



Type Examination Certificate

CML 18ATEX6370X Issue 1

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 2 Equipment **EX SCS – Gas Detection and Shutdown System for IC Engine Conversions**
- 3 Manufacturer **Pyroban Ltd**
- 4 Address Endeavour Works,
Dolphin Road,
Shoreham-By-Sea, Sussex,
BN43 6QG
UK
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 CML B.V. , Chamber of Commerce No 6738671, Hoogoorddreef 15, Amsterdam, 1101 BA, The Netherlands, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design of equipment intended for use in potentially explosive atmospheres given in Annex II of Directive 2014/34/EU.
The examination and test results are recorded in the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of certification (affecting correct installation or safe use). These are specified in Section 14.
- 8 This Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Annex VIII apply to the manufacture of the equipment or component.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:
The followings standards are for reference only and the equipment is not assessed in full
EN 60079-0:2013+A11:2013 EN 1834-1: 2000 EN 1127-1: 2011
EN 60079-29-1: 2016 EN 60079-29-2: 2015
- 10 The equipment shall be marked with the following:



II 3 G II# T*

IIA or IIB as applicable

Ta= Up to -20°C to +55°C

(Upper ambient depending on applicable parts fitted and application).

* Temperature class determined by testing of the final system

A Snowden



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11 Description

The 'Ex SCS' is a gas detection and shutdown system to be fitted to a converted diesel IC Engine, and can be configured for single or twin diesel engine applications.

The conversion includes the installation of 'EXSCS' gas detection system onto the diesel-powered equipment. The Ex SCS is a PLC based 'engine shut down system' that can be configured for single or twin-engine applications. The primary system provides an integrated base level of engine control management and interrogation via an optional certified HMI panel.

The system monitors and activates a safe engine shutdown in the event of engine overspeed, high exhaust gas and coolant temperatures, low oil pressure, as well as flammable gas (25% LEL) detection in the engine air inlet or when the manual emergency stop is activated. Additionally, the system can be configured to monitor additional infrared fire and gas detection heads and has a voltage free relay output signal for activation of 3rd party fire deluge system.

The installation of a 'EXSCS' gas detection system as part of the diesel-powered equipment conversion allows a deviation from the requirements of 1834-1:2000. The allowable deviation is the omission of the exhaust gas flame arrestors.

The diesel engine itself is converted under the requirements of EN 1834-1:2000. The parts selected / modifications made are dependent on the 'engine performance specification', inlet and exhaust configurations, as well as factors ascertained from the installation location.

The EXSCS' consists of separately certified Category 3 equipment, covered under the following certificates:

Item	Certificate No.
EXSCS reciprocating engine safety control system, plus optional HMI module	SEV 16 ATEX 0157 X
PIRECL Hydrocarbon Infrared gas detector	DEMKO 01 ATEX 129485X
IRmax Gas Detectors	Sira 12ATEX1206X Baseefa09ATEX0206X – hazardous area sensor
ExSCS speed sensor Assembly, Type C825064	ExVeritas 17 ATEX 0238
Temperature detector (Exhaust / Engine cooling circuit)	Presafe 16 ATEX 7778X
Oil temperature switch	ExVeritas 17 ATEX 0304X
Additionally, the 'EXSCS' shutdown system will be supplied with appropriately certified beacon/sounder modules for alarm status notification.	



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Variation 1

This variation introduced the following modification:

- i. Transfer of the ATEX certificate from CML UK to B.V.

12 Certificate history and evaluation Reports

Issue	Date	Associated report	Notes
0	20/12/2018	R11300A/00	Issue of prime certificate
1	27 Mar 2019	R12364A/00	To introduce variation 1

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- 13.1 Where the product incorporates certified parts or safety critical components, the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate. All items utilised shall be installed in accordance with their certification and instructions. Additionally, a copy of the certificate and instructions for the EXSCS Gas Detection and Over-temperature Shutdown System, as well as for the individually separately certified parts utilised shall be supplied with the overall converted engine document pack.
- 13.2 The approval within this certification covers the deviation from the requirements of EN1834-1:2000 to allow the omission of the exhaust gas flame arrestor(s) in the engine exhaust line. Positioning of one Gas Sensing Head to monitor the air stream directed into the engine intake allows the omission of the exhaust flame arrestor(s).

Each engine type and/or application fitted with the EXSCS Gas Detection and Shutdown System shall be subjected to a gas detection function test in accordance with Pyroban document T130 to confirm correct placement and function of the gas detection system in accordance with EN 60079-29-2.
- 13.3 All other aspects of the engine conversion shall result in the converted equipment additionally being compliant with 2014/34/EU for Group II category 3G, in accordance with Annex VIII of 2014/34/EU and EN 1834-1:2000.
- 13.4 All EXSCS engine conversion types shall be subject to duty cycle tests in accordance with EN 1834-1:2000 in order to determine the maximum temperatures & temperature class. The testing completed shall operate procedures that comply with the requirements of EN 17025.



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14 Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

- 14.1 The EXSCS Gas Detection and Shutdown System relies on the correct use and placement of a gas detector system; any change of environment conditions, location or detector placement will require the system to be reviewed by Pyroban personnel or their representatives.

Certificate Annex



Certificate Number CML 18ATEX6370X
Equipment EX SCS – Gas Detection and Shutdown System.
Manufacturer Pyroban Ltd

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
C825065	1 to 2	4	20/12/2018	ExSCS -Gas Detection & Shutdown system for IC Engine Conversions

Issue 1

No drawings were introduced or revised under this issue.