2. Platform Environmental Specifications

2.1. General Environmental Characteristics

This section relates to the physical characteristics applicable to Series 8 C300 controller and all Series 8 I/O components. Where applicable, specifications state limits within an approved cabinet and to the cabinet skin.

Consideration	Operating Limit [1]	Transportation and Storage Limits [1a]
Ambient Temp Range	External: 0 to +50°C [2] Internal: 0 to +60°C [3]	-40 to 85°C
Temp. Rate of Change	<= 1°C/min	<=5°C/min
Relative Humidity [3]	5 to 95% (non-condensing) [4]	5 to 95% (non-condensing) [4]
Barometric Pressure Altitude	-300 to +3000 m	Any
Corrosives	G3 Standard (ISA S71.04) - Denoted by “8C-“ model number in this doc	G3 Standard (ISA S71.04) - Denoted by “8C-“ model number in this doc
Vibration (3 axes)	Sinusoidal (5 to 10 Hz) 2.54mm/0.100in Max (10 to 150 Hz) 0.5 g max. (0-Pk)	Random Vertical Shipping Axis 5 to 300 Hz 1.07 g (rms) Longitudinal and Transverse 10 to 500 Hz, 0.74 g (rms) 60 Minutes each axis
Mechanical Shock (3 Axes)	Site Induced: Terminal Peak Sawtooth waveform 4g max. @25ms	N/A

Note 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.

Note 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 Process Instrumentation Terminology for more information.

Note 2 – This rating applies to the external ambient temperature of the Standard 2000mm enclosure with doors closed.

Note 3 – This rating applies to the internal ambient temperature of the Standard 2000mm enclosure with the doors closed.

Note 4 – The maximum relative humidity spec applies up to 40°C. Above 40°C the RH spec is de-rated to 55% to maintain constant moisture content.

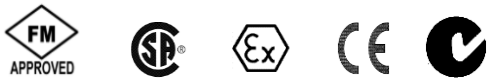
A note on the transportation of Batteries:

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

2.2. Approval Bodies

Approval Body	Certification Category	Description
Factory Manual	Division 2 Approvals	All models are approved as non-incendive for use in Class I, Division 2, Group A, B, C, D hazardous (classified) locations.
	Zone 2 Approvals	All models are approved as normally non-sparking apparatus for use in Class I, Zone 2, AEx nA IIC hazardous (classified) locations. Temperature rating of all individual models as well as cabinet configurations is rated T4.
Canadian Standards Association (CSA)	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. Temperature rating of all individual models as well as cabinet configurations is not to exceed T4.
ATEX	Zone 2 Certifications	All models are certified as normally non-sparking apparatus, II 3G Ex nA IIC T4 GC, for use in Zone 2 hazardous locations. Temperature rating of all individual models as well as cabinet configurations are rated T4.
IECEx	Zone 2 Certifications	All models are certified as normally non-sparking apparatus, Ex nA IIC T4 GC, for use in Zone 2 hazardous locations. Temperature rating of all individual models as well as cabinet configurations are rated T4.
European Compliance (CE)	EMC, LVD	• European EMC Directive 2014/30/EU • EN 61326-1 2013 Electrical equipment for measurement, control and laboratory use - EMC requirements. • European LVD Directive 2014/35/EU • IEC/EN 61010-1:2010 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use. Part 1: General Requirements
Others		C-Tick

2.3. Detailed Specification- Approvals

Consideration	Approval
Agency Approvals	 **Cabinet:** Class I, Division 2, Grp. ABCD, T4 Class I, Zone 2, AEx/Ex nA IIC T4 GC ATEX II 3G Ex nA IIC T4 GC IECEx Ex nA IIC T4 GC

Item	Specification		
CE Conformity	This product is in conformity with the protection requirements of the following European Council Directives: 2014/35/EU, the Low Voltage Directive, and 2014/30/EU, the EMC Directive. Conformity of this product with any other “CE Mark” Directive(s) shall not be assumed.		
	LVD Directive:		
	Title	Number	Issue date
	Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements	EN 61010-1	2010
	EMC directive:		
	Title	Number	Issue date
	Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 1: General requirements	EN 61326-1	2006
	Industrial, scientific and medical (ISM) radio-frequency equipment – Electromagnetic disturbance characteristics – Limits and methods of measurement	CISPR 11:2009+A1	2010
	Electromagnetic compatibility (EMC) – Part 3-2: Limits –Limits for harmonic current emissions (equipment input current ≤ 16A per phase)	IEC 61000-3-2	2009
	Electromagnetic compatibility (EMC) – Part 3-3: Limits –Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection	IEC 61000-3-3	2005
	Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test	IEC 61000-4-2	2008
	Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test	IEC 61000-4-3:2006 +A1:2007 +A2	2010
	Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test	IEC 61000-4-4	2004
	Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test	IEC 61000-4-5	2005
	Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields	IEC61000-4-6	2008

	Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test	IEC61000-4-8	2009
	Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests	IEC61000-4-11	2004
FM[1]	Electrical Equipment for Use in Hazardous (Classified) Locations, General Requirements	FM 3600	2011
	Non-incendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Division 1 and 2, Hazardous (Classified) Locations	FM 3611	2004
	Electrical and Electronic Test, Measuring and Process Control Equipment	FM 3810	2005
	Electrical apparatus for explosive gas atmospheres. Part 0: General Requirements	ANSI/ISA-60079-0	2013
	Explosive atmospheres Part 15: Equipment protected by type of protection “n”	ANSI/ISA-60079-15	2012
CSA[1]	Non-incendive Electrical Equipment for use in Hazardous Locations	CAN/CSA C22.2 No. 213 – M1987	1987 (2013)
	Electrical and Electronic Test, Measuring and Process Control Equipment	CAN/CSA-C22.2 No. 61010-1-12	2004
	Electrical apparatus for explosive gas atmospheres. Part 0: General Requirements	CAN/CSA E60079-0	2011
	Explosive atmospheres Part 15: Equipment protected by type of protection “n”	CAN/CSA E60079-15	2012
ATEX[1]	Non-incendive Electrical Equipment for use in Hazardous Locations	CAN C22.2 No. 213 - M1987	1987 (2013)
	Electrical and Electronic Test, Measuring and Process Control Equipment	C22.2 No. 1010.1	2004
	Electrical apparatus for explosive gas atmospheres. Part 0: General Requirements	CAN/CSA E60079-0	2011
	Explosive atmospheres Part 15: Equipment protected by type of protection “n”	CAN/CSA E60079-15	2012
IECEX[1]	Electrical apparatus for explosive gas atmospheres. Part 0: General Requirements	IEC 60079-0	2011
	Explosive atmospheres Part 15: Equipment protected by type of protection “n”	IEC60079-15	2010

Note 1:

- The installer shall provide transient over-voltage protection external to the apparatus such that the voltage at the supply terminal of the apparatus does not exceed 140% of the voltage rating of the equipment.
- The equipment shall be mounted in an enclosure providing a minimum degree of protection of IP54 in accordance with IEC 60079-15, and in a tool-secured enclosure which meets the requirements of IEC 60079-0 and IEC 60079-15.
- The equipment shall be used in an area not more than Pollution Degree 2 as defined in IEC 60664-1.

3. C300 Controller

3.1. Overview

The Experion Series 8 C300 controller forms the heart of the Experion control system and deterministically executes control strategies, batch operations, interfaces to local and remote I/O and directly hosts custom programmable applications. The compact controller design does not require any additional Interface / communication modules and all control execution and communications are contained in the controller module.

The C300 controller runs the filed proven, deterministic Control Execution Environment (CEE) which is the core C300 software that provides powerful and robust control for the distributed control system (DCS). The control strategies are configured and loaded to the C300 controller through the Control Builder, an easy and intuitive engineering tool.

The C300 Controller is constructed using the Series 8 form factor that employs an Input Output Termination Assembly (IOTA) and an electronics module which mounts and connects to the IOTA. One C300 Controller module and its IOTA contains all of the control and communication functionalities. The C300 IOTA contains only passive devices such as FTE address switches, FTE cable connectors and I/O Link cable connectors. Figure 1 below depicts the IOTA components.

The C300 Controller may operate in both non-redundant and redundant configurations. Redundant operation require a second identical controller with its own IOTA and connecting redundancy cable. The C300 Controller supports Series 8 I/O modules. Two IO Link interfaces, which are redundant, provide connection between the C300 controller and associated I/O modules. The IO Link interface connectors are on the C300 IOTA.

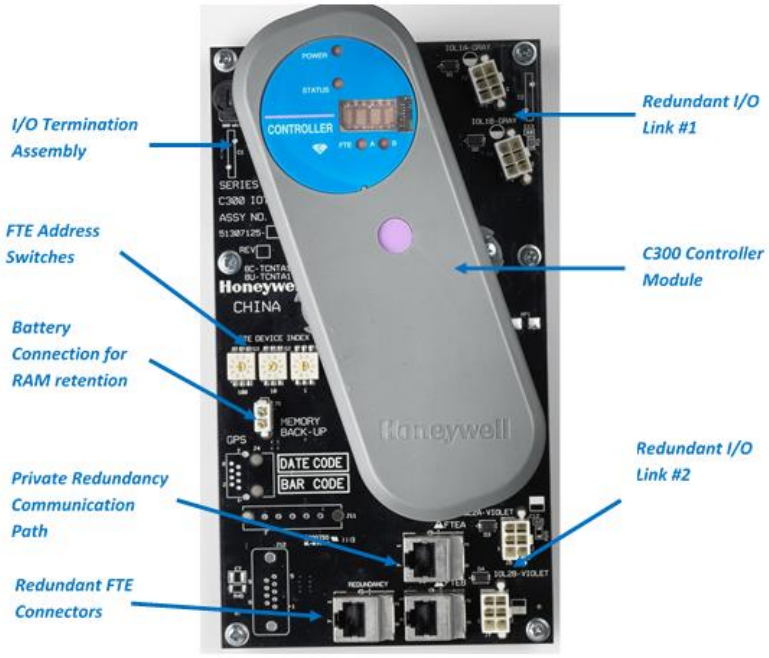


Figure 1 - C300 Controller