



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Certificate No.: **IECEX CML 16.0066X** Page 1 of 4 Certificate history:
Status: **Current** Issue No: 3 Issue 2 (2019-08-28)
Issue 1 (2019-06-04)
Issue 0 (2016-07-20)

Date of Issue: 2020-06-16

Applicant: **Abtech Limited**
199/201 Newhall Road
Lower Don Valley
Sheffield
S9 2QJ
United Kingdom

Equipment: **ABCS Range of Control Stations**

Optional accessory:

Type of Protection: **Flameproof "db", Increased Safety "eb", Intrinsic Safety "ia", Encapsulation "mb", Dust Ignition "ta", "tb"**

Marking: Ex eb IIC T* Gb
Ex eb mb IIC T* Gb
Ex db eb IIC T*Gb
Ex db eb mb IIC T* Gb
Ex tb IIIC T*°C Db
Ex ia IIC T* Ga
Ex ta IIIC T*°C Da

Ta= -55°C up to +60°C*

* T-class and assigned maximum surface temperature are dependent on the enclosure, the equipment fitted and the power dissipation, as well as the upper ambient temperature assigned.

Note: Protection concept symbols and the minimum/maximum ambient applied depend on the parts installed. The limits of the ambient range are shown here. Refer to Conditions of Manufacture for further details.

Approved for issue on behalf of the IECEx
Certification Body:

R C Marshall

Position:

Certification Officer

Signature:
(for printed version)

Date:

2020-06-16

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Certificate issued by:

Eurofins E&E CML Limited
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United Kingdom





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Manufacturer: **Abtech Limited**
199/201 Newhall Road
Lower Don Valley
Sheffield
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United Kingdom

Additional
manufacturing
locations:

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 equipment 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 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-18:2014 Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"
Edition:4.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2015 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
Edition:5.0

This Certificate **does not** indicate compliance with 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 Reports:

[GB/CML/ExTR16.0088/00](#)

[GB/CML/ExTR19.0066/00](#)

[GB/CML/ExTR20.0112/00](#)

Quality Assessment Report:

[GB/CML/QAR16.0021/04](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The ABCS range of Control Stations utilise a previously certified non-metallic ABTECH BPG terminal enclosure. The enclosures are manufactured with a polyester resin base and are fitted with an arrangement of suitably certified control devices such as ammeters, switches, signal lamps and terminals. The enclosures may be fitted with an optional window.

Refer to Annex for full description and conditions of manufacture.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to Annex for specific conditions of use.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1

This issue introduced the following changes:

1. To update the certificate references of component approved parts. The certificate description has been updated accordingly.
2. The introduction of optional Ex eb mb fuse terminals.
3. The introduction of an X suffix to the certificate numbers and Specific Conditions of Use.
4. A Zone 0/20 intrinsically safe design option was introduced. Appropriate I.S. marking was applied to this option and standard IEC 60079-11 was added to the certificate. The certificate description was updated to show the power rating and maximum ambient options of the I.S. versions.
5. Change to a condition of manufacture relating to the terminals fitted

Issue 2

This issue introduced the following changes:

1. To update QAR reference

Issue 3

This issue introduced the following changes:

1. To acknowledge the change of certificate references for the Allen Bradley 800G range of operators.
2. To allow Bartec Control and Switching Module, Potentiometer and Terminal resistors to be fitted.
3. To allow CZ1208-9 (flash) Buzzers to be fitted.
4. The description has been updated to incorporate the above modifications.

Annex:

[IECEx CML 16.0066X Iss. 3 Certificate Annex.pdf](#)



Annexe to: IECEx CML 16.0066X Issue 3
Applicant: Abtech Limited
Apparatus: ABCS Range of Control Stations



Description

The ABCS Range of Control Stations utilise a previously certified non-metallic ABTECH BPG terminal enclosure. The enclosures are manufactured with a polyester resin base and are fitted with an arrangement of suitably certified control devices such as ammeters, switches, signal lamps and terminals. The enclosures may be fitted with an optional window.

ABCS Range of Control stations (dimensions):

ABCS Ref	6	7	8	9	10	11	12	12.5	13	13.5	14	15	15.5
Width (mm)	122	220	160	260	360	560	255	205	400	400	600	400	400
Height (mm)	120	120	160	160	160	160	250	200	250	250	250	405	405
Depth (mm)	90	90	90	90	90	90	120	120	120	160	120	120	201

Components permitted to be fitted:

The ABCS control stations may be fitted with the following control instrumentation and control devices in any combination, provided they do not exceed specified power dissipation values.

