COMMUNICATION SYSTEMS

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VOICE MESSAGES, ALARM TONES AND VISUAL SIGNALS
COMMUNICATION SYSTEMS

PSC VODEC design, manufacture and supply wired communication systems for safe usage in severe climatic and harsh operational environments, including potentially explosive atmospheres and life safety critical applications.

PSC VODEC supply a range of systems and products for use in the offshore and onshore petrochemical industry, power plants, marine, nuclear and other plants. Within our offer you will find:

- PUBLIC ADDRESS AND GENERAL ALARM (PA/GA) SYSTEMS
- PAGE-PARTY COMMUNICATION SYSTEMS
- DRILLER'S INTERCOM SYSTEMS
- TELEPHONE SYSTEMS FOR MARINE AND HAZARDOUS AREAS

PUBLIC ADDRESS AND GENERAL ALARM (PA/GA) SYSTEM

The PA/GA system from PSC VODEC is a highly developed system for voice messages, alarm tones and visual alarms. The system includes certified field equipment like explosion proof control units, access units, loudspeakers and flashing beacons for areas with high background noise.

SAFETY AND RELIABILITY

PSC VODEC equipment is designed to facilitate cost effective easy installation with non-critical, non-specialist field wiring. Stability, predictability, a long service life with trouble-free operation and low life-cycle costs are ensured by the incorporation of various redundancy concepts.

ENGINEERING AND SERVICE

PSC VODEC supply systems and products all over the world and can provide packages to client specification covering project management, acoustic design, commissioning and site support.
We help you bring our solutions into your existing systems and put them into operation. PSC VODEC also provide complete user training for your operators, undertake maintenance and support for the equipment once installed.

QUALITY

PSC VODEC is an ISO9001, ISO14001 and OHSAS18001 certified manufacturer which supplies systems and products on a worldwide basis, and is able to provide packages to client specification which include project management, acoustic responsibility, commissioning and site support. All of our products meet high safety requirements and are certified or approved by international regulatory bodies. Offered by us PA/GA system have DNV Type Approval Certificate and was approved by ABS and BV – leading international certification bodies.

PSC VODEC

CENTRALIZED

MODULAR

STANDARD

FLEXIBLE

MARKET EXPECTATIONS

Today's market for Public Address and General Alarm systems demands robust modular and intuitive solutions. The PA/GA design must allow for ease of integration and adaptability into existing infrastructures and system environments whilst always ensuring the required levels of safety and meeting the most stringent regulatory safety standards. The system must support common interfaces and network technologies providing intuitive operation. The PSC VODEC M Class Public Address and General Alarm System PA/GA, has taken the renowned P3 PA/GA system to the next level with state-of-the-art technology to meet current and future customer requirements.

M CLASS PA/GA

The new high-performance M Class PA/GA system protects a corporation's most critical assets - its people, machines and the environment. It provides a safety solution that is effective, optimized and simple.

Tried and tested technology together with modern state of the art networking protocols ensure reliable industrial communication. A solution for all customized needs, perfect for small but critical and also suitable for large and complex system networks. The modular concept of the M Class PA/GA meets the international requirements of EN 54-16, EN 60849, SOLAS, NORSOK and others.

BENEFITS

CENTRALIZED

The centrally available data and distributed system control provides for all your needs from one access point. From here you can employ up to 200 priority levels, 1,000 individually selectable and configurable call groups and 65,000 programmable addresses.

MODULAR

The modular design concept allows the system to be customized to meet the needs of operations as well as the requirements of regulatory agencies.

STANDARD

Utilizing standard interfaces and protocols allows for easy and efficient integration of external systems. The M Class PA/GA can be integrated into existing advanced Ethernet/IP data networks.

FLEXIBLE

Whether you are dealing with an existing data network or direct interconnection via fiber/copper, or the use of a star, ring, or hybrid network topology, the flexibility of the M Class PA/GA delivers a true and tested solution.

NETWORKS

The M Class PA/GA can be successfully integrated into many common network environments. Data and speech communication can be transmitted via standard Ethernet and IP technology as well as standard audio technologies. The nature of industrial facilities is changing, both for the physical size of the process areas and the increased complexity and interaction between processes. This requires for the PA/GA to be equally scalable and flexible.

At the heart of the M Class PA/GA design is safety and ease of use with unparalleled configuration options. These enables the system to be designed to meet the most complex of requirements.

The system has an infinitely scalable network architecture which allows for the interconnection of distributed M Class PA/GA systems designed to meet the Plant Wide functional safety requirements.

M-Server

Build Rack

GUI

ECU

MPORT/SoftWire

MVAP/S

Log View

SIMULATE

MODULAR DESIGN

- Multiple simultaneous speech paths
- 65,000 programmable addresses
- 1,000 selectable group calls
- 1,000 speaker groups
- 200 priority levels
- Multi zone capable
- Multiple alarm tones
- Pre-recorded messaging
- Visual alarm indications
- Activation of relays (magnetic door locks etc.)
- Alignment with HSE scenarios

This level of customization allows you to implement versatile, complex communication, information and warning structures in line with your occupational health, safety and environment protocols.

EASE TO USE

The M Class Graphical User Interface or GUI, provides the end user state of the art, intuitive and ease to use configuration software tools, enabling complex communication and network scenarios to be designed, tested and implemented with ease and accuracy.

A full database of all M Class PA/GA components and functions are available with comprehensive “as you type” system checks and integrated configuration checks. The M Class GUI allows the user to create a validated configuration solution. Whether it is one single system or multiple system network, only one configuration file is needed.

For monitoring and management of the M Class PA/GA system or network, PSC VODEC has developed the web based management tool. This tool allows the user to centrally monitor and configure the overall functionality of the system in a safe and convenient manner:

- Status indicators for CPU, interface cards, call stations, etc.
- Display active events, e.g. error messages
- Download status and error reports
- Download log files for customers and service personnel
- Download and upload configuration files developed in the M Class GUI
- Upload software and firmware upgrades
- Maintenance tool kits
- Enhanced Operational help displays
- Controlled Remote Access
- Offline engineering, testing and simulation

CENTRAL AND DISTRIBUTED INTELLIGENCE

The M Class PA/GA system operates on a common architecture providing real-time alarm and warning control and activation throughout the system for ease of system operability. To provide enhanced integrity it is also possible to distribute this intelligence to the local node to ensure maximum availability.

System wide status information is locally processed and centrally available for analysis and reaction. The constant monitoring and evaluation of connected components and interfaces combined with the centralized intelligence provide the end users with the optimum solution with fast and reliable alarm control. You can rely on the PSC VODEC system solution, whether utilizing pre-programmed automated scenarios or relying on manual activation.

RELIABLE

The industrial sector is especially demanding when it comes to the availability and reliability of a PA/GA system. The modular design concept of the M Class PA/GA system facilitates the implementation of client and industry based redundancy requirements for the following components:

- Power supplies
- Audio processors
- Exchange control boards
- Microphone access panels
- Amplifiers, speakers
- Network connections

INTERCOM

- Half- and full-duplex capable
- Emergency priority call override
- Call request and selective call control
- Point-to-point connections
- Multi party and page party
- Conferencing

PUBLIC ADDRESS PA

- Group calls
- All calls/system wide page
- Selectable group calls
- Automatically activated group calls and all calls based on pre-programmed scenarios
- Direct group and all calls from existing PABX via telephone interface

PUBLIC ADDRESS/GENERAL ALARM PA/GA

- Emergency warning
- Individual and complex scenarios (e.g. alarm triggering resulting from SIP and MODBUS interface inputs)
- Manual and automatically activated warning scenarios
- Integration of external systems (e.g. fire & gas, emergency shutdown, PABX)

In addition, the M Class PA/GA supports system redundancy (A/B or N+1) as specified by either customer or regulatory requirements.

To meet national and international regulations, PSC VODEC has made comprehensive monitoring of digital components as a standard function of the M Class PA/GA.

Parameters for monitoring can be configured directly for each M Class PA/GA node or centrally for a network of systems. The measurements are stored for future diagnosis and evaluation and are visible either in report fashion or directly from the devices.

These deviations can be emailed to service and operating personnel and an instantaneous alert is triggered if programmed on a call station. Whether customers use the existing network architecture or a system-to-system direct connection, should any of these connections fail, all local M Class PA/GA functions are still available.

INTEGRATED

State-of-the-art PA/GA systems must be capable of being integrated into existing and future industrial system environments.

The M Class PA/GA has available interfaces for:

- Fire alarm systems
- Emergency shutdown systems (ESD)
- Fire & gas alarm systems
- Manual call points
- Universal analog/digital inputs and outputs

Integrated software interfaces, configured using the M Class GUI, are available for:

- Modbus TCP/IP, enabling the transfer of status information to external Modbus based systems
- VoIP (SIP interface), allowing for the interconnection of IP telephone systems for direct voice communication and function activation between a PABX and the M Class PA/GA
- OPC

VERSATILITY

The M Class PA/GA allows you to have the functions and capabilities of three separate systems - Intercom, Public Address and General Alarm - in one:

- Intercom system for fast and secure process communication
- Public address (PA) system for the announcement of information across the industrial plant
- Public Address and General Alarm System (PA/GA) to annunciate alarms and warnings for the protection of people, equipment and the environment

The modular design of hardware and the wide range of functions joined with the integration of all system features result in a versatile communication system that can be tailored to your individual requirements.

PUBLIC ADDRESS AND GENERAL ALARM SYSTEM

M Class Server/GUI

- Monitoring of multiple M Class PA/GA systems
- PA/GA System Configuration Management
- DNV certified for remote monitoring

The state-of-the-art M Class remote monitoring PA/GA system is centralised around one or more LAN based Servers which can be operated on modern Windows based PC platforms.

The PC software element of M Class comprises:

M-Server

- Bespoke PSC VODEC software
- Back-office server tool
- Central hub for data transfer
- Standalone and redundant configurations are possible
- Access to configuration options for M Class components

GUI

- Bespoke PSC VODEC software
- PA/GA monitor user interface
- Status at a glance
- Detailed status drill-down
- Review of data logs
- Multiple GUIs are possible

Database

- SQL Server
- Installed with server software
- Holds all configuration information
- Holds all log data
- Serves data on demand to GUI

Security

M Class has been designed to operate on dedicated LAN networks. There is no need for connection to wider networks or the Internet so eliminating possibility of unauthorised access.

M Class does not interfere with critical path functions of the PA/GA and it is not possible to make unauthorised changes through the GUI.

Secure configuration options through the server require the user to have sufficient access credentials and it is recommended that the server PC be located in a controlled area such as a server room.

Hardware

M Class software components are designed to run efficiently on the shelf PC platform hardware. Please see technical data for our specific recommendation.

The GUI requires Full HD 1080 p display.

M Class supports redundant LAN configurations, to take full advantage of this GUI and Server hardware should include dual 10/100/1000 Ethernet ports.

Additional options

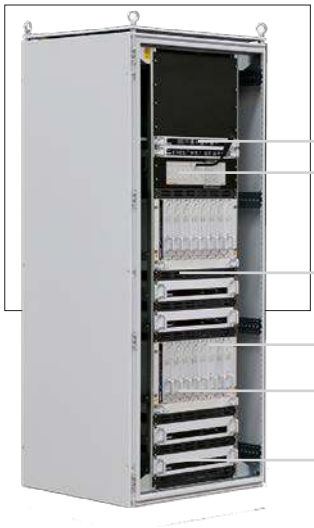
The standard software components support all the core monitoring functions of M Class. The following optional advanced functions are also available:

- MVAP software access panel configuration and monitoring
- MPORT configuration and monitoring
- Intelligent loudspeakers configuration and monitoring
- Impedance monitoring

These optional add-ons bring more than just monitoring to M Class, they allow and require configuration through M Class software components – but still operate in the absence of network connectivity once programmed. After power loss, the system automatically restores previously saved settings.

Technical data

Hardware (minimum)	Intel Core i5, 8 GB RAM, 1TB HDD
Software	Windows 7 and above
Latency	2 seconds typically
Update rate	approx. 1 second
Log depth	only limited by disk space
Log access	all historic events are accessible, comprehensive filtering, custom report generator
Security	Windows authentication



The PSC VODEC M Class PA/GA (Public Address and General Alarm System) is the culmination of over 15 years experience in the design, manufacture and commissioning of high integrity voice/alarm broadcast packages for life safety applications. The PA/GA System is specifically developed for use in aggressive operating environments including potentially hazardous atmospheres. PSC VODEC PA/GA is designed to reliably operate for extended periods of time without failure or recourse to routine maintenance. PA/GA has been independently certified to meet the strictest climatic conditions specified by leading authorities including CE, DNV, CSA, LR.

The PA/GA package can be supplied in a number of system architectures:

- Fully duplicated A+B configuration
- N+1 Hot-Standby configuration key components are duplicated and configured on Hot-Standby
- Combination of A+B and N+1 for ultimate system security

PA/GA system units

- **System rack**
  Depending on application several sectors/area maybe assigned dedicated PA/GA resources with network connections to communicate inter sector.
- **Operator access units**
- **Loudspeakers**
- **Flashing beacons** (high intensity) in high ambient noise areas

Amplifier cage

The amplifier cage carries loudspeaker amplifiers, type VA300+M, which facilitate both drive and management of groups of loudspeaker devices.

Amplifier module

A typical PA/GA system might have amplifiers ranging from two units to hundreds of amplifiers depending on the acoustic alarm signals and intelligible speech coverage requirement over the site.

Amplifier power supply

The VA300+M amplifier provides extremely high power density in a compact lightweight modular plug in "cassette" format. VA300+ amplifier power supply is derived from VA300+/PSU which facilitates dedicated outlets for each amplifier thereby enhancing overall system security.

Management central processor VX/AT-M

The complete package is managed by the PSC VODEC VX/AT-M central processor.

VX/AT-M provides:

- Secure switching of input/output program
- Generation of internationally specified alarm tone cadence
- Various redundancy concepts
- Fully monitored system
- Non-software based system

Master Unit VAP30

Access Unit VAP01

- Supervision and control of system priorities
- Supervision of the complete PA/GA system
- Re-programmable system configuration via email

The VX/AT-M processor is based upon highly secure VSOC technology which obviates sequentially executed stored program. Instead the VSOC chip is configured by tamper-proof switches located inside the unit.

PC Based Access Panel MVAP

Ports

Connection of field equipment to the host rack is made via an integral "MDF" which houses a number of DIN rail mount termination "ports".

