Honeywell

Technical Information

# Experion Series-C Platform Specification



## EP03-520-515

**Release 515**

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## Revision History

| Revision | Date | Description |
|---|---|---|
| 1.0 | August 2013 | Preliminary version, contents subject to change |
| 1.1 | November 2013 | Added COTS PS information. Updated Standard Approvals information |
| 1.2 | February 2014 | Addition of Remote Modular Cabinet |
| 1.3 | January 2015 | Updated Vibration Specification & Minor Corrections |
| 1.4 | June 2015 | Added Universal Process Cabinet |
| 1.5 | March 2016 | Added 1.2M Universal Process Cabinet |
| 1.6 | May 2018 | Updated EMC specifications |
| 1.7 | November 2018 | Updated Power Supply Modules |
| 1.8 | August 2020 | Updated with 1.3 mtr Universal Process Cabinet |

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# 1. Product Introduction Summary

## 1.1. Overview

This document provides information relating to the common components required to support, configure and operate the Experion ® Series C Control system.

The following Series C items are included in this document.

- Environmental characteristics
- Approvals
- Power system



## 1.2. Features

All Series C components feature an innovative design that improves heat management. This unique look provides a significant reduction in overall size for the equivalent function. Unique features of Series C include:

- Electronics modules are tilted for better heat distribution.
- I/O Module and field terminations are combined in the same area. The I/O Module is plugged into an I/O termination assembly (IOTA) to eliminate the need for a separate chassis to hold the electronics assemblies.
- Two level “detachable” terminals for landing the field wiring in the enclosure, providing easier plant installation and maintenance.
- Field power is supplied through the IOTA, with no need for extra power supplies and the associated craft wired marshalling.
- Redundancy is accomplished directly on the IOTA without any external cabling or redundancy control devices, by simply adding a second IOM to an IOTA. The C300 redundancy is accomplished with a cable physically connecting two C300 Controllers in a redundant configuration.
- The electronics modules can be removed and re-inserted under power with no damage to the Series C system This is known as Removal and Insertion Under Power (RIUP)
- Over-current detection and prevention methods are employed to allow for short circuits in the field without affecting adjacent channels or blowing a fuse.

# 2. Environmental Characteristics and General Series-C Information

This section relates to the physical characteristics applicable to all Series C components. Where applicable, specifications state limits within an approved cabinet and to the cabinet skin.

| Consideration | Operating Limits (1) | Transportation and Storage Limits (1a) |
|---|---|---|
| Ambient Temp Range | External: 0 to +50°C (2)<br>Internal: 0 to +60°C (3) | -40 to 85°C |
| Temp. Rate of Change | <= 1°C/min. | <=5°C/min. |
| Relative Humidity | 5 to 95% (non condensing) | 5 to 95%, (non condensing) |
| Barometric Pressure<br>Altitude | -300 to +3000 m | any |
| Corrosives | G3 Standard (ISA S71.04) – Denoted by "CC-" model number | G3 |
| Ingress Protection (8) | IP 20 NEMA 1 | IP 20 NEMA 1 |
| **EMC Product Standard** | **EMC Test Standards** | **EMC Industrial Levels** |
| EN 61326-1:2013,<br>IEC 61326-1:2012<br><br>Electrical equipment for measurement, control and laboratory use – EMC requirements | CISPR 11 | Class A, 150kHz - 1000MHz |
| | IEC/EN 61000-4-2 Electrostatic Discharge | 4kV Con / 8kV Air |
| | IEC/EN 61000-4-3 Radiated EM Field | 10V/m (80MHz - 1000MHz),<br>3 V/m (1,4 GHz to 2 GHz),<br>1 V/m (2,0 GHz to 2,7 GHz) |
| | IEC/EN 61000-4-4 Electrical Fast Transient/Burst | AC/DC Pwr 2.0kV, Sig/Con 1.0kV |
| | IEC/EN 61000-4-5 Surge Immunity | AC/DC Pwr 2kV L-G, 1kV L-L,<br>Sig/Con 1kV L-G |
| | IEC/EN 61000-4-6 RF Conducted Disturbances | 3V, 150KHz - 80MHz |
| | IEC/EN 61000-4-8 Power Freq. Magnetic Field | 30A/m, (1A/m for CRT) |
| | IEC/EN 61000-4-11 Voltage Dips and Fluctuations | 0 % during 1 cycle,<br>40 % during 10 cycles,<br>70 % during 25 cycles,<br>0 % during 250 cycles |
| Vibration (6,7)<br>(3 axes) | Sinusoidal (4)<br>(5 to 10 Hz) 2.54mm/0.100in Max (10 to 150 Hz) 0.5 g max. (0-Pk) | Random (5)<br>Vertical Shipping Axis<br>5 to 300 Hz 1.07 g (rms)<br><br>Longitudinal and Transverse<br>10 to 500 Hz |
| Vibration<br>(3 axes) | Sinusoidal (5 to 10 Hz) 2.54mm/0.100in constant<br>(10 to 150 Hz) 0.5 g constant<br>All three axes, 60 minutes each axis, 5 minutes/range (Six sweep cycles: 5-150-5)<br>10 Hz is approximate – exact crossover freq. is determined by the intersection of the displacement and acceleration. | Random<br>Vertical Shipping Axis 5 to 300 Hz 1.07 g (rms)<br>(Note 1), (Fig.1),(Table 1)<br>Longitudinal and Transverse<br>10 to 500 Hz, 0.74 g (rms)<br>(Fig. 2),(Table 2)<br>60 Minutes each axis |