Component Details	Certificate Numbers	Code	Temperature Range
CZ Explosion-Proof Appliances Co. Ltd			
CZ4000 Series Operation Heads	IECEX CQM 15.0035U	Ex eb IIC Gb Ex tb IIIC Db	Tamb: -55°C to +65°C
CZ0201 Series Switch Module	IECEX CQM 08.0005U	Ex db eb IIC Gb	Tamb: -40°C to +60°C (Type L)
			Tamb: -55°C to +60°C (Type H)
CZ0202-**1* / **3* / **4* Signal Lamp Module	IECEX CQM 08.0006U	Ex db eb IIC Gb	Tamb: -40°C to +60°C (Type L)
			Tamb: -55°C to +60°C (Type H)
CZ0202-**2* Signal Lamp Module	IECEX CQM 08.0006U	Ex db eb IIC Gb	Tamb: -40°C to +50°C (Type L)
			Tamb: -55°C to +50°C (Type H)

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Component Details	Certificate Numbers	Code	Temperature Range
CZ0202-**0H Signal Lamp Module	IECEX CQM 08.0006U	Ex ia IIC Ga	Tamb: -55°C to +55°C
CZ0203 Control Module Series	IECEX CQM 11.0033U	Ex db eb IIC Gb	Tamb: -40°C to +60°C (Type L)
			Tamb: -55°C to +60°C (Type H)
CZ0212-**1* / **3* / **4* Signal Lamp with Button Module	IECEX CQM 11.0034U	Ex db eb IIC Gb	Tamb: -40°C to +60°C (Type L)
			Tamb: -55°C to +60°C (Type H)
CZ0212-**0H Signal Lamp with Button Module	IECEX CQM 11.0034U	Ex ia IIC Ga	Tamb: -55°C to +55°C
CZ0205-_A/_ Ammeter Module	IECEX CQM 14.0034U	Ex eb IIC Gb	Tservice: -40°C to +95°C
CZ0205-_mA/_ Ammeter and CZ0205-_V/_ Voltmeter Module	IECEX CQM 14.0034U	Ex eb mb IIC Gb	Tservice: -40°C to +95°C
CCZ1208/2-7 (flash) Buzzer with plastic body	IECEX EUT 16.0011U	Ex eb ib mb IIC Gb Ex ib tb IIIC Db	Tamb: -40 to +50°C
CCZ1208/1-7 (flash) Buzzer with metal body	IECEX EUT 16.0011U	Ex db eb ib mb IIC Gb Ex ib tb IIIC Db	Tamb: -40 to +55°C
CZ1208-9 (flash) Buzzer	IECEX EUT 19.0003X	Ex eb ib mb IIC Gb Ex ib tb IIIC T130°C Db	Tamb: -40 to +45°C
Bartec			
07-3323-1 Control and Signalling Device Adapters	IECEX CML 14.0005U	Ex eb IIC Gb Ex tb IIIC Db	Tservice: -55°C to +70°C



Component Details	Certificate Numbers	Code	Temperature Range
07-33 Circuit Module and Control Switch	IECEX CML 17.0045U	Ex db eb IIC Gb	Tamb: -55°C to +40°C (16A) -55°C to +60°C (11A) Tservice: -55°C to +85°C
07-335 Illuminated Indicator Module and 07-336 Illuminated Push Button	IECEX CML 17.0046U	Ex db eb IIC Gb	Tamb: -55°C to +50°C -55°C to +60°C* *if operating voltage is less than 26.4V.
07-337*-*D* Control and Switching Module - Potentiometer	IECEX CML 17.0057U	Ex db eb IIC Gb	Tamb -55 to +40°C (1W) -55 to +50°C (0.75W) -55 to +60°C (0.5W)
07-7311-61TW/??00.. (?? = resistance value code)	IECEX PTB 11.0086U	Ex db e IIC Gb	Tamb -40 to +40°C (1.4W @ 16mm, 1.3W @ 8mm) -40 to +60°C (1.4W @ 16mm, 1.3W @ 8mm) -40 to +65°C (0.7W @ 16mm, 0.6W @ 8mm) -40 to +85°C (0.7W @ 16mm, 0.6W @ 8mm)
Quintex			
QX0201 Switch Module	IECEX EPS 11.0011U	Ex de IIC Gb Ex tD A21	Tamb: -55°C to +60°C
QX0202 Signal Lamp Module	IECEX EPS11.0012U	Ex de IIC Gb Ex tD A21	Tamb: -55°C to +60°C
QX0212 Signal Lamp with Button Module	IECEX EPS 11.0015U	Ex de IIC Gb Ex tD A21	Tamb: -55°C to +60°C



Component Details	Certificate Numbers	Code	Temperature Range
QX0205 Ammeter Module	IECEX EPS 11.0014U	Ex e IIC Gb Ex tD A21	Tamb: -55°C to +60°C
Allen Bradley / Rockwell Automation			
800G Actuating and Indicator Light Elements	IECEX CML 14.0014U	Ex eb IIC Gb Ex tb IIIC Db	Tservice: -55 to +70°C
800G Switch Module	IECEX CML 17.0047U	Ex db eb IIC Gb	Tamb: -55°C to +40°C (16A) -55°C to +60°C (11A) -55 to +85°C
800G Lamp Module and Illuminated Push Button	IECEX CML 17.0048U	Ex db eb IIC Gb	Tamb: -55°C to +50°C -55°C to +60°C* *if operating voltage is less than 26.4V.

