



1 **EC TYPE EXAMINATION CERTIFICATE**

2 Equipment or protective system intended for use in potentially explosive atmospheres –
Directive 94/9/EC – Annex III

3 EC Type Examination Certificate No.: **TRAC12ATEX0037X (incorporating variation V1)**

4 Equipment: **Intrinsically Safe Digital Camera DC6000 and TC7000 Thermal Imaging Camera**

5 Manufacturer: **CorDEX Instruments Ltd.,**

6 Address: **Unit 1 Owens Road, Skippers Lane Industrial Estate,
Middlesbrough, Cleveland, TS6 6HE, United Kingdom**

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 TRaC Global Ltd, Notified Body number 0891 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment or protective system 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 **TRA-010226-33-00A, TRA-010226-33-01A & TRA-017824-33-00A.**

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in section 18 of the schedule to this certificate, has been assured by compliance with:

EN60079-0:2009

EN60079-11:2012

10 If the sign "X" is placed after the certificate number then this indicates that the equipment or protective system is subject to special conditions of safe use specified in the schedule to this certificate.

11 This EC-Type Examination certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of this equipment or protective system shall include the following:

 **II 2G Ex ib IIC T4 Gb** **Tamb -10°C to 40°C**
II 2D Ex ib IIIC T200°C Db
I M2 Ex ib I Mb

This certificate and its schedules may only be reproduced in its entirety and without change. This certificate is issued in accordance with the TRaC Ex Certification Scheme.

S.P. Winsor

S P Winsor, Certification Officer

Issue date: 2014-03-28

Copy No.: 1e

Page 1 of 7

Form RF355 is16A

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13 **SCHEDULE TO EC TYPE EXAMINATION CERTIFICATE**

14 **TRAC12ATEX0037X (incorporating variation V1)**

15 **General description of equipment or protective system included within the scope of this certificate**

The DC6000 is a battery powered hand held digital optical camera with an articulating lens, designed to take images. It comprises of several printed circuit boards inside the equipment. The IP54 enclosure is made from polymeric materials inside a protective rubber boot, the articulating lens head is made from aluminium. The equipment is battery powered by three 1.5V AA alkaline cells. Only Duracell MN1500 LR6 cells can be used.

The TC7000 is a thermal imaging camera which shares the same enclosure, and common PCBs with the DC6000. Different PCBs are fitted to provide the thermal imaging function. The TC7000 is powered by a rechargeable battery pack with a nominal voltage of 7.6V, comprising of two series connected Lithium-ion cells.

A list of controlled Manufacturer's Documents is given in Appendices A.1 and A.2 to this schedule.

Parameter	USB
Um	253V

16 **Test report No.:** TRA-010226-33-00A, TRA-010226-33-01A & TRA-017824-33-00A.

17 **“Special Conditions of Safe Use” for Ex Equipment:**

The following conditions apply to the DC6000

1. Only Duracell Procell MN1500 LR6 AA cells can be used.
2. Only Panasonic CR2032 for real time clock backup can be used.
3. The equipment must be de-energized and removed from the hazardous area by the operator when the presence of a hazardous atmosphere is detected. When used in an underground mining area EPL Mb.
4. USB connection to be used only in the safe area.

The following conditions apply to the TC7000

1. Only TC7000 battery pack can be used.
2. The battery pack must be removed from the equipment in the safe area when charging and the battery pack can only be charged in the safe area.
3. Do not replace the battery pack in the hazardous area.
4. Only Panasonic CR2032 for real time clock backup can be used.
5. The equipment must be de-energized and removed from the hazardous area by the operator when the presence of a hazardous atmosphere is detected. When used in an underground mining area EPL Mb.
6. USB connection to be used only in the safe area.

18 **Essential health and safety requirements**

Covered by application of the standards listed in section 9 of this certificate and the assessment conducted in the test report listed in section 16 of this certificate.

19 **Additional information**

“Routine tests”, if any:

None.