| Consideration | Operating Limits (1) | Transportation and Storage Limits (1a) |
|---|---|---|
| Mechanical Shock<br>(3 axes) | 15g, 11ms, half-sine wave form, (3) pulses in positive & negative directions, and for each axis. | Rotational drop:<br>1 edge of cabinet in contact with the floor and opposite edge dropped from 6 inches<br>Repeat for all (4) edges |
| Mechanical Shock (7)<br>(3 Axes) | Site Induced:<br>Terminal Peak Sawtooth waveform 4g max. @25ms | N/A |

**Notes**

1. Operating Limits define the range of operating conditions within which the system is designed to operate. Performance characteristics are defined when operating in this state. Please see ANSA/ISA D 51.1 Process Instrumentation Terminology for more information.
    a. Transportation and Storage Limits define the range of conditions to which the system may be subjected without permanent damage to the equipment. Performance is not guaranteed in this state. Please see ANSA/ISA D 51.1 Process Instrumentation Terminology for more information.
2. This rating applies to the external ambient temperature of the Standard 2000mm enclosure with doors closed.
3. This rating applies to the internal ambient temperature of the Standard 2000mm enclosure with the doors closed.
4. 10 Hz is approximate – exact crossover freq. is determined by the intersection of the displacement and acceleration.
5. Composite Transportation Test Curve--encompassing maximum Random Vibration power spectral density values associated with ground, air, and sea transportation environments.
6. Information acquired from Vibration Specification 51199949
7. Series-C characteristics as shown when housed within a Rittal TS8 cabinet (CC-C8DS01, CC-C8SS01)

## A note on the transportation of Batteries

Some Government agencies have regulations that may prohibit air transport of Lithium Batteries.

## A note on the transportation Vibration specification

The transportation portion of the vibration specification in the vertical direction adheres to ASTM D4169–96 *Standard Practice for Performance Testing of Shipping Containers and Systems* for Truck and Air at Quality Assurance Level II, and in the longitudinal and transverse axes MIL-STD_810F, Category 4 – Truck Transportation over US Highways. The transportation shock adheres to ASTM D4169-96 *Standard Practice for Performance Testing of Shipping Containers* for “Mechanical Handling: Fork Lift Truck Handling for items over 500 lbs [226.8 kgs] Quality Assurance Level II.

# 3. Approval Bodies

## 3.1. Factory Mutual

**Division 2 Approvals:** All models[1] are approved as non-incendive for use in Class I, Division 2, Group A, B, C, D hazardous (classified) locations.Selected low voltage AO, AI and DI models will also have additional approval as having non-incendive field wiring for connection to Class I, Division, 2, Group A, B, C and D hazardous (classified) locations.

**Zone 2 Approvals :** All models[1] are approved as normally non-sparking apparatus for use in Class I, Zone 2, AEx nA IIC hazardous (classified) locations.Selected low voltage AO, AI and DI models will also have additional approval as having non-incendive field wiring connections to Class I, Zone 2, Group IIC hazardous (classified) locations.

Temperature rating of all individual models as well as cabinet configurations is rated T4.

