TYPE APPROVAL CERTIFICATE

This is to certify:

That the Control system for fire extinguishing

with type designation(s)
Water-based Fire Control System Control Panel Type 116-901110.KIT

Issued to

Autronica Fire and Security AS
Tønsberg, Norway

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

This type approval covers hardware design and application software. See page 2.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Høvik** on **2017-06-30**

This Certificate is valid until **2019-06-30**.
DNV GL local station: **Sandefjord**

Approval Engineer: **Frode Nygård**

for **DNV GL**

Digitally Signed By: Aleks Karlsen
Location: DNV GL Høvik, Norway
Signing Date: 2017-07-07, on behalf of

Odd Magne Nesvåg
Head of Section

Product description

This type approval covers <u>hardware design</u> and <u>application software</u> of the product designated as
"*Control system 116-901110.KIT*". The hardware which is used in this system is DNV GL type approved
as separate products:

- Siemens PLC 1214C – 6ES7 214-1HE30-0XB0 (DNV GL certificate TAA000000K)
- Siemens touch screen: 10" MP277 (DNV GL certificate A-14268), TP700 Comfort
  (DNV GL certificate A-14268)
- Siemens touch screen: 5,7" TP177B (DNV GL certificate A-14268), TP1200 Comfort
  (DNV GL certificate A-14268)

Communication to other systems by MODBUS is available. The control panel is designed for 1 phase
100-220VAC/50-60Hz main and emergency supply, with a built in SMPS and batteries.

The application software included in this type approval is as follows:
- Basic application software No. 901110v4.XX
- The project specific software will be renamed as follows: xxxxx_901110v4xx,
  where xxxxx is the actual project number

The Siemens programming tool is SIMATIC STEP 7 Professional including:
- upgrade V11 SP1 for the PLC and
- SIMATIC WinCC Advanced V11 SP1 for the touch screen

Application/Limitation

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)

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.

<u>Alterations</u>
Major changes in the application software are to be submitted to DNV GL and approved before being
installed in the system onboard. In such cases, a product certificate of the application functions may be
required for the respective vessel.

Other changes, such as changes related to hardware or firmware/basic software, shall also be forwarded
to DNV GL for evaluation before being implemented onboard. If the changes are deemed to affect type
approved functionality, then this documentation is subject to approval and possibly certification.

All changes to the system shall be documented in a log onboard the respective vessel.

Type Approval documentation

Manufacturing: Water based fire suppression system, Control panel type 901110,
No. 901110-PST-I-S71200 / 2011-09-09.
FAT_901110v4.xx.DOC.
Design Manual Control System 116-901110.KIT Fire Suppression System, Rev.3.

DNV GL Sandefjord renewal assessment report for A-14311, dated 2016-11-21.

Tests carried out

Functional testing 2009-06-04.

Marking of product

Version number for PLC application software including touch screen configuration can be viewed in "System Info" menu on touch screen.

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