A family of PSC VODEC ports enable simple reliable implementation of

- Self healing loudspeaker and flashing beacon networks "Loop" based
- Mutable loudspeakers
- Interfaces to other site systems e. g. PABX, VHF, Radio, SCADA, Fire and Gas, ESD, Supervisory, Event Recording, Entertainment Systems
- Connection to operator access units
- AC/DC power supplies

Page/Party communication

A system can be extended to include Page Party communications by incorporating a PSC VODEC VXS or VX/S-8 shelf which enables connection of page/party handset subscriber stations and paging loudspeakers. Single VXS allows connection for up to 16 telephone stations and is expendable to 1024 subscribers.

Access units

A range of operator access units are available from the standard PSC VODEC VAP01/VAP30/MVAP series or "tailor made" human machine interface to client specification. ATEX certification allows safe access facilities in potentially explosive hazardous areas.

Remote monitoring

The state-of-the-art MClass allows to capture and report detailed operational information in real-time and when connected to M Class infrastructure all this information is available to a remote server, which logs and displays data as required.

Duplicated System Architecture A+B

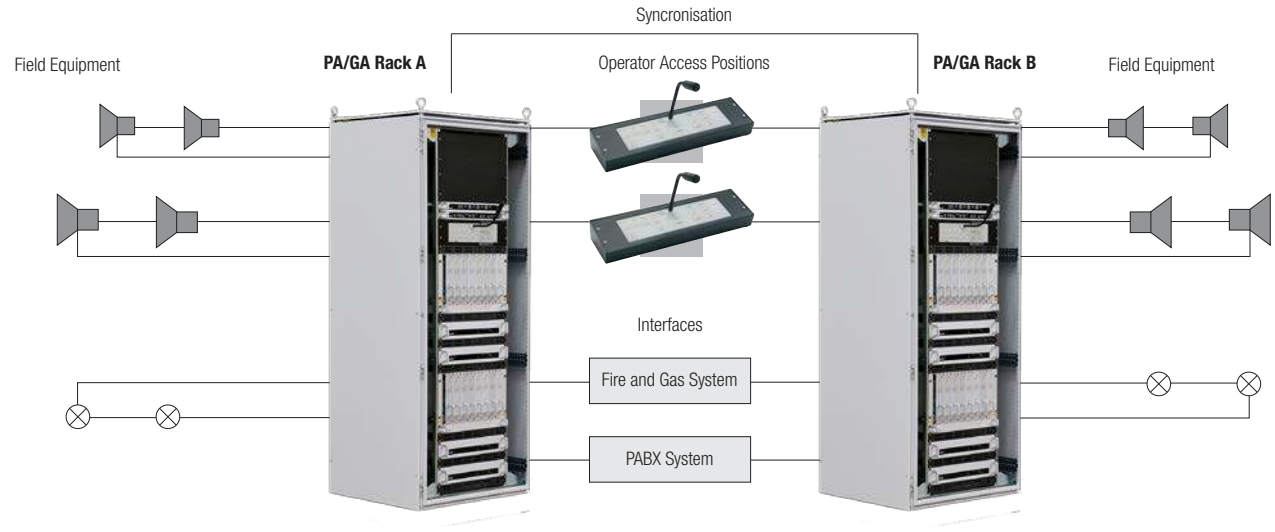
- Highest security
- Single fault tolerant
- Fully duplicated system

Where the alarm and voice broadcast (PA/GA) system is intended to provide vital life safety/dependant instruction/warnings a fully duplicated A+B configuration is implemented. The intent is that a single fault, no matter how catastrophic, shall not inhibit the reliable distribution of alarm and voice broadcast to all potential listening positions. The duplicated PA/GA package is arranged such that there is no possibility of common mode failure and the design obviates cross transference of possible fault conditions from one sub-system to the remaining working sub-system. Each compartment is fitted with loudspeakers assigned separately to A and B PA/GA sub-systems.In areas where ambient noise exceeds 84 dBA the A and B flashing beacons should be fitted. The two sub-systems are strictly segrega-ted with central panels remotely located from each other.

Cables extending from the panels to field devices follow separate routes utilising differing transits, cable race ways, racking and tray work, additionally all cables are mechanically protected. Loudspeaker distribution is arranged such that with either A or B system isolated a minimum signal to noise differential of +6 dBA is maintained at all potential listening locations and that in sleeping area a minimum of +75 dBA at the bed head is maintained.

Both A and B systems are normally on line and operate independently. There are no sharing of resources or signals. Hot-standby equipment within A or B sub-system is normally not required (unless specifically required by client). The A and B systems are held in synchronisation by an optically coupled cable A to B to A. in the event of loss or corruption of this link the worse case scenario is that alarm tones can no longer synchronise, but coverage is mantained.

Application Offshore Platform - A and B System



- Detail LED diagnostics
- Redundancy of the main system components
- Remote fault report output

PSC VODEC PA/GA Public Address and Alarm system is specifically designed for critical life safety applications. To improve system availability the PSC VODEC PA/GA system can be configured in an N+1 architecture. N+1 denotes that certain key front end parts of the PA/GA system are duplicated with the second hardware set being held in hot-standby. N+1 can apply to loudspeaker power amplifiers and/or host management according to client specification. In either case field equipment is not duplicated in N+1, i. e. there are non-redundant loudspeaker/beacon networks. Amplifier replacement is automatic and in addition to supervision of on-line amplification the standby amplifier is monitored also. For ultimate security A+B fully duplicated architecture should be specified.

The PSC VODEC VA300/CAGE is fitted with N+1 capability for power amplification as standard. Each VA300/CAGE can support 8 X VA300+M amplifiers out of which it is possible to simply configure slot 8 as hot-standby for the remaining (up to) seven on-line amplifiers. It is possible to extend the hot-standby to provide support for on-line amplifiers sited in other VA300/CAGE(s) if desired, e. g. system fitted with twenty VA300+M amplifiers (slot 21, 22 and 23 are spare) slot 24 is hot-standby for amplifier 1 - 20. Hot-standby amplifier can be assigned for

- Every seven “on line“ amplifiers
- Every three “online“ amplifiers
- Single hot-standby can support all “on line“ amplifiers up to maximum of sixty four.

For greater system security the VX/AT-M management processor is not configured to enable hot-standby of all switching functions, alarm generation and operator access unit management. For this application the operator access units feature duplicated N+1 transceivers and microphone transducers. A PSC VODEC NT4 facilitates selection of VX/AT-M on a master/standby basis.

Technical data

Supply	DC 48 V from host VX/AT-M switch
Dimensions (width x height x depth)	111 mm x 222 mm x 60 mm (4.37 inch x 8.74 inch x 2.36 inch)
Weight	0.38 kg (0.8 lbs)

NETWORK PORTS FOR N+1 PA/GA CONFIGURATION

The NT4 and NT44 ports allows the implementation off the “N+1” front end architecture in a high security PAGA system.
The NT4 is designed to allow 2x VX/AT-M management units to be fitted to a single rack N+1 configuration i.e. one management unit on-line, second as hot-standby.

The module is interposed between the on-line and hot-standby management units and target VA300/CAGE-M system power amplifier sub-system.
In a normal situation the amplification is managed by the on-line VX/AT-M unit however in event of a major fault condition, control of the system power amplifiers is automatically transferred to the hot-standby management unit thereby maintaining PAGA broadcast capability.

The NT44 port is designed to allow loudspeaker mute ports to be configured on an N+1 basis.

NT4/NT44 ports are connected to the system via ribbon cables, VX/AT-M management unit controls the VA300+M amplifier set via two ribbon cables - cable „1“ carries PA/GA audio, and cable „2“ carries data.
Both ports facilitates complete duplication of the PA/GA management system and operator microphone access unit with the duplicated elements configured on “hot-standby”. The intent is that a major failure in the on-line management/ access facilities shall not inhibit the normal operation of the PA/GA, instead the hot-standby PA/GA sub-system provides continued no break service.

CONTROL UNITS

Management Central Switch VX/AT-M

- System on a chip technology
- Supervises up to 512 amplifier modules
- Interfaces to other life critical systems

The PSC VODEC VX/AT-M is designed to provide access priority and zoned area switching of electronically generated alarms and live voice program inputs as a central component of a high integrity Public Address and Alarm (PA/GA) broadcast system. The VX/AT-M unit comprises of a low profile space saving 1 unit high 19 inch enclosure 160 mm (6.5 inch) minimal depth enclosure. As standard the VX/AT-M switch accepts connection of up to four microphone access control positions, expandable to client specification.

The unit generates a selection of secure alarm cadences and provides interface to other telecommunication packages:

- Entertainment distribution system muting in emergency
- Telephone system
- Telephone subscribers can store and replay messages over the PA/GA loudspeakers (PSC VODEC RP8 required)
- Fire and Gas Detection system, automatic initiation of PA/GA alarm tones
- Supervisory system, PA/GA trouble warnings
- Un-interruptible power supply, secure mains supply to PA/GA

A single PSC VODEC VX/AT-M switch can automatically supervise

- up to 64 or 512 power amplifier modules VA300+
- up to 32 microphone access panels
- battery charger
- flashing beacons

The unit incorporates comprehensive signal processing to ensure highest speech intelligibility. The LED diagnostic display and test tone/supervisory reset control, enables the engineer to issue test tick tone on a zone by zone basis. Supervisory routines automatically check critical path performance from operator microphone through to loudspeaker network and end of line devices. The complete unit is connected to the host amplification equipment by “quick release” plugs and sockets. This allows rapid service replacement on a plug and play basis.

VX/AT-M switch generates both IMO and PFEER/NORSOK alarm tone menus with alternative alarm tone cadences/frequencies readily programmed on request. Alarm tones are fully monitored and the package is equipped as standard for high criticality duplicated A/B system operation. The alarm tone package is fully synchronised when used in A/B applications. Service is maintained in the event of failure of an alarm tone generator in either A/B system. Priority access ensures that routine broadcasts are automatically over-ridden by critical input requests.

PSC VODEC System on a Chip

The VX/AT-M switch is based upon highly secure VSOC technology which obviates sequentially executed stored program. Instead the VSOC chip is configured by tamper-proof switches located inside the unit. This eliminates dependency on PCs and flash memory that are not sufficiently secure enough for a life safety system. The user is able to make limited configuration changes to the PA/GA system with training. No annual software licence is required to run the VX/AT-M switch.

Technical data

Power supply	DC 48 V
Consumption	25 W
Eat emission	10 W
Voice inputs	2 x VAP30 as standard (expandable) 2 x VAP01 as standard (expandable) 2 x auxiliary audio 1 x telephone interface
Alarm tones	4 x IMO 4 x PFEER/NORSOK
Broadcast zones	4 zones as standard (expandable)
Test tick tone	1 kHz tick issued at second intervals
Compression on voice inputs	up to 40 dB
Frequency response	150 Hz to 7 kHz, tailored to optimise speech intelligibility
Line monitoring level	-6 dB
Audio input/output level	0 dB
Audio VAP input level	-3 dB
Dimensions (width x height x depth)	483 mm x 44.5 mm x 160 mm (19.02 inch x 1.75 inch x 6.30 inch) (19" rack mount, 1 unit)
Weight	1.4 kg (3.1 lbs)
Temperature range	-20 °C to +50 °C (-4 °F to +122 °F)

- Re-programmable Flash Technology
- In-System Programing
- Alarm tones upgrade via e-mail

The PSC VODEC A3P Adaptor is a discrete module that allows the integration of Actel ProASIC3 Flash Family FPGAs into current PAGA modules. The A3P Adaptor is specifically designed to operate in any board as a substitution of the Actel 42MX Family through a PLCC socket. The A3P adaptor includes a comprehensive collection of GPIOs fully configurable from the FPGA and a 3-wire SPI bus for serial communication purposes.

Programming kit need to be ordered separately.

The new FPGA offers a series of improvements with respect to the 42MX Family.

- Reprogrammable Flash Technology:
  It can be reprogrammed at least one hundred times, increasing the FPGA life.
- ISP (In-System Programming):
  There is no need to remove the FPGA from the system for programing and I/O can be set to a benign state during the programming process.
- Increased FPGA gate count:
  Adds more features, capacity and flexibility to meet complex customer requirements.

These upgrades provide flexibility with design methodology and procedures that can reduce development time and resource.

FPGA programming will be offered on request.

Technical data

Power supply input	DC 3 V or DC 5 V
Nominal supply current	20 mA
Dimensions (width x height x depth)	46.5 mm x 46.5 mm x 20 mm (1.83 inch x 1.83 inch x 0.79 inch)
Weight	<20 g (<0.4 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Ordering information

Description	Order no.
A3P Adaptor FPGA	VPI019
A3P Programming kit	VPI019ZZ

Message Store Unit RP8/60

- User friendly record/ replay facility
- Possible to inject alarm tone warnings
- Use in highly secure duplicated PA/GA applications with galvanic A/B isolation

The RP8/60 message store is 1U low profile 19 inch rack mount enclosure, which carries a single motherboard style PCB. The unit facilitates record and replay of up to eight separate high definition voice messages, each retained in non-volatile electrically alterable memory. Voice message text duration is up to 60 seconds for each channel, i.e. total of 8 minutes storage time.

Massages are downloaded into the RP8 by a plug in microphone or audio source (e.g. prerecorded message) at base band audio. User selects voice channel to be recorded into and depresses the „record“ button. Speech is now recorded on the selected channel memory. Upon release of „record“ button the recording into the requested channel store is terminated. The user can now monitor the recorded program via a plug in headset by depressing „playback“ (without broadcasting over host system loudspeakers). Once the recording is accepted the user deselects the voice store channel and the message is set for broadcast system for playback only the message is retained indefinitely regardless of power supply status. It is possible to interleave a recorded message with an alarm tone menu held in highly secure anti-fuse VSOC (Vodec system on a chip). Alarm tones can be protected by tamper proof switch selection which obviates external equipment/tool connection. Each message/alarm is selectable by „dry“ volt free contact with in built priority to ensure that critical messages over-ride low priority messages, i.e. message #1 over-rides #2 and so on. An integral status display indicates which message is currently selected for playback/recording.

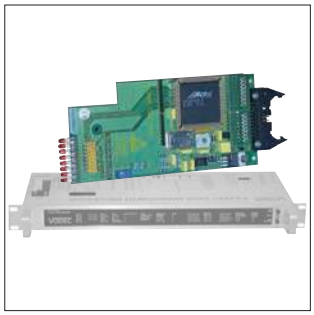
Programming Kit

Programming Kit for RP8 message store unit is a rugged assembly designed to allow the user to download live voice message to the RP8/60 store. The equipment comprises of an enclosure handset with flexible lead (which is pre-terminated in a XLR socket) and a performer style hand microphone terminated in a 3.5 mm jack plug. Both units are connected by a specialist harness terminating in DIN 5 pin cable plug that connects direct to the front panel of the RP8/60.