## 3.2. Canadian Standards Association

**Division 2 Certifications:** All models are certified as suitable for use in Class I, Division 2, Group A, B, C, D hazardous locations.

**Zone 2 Certifications:** All models are certified as normally non-sparking apparatus, Ex nA IIC, for use in Zone 2 hazardous locations.

Selected low voltage AO, AI and DI models will also have additional certification as having energy limited circuits, Ex nA [L] IIC, for field wiring connections within Class I, Zone 2, Group IIC hazardous (classified) locations.

Temperature rating of all individual models as well as cabinet configurations is not to exceed T4.

## 3.3. ATEX Certification

**Zone 2 Certifications:** All models are certified as normally non-sparking apparatus, II 3 G EEx nA IIC, for use in Zone 2 hazardous locations.Selected low voltage AO, AI and DI models will also have additional certification as having energy limited circuits, II 3 G EEx nA [nL] IIC, for field wiring connections within Zone 2, Group IIC hazardous locations.

Temperature rating of all individual models as well as cabinet configurations are rated T4.

## 3.4. IECEx Certification

**Zone 2 Certifications:** All models are certified as normally non-sparking apparatus, Ex nA IIC, for use in Zone 2 hazardous locations.Selected low voltage AO, AI and DI models will also have additional certification as having energy limited circuits,Ex nA [nL] IIC, for field wiring connections within Zone 2, Group IIC hazardous locations.

## 3.5. Temperature rating of all individual models as well as cabinet configurations are rated T4.European Compliance (CE)

- European EMC Directive 2004/108/EC
- EN 61326-1 2013 Electrical equipment for measurement, control and laboratory use - EMC requirements.
- European LVD Directive 2006/95/EC
- IEC/EN 61010-1:2010 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use.
- Part 1: General Requirements

## 3.6. Australia & New Zealand Compliance (C-Tick)

Compliance with the requirements of the relevant ACMA Standards made under the Radiocommunications Act 1992 and the Telecommunications Act 1997. These Standards are referenced in notices made under section 182 of the Radiocommunications Act and 407 of the Telecommunications Act.

## 3.7. Detailed Specifications – Approvals

| Consideration | Operative and Storage Limits | Transportation Band |
|---|---|---|
| Agency Approvals | <br>**Cabinet:**<br>Class I, Division 2, Grp. ABCD, T4<br>Class I, Zone 2, AEx/Ex nC[nL] IIC T4<br>ATEX II 3G EEx nC [nL] IIC T4<br>IECEx Ex nA [nL] IIC T4<br><br>**Field Wiring**:<br>Nonincendive & [nL] field wiring | |

**Notes:**

(1) Ser-C CN100 hardware comprising of CC-TION11, CC-TION12, CC-IION01 and CC-INAM01 are not certified by FM.

# 4. Series-C Power Systems

The Series C Power System provides 24 Vdc power to compatible Series-C components.



Series-C power is provided by a purposed built Series-C power system, two Commercial Off the Shelf (COTS) power systems as well as direct 24V feed (optional). Each power system provides unique capabilities that are tailored for the particular Series-C need.

## 4.1. Series-C Purpose Built Power System

The Series C purpose built power system provides optionally redundant 24VDC primary power at 20 and 40 amps for Series C devices. The power system allows for reserve (battery) power when disconnected from the power mains.
The power system also provides capabilities to support integral field power. This eliminates the need for additional power sources as well as the additional wiring, fusing, marshalling and documentation costs.

### 4.1.1. Notable Features

- Modular – “Blade” design allows for easy maintenance in the field.
- Space efficient design
- Designed specifically for Series C
- 20A and 40A Capacities Available
- Power supply is removable and insert-able under power
- Redundant power supply
- Optional battery backup for a minimum of 30 minutes at 20A (Note: Battery Backup available on 20A power system only)
- Seamless switch operation between power supplies or battery backup system
- Visual and point contact alarms on all power system components
- Full Series-C HAZLOC Approvals

