

GENERAL SPECIFICATION

Telecommunications

GS EP TEL 140

Public Address and General Alarm (PAGA)
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General Specification		GS EP TEL 140
Public Address and General Alarm (PAGA)		
Rev: 11	Effective date: 12/2018	Page: 2 of 23

Contents

1. Scope	4
2. Reference documents	4
3. General principles	5
3.1 Definition	5
3.2 General rules	5
3.3 Geographical constraints	6
3.4 Environmental conditions	6
3.5 Hazardous areas	6
3.6 Local regulations	6
4. System design philosophy	7
4.1 Concept per site	7
4.2 Public Address	7
4.3 System reliability and integrity	8
4.4 Zoning	9
4.5 PAGA Coverage performance	9
4.6 PAGA Access Units	10
4.7 PAGA Override Control Units	11
4.8 PAGA Access and Monitor Panels	11
4.9 Priorities	11
4.10 Interfaces	12
4.11 Safety requirements	12
4.12 Loudspeaker loop losses	13
4.13 Verbal recorded message	13
5. PAGA Equipment	13
5.1 PAGA main equipment cabinets	13
5.2 PAGA access units	14
5.3 PAGA override control units	15
5.4 PAGA amplifiers	15
5.5 Loudspeakers	16

General Specification		GS EP TEL 140
Public Address and General Alarm (PAGA)		
Rev: 11	Effective date: 12/2018	Page: 3 of 23

5.6	Flashing beacons.....	17
5.7	Sirens	17
5.8	Power supply	17
5.9	Cables and junction boxes	18
5.10	Audio recorder	18
5.11	Management and Configuration workstation	18
6.	Installation	19
7.	Emergency signals	19
7.1	General Alarms	19
7.2	IMO SOLAS requirement	20
8.	Quality Assurance.....	20
8.1	FAT	20
8.2	Equipment test.....	21
8.3	Equipment numbering	21
8.4	As built documentations	21
8.5	Availability and maintainability.....	21
8.6	Commissioning	21
8.7	Spare parts and commissioning tools.....	22
8.8	Transportation and storage environmental conditions	22
Appendix 1	Glossary.....	23

1. Scope

The present general specification deals with systems designed to broadcast voice messages and audio alarm signals via an electro-acoustic system, in an offshore installation or an onshore site.

The specification does not cover:

- Design of the offshore installation or plant alarm system,
- Visual or audio alarms specific to other safety systems.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and addendums, is the latest revision published at the effective date of this document.

Reference	Title
Directive 2014/34/EU	Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres (recast)
IEC 60268	Equipment for electro-acoustic systems – All parts
IEC 60945	Maritime navigation and radiocommunication equipment and systems – General requirements
IEC 61672	Electro acoustics - Sound level meters – All parts
IECEX	EC System for Certification to Standards relating to Equipment for use in Explosive Atmospheres (IECEX System)
IMO SOLAS	Convention on Human Life and Safety at Sea (SOLAS), published by the International Maritime Consultative Organisation (IMCO)
IMO Resolution A.1021 (26)	Code on alerts and indicators
IMO Circular MSC.808	Recommendation on Performance Standards for Public Address Systems on Passenger Ships
ISO 9613-2	Acoustics. Attenuation of sound during propagation outdoors. Part 2 : general method of calculation
LSA Code	International Life-saving Appliance (LSA) Code

General Specification		GS EP TEL 140
Public Address and General Alarm (PAGA)		
Rev: 11	Effective date: 12/2018	Page: 5 of 23

Total General Specifications

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Reference	Title
GS EP DEV 001	Asset Objects Tagging
GS EP EXP 101	Pre-commissioning and Commissioning Specification
GS EP EXP 103	Pre-commissioning and Commissioning Engineering and preparation
GS EP EXP 105	Pre-commissioning Execution
GS EP EXP 107	Commissioning Execution
GS EP INS 135	Cybersecurity Requirements for Industrial Information Systems (SII)
GS EP TEL 002	Telecom Shutdown Philosophy
GS EP TEL 410	Installation rules
GS EP TEL 414	Telecommunication cables
GS EP TEL 700	Telecommunications Engineering services
GS EP ELE 151	DC uninterruptible power systems (UPS)
GS EP ELE 152	AC uninterruptible power systems (UPS)
GS EP SAF 216	Area Classification
GS EP SAF 351	Escape, evacuation and rescue from fixed installations

3. General principles

3.1 Definition

Public address system is an electronic system comprising microphones, amplifiers, loudspeakers, flashing beacons, equipment intended to broadcast audio sources and visual alarms on all part of installation or plant.

General Alarm system is an electronic system comprising equipment intended to broadcast an audible emergency signal (alarm tones and visual alarms) on all part of installation or plant.