The RP8 Programming Kit is not a part of the RP8/60 Message Store Unit and need to be ordered separately.

Technical data

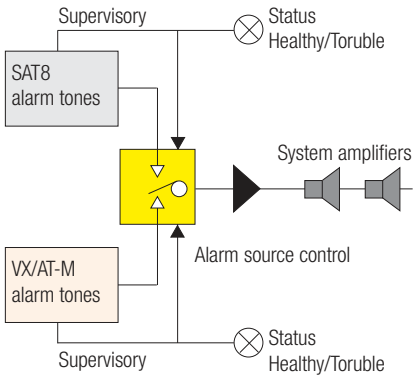
Power supply	DC 48 V can be derived from host VA300/CAGE
Consumption	100 mA
Record input sensitivity (analogue)	50 mV pk-pk
Band width	300 Hz - 3 kHz
Message text length - each channel	60 sec. x 8
Output	0 dBm duplicated A + B outputs
Control output	duplicated isolated „key“ host PA/GA contacts
Control inputs	8 volt free contacts
Number of separate messages	8 channels
Dimensions (width x height x depth)	483 mm x 44.5 mm x 160 mm (19.02 inch x 1.75 inch x 6.30 inch) (1 unit, minus the handles, 45 mm)
Weight	1.4 kg (3.1 lbs)
Temperature range	-20 °C to +50 °C (-4 °F to +122 °F)



- System on a chip technology
- Supplied fully configured
- Complies with international standards

For highly critical voice alarm broadcast applications (PA/GA) it is essential to provide redundancy of critical hardware to improve overall PA/GA system security. PSC VODEC SAT8 is a compact plug in/out module designed to operate in conjunction with PSC VODEC VX/AT-M PA/GA management switch. The SAT8 is a self-contained alarm tone generation sub-system that can be configured to provide back-up to the host VX/AT-M alarm generation package on a "hot-standby" N+1 basis.

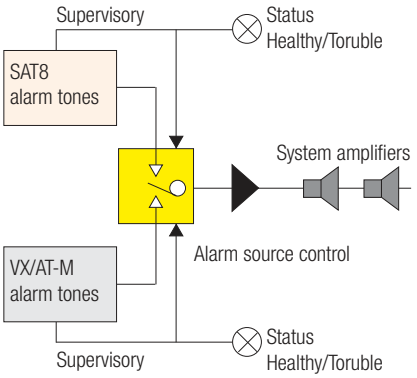
VX/AT-M Primary Alarm tone source



The VX/AT-M is the primary alarm tone source.

If the VX/AT-M alarm sub sub-system fail then the SAT8 is auto switched on on-line to maintain alarm tone source broadcast capability.

SAT8 Primary Alarm tone source



The SAT8 is the primary alarm tone source.

If the VX/AT-M alarm sub sub-system fail then the SAT8 is auto switched on on-line to maintain alarm tone source broadcast capability.

When N+1 alarm tone generation is required the SAT8 is plugged into the host VX/AT-M motherboard which is then configured to recognise the additional hardware by simple on-board DIL switch/plug link selection. The SAT8 can be arranged to supply alarm tone signals as the primary source (i.e. on-line) with the host alarm generation sub-system on hot-standby or the SAT8 can be a slave back-up tone source. Preference is set by tamperproof plug linking.

Technical data

Power supply input	DC 5 V or DC 24 V via auxiliary connector
Power supply input tolerance	± 20 % on DC 24 V input, ± 5 % on DC 5 V rail
Consumption	10 mA
Number of embedded alarm tone cadence	12 to comply with PFEER, NORSOK and IMO standards
Output	1 X 0 dBm 770 mV
Alarm initiate input	12 N/C contacts rated 0.25 A @ DC 24 V volt/earth free
Weight	0.25 kg (0.6 lbs)
Material	Glass fibre through hole plate PCB
Dimensions (width x height x depth)	483 mm x 44.5 mm x 160 mm (19.02 inch x 1.75 inch x 6.30 inch) (fitted within VX/AT-M)
Temperature range	-20 °C to +50 °C (-4 °F to +122 °F)

- Ethernet connectivity for remote monitoring
- Battery backed real-time clock
- Gathers detailed status data

The ECU is a mandatory PCB module for M Class PA/GA systems. The ECU manages the internal process of data collection and presents data to the dedicated LAN on demand. The ECU is a compact DIN rail mounted module, powered from the local PA/GA rack.

Battery backup

The ECU includes onboard battery backup. The health of the battery is monitored by the ECU management system and the M Class server is notified when batteries need to be changed (typically 5 year period).

The purpose of battery backup is to ensure the ECU is able to detect and log critical power events such as loss of system power and return of system power. The battery keeps the ECU core functions operating in the absence of normal power until logging activity is complete, then the ECU enters a low power sleep mode. The battery also maintains the real time clock on the ECU during power-out so that subsequent logging at power up is accurately time-stamped.

Data logging

The ECU reports status to the server on a regular basis. However, the server is not considered as critical path and may go off-line at any time. The ECU includes the option to log system events to an optional on-board SD card (2 GB of storage would allow in excess of 300,000 events to be recorded with a timestamp). Larger SD cards would extend event log capacity further. ECU logging only records changes in status (deltas) and does not record status or report status for every sample taken. This massively improves storage capacity and reduces network traffic.

Data collection and forwarding

The ECU is implemented as the master device on the internal M-LINK bus which interconnects between various modules of the PA/GA rack. The ECU is able to monitor the M-LINK bus continuously. The ECU is the central monitoring coordinator in the PA/GA rack. By default it is able to monitor up to 30 M Class devices connected with an M-LINK bus.

The ECU polls each connected device on a regular basis (typically every second) to maintain a detailed view of status. The ECU is Ethernet enabled, and is designed to connect to an M Class server located somewhere on the LAN. The ECU provides the current status of the PA/GA System when requested by the server.

Monitoring functions

The ECU not only monitors M Class devices in the same rack but also monitors system parameters such as:

- Temperature on the ECU PCB
- System voltage levels
- M Class connectivity
- Battery health

Networking

The ECU follows the design philosophy of simple network installation and management. There is no requirement for complex manual network configuration. The M Class network is designed to automatically configure and report to the server.

By design, critical path PA/GA functions cannot be modified by external interaction from the network.

Technical data

Power supply input	DC 48 V nominal (rack supply) <100 mA DC 3.3 V expansion (port supply) <1 A
Technology	- battery backed (monitored) - 32 bit micro controller based - no operating system or 3rd party software
LAN connectivity	requires DHCP enabled network 10/100 RJ45
Weight	0.4 kg (0.9 lbs)
Dimensions (width x height x depth)	124 mm x 60 mm x 124 mm (4.88 inch x 2.36 inch x 4.88 inch)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

- Local interface for remote MVAP access panels
- Peer to Peer interfacing
- M Class remote monitored and configured

The MPORT is an M Class access terminal interface port designed primarily to connect remote MVAP access panels to a local PA/GA rack. The MPORT combined with the MVAP allows PSC VODEC M Class PA/GA installations to be truly scalable and easily configured.

The MPORT is mounted at the back of the PA/GA cabinet and Interfaces directly to the local VX/AT central controller. When the optional ZTE4-20 is fitted it can directly support 20 local zones. Each additional MPORT in a system equates to an additional 20 zones, with virtually no limitation on the number of zones possible.

The MPORT includes two independent Ethernet LAN ports for connectivity to remote MVAPs. These LANs may be used in a redundant configuration for installations requiring critical path security. The MPORT also includes an array of general purpose I/O for customer specific requirements and to allow interaction with 3rd party equipment such as fire and gas detection systems.

The MPORT is highly configurable through the M Class GUI server software and it is possible to use it in a number of ways:

- Standard VAP30-20 emulation
- Peer to Peer with another MPORT
- Standalone to connect 3rd party systems to M Class

The MPORT is of standard DIN rail mount form factor and derives its power supply directly from the PA/GA DC 48 V supply, either via its connection to a VX/AT or directly to the DC 48 V distribution block. The MPORT may be cascaded with other access terminal equipment and relative access priority may be set according to system requirements.

The MPORT is designed with established and robust sequential processing technology and without dependency on 3rd party firmware or recourse to an operating system. The MPORT firmware is secure, permanent, and operational virtually instantly on power-up.

The flexible design of the MPORT does allow for firmware updates in the field/after manufacture. However, mechanisms are in place to prevent this happening accidentally or through malicious intent. Field upgradability can also be permanently and irreversibly disabled at any time for applications whose security requirements dictate. The MPORT includes interfacing for an off-board K-Type thermocouple to assist with internal cabinet temperature monitoring.

Configurability

The MPORT includes a default configuration suitable for many standard applications. However, some applications require customized operation and the MPORT is designed to provide flexibility in functional configuration.

The following configurations can be made through the M Class GUI/Server:

- Relationships and rules between inputs and outputs
- Mapping of system level zones and zone groups to local zones
- Routing of signalling and audio streams between MVAPs and other MPORTs

Once the MPORT has been configured it will remember its settings even after loss of power and can operate full function even if the GUI/Server is offline. The MPORT uses secure communications based on trust relationships to prevent spoofing by 3rd parties.

Remote monitoring

The MPORT includes M-LINK bus connections for standard M Class remote monitoring and configuration.

Technical data

Power supply input	DC 48 V unregulated supply
Connectivity	- dual LAN 10/100 RJ45 with support for: TCPIP, UDP, SNMP, NTP, DHCP protocols - compatibile with P3-PA/GA system components (VX/AT, ZTE4-20, etc.) - M-LINK - loop in, loop out - 5 programmable dry contact outputs (DC 48 V, 3 A, jumper set NC or NO) - 7 open collector outputs (V CE max = 100 V) - 5 opto-coupled inputs (local power or remote options)
Weight	0.4 kg (0.9 lbs)
Dimensions (width x height x depth)	124 mm x 312 mm x 65 mm (4.88 inch x 12.28 inch x 2.56 inch)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Industrial Ethernet Switch

- Compact size for minimum space usage
- 10/100 Mbps full bandwith Ethernet
- Dual speed SFP ports

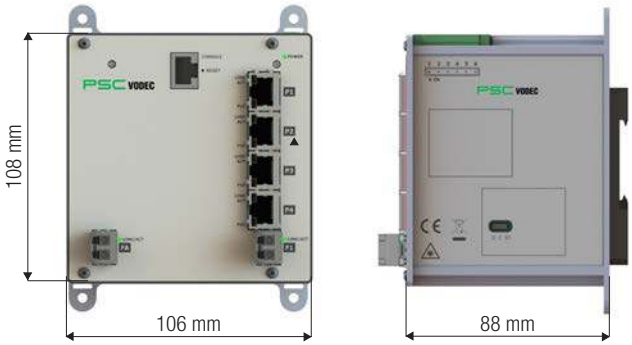
PSC VODEC Industrial Switches have up to 4 Fast Ethernet ports with 2 additional Dual Speed SFP ports for data uplink. The switches uniquely offer a common web-browser interface for configuration of all aspects of the device.

Supporting 10/100Mbps data rates, full duplex, this flexible, compact and easy to use fully managed Ethernet switch also has the benefit of Rapid Spanning Tree and Multiple Spanning Tree Protocols, with Ethernet Ring Protection Switching and IGMP functionality to deal with the multicast traffic which is commonly used in IP PA/GA systems.

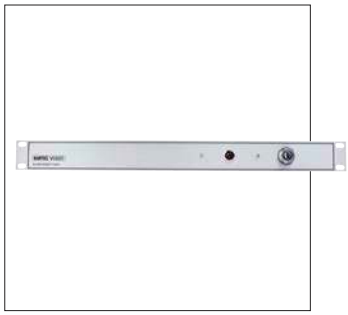
Technical data

Ethernet	4x RJ45 Ports UTP 10/100T 2 x SFP Ports 100/1000M
Power supply	24V DC from PA/GA cabinet (redundant PSUs are supported)
Power Consumption	6 W
Weight	1.0 kg (2.2lbs)
IP Rating	IP 30
Max./min.amb.temp	60°C / -10°C (140°F / -14°F)
Dimensions (WxDxH)	106 x 88 x 108 mm (4.17 x 3.46 x 4.25 in)
Installation	DIN-Rail mounted

Dimensions



Alarm Inhibit Panel



- Key switch to inhibit alarm during system maintenance
- Front rack mounted easy access
- Fully status monitoring

The PSC VODEC PA/GA system can be connected to a site Fire and Gas detection system to allow the automatic initiation of alarm tones signal.

An automatic alarm inhibit panel can be optionally specified which disables the interface to the external site detection package thereby preventing spurious alarm trigger during, for example, maintenance procedures.

The panel comprises of a 19 inch rack mount 1U (44.5 mm) face plate which is equipped with a key operated maintained switch assembly.

The key switch status is indicated on management host VX/AT-M and is repeated at master PA/GA access control positions as a further warning that the auto input is disabled.

The inhibit key switch contact arrangement is based on a N/O (normally open) “closed to inhibit” auto alarms philosophy and is connected to the host PA/GA system via a 2IP interface port by a single pair of conductors.

Technical data

Supply	DC 5 V
Dimensions (width x height x depth)	483 mm x 44.5 mm x 70 mm (19.02 inch x 1.75 inch x 2.76 inch)
Weight	1.0 kg (2.2 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

AMPLIFIER EQUIPMENT

- Remote monitoring
- Fully integrated supervision
- Plug and play, minimal set up

The VA300+M amplifier is designed to provide reliable efficient service in critical life dependant alarm and voice broadcast applications (PA/GA). The unit is based upon a compact industry standard size Euro card module designed to plug in/out of a 6U high card cage. The VA300+M incorporates an integral supervisory package, which silently and automatically monitors amplifier and the associated loudspeaker line insulation with respect to earth.

The VA300+M front panel carries on LED diagnostic display with a ten digit line output volt meter and robust alloy handle to facilitate rapid withdrawal of the complete assembly and exchange with absolute minimum of down time. Surface mount manufacturing ensures consistent performance, obviates troublesome wiring looms, multiple printed circuit cards and shrinks the entire power amplifier module/supervisory to a single multi function motherboard.