### 4.1.2. Model Numbers

| Description | Model or Part Number |
|---|---|
| Power System (20A), redundant (2 power supplies), 120/240 VAC, with 24V Backup Battery Assembly | CC-PWRB01 |
| Power System (20A), redundant (2 power supplies), 120/240 VAC | CC-PWRR01 |
| Power Subsystem (20A), non-redundant (one power supply), 120/240 VAC | CC-PWRN01 |
| Power Subsystem (40A), redundant (one power supply), 120/240 VAC | CC-PWR401 |
| Power Subsystem (40A), non-redundant (one power supply), 120/240 VAC | CC-PWN401 |
| ***Spare/Loose Items*** | |
| 24V Backup Battery Kit (3 batteries and interconnecting cables) | 51199946-100 |
| 20A Power Supply | 51198685-100 |

### 4.1.3. Detailed Specifications

| Detailed Specifications – Power System PARAMETER | OPERATING BAND(1) | OPERATING LIMITS(1a) |
|---|---|---|
| **AC Input (VAC, rms)** | 100-230 | 85-264 |
| **Frequency (Hz)** | 47-63 | 47-63 |
| **Holdup** | 20ms | 20ms |
| **Output Voltage (VDC)** | 24-26VDC | 24-26VDC |
| **Battery Backup (UPS) (2)** | 30min @ 20A max | 30min @ 20A max |
| **Output Current DC Output**<br>**20A Power System**<br>**40A Power System (3)** | <br>0-20 amps<br>0-40 amps | <br>0-20 amps<br>0-40 amps |
| **Load Change (%)** | 30 to 100 | 0 to 100 |
| **Efficiency** | 65% (min) | 65% (min) |
| **Input Current @ 120/240 VAC line Inrush/ Rerush**<br>**Running (max)**<br>**Crest Factor (max)**<br>**Power Factor (min) with a 25VDC 10A to 20A load** | 35A peak max<br>5.5 Amps rms @120V<br>2.7Amps rms @240V<br>1.55<br>0.95 (min) | 35A peak max<br>9 amps rms<br>1.55<br>0.95 (min) |
| **Ambient Temperature**<br>**(a) Range (deg. C)** | <br>0 to 60 | <br>0 to 60 |
| **Max Rate of Change (deg/min)** | 0.25 | 1 |

**Notes:**

1) Operating Band defines the range of operating conditions within which the system is designed to operate and for which operating influences are stated. Performance characteristics shown here are maintained when operating in this state. Please see ANSA/ISA D 51.1 for more information.

1a) Operating Limits define the range of conditions to which the system may be subjected without permanent damage to the equipment. In general, performance characteristics are not guaranteed in this state. Stated Operating Band characteristics are restored when returning to the Operating Band specifications without damage to the equipment. Please see ANSA/ISA D 51.1 for more information.

2) Battery Backup available only with the 20A Power System

3) Three AC Mains Power feeds are required to power the 40A power system. Care should be taken to understand the power distribution requirements to meet this need.

## 4.2. Commercial Off- the -Shelf Series-C Power System



An alternative Commercial Off the Shelf (COTS) power system for Series-C is also available as a more economical solution when Batter Backup is not required. The COTS Power system provides optionally redundant 24VDC primary power at 20 amps for Series C devices. The power system also provides capabilities to support integral field power. This eliminates the need for additional power sources as well as the additional wiring, fusing, marshalling and documentation costs. Two COTS power systems are available. Selection is a user preference.

### 4.2.1. Notable Features

- Economical Power delivery for Series-C components using COTS equipment
- Two COTS Power Systems available based on User Preference
- Space efficient design
- Validated for Series C
- Redundant power supply
- Seamless switch operation between power supplies
- Visual and point contact alarms on all power system components

### 4.2.2. Model Numbers

| Description | Model or Part Number |
|---|---|
| Power System (20A), redundant (2 power supplies and Diode assy), 120/240 VAC – Phoenix Contact | CC-PWPR20 |
| Power System (20A), non-redundant (1 power supply), 120/240 VAC – Phoenix Contact | CC-PWPN20 |
| Power System (20A), redundant (2 power supplies and Diode assy), 120/240 VAC – Meanwell | CC-PWMR20 |
| Power System (20A), non-redundant (1 power supply), 120/240 VAC – Meanwell | CC-PWMN20 |

### 4.2.3. Detailed Specifications – Power System

| Detailed Specifications – Power System PARAMETER | OPERATING BAND(1) | OPERATING LIMITS(1a) |
|---|---|---|
| **AC Input (VAC, rms)** | 100-230 | 85-264 |
| **Frequency (Hz)** | 47-63 | 47-63 |
| **Holdup** | 20ms | 20ms |
| **Output Voltage (VDC)** | 24-26VDC | 24-26VDC |
| **Battery Backup (UPS)** | NA | NA |
| **Output Current DC Output** | 0-20 amps | 0-20 amps |
| **Input Current @ 120/240 VAC line Inrush/ Rerush**<br><br>**Running (max)** | 35A peak max<br><br>5.5 Amps rms @120V<br>2.7Amps rms @240V | 35A peak max<br><br>9 amps rms |
| **Ambient Temperature (a) Range (deg. C)** | 0 to 60 | 0 to 60 |
| **Max Rate of Change (deg/min)** | 0.25 | 1 |

**Notes:**

1) Operating Band defines the range of operating conditions within which the system is designed to operate and for which operating influences are stated. Performance characteristics shown here are maintained when operating in this state. Please see ANSA/ISA D 51.1 for more information.

1a) Operating Limits define the range of conditions to which the system may be subjected without permanent damage to the equipment. In general, performance characteristics are not guaranteed in this state. Stated Operating Band characteristics are restored when returning to the Operating Band specifications without damage to the equipment. Please see ANSA/ISA D 51.1 for more information.

# 5. Product Introduction Summary

## 5.1. Overview

The Remote Modular Cabinet allows provides an environmentally hardened “plug and play” solution for the Series-C Universal I/O that can be installed in the field.

## 5.2. Features

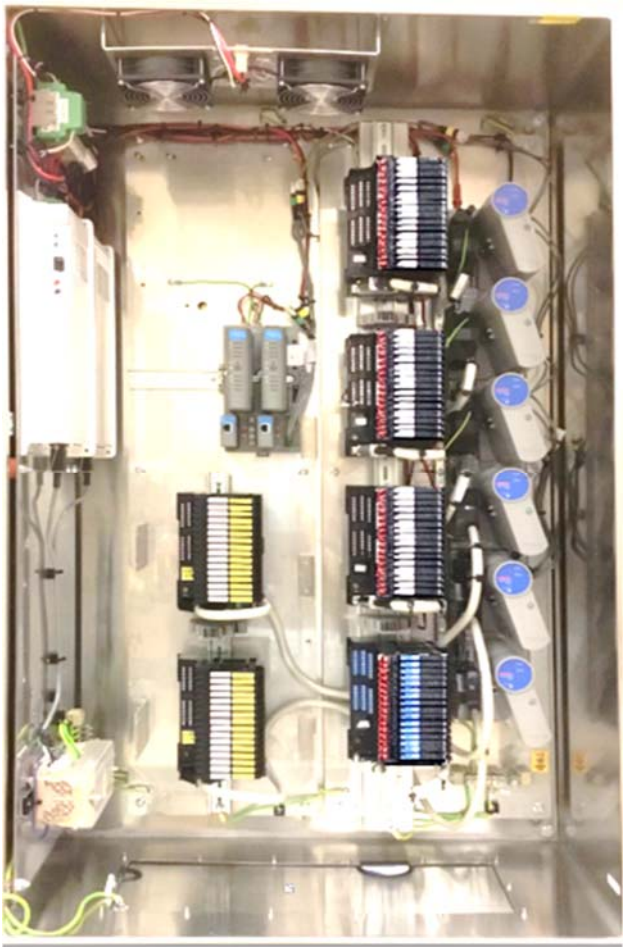
Features of Remote Modular I/O Cabinets include:

- I/O Module and field terminations are combined in the same area. The UIO Module is plugged into an I/O termination assembly (IOTA) to eliminating the need of a separate chassis to hold the electronics assemblies.
- Hazardous Location of Cabinet and Electronics
- Maintenance in place
- Marine level Certifications when required.
- Internal Power Supply – No need for a separate power supply cabinet, using the proven standard Series-C Power System
- Options for Direct IO landing, Marshalling, and Marshalling with Signal Conditioning
- The UIO modules can be removed and re-inserted under power in the Hazardous area with no damage to the Series C system. This is known as Removal and Insertion Under Power (RIUP)
- Over-current detection and prevention methods are employed to allow for short circuits in the field without affecting adjacent channels or the need of a fuse.
- Experion PKS IO HIVE enabled with use of CN100 module[1].
- Local control can be enabled with optional control solver license on CN100
- Optional marshalling for IS and Non-IS configurations

**Notes**

(1) Minimum Experion PKS R515 release required for Experion PKS IO HIVE feature

***Universal Process Cabinet***



**Various Cabinet Configurations are available:**

- Painted or 316L Stainless Steel enclosure
- Redundant or Non-Redundant IO
- Redundant or Non-Redundant Power
- 96 Points of Universal IO
- 128 Point LLAI cabinet for furnace/ reactors/ heaters
- Experion PKS IO HIVE, enabled IO to be assigned across
- I/O Link over Single-Mode and Multi-Mode Fiber Optic Communications
  - End to End
  - Leap Frog (Daisy Chain)
- Marine Certifications (Lloyds)
- Optional marshalling and signal conditioning with Honeywell’s Universal Marshalling
- Integrated cabinet status alarm module

## 5.3. Technical Specifications

| | | |
|---|---|---|
| Size | 1300mm x 800mm x 400mm | H x W x D |
| Weight | 135 kg (298 lbs) | Fully equipped |
| Material | Stainless 316L<br>Painted Steel | |
| Power | 120/240 VAC redundant | See Section 4 for details |
| Gland Plate | Removable Gland Plate | 796 mm X 358 mm |
| I/O Channel Capacity Options | a. Up to 96 Optionally Redundant Universal IO<br>b. 128 LLAI temperature inputs<br>c. Combination of Universal IO and LLAI with maximum of 80 IO | a. Three redundant 32 channel Series C UIO modules<br>b. Eight 16 channel LLAI modules<br>c. Two redundant UIO and One LLAI module |
| Communications | a. Redundant single-mode or multi-mode, fiber optic I/O Link transceivers<br>b. Experion PKS IO HIVE with redundant single-mode or multi-mode | 14 position FO patch panel |

| Consideration | Operating Limits (1) | Transportation and Storage Limits (1a) |
|---|---|---|
| Ambient Temp Range<br>(max power output) | External Temp(2) :<br>-40°C to +40°C, (16A)<br>-20°C to +50°C, (20A)<br>-20°C to +55°C, (16A) | -40°C to 85°C |
| Temp. Rate of Change | <= 1°C/min. | <=5°C/min. |
| Relative Humidity (3) | 5 to 95% (non-condensing) | 5 to 95%, (non-condensing) |
| Barometric Pressure Altitude | -300 to +3000 m | Any |
| Corrosives | GX – With Doors Closed (ISA S71.04) | G3 |
| Ingress Protection (10) | IP 66 NEMA 4X | IP 66 NEMA 4X |

| EMC Product Standard | EMC Test Standards | EMC Industrial Levels |
|---|---|---|
| EN 61326-1:2013,<br>IEC 61326-1:2012<br><br>Electrical equipment for measurement, control and laboratory use – EMC requirements | CISPR 11 | Class A, 150kHz - 1000MHz |
| | IEC/EN 61000-4-2 | 4kV Con / 8kV Air |
| | IEC/EN 61000-4-3 | 10V/m (80MHz - 1000MHz),<br>3 V/m (1,4 GHz to 2 GHz),<br>1 V/m (2,0 GHz to 2,7 GHz) |
| | IEC/EN 61000-4-4 | AC/DC Pwr 2.0kV, Sig/Con 1.0kV |
| | IEC/EN 61000-4-5 | AC/DC Pwr 2kV L-G, 1kV L-L, Sig/Con 1kV L-G |
| | IEC/EN 61000-4-6 | 3V, 150KHz - 80MHz |
| | IEC/EN 61000-4-8 | 30A/m, (1A/m for CRT) |
| | IEC/EN 61000-4-11 | 0 % during 1 cycle,<br>40 % during 10 cycles,<br>70 % during 25 cycles,<br>0 % during 250 cycles |
| Vibration (6,7)<br>(3 axes) | 3 – 13.2 Hz, 1mm pk amp<br>13.2 – 100 Hz, 0.7g | Random (7)<br>Vertical Shipping Axis<br>5 to 300 Hz 1.07 g (rms)<br>Longitudinal and Transverse<br>10 to 500 Hz |
| Mechanical Shock (8)<br>(3 Axes) | Site Induced:<br>Terminal Peak Sawtooth waveform 4g max. @25ms | N/A |

**Notes:**

(1) Operating Limits define the range of operating conditions within which the system is designed to operate. Performance characteristics are defined when operating in this state. Please see ANSA/ISA D 51.1 for more information.

