



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx BAS 14.0039X Issue No: 0 Certificate history:
Issue No. 0 (2014-11-20)

Status: Current Page 1 of 3

Date of Issue: 2014-11-20

Applicant: Compac Industries Limited
52 Walls Road
Penrose
Auckland 1061
New Zealand

Electrical Apparatus: C4000 Mk II Power Supply Unit CI138 & CI139
Optional accessory:

Type of Protection: Flameproof & Intrinsic safety

Marking: Ex d [Ia IIA Ga] IIA T4 Gb (-40°C ≤ Ta ≤ +55°C)

Approved for issue on behalf of the IECEx
Certification Body:

R S Sinclair

Position:

General Manager

Signature:
(for printed version)

Date:

20-11-14

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton
Derbyshire
SK17 9RZ
United Kingdom





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Date of Issue: 2014-11-20 Page 2 of 3

Manufacturer: **Compac Industries Limited**
52 Walls Road
Penrose
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Additional Manufacturing
location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2007-04 Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

GB/BAS/ExTR14.0096/00 GB/BAS/ExTR14.0097/00

Quality Assessment Report:

AUTSA/QAR08.0008/04



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Certificate No: IECEx BAS 14.0039X

Issue No: 0

Date of Issue: 2014-11-20

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The C4000 Mk II Power Supply Unit C1138 & C1139 comprises a base assembly and a cover retained by 16 M10 socket head cap screws, the base assembly and cover are manufactured from cast aluminium alloy and a seal is provided between the base and cover. The flameproof enclosure houses power supply components and/or electrical connections rated for operation at up to and including 240V and 10A, AC. The base assembly has up to ten M20 x 1.5 entries positioned 5 on each long side of the enclosure on the top and one M20 x 1.5 entry on the bottom of the long side wall, for the accommodation of flameproof cable entry devices Type BA-GLND-C41E within the provisions of this certificate, with or without the interposition of a flameproof thread adapter. Unused entries are to be fitted with Type BA-PLUG-20E plugs within the provisions of this certificate.

Other cable entry devices, thread adapters and stopping plugs shall be suitable for the equipment, the cable and the conditions of use and shall be certified as Equipment (not a Component).

The C4000 Mk II Power Supply Unit C1138 & C1139 comprises two printed circuit boards. The two boards C1138 & C1139, interconnected by plug and socket connectors and are mounted within a flameproof enclosure which provides suitable hazardous area protection. The apparatus provides power supply rails suitable for both the Intrinsically Safe circuits and the Non-Intrinsically Safe circuits of the C4000 Fuel Meter. The lower ambient limit for the C4000 Mk II Power Supply Unit p.c.b. C1138 & C1139 may be marked as -25°C when mounted local to other temperature limited equipment, but the C4000 Mk II Power Supply Unit C1138 & C1139 remains identical to that marked as suitable for -40°C.

The printed circuit board C1139 provides a Non-Intrinsically Safe +5V supply from a separate mains transformer (T1), for connection to the triac and communication circuits which are not related to the hazardous area circuits.

The two printed circuit boards C1138 & C1139 are interconnected with plug and socket connections and may include an optional communications printed circuit board, C1184 Triscan Interface Board.

Printed circuit board C1138 provides ten low current TRIACS circuits for switching external loads, two of which can be used to drive high current TRIACS. Also provided is a COMS interface circuit for data communication with external equipment.

CONDITIONS OF CERTIFICATION: YES as shown below:

1. The C4000 Mk II Power Supply Unit C1138 & C1139 must only be connected to the C1140 Microprocessor and C1196 Triscan Splitter printed circuit boards which forms a part of the C4000 Fuel Dispenser Control Unit Coded Ex ib IIA T4 Gb Certificate Number Baseefa14ATEX0237X and IECEx BAS 14.0107X.
2. For replacement purposes the cover fixing screws shall be of stainless steel grade A2-70 or stronger.
3. Painting and surface finishes on the enclosure assembly, other than those applied by the manufacturer, are not permitted.

Annex:

[IECEX BAS 14.0039X Annex.pdf](#)

The printed circuit board CI139 provides a Non-Intrinsically Safe +5V supply from a separate mains transformer (T1), for connection to the triac and communication circuits which are not related to the hazardous area circuits.

The two printed circuit boards CI138 & CI139 are interconnected with plug and socket connections and may include an optional communications printed circuit board, CI184 Triscan Interface Board.

Printed circuit board CI138 provides ten low current TRIACS circuits for switching external loads, two of which can be used to drive high current TRIACS. Also provided is a COMS interface circuit for data communication with external equipment. The Safe Area circuit connections to the printed circuit board are made at the following terminals on CI138:-

Safe Area External connections to CI138; C4000 Non IS Power supply Board:-

Um = 264V.a.c.

