



EC-TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC

EC-Type Examination Certificate Number : BAS01ATEX2306X

Equipment or Protective System: TYPE ECHO DIGITAL COMMUNICATION SYSTEM

Manufacturer: FEDERAL SIGNAL LTD

Address: Macclesfield, Cheshire, SK10 2NG

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

The Electrical Equipment Certification Service, notified body number 600 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report N°

01(C)0499 dated 26 October 2001

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014: 1997 + Amds 1 & 2
EN 50020: 1994

EN 50019: 2000
EN 50028: 1987 + Amd 1

except in respect of those requirements listed at item 18 of the Schedule.

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

This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

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

Ex II 2 G EEx meib IIC T6 T_{amb} -35°C to 50°C

This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: EECS 0043/03/002

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.



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I M CLEARE
DIRECTOR
2 November 2001



13 Schedule

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15 Description of Equipment or Protective System

The Type Echo Digital Communication System is a modular system where by a central control module situated in a safe area controls up to 16 Echo stations which are suitable for situation in zone 1 hazardous areas.

Each Echo Station Consists of an encapsulated Advizor PCB circuit with input/output connections terminated within component approved EEx c terminals. A separate encapsulated output module consisting of a relay, diode and fuse is provided to activate optional external devices with their own power supply. These external devices can be EEx e/EEx d approved audible/visible devices with a maximum rating of 240Va.c. 3 Amps and are not the subject of this certificate.

Various optional control and interface items for each Echo Station are connected to the Advizor PCB via an intrinsically safe (i.s.) interface. The options include, headset, microphone, handset, keypad and pushbutton panel.

The Advizor PCB, i.s. interface, output module and EEx c terminals are contained within a metal EEx c enclosure. The enclosure is 245mm by 129.5mm by 36mm and fabricated from 0.9mm thick steel. The lid is attached to the base by 4 screws and compresses a neoprene gasket to seal the enclosure to at least IP54. All cable entries are made using EEx e approved cable glands which maintain the ingress protection of the enclosure.

The EEx c enclosure is contained in a further non-certified enclosure into which the various control/interface options are mounted. This outer enclosure can be either metallic or non-metallic.

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17 Special Conditions For Safe Use

1. All terminals, used and unused shall be fully tightened down.
2. The power supplied to this unit from the central control module must not exceed 28V d.c., 100mA.

18 Essential Health and Safety Requirements

None that are not covered by assessment against Harmonised Standards EN 50014: 1997 + Amds 1 & 2 and EN 50019: 2000 and non-harmonised standards EN 50020: 2000 and EN 50028: 1987 + Amd 1.



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Schedule

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19 DRAWINGS

Number	Revision	Date	Description
E01004.27	3	29/10/01	Label
E01004.00	1	2/7/01	System schematic
E01004.12	1	27/6/01	Internal wiring
E010014.15	1	11/7/01	EEx m assembly
E010014.17	1	10/8/01	Typical external options
2581908A	1	17/12/00	Advizor circuit diagram
2585142D	1	6/8/01	I.S. interface schematic
2585142B	1	25/10/01	I.S. interface PCB Artwork
2005142D-02	1	20/07/01	I.S. interface board
4150000	1	29/8/01	Output relay
5173034	1	29/8/01	Relay PCB
6000161C	3	8/10/01	Interface PCB
6000161P	2	8/10/01	Interface parts list
6000161B	1	17/10/01	Interface layout
E01004.07	1	18/7/01	Interface PCB
E01004.07P	1	31/8/01	Interface PCB
E01004.07B	1	31/8/01	Interface PCB
4150003	1	21/8/01	Audio distribution PCB assembly
5173033	1	29/8/01	Audio distribution board layout
4150002	1	24/8/01	Switch distribution PCB assembly
5173035	1	29/8/01	Switch distribution PCB layout
R0999-GA	1	27/9/01	Keyplate assembly
E01004.30-B	1	31/8/01	Keypad detail artwork

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