Unique Vari-mode output stage configuration eliminates EMC emissions and critical loading requirements associated with pure Class D amplification, whilst maintaining extremely high efficiencies during emergency broadcast request. Amplifier frequency response bandwidth extends to 25 kHz thereby enabling automatic amplifier/line checking at inaudible ultrasonic frequencies. The VA300+M amplifier is fully electronically protected against open/short/any abnormal load or temperature condition with automatic reset (once the condition is resolved) and is almost totally indestructible.

Output to loudspeaker network(s) is standard 100 V line with 70 V line as an option. Due to the excellent power density/printed circuit card board area ratio the units are fitted to shallow depth low profile 19 inch racking thereby saving considerable weight and floor space.

The VA300+M amplifier incorporates automatic supervision for up to eight separate loudspeaker networks. Each line is equipped with PSC VODEC intelligent end of line supervisory device type PAS88 or EOL**. No calibration is required other than simple switch selection of quantity of lines to be monitored e.g, 1 to 8. This obviates use of:

- Conventional current monitoring schemes, which provide very poor resolution
- DC supervisory systems that require blocking capacitors to be fitted inside each loudspeaker

Remote monitoring

The VA300+M is enhanced to capture and report detailed operational information in real-time and when connected to M Class infrastructure all this information is available to a remote server, which logs and displays data as required.

The remote monitoring features are robustly implemented and designed in such a way that it will not affect PA/GA critical functions in any way. Additionally the VA300+M is enhanced to store and report its unique serial number and other asset management data to further improve uptime and afford predictive maintenance.

The VA300+M offers an optional upgrade to include line impedance monitoring, which also reports through the M Class infrastructure to the remote server. This is a cost effective mechanism which compliments the existing end of line supervisory. The VA300+M is fully backward compatible with original P3 VA300+ amplifiers and may be used in non M Class systems.

Temperature monitoring and Protection monitoring

There is a thermal sensor fitted to each amplifier module which is arranged to conduct at temperatures exceeding about 90 °C. The temperature sensor illuminates the red temperature LED on the front panel of the amplifier. In addition the fans are activated. The temperature sensor has no effect on the operation of the amplifier.

Protection

The amplifier is fitted with comprehensive thermal protection which ensures that the amplifier can never be damaged through high ambient temperature. The point at which the protection is applied is dependent on a number of variables:

- Load on the amplifier
- Signal level into the amplifier
- Type of signal applied to the amplifier
- Rail voltage on the amplifier
- Ambient temperature

Technical data

Supply input	DC 48 V unregulated
Consumption	350 mA Quiescent max. 8.5 A
Efficiency	better than 80 %
Input sensitivity	0 dBm (770 mV RMS)
Frequency response – 3dB points	150 Hz and 20 kHz
Distortion	better than 2 %
Regulation	better than 3 dB
Line output	100 (70) Volt line within 1 dB
Protection	V/I protection and temperature
Power output capability	325 W
Dimensions (width x height x depth)	50 mm x 262 mm x 174 mm (1.97 inch x 10.31 inch x 6.85 inch) (6 units)
Weight	2.5 kg (5.5 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Construction	anodised alloy front panel and chassis
Finish	natural alloy
Service location	safe area internal
Humidity	25 to 85 % non-condensing
Vibration	max. shock 1 g any direction
Standards	BS-EN 60945; BS-EN 61010-1; DNV Certified

- Remote monitoring and configuration
- Extremely compact, large scale integration
- Motherboard construction completely eliminates hard wiring

PSC VODEC VA300/CAGE-M is a 6 unit high standard 19 inch rack mount low profile assembly designed to carry up to eight amplifier modules. The unit comprises of a robust extruded lightweight alloy frame enclosure and motherboard "back plane" printed circuit card equipped with eight slots.

The back plane is fitted with eight gold plated indirect edge connectors, one per slot, which eliminate troublesome hard wired connection looms and allow rapid plug in/out amplifier capability to assure speed of service. The back plane carries an on board non volatile processing sub-system that enables amplifier eight to substitute any one of the other seven VA300/CAGE-M slots in the event of on-line amplifier trouble.

Configuration also allows slot four to support hot-standby amplifier execution. In this case amplifier number 4 is a hot-standby for amplifier 1 to 3 whilst amplifier number 8 is a hot-standby for slot 5 to 7or 1 to 7. Hot-standby amplifier can be assigned for

- Every seven "on line" amplifiers
- Every three "online" amplifiers
- Single hot-standby can support all "on line" amplifiers up to maximum of sixty four.

An auxiliary supervisory group fault report output is available to extend VA300/CAGE-M Amplifier module warnings to the host Public Address management hardware.

Each slot is allocated zone selection rotary switches, which enables the engineer to quickly and conveniently pre determine broadcast area assignment for each respective amplifier. Connection to/from the VA300/CAGE-M is via locking plug and socket insulation displacement flat ribbon cables which facilitate rapid complete removal of the frame from the rack system in the event of maintenance requirement.

VA300/CAGE-M is fitted with a display window that provides the engineer with an immediate and convenient indication of critical conditions within the VA300/CAGE-M sub-system. Status information includes DC supplies and associated proactive devices, fan control/condition, hot-standby amplifier and fault report supervisory. VA300/CAGE-M configuration requires no special tools or PC connection and data is retained indefinitely with or without power supply applied. VA300/CAGE-M allows the engineer to issue tick tone on an amplifier by amplifier basis.

Technical data

Supply input	DC 48 V unregulated
Output	DC 6 A max. per slot
Input	eight 100 V (70 V) line output
Fan control	fan initiate and supervisory for one off VA300 / FAN module
Ambient noise sense (ANS)	eight ANS microphone input (one per amplifier slot)
Host management	22.5 kHz supervisory control (for automatic amplifier testing) group fault reporting, cage to host. Fan from host (i.e. fan initiated when alarm tones are broadcast)
Dimensions (width x height x depth)	483 mm x 267 mm x 245 mm (19.02 inch x 10.51 inch x 9.65 inch) (19" rack mount, 6 units)
Colour	natural anodised alloy
Weight	without amplifier 3.44 kg (7.6 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Humidity	max. 80 % non condensing
Standards	BS-EN 60945; BS-EN 61010-1; DNV Certified

Remote monitoring

The VA300/CAGE-M is enhanced to capture and report detailed operational information in real-time and when connected to M Class infrastructure all this information is available to a remote server, which logs and displays data as required. The VA300/CAGE-M gathers data from any VA300+M Amplifiers which are connected to it and routes that back to the M Class server.

Optional capability to allow amplifier broadcast zone assignment from the M Class server is provided. Assignments are non-volatile and the server is not required to be on line for normal operations. Additionally on board rotary switches are provided as either fail-safe or permanent override broadcast area configurators.

The remote monitoring and configuration options do not impact on life safety critical path functions in any way and PA/GA functions will continue as normal in the absence of M Class infrastructure.

The VA300/CAGE-M is fully backward compatible with original P3 VA300+ amplifiers and may be used in non M Class systems.

Amplifier Power Supply, Fan unit

Audio Amplifier Power Supply VA300 PSU+/VA300

- Four independent power supply outlets
- DC 48 V battery input
- Plug in/out

The VA300/PSU+ is an AC to DC converter unit designed specifically for use in critical life safety voice and alarm broadcast systems. The VA300/PSU+ energises up to four VA300+ audio amplifiers sited in a VA300/CAGE and incorporates no break electronic changeover to an external optional battery sub-system in event of primary AC mains disconnection. The unit consists of four supply converters conveniently fitted in a VA300/PSU+ single housing, each supply is supervised by an integral monitoring sub-system which drives fascia mounted indicators and a volt free power supply status is available to remote possible trouble report.

The unit is housed in a low profile module which connects to the host equipment by plug/socket terminations. VA300/PSU+ is designed for standard 19 inch rack mount execution and high power density enables a 2 unit high 252 mm deep footprint. The unit enables compliance with IMO standard for broadcast equipment (i.e. separate power supplies for each amplifier module) and meets emission and susceptibility standards to IEC60945. Switch-on surge is managed by staged AC mains connection and full thermal protection is included as well as comprehensive protection for each power supply channel. A timed delay is incorporated to prevent surges due to toroidal transformer residual flux polarity and a 60 A rated connector facilitates connection to an external battery pile. This product should be fed from an AC mains supply via a type D breaker. The VA300+ is designed for simple rapid installation and utilises plug/socket connectivity thereby obviating screw/bolt termination. Light weight construction enables safe/convenient transportation and installation into the target equipment.

Technical data

Power supply input	AC 115 V or AC 230 V ±5 %
Frequency	50/60 Hz ±5 %
Maximum power demand	1.8 kVA
Output	unregulated DC 48 V, four channels
Output capability per channel	1 x VA 300 power amplifier module
Dimensions (width x height x depth)	483 mm x 88 mm x 252 mm (19.02 inch x 3.46 inch x 9.92 inch) (19" rack mount, 2 unit)
Weight	15 kg (33.1 lbs)
Enclosure	sheet steel zinc
Finish	zinc and passivated
Fascia	alloy
Finish	semi gloss black
Temperature range	-20 °C to +50 °C (-4 °F to +122 °F)
Humidity	80 % non condensing

Amplifier Fan Unit VA300/FAN

- Three fan assemblies
- Rapid service
- Space saving, light weight

The PSC VODEC VA300/FAN is an industrial cooling unit designed to provide efficient airflow through a VA300/CAGE (and associated VA300+M amplifiers) to enhance equipment reliability in elevated ambient temperatures. The unit comprises of a low profile space saving 1 unit high 19 inch rack mount enclosure, arranged to allow usage in minimal depth shallow cabinets.

The complete fan sub-system is automatically supervised under host management control by periodic activation for several rotations during which time sensing electronics determines fan unit status. The VA300/FAN is configured for plug in/out connectivity to facilitate rapid service and minimise down time in event of maintenance.

Technical data

Mains supply	DC 48 V, unregulated supply
Voltage tolerance	DC 36 V to 56 V
Supply current	259 mA
Power consumption	12 W
Enclosure	extruded alloy anodised
Dimensions (width x height x depth)	483 mm x 44.5 mm x 160 mm (19.02 inch x 1.75 inch x 6.30 inch) (19" rack mount, 1 unit)
Weight	1.56 kg (3.4 lbs)
Temperature range	-20 °C to +50 °C (-4 °F to +122 °F)
Humidity	80 % non condensing
Levels	background level 45 dBA operating level 57 dBA fan noise level 12 dBA
Noise	> 12 dBA@1 meter from fans

- Hot pluggable
- High efficiency
- Small Size (1U)

FLATPACK Power Supply unit is designed for use in critical life safety voice and alarm broadcast systems. Single rectifier unit energises up to four VA300+M audio amplifiers sited in a VA300/CAGE+M and incorporates no break electronic changeover to an external optional battery sub-system in event of primary AC mains disconnection. The unit consists of:

- 1U power supply cage
- Digital Controller
- up to DC 4 x 48 V rectifiers + 1x hot stand-by

Fitted within the 1U high power supply cage with digital controller and load distribution, the Flatpack rectifiers cover 2 to 5.4 kW applications using a minimum of space and low heat dissipation.

Digital Controller covers all control and monitoring needs of small to medium Public Address and General Alarm systems. Status and configuration is fully available through the display locally, or through the ethernet plug both remote or locally.

Technical data - Rectifier

Supply input	AC 185 - 270 V / 185 - 250 V
Voltage (operating range)	AC 85 - 300 V / 85 - 250 V
Protection	Fuse in L & N, Varistor, Shutdown when input voltage is out of operating range
Output Voltage (default)	DC 53.5 V (adjustable range DC 43.5 - 57.6 V)
Power (maximum) @ nominal input	1000 W
Current (maximum) @ nominal input	20.9 A (@V_{OUT} < DC 48 V)
Efficiency	Up to 95.5 %
MTBF (Telcordia SR-332 Iss.I method III (a))	>315 000 (@ $T_{ambient}$: 25 °C)
Dimensions (width x height x depth)	72 mm x 41.5 mm x 217 mm (2.83 x 1.63 x 8.54")
Weight	< 850 g (1.9 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Technical data - Display

Supply input	DC 10 - 75 V
Power Consumption, max - no relays energized max - all relays energized	3,1 W (display sleep) 5,5 W (display on)
User interface	2.2" TFT 65k Colour display; QVGA resolution; 4 keys
Ethernet port	10/100 BASE-T
Dimensions (width x height x depth)	72.2 mm x 43.0 mm x 220.7 mm (2.8 x 1.7 x 8.7")
Weight	< 850 g (1.9 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Technical data - Power Supply Cage

Supply input	AC/DC 185 - 305 V
Mains configuration	3 x single phase
Maximum output voltage	DC 60 V
Maximum output current	187,5 A_{dc}
Dimensions (width x height x depth)	19 inch / 1U / 270 mm
Weight	2.8 kg (6.17 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Rectifier pile VA300 PSU/N+

- Diagnostic display panel
- Fully supervised
- Plug in/out

The VA300/PSU N+1 rectifier pile is a DIN rail mount module designed to combine two VA300/PSU power supply modules together to supply a high criticality PA/GA (Public address and general alarm system) broadcast system.

The design ensures that even under catastrophic failure of a VA300/PSU power supply or feeder, back up autonomy is maintained by a duplicate power sub-system.

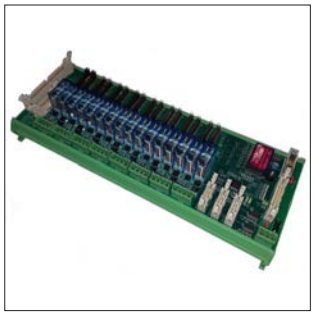
Switchover between the 'A'/'B' power system is static and galvanic separation between 'A'/'B' AC mains supply inputs is guaranteed by double wound transformers located in respective VA300/PSU modules.

The VA300/PSU/N+ is located in the rear of the PAGA rack and is fitted adjacent to the host VA300/PSU modules.

The VA300/PSU/N+ can manage up to four VA300/PSU modules i.e. two units assigned 'A' two units assigned 'B' and status display output of each power supply section is extended to a an optional 1 unit high 19 inch rack mount indicator panel which is located on the cubicle fascia.

Technical data

Power supply input	DC 48 V
Dimensions (width x height x depth)	100 mm x 75 mm x 200 mm (3.94 inch x 2.95 inch x 7.87 inch)
Weight	0.8 kg (1.8 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)



- Split a single amplifier output multiple ways
- Line monitoring for each of the loops
- Up to 8 x PAS88 per cage (64 zones)

PSC VODEC Post Amplification Audio Switch is an addition to an existing VA300+M amplifier, similar in function and form-factor to an existing EOL03A unit.