Maximum Power Dissipation:

Maximum Power (W), EPL Gb & Db									
T-class:	T6/T85°C (a)			T5/T100°C (b) (e)			T4/T135°C (c) (d) (e)		
Max ambient:	+40°C	+55°C	+60°C	+40°C	+55°C	+60°C	+40°C	+55°C	+60°C
ABCS6	9.38	2.00	1.70	11.00	9.38	8.75	12.25	11.00	10.25
ABCS7	10.50	2.30	1.70	12.25	10.50	9.75	13.75	12.25	11.50
ABCS8	10.35	2.00	3.29	12.00	10.35	9.50	13.50	12.00	11.50
ABCS9	11.93	2.30	1.70	13.75	11.93	11.00	15.50	13.75	13.25
ABCS10	13.79	4.50	3.29	16.00	13.79	12.75	18.25	16.00	15.25
ABCS11	18.34	6.68	5.20	21.50	18.34	17.00	24.25	21.50	20.50
ABCS12	15.47	2.30	1.70	18.00	15.47	14.25	20.25	18.00	17.25
ABCS13	20.87	5.2	4.00	24.25	20.87	19.50	27.50	24.25	23.25
ABCS14	30.38	7.97	6.59	35.63	30.38	28.42	40.19	35.63	33.97
ABCS15	31.35	8.26	6.00	36.76	31.35	29.33	41.47	36.76	35.05

Where the Intrinsically Safe version of the equipment is used, the following maximum power dissipation values apply:



Maximum Power (W), EPL Ga & Da		
T-class:	T4/T135°C (c) (d) (e)	
Max ambient:	+40°C	+55°C
ABCS6	12.25	11.00
ABCS7	13.75	12.25
ABCS8	13.50	12.00
ABCS9	15.50	13.75
ABCS10	18.25	16.00
ABCS11	24.25	21.50
ABCS12	20.25	18.00
ABCS13	27.50	24.25
ABCS14	40.19	35.63
ABCS15	41.47	36.76

The letter in the brackets next to the temperature class and associated upper ambient in the table above relates to the following maximum operating temperatures required of the terminals fitted.

(a)	(b)	(c)	(d)	(e)
≥85°C	≥100°C	≥120°C	≥190°C	≥105°C

Note: All terminals fitted shall be suitable for the lower operating temperature marked on the certification label.

- The maximum power dissipation for each enclosure shall be reduced by 1 W for each control component.
- The maximum power dissipation for each enclosure shall be reduced by 0.5 W for each ammeter.
- Control stations of sizes not specified in the table may be manufactured subject to the maximum power being based on a smaller enclosure.
- 2.5 mm² size terminals are limited to a maximum current of 15 A or less as, permitted by their marking.



Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification:

- i. The manufacturer shall carry out a dielectric strength test in accordance with clause 6.1, IEC 60079-7:2015 Ed 5 on all pre-wired junction boxes, taking into account the rated voltage of each unit. When the Control Stations are fitted with Phoenix Type SSK 0525 Ker-Ex Terminals, a dielectric strength test at 1836 V is to be applied between each adjacent terminal and between each terminal and earth in accordance with IEC 60079-7:2007, clause 7.1.
- ii. The total dissipated power of the enclosure shall be calculated in accordance with IEC 60079-7:2015 Ed 5, Annex E.2, and shall not exceed the maximum power rating defined in this certificate.
- iii. The Control Stations covered by this certificate incorporate previously certified devices. It is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer shall inform CML of any modification of the devices that may impinge upon the explosion safety.
- iv. The manufacturer shall modify the marking to include additional protection concept letters and to select the gas group, ambient temperature and Ingress Protection rating that are appropriate the combination of devices that are fitted.
- v. The terminals used in these Control stations shall be suitably approved IECEx terminals. All terminals shall be installed in accordance with their certificate conditions and relevant codes of practice/wiring regulations, paying particular attention to the following:
 - The maximum service temperature range.
 - The minimum creepage distances shall be maintained.
 - Terminals rated for voltages above 690 VAC shall not be used at voltages above 690 VAC within the Control Stations.
 - The rated voltages and currents may vary if cross-section facilities are used.
 - The reduction in rating of adjacent terminals shall be observed, where applicable.
 - The limiting temperature of the terminal insulation shall be in accordance with the limiting temperatures defined in the product description on this certificate.
- vi. The maximum ambient, temperature class and assigned maximum surface temperature of the equipment are dependent on the model and maximum power dissipation. Hence the maximum ambient, temperature class and assigned maximum surface temperature shall be marked in accordance with the 'Maximum Power Dissipation' table in the description on this certificate.
- vii. The marked minimum ambient temperature assigned to the equipment shall be no lower than the minimum ambient/service temperature of any previously certified parts installed. All



previously certified parts shall be used within their defined maximum ambient or service temperature.

