

Field Certification Certificate of Compliance

Certificate: 2460594

Master Contract: 244849

Project: 2460594

Date Issued: 2011-12-23

Issued to: Sirio Sistemi Elettronici SpA
Via Fleming 16
59100 Prato
ITALY
Attention: Sergio Apostolo

*The products listed below are eligible to bear CSA Field Certification Labels,
bearing the CSA Mark shown.*



Eric Giusti
Issued by: E.Giusti

PRODUCTS

CLASS 3218-01 – Industrial Control Equipment – Custom built- for Hazardous Locations

Class I, Div. 2 GPS B, C, D; Temp. Code T3.

Pressurized Local Control Panels Serial Numbers 300580, 310007, 310008, 310019, 310052, 310095, 310096, 310098, 310099, 310100, 300607, 310317 and 310180.

Maximum ratings are as follows: 120Vac, 20A, 60 Hz and UPS A and B: 120Vac, 20A, 60Hz, Maximum short circuit capacity: 5kA.

Ambient temperature : $+22.8^{\circ}\text{C} < T_a < +37.8^{\circ}\text{C}$

Installation: Cartagena Project, Columbia.

13 CSA Field Certification Label(s) issued: serial numbers FB508016 to 508023, FB509003 to 509005, FB492763, FB492764.

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APPLICABLE REQUIREMENTS

CSA C22.2 No. 14-05	Industrial Control Equipment
CAN/CSA-E60079-0-04	Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements
CSA C22.2 No. 213	Non Incendive Electrical Equipments for Use in Class I, Division 2 Hazardous Locations.
CAN/CSA-E60079-2-04	Electrical Apparatus for Explosive Gas Atmospheres - Part 2: pressurisation "p"
CAN/CSA-E60079-7-04	Electrical Apparatus for Explosive Gas Atmospheres - Part 7: Increased safety "e"
CAN/CSA-E60079-11-04	Electrical Apparatus for Explosive Gas Atmospheres - Part 11: Intrinsic safety "i"
CAN/CSA-E60079-15-04	Electrical Apparatus for Explosive Gas Atmospheres - Part 15: Non incendive equipments "n"

MARKINGS

- (1) Submitter's name, trademark
- (2) Catalogue / Model designation.
- (3) Complete electrical rating (amps, hertz, and volts).
- (4) Date code / Serial number traceable to month and year of manufacture.
- (5) Hazardous Location designations.
- (6) Temperature code.
- (7) Maximum ambient.
- (8) Suitable for Outdoor Installation

The following cautions:

- Next to the plastic windows:

Warning – Wipe only with moist cloth (Beware of electrostatic charges)

- On the external front door

This enclosure must not be opened unless the area atmosphere is known to be NON hazardous or unless all devices within have been de-energized

Explosion Hazard : Substitution of Components May Impair Suitability for Class I, Division 2

Protective Gas: Instrument grade air

Input Supply Pressure: 20 to 120 psig (1.4 bar to 8.3 bar)

Min. Over pressure: 0.25" wc (0.63 mbar)

Low Pressure: 0.4" wc (1 mbar)

Max Pressure: 2.8" wc (7 mbar)

Min flow rate: 5 SCFM (0.14 m³/min)

Purging time: 114 minutes at air flow 5 SCFM (0.14 m³/min)

Max leakage flow rate at 0.6" wc : 1 SCFM

Max leakage flow rate at 1,5 mbar ; 0.03 m³/min



Supplement to Certificate of Compliance

Certificate: 2460594

Master Contract: 244849

*The products listed, including the latest revision described below,
are eligible to be marked in accordance with the referenced Certificate.*

Product Certification History

Project	Date	Description
2460594	2012-12-23	Original Field Certification. 13 Field Certification Labels issued: Serial numbers FB508016 to 508023, FB509003 to 509005, FB492763 and 492764 (total of 13 labels) Report issued.