The function of this new module is to allow the output of a single amplifier to be selectively directed to any combination of up to 8 speaker loops or lines thereby increasing the 'zoneability' of a standard system without the need to add extra amplifiers. Maximal number of zones per cage is limited to 64.

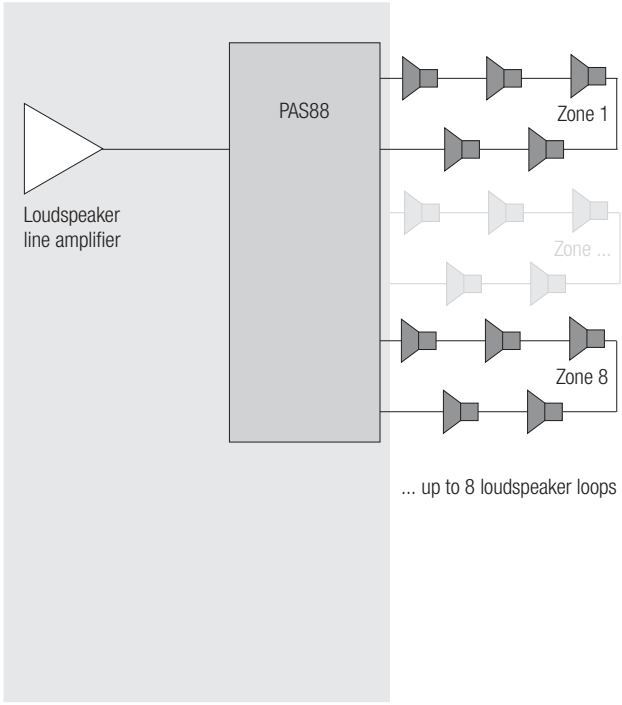
All extra zones created by this method are still only driven by a single common amplifier so the options available to these grouped zones is either 'off' or broadcasting the audio message from the amplifier. The amplifier continues to amplify just one audio path at a time.

The audio switch module replace the existing EOL03A module and will take on the supervisory functions of line monitoring – this may be in conjunction with the amplifier or it may be separate from the amplifier.

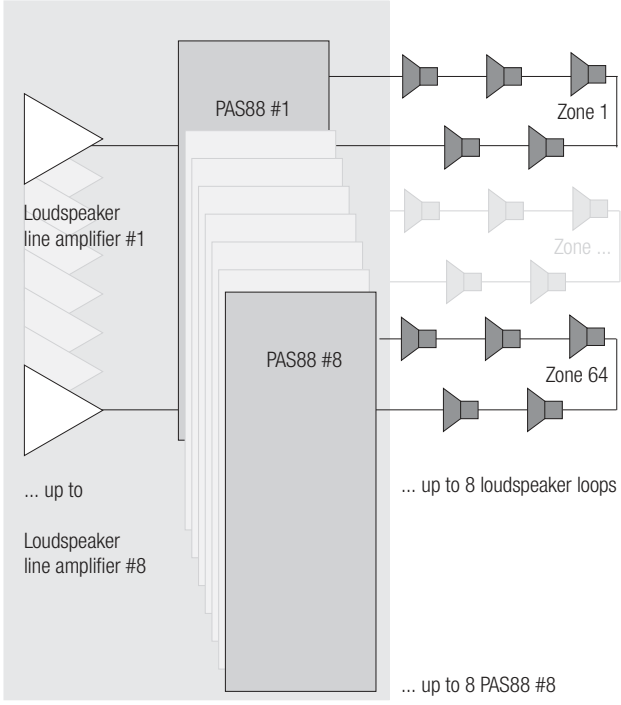
Technical data

Mains supply	DC 48 V, unregulated supply
Working voltage	70/100 V line
Number of outputs	8 loops
Number of amplifier inputs	8
Material	glass fibre construction
Dimensions (width x height x depth)	125 mm x 325 mm x 60 mm (4.92 inch x 12.80 inch x 2.36 inch) (DIN rail mounting)
Weight	0.7 kg (1.5 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

8 broadcast zones



64 zones per 1 amplifier cage



Loudspeaker Line Termination Port EOL03A

- Test disconnect terminations
- High integrity service
- Fault tolerant, continued no break broadcast

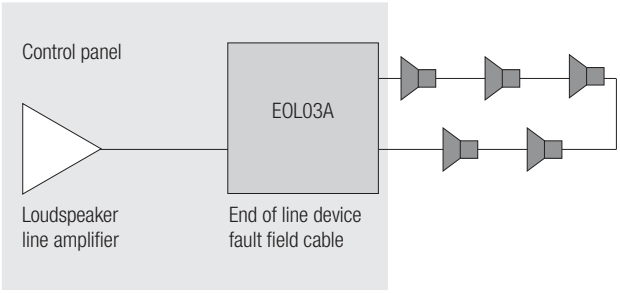
PSC VODEC EOL03A combines loudspeaker termination port and line supervisory provides interface between the PSC VODEC VA300+M amplifier cage (VA300/CAGE) and external loudspeaker network field cabling, the unit features loop drive to ensure continued full broadcast coverage in event of a single cable break. The unit is designed for snap on/off industry standard DIN rail mounting and comprises of a robust glass fibre printed card which is equipped with VA300+M amplifier harness termination and send/receive loudspeaker loop network output EOL03A provides connection for up to eight amplifiers 70/100 V line outputs with loop.

The unit includes gas discharge tube lightning protection on each individual outlet thereby assuring highest system reliability in the most arduous of operating environments. Line output terminations each incorporating a test connect/disconnect switching feature to allow the engineer to isolate line(s) during maintenance/commissioning operations. Terminals accept a range of conductor size up to a maximum of 2.5 mm^2 cross sectional area. EOL03A additionally carries LED status indications to inform the engineer of successful resolution of 25 kHz end of line test tone reception. EOL03A connectivity to host VA300/CAGE is by twisted pair I.D.C. ribbon enabling rapid installation by preformed plug/socket cable terminations. When emergency speech and alarm tone broadcast are distributed by networks of loudspeakers, it is essential that the host PA/GA panel is capable of securely monitoring all critical paths to provide an early warning of system deterioration. PSC VODEC PA/GA package injects an inaudible supervisory signal (22.5 kHz) into all loudspeaker networks to facilitate automatic checking. The associated loudspeaker network(s) can be arranged as ring/loop wired configurations or radial/star wired. A loop wired architecture is preferred since a single cable break will not inhibit operation to all loudspeakers on the supervisory device.

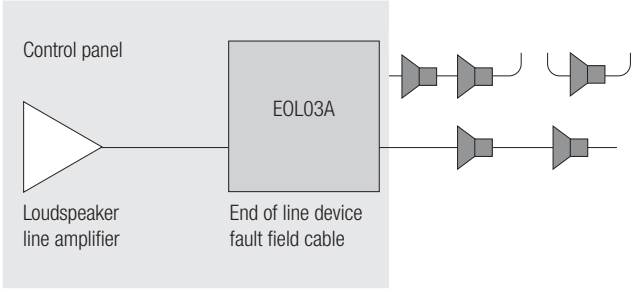
Technical data

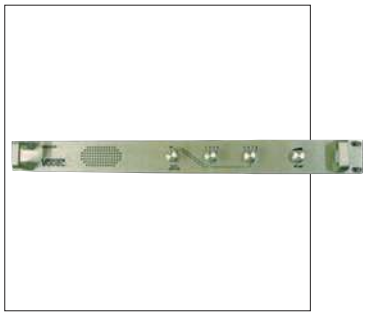
Working voltage	70/100 V line
Number of outlets	8 outputs, 8 inputs
Number of amplifier inputs	8
Dimensions (width x height x depth)	125 mm x 222 mm x 60 mm (4.92 inch x 8.74 inch x 2.36 inch)
Weight	0.62 kg (1.4 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Loudspeaker ring/loop



Loudspeaker ring/loop





- Small size compact 1U high design
- Smaller and lighter overall central panels
- Rapid service/maintenance minimises down time

The MON-8 is a 1 Unit high 19-inch rack mount panel designed to allow the engineer to monitor program output from each of the VA300+M amplifiers fitted to a Vodec VA300/CAGE-M. The unit consists of a compact miniature loudspeaker, volume control and eight way selector (corresponding to eight amplifier slots in the VA300/CAGE-M). Connection to the VA300/MON-8 is by twisted pair ribbon (transports program output from each amplifier selected) which routes amplifier outputs from either:

a) PAS88 or

b) EOL03A or

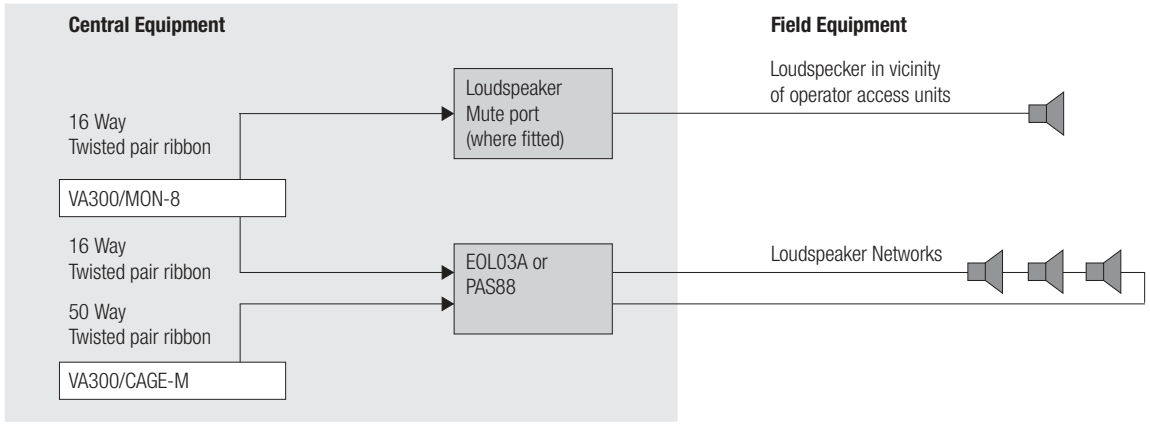
c) LTP series of amplifier loudspeaker termination ports.

The complete assembly eliminates conventional hard-wiring by the employment of a “motherboard” style construction utilising a multi-sided printed circuit board. Plug in/out connections enable rapid installation and maintenance supporting hot-swap capability.

Technical data

Mains supply	No separate power supply is required. Unit is driven by amplifier cage.
Number of channel inputs	8
Dimensions (width x height x depth)	483.5 mm x 44.5 mm x 50 mm (19.02 inch x 1.75 inch x 6.30 inch)
Weight	1.0 kg (2.2 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Connection diagram



Expansion Module EP8

- No hard-wired connections
- Rapid service/ simple system expansions
- Integral LED status display

The EP8 is a DIN rail mount module designed to enable the expansion of VA300+M amplifier management from 64 amplifiers to 128 x amplifiers per EP 8 port.

A maximum of 4 x EP8 ports can be fitted to a single PSC VODEC VX/AT-M management host enabling a system maximum of 512 x VA300+M amplifiers.

The EP8 is phantom powered from the host VX/AT-M and connectivity is by plug/socket connectors thereby eliminating conventional wiring looms, hard wired and soldered connections.

Technical data

Mains supply	Phantom powered unregulated DC 48 V
Dimensions (width x height x depth)	105 mm x 231 mm x 58 mm (4.13 inch x 9.09 inch x 2.28 inch)
Weight	1.0 kg (2.2 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

PC Based Microphone Access Panel M-VAP

- Simple user interface
- Customized screen layout
- Variety of connection interfaces

M-VAP is the digital equivalent of our standard VAP30 microphone access panel. It is used to address zones, issue Alarms, Recorded Messages, and Important Messages to site zones.

It is an IP based access panel that could be located anywhere on site as long as it is assigned to the same network where the PA/GA systems are located.

M-VAP can be designed as per customer requirement due to the fact that it runs on a “Windows System platform”. The MVAP as a standard is available in the models below:

A. Desk/Console Mount

3U, 19 inch rack/desk mount device which is fitted with a 7 inch touch screen monitor and a microphone. It is connected to a site network through an Ethernet cable (RJ45).

B. The all in 1 PC/M-VAP

23" inch all in 1 PC that runs windows and has a touch screen to use M-VAP. The PC brand is decided by either a customer requirement or market availability. Size can also be changed to bigger or smaller models.

Small PA/GA system with PC based access panel/server

M-VAP Setup

M-VAP is a very flexible device with regards to the setup and operation. Based on the site structure, the zone’s buttons can be configured to accommodate all zones, required alarms, and any other function that is required at the time.

M-VAP software can be mounted on any Windows platform PC. The screen size can therefore be changed to any desired size.

Technical data

Mains supply	AC 230 V
Microphone	hyper-cardioid response noise cancelling type
Connectivity	USB
Operating system	Microsoft Windows

- Duplicated microphone transducers for A+B or N+1 systems
- Emergency direct connection
- Monitored microphone voice coil

Dual microphone

The VAP30 is a heavy-duty indoor microphone unit designed to allow public address/paging system. The VAP30 can be supplied certified to provide safe operation in potentially explosive atmospheres and is ATEX & IECEx approved accordingly. The VAP30 comprises of a robust steel enclosure, which is equipped with an industrial operator membrane keypad and hyper-cardioid noise cancelling microphone fitted to a flexible gooseneck stem. The operator keypad array is specially designed to provide tactile feed back to the user and ergonomic layout. Large sized of keys according to operational importance simplifies paging and alarm (PA/GA) system operation.

Duplicated status LED's are fitted to indicate the availability of control command by the central equipment. For ultimate integrity the unit is available with two independent microphone transducers, which can be arranged to each drive dedicated amplification and loudspeaker arrays. For dual circuit execution, two VAP100 series processor/pre-amplifier modules are fitted to obviate common mode failure possibility, which are serviceable on a plug in/out basis. In highly critical life safety applications Emergency Direct Connection (EDC) is fitted as standard on VAP100d processors. This allows the host amplification to be controlled independently of the data processing sub-system/data transportation protocol. The VAP30 can be equipped with up to two conventional push button actuators which are independently wired to the central equipment, these allow selection of project specific special requirements. The VAP30 is equipped with a high performance VAP100 line driver that enables the unit to be located remotely from the host loudspeaker amplification. Automatic monitoring is included to supervise microphone voice coil, pre-amplification and critical paths to the central equipment. The VAP30 requires no local mains supply, the unit is energised by phantom power sourced from the host central equipment panel. Connectivity to the unit depends on which VAP100 transceiver type is fitted.

Explosion protection

Marking ATEX	Ⓔx II 2G Ex ib IIC T4
Certification	ITS 09 ATEX 26420
Marking IECEx	Ex ib IIC T4 Gb
Certification	IECEx ITS 14.0009

Technical data

Mains supply	phantom powered DC 5 V
Microphone	hyper-cardioid response noise cancelling type
Number of push buttons	twenty tactile keys, up to two EDC buttons
Dimensions (width x height x depth)	490 mm x 140 mm x 66 mm (19.29 inch x 5.51 inch x 2.60 inch) (19" rack mount, 3 units)
Weight	1.75 kg excluding back box, 2.6 kg (5.7 lbs) with back box
Colour	black bezel with light grey membrane
Material enclosure	electro-plated mild steel
Gland entry	2 x M20
Power Supply	phantom powered
Temperature range	-40 °C to +50 °C (-40 °F to +122 °F)
Humidity	up to 100 %
Protection class	IP 42
Shock and vibration	1 g-
Ambient temperature	-40 °C $\leq T_a \leq$ +60 °C

VAP100 line drivers

VAP100 line drivers are available in industrial version and also in Ex version:

VAP100E (Ex version)

ATEX certified Intrinsically Safe allows use in zone 1 IIC T4 hazardous areas. (Must be used in conjunction with PSC VODEC central equipment, part type ATE44 and MTL7758 barrier set)

VAP100d (Industrial version)

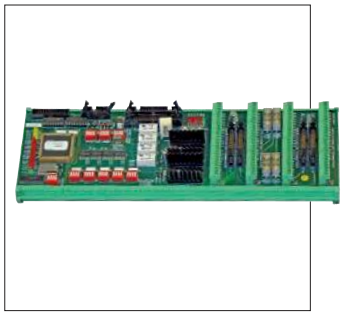
Safe area configurable operating system.
(Must be used with VAP30 or ATE4 for either single or quad usage)

Where N+1 or A+B PA/GA system architectures are required the assigned VAP100 transceiver is fully duplicated.

The VAP30 can be console mounted or fitted into a low profile desk top enclosure. A range of special finishes are available from 316 g stainless steel to client specified RAL Colours.

VAP30

Type	Key Pad	Microphones	Line Driver
Industrial version	20 push buttons	single	1 x VAP100d
		dual	2 x VAP100d
		dual	2 x VAP100d
	16 push buttons	single	1 x VAP100d
Ex version	20 push buttons	single	1 x VAP100E
		dual	2 x VAP100E
		dual	2 x VAP100E
	16 push buttons	single	1 x VAP100E

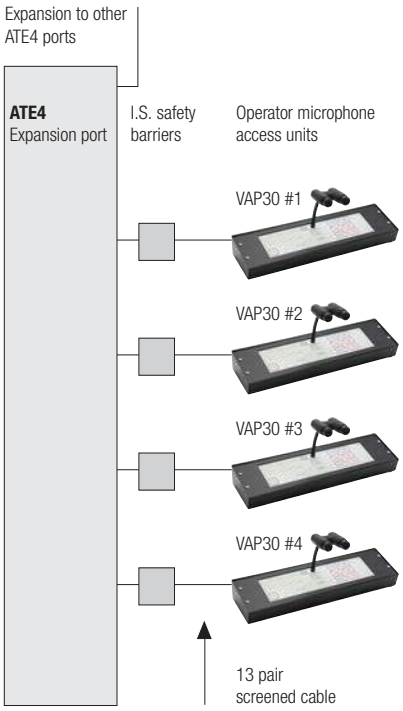


- Lightning protection
- Glass fibre construction
- High reliability, minimal down time

The ATE4 is a clip on/off DIN rail mount port which is designed to extend a PSC VODEC VX/AT-M switch to allow connection for up to four VAP30 public address microphone access units. The ATE4 comprises of a rugged DIN rail mount PCB carrier, field cable terminal assembly and on board switching matrix. An array of LED indicators provides the engineer with ATE4 operating status and DIL (Dual in line) switches allow the engineer to enable or disable ATE4 features to meet specific applications.

Further ATE4 ports can be cascaded up to a maximum of four modules, inter port connectivity is by plug in/out flat IDC (insulation displace-ment) ribbon cable enabling simple expansion with minimal hardware impact. The ATE4 is managed by an on board processing sub-system that determines access priority, emergency/routine speech preference and system alarm tone control. Loudspeaker muting ATE4 also provides drive output on ribbon header PLC 10 way connector to allow direct control of loudspeaker muting relays on the PSC VODEC loud-speaker mute port. This enables loudspeaker(s) in the vicinity of a live VAP30 access unit to be disabled for the duration of the broadcast from the active VAP30 thereby obviating risk of acoustic feedback. Connection to the ATE4 is from the host VX/AT-M management system by a single 34 way IDC plug in/out ribbon cable assembly. Connection to other ATE4 ports (where more that four VAP30 microphones are required) is by identical 34 way IDC (insulation displacement) ribbon cable enabling simple expansion. Power supply is derived from the VX/AT-M management system which sources DC 48 V. This supply is down converted to energise (on board the ATE4) to DC 5 V to energise the ATE4 processor and also provide DC 48 V to phantom supply the VAP30 access unit(s). The ATE4 carries DTMF decoders X 4 to facilitate in band supervision of critical paths between the port and the remote VA30 access unit, a cable or VAP30 failure will illuminate LED trouble status indication.

Connection diagram



Remote status display

The ATE4 is fitted with an integral status display output allowing all onboard indication to be routed to a remote diagnostic panel type ATE44-44D.

Status Display Panel ATE4-44D

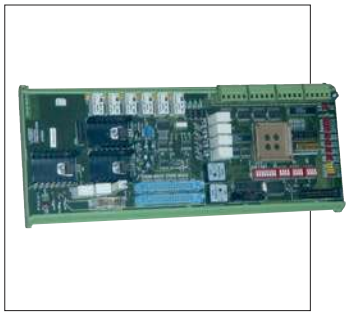
The ATE4-44D is a 1 unit high standard 19 inch rack mount status indicator panel. The unit is designed to operate in conjunction with either ATE4 or ATE44E VAP30 expansion port and allows indications fitted as standard to the expansion port to be extended to the front face of the equipment rack, thereby facilitating convenient fault diagnostics.
The ATE4-44D is extended from the host expansion port via a standard 26 way IDC ribbon cable assembly which carries not only individual status drivers but also engineers' fault report reset facility enabling front panel restoration of expansion port supervisory. A single ATE4-44D can display status from up to two expansion ports.

Technical data

Supply	DC 48 V
Consumption	100 mA
Dimensions (width x height x depth)	125 mm x 342 mm x 52 mm (4.92 inch x 13.46 inch x 2.05 inch)
Weight	0.581 kg (1.3 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Terminal	4 x 26 way field cable plug/socket termination up to 2.5 mm^2 conductors
Number of subscribers	4

Technical data

Supply	Phantom powered from host VX/AT-M
Consumption	50 mA
Dimensions (width x height x depth)	483 mm x 44.5 mm x 50 mm (19.02 inch x 1.75 inch x 1.97 inch) (19 inch rack mount)
Weight	1.0 kg (2.2 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)



- Plug in/out no soldered joints/hard wiring
- Optically isolated interface
- LED status display

PSC VODEC design and manufacture a range of public address and alarm broadcast equipment developed specifically for the petrochemical industry. The PSC VODEC ATE44-E port is DIN rail mount snap on/off assembly located in the central equipment MDF and facilitates the connection of up to four VAP30 intrinsically safe ATEX certified microphone access units.

The ATE44-E port connects to the host VX/AT-M management by a plug in/out 34 way flat ribbon IDC cable, which can support up to four ATE44-E ports to give an ultimate capacity of sixteen VAP30 access units. The ATE44-E is fitted with four channels corresponding to four VAP30 access unit inputs. To assure intrinsic safety each channel is assigned a MTL7758 or (equivalent) I.S. barrier set. Each operator access unit shall be fitted with VAP100E transceiver modules to allow communication with the ATE44-E. A remote status display panel is extendable from ATE44-E type ATE4-44D.

Technical data

Supply	DC 48 V from host VX/AT-M switch
Consumption	200 mA
Signalling protocol	Full duplex DTMF in band signalling
Dimensions (width x height x depth)	111 mm x 252 mm x 60 mm (19.02 inch x 1.75 inch x 1.97 inch)
Weight	0.48 kg (2.2 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Connection diagram

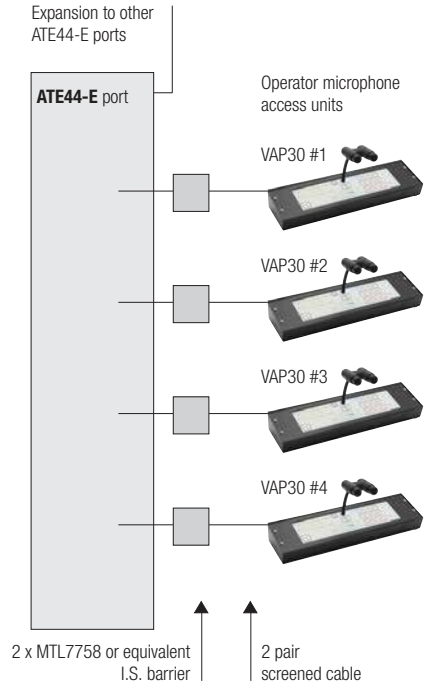
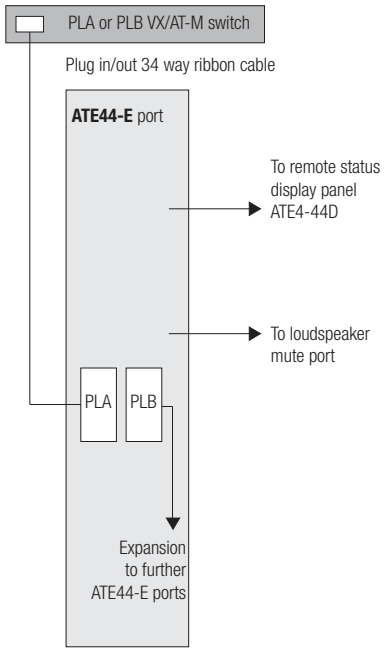


Diagram I



Status Display Panel ATE4-44D

The ATE4-44D is a 1 unit high standard 19 inch rack mount status indicator panel. The unit is designed to operate in conjunction with either ATE4 or ATE44E VAP30 expansion port and allows indications fitted as standard to the expansion port to be extended to the front face of the equipment rack, thereby facilitating convenient fault diagnostics.
The ATE4-44D is extended from the host expansion port via a standard 26 way IDC ribbon cable assembly which carries not only individual status drivers but also engineers' fault report reset facility enabling front panel restoration of expansion port supervisory. A single ATE4-44D can display status from up to two expansion ports.

Technical data

Supply	Phantom powered from host VX/AT-M
Consumption	50 mA
Dimensions (width x height x depth)	483 mm x 44.5 mm x 50 mm (19.02 inch x 1.75 inch x 1.97 inch) (19 inch rack mount)
Weight	1.0 kg (2.2 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

- Lightning protection
- Glass fibre construction
- High reliability, minimal down time

The VAP30-20 Port is a DIN rail mount module which facilitates termination of a Vodec VAP30-20 twenty zone operator access unit, the VAP30-20 port consists of a robust "pod" which carries:

a) Field cable terminal connector block
b) Internal ribbon able connection headers

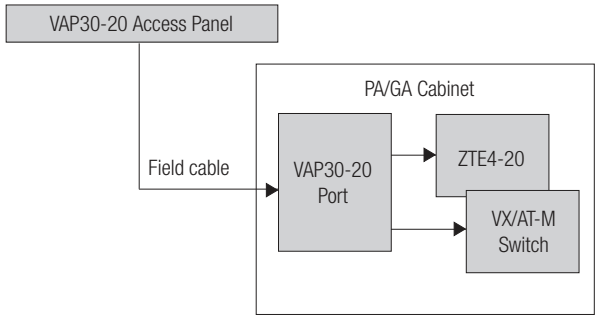
The VAP30-20 port is fitted with a 41 way terminal block capable of accepting up to 2.5 mm^2 cross sectional area conductors. Critical control lines are each protected by gas discharge tube devices to improve equipment reliability when used in areas where lightning discharge activity is possible.

The unit is intended to operate in conjunction with VAP30-20 membrane fitted with a VAP100d-20 transceiver.

The VAP100d-20 is fitted with 40 x terminals TSA 1 – TSA 40 corresponding to VAP30-20 port TSA 1 – TSA 40. TSA 41 on the VAP30-20 port is reserved to enable termination of the field cable screen/shield.

The VAP30-20 port is connected to the host management by a 34 way twisted ribbon cable terminated on 'PLB' and a 20 way flat or twisted ribbon cable terminated on PLA carries zone select data to ZTE4-20.

Connection Diagram VAP30-20 Port



The VAP30 port is a clip on/off DIN rail mount module, designed to locate in a PAGA MDF (termination chamber). The port provides termination of a simple Vodec operator access units type VAP30 fitted with either VAP100c or VAP100d transceiver.

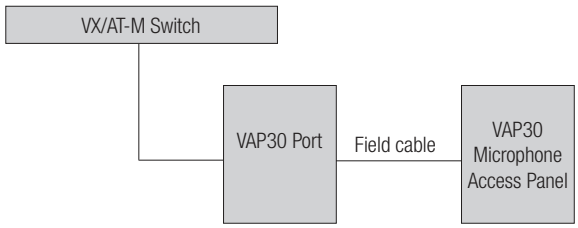
The unit facilitates filed cable connection of up to 2.5 mm^2 conductor core size and interfaces this cable to plug in/out ribbon cable which transports data and audio to the host management system VX/AT-M.

The VAP30 port incorporates gas discharge lightning protection on all input/output lines thereby ensuring reliable system operation in aggressive environmental/climatic conditions.

Each conductor termination is individually isolated by integral knife switches enabling the engineer to easily service field cable conductors.

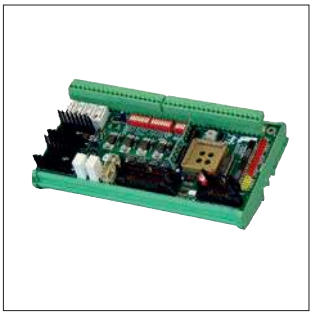
Test points allow plug in test equipment without recourse to cable disconnection or having two wires in a terminal.

