equation:** $P(W)= 0.35 + (0.17 * Ipwr^2)$
IOA REL 230V DO/BFI/NC/3.0A/EX	1A	**Field Powered Equation:** $P(W)= 0.35 + (0.09 * Ipwr^2)$ **Intermarshall Powered Equation:** $P(W)= 0.35 + (0.17 * Ipwr^2)$
IOA REL 230V DI/1.0A/EX	1A	**Field Powered:** $P(W)=0.82$ **Intermarshall Powered Equation:** $P(W)= 0.82 + (0.25 * Ipwr^2)$

(1) **NOTE:** Calculating Power Dissipation with IOA FEED-THRU/EX only applies when DO signals are used.

Table 2b: Power Dissipation and Current Values – Signal Conditioning Adaptors (SCA)

Complete Power Dissipation for the SCA is based on the calculated sum of power dissipated for all installed model numbers.

Model Number	Power Dissipation Per Model	Current Per Model
CC-UPTA01 (1)	0.200W	≤ 500mA (2)
CC-UDIR01	0.337W	5.5mA
CC-UDOR01	0.454W	≤ 1A
CC-UAIA01	1.385W	20mA
CC-UAOA01	1.420W	20mA
CC-UDXA01	1.125W	40mA
CC-ULLI01	0.521W	100µA
CC-UGAI01	1.346W	20mA
CC-UGAO01	1.468W	20mA
CC-UGDA01	1.100W	40mA

(1) NOTE: Calculating Power Dissipation with CC-UPTA01 only applies with DO signals.

(2) NOTE: Refer to the Current limits per channel type identified in Table 3.

Table 3: UIO Current Limit per Channel Type

Channel	Max Permissible Current per Channel Type	Applicable FTA
AI	24.3mA	Field Terminal Block (51202684), No FTA Installed
AO	21.1mA	Field Terminal Block (51202684), No FTA Installed
DI	3.5mA	Field Terminal Block (51202684), No FTA Installed
DO	500mA	Field Terminal Block (51202684), No FTA Installed

Table 4: Calculation Table for Total Field Output Current

Field Termination Assembly	Current per Channel Type	Calculated Current [3] (Total must be ≤ applicable ampere rating listed within Table 1)
No FTA Installed	Table 3	____A
CC-UPTA01	Table 2b	____A
CC-UDIR01	Table 2b	____A
CC-UDOR01	Table 2b	____A
CC-UAIA01	Table 2b	____A
CC-UAOA01	Table 2b	____A
CC-UDXA01	Table 2b	____A
CC-ULLI01	Table 2b	____A
CC-UGAI01	Table 2b	____A
CC-UGAO01	Table 2b	____A
CC-UGDA01	Table 2b	____A
VIPER IOA's	Table 2a	____A
24VDC Field Power [4]		____A
FDAP [5]		____A
		Total Current: ____A [1]

(1) **NOTE:** Total combined 24VDC output current.
(2) **NOTE:** For configurations with LLAI (CC-PAIL51), the output current per channel does not need to be included within the total field output current calculation.
(3) **NOTE:** For configurations with UIO2 (CC-PUIO31), the output per UIO2 is limited to 8A max.
(4) **NOTE:** TB5 is available to support 24VDC field power.
(5) **NOTE:** TB4 is available to power an externally mounted FDAP.

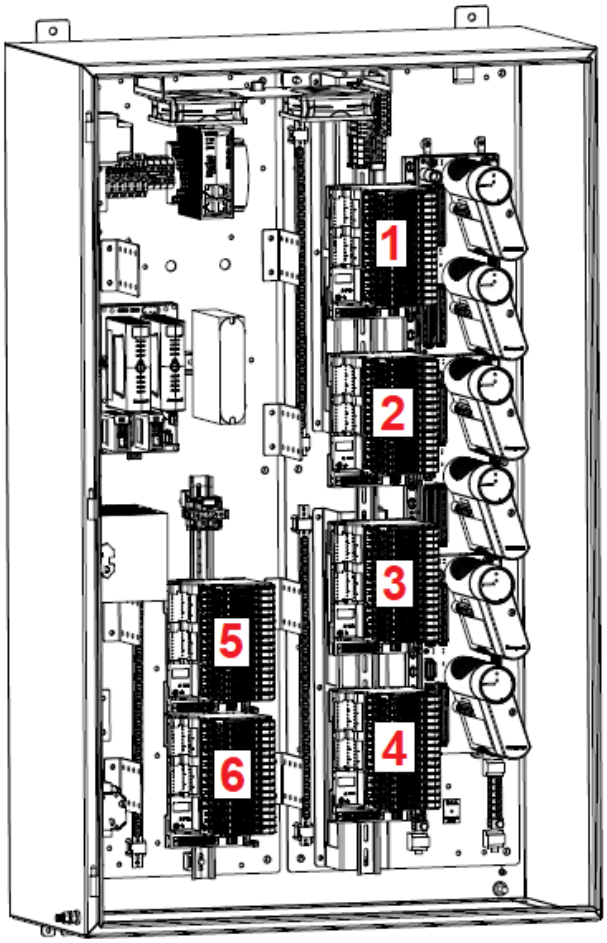
Table 5: Calculation Table for Total Power Dissipation

Device	Power Dissipation	Number of Devices	Calculated Total Power Dissipation (Total must be ≤ applicable power dissipation listed within Table 1)
IOA FEED-THRU/EX	per Table 2a	____ =	____W
IOA AI/AO/BFI/DS/0.5A/EX	per Table 2a	____ =	____W
IOA DI/DO/BFI/DS/1.0A/EX	per Table 2a	____ =	____W
IOA RPSS-I-I/HART/EX	per Table 2a	____ =	____W
IOA REL 24V DO/BFI/3.0A/EX	per Table 2a	____ =	____W
IOA REL 24V DI/BFI/1.0A/EX	per Table 2a	____ =	____W
IOA REL 120V DO/BFI/3.0A/EX	per Table 2a	____ =	____W
IOA REL 120V DI/1.0A/EX	per Table 2a	____ =	____W
IOA REL 230V DO/BFI/NO/3.0A/EX	per Table 2a	____ =	____W
IOA REL 230V DO/BFI/NC/3.0A/EX	per Table 2a	____ =	____W
IOA REL 230V DI/1.0A/EX	per Table 2a	____ =	____W
CC-UPTA01	per Table 2b	____ =	____W
CC-UDIR01	per Table 2b	____ =	____W
CC-UDOR01	per Table 2b	____ =	____W
CC-UAIA01	per Table 2b	____ =	____W (1)
CC-UAOA01	per Table 2b	____ =	____W (1)
CC-UDXA01	per Table 2b	____ =	____W
CC-ULLI01	per Table 2b	____ =	____W
CC-UGAI01	per Table 2b	____ =	____W (1)
CC-UGAO01	per Table 2b	____ =	____W (1)
CC-UGDA01	per Table 2b	____ =	____W

	Total: ____W

(1) **NOTE:** Once device CC-UGAI01, CC-UAIA01, CC-UGAO01 or CC-UAOA01 is installed onto the Universal Signal Conditioning Assembly base (CC-USCA01 or CC-UGIA01 as applicable), the entire 16 channel base is limited to the below max allowable power dissipation per base.

USCA Mounting Position	Max Allowable Power Dissipation (Watt) per base
1, 2, 3, 5 & 6	19.084W
4	14.680W



USCA Mounting Positions

5. Environmental Ratings

Consideration	Range
Ambient Temp Range (1)	-40°C min, +55°C max
Pollution Degree	2
Overvoltage Category	II
Relative Humidity	5 to 95% (non-condensing)
Barometric Pressure Altitude	-300 to +2000 m
Ingress Protection	IP66

NOTES:

(1) Refer to Table 1 for details regarding what ambient temperature ranges are applicable to different UPC configurations.

6. Cable Gland Entry and Enclosure Mounting

Conduit and Cable Glands:

The UPC cabinet includes a gland plate on the bottom of the enclosure.

NOTE: You must remove the gland plate to fabricate cable entries. While designing holes/cut-outs, ensure interference with the cabinet is avoided.

WARNING:

To maintain the IP66 rating of the Stainless Steel cabinet, 50154983, all cable entries into the enclosure must be provided through the gland plate by means of conduit fittings or gland fittings that are certified to maintain the cabinet rating per local rules and regulations.

Mounting the UPC Cabinet Enclosure:

NOTE: The UPC cabinet shall be mounted in a manner which ensures that the exposure to ambient temperature on all surfaces of the cabinet does not exceed the maximum marked ambient. Extra care should be taken when mounting the cabinet close to structures and heat producing surfaces.

WARNING:

- Appropriate precautions must be undertaken to accommodate the weight of the UPC during initial installation onto the support structure.
- The UPC must be mounted onto a support structure having a load capacity of 1200lbs (544.31kg)

Mounting Bolt Information:

Below is the bolt size and grade information for the mounting hardware to be used when mounting the cabinet:

- M10 x 1.5 mm bolt size and A2-70 grading

7. Torque Requirements

Below is a list of the torque requirements for each applicable electrical connection.