Descriptive and Test Report

MASTER CONTRACT: 244849

REPORT: 2460594

PROJECT: 2460594

Edition 1: 2012-12-23; Project 2460594 - Toronto
Issued by E.Giusti

Contents: Certificate of Compliance - Page 1 to 2
Supplement to Certificate of Compliance – Page 1
Description and Tests – Pages 1 to 8
Illustrations – kept in CSA engineering files only.

PRODUCTS

CLASS 3218-01 – Industrial Control Equipment – Custom built- for Hazardous Locations

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CAN/CSA-E60079-2-04	Electrical Apparatus for Explosive Gas Atmospheres - Part 2: pressurisation “p”
CAN/CSA-E60079-7-04	Electrical Apparatus for Explosive Gas Atmospheres - Part 7: Increased safety “e”

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Telephone: 416.747.4000 1.800.463.6727 Fax: 416.747.4149 www.csa-international.org

CAN/CSA-E60079-11-04 Electrical Apparatus for Explosive Gas Atmospheres -
Part 11: Intrinsic safety "i"
CAN/CSA-E60079-15-04 Electrical Apparatus for Explosive Gas Atmospheres -
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Max leakage flow rate at 0.6" wc : 1 SCFM

Max leakage flow rate at 1.5 mbar ; 0.03 m³/min

ALTERATIONS

Markings as above.

FACTORY TESTS

None.

DESCRIPTION

This report covers 13 Pressurized Local Control Panel (LCP) for compressor control. The 13 panels are manufactured on the same principle only number and type of input/output differ from one panel to the other.

The panel is in Stainless Steel AISI 316.

The LCP has been constructed according to the document "Pressurized L.C.P. Layout & Component List". The panel general dimensions are 2756 x 1400 x 2426 mm (LxDxH) (the height is comprehensive of the plinth of 200 mm and of the upper part of roof).

The cabinet is composed by 2 modules with front access.

Cable entry is from the bottom and in the proper cable entry on the dedicate External JB.

The enclosure of the panel and its associated accessories has 4X rating. Additional roof (dimensions are 2756mm X 1400mm) is provided as a loose item to the user.

It is responsibility of end user to install this roof as per manufacturer's instructions.

The wiring is according to the "Pressurized Control Panel Electrical Wiring Diagram".

The different supply lines of the panels are as follows:

- Power Supply Distribution 120Vac line UPS A protected by main switch referenced on the relative LCP wiring diagram.
- Power Supply Distribution 120Vac line UPS B protected by main switch referenced on the relative LCP wiring diagram..

The 2 above listed lines supply the 24Vdc power supplies.

- Power Supply Distribution 120Vac line NON UPS protected by main switch referenced on the relative LCP wiring diagram. for

internal and external lights, air conditioner and auxiliary socket.

The Bently Nevada System, Allen Bradley Panel View, ethernet switches, Allen Bradley PLC, flashing beacon and pressurization system are all powered by 24Vdc.

Protective Earth bar for the connection to the enclosure of instruments and of the armour of the cables is provided. Intrinsically Safe Earth bar for connection of the zener barriers din rail and intrinsically safe circuit screens;

Segregation of circuits is ensured between Power and Control circuits and between intrinsically safe and other circuits (minimum 50mm). Intrinsically safe field wiring outputs are marked "Intrinsically Safe Wiring Only". This marking appears adjacent to the intended wiring openings. For Eex-i circuit please refer to NEC 504 and CSA CEC part I

MTL series 7700 are provided by the manufacturer, the end user shall refer to Control Drawings SCI-969 and SCI-970 in order to ensure proper intrinsically safe circuits as per CEC, Part I.

Conduit sealing are are installed on all enclosure designed and certified as flameproof enclosures.

For details of all conduit sealing locations see Construction drawing. Sealing are manufactured by Adalet, models XYB-4 and XYB-3.