(1a) Transportation and Storage Limits define the range of conditions to which the system may be subjected without permanent damage to the equipment. Performance is not guaranteed in this state. Please see ANSA/ISA D 51.1 for more information.

(2) This rating applies to the ambient temperature of the enclosure with doors closed, with no direct or indirect solar radiation (non-incident solar radiation), and with predefined module configuration types.

(3) The maximum relative humidity spec applies up to 55°C. Above 55°C the RH spec is de-rated

(4) Measured with field strength meter near the surface of the electronics with doors open.

(5) Applied to items that are likely to be in contact with discharge sources (e.g. human body) during typical maintenance actions.

(6) Per DMV for bulkhead, beam, deck, and bridge. 10 Hz is approximate – exact crossover freq. is determined by the intersection of the displacement and acceleration.

(8) Composite Transportation Test Curve--encompassing maximum Random Vibration power spectral density values associated with ground, air, and sea transportation environments.

(9) Information acquired from Vibration Specification 51199949

(10) NEMA 4x / IP66 rating obtained when using the 316L Stainless Steel Enclosure

## 5.4. Approvals

### Factory Mutual

Division 2 Approvals

All cabinet configurations are non-incendive for use in Class I, Division 2, Group A, B, C, D hazardous (classified) locations.
UIO models support non-incendive field wiring for connection to Class I, II and III, Division 2, Group A, B, C, D, E, F and G hazardous (classified) locations.

Zone 2 Approvals

All cabinet configuration are non-sparking apparatus for use in Class I, Zone 2, AEx nA nC [ic] IIC Gc and Class I, Zone 2, AEx nA nC IIC Gc hazardous (classified) locations.
UIO supports energy limited, intrinsic safety field wiring connections to Class I, Zone 2, Group IIC hazardous (classified) locations.

Temperature rating of UIO as well as select cabinet configurations are rated T4.

### Canadian Standards Association

Division 2 Certifications

All cabinet configurations are suitable for use in Class I, Division 2, Group A, B, C, D hazardous locations.
UIO models support non-incendive field wiring for connection to Class I, II and III, Division 2, Group A, B, C, D, E, F and G hazardous (classified) locations.

Zone 2 Certifications

All cabinet configurations are normally non-sparking apparatus, Class I, Zone 2 Ex nA nC [nL] IIC Gc and Class I, Zone 2 Ex nA nC [ic] IIC Gc, for use in Zone 2 hazardous locations.
UIO supports energy limited, intrinsic safety field wiring connections to Class I, Zone 2, Group IIC hazardous (classified) locations.

Temperature rating of UIO as well as cabinet configurations are rated T4.

### ATEX Certification

Zone 2 Certifications

All cabinet configurations are normally non-sparking apparatus, II 3G Ex nA nC [nL] IIC Gc and II3G Ex nA nC [ic] IIC Gc, for use in Zone 2 hazardous locations.
UIO models have energy limited, intrinsic safety field wiring connections to II3G Ex nA nC [nL] IIC Gc and II3G Ex nA nC [ic] IIC Gc, for Zone 2, Group IIC hazardous locations.

Temperature rating of UIO as well as cabinet configurations are rated T4.

### IECEx Certification

Zone 2 Certifications

All cabinet configurations are normally non-sparking apparatus, Ex nA nC [nL] IIC Gc and Ex nA nC [ic] IIC Gc, for use in Zone 2 hazardous locations.
UIO models have energy limited, intrinsic safety field wiring connections to Ex nA nC [nL] IIC Gc and Ex nA nC [ic] IIC Gc, for Zone 2, Group IIC hazardous locations.

Temperature rating of UIO as well as cabinet configurations are rated T4.

### European Compliance (CE)

- European EMC Directive 2004/108/EC
- EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements.
- European LVD Directive 2006/95/EC
- IEC/EN 61010-1:~~1993~~ 2010 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use. Part 1: General Requirements

### Australia & New Zealand Compliance (C-Tick)

- Compliance with the requirements of the relevant ACMA Standards made under the Radiocommunications Act 1992 and the Telecommunications Act 1997. These Standards are referenced in notices made under section 182 of the Radiocommunications Act and 407 of the Telecommunications Act.

### Marine Certifications

- Lloyd’s Certificate

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2101 Citywest Blvd,
Houston, TX 77042

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