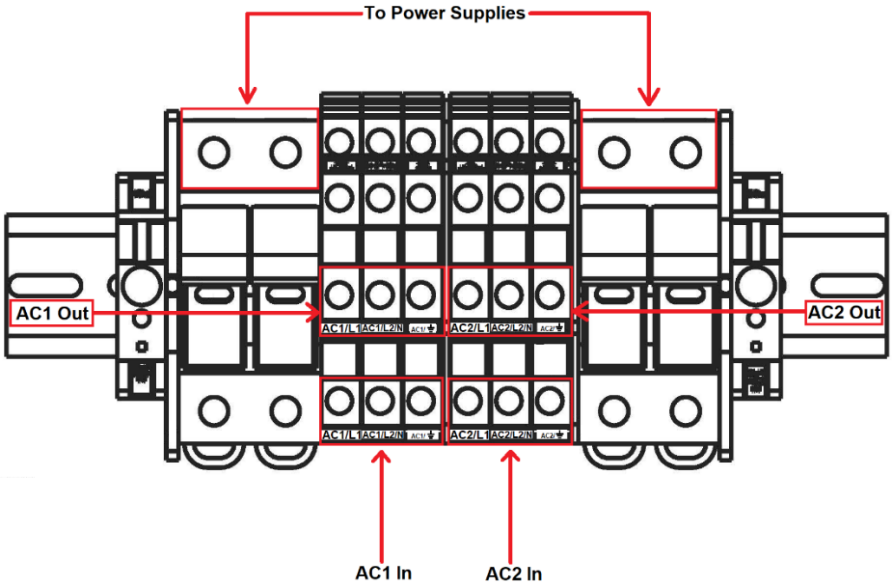
TORQUE REQUIREMENTS:	
DESCRIPTION	TORQUE VALUE
DC Terminal Block (TB1), FDAP Terminal Block (TB4), Field Power 24V DC Terminal Block (TB5) & USCA 24VDC Terminal Block TB6	Fused terminal: 1.5 to 1.8 Nm
	Feed-through terminal: 1.5 to 1.69 Nm
Field Terminal Block (51202684) & VIPER Terminal Block Assembly Base (51454988)	0.5 to 0.6 Nm
Universal Signal Conditioning Assembly CC-USCA01 or CC-UGIA01 Field Wiring Terminals	0.4 Nm
AC Mains Terminal Block	1.5 to 2.4 Nm
DC Mains Terminal Block	1.5 to 2.4 Nm
Ground Bar Assembly	10mm x 16mm x 24mm (WxHxD) Clamping yoke: 2.6 Nm (min)
	14mm x 18mm x 34mm (WxHxD) Clamping yoke: 4.5 Nm (min)
Instrument Shield Ground Bar	2 to 3 Nm
UIO IOTA Terminal Block	0.5Nm
LLAI IOTA Terminal Block	0.5Nm
STT650-T2-0-B-CH0	0.5Nm

8. Mains Connection & I/O Connections

WARNING – External Circuit Breaker Note:
Disconnection of the external supply to the system shall be accomplished via an appropriately rated circuit breaker. The circuit breaker shall not exceed 30A. When utilizing a 30A breaker, the breaker shall be rated 100% for continuous load.

INSTALLATION NOTE – Only use copper conductors for Mains and I/O connections

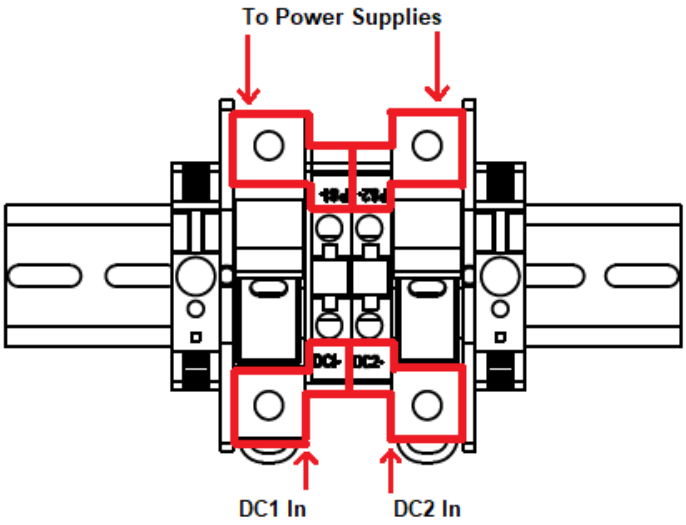
AC MAINS CONNECTION DIAGRAM:



AC Terminal Block 51202694-100 (TB2)

INSTALLATION NOTE: Input AC wire gauge must be sized accordingly to handle 10A (Amperes), wire gauge shall not exceed 10AWG (6mm^2).

DC MAINS CONNECTION DIAGRAM:



DC Terminal Block 51202694-200 (TB3)

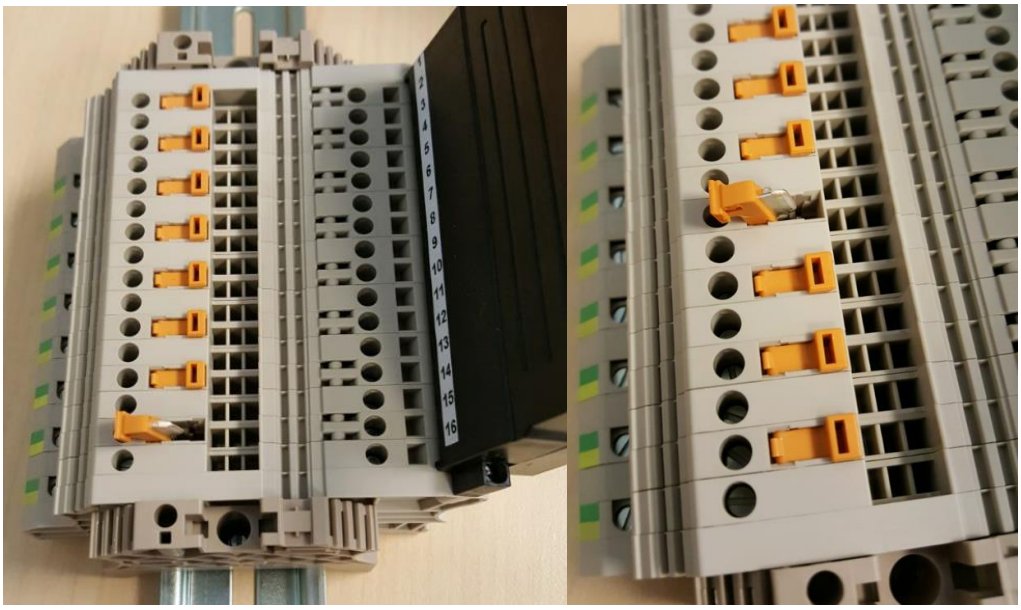
INSTALLATION NOTE: Input DC wire gauge must be sized accordingly to handle 27A (Amperes), wire shall not exceed 10AWG (6mm^2) and only be installed on the lower level of the terminal block.

FIELD TERMINAL BLOCK (51202684) INFORMATION:

As an option, the UPC can be installed with a Field Terminal Block (51202684) to support not only field wire marshalling but also to provide a method of individual field wire disconnection.

WARNING – Disconnect Note:

The disconnect on the Terminal Block shall not be used unless the area is determined to be Non-Hazardous.



Field Terminal Block with quick disconnect (51202684) and Mass Termination Cable (51202699)

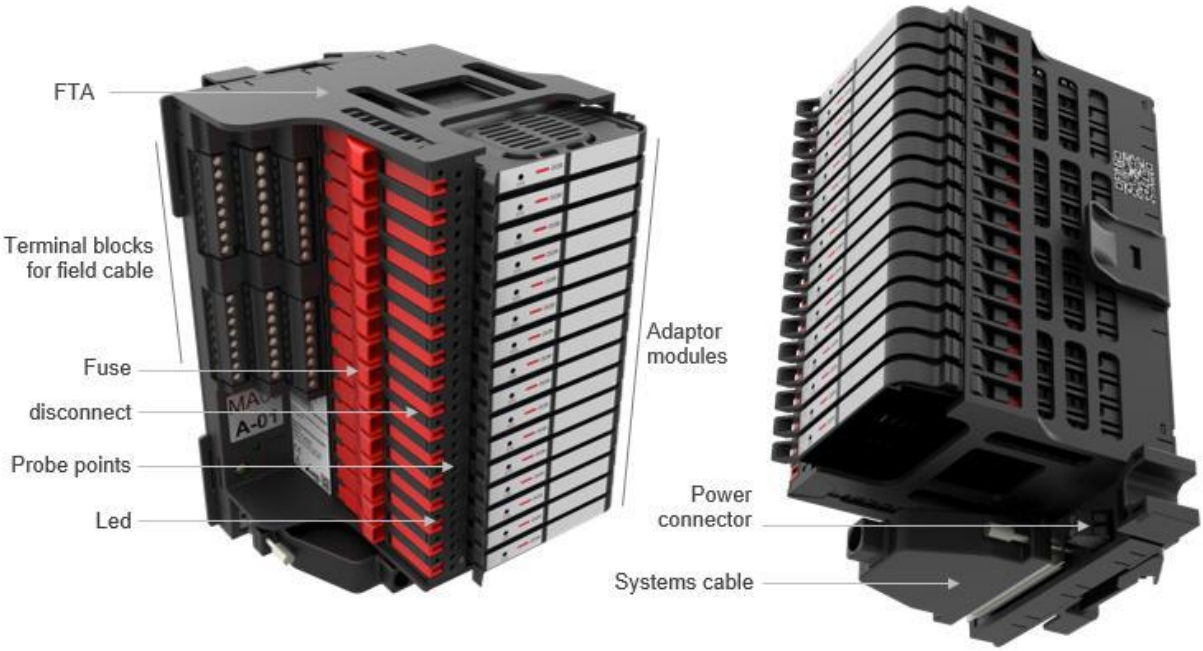
NOTE: Refer to Manufacturer's Website for further information regarding usability and installation, https://www.weidmuller.com/us/home

UNIVERSAL MARSHALLING SOLUTION INFORMATION:

As an option, the UPC can be installed with the Signal Conditioning Adaptors (SCA) to support various field wiring options.

WARNING – Disconnect Note:

The disconnect on the Terminal Block shall not be used unless the area is determined to be Non-Hazardous.



SCA consisting of the Universal Signal Conditioning Assembly (CC-USCA01 or CC-UGIA01) and Adaptor Modules. CC-USCA01 is only shown as reference.

NOTE: Information regarding fusing can be located within the Hazloc manual for the Signal Conditioning Assembly (SCA), 50149737-001. Additional information regarding usability and installation can be found within the SCA's Installation and User's Guide, 50149738-001.

VIPER TERMINAL BLOCK ASSEMBLY BASE (51454988) INFORMATION:

As an option, the UPC can be installed with a VIPER terminal block assembly base to support various field wiring options.

WARNING – Disconnect Note:

The disconnect on the Terminal Block shall not be used unless the area is determined to be Non-Hazardous.



