

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Monitoring System**

with type designation(s)

Oil Mist Detection System Mk7 consisting of, Control Unit, Remote Display Unit, Detector, Control Unit Detector Cable

Issued to

**UTC Fire & Security Ltd
Milton Keynes, United Kingdom**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:**

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Control Unit	B	B	B	A	B
Remote Display Unit	B	B	A	A	A
Detector	B	B	B	A	B
Control Unit Detector Cable	B	B	B	A	B

This Certificate is valid until **2018-12-31**.Issued at **Høvik** on **2017-03-08**DNV GL local station: **Newcastle-upon-Tyne**for **DNV GL**Approval Engineer: **Andreas Torp Karlsen**

.....

Odd Magne Nesvåg
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Oil Mist Detection System Mk7

Unit	Part number	Software
Control Unit	53836-K270 (with membrane) 53836-K276 (without membrane)	66200 / 8
w/ printed circuit board	44782-K190 rev9 (K196 rev1)	
Remote Display Unit	53836-K271	66300 / 3
w/ printed circuit board	44782-K193 rev5 (K194 rev2)	
Detector	53836-K269 (with base) 53836-K272 (replacement head) 53836-269-01 (short sample pipe)	66100 / 1
w/ printed circuit board	44782-K191 rev5 (K192 rev4)	
Control Unit Detector Cable	43682-K286-xx (Straight) 43682-K285-xx (Right Angle)	N.A.

The control unit has individual digital output signals for:

- Fault
- Pre-Alarm: 0.5mg/l to 1.2 mg/l
- Slow-Down/Shut-Down: 1.3mg/l to 2.4mg/l
- Back-up alarm: 3.0mg/l

Software update notification

When the type approved software is revised (affecting all future deliveries) DNV GL is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version

Place of manufacture

UTC CCS Manufacturing Polska Sp. z o.o.
ul. Kolejowa 24
39-100 Ropczyce, Poland

Application/Limitation

Each engine is to be provided with its own independent control unit and dedicated alarms.

One Mk7 Remote Display Unit is capable to serve up to 10 engines. Verification that alarms and slowdown/shutdown are clearly identifiable for each engine in central IAS (Integrated Alarm System) shall be done during commissioning.

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)

The Type Approval covers hardware and software listed under Product description.

As long as the units are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 [1.2.3] will not be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

Job Id:
Certificate No: **TAA000010H**

Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board.

Type approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

For the bridge mounted components the 'Acoustic noise and signals' and the 'Compass safe distance' were measured according to sections 11.1 and 11.2 of IEC 60945, 4th edition (2002).

Functionality tests according to IACS UR M67, Rev. 2.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE