ATEX Supplement for Interrogator Product Manuals – to be supplied with ATEX FBG Interrogators

Document Ref:	3100-8012-A
Document Date:	02-Nov-2018
Classification:	Unclassified
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Document Revision History:

Issue	Issue Date	Change
A (this document)	02-Nov-2018	New document

1 Introduction

Smart Fibres supplies a range of FBG interrogators many of which are available as ATEX certified models for use with fibre optic sensors placed in explosive atmospheres. For ATEX Interrogator models the information within this supplement should be read and understood by system designers and installers.

2 ATEX Safety Information

2.1 ATEX compliance

See ATEX certificate Baseefa12atex0133x, available here *https://www.smartfibres.com/documents/atex*

2.2 ATEX – Specific Condition of Use

Each FBG Interrogator contains a single laser source. Fibre outputs from more than one laser source must not be combined in the same multi-core fibre cable.

2.3 ATEX – Further Details

The interrogator itself is certified as "Associated Apparatus" and therefore must only be located in the "Safe area". Only the fibres attached to the optical outputs of the interrogator may enter the hazardous area. Optical sensors, junction boxes and other passive optical devices attached to those fibres may also be located in the hazardous area.

Protection is assured by limitation of the optical power that could be present in the output fibres under multiple fault conditions.

Repair, maintenance or overhaul of the interrogator should only be carried out by Smart Fibres Ltd or their authorised representatives.

2.4 ATEX – Equipment Operating Temperatures

The interrogator itself can safely operate in an ambient temperature range of –20 °C to + 60 °C without compromising ATEX protection.

There are no restrictions under ATEX for the temperature range of the output fibres or attached passive optical devices where they are not located in the hazardous area; the temperature specifications for the fibre cable and or optical device (e.g., FBG Sensor) can be applied.

Where the output fibres and any attached optical devices are located in the hazardous area the ATEX regulations restrict the ambient temperature to –20 °C to + 40 °C.

2.5 ATEX Marking Code Information

The following ATEX Marking Code is applied to the interrogator:

II (1)G

where the meaning is given below:

= EU explosive atmosphere symbol

II = Non-mining

(1) = Very high protection applies to the output of the apparatus, in this case the output fibres

G = Gas

2.6 Ex Marking Code Information

The following Ex Marking Code is also applied to the interrogator:

[Ex op is Ga] IIC T4

where the meaning is given below :

[ ] = The interrogator is Associated Apparatus and must be located in the safe area

Ex op is = The Protection Concept is the limitation of optical radiation to the hazardous area

Ga = Gas protection level is Zone 0. Fibres and attached passive optical devices may be located in zones 0, 1 or 2.

IIC = Gas group is Hydrogen. Fibres and attached passive optical devices may be located in gas groups IIC, IIB or IIA.

T4 = Temperature class, the maximum surface temperature of fibres or attached passive optical devices in the hazardous area is 135 °C.