VIPER terminal block assembly base (51454988) populated with various IO assemblies and connected to a Mass Termination Cable (51454989)

NOTE: Refer to Manufacturer's Website for further information regarding usability and installation, https://www.phoenixcontact.com/online/portal/us

VIPER Model Numbers & Phoenix Contact Part Numbers:

Model Number	Part Number	Description	Package Slip
VIP/S/MC/BASE 1-8/L/C/EX	2907186	VIPER Base Ch 1-8	3517
VIP/S/MC/BASE 9-16/L/C/EX	2907187	VIPER Base Ch 9-16	3517
VIP/S/MC/BASE 17-24/L/C/EX	2907209	VIPER Base Ch 17-24	3517
VIP/S/MC/BASE 25-32/L/C/EX	2907210	VIPER Base Ch 25-32	3517

IOA FEED-THRU/EX	2906598	Feed-Through Terminal Module	3546
IOA AI/AO/BFI/DS/0.5A/EX	2906599	Analog Protection Module	3590
IOA DI/DO/BFI/DS/1.0A/EX	2906600	Digital Protection Module	3591
IOA RPSS-I-I/HART/EX	2908452	Power/input isolation amplifier	3760
IOA REL 24V DO/BFI/3.0A/EX	2910153	24V DO Relay	3791
IOA REL 24V DI/BFI/1.0A/EX	2910155	24V DI Relay	3793
IOA REL 120V DO/BFI/3.0A/EX	2910154	120V DO Relay	3792
IOA REL 120V DI/1.0A/EX	2910157	120V DI Relay	3794
IOA REL 230V DO/BFI/NO/3.0A/EX	2910421	230V DO NO Relay	3796
IOA REL 203V DO/BFI/NC/3.0A/EX	2910422	230V DO NC Relay	3796
IOA REL 230V DI/1.0A/EX	2910423	230V DI Relay	3797
CAB-MSTB32/2XMC9/22/ 0,5M/C3/S	2906874	0.5m Termination Cable	-
CAB-MSTB32/2XMC9/22/ 1,0M/C3/S	2906884	1.0m Termination Cable	-
VIP/U/BASE 3L DIVIDER	2907715	Partition plate – Base Mounted	-
VIP/U/RAIL 3L DIVIDER	2908555	Partition plate – Rail Mounted	-

REMOVING 24VDC FROM THE VIPER TERMINAL BLOCK ASSEMBLY BASE (51454988):

WARNING: Do not remove 24VDC from the VIPER terminal block assembly base unless the area is determined to be Non-Hazardous.

Instructions on removing the fuse to disconnect 24VDC:

- Determine which VIPER terminal block assembly base requires the removal of 24VDC.
- Match the reference designator of the VIPER terminal block assembly base to the applicable fuse holder in the 24VDC distribution block.
- Lift the applicable fuse holder to expose the fuse.
- Remove the fuse from the fuse holder.

Instructions on reconnecting 24VDC to a VIPER terminal block assembly base:

- Determine which VIPER terminal block assembly requires 24VDC to be reconnected.
- Match the reference designator of the VIPER terminal block assembly base to the applicable fuse holder.
- Determine the proper fuse rating per the supplied Fuse Label (51156389).
- Install the properly rated fuse and return the fuse holder to the closed position.

NOTE: Refer to Section 10, Special Conditions for Safe Use, regarding what conditions would require the removal of 24VDC.

RELOCATING 24VDC WHEN USING VIPER IOA RPSS-I-I/HART/EX:

WARNING: Do not remove 24VDC from the VIPER terminal block unless the area is determined to be Non-Hazardous.

When using IOA RPSS-I-I/HART/EX, 24VDC is required for terminal P2 of the VIPER Terminal Block Assembly Base (51454988). By default, 24VDC connections are provided within the UPC 96pt configuration when VIPER is installed. Follow the below instructions to relocate the default 24VDC connection to the appropriate P2 terminal on the installed VIPER Terminal Block Assembly Base.

Instructions for relocating 24VDC to terminal P2:

- VIPER Terminal Block Assemblies with 24VDC connected to terminal P1.
- Determine which VIPER terminal block assembly base will support IOA RPSS-I-I/HART/EX.
- To safely disconnect 24VDC, remove the applicable fuse per section "*Removing 24vdc from the viper terminal block assembly base (51454988)*".
- Disconnect 24VDC from terminal P1 and relocate to terminal P2, as shown in the image below.
- Install the properly rated fuse per the suppled Fuse label (51156389) and return the fuse holder to the closed position to establish the 24VDC connection.

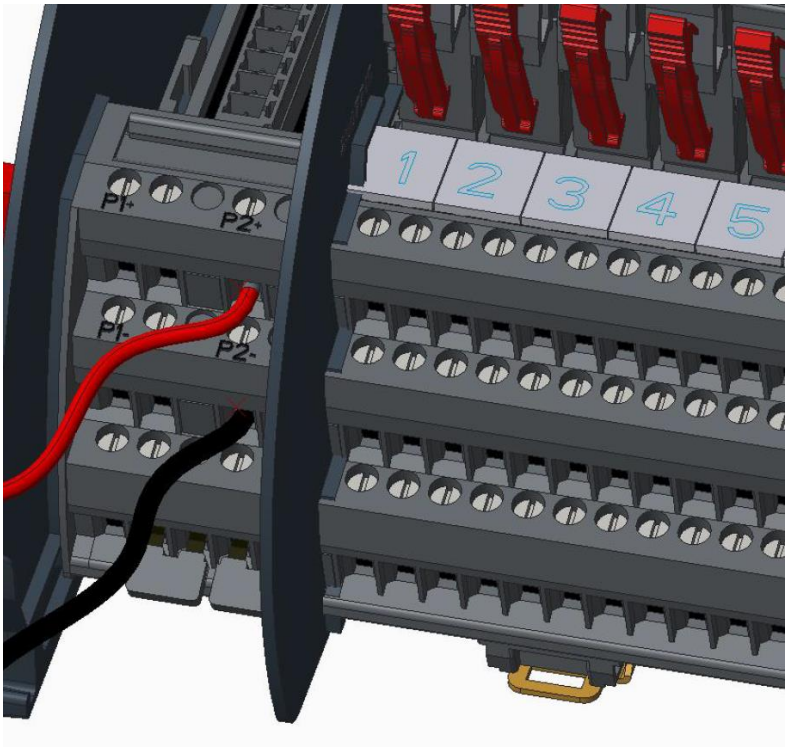
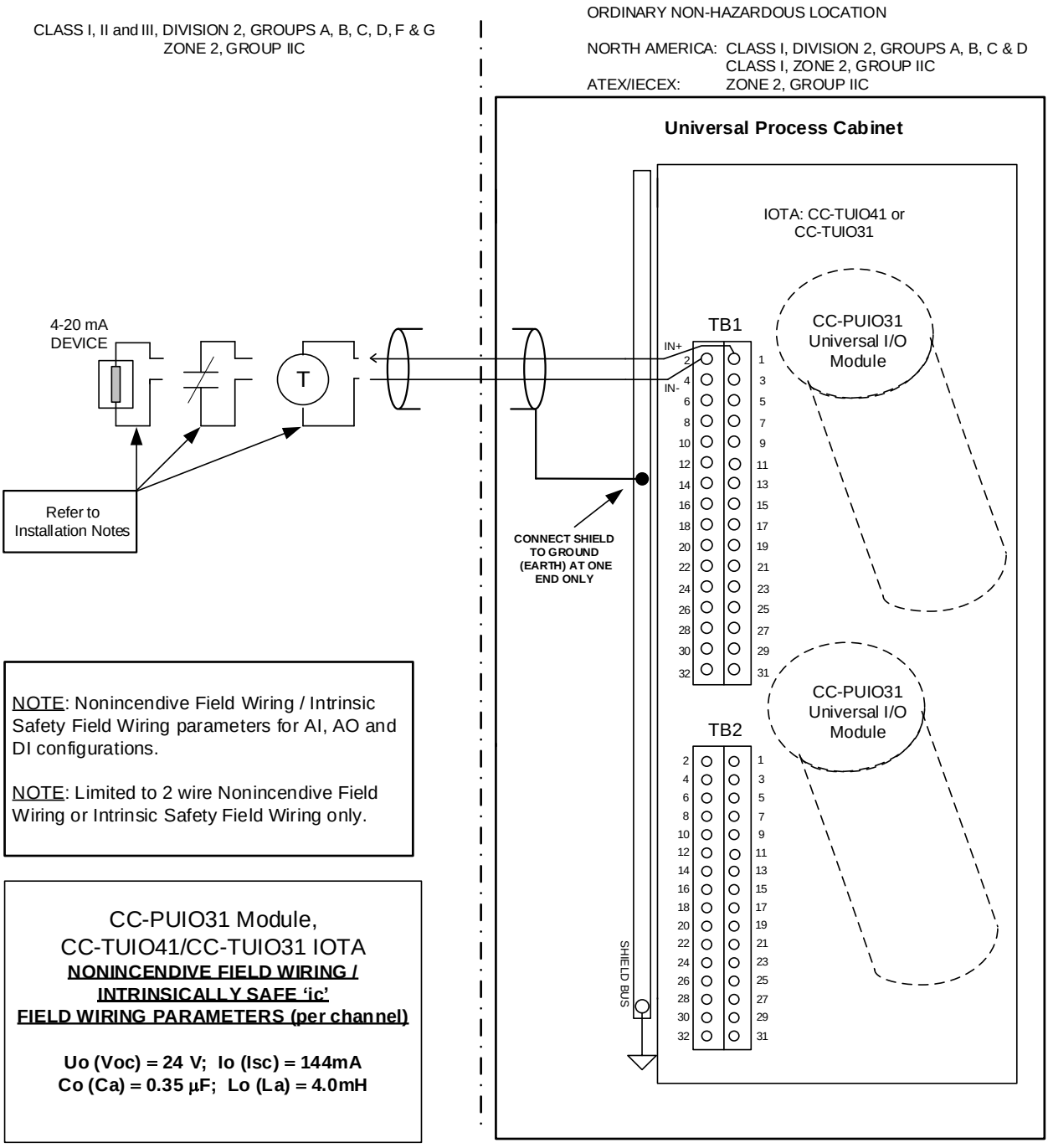


Image showing where 24VDC is connected to terminal P2 on the VIPER terminal block assembly base (51454988)

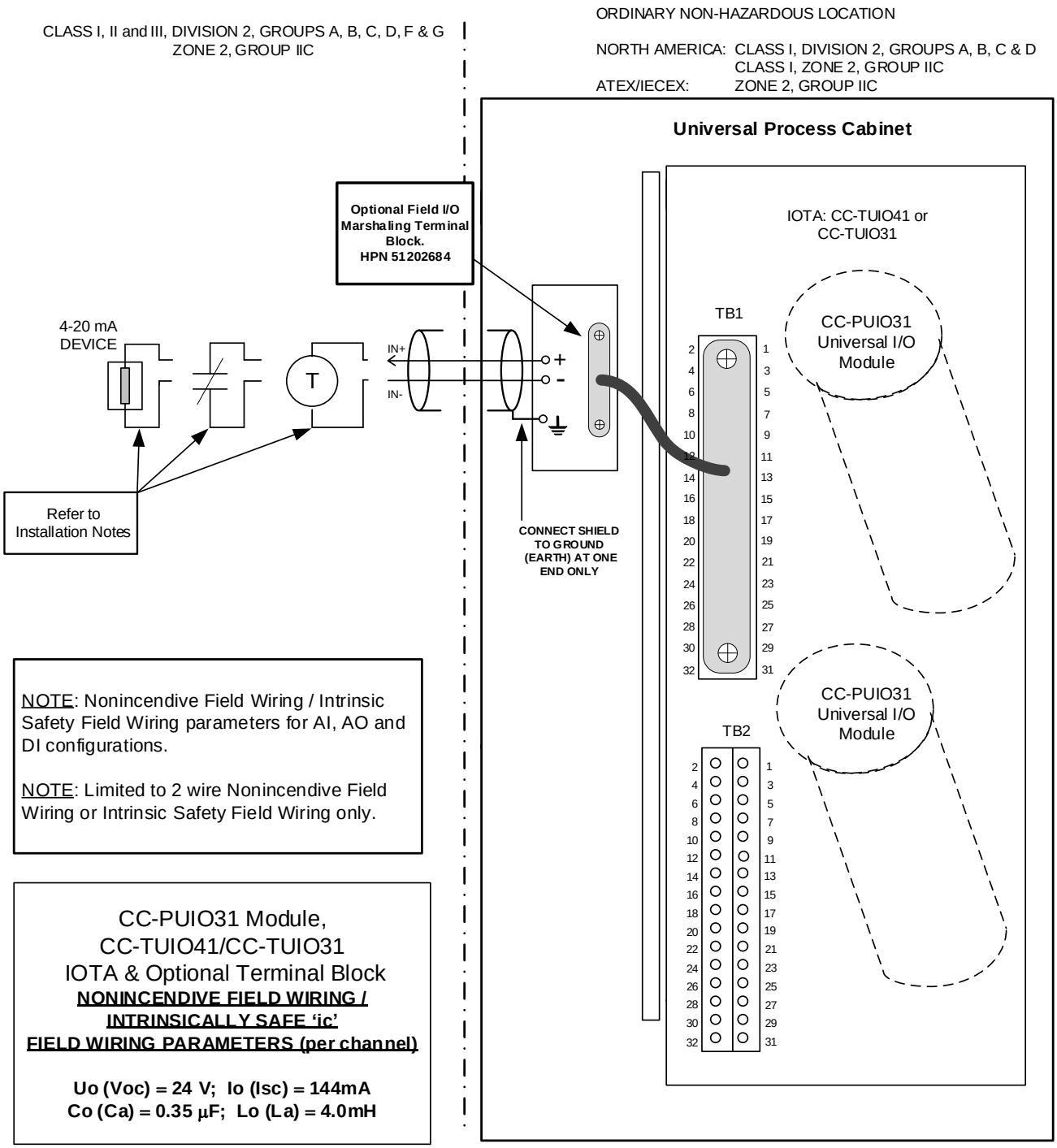
9. Nonincendive Field wiring / Intrinsically Safe Field Wiring Control Drawing

NOTE: THIS CONTROL DRAWING ONLY APPLIES TO NONINCENDIVE FIELD WIRING / INTRINSICALLY SAFE FIELD WIRING. ALL OTHER WIRING SHALL BE INSTALLED ACCORDING TO LOCAL AND NATIONAL ELECTRICAL CODE REQUIREMENTS (NEC, CEC OR IEC/EN 60079-14).

CC-PUIO31 Universal IO Module, CC-TUIO41/CC-TUIO31 IOTA:



CC-PUIO31 Universal IO Module, CC-TUIO41/CC-TUIO31 IOTA & Optional Field I/O Marshaling Terminal Block:



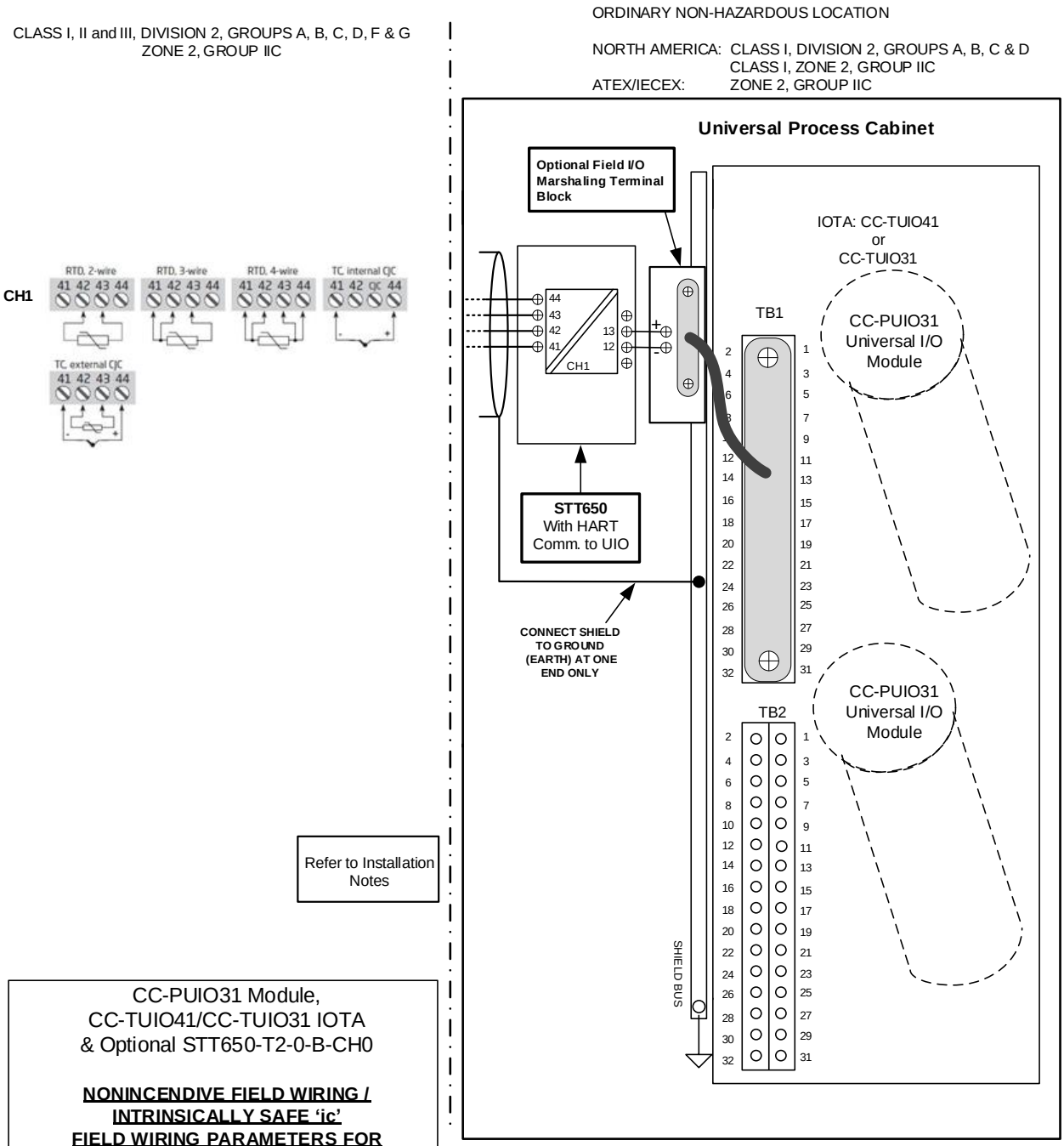
NOTE: Nonincendive Field Wiring / Intrinsic Safety Field Wiring parameters for AI, AO and DI configurations.

NOTE: Limited to 2 wire Nonincendive Field Wiring or Intrinsic Safety Field Wiring only.

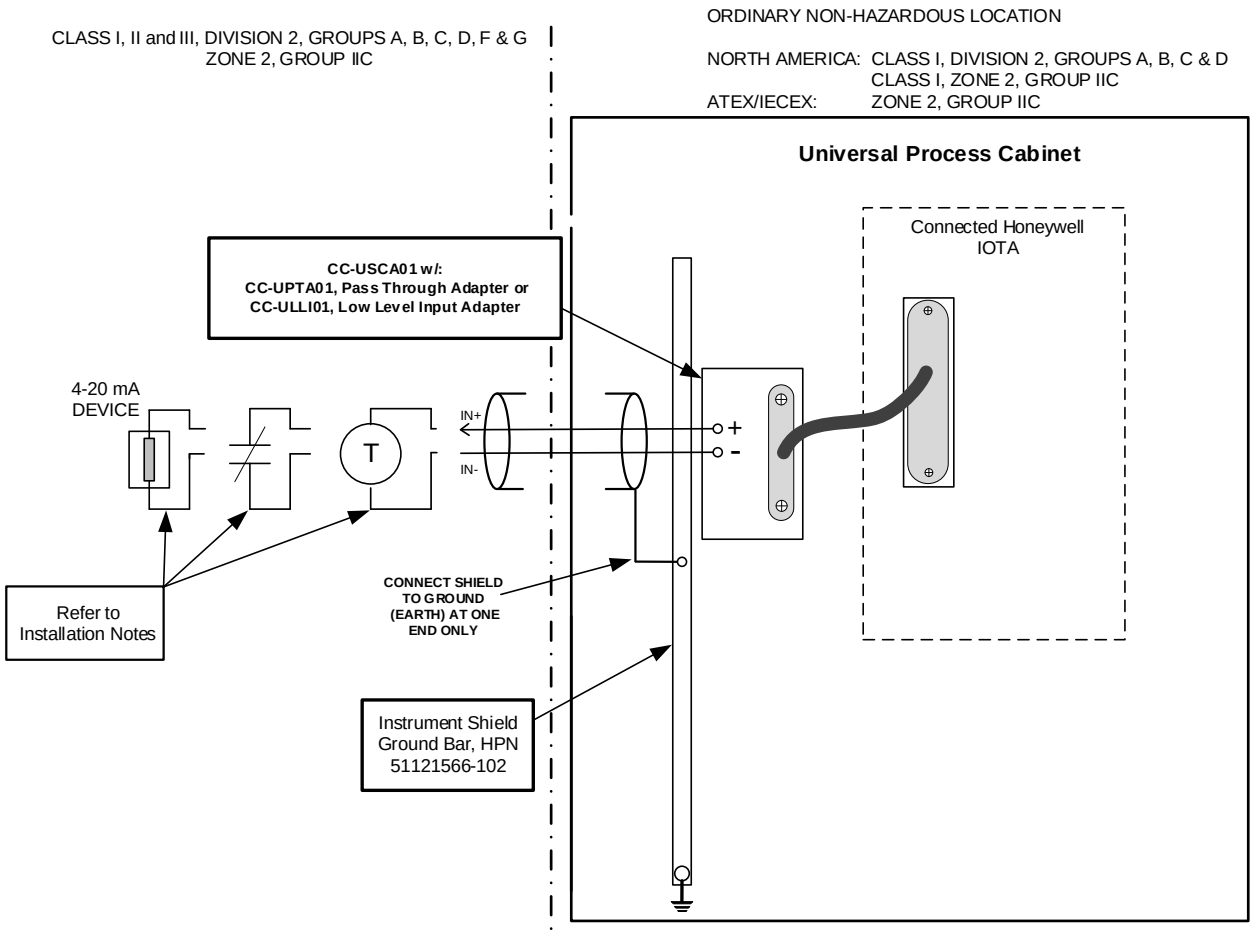
CC-PUIO31 Module,
CC-TUIO41/CC-TUIO31
IOTA & Optional Terminal Block
NONINCENDIVE FIELD WIRING / INTRINSICALLY SAFE 'ic' FIELD WIRING PARAMETERS (per channel)

Uo (Voc) = 24 V; Io (Isc) = 144mA
Co (Ca) = 0.35 µF; Lo (La) = 4.0mH

CC-PUIO31 Universal IO Module, CC-TUIO41/CC-TUIO31 IOTA & Optional STT650-T2-0-B-CH0:



CC-PUIO31 Universal IO Module, CC-TUIO41/CC-TUIO31 IOTA & Optional CC-USCA01 with CC-UPTA01, Pass Through Adapter or CC-ULLI01, Low Level Input Adapter:



CC-PUIO31 Module, CC-TUIO41/CC-TUIO31 IOTA
& Optional CC-USCA01 with CC-UPTA01 or CC-ULLI01
NONINCENDIVE FIELD WIRING / INTRINSICALLY SAFE 'ic' FIELD WIRING PARAMETERS (per channel)

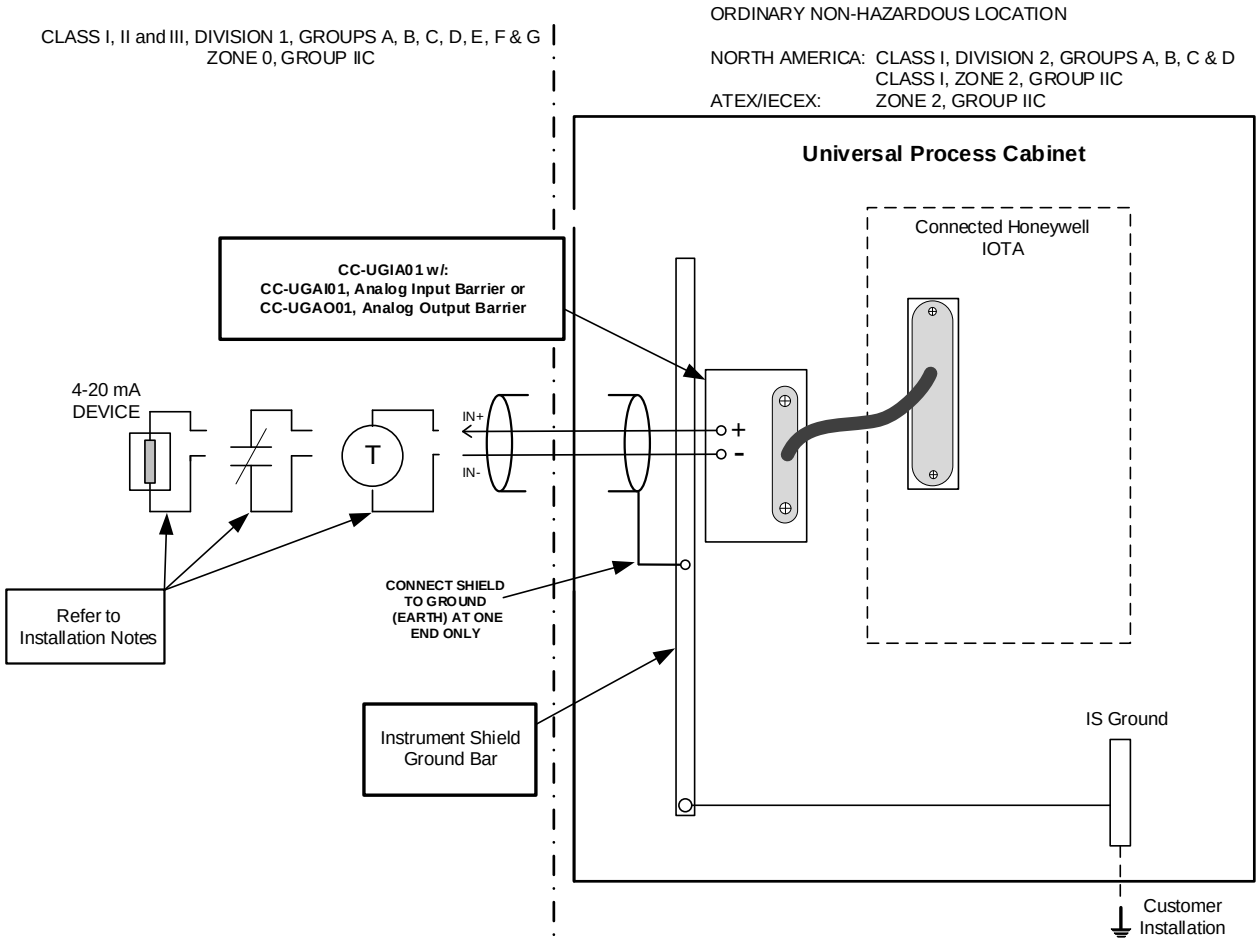
CC-UPTA01: Uo (Voc) = 24 V; Io (Isc) = 144mA; Co (Ca) = 0.35µF; Lo (La) = 4.0mH
CC-ULLI01: Uo (Voc) = 5.88 V; Io (Isc) = 303mA; Co (Ca) = 669µF; Lo (La) = 850µH

NOTE: CC-UPTA01 Nonincendive Field Wiring / Intrinsic Safety Field Wiring parameters for AI, AO and DI configurations.

NOTE: Limited to 2 wire Nonincendive Field Wiring or Intrinsic Safety Field Wiring only.

NOTE: For Field Wiring details refer to the Hazloc manual for the Signal Conditioning Assembly (SCA), 50149737-001.

CC-PUIO31 Universal IO Module, CC-TUIO41/CC-TUIO31 IOTA & Optional CC-UGIA01 with CC-UGAIO01, Analog Input Barrier or CC-UGAO01, Analog Output Barrier:



CC-PUIO31 Module, CC-TUIO41/CC-TUIO31 IOTA
& Optional CC-UGIA01 w/ IS Barriers CC-UGAI01 or CC-UGAO01
INTRINSICALLY SAFE 'ia' FIELD WIRING
PARAMETERS (per channel)

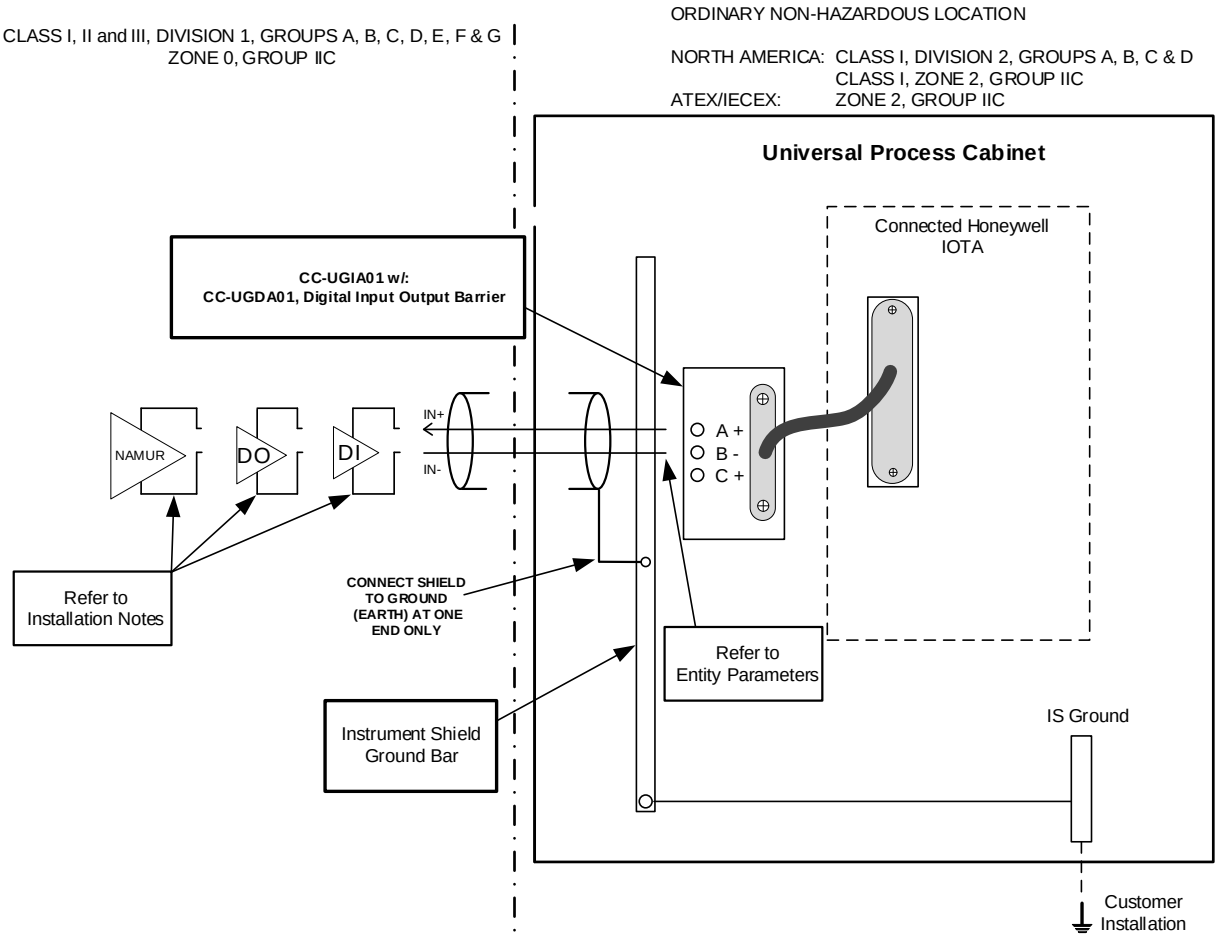
CC-UGAI01: Uo (Voc) = 25.2 V; Io (Isc) = 114.13mA; Po = 714.32mW;
Co (Ca) = 0.085µF; Lo (La) = 2.46mH

CC-UGAO01: Uo (Voc) = 25.2 V; Io (Isc) = 113.1mA; Po = 712.7mW;
Co (Ca) = 0.104µF; Lo (La) = 2.5mH

NOTE: Limited to 2 wire Intrinsic Safety Field Wiring only.

