

# INSTRUCTIONS FOR SAFE USE

## TOUGHPIX DIGITHERM INTRINSICALLY SAFE DIGITAL IMAGING CAMERA



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# READ THIS FIRST

Read and understand all Warnings and Cautions before using this product.

## Safety Information

This instruction manual contains information and warnings that must be observed for safe operation under the conditions described.

## Faults and Damage

If there are any grounds to believe the unit is no longer safe to use, it must be taken out of service and measures taken to prevent its further unintentional use.

## Safety Regulations

When using TOUGHPIX DIGITHERM, the appropriate regulations must be observed to avoid incorrect operation of the unit.

**ATTENTION! Ensure the battery door is securely fastened when using the device. The device must not be opened in the hazardous area.**

## Maintenance


For safety critical maintenance, please refer to EN60079-17.

## Special Conditions for Safe Use


- Do not remove or replace batteries within the hazardous area.
- The battery pack can only be charged in a safe area.
- Consideration shall be given to the risk of degradation of the camera due to aggressive substances.
- Only CorDEX approved accessories (battery pack and memory card) are permitted to be used in the TOUGHPIX DIGITHERM.
- The capacitance in the non-earthed exposed metallic parts of the enclosure exceeds the values given in the Table 9 of IEC 60079-0.
- It is the responsibility of the user to determine the suitability of the maximum capacitance 82.3 pF to the intended use area.

# LABELLING

CorDEX Instruments Ltd. 1 Owens Rd, TS66HE, UK  
TOUGHPIX DIGITHERM Camera



Ex II 2G




2585

ATEX – ExVeritas 17ATEX 0277X  
IECEX – IECEX EXV 17.0013X  
Ex ib op is IIC T4 Gb  
Tamb -10C to +40C  
Year of Construction – XXXX  
Serial Number – XXXX-XX-XXXX

WARNING: Use only authorised Battery. (Refer to manual)  
DO NOT CHANGE BATTERY IN HAZARDOUS AREA

# IECEX CERTIFICATE



**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](http://www.iecex.com)

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Certificate No:	IECEX EXV 17.0013X	Issue No: 0	<b>Certificate history:</b> Issue No. 0 (2017-07-21)
Status:	Current	Page 1 of 3	
Date of Issue:	2017-07-21		
Applicant:	<b>CorDEX Instruments Limited</b> CorDEX Instruments Limited Unit 1 Owens Road, Skippers Lane Industrial Estate Middlesbrough, Cleveland TS6 6HE United Kingdom		
Equipment:	ToughPIX DIGITHERM Cameras TP3aEx, TP3kEx, TP3rEx		
Optional accessory:			
Type of Protection:	Intrinsic safety, inherently safe optical radiation		
Marking:	Ex ib op is IIC T4 Gb		
Approved for issue on behalf of the IECEX Certification Body:			Stephen O'Herin
Position:			Director
Signature: (for printed version)	_____		
Date:	_____		

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](http://Official IECEX Website).

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Certificate issued by:

**ExVeritas Limited**  
 Units 16-18 Aberbury Way  
 Wrexham Ind. Est.  
 Wrexham LL 139UZ  
 United Kingdom



# IECEX CERTIFICATE

# IECEX CERTIFICATE

IEC		IECEX		IECEX Certificate of Conformity	
Certificate No:	IECEX EXV 17.0013X	Issue No:	0		
Date of Issue:	2017-07-21	Page 2 of 3			
Manufacturer:	<b>CorDEX Instruments Limited</b> Unit 1 Owens Road, Skippers Lane Industrial Estate Middlesbrough, Cleveland TS6 6HE United Kingdom				
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.					
<b>STANDARDS:</b>					
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 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"				
IEC 60079-28 : 2015 Edition: 2	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation				
This Certificate <b>does not</b> indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.					
<b>TEST &amp; ASSESSMENT REPORTS:</b>					
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in					
<u>Test Report:</u>					
GB/EXV/EXTR17.0016/00					
<u>Quality Assessment Report:</u>					
GB/SIR/QAR10.0010/08					

