EU Type Examination Certificate CML 19ATEX1320X Issue 2

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

2 Equipment **1301-Z1 Industrial Computer**

3 Manufacturer **HMI Elements Ltd.**

4 Address **Unit A & B,**
Windmill Industrial Estate,
Malton, North Yorkshire,
YO17 6BT, United Kingdom

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 CML B.V., Chamber of Commerce No 67386717, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018	EN 60079-18:2015+A1:2017	EN 60079-11:2012
EN 60079-1:2014	EN 60079-7:2015+A1:2018	EN 60079-28:2015
EN 60079-31:2014		

10 The equipment shall be marked with the following:

II 2 G D

Without media converter:
Ex db eb mb *{option}* IIC T4 Gb
Ex tb *{option}* IIIC T90°C Db
-40°C ≤ Ta ≤ +60°C

II 2 G D

With media converter:
Ex db eb mb op is *{option}* IIC T4 Gb
Ex tb op is *{option}* IIIC T90°C Db
-40°C ≤ Ta ≤ +55°C

{option} = [ib] if Horn interface fitted and no WiFi antenna is fitted*{option}* = ib if WiFi antenna is fitted

11 Description

The 1301-Z1 Industrial Computer is a stand-alone rugged PC with 19” touchscreen for use in hazardous areas requiring equipment protection level Gb or Db.

The equipment comprises a metallic IP66 rated enclosure with a sealed toughened glass display front panel and touchscreen. An internal flameproof compartment houses the power supply, computer unit, and multiple boards and interfaces. The display and touchscreen are encapsulated and are connected to circuits within the flameproof compartment via line bushings or glands.

Multiple wired, optical, and wireless outputs are provided for the connection of external equipment, including intrinsically safe connections which are connected to circuits within the flameproof compartment via intrinsically safe barrier circuits.

The intrinsically safe connections have the following parameters:

Connector	Output parameters
Horn interface	Uo = 26.0V Io = 88mA Po = 0.57W Ci = 0 Li = 0
WiFi Antenna	Capacitively coupled

The following electrical connections to the equipment are not intrinsically safe and are made via cable glands or separately certified connectors:

Connector/entry	Rating
AC supply in	100Vac – 240Vac 50/60Hz, 1.3A
Ethernet*	+/- 2.5V 100mA
USB	5.5V 500mA
RS232	+/- 12V 100mA
RS485	3.5V 100mA

*The equipment may optionally be supplied with an externally mounted separately certified intrinsically safe barrier attached to the ethernet port. Refer to the barrier certificate for electrical parameters.

The equipment may be supplied with an “op is” fibre optic communication port.

Variation 1:
This variation introduced the following modification:

i. Re-issued to correct standard references

Variation 2:
This variation introduced the following modifications:

i. To change the LCD and touchscreen assembly
ii. To update document package

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	29 Apr 2020	R12513A/00	Issue of prime certificate
1	21 Jan 2021	R12513A/01	Re-issued to correct standard references
2	10 Mar 2023	RA16031A/00	Introduction of Variation 2

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of Manufacture

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

i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

ii. The flameproof enclosure, complete with blanking plugs, shall be subjected to an overpressure test at a minimum pressure of 25 bar in accordance with EN 60079-1:2014 clause 16. There shall be no damage or permanent deformation of the enclosure nor shall there be any leakage through the enclosure walls. The lid and base of the flameproof enclosure may be tested separately.

iii. Each mains fuse assembly shall be visually inspected. No damage shall be evident, such as cracks in the compound, exposure of encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion, or softening.

iv. Each mains fuse assembly shall be subjected to an electric strength test in accordance with EN 60079-18 Clause 9.2 using a test voltage of 1500Vac applied between the terminals and the surface of the encapsulant (covered in foil), for a period of 1 second.

Alternatively:

a. A voltage of 20% higher may be applied for 0.1 second.

b. A d.c. test voltage is allowed as an alternative to the a.c. test voltage and shall be 170% of the specified a.c. r.m.s. test voltage.

Alternatively, the equipment may be subjected to batch testing in accordance with EN60079-18 Annex C.

v. Each display assembly shall be visually inspected. No damage shall be evident, such as cracks in the compound, exposure of encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion, or softening.

vi. Each display assembly shall be subjected to an electric strength test in accordance with EN 60079-18 Clause 9.2 using a test voltage of 500Vac applied between the terminals and the frame of the equipment, for a period of 1 second.