NOTE: For Field Wiring details refer to the Hazloc manual for the Signal Conditioning Assembly (SCA), 50149737-001.

CC-PUIO31 Universal IO Module, CC-TUIO41/CC-TUIO31 IOTA & Optional CC-UGIA01 with CC-UGDA01, Digital Input Output Barrier:



CC-PUIO31 Module, CC-TUIO41/CC-TUIO31 IOTA
& Optional CC-UGIA01 w/ IS Barrier CC-UGDA01
INTRINSICALLY SAFE 'ia' FIELD WIRING PARAMETERS (per channel)

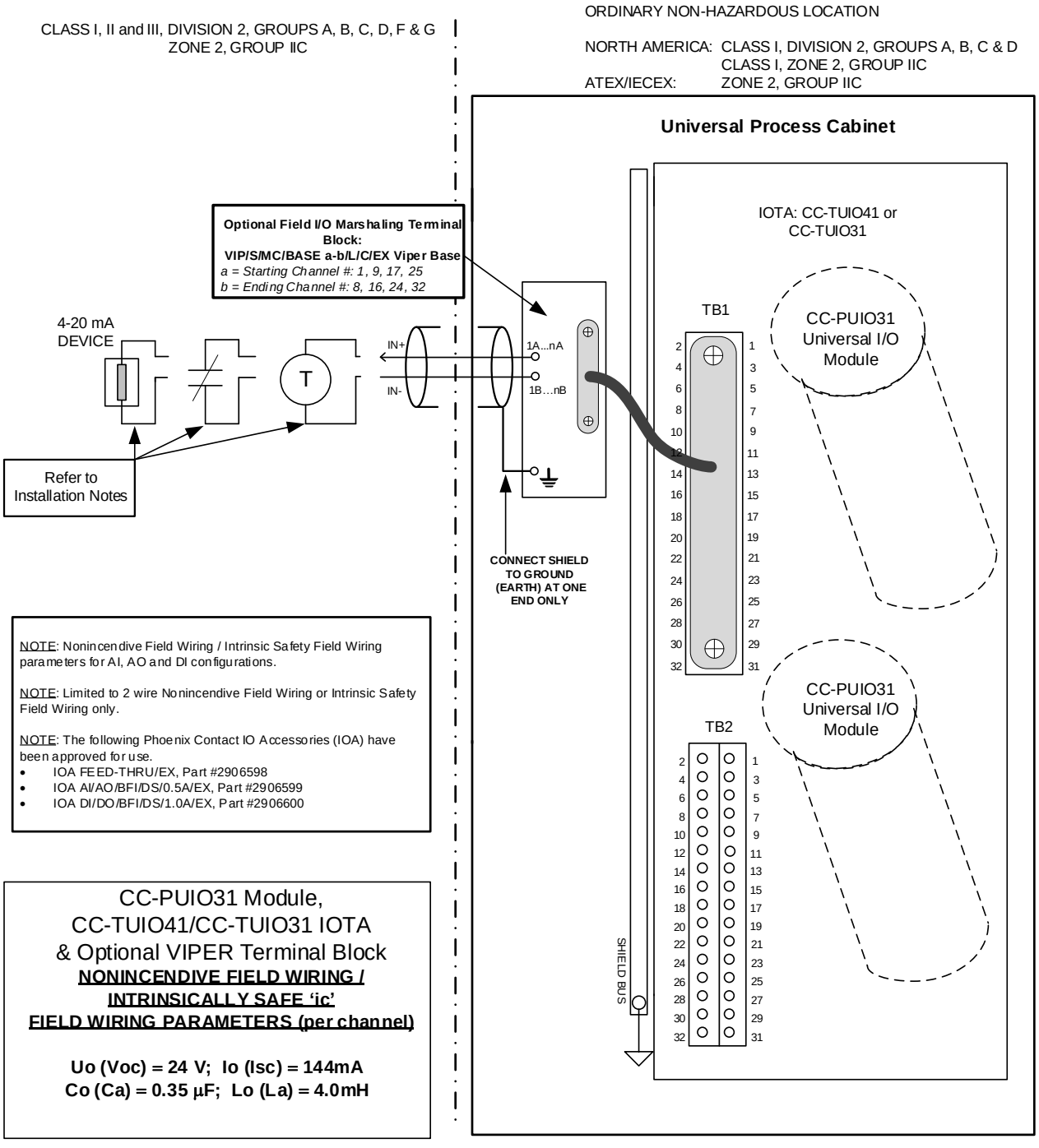
Entity parameters for DI and DO field interface connection, wired between terminal "A" & "B":
Uo (Voc) = 25.2 V; Io (Isc) = 129.4mA; Po = 816mW; Co (Ca) = 0.107µF; Lo (La) = 2.12mH

Entity parameters for NAMUR field interface connection, wired between terminal "B" & "C":
Uo (Voc) = 12.6 V; Io (Isc) = 13.3mA; Po = 41.8mW; Co (Ca) = 1.15µF; Lo (La) = 201mH

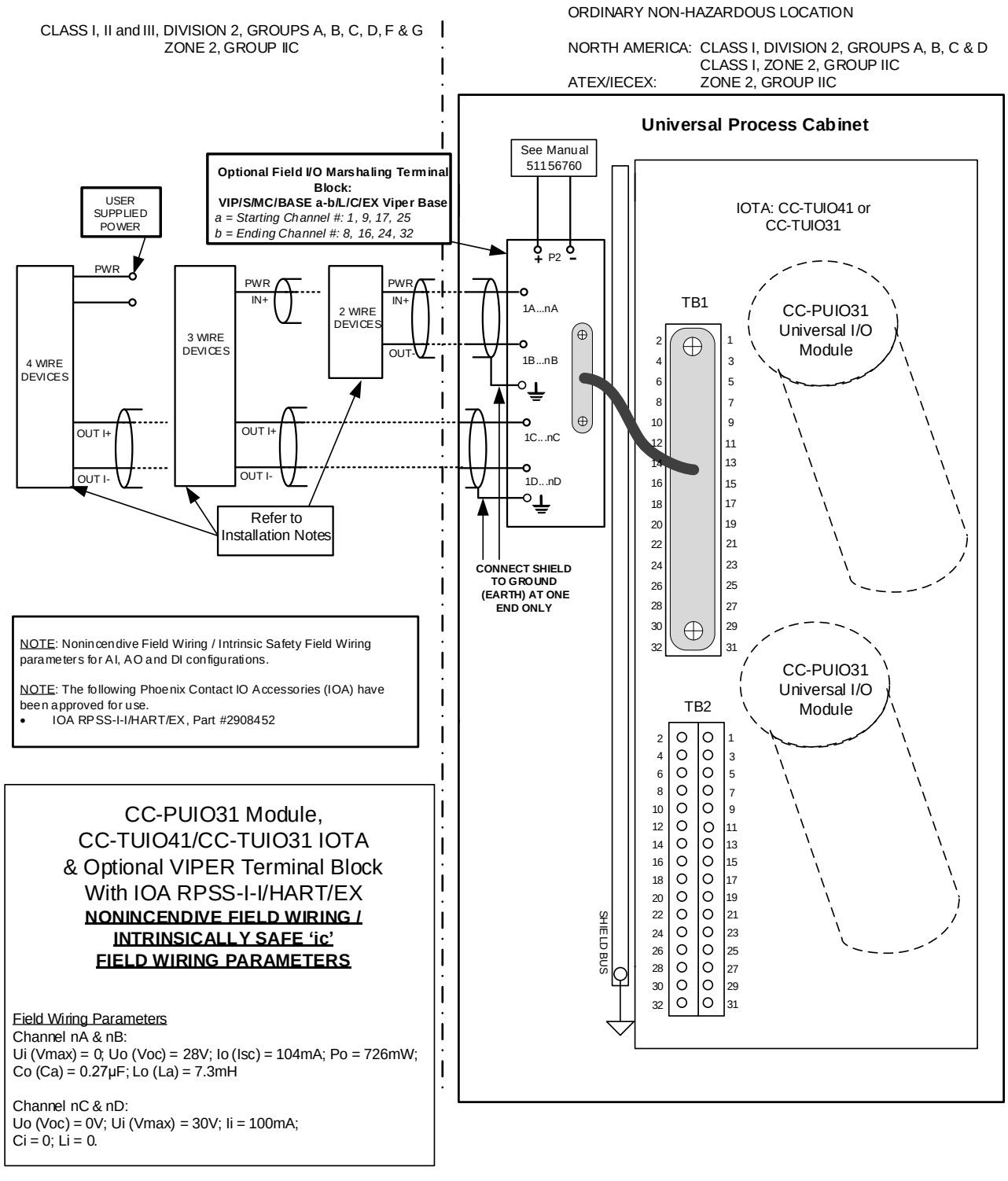
NOTE: Limited to 2 wire Intrinsic Safety Field Wiring only.

NOTE: For Field Wiring details refer to the Hazloc manual for the Signal Conditioning Assembly (SCA), 50149737-001.

