



1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 01ATEX2030** Issue: **14**

4 Equipment: **Di-225-IS Hand Held Data Collector**

5 Applicant: **SKF Condition Monitoring Centre (Livingston) Ltd**

6 Address: 2 Michaelson Square
Kirkton Campus
Livingston
West Lothian
EH54 7DP
Scotland

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of 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 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 14.2.

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

EN 50014:1997 (including amendments 1 and 2) EN 50020:1994 EN 50284:1999

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 EC type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 1 G
EEx ia IIC T4 (T_a = -20°C to +50°C)

Project Number 52A18011
C. Index 12

D R Stubbings BA MIET
Certification Manager

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13 DESCRIPTION OF EQUIPMENT

The type Di-225-IS Hand Held Data Collector is a portable device powered from a re-chargeable nickel metal hydride (NiMH) battery pack and is used for collecting data inside a hazardous area. Battery recharging is undertaken in the non-hazardous area, with the battery pack remaining in the equipment whilst charging takes place. Externally, the apparatus comprises a conductive plastic case, an illuminated LCD screen, membrane keypad, input panel for downloading information and a flap for inserting a Compact Flash memory card. (The use of the Di-225-IS with a Compact Flash memory card is, however, not covered by the certification). Internally, the equipment comprises a digital board, a VLCD bias module, an RS232 rear panel board, a Compact Flash Memory and a NiMH back up battery pack.

The equipment has the following non-hazardous area parameters:

Maximum permitted battery charging voltage:	9.6 V
Maximum permitted voltage to the RS232 connector, Um:	250 Vrms safe area only

The equipment has the following hazardous area parameters at the RS232 connector:

Maximum input voltage, Ui:	45 V
Terminal capacitance, Ci:	0
Terminal inductance, Li:	0
Maximum output voltage, Uo:	14.3 V
Maximum output current, Io:	31 mA
Maximum output power, Po:	43 mW

Variation 1 - This variation introduced the following changes:

- The introduction of new model number Di-225-IS-RFID.
- The introduction of new model number SAFETRAK EX1.

Variation 2 - This variation introduced the following changes:

- Modifications to component values.
- The removal of drawings DIL0009-CIRCUIT and DIL0009-BOM from the certificate schedule.

Variation 3 - This variation introduced the following change:

- The addition of metal shielding over the power supply switching circuit



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Variation 4 - This variation introduced the following change:

- i. The introduction of a new model, the type Snapshot IS ®, that incorporates the following modifications:
 - The replacement of the backup battery pack with a 24 V dc-dc converter.
 - The addition of an analogue PCB.
 - The addition of two external analogue input connectors for connection to transducers.

Analogue Input Connectors:

$U_m = 90 \text{ V}$
 $U_i = 30 \text{ V}$
 $I_i = 36 \text{ mA}$
 $C_i = 0$
 $L_i = 0$
 $U_o = 23.1 \text{ V}$
 $I_o = 172.65 \text{ mA}$
 $P_o = 996.212 \text{ mW}$

- The use of an alternative type of RS232 PCB.

The RS232 connector has the following non-hazardous area parameters:

Maximum permitted voltage, $U_m = 90 \text{ V}$

The RS232 connector has the following hazardous area parameters:

Maximum input voltage, $U_I = 45 \text{ V}$
Terminal capacitance, $C_i = 0$
Terminal inductance, $L_i = 0$
Maximum output voltage, $U_o = 14.3 \text{ V}$
Maximum output current, $I_o = 31 \text{ mA}$
Maximum output power, $P_o = 43 \text{ mW}$

- The removal of components and addition of wire links on the digital PCB; this particular modification may also be incorporated into any of the previous variations.

Variation 5 - This variation introduced the following change:

- i. To permit the main battery pack to be replaced with an alternative type

Variation 6 - This variation introduced the following changes:

- i. To permit the use of an updated artwork for Digital board DIL0006; this modification is applicable to all models, including those previously certified.
- ii. To permit the Analogue board DIL0301 to use an updated artwork, this modification may also be applied to the type Snapshot IS ® models that were introduced in variation 4.
- iii. The introduction of new model types Di-225-D-IS, CMXA51-IS, Enpac 1200-IS and DCA31-IS that use an alternative type of rear panel signal connector.



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Variation 7 - This variation introduced the following changes:

- i. To permit the Snapshot IS™, Di-225-D-IS, CMXA51-IS, Enpac 1200-IS and DCA31-IS to be used with the Monitran Model MTN/11001 Accelerometer (BAS02ATEX1057) or the Wilcoxon Model 793-35 Vibration Transducer (SIRA 03ATEX2109X), in which case they shall always be interconnected with a plug in lead that contains a 390 Ω, 5%, 2 W resistor, see special conditions for safe use - clauses 15.1 and 15.2.

Variation 8 - This variation introduced the following changes:

- i. To permit the addition of a screen to the cable; this screen is connected to the ground wire and shell.
- ii. To permit the safety resistor to be installed in the connector rather than being fitted mid cable.