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0037X V1

“Special conditions for manufacture”, if any:

1. Only the LG Chemical ICR18650D1 cell can be used in the TC7000 battery pack.
2. Separation distances of all critical components must maintain a minimum distance of 0.7mm, in accordance with drawing CDX-7000-200.

Other information, if any:

None.

Photographs



Details of markings

DC6000

TRAC
testing regulatory and compliance

CorDEX Instruments Ltd. 1 Owens Rd, Middlesborough, TS6 6HE, UK	
DC6000-Digital Camera	
	Ex ib IIC T4 Gb Tamb -10°C to +40°C
	Ex Ib IIIC T200°C Db Tamb -10°C to +40°C
	Ex Ib I Mb
	ATEX ; - TRAC12ATEX0037X
	IECEX ; - IECEX TRC 12.0019X
	Serial Number - XXXX- XX - XXXX
	Year of construction - YYYY
	Powered by ; * refer to certificate,
DO NOT OPEN WHEN EXPLOSIVE ATMOSPHERE PRESENT	

TC7000

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0037X V1



Details of variations to this certificate

- Variation V1 – Addition of report TRA-017824-33-00A which adds a re-chargeable battery pack for use with the TC7000.

Notes to CE marking

In respect of CE Marking, TRaC Global Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

Notes to this certificate

TRaC certification reference: **TRA-017824-32-00.**

Throughout this certificate, the date format yyyy-mm-dd (year-month-day) is used.

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0037X V1

APPENDIX A.1 - LIST OF CONTROLLED MANUFACTURER'S DOCUMENTS DC6000

Title:	Drawing No.:	Rev. Level:	Date:
CorDEX Camera System (Sheets 1 to 6)	CDX-6000-200	1.0b	2012-06-22
Rating Plate	CDX-6000-441	A	2012-05-01
General Assembly	CDX-6000-400	C	2013-01-10
CorDEX DC6000 DSP board (Sheets 1 to13)	CDX-6000-215	1.3	2013-01-08
CorDEX DC6000 Sensor Control Schematic (Sheets 1 to 4)	CDX-6000-210	1.2	2012-10-24
CorDEX keypad – Top Level (Sheets 1 to 3)	CDX-6000-221	1.2b	2012-10-29
CorDEX Flexi board	CDX-6000-240	1.2a	2012-11-05
CorDEX Alkaline Battery Pack board	CDX-6000-250	1.2	2012-11-21
CorDEX Camera Battery Connector board	CDX-6000-260	1.2a	2012-11-14
CorDEX Camera Shoot Button board	CDX-6000-290	1.2	2012-11-21
CorDEX Camera Shoot Button Cable Assembly	CDX-6000-295	0.1a	2011-10-31
CorDEX UT5000 Display board (Sheets 1 to 2)	CDX-5000-200	1.2	2011-08-19
CorDEX DC6000 Battery Cable	CDX-6000-265	0.1a	2011-10-31
CORDEX FLASH BOARD (Sheets 1 to 2)	CDX-6000-270	Rev 1.2	2012-05-07
CORDEX CAMERA LED BOARD	CDX-6000-280	Rev 1.2	2011-10-31
CORDEX CAMERA RTC BOARD	CDX-6000-285	Rev 1.0	2013-01-30
CorDEX Display Board BOM	CDX-5000-204	Rev 1.2	2011-08-19
CorDEX Display Board Fabrication (Sheets 1-2)	CDX-5000-208	Rev 1.2a	2011-10-19
CorDEX Battery Connector BOM	CDX-6000-236	Rev1.2a	2012-11-21
CorDEX Battery Connector Fabrication	CDX-6000-262	Rev 1.2a	2012-11-21
CorDEX Battery Pack ALK BOM	CDX-6000-235	Rev 1.2	2012-11-21
CorDEX Battery Pack ALK Fabrication	CDX-6000-252	Rev 1.2	2012-4-23
CorDEX Camera DSP Board BOM	CDX-6000-232	Rev 1.3	2013-01-09