CC-PUIO31 Universal IO Module, CC-TUIO41/CC-TUIO31 IOTA & Optional VIPER Field I/O Marshaling Terminal Block:



CC-PUIO31 Universal Module, CC-TUIO41/CC-TUIO31 IOTA & Optional VIPER Field I/O Marshaling Terminal Block with IOA RPSS-I-I/HART/EX:



NOTE: Nonincendive Field Wiring / Intrinsic Safety Field Wiring parameters for AI, AO and DI configurations.

NOTE: The following Phoenix Contact IO Accessories (IOA) have been approved for use.

- IOA RPSS-I-I/HART/EX, Part #2908452

CC-PUIO31 Module, CC-TUIO41/CC-TUIO31 IOTA & Optional VIPER Terminal Block With IOA RPSS-I-I/HART/EX

NONINCENDIVE FIELD WIRING / INTRINSICALLY SAFE 'ic' FIELD WIRING PARAMETERS

Field Wiring Parameters

Channel nA & nB:
Ui (Vmax) = 0; Uo (Voc) = 28V; Io (Isc) = 104mA; Po = 726mW;
Co (Ca) = 0.27µF; Lo (La) = 7.3mH

Channel nC & nD:
Uo (Voc) = 0V; Ui (Vmax) = 30V; Ii = 100mA;
Ci = 0; Li = 0.

INSTALLATION NOTES:

1. INTERCONNECTION OF NONINCENDIVE FIELD WIRING / INTRINSICALLY SAFE APPARATUS MAY ONLY BE ACCOMPLISHED IF THE FOLLOWING CONDITIONS ARE MET:

   Vmax or Ui ≥ Voc OR Vt OR Uo; Imax or Ii ≥ Isc OR It OR Io; Ci + C_{CABLE} ≤ Ca or Co; Li + L_{CABLE} ≤ La OR Lo; Po ≤ Pi (WHERE DEFINED)

   IF THE ELECTRICAL PARAMETERS OF THE CABLE ARE UNKNOWN, THE FOLLOWING VALUES MAY BE USED:

   CAPACITANCE – 200 pF/m (60 pF/ft)
   INDUCTANCE – 0.66 H/m (0.20 H/ft)

2. NONINCENDIVE / INTRINSICALLY SAFE APPARATUS WITH APPLICABLE NONINCENDIVE FIELD WIRING / INTRINSIC SAFETY FIELD WIRING PARAMETERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS CONTROL DRAWING OR SHALL BE SIMPLE APPARATUS. SIMPLE APPARATUS IS A DEVICE THAT WILL NEITHER GENERATE NOR STORE MORE THAN 1.2V, 0.1A, 25 mW, OR 20 J, SUCH AS SWITCHES, THERMOCOUPLES, LIGHT-EMITTING DIODES, RTD's OR CONNECTORS.

3. INSTALLATION MUST BE IN ACCORDANCE WITH ARTICLE 500/505 OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) or SECTION 18 OF THE CANADIAN ELECTRICAL CODE (CEC) CSA C22.1 or EN/IEC 60079-14.

4. NO WIRING CONNECTIONS SHALL BE ACCOMPLISHED WITHIN A DIVISION 2 /ZONE 2 HAZARDOUS (CLASSIFIED) LOCATION UNLESS POWER HAS BEEN REMOVED OR THE AREA IS KNOWN TO BE NON-HAZARDOUS OR UNDER PRESCRIBED SERVICE CONDITIONS LISTED WITHIN THIS MANUAL UNDER SECTION 14.

5. REFER TO THE FIELD DEVICE MANUFACTURER'S SPECIFICATIONS TO DETERMINE IF SHIELDED WIRE IS REQUIRED FOR NORMAL OPERATION OR CE CONFORMITY. WHEN SHIELDED WIRE IS REQUIRED BY THE FIELD DEVICE OR HONEYWELL REQUIREMENTS, THE SHIELD SHALL BE GROUNDED AT ONE END ONLY. FOR REMOTE INSTALLATIONS UTILIZING A FIELD TERMINATION ASSEMBLY (FTA), GROUND IN ACCORDANCE WITH ARTICLE 501-10 OF ANSI/NFPA 70 or SECTION 18 OF THE CANADIAN ELECTRICAL CODE (CEC) CSA C22.1 or IEC/EN 60079-14.

10. Warnings & Specific Conditions of use

⚠ **WARNINGS and CAUTIONS**

1. WARNING – EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT UNLESS AREA IS KNOWN TO BE NON HAZARDOUS.
   AVERTISSEMENT – RISQUE D'EXPLOSION – NE PAS BRANCHER OU DÉBRANCHER À MOINS D'ÊTRE DANS UN ENVIRONNEMENT CONSIDÉRÉ COMME NON DANGEREUX.
2. WARNING – DO NOT REMOVE OR REPLACE FUSE WHEN ENERGIZED UNLESS THE AREA IS KNOWN TO BE NON HAZARDOUS.
   AVERTISSEMENT – NE PAS RETIRER OU REMPLACER UN FUSIBILITÉ QUAND IL EST ENERGISE A MOINS QUE LA ZONE EST CONNUE A NE PAS PELANGER.
3. WARNING – FOR CONNECTIONS USE WIRE RATED FOR A MINIMUM OF 70ºC
   AVERTISSEMENT – POUR LES CONNEXIONS UTILISER UN FIL À UN MINIMUM DE 70ºC.

SPECIFIC CONDITIONS OF USE	cCSAus	IECEx	ATEX
Before commissioning of this equipment, it must be verified that the supply voltage cannot exceed the voltage rating as identified on the product label	X	X	X
The ambient temperature range of the equipment is dependent on the construction and loading used in installation as per Table 1. The power dissipation for the VIPER is calculated per Table 2a and per Table 2b for the Signal Conditioning Adaptors (SCA).	X	X	X
Wiring to or from these devices, which enters or leaves the system enclosure, must utilize wiring methods suitable for Class I, Division 2 (and Class I, Zone 2) Hazardous Locations, or as appropriate for the installation.	X		
Gland plate must be configured with IP66 minimum rated cable glands or conduit fittings at the time of final installation.	X	X	X
24VDC must be removed from the Phoenix Contact Field IO terminal blocks intended to support Nonincendive / Intrinsically Safe field wiring except when only the following IOA module is installed: IOA RPSS-I-I/HART/EX	X	X	X
If Phoenix Contact IOA REL 230V DO/BFI/NO/3.0A/EX or IOA REL 230V DO/BFI/NC/3.0A/EX 230V is supplied to P2+/-, no connection is permitted on P1+/- and only 230V Relay IOAs can be used. It is not permitted to mix 230V Relay IOA's with 120V or 24V or RPSS I/I modules.	X	X	X

<table>
<tr><td>When the Phoenix Contact Field IO terminal block is used for the connection of intrinsically safe ‘(A)Ex ic’ circuits:
• Only modules that have intrinsically safe field connections shall be fitted
• a VIP/S/BASE 3L DIVIDER partition shall be fitted between P2+/- connections and the I.S. field connections.
• No connections are permitted on P1 +/-
• 30VDC maximum is permitted on P2+/-
• Only the following IOAs (IS configuration only) can be mixed on the base:
o IOA FEED-THRU/EX
o IOA AI/AO/BFI/DS/0.5A/EX
o IOA DI/DO/BFI/DS/1.0A/EX
o IOA RPSS-I-I/HART/Ex.</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>When the Phoenix Contact Field IO terminal block is located in a Zone 2 with connections to (A)Ex nA/ec devices, and 30Vdc is supplied to P1+/- and P2+/-, the following modules may be used in any combination:
• IOA FEED-THRU/EX used in non-intrinsically safe mode
• IOA AI/AO/BFI/DS/0.5A/EX used in non-intrinsically safe mode
• IOA DI/DO/BFI/DS/1.0A/EX used in non-intrinsically safe mode
• IOA REL 24V DI/BFI/1.0A/EX
• IOA REL 24V DO/BFI/3.0A/EX
• IOA RPSS-I-I/HART/Ex used in non-intrinsically safe mode</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>When the Phoenix Contact Field IO terminal block is located in a Zone 2 with connections to (A)Ex nA devices, with 30Vdc supplied to P1+/- and 120Vac supplied to P2+/-, the following modules may be used in any combination:
• IOA FEED-THRU/EX used in non-intrinsically safe mode
• IOA AI/AO/BFI/DS/0.5A/EX used in non-intrinsically safe mode
• IOA DI/DO/BFI/DS/1.0A/EX used in non-intrinsically safe mode
• IOA REL 24V DI/BFI/1.0A/EX
• IOA REL 24V DO/BFI/3.0A/EX
• IOA REL 120V DI/1.0A/EX
• IOA REL 120V DO/BFI/3.0A/EX</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>Once device CC-UGAI01, CC-UAIA01, CC-UGAO01 or CC-UAOA01 is installed onto the Universal Signal Conditioning Assembly base (CC-USCA01 or CC-UGIA01 as applicable), the entire 16 channel base is limited to the following:

<table><tr><th>USCA Mounting Position</th><th>Max Allowable Power Dissipation (Watt) per base</th></tr><tr><td>1, 2, 3, 5 & 6</td><td>19.084W</td></tr><tr><td>4</td><td>14.680W</td></tr></table>
*Note: USCA Mounting Positions are described in Universal Process Cabinet (UPC) Hazloc Manual reference 51156760 Section 4 under Table 5.</td><td>X</td><td>X</td><td>X</td></tr>
</table>

The Universal signal conditioning assembly (Model CC-USCA01) shall be used in either of the below configurations. These two configurations are mutually exclusive and are never to be mixed. • Intrinsically Safe (Ex ic) field connection configuration which uses a combination of the following modules o Pass through adapter module – Model CC-UPTA01 - Connects to I.S (Ex ic) signals on DCS side & Field side both o Universal Low Level Input Adapter – Model CC-ULLI01 - Connected to Non-IS (Ex ec) signals on the DCS side, and (Ex ic) I.S. signals on the field side • Alternatively, the assembly shall be used only for non I.S signals a combination of the following modules: o Digital Input (DI) relay module - Model CC-UDIR01 o Digital Output (DO) relay module - Model CC-UDOR01 o Analog Input (AI) Isolator Module - Model CC-UAIA01 o Analog Output (AO) Isolator Module - Model CC-UAOA01 o Digital Input Output (DIO) Isolator Module - Model CC-UDXA01 o Pass through adapter module - Model CC-UPTA01 o Universal Low Level Input Adapter - Model CC-ULLI01	X	X	X
The use of Universal signal conditioning assembly IS version - (Model CC-UGIA01) shall be restricted to the following modules: • Analog Input (AI) Barrier Module – Model CC-UGAI01 • Analog Output (AO) Barrier Module – Model CC-UGAO01 • Digital Input Output (DIO) Barrier Module – Model CC-UGDA01	X	X	X
The Digital Input Output (DIO) Barrier Module – (Model CC-UGDA01) has two sets of entity parameters: • For DI and DO field connections, terminals A & B • For NAMUR DI Field connections, terminals B & C These two connections shall not be connected simultaneously for the same channel.	X	X	X