Alternatively:

a) A voltage of 20% higher may be applied for 0.1 second.

b) A d.c. test voltage is allowed as an alternative to the a.c. test voltage and shall be 170% of the specified a.c. r.m.s. test voltage.

vii. The equipment shall be subjected to an electric strength test in accordance with the requirements of EN 60079-7 Clause 6.1 using a test voltage of 1500Vac applied between the supply terminals and frame, for a period of 1 second.

Alternatively, a d.c. test voltage is allowed as an alternative to the a.c. test voltage and shall be 170% of the specified a.c. r.m.s. test voltage.

viii. The manufacturer shall ensure that any equipment certified cable glands, bushings, breather drains, and connectors fitted to the equipment meet the requirements of EN IEC 60079-0:2018, EN60079-1:2014, EN60079-31:2014 and EN60079-7:2015 as appropriate, and that all conditions of use and relevant ratings are adhered to. All such parts shall be suitable for use at a service temperature range -40°C to 70°C. Any such parts fitted to the exterior of the equipment enclosure shall provide a minimum ingress protection of IP66. If any such parts do not meet the requirements of EN60079-31:2014, then the equipment shall not be marked as being suitable for use in explosive dust environments.

ix. Entries into the equipment for all non intrinsically safe connections shall be via suitably certified cable glands or via suitably certified Ex d e t plugs and sockets. If any such connectors do not meet the requirements of EN 60079-31:2014, then the equipment shall not be marked as being suitable for use in explosive dust environments.

x. When fitted with a Cotsworks Fibre optic transceiver, the manufacturer shall ensure that all conditions of safe use detailed on certificate IECEx TUR 17.0028X are complied with.

xi. When fitted with an external Solexy RF barrier, the manufacturer shall ensure that all conditions of use detailed on certificate TUV CY18ATEX0206158X are complied with and that a copy of the certificate is provided to the end user.

xii. When fitted with an external Solexy ethernet barrier, the manufacturer shall ensure that all conditions of use detailed on certificate TUV CY18ATEX0206141X are complied with and that a copy of the certificate is provided to the end user.

14 Specific Conditions of Use (Special Conditions)

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

i. When installed in area requiring equipment protection level Db, under certain extreme circumstances, the coated 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 e.g. where a charge-generating mechanism (such as wind-blown dust or steam generation) is possible. In addition, the equipment shall only be cleaned with a damp cloth.

ii. The bolts securing the lid of the flameproof compartment shall be M6 x 1mm x 24 mm (min) to 36 mm (max) alloy steel hexagon socket head types with a material grade of 12.9 or better.

iii. When the equipment is supplied with an externally mounted ethernet barrier, the user shall refer to the certificate of the barrier for details of the output parameters of the barrier.

Certificate Annex

Certificate Number CML 19ATEX1320X

Equipment 1301-Z1 Industrial Computer

Manufacturer HMI Elements Ltd.

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
D100440	1 to 13	A4	29 Apr 2020	1301_Z1 - General Assembly
D100427	1 to 2	A4	29 Apr 2020	1301-Z1 - Specification Plate and warning labels
D100419	1 to 2	A7	29 Apr 2020	1301-Z1 - Electrical Block Wiring Diagram
D100429	1 to 2	A2	29 Apr 2020	1301-Z1 - Primary Side Mains wiring.
D100417	1 of 1	A0	29 Apr 2020	1301-Z1 - SA1417 - Potted Dual fuse assembly
D100443	1 to 3	A2	29 Apr 2020	Power terminals and fuse Assembly
D100421	1 of 1	A1	29 Apr 2020	1301-Z1 - SA1464 - AC input Over Voltage Protection Board & EMI filter
D100442	1 of 4	A2	29 Apr 2020	Secondary Side Low Voltage Exe Wiring
D100428	1 of 1	A1	29 Apr 2020	1301-Z1 - Ex e Breakout Board
D100396	1 to 9	A6	29 Apr 2020	Ex d Enclosure Assembly Certification Drawing
D100402	1 of 1	A1	29 Apr 2020	Rear Heater Mat
D100403	1 of 1	A1	29 Apr 2020	Front Heater Mat
D100404	1 of 1	A1	29 Apr 2020	1301_Z1 - CPU Adapter Plate
D100418	1 of 1	A1	29 Apr 2020	1301-Z1 - Bios Battery Backup Circuit
D100399	1 to 4	A4	29 Apr 2020	Weatherproof External Seal
D100401	1 to 7	A5	29 Apr 2020	1301_Z1 - Earth Stud Arrangement
D100425	1 to 10	A1	29 Apr 2020	IS Interface segregation
D100414	1 to 2	A0	29 Apr 2020	SA1320- IS Horn Board Circuit Schematic and PCB Layout
D100415	1 to 18	A0	29 Apr 2020	SA1320 _A2 - IS horn Board Circuit Description
D100365	1 to 2	A1	29 Apr 2020	1801_Z1 potted antenna barrier
D100348	1 of 1	A1	29 Apr 2020	N-type Bulkhead Connector Drawing
D100423	1 to 3	A0	29 Apr 2020	1301-Z1 - Amphenol PT07 Jam nut Type Connectors
D100441	1 to 4	A1	29 Apr 2020	Ex m - Encapsulated assembly - Drawing
D100420	1 to 8	A0	29 Apr 2020	1301-Z1 – LCD Void Filling Procedure
D100431	1 to 3	A0	29 Apr 2020	1301-Z1 - Touchscreen controller fuse placement assembly