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0037X V1

Title:	Drawing No.:	Rev. Level:	Date:
CorDEX Camera DSP Board Fabrication (Sheets 1-2)	CDX-6000-217	Rev 1.3	2013-01-08
CorDEX Camera Flash Board BOM	CDX-6000-237	Rev 1.1c	2012-07-05
CorDEX Camera Flash Board Fabrication	CDX-6000-272	Rev 1.2	2012-04-24
CorDEX Camera Flexi Board BOM	CDX-6000-234	Rev 1.2a	2012-11-21
CorDEX Camera Flexi Board Fabrication (Sheets 1-2)	CDX-6000-242	Rev 1.2a	2012-11-02
CorDEX Keypad Board BOM	CDX-6000-233	Rev 1.2b	2012-11-21
CorDEX Keypad Board Fabrication (Sheets 1-2)	CDX-6000-223	Rev 1.2a	2012-10-29
CorDEX LED Board BOM	CDX-6000-238	Rev 0.1a	2012-07-05
CorDEX LED Board Fabrication	CDX-6000-282	Rev 1.2	2012-04-24
CorDEX RTC Board BOM	CDX-6000-289	Rev 1.0	2013-02-05
CorDEX RTC Board Fabrication	CDX-6000-287	Rev 1.0	2013-02-04
CorDEX Sensor Control Board BOM	CDX-6000-231	Rev 1.2a	2013-01-08
CorDEX Sensor Control Board Fabrication (Sheets 1-2)	CDX-6000-212	Rev 1.2	2012-04-23
CorDEX Shoot Button BOM	CDX-6000-239	Rev 1.2	2012-11-21
CorDEX Shoot Button Fabrication	CDX-6000-292	Rev 1.2	2012-04-23
DC6000 Thermal Imaging Camera Instructions for Safe operation	DC6000SOM	Rev A	2013

CONTINUATION OF SCHEDULE TO CERTIFICATE TRAC12ATEX0037X V1

APPENDIX A.2 - LIST OF CONTROLLED MANUFACTURER'S DOCUMENTS TC7000

Title:	Drawing No.:	Rev. Level:	Date:
Thermal Sensor board (Sheets 1 to 4)	CDX-7000-205	2.2	2013-02-01
Thermal NUC board (Sheets 1 to 2)	CDX-7000-215	1.3	2013-03-01
CorDEX TC7000 System (Sheets 1,4, 6, 7, 8)	CDX-7000-200	2.5a	2013-12-16
CorDEX TC7000 System (Sheets 2, 3, 5)	CDX-7000-200	2.5a	2013-12-18
General Assembly	CDX-6000-400	D	2014-01-12
Rating Plate	CDX-7000-441	A	2013-01-01
CorDEX Thermal Imager System Schematic BOM	CDX-7000-201	2.5	2013-12-11
CorDEX Thermal NUC Board BOM	CDX-7000-231	1.3	2013-03-05
CorDEX Thermal NUC Board Fabrication (Sheets 1 to 2)	CDX-7000-217	1.3	2013-03-01
CorDEX Thermal Sensor BOM	CDX-7000-230	2.2	2013-02-06
CorDEX Thermal Sensor Fabrication (Sheets 1 to 2)	CDX-7000-207	2.2	2013-02-01
TC7000 Thermal Imaging Camera, Instructions for safe operation.	TC7000SOM	B	2013
CorDEX Thermal Battery Regulator board (2 sheets)	CDX-7000-280	1.0	2013-11-27
CorDEX Camera Battery Pack (Li-Iron-Phos) board (1 sheet)	CDX-7000-300	1.0a	2014-03-17
CorDEX Camera Battery Connector Board (1 sheet)	CDX-6000-260	2.0	2013-12-03
CorDEX Battery Pack ALK Board BOM	CDX-7000-304	1.0a	2014-03-17