Connection Diagram VAP30 Port



Technical data

Dimensions (width x height x depth)	125 mm x 222 mm x 60 mm (4.92 inch x 8.74 inch x 2.36 inch)
Weight	0.5 kg (77.2 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)



- Duplicated microphone transducers
- Monitored microphone voice coil
- Easy installation, low cost, simple installation

Explosion protection VAP01

Marking ATEX	Ⓔx II 2G Ex ib IIC T4
Certification	ITS 09 ATEX 26420
Marking IECEx	Ex ib IIC T4 Gb
Certification	IECEx ITS 14.0009

Technical data VAP01

Mains supply	phantom powered DC 5 V
Current consumption	approx. DC 20 mA
Output to line	0 db (770 mV RMS)
Frequency response	100 Hz to 10 kHz
Microphone	hyper-cardioid response noise cancelling type
Number of push buttons	up to three push buttons
Dimensions (width x height x depth)	260 mm x 175 mm x 160 mm (10.24 inch x 6.89 inch x 6.30 inch)
Weight	2.5 kg (5.5 lbs)
Temperature range	-40 °C to +60 °C (-40 °F to+140 °F)
Colour	black
Material enclosure	GRP Glass re-enforced polyester
Gland entry	2 x M20
Humidity	up to 100 %
Protection class	IP 66

Technical data ATE1

Supply	DC 48 V
Consumption	100 mA
DTMF resolution	50 mV RMS
Phantom supply	DC 6 V
Dimensions (width x height x depth)	483 mm x 220 mm x 120 mm (19.02 inch x 8.66 inch x 4.72 inch) (19" rack mount, 2 units)
Weight	0.46 kg (1.0 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Location	safe area within cabinet
Terminals	40 x field cable termination up to 2.5 mm² conductors

The VAP01 is a rugged corrosion proof microphone unit designed to allow public address/paging system access in external hostile climatic conditions. The VAP01 can be supplied certified to provide safe operation in potentially explosive atmospheres and is ATEX & IECEx certified accordingly. The robust glass reinforced polyester enclosure is equipped with up to three push buttons. Up to two hyper-cardioid noise cancelling microphones are fitted behind a protective wire guard, which can be arranged to each drive, dedicated amplification and loudspeakers.

The VAP01 is equipped with a high performance line driver. The line driver enables the unit to be located remotely from the host loudspeaker amplification. Automatic monitoring is included to supervise microphone voice coil, pre-amplification and critical paths to the central equipment. The access unit VAP01 requires no local mains supply, the unit is energised by phantom power sourced from the host central equipment panel. The connectivity to the unit is via a twisted pair for either the VAP01-11 or VAP01-21 variants and two pairs for either the VAP01-12, VAP01-22, VAP01-13 or VAP01-23 variants.

Up to 2 x VAP01 access panel can be connected directly to the PA/GA system through the 2IP interface ports. For higher quantity access panel need to be connected through the ATE1 which is a clip on/off DIN rail mount port which is designed to extend a PSC VODEC VX/AT-M switch to allow connection of up to four VAP01 public address microphone access units. The ATE1 comprises of a rugged DIN rail mount PCB carrier, field cable terminal assembly and on board switching matrix. An array of LED indicators provide the engineer with ATE1 operation status and DIL switches allow the engineer to enable or disable ATE1 features to meet specific applications.

Further ATE1 ports can be cascaded up to a maximum of four models, inter port connectivity is by plug in/out flat IDC ribbon cable enabling simple expansion with minimal hardware impact. The ATE1 is managed by an on board processing subsystem that determines access priority, emergency/routine speech preference and system alarm tone control. Connection to the ATE1 from the host VX/AT-M switch is by single 34 way IDC plug in/out ribbon cable assembly. Connection to other ATE1 ports (where more that four VAP01 microphones are required) is by identical 34 way IDC ribbon cable enabling simple expansion with minimal hardware impact. Power supply is derived from the VX/AT-M management switch which is stepped down to provide DC 6 V to supply the VAP01 access unit(s).

The ATE1 also provides drive output to allow direct control of loudspeaker muting relays on the PSC VODEC Loudspeaker mute port. This enables loudspeaker(s) in the vicinity of a live VAP01 access unit to be disabled for the duration of the broadcast from the active VAP01 thereby obviating risk of acoustic feedback.

The ATE1 also allows connection of up to four intrinsically safe LED system status indicator units (PSC ComEx control stations).

Loudspeaker Mute Port LMP

- Test disconnect termination
- Switch and plug link compatible
- Easy service, minimal downtime

The PSC VODEC **Loudspeaker Mute Port** disables loudspeakers in the vicinity of a live operator M-VAP/VAP30/VAP01 microphone access panel to prevent the detrimental effects of acoustic feedback. The unit is designed for snap on/off industry standard DIN rail mounting and comprises of a robust glass fibre printed circuit card which is equipped with 100/70 V line plug/socket input terminations and „controlled loudspeaker" circuit output terminals. The loudspeaker mute port is intended to be located in the PA/GA central equipment system MDF or termination compartment. Up to four discrete muting outputs can be driven from any VA300+ amplifier CAGE without recourse to additional hardware fitted (each corresponding to operator access unit input in to the PSC VODEC VX/AT-M central PA/GA processor).

The unit incorporates an engineers switch bank that allows selection of high or low priority access inputs. Muting can be derived from any VA300+ amplifier fitted within a VA300/CAGE+M to ensure that the mutable loudspeaker resides in the correct zone of address for the particular site PA/GA configuration. This is engineer selectable by an on board plug link patch field which enables any mutable loudspeaker circuit assignment without rack wiring or alteration. Muting is actioned under control of the VX/AT-M switch, via a flat insulation displacement ribbon cable, which enables multiple Loudspeaker Mute Port to be cascaded without additional cubical wiring. Mutable loudspeaker control is managed by high reliability fail-safe, (normally de-energised, energised to „mute") sealed relays. Line output terminations to the individual mutable loudspeakers each incorporates a test connect/disconnect switching feature to allow the engineer to isolate line(s) during maintenance/ commissioning operations. It should be noted that each host VA300+ amplifier is capable of supervising up to eight loudspeaker circuits enabling mutable loudspeaker lines to be included in the automatic monitoring scheme if required. In this case mutable loudspeakers require fitting of EOL02 or EOL04 end of line supervisory devices.

Technical data

Working voltage	70/100 Volt line
Number of outlets	4 mutable outputs
Number of amplifier inputs	8
Dimensions (width x height x depth)	222 mm x 60 mm x 125 mm (8.74 inch x 2.36 inch x 4.92 inch)
Weight	0.38 kg (0.8 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Local Mute Interface LMI

- Fail safe operation
- Compact and leight weight

The PSC VODEC **Local Mute Interface** port is a DIN rail mount snap on/off assembly that enhances the capabilities of up to four ATE44E expansion ports. The unit is designed to be located in the central PA/GA system main distribution frame (MDF).

The module expands the local mute capabilities of the VAP30-06, and connects between the ATE44E and the Mutable Loudspeaker Port. A further 3 x Local Mute Interface modules can be fitted to facilitate up to sixteen VAP30-06 operator access unit positions.

Each Local Mute Interface module can manage a single ATE44E and a single Mutable Loudspeaker Port. The first Local Mute Interface module has no connections to 'previous' modules, whilst the last module has no connections to the 'next' module.

The connections between the ATE44E, VX/AT-M, VA300/CAGE+M, Mutable Loudspeaker Port & loudspeakers are as per standard practice. Currently the Local Mute Interface does not support more than 6 zones.

The setting for VAP30/VAP01 priority must match the system configuration; typically, an alternative VX/AT-M FPGA is required.

Technical data

Supply	DC 36 V to DC 75 V
Maximum Supply Current	0.1 A (per LMI)
Dimensions (width x height x depth)	148 mm x 126 mm x 62 mm (5.83 inch x 4.96 inch x 2.44 inch)
Weight	0.18 kg (0.4 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Location	safe area within cabinet

- Modular design eliminates wiring looms
- Fully protected on board fusing
- Fully monitored critical path

Technical data

Supply	DC 48 V, AC 110/120 V, AC 220/240 V
Maximum load per outlet	1.8 kVA (non-inductive)
Number of outlets per port	2
Fuse rating each outlet	8 A Anti-surge
Dimensions (width x height x depth)	125 mm x 220 mm x 87 mm (4.92 inch x 8.66 inch x 3.43 inch)
Weight	0.5 kg (1.1 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Location	safe area within cabinet
Connections	10 way ribbon header for host communications 10 mm connection capability for ains supply input 2.5 mm connection capability for each beacon control outlet

The beacon control port comprises of a compact DIN rail mount snap on/off assembly which houses a single glass fibre printed circuit card. Mains power supply is terminated on to 10 mm² cable conductors. Each Beacon control outlet is discretely fuse protected on board by industry standard cartridge fuse links.

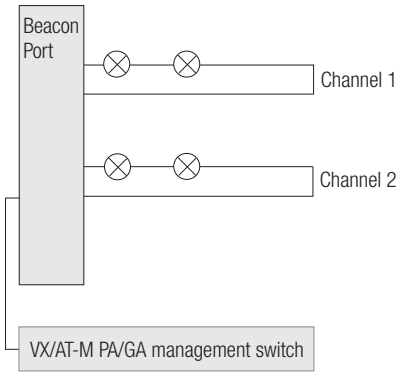
Connection to the host management switch is via a plug in/out flat (ribbon insulation displacement) cable. This cable carries control signal initiation for each port outlet, both for supervisory checks and operation during an alarm or emergency broadcast it also facilitates beacon line monitor "trouble" status hand shake back to the host system management. Supervision is by momentary application of mains supply to the beacon cable networks initiated by the management switch, correct "end of line" voltage is sensed by optically coupled devices with resulting go/no go status returned to host management switch. A supervisory cycle is initiated automatically by the switch for 0.25 seconds at 600 second intervals.

Two banks of switches are fitted to the port to enable the commissioning/service engineer to:

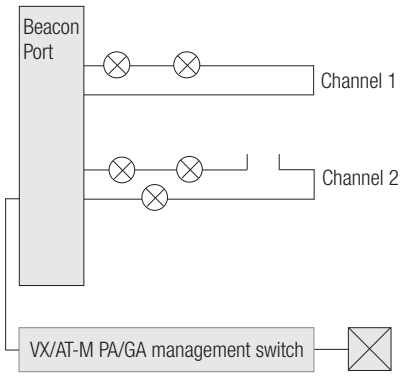
- Declare which broadcast condition will initiate which beacon port outlet
- A second switch bank enables the engineer to route the beacon port fault report output to the next available supervisory input on the host VX/AT-M management switch A VX/AT-M switch can manage up to four beacon ports without recourse to additional expansion hardware.

  Control and supervisory connectivity is by loop in/out 10 way five ribbon cable which interconnect each port and the host switch.

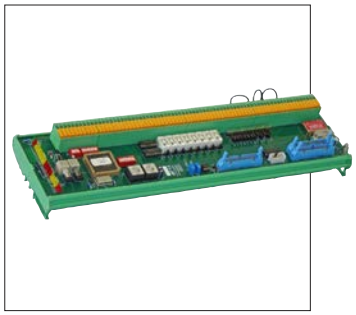
Beacon port showing flashing beacons wired on a "loop" basis.



Beacon port "self healing" drive to both ends of the beacon loop thereby maintaining service in event of a single cable break.



Interface Port 2IP



- Allow termination of field cables up to 2.5 mm^2 CSA/conductor
- Rapid installation/service
- Simplifiers maintenance

Technical data

Supply	DC 48 V from host VX/AT-M switch
Power consumption	1.8 kVA (non-inductive)
Inputs	Plug link configurable: normally open, normally closed, voltage activated, voltage reversal activated x 12
Auxilary inputs	2
Status inputs	Alarm cancel, important message, zone 1-4 status, auto initiated alarm, fault status, PAGA busy, alarm 1-3 initiated.
Fibre optic input	1 multi mode
Outputs	Plug link configurable: normally open, normally closed volt free contact rated 1 A (at DC 48 V) non inductive x 8
Outputs zone control	4
Beacon port control output	4
Fiber optic output	1 multi mode
Fibre Connector Type	ST
Fibre type	multi mode 62.5/125
Weight	1.0 kg (2.2 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Location	safe area within cabinet
Dimensions (width x height x depth)	125 mm x 312 mm x 65 mm (4.92 inch x 12.28 inch x 2.56 inch)

The 2IP port is designed to provide connection between PSC VODEC PA/GA System and other external site systems, for example Fire and gas detection panel.

The 2IP port comprises of a rugged DIN rail mount carrier which is located in the central PA/GA panel MDF (main distribution frame). Connection to/ from the port is by field cables and plug in/out ribbon cable for internal signal communications with the host rack equipment.

The 2IP port allows connection of:

- Supervisory relay contacts – fault reporting
- Entertainment mute contacts – mute entertainment in event of an emergency broadcast
- Event recorder output – black box recording of PAGA broadcast traffic
- Fire and Gas detection alarm initiate input – Automatic initiation of alarm tones
- Muster point access units type VAP01 – simple ATEX certified emergency voice access capability
- PABX/UHF radio input routine paging from telephone handsets or mobile radio
- Supervisory fault report contact output

Fire and Gas detection panel connection for up to 12 alarm initiate inputs which may be configured as „normaly open“, „close to initiate“ or „normally closed“, „open to initiate“, „voltage activated“ or „voltage reversal activated“ to initiate alarm tone selected.

The 2IP port carries VSOC (PSC VODEC system on a chip) enabling complex cause and effects to be implemented with respect to automatic alarm initiate inputs.

The port also carriers choice of either coooper or fibre connectivity for A+B dual redundant alarm synchronisation data, in the event that fibre is the chosen transportation medium a fibre is required A-B, or for ultimate security two fibres A-B and B-A.