IEC		IECEX		IECEX Certificate of Conformity	
Certificate No:	IECEX EXV 17.0013X	Issue No:	0		
Date of Issue:	2017-07-21	Page 3 of 3			
<b>Schedule</b>					
<b>EQUIPMENT:</b>					
Equipment and systems covered by this certificate are as follows:					
The camera is a battery powered hand held dual-mode digital with auto-focus and IR camera with preview LCD. User interface is via joystick control. Images are stored on a removable memory card. Only the CorDEX SD card may be used.					
External communication is with embedded WIFI and GPS capability included.					
The IP54 enclosure is made from aluminium. Access is available to replace the battery and memory card.					
The equipment is battery powered by single rechargeable Lithium-Ion cell in a battery pack. The battery is removed from the camera for charging. Both removal and charging of the battery are only permitted in safe areas.					
Only the CorDEX battery pack and memory card may be used.					
<ul style="list-style-type: none"> <li>• TP3aEx ToughPIX 3a, Ex ib IIC T4 Gb 2MP Intrinsically Safe Digital Thermal Camera</li> <li>• TP3kEx ToughPIX 3k, Ex ib IIC T4 Gb 5MP Intrinsically Safe Digital Thermal Camera</li> <li>• TP3Ex ToughPIX 3r, Ex ib IIC T4 Gb 5MP Intrinsically Safe Digital Thermal Camera</li> </ul>					
(All the camera models are software configured using the same hardware)					
<b>Accessories used in the camera</b>					
<ul style="list-style-type: none"> <li>• CDX16IS CorDEX 64Gb IS Memory Card</li> <li>• CDX04IS CorDEX 16Gb IS Memory Card</li> <li>• CDX370 3.7V Lithium Battery Pack</li> </ul>					
<b>SPECIFIC CONDITIONS OF USE: YES as shown below:</b>					
<ul style="list-style-type: none"> <li>• Only CorDEX approved accessories (battery pack and memory card) are permitted to be used in or with the ToughPIX DIGITHERM Cameras. The use of other or non-approved CorDEX accessories will invalidate the approval for explosive atmospheres.</li> <li>• The capacitance of the non-earthed exposed metallic parts of the enclosure exceeds the values given in Table 9 of IEC 60079-0 (which is 3pF for Gas group IIC). It is the responsibility of the user to determine the suitability of the maximum device enclosure's capacitance to ground, measured/tested to be 82.3 pF, when using this equipment for its intended purpose in accordance with the operating/instruction manual.</li> </ul>					
<b>Annex:</b>					
IECEX EXV 17.0013 X Annex.pdf					