Variation 9 - This variation introduced the following changes:

- i. To permit the addition of an I.S. E Tag Reader Interface, DIL0504, to the Di-225-IS circuit board to form a Datatrac Etag Reader.
- ii. To permit the DI-225-IS PCB to be updated. This modified pcb is suitable for use with the other assemblies covered by this certificate and variations that incorporate it

Variation 10 - This variation introduced the following changes:

- i. To permit the use of an alternative cell, type Sanyo HR-3U (Nickel-Metal Hydride).
- ii. The option to use the Monitran model MTN/11001 Accelerometer BAS02ATEX1057/4X connected to the Trigger or Signal sockets of the Di-225-IS Hand Held Data Collector.
- iii. Use of the modifications 1 and 2 with equipment that has previously been certified, including the following:

Di-225-D-IS	CMXA51-IS	Enpac 1200-IS
Snapshot IS	DCA31-IS	

Variation 11 - This variation introduced the following changes:

- i. To permit an alternative fuse (Littelfuse R466.500) to that previously specified (Littelfuse R451.500) to be used for positions F1, F2 and F3 in the DIL9904 NiMH battery pack; this battery pack is used in the Hand Held Data Collector Models Di-225-IS, Di-225-IS-RFID, SAFETRAK EX1, Snapshot IS™, Di-225-D-IS, CMXA51-IS, Enpac 1200-IS, DCA31-IS, CMDM5000-IS, Enpac 900B-IS and DATATRAC ETAG READER.
- ii. To permit the option to use the Wilcoxon, Model 797-35 Vibration Transducer (Sira 03ATEX2111X) connected to the Trigger or Signal socket of the Hand Held Data Collectors Types Snapshot IS™, Di-225-D-IS, CMXA51-IS, Enpac 1200-IS and DCA31-IS.
- iii. The conditions of certification and the special conditions for safe use to be modified and listed in their entirety thereby clarifying their meaning and correcting the clause numbering.



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Variation 12 - This variation introduced the following changes:

- i. The change of the Applicant's name from Diagnostic Instruments Ltd to SKF Condition Monitoring Centre (Livingston) Ltd.
- ii. The following product model names to be changed:

From:	To:
Di-225-IS	CMC-225-IS
Di-225-D-IS	DC-225-IS
Enpac 1200-IS	Enpac Ex

- iii. The removal of the following products from the certificate

CMDM5000-IS	Enpac 900B-IS
Di-225-RFID-IS	SAFETRAK-EX

Variation 13 - This variation introduced the following changes:

- i. To permit the use of Electrolube UR5044 as encapsulant for VLCD Bias Module Assembly DIL9902.
- ii. To permit the use of Electrolube UR5044 as encapsulant for RS232 Assembly DIL9911.
- iii. The use of Electrolube UR5044 as encapsulant for ICP Assembly DIL0303.

Variation 14 - This variation introduced the following change:

- i. To permit the optional use of a Tacho cable adapter



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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report/File No.	Comment
0	15 October 2001	R52A8288A	The release of the prime certificate.
1	17 March 2003	R52A9465A	The introduction of Variation 1.
2	11 June 2003 15 December 2003	R52A10291A R52A10291B	The introduction of Variation 2. Re-issued 15 December 2003 to correct the report number
3	10 September 2003	52V10560	The introduction of Variation 3.
4	11 December 2003	R52A10100A	The introduction of Variation 4.
5	11 December 2003	R52A10100B	The introduction of Variation 5.
6	26 July 2004	R52A11599A	The introduction of Variation 6.
7	29 September 2004 7 October 2004	R52A12309A R52V12518A	The introduction of Variation 7. Re-issued 7 October 2004 to introduce the changes described in report number R52V12518A.
8	30 March 2005	R52V13196A	The introduction of Variation 8.
9	8 December 2005	R52A13115A	The introduction of Variation 9.
10	13 December 2005	R52A14250A	The introduction of Variation 10.
11	9 June 2006	R52A14680A R52A14680B	The introduction of Variation 11.
12	2 October 2006	R51A15114A	The introduction of Variation 12.
13	24 April 2007	R51A15114A	The introduction of Variation 13.
14	13 June 2008	R52A18011A	This Issue covers the following changes: <ul style="list-style-type: none">All previously issued certification was rationalised into a single certificate, Issue 14, Issues 0 to 13 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format.The introduction of Variation 14.

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

15.1 The following is a comprehensive list of models that are included in the range of Data Collectors that are covered by this variation. In order to show that special conditions for safe use apply certain models, the manufacturer shall mark the Data Collectors identified below with an 'X' suffix in the certificate number.

Model reference	'X' suffix	Model reference	X' suffix
Snapshot IS™	Yes	Di-225-D-IS	Yes
CMXA51-IS	Yes	Enpac 1200-IS	Yes
DCA31-IS	Yes		

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- 15.2 Parts of the enclosure are non-conducting and may generate an ignition-capable level of electrostatic charge under certain extreme conditions. The user should ensure that the equipment is not installed or used in a location where it may be subjected to external conditions (such as high-pressure steam), which might cause a build-up of electrostatic charge on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.
- 15.3 The Datatrac Etag Reader can only be connected to Oxley Etags, certificate Sira 05ATEX2298, using either a Datatrac short reader head (simple apparatus) part no. HH02-SRH-001 or a Datatrac extended reader head (simple apparatus) part no. HH02-ERH-002.
- 16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)
The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.
- 17 **CONDITIONS OF CERTIFICATION**
- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.
- 17.3 The Di-225-IS Hand Held Data Collector 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 Sira of any modifications of the devices that may impinge upon the explosion safety design of the Di-225-IS Hand Held Data Collector.

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