DNV·GL

Certificate No:
TAA00001T8

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Public Address and General Alarm System

with type designation(s)
PAGASYS GEN 2 PA/GA SYSTEM

Issued to
Federal Signal Corporation University Park Facility
University Park, IL, USA

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.

Temperature	**B**
Humidity	**A**
Vibration	**A**
EMC	**A (copper seals and ferrites to be installed according to makers datasheet)**
Enclosure	**Required protection according to the Rules shall be provided upon installation on board.**

Issued at **Hamburg** on **2018-06-04**
This Certificate is valid until **2023-06-03**.
DNV GL local station: **Certification & Inspection Services**

for **DNV GL**

Approval Engineer: **Didier Girardin**

Joannis Papanuskas
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.

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Product description

PAGASYS GEN 2 PA/GA SYSTEM

Federal Signal PAGASYS Gen 2 system is a rack-mounted, software-controlled system that can incorporate duplicate control systems and redundant/protected audio signaling.

Model	Description
P-NET-G	CONTROL SHELF GEN II
P-A250-G	AMP, 250W PWM DIGITAL GEN II
P-A500-G	AMP, 500W PWM DIGITAL GEN II
P-A750-G	AMP, 750W PWM DIGITAL GEN II
P-A1000-G	AMP, 1000W PWM DIGITAL GEN II
P-ISMT-G	ISMT LINE CARD GEN II
P-16DIN-G	I/O DIGITAL INPUT GEN II
P-BK-MON-G	I/O BEACON MONITOR GEN II
P-SPDT-G	I/O PCBA,RELAY OUTPUT GEN II
P-IAMC-G	INTERNAL AP MUX CARD GEN II
P-EAMC-G	EXTERNAL AP MUX CARD GEN II
P-APAC-G	I/O ACCESS PANEL AGGR GEN II
P-FCMC-G	I/O FAN CNTRL/MONITOR GEN II
P-MONIC-G	I/O MONITORED INPUT GEN II
ECHO-MB-460	ECHO, MOTHERBOARD, 460 CODE
P-PTBC-G	PASSIVE TERMINAL BLOCK CARD
P-CPIC-G I/O	I/O CABLE POWER INJECTOR
P-AADC1-G	AMP AUDIO DIST CARD 1:1
P-AADC2-G	AMP AUDIO DIST CARD 1:2
P-AADC4-G	AMP AUDIO DIST CARD 1:4
P-AADC8-G	AMP AUDIO DIST CARD 1:8
P-FWTC-G	FAN WIRING TERM CARD
P-MICW-EX	MIC STATION, ATEX
P-MICW-SA	MIC STATION, SAFE AREA
P-AP-EX	ACCESS PANEL, ATEX
P-AP-SA	ACCESS PANEL, SAFE AREA
ATS-1000-8000	Automatic transfer switches
ATS-1000-8000	Automatic transfer switches

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

- Equipment is intended for Industrial and Offshore platforms only
- Redundancy provides two racks for A & B systems. A & B are indentical redundant equipment linked by RS485 serial cable in a closed system wiring. No network connections to other equipment outside the PA/GA system.
- Final approval of the PAGA system shall be carried out based on individual assessment of the design for each project in compliancy with following codes/rules/regulations:Offshore Standards DNVGL-OS-A101

Approval conditions

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

- Reference to this Type Approval Certificate
- Functional description
- Topological System block diagram
- Arrangement plan (location of centrals, call stations and loudspeakers)
- Power supply arrangement (may be part of the System block diagram)
- Circuit diagrams
- Description of functions covered by software (may be part of the functional description)
- Test program for application software at manufacturer

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. Certification of modified functionality may be required for the particular vessel.

Type Approval documentation

See Annex

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.
IMO Code Code on Alerts and indicators, 2009 Resolution A.1021(26)
IMO SOLAS/MODU Code/HSC
IMO MSC Circ. 808

Marking of product

The products to be marked with:

- model name
- manufacturer name
- serial number

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

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE

ANNEX

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