PAGA system is a combination of Public Address and General Alarm in a single system.

3.2 General rules

The Public Address system shall be used to broadcast Emergency Verbal Announcements or routine messages which shall be intelligible in all parts of the installation or plant where personnel may be present during normal operation and ambient noise levels permit. These areas shall

General Specification		GS EP TEL 140
Public Address and General Alarm (PAGA)		
Rev: 11	Effective date: 12/2018	Page: 6 of 23

include muster stations and survival craft areas for Offshore assets. Emergency and routine messages may be pre-recorded.

PAGA system shall comply with [IEC 60945](#) and all the sound equipment's performance, characteristics shall comply with [IEC 60268](#).

System properties (beacons colours, alarms tones and frequencies) shall comply with local regulations.

It may happen however that requirements for evacuation from specific type of facilities such as FPSOs, in particular as imposed by [IMO SOLAS](#), are more stringent than those developed in the present document. In such a case [IMO SOLAS](#) requirements shall apply and especially [IMO Circular MSC.808](#), [IMO Resolution A.1021 \(26\)](#).

3.3 Geographical constraints

All geographical constraints on or around the sites shall be taken into account: sea water, mountains, deserts and obstacles (forests, buildings...), etc.

3.4 Environmental conditions

The PAGA system shall be suitably rated for the environmental conditions defined by the project and, in addition, by the selected Classification Society for floaters.

All indoor and outdoor equipment shall be suitable for continuous and reliable operation in the service conditions stated in the environmental data specification of the project (i.e. general design specification / equipment design conditions).

All climatic constraints shall be taken into account: marine environment (salt spray), extreme wind conditions, lightning and storm, extreme temperatures (high or low), high or low humidity, frost, dust, solar radiation, etc.

All indoor equipment shall also be capable of operating for a short time at a temperature higher than nominal to cover for a shutdown of air conditioning.

Outdoor equipment shall not be affected by tropical rain or by the operation of deluge systems.

PAGA operation at yard / worksite where the environmental conditions may be more severe than at site shall be taken into account.

3.5 Hazardous areas

If installed in a hazardous area (refer to [GS EP SAF 216](#)), all Telecom equipment (amplifiers, access units, loudspeakers, cables, flashing beacons, ...) shall comply with the hazardous area classification requirements applicable on the respective site/Project.

All related equipment shall have an ATEX [Directive 2014/34/EU](#) or [IECEx](#) certification according to the particular hazardous area classification of the Project.

3.6 Local regulations

All necessary documents to be approved by the local national Regulatory Authority of the country shall be prepared and provided, including necessary technical parameters, calculations and studies.

General Specification		GS EP TEL 140
Public Address and General Alarm (PAGA)		
Rev: 11	Effective date: 12/2018	Page: 7 of 23

4. System design philosophy

As per **GS EP INS 135**, PAGA system shall have a Security Profile SP3. Architecture and interfaces have to be defined according to this Security Profile.

4.1 Concept per site

Functionalities and broadcasting of alarms tones are different depending on the type and size of installation. The following types are defined with expected facilities associated to.

4.1.1 Normally manned offshore installations

On normally manned offshore installations, the Public Address system and the General Alarm system shall be combined into a fully duplicated PAGA system over two A&B systems. Each A&B system shall be able to operate independently from the other if there is an inter-rack communications failure.

Each system shall be able to provide a full coverage of the installation and shall meet the specified acoustic performance. The two systems central equipment cabinets shall be installed in two separate rooms and shall at least be separated by minimum 20m.

Loudspeaker loops and flashing beacon loops pertaining to system "A" and to system "B" shall be segregated. Field devices pertaining to systems "A" and "B" respectively shall be segregated by different routes. Each system A&B shall be powered from different UPS sources to avoid the loss of the 2 systems in case of UPS failure.

4.1.2 Onshore sites

On onshore production sites, a single PAGA system shall be installed. PAGA on accommodation shall be decided in project particular specification.

Some parts of the central equipment may be remotely located in the areas to be served with a view to reducing cable losses. However, the processing and monitoring modules shall be located in the central cabinets.

4.1.3 Normally unmanned installations

On normally unmanned installations with enclosed areas and temporary accommodation facilities, a single PAGA system shall be installed.

4.1.4 Small unmanned installations

On small unmanned installations with no temporary accommodation facilities, a permanent General Alarm system shall be provided. Public Address facilities are not required. General Alarm can be a part of Fire and Gas system.

4.2 Public Address

The Public Address system shall also allow broadcasting of routine messages over the platform or plant on a per zone basis. Zone selection for routine messages shall be achieved from the PAGA Access Units. The bedrooms area and adjacent corridors shall not be accessed for routine messages.