UPS line energizes the cabinet, when air pressure and flow rate reach the specified rate through the vent, pressurization system starts the automatic purging/pressurization sequence of panel. After purging, and when the internal pressure is above 0.25 inH₂O, the power to the internal circuits is switched ON.

Pressurisation system:

Clean instrument air, filtered to a minimum 40 microns, shall be supplied to the pressurization system. The air connection is of 3/8" size.

Pressurization is ensured by Pepper&Fuchs system 6000 series.

Air supply is connected to pressure regulating valve inlet with a pressure from 1.4 Bar to 8.3 Bar. If internal pressure is above 0.63 mBar and flow rate above 0.14m³/min, the purge phase starts. During purging phase, 6000 series Pepper&Fuchs unit displays, in percentage the amount of volume purged according the volume to be purged; During purging phase, inlet pressure is monitored to be within 0.63 and 7.0 mBar and flow greater than 0.14 m³/min. At the end of purging phase LCP panel is automatically powered;

When pressure drops below 1 mBar, an alarm is tripped by the 6000 series system. When pressure drops below 0.63 mBar) an alarm is tripped by the system and the horn and flashing beacon are activated.

Lockable push button is available on JB-4. This button enables the bypass of pressurization system. When enabled, no alarm is activated in case of drop of pressure.

TEST REPORT

All components are independently certified in a suitable way considering the application. All components are connected and operated within their ratings.

Temperature Code:

Each component is certified with a Tcode T3 or better and is operating within its ratings. Electronic components installed inside the cabinet cannot operate under high temperatures.

Temperature assessment was carried out on panel 300580, conditions and test results were recorded in report RLZ 062 11. These tests were carried in presence of CSA International (Mr Giusti). Results are summarized below:

t _a = 20 °C		
Line UPSA 120Vac (1ph) A1 20A Hz1 50Hz	Line UPSB 120Vac (1ph) A2 20A Hz2 50Hz	Line NON UPS 120Vac (1ph) A3 20A Hz3 50Hz
Test Voltage: 120Vac ; 50Hz Test duration 5h and 34'		
Test condition: the equipment under test has been powered to the three sources Line UPSA, Line UPSB and Line NON UPS. All circuit breakers were "ON" and the pressurization system was in operation. The acquisition interval of the thermocouples was 5 sec.		
Module / Channel	Parts / Components	Measured Temperature (°C)
1 / 1	Allen Bradley power supply (top enclosure)	38,380
1 / 2	Lamp cable near the conduit	31,048
1 / 3	Phoenix contact power supply (terminal block)	36,264
1 / 4	Quint power (terminal block)	40,916
1 / 5	Top internal enclosure	33,973
1 / 6	Quint diode (body)	40,581
1 / 7	160KA1 (body)	42,785
1 / 9	Top external enclosure	27,663
1 / 10	Environment temperature	22,230
1 / 11	164KA1 (body)	51,733

Results: T3 Tcode can be granted for a maximum ambient temperature of +37.8°C.

Purging flow rate:

On all panels, purging flow rate at the input of the enclosure was measured to be at least 5 SCFM (0.14 m3/min). Purging time of 110 minutes (@0.14 m3/min) is therefore required before switching the power 'ON'.

Results: satisfactory.

Default of air regulator:

Maximum pressure of 7.0 mbar was recorded while setting 7 bar at the cabinet inlet.

Results: satisfactory, no permanent deformation.

Overpressure test :

Maximum overpressure of 7.0 mbar was recorded inside the enclosures during the fault regulator test. Internal pressure of 7.0 x 1.5 was therefore set inside the cabinetS for 2 minutes.
 Results: satisfactory, no permanent deformation observed.