# IECEX CERTIFICATE

Annex to: IECEX EXV 17.0013X Issue 0



<b>Description Continued:</b>
N/A

<b>Routine Tests:</b>
N/A

<b>Special Conditions for manufacture:</b>
N/A

Manufacturer's documents:			
Title:	Drawing No.:	Rev	Date:
CorDEX IS-Camera IS/ATEX system schematic	CDX8950-200	Rev1.1	15/08/2017
CorDEX IS-Camera IS/ATEX system BOM	CDX8950-201	Rev1.1	28/08/2017
IS-Camera Imager PCB schematic	CDX8950-210	Rev1.2	25/08/2017
IS-Camera Imager BOM	CDX8950-211	Rev1.2b	03/10/2017
IS-Camera Imager PCB fabrication drawing	CDX8950-213	Rev1.2	01/08/2017
IS-Camera Imager PCB assembly drawing	CDX8950-214	Rev1.2	01/08/2017
IS-Camera Imager RS274 (gerbers)	NA	Rev1.2	04/08/2017
IS-Camera BatteryPack PCB schematic	CDX8950-220	Rev1.2	18/07/2017
IS-Camera BatteryPack BOM	CDX8950-221	Rev1.2	17/07/2017
IS-Camera BatteryPack PCB fabrication drwg	CDX8950-223	Rev1.2	18/07/2017
IS-Camera BatteryPack PCB assembly drawing	CDX8950-224	Rev1.2	18/07/2017
IS-Camera BatteryPack RS274 (gerbers)	NA	Rev1.2	18/07/2017
IS-Camera FlashLED PCB schematic	CDX8950-230	Rev1.3	15/08/2017
IS-Camera FlashLED BOM	CDX8950-231	Rev1.3	15/08/2017
IS-Camera FlashLED PCB fabrication drwg	CDX8950-233	Rev1.3	15/08/2017
IS-Camera FlashLED PCB assembly drawing	CDX8950-234	Rev1.3	15/08/2017
IS-Camera FlashLED RS274 (gerbers)	NA	Rev1.3	15/08/2017
IS-Camera BattConn PCB schematic	CDX8950-240	Rev1.1	07/07/2017
IS-Camera BattConn BOM	CDX8950-241	Rev1.1	18/07/2017
IS-Camera BattConn PCB fabrication drwg	CDX8950-243	Rev1.1	07/07/2017
IS-Camera BattConn PCB assembly drawing	CDX8950-244	Rev1.1	07/07/2017
IS-Camera BattConn RS274 (gerbers)	NA	Rev1.1	07/07/2017
IS-Camera SDCard PCB schematic	CDX8950-250	Rev1.0	14/03/2017
IS-Camera SDCard BOM	CDX8950-251	Rev1.0	16/03/2017
IS-Camera SDCard PCB fabrication drwg	CDX8950-253	Rev1.0	15/03/2017
IS-Camera SDCard PCB assembly drawing	CDX8950-254	Rev1.0	15/03/2017

# IECEX CERTIFICATE

Annex to: IECEX EXV 17.0013X Issue 0



IS-Camera SDCard RS274 (gerbers)	NA	Rev1.0	15/03/2017
IS-Camera NUCFFC PCB schematic	CDX8950-260	Rev1.1	01/08/2017
IS-Camera NUCFFC BOM	CDX8950-261	Rev1.1	02/08/2017
IS-Camera NUCFFC PCB fabrication drwg	CDX8950-263	Rev1.1	02/08/2017
IS-Camera NUCFFC PCB assembly drawing	CDX8950-264	Rev1.1	02/08/2017
IS-Camera NUCFFC RS274 (gerbers)	NA	Rev1.1	02/08/2017
IS-Camera Limiter PCB schematic	CDX8950-270	Rev1.1	18/07/2017
IS-Camera Limiter BOM	CDX8950-271	Rev1.1a	21/06/2017
IS-Camera Limiter PCB fabrication drwg	CDX8950-273	Rev1.1	21/06/2017
IS-Camera Limiter PCB assembly drawing	CDX8950-274	Rev1.1	21/06/2017
IS-Camera Limiter RS274 (gerbers)	NA	Rev1.1	21/06/2017
IS-Camera General Assembly	CDX8950-400	Rev B	01/08/2017
IS-Camera GA Material BOM	CDX9850-401	Rev 0.1b	26/09/2017
IS-Camera Surface areas (non-metallic)	CDX8950-405	Rev A	22/06/2017
IS-Camera Component Insulators	CDX8950-406	Rev B	01/08/2017
IS-Camera FlashLED potting	CDX8950-407	Rev A	27/06/2017
IS-Camera BatteryPack X-section	CDX8950-409	Rev A	18/07/2017
IS-Camera rating plate	CDX8950-445	Rev A	18/09/2017
IS-Camera Infallible GND wire drwg	CDX8950-448	Rev A	18/07/2017
IS-Camera Door Assembly GA	CDX8950-450	Rev A	15/03/2017
IS-Camera BatteryPack GA	CDX8950-470	Rev A	22/06/2017
IS-Camera Safe Operations Manual	CDX8950-511	Rev A	29/09/2017
IS-Camera FFC Insulation (for FlashLED)	CDX1830-054	Rev A	23/06/2017
EC Declaration of Conformity (DIGITHERM)	SOM15A	Rev A	25/09/2017