Certificate Annex

Certificate Number CML 19ATEX1320X

Equipment 1301-Z1 Industrial Computer

Manufacturer HMI Elements Ltd.

Drawing No	Sheets	Rev	Approved date	Title
D100432	1 to 3	A0	29 Apr 2020	1301 Z1 - Backlight Controller Fuse Placement Assembly
D100433	1 to 4	A0	29 Apr 2020	1301 Z1 - Lightbar Fuse placement assembly
D100434	1 to 4	A0	29 Apr 2020	1301 Z1 - LCD Fuse Placement Assembly
D100435	1 to 3	A0	29 Apr 2020	1301 Z1 - Camera Fuse Placement Assembly
D100436	1 to 3	A0	29 Apr 2020	Bluetooth Fuse Placement Assembly
D100437	1 to 3	A2	29 Apr 2020	1301-Z1 Ex m interconnect board
D100438	1 of 2	A1	29 Apr 2020	Front Heater Matt Trace Layout
D100422	1 of 1	A1	29 Apr 2020	1301-Z1 TOSA Control and label drawing
D100444	1 of 1	A0	29 Apr 2020	1301-Z1 potting procedure

Issue 1

No drawings were issued as part of this variation.

Issue 2

Drawing No	Sheets	Rev	Approved date	Title
D100401	1 to 7	A6	09 Mar 2023	1301_Z1 - Earth Stud Arrangement
D100403	1 of 1	B0	09 Mar 2023	Front Heater Mat
D100414	1 to 2	A1	09 Mar 2023	SA1320- IS Horn Board Circuit Schematic and PCB Layout
D100415	1 to 19	A1	09 Mar 2023	SA1320 _A2 - IS horn Board Circuit Description
D100419	1 to 3	A8	09 Mar 2023	1301-Z1 - Electrical Block Wiring Diagram
D100431	1 to 3	A1	09 Mar 2023	1301-Z1 - Touchscreen controller fuse placement assembly
D100434	1 to 3	B0	09 Mar 2023	1301 Z1 - LCD Fuse Placement Assembly
D100438	1 of 2	B0	09 Mar 2023	Front Heater Matt Trace Layout
D100440	1 to 13	A5	09 Mar 2023	1301_Z1 - General Assembly
D100441	1 to 4	A2	09 Mar 2023	Ex m - Encapsulated assembly - Drawing
D100444	1 of 1	A1	09 Mar 2023	1301-Z1 potting procedure
FMTN-166	1 to 10	A0	09 Mar 2023	1301 LCD fill procedure
NEL-2022-1852-HA	1	PT1	09 Mar 2023	Heater assembly

Certificate Annex

Certificate Number CML 19ATEX1320X

Equipment 1301-Z1 Industrial Computer

Manufacturer HMI Elements Ltd.

Drawing No	Sheets	Rev	Approved date	Title
D100427	1 to 2	A8	09 Mar 2023	1301-Z1 - Specification Plate and warning labels

Note: Drawings numbers D100432 and D100420, that were issued during issue one of this certificate, have been omitted at the request of the applicant as part of this issue.