Minimum overpressure:

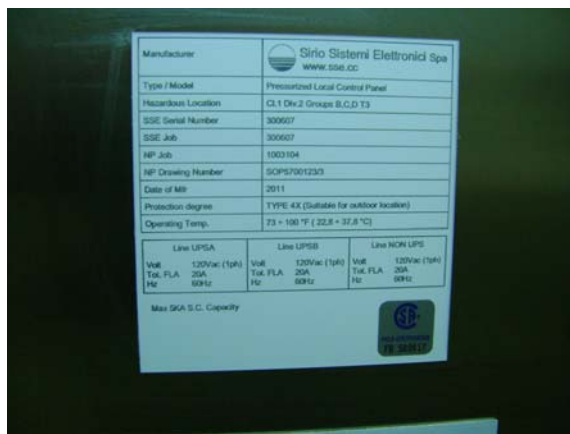
Internal pressure was decreased slowly using the inlet regulator.
 Alarm tripped when internal pressure is 0.63 mbar.
 Results: satisfactory, internal pressure of minimum 0.25 mbar is ensured.

Leakage test:



Inlet flow rate was measured when internal pressure was set at 1,5 mbar.



Results : satisfactory since leakage was always below the specified value of 0.03 m3/min.

Pictures of CSA Labels and Nameplates:



Manufacturer  Siro Sistemi Elettronici Spa www.sse.cc							
Type / Model	Pressurized Local Control Panel						
Hazardous Location	CL1 Div.2 Groups B,C,D T3						
SSE Serial Number	310019						
SSE Job	310019						
NP Job	1102677						
NP Drawing Number	SOS9974414/3						
Date of Mfr	2011						
Protection degree	TYPE 4X (Suitable for outdoor location)						
Operating Temp.	73 + 100 °F (22,8 + 37,8 °C)						
<table border="1"> <thead> <tr> <th>Line UPSA</th> <th>Line UPSB</th> <th>Line NON UPS</th> </tr> </thead> <tbody> <tr> <td>Volt 120Vac (1ph) Tot. FLA 20A Hz 60Hz</td> <td>Volt 120Vac (1ph) Tot. FLA 20A Hz 60Hz</td> <td>Volt 120Vac (1ph) Tot. FLA 20A Hz 60Hz</td> </tr> </tbody> </table>		Line UPSA	Line UPSB	Line NON UPS	Volt 120Vac (1ph) Tot. FLA 20A Hz 60Hz	Volt 120Vac (1ph) Tot. FLA 20A Hz 60Hz	Volt 120Vac (1ph) Tot. FLA 20A Hz 60Hz
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Max SKA S.C. Capacity							
							

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Type / Model	Pressurized Local Control Panel						
Hazardous Location	CL1 Div.2 Groups B,C,D T3						
SSE Serial Number	310052						
SSE Job	310052						
NP Job	1003097						
NP Drawing Number	SOPS7001193						
Date of Mfr	2011						
Protection degree	TYPE 4X (Suitable for outdoor location)						
Operating Temp.	73 + 100 °F (22,8 + 37,8 °C)						
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Manufacturer  Siro Sistemi Elettronici Spa www.sse.cc							
Type / Model	Pressurized Local Control Panel						
Hazardous Location	CL1 Div.2 Groups B,C,D T3						
SSE Serial Number	310096						
SSE Job	310096						
NP Job	1003102						
NP Drawing Number	SOPS7001223						
Date of Mfr	2011						
Protection degree	TYPE 4X (Suitable for outdoor location)						
Operating Temp.	73 + 100 °F (22,8 + 37,8 °C)						
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Hazardous Location	CL1 Div.2 Groups B,C,D T3						
SSE Serial Number	310096						
SSE Job	310096						
NP Job	1003103						
NP Drawing Number	SOPS7001223						
Date of Mfr	2011						
Protection degree	TYPE 4X (Suitable for outdoor location)						
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Hazardous Location	CL1 Div.2 Groups B,C,D T3						
SSE Serial Number	310096						
SSE Job	310096						
NP Job	1003100						
NP Drawing Number	SOPS7001203						
Date of Mfr	2011						
Protection degree	TYPE 4X (Suitable for outdoor location)						
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