11. UPC Supported IO Configurations per Assembly Drawing 50152846:

IO CONFIGURATIONS:

COMPONENTS	HONEYWELL P/N	POINTS	Limit
REDUNDANT UIO2 IOTA & IOM	CC-TUIO41, CC-PUIO31	32 each	≤ 3
NON-REDUNDANT UI02 IOTA & IOM	CC-TUIO31, CC-PUIO31	32 each	≤ 3
LLAI IOTA & IOM	CC-TAIL51, CC-PAIL51	16 each	≤ 8

MIXED IO CONFIGURATIONS:

UP TO TWO REDUNDANT UIO2 IOTAs w/ IOMs (32-64 POINTS) & UP TO TWO LLAI w/ IOMs (16-32 POINTS)		
COMPONENTS	HONEYWELL P/N	POINTS
REDUNDANT UIO2 IOTA & IOM	CC-TUIO41, CC-PUIO31	32 each
LLAI IOTA & IOM	CC-TAIL51, CC-PAIL51	16 each

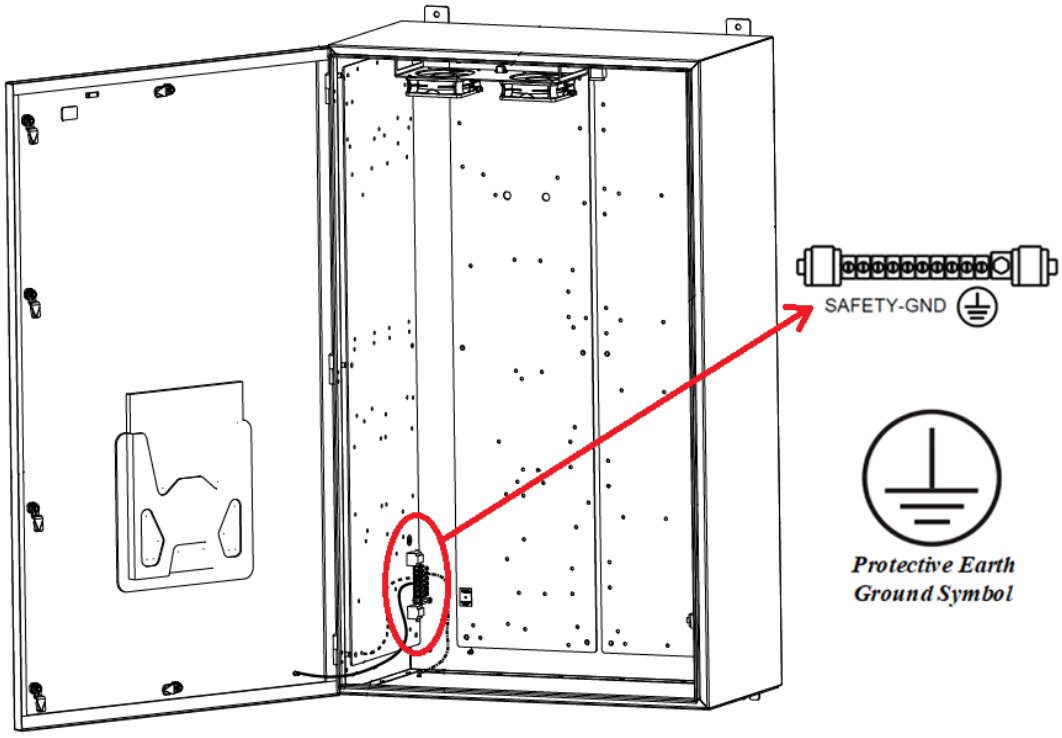
UP TO TWO NON-REDUNDANT UIO2 IOTAs w/ IOMs (32-64 POINTS) & UP TO THREE LLAI w/ IOMs (16-48 POINTS)		
COMPONENTS	HONEYWELL P/N	POINTS
NON-REDUNDANT UIO2 IOTA & IOM	CC-TUIO31, CC-PUIO31	32 each
LLAI IOTA & IOM	CC-TAIL51, CC-PAIL51	16 each

CONTROL IO CONFIGURATIONS:

UP TO ONE REDUNDANT OR NON-REDUNDANT CN100 w/ OPTIONAL SM SFP OR MM SFP ***NOTE: not available with LLAI configurations > 32 Points.***	
COMPONENTS	HONEYWELL P/N
CN100 IOTA, IOM, NETWORK ADAPTER	CC-TION13, CC-IION01, CC-INAM01
OPTIONAL SM SFP	50154761-001
OPTIONAL MM SFP	50154762-002

12. Protective Earth Ground

The UPC is equipped with a labeled Protective Earth Ground identified as SAFETY-GND. For personnel protection, the protective earth ground conductor must be connected to the protected earth ground terminal prior to connecting the Mains wiring. The protective earth ground conductor must be 10AWG minimum for AC Mains and DC Mains applications. The figure below illustrates where to connect the protected earth ground conductor.



CE Conformity Note for EMC Compliance:

For EMC compliance, attach a 4AWG (25 mm2) wire from the SAFETY-GND bar in the UPC to an equipotential earth (such as a stake in the ground) with a maximum length of 5 meters.

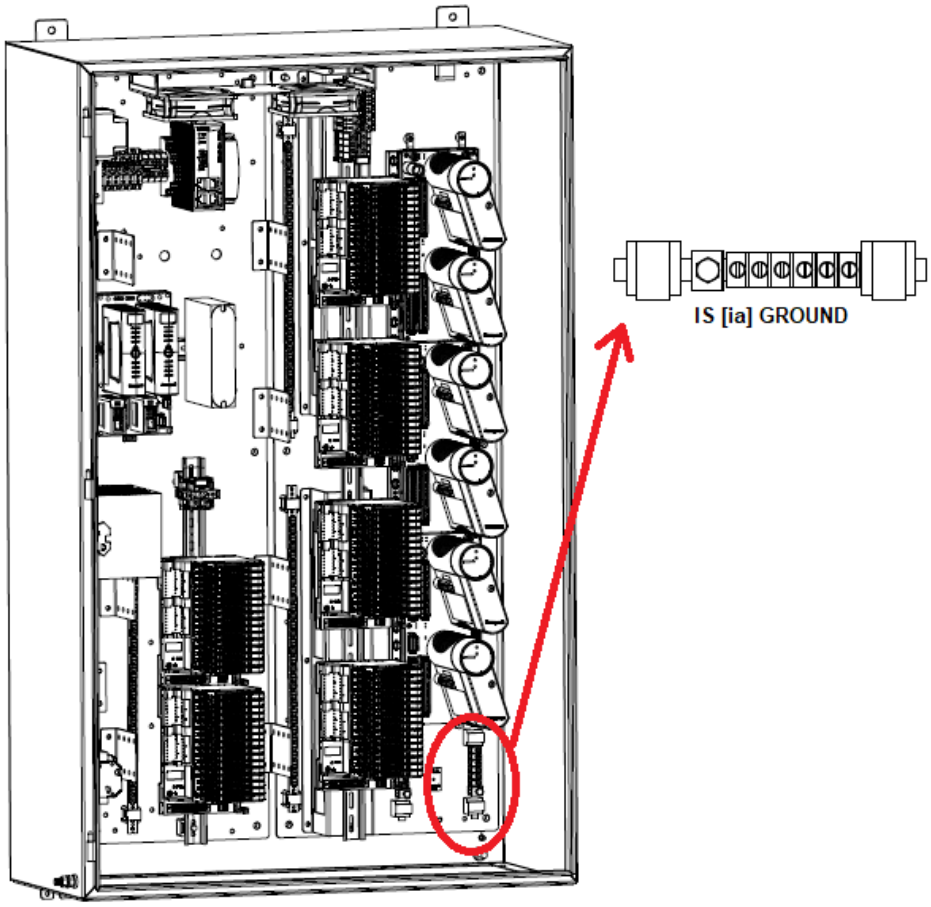
13. Shield Ground for Intrinsically Safe ‘ia’ Applications

UPC’s configured with IS [ia] terminations will have all IS [ia] Instrument Shield Ground Bar references factory wired to the IS [ia] Ground. The location of the UPC’s IS [ia] Ground is highlighted below.

The end installation must provide a dedicated external IS [ia] ground in accordance with applicable installation guidelines article 500/505 of the National Electrical Code (ANSI/NFPA 70) or Section 18 of the Canadian Electrical Code (CEC) CSA C22.1 or EN/IEC 60079-14.

Wire Size: **2-6 AWG for the 10mm wide Clamping yokes**
6-12 AWG for the 14mm wide Clamping yoke

Torque Requirements: **Detailed within Section 7 for Ground Bar Assemblies.**



14. Service and Maintenance

WARNING:
Service and Maintenance shall only be performed by service personnel with the knowledge of associated risks inherent with servicing and maintaining live electrical equipment. If the equipment is used in a manor not identified within this manual, protection provided by the equipment might be impaired.

Service and maintenance personnel must connect to the ESD Bonding point, located by the Safety-GND Bar in the UPC, for grounding against static charge buildup during maintenance procedures.

CLEANING INSTRUCTION NOTE:
All external labels shall only be cleaned with a cloth damped with water.

GENERAL MOUNTING INSTRUCTION NOTE:
Refer to the Universal Process Cabinet Planning, Installation & Service Guide (EPDOC-X637) for further information regarding mounting, including the removal and installation of IO Modules.

PRESCRIBED SERVICE CONDITIONS – Hazardous Atmosphere:

1. Opening of the cabinet door and visually inspecting status indicators and lights are allowed within Hazardous environments. Field servicing of the UPC during rain/or high humidity must be avoided. If unavoidable, precautions must be taken not to wet the interior of the UPC.

15. Support and other contacts

World Wide Web
Honeywell Process Solutions support website: http://www.honeywellprocess.com/support

Elsewhere
Contact your nearest Honeywell office.