# ATEX CERTIFICATE



**1 EU - Type Examination Certificate**

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

3 Certificate Number: ExVeritas 17 ATEX 0277 X Issue: 0

4 Equipment: ToughPIX DIGITHERM Cameras TP3aEx, TP3kEx, TP3rEx

5 Manufacturer: CorDEX Instruments Limited

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

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

8 ExVeritas, Notified Body number 2585 in accordance with Article 9 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems for use in potentially explosive atmospheres given in Annex II to the Directive

9 Compliance with the applicable Essential Health and Safety Requirements has been assured by compliance with the following Standards and section 16 of this certificate:  
EN 60079-0:2012+A11:2013 EN 60079-28:2015  
EN 60079-11:2012

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design, construction, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment shall include the following:



On behalf of ExVeritas  
S D'Heinin  
Certification Manager




No. 8613

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# ATEX CERTIFICATE



**Schedule**

13 **Description of Equipment or Protective System**

The camera is a battery powered hand held dual-mode digital with auto-focus and IR camera with preview LCD. User interface is via joystick control. Images are stored on a removable memory card. Only the CorDEX SD card may be used.

External communication is with embedded WIFI and GPS capability included.  
The IP54 enclosure is made from aluminium. Access is available to replace the battery and memory card. The equipment is battery powered by single rechargeable Lithium-ion cell in a battery pack. The battery is removed from the camera for charging. Both removal and charging of the battery are only permitted in safe areas. Only the CorDEX battery pack and memory card may be used.

Models description:

- TP3aEx ToughPIX 3a, Ex ib IIC T4 Gb 2MP Intrinsically Safe Digital Thermal Camera
- TP3kEx ToughPIX 3k, Ex ib IIC T4 Gb 5MP Intrinsically Safe Digital Thermal Camera
- TP3rEx ToughPIX 3r, Ex ib IIC T4 Gb 5MP Intrinsically Safe Digital Thermal Camera

(All the camera models are software configured using the same hardware)

Accessories used in the camera

- CDX16IS CorDEX 64Gb IS Memory Card
- CDX04IS CorDEX 16Gb IS Memory Card
- CDX370 3.7V Lithium Battery Pack

14 **Descriptive Documents**

14.1 Associated Report and Certificate History:

Report Number	Cert Issue Date	Issue	Comment
R1060/A/1	2017-10-13	0	Initial issue of the Prime Certificate

14.2 Compliance Drawings:

**Issue 0**

Number	Date	Issue	Description
CDX8950-200	15/08/2017	Rev1.1	CorDEX IS-Camera IS/ATEX system schematic
CDX8950-201	28/08/2017	Rev1.1	CorDEX IS-Camera IS/ATEX system BOM
CDX8950-210	25/08/2017	Rev1.2	IS-Camera Imager PCB schematic
CDX8950-211	03/10/2017	Rev1.2b	IS-Camera Imager BOM
CDX8950-213	01/08/2017	Rev1.2	IS-Camera Imager PCB fabrication drawing
CDX8950-214	01/08/2017	Rev1.2	IS-Camera Imager PCB assembly drawing
NA	04/08/2017	Rev1.2	IS-Camera Imager RS274 (gerbers)
CDX8950-220	18/07/2017	Rev1.2	IS-Camera BatteryPack PCB schematic
CDX8950-221	17/07/2017	Rev1.2	IS-Camera BatteryPack BOM
CDX8950-223	18/07/2017	Rev1.2	IS-Camera BatteryPack PCB fabrication drwg
CDX8950-224	18/07/2017	Rev1.2	IS-Camera BatteryPack PCB assembly drawing