CI138: J1 (Hi Current Triacs interface) (for solenoid valve actuators and gate circuits for Hi Triacs)

Maximum load current 0.2A each Triac.

CI138: J2, J3, J4, J5 (Lo Current Triacs) (for solenoid valve actuators and gate circuits)

Maximum load current 0.2A each Triac.

CI138: J6, J7 (Hi Triacs Load, outputs) (switched high current TRIAC external loads for motors)

Maximum load current 10A each Triac.

CI138: J8 Pin 1 to Pin 6 (Logic Phase, Input) fused for mains, phase &

CI138: J11 Pin 1 to Pin 6 neutral supply.

CI138: J9 Pin 1 to Pin 4 & CI138: J10 Pin 1 (Triac Phase Input) fused & unfused for mains, phase &

CI138: J10 Pin 2 neutral supply for high current TRIAC loads.

CI138: J12 Pin 1 to Pin 10 (Comms Interface) Comms and Modem.

The Intrinsically Safe Interface printed circuit board CI139 provides an infallible mains isolation transformer (T2), rectification and smoothing and triplicated active voltage clamping for three supplies. The Intrinsically Safe MICRO output is supplied with a combination of resistive and active current limitation. The Intrinsically Safe output PERIPH is supplied with resistive current limitation. The Intrinsically Safe output POK is provided with further voltage limitation and resistively current limited.

Ten low current TRIAC signals are derived from infallible potential divider networks. A COMMS Interface is provided with power derived from an external input VIS and the output is either voltage clamped and resistively limited or the low current signals are derived from infallible potential divider networks.

An optional Communication Card CI184 Triscan Interface Board may be plugged onto CI139 J4, which provides a supply for the Non-Intrinsically Safe side of four opto isolators, which provide isolated signal communication between the Non-Intrinsically Safe CI138 printed circuit and the Intrinsically Safe circuits of CI140 in the C4000 Fuel Dispenser Unit Mk II Baseefa14ATEX0237X.

The output from the C4000 Mk II Power Supply Unit CI138 & CI139 is via an integral 4 metre multi core cable which is terminated in two or three female connectors suitable for connection to the C4000 Fuel Dispenser Unit Mk II Baseefa14ATEX0237X. Three alternative multi core cables are possible depending on the application:-

- AP362 Sheet 2 which interconnects CI139:J5, CI139:J6, CI139:J7 and CI139:J8 with CI140:J2A and CI140:J2B.
- AP362 Sheet 3 which interconnects CI139:J5, CI139:J6, CI139:J7 and CI139:J8 with CI140:J2A, CI140:J2B and CI140:J13.
- AP362 Sheet 5 which interconnects CI139:J5, CI139:J6, CI139:J7, CI139:J8 and CI184:CON1 with CI140:J2A, CI140:J2B and CI196:CON3.

The outputs from the C4000 Mk II Power Supply Unit CI138 & CI139 are separated into three separate intrinsically safe circuits, MICRO, PERIPH, and POK in combination with the remaining circuits and the external input VIS supply.

CI139:J7 Pins 7&8 or Cable J2A Pins 3&4 VP PERIPH - (for connection to CI140:J2A Pins 3 & 4)

Uo = 17.5V

Io = 1.675A -Linear output with an internal impedance of 10.45 Ohm.

Po = 7.33W

Co = 8.2μF

Lo/Ro = 38μH/Ohm

CI139:J7 Pins 3&4 or Cable J2A Pins 21&22 VL MICRO - (for connection to CI140:J2A Pins 21 & 22)

Uo = 17.5V

Io = 1.25A Transient -Linear output with an internal impedance of 14 Ohm.

Io = 0.185A Long Term.

Po = 3.24W

Co = 8.2μF

Lo/Ro = 52μH/Ohm

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ANNEX to IECEx BAS 14.0039X

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The combination of POK, TI0 – TI9, RXD1, TXD1, TXE1, RXD2, TXD2, TXE2 and VIS.
CI139:J5, CI139:J6, CI139:J8 and CI184:CON1
(for connection to CI140:J2A Pins 7-17, CI140:J2B Pins 1-7, CI140:J13 Pins 5&9 and CI196:CON3 Pins 1-8)

All combined as the same intrinsically safe circuit:-

$U_o = 5.1V$
 $I_o = 10.83mA$
 $P_o = 4.084mW$
 $C_o = 1000\mu F$
 $L_o = 1H$

$U_i = 6V$
 $I_i = 2A$
 $P_i = 1W$
 $C_i = 2.8\mu F$
 $L_i = 6\mu H$