- viii. All component approved parts installed on units marked with the IECEx certificate number, IECEx CML 16.0066X, shall be IECEx certified.
- ix. When fuses are fitted that are certified “Ex e mb” or “Ex eb mb” then the enclosure marking shall include the symbols ‘eb mb’ as part of the label marking code, as well as the appropriate gas/dust group marking, as defined by the fuse approval.
- x. All fuses fitted shall be approved to the appropriate IECEx standards and ratings for this apparatus. Additionally, the fuses shall:
 - Be suitable for the intended temperature range of the junction box.
 - Be suitable to maintain the required creepage and clearances in accordance with IEC 60079-7.
 - Have a declared contact resistance or power dissipation rating.
 - Be installed in accordance with their certificate conditions and the relevant codes of practice/wiring regulations
 - The power dissipation of the fuse shall be deducted from the maximum allowable power dissipation of the enclosure.
- xi. When the control stations are fitted with the CZ1208-9 (flash) Buzzer the following additional warning should be applied “WARNING – CLEAN ONLY WITH A DAMP CLOTH”



Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

- i. The flameproof joints of flameproof components shall not be repaired.
- ii. Where the intrinsically safe options of CZ0202 Signal Lamp Module (IECEX CQM 08.0006U) and CZ0212 Signal Lamp with Button Module (IECEX CQM 11.0034U) are used, the power supply shall be from an appropriate safety barrier with specified output parameters that are equal to or less than the input parameters. In an ambient temperature of 55°C, the temperature class of modules CZ0202 and CZ0212 with type of protection "Ex ia" is T4.
- iii. The CZ4000-M□ Calotte (glass window) and CZ4000-4019 safety latches (IECEX CQM 15.0035U) present a potential electrostatic hazard and as such shall be fitted to fixed installations only to allow them to comply with IEC 60079-0: Clause 7.4.2 (e) and Clause 7.4.3 (d). They shall only be cleaned with a damp cloth and sited away from any static charging methods e.g. near forced air movement or where they can easily be rubbed by passers-by.
- iv. The cable gland may not provide sufficient clamping; the user shall provide additional clamping of the cable to ensure that pulling and twisting is not transmitted to the terminations.
- v. When the control stations are fitted with the CZ1208-9 (flash) Buzzer the following additional warning shall be applied "WARNING – CLEAN ONLY WITH A DAMP CLOTH"
- vi. The control component shall be fitted in an enclosure complying with an approved explosion protection type in accordance with IEC 60079-0.
- vii. When fitted in an enclosure of explosion protection type "e" increased safety in accordance with IEC 60079-7, the clearance and creepage distances in accordance with section 4.3, section 4.4 and table 1 shall be met.
- viii. The control and switching unit shall be installed in an enclosure which meets the requirements of a recognized type of protection as specified in IEC 60079-0.
- ix. When the switch module and the control switch are installed in an enclosure of the type of protection increased safety "e" in compliance with IEC 60079-7, the clearance and creepage distances according to clause 4.3, clause 4.4 and table 1 shall be complied with.
- x. When the control stations are fitted with the CZ1208-9 (flash) Buzzer, under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.
- xi. When the control stations are fitted with the CZ1208/1-7 (flash) buzzer or the CZ1208/2-7 (flash) buzzer the electrical connection must be protected.
- xii. In order to guarantee the IP degree of the component, the wall of the enclosure where it's installed shall be plane and smooth.



- xiii. The permitted service temperature is -55°C and $+90^{\circ}\text{C}$ for CZ1208/1-7 model and between -40°C and $+90^{\circ}$ for CZ1208/2-7 model; when used in an ambient with a temperature not greater than $+55^{\circ}\text{C}$ for CZ1208/1-7 and $+50^{\circ}\text{C}$ for CZ1208/2-7 the limit for the maximum service temperature is respected.
- xiv. When the control stations are fitted with component Cz1208/1-7 the earth protection must be managed.
- xv. When the control stations are fitted with the CZ1208/1-7 (flash) buzzer or the CZ1208/2-7 (flash) buzzer the minimum number of engaged threads and the protection against unscrewing must be managed.