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# ATEX CERTIFICATE




Schedule			
Number	Date	Issue	Description
NA	18/07/2017	Rev1.2	IS-Camera BatteryPack RS274 (gerbers)
CDX8950-230	15/08/2017	Rev1.3	IS-Camera Flash.ED PCB schematic
CDX8950-231	15/08/2017	Rev1.3	IS-Camera Flash.ED BOM
CDX8950-233	15/08/2017	Rev1.3	IS-Camera Flash.ED PCB fabrication drwg
CDX8950-234	15/08/2017	Rev1.3	IS-Camera Flash.ED PCB assembly drawing
NA	15/08/2017	Rev1.3	IS-Camera Flash.ED RS274 (gerbers)
CDX8950-240	07/07/2017	Rev1.1	IS-Camera BattConn PCB schematic
CDX8950-241	18/07/2017	Rev1.1	IS-Camera BattConn BOM
CDX8950-243	07/07/2017	Rev1.1	IS-Camera BattConn PCB fabrication drwg
CDX8950-244	07/07/2017	Rev1.1	IS-Camera BattConn PCB assembly drawing
NA	07/07/2017	Rev1.1	IS-Camera BattConn RS274 (gerbers)
CDX8950-250	14/03/2017	Rev1.0	IS-Camera SDCard PCB schematic
CDX8950-251	16/03/2017	Rev1.0	IS-Camera SDCard BOM
CDX8950-253	15/03/2017	Rev1.0	IS-Camera SDCard PCB fabrication drwg
CDX8950-254	15/03/2017	Rev1.0	IS-Camera SDCard PCB assembly drawing
NA	15/03/2017	Rev1.0	IS-Camera SDCard RS274 (gerbers)
CDX8950-260	01/08/2017	Rev1.1	IS-Camera NUCFFC PCB schematic
CDX8950-261	02/08/2017	Rev1.1	IS-Camera NUCFFC BOM
CDX8950-263	02/08/2017	Rev1.1	IS-Camera NUCFFC PCB fabrication drwg
CDX8950-264	02/08/2017	Rev1.1	IS-Camera NUCFFC PCB assembly drawing
NA	02/08/2017	Rev1.1	IS-Camera NUCFFC RS274 (gerbers)
CDX8950-270	18/07/2017	Rev1.1	IS-Camera Limiter PCB schematic
CDX8950-271	21/06/2017	Rev1.1a	IS-Camera Limiter BOM
CDX8950-273	21/06/2017	Rev1.1	IS-Camera Limiter PCB fabrication drwg
CDX8950-274	21/06/2017	Rev1.1	IS-Camera Limiter PCB assembly drawing
NA	21/06/2017	Rev1.1	IS-Camera Limiter RS274 (gerbers)
CDX8950-400	01/08/2017	Rev B	IS-Camera General Assembly
CDX8950-401	26/09/2017	Rev 0.1b	IS-Camera GA Material BOM
CDX8950-405	22/06/2017	Rev A	IS-Camera Surface areas (non-metallic)
CDX8950-406	01/08/2017	Rev B	IS-Camera Component Insulators
CDX8950-407	27/06/2017	Rev A	IS-Camera Flash.ED potting
CDX8950-409	18/07/2017	Rev A	IS-Camera BatteryPack X-section
CDX8950-445	18/09/2017	Rev A	IS-Camera rating plate
CDX8950-448	18/07/2017	Rev A	IS-Camera Infallible GND wire drwg
CDX8950-450	15/03/2017	Rev A	IS-Camera Door Assembly GA
CDX8950-470	22/06/2017	Rev A	IS-Camera BatteryPack GA

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# ATEX CERTIFICATE



Schedule			
Number	Date	Issue	Description
CDX8950-511	29/09/2017	Rev A	IS-Camera Safe Operations Manual
CDX1830-054	23/06/2017	Rev A	IS-Camera FFC Insulation (for Flash.ED)
SOM15A	25/09/2017	Rev A	EC Declaration of Conformity (DIGITHERM)

15 Conditions of Certification

15.1 Special Conditions for Safe Use

- Only CorDEX approved accessories (battery pack and memory card) are permitted to be used in the ToughPIX DIGITHERM Cameras. The use of others accessories invalidate the approval for explosive atmospheres.


15.2 Conditions for Use (Routine Tests)

None.

16 Essential Health and Safety Requirements

Essential Health and Safety Requirements are addressed by the standards listed in section 9 and where required the report listed in section 14.1

The manufacturer shall inform the Notified Body of any modifications to the design of the product described by this schedule.



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**Notes:**

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