- Allows any telephone sub-subscriber to address the site PAGA system
- Totally inhibits acoustic feedback
- Duplicated A+B PA/GA interface

Technical data

Supply	AC 100 to 250 V, 50/60 Hz, DC 24 V
Consumption maximum	20 W
Heat emission	5 W
Input interface, trunk	2 or 4 wire E and M port
Input interface, subscriber	2- wire subscriber
Output interface	2 x 0 dBM 600 Ohm audio lines 2 x Volt free change over contacts rated 0.25 A @ AC 24 V
Storage time	60 sec. 3.4 kHz
Bandwidth	3.4 kHz
Record volume control	high – low
Playback volume control	high – low
Monitor loudspeaker output	500 mW
Loudspeaker output impedance	8 to 16 Ohms
Dimensions (width x height x depth)	200 mm x 75 mm x 120 mm (7.87 inch x 2.95 inch x 4.72 inch)
Weight	1.7 kg (3.7 lbs)
Temperature range	-20 °C to +60 °C (-4 °F to +140 °F)
Humidity	up to 100 %
Environmental rating	IP 65
Enclosure material	ABS plastic

Zoned broadcasts

The MSR60 carries a DTMF decoder that enables subscriber broadcast area selectivity. For example a paging broadcast might only be required in a certain area of the plant, by keying a zone up to eight discretely selectable zones are possible with a single MSR60, i.e. dial “1“ = zone 1: dial “2“ = zone 2 and so on. The MSR60 incorporates a “real time“ monitor/censor facility, MSR/2C, that enables the operator to listen to the subscriber text as it is recorded by the store via an extension loudspeaker facility. In the event that the message being recorded is undesirable the operator can depress a RESET key which returns the store to quiescent. A second latching (press on press off) “DISABLE“ key allows the operator to inhibit the MSR60 facility completely. The optional MSR/2C monitor panel consists of a standard 19 inch 2 unit high panel which carries loudspeaker and operator push button controls, the MSR/2C monitor panel to the MSR60 voice store and telephone interface unit. The MSR60 is energised from AC mains supply via an integral universal supply converter which allows operation from power supply inputs raging from AC 100 V to 250 V without link selections. A secondary input is available allowing MSR60 to operate from DC 24 V mains supply.

The PSC VODEC MSR60 is a solid-state temporary voice store designed to completely eliminate acoustic feedback (Larsen effect) when PABX telephone subscribers are allowed access to a PSC VODEC PA/GA broadcast paging system. Without MSR60 live telephone handsets in the vicinity of public address loudspeaker would be prone to the detrimental affects of acoustic feedback with attendant corruption of the voice message broadcast. The MSR60 comprises of a rot proof rugged ABS plastic enclosure which houses a single motherboard based electronics module that carries field cable terminations, power supply and voice storage processor.

The unit is designed for safe area wall/bulk head mounting and should be ideally located adjacent to the PABX switch. MSR60 is designed to interface to the PABX switch by either “2/4-wire E and M“ port or “2-wire subscriber“ line. Output interface to the host paging broadcast system is by 0dBm audio line and dry “push to talk“ PTT contact.

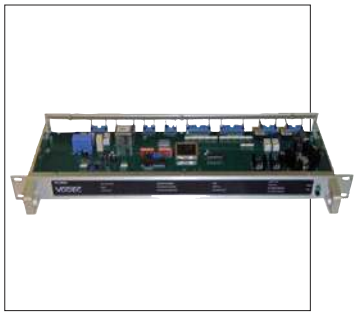
Note: the unit is equipped, as standard, for duplicated A and B system execution; hence 2 x fully isolated audio and PTT contacts are fitted to enable independent host control (thereby possibility). Connection between the MSR60 and host PA/GA rack is by 2 x pairs of conductors per A and B PA/GA system.

The unit operates as follows:

- Telephone subscriber dials the number corresponding to the MSR60 PABX port input (this is programmed in the PABX switch, e. g. 555 is dialled to access the PA/GA system).
- The MSR60 is accessed by the PABX and returns a short prompt tone to the subscribers earpiece via the PABX.
- Subscriber issues message which is stored in MSR60 semiconductor memories, (up to 60 seconds of text can be stored) with a second prompt tone given to the subscriber after 50 seconds, to flag memory expiry imminent.
- Upon subscriber returning the handset to cradle, the MSR60 now replays the stored message over the broadcast system loudspeakers.

MSR60 incorporates a high performance speech processing sub-system that includes AGC (automatic gain control) essential for maximising amplifier efficiency and a wide bandwidth speech storage medium, which assures high voice intelligibility. The engineer is able to configure the MSR60 to deliver the stored message once, twice or four times depending on tamper proof switch settings.

Telephone Interface TSR60



- Allows any telephone sub-subscriber to address the site PAGA system
- Totally inhibits acoustic feedback
- Highest intelligibility of speech

The PSC VODEC TSR60 is a non-volatile message record/playback device designed to store and re-play telephone handset input high definition speech over a Vodec PA/GA (Public Address and General Alarm system) broadcast system. The unit obviates the detrimental effects of acoustic feedback due to the proximity of live telephone subscriber handsets to PA/GA loudspeakers. The TSR60 comprises of a 19 inch 1 U rack mount enclosure which carries integral LED status display and plug in/out flat ribbon cable connectors which facilitate rapid installation, service and connection to the host system.

Technical data

Supply	DC 48 V from host VX/AT-M switch
Consumption	5 W
PABX interface	2 wire analogue subscriber 4/2 wire E & M trunk
Frequency response	200 Hz up to 3 kHz
Dimensions (width x height x depth)	483 mm x 44.5 mm x 150 mm (19.02 inch x 1.75 inch x 6.30 inch) (19" rack mount)
Weight	0.5 kg (1.1 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Temperature range	-20 °C to +60 °C
Heat emission	3 W
Store time	120 sec.

Installed CCD memory device records up to 120 seconds of speech under control of VSOC (Vodec System On a Chip) which eliminates dependence on conventional microprocessor/controller sequentially executed code. The TSR60 accepts 2/4 wire E&M or 2 wire subscriber interface from the site telephone PABX. The TSR60 enables the user to determine both the priority level of the intended message broadcast and the target zone of address. Configuration selection within the unit allows default low priority routine broadcast to all zones except zone 1, however (zone 1 on PA/GA is normally reserved for those sites where routine broadcasts are inhibited to certain locations e.g. sleeping quarters) the TSR60 can be set to direct stored massages to all zones on a high priority emergency speech basis. This can be featured as a default or under control of the set by appending digits 00 to the telephone interface access number when prompted to do so. When the TSR60 is used in conjunction with ZTE4-20 the telephone user can direct the stored message to a menu of pre-selected zone(s) of address replay to a particular loudspeaker group.

The TSR60 is fitted with tamperproof configuration switches that allow the engineer to pre-select features including the following:

- “Message replay repeat“ – message is broadcast one, two or three times
- 2 wire subscriber or 2/4 wire E&M PABX interface
- “Maximum store time limit“ – limits record time to 8 seconds maximum to prevent recording of lengthy messages
- “DTMF record time sequence control“ – enables the user to terminate message recording by telephone keypad entry
- Enable or disable a pre-announcement chime
- Select normal operation or live voice broadcast

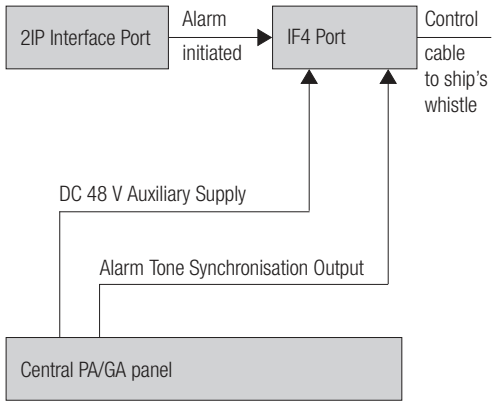
The real time monitor facility enables a normally manned operator position to listen to messages being recorded into the TSR60 prior to PA/GA system broadcast. Undesirable messages can now be deleted by the operator before distribution to the PA/GA loudspeaker networks.

- Simple Interface to Host PAGA
- Rapid installation
- LED status display indication

Technical data

Supply	DC 48 V from host VX/AT-M switch
Consumption	50 mA
Input 1	Alarm synchronisation 70/100 V loudspeaker line. Load to line is 0.5 W
Input 2	Alarm activated – normally open contact closes during PA/GA alarm tone broadcast
Output to ship whistle	Normally open contact, closes when alarm tone broadcast. Rated DC 24 V, 0.25 A earth/volt free
Dimensions (width x height x depth)	483 mm x 44.5 mm x 150 mm (19.02 inch x 1.75 inch x 6.30 inch) (19" rack mount)
Weight	0.5 kg (1.1 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

IF4 PAGA rack implementation



The IF4 is a DIN rail mount robust module designed to locate in a central Public Address and General Alarm PA/GA MDF.

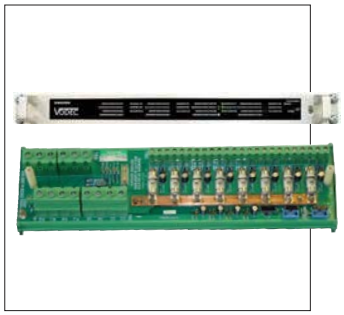
The IF4 is designed to control an external ship's whistle in synchronisation with PA/GA system alarm tone cadence broadcast. The interface is implemented by a volt/earth free normally open contact which is extended from the IF4 to the ship's whistle control panel.

The IF4 interface contact is rated at DC 24 V 0.25 A non-inductive form „A". (normally open) and changes state in synchronisation with the broadcast alarm tone.

The IF4 is connected to the 2IP interface port and broadcast 70/100 V line to source the PA/GA alarm tone cadence and to determine "alarm initiated" status.

Ship Whistle output enable is conditional on the presence of
a) "Alarm initiated" contact closed
b) Alarm drive audio output.

The unit is energised from the host PA/GA panel DC 48 V VA300/CAGE-M management auxiliary supply output.



- On board fuse protection for each outlet
- Detailed diagnostic display monitors fuses, each input, each output
- No break “bump free“ power supply autonomy

Where a public address (PA/GA) system is installed to provide broadcast of potentially life saving emergency speech and alarm tone signals a high integrity configuration is required. This also extends to the AC mains supply energising the PA/GA package. For additional security it is possible to duplicate AC mains supply inputs “PRIMARY“ and “SECONDARY“ thereby ensuring continued PA/GA capability in event of failure of either AC supply input.

Technical data

ASD02

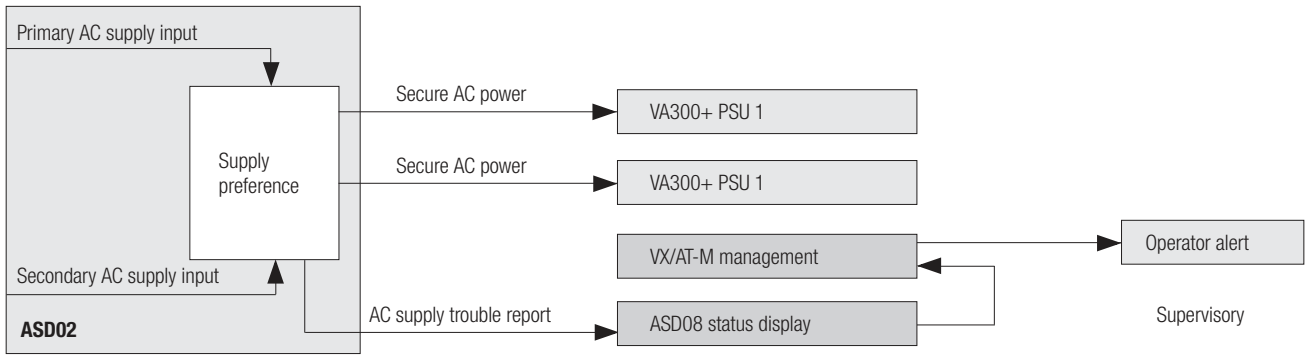
Dimensions (width x height x depth)	125 mm x 423 mm x 88 mm (4.92 inch x 16.65 inch x 3.46 inch)
Weight	2 kg (4.4 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Capacity	8 x supervised outlets each rated 25 A total module capacity is 125 A
Supply voltage	AC 110/120 V 50/50 Hz

ASD08

Dimensions (width x height x depth)	483 mm x 44.5 mm x 50 mm (19.02 inch x 1.75 inch x 1.97 inch) (19" rack mount, 1 unit)
Weight	0.5 kg (1.1 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Capacity	2 x ASD02 module
Supply voltage	DC 48 V derived from VX/AT-M host management system or VA300/CAGE

The PSC VODEC ASD02 automatically managements the selection of AC mains supply inputs and provides the engineer with details status display on a “front of rack“ LED annunciator panel type ASD08. The ASD02 provides eight independently fuse protected outputs. Which are assigned to VA300+PSU, amplifier power supply units, flashing beacon power supply and auxiliary devices. The ASD sub-system comprises of two parts i.e. ASD02 is a clip on/off DIN rail mounted assembly which facilitates termination mains supply inputs. The ASD08 power management LED annunciator comprises of a low profile 1 unit high 19 inch rack mount panel. With an integral display window it is fitted with secondary fault reporting contacts to enable possible interface to the site DCS/SCADA/Telecom supervisory package. On board high power supply management ensures galvanic isolation between the primary/secondary AC mains supply inputs and facilitates priority selection of online/standby power supply source. The ASD02 carries on board neon indicator sets to facilitate rapid fault finding and service and dedicated high rupture capacity cartridge fuses provide supervised protection for each supply output. Display is extended from the ASD002 via optically isolated outputs which control a rack mount ASD08 LED annunciator display units. A tamper proof test switch is fitted to ASD02 to enable the engineer to manually check the operation of the target PA/GA system on the hot-standby mains supply.

Configuration



Supply Port 48 V DC

- Onboard fuse protection per amplifier
- Onboard power distribution
- Plug/Socket connection

The PSC VODEC DC 48 V Port is a DIN rail mount clip on/off assembly designed to allows PSC VODEC VA300/CAGE+M and associated amplification to be energised directly from a DC 48 V mains supply input.

The unit facilitates DC power distribution to eight VA300+M amplifiers from a single DC mains supply input source. Each output (8) is independently fuse protected and colour coded. Status LED's provide the engineer with convenient supply available/fuse fail indication for each 48 V DC outlet.

Technical data

Supply	DC 48 V
Capacity	8 x VA300+M amplifiers
Protection	8x 15 A 20 mm HRC fuse
Status Indication	8 x supply outlet on 8 x supply outlet fuse fail
Dimensions (width x height x depth)	125 mm x 140 mm x 60 mm (4.92 inch x 5.51 inch x 2.36 inch)
Weight	0.5 kg (1.1 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Zones Expansion Port, Units

20 Zones Expansion Port VAP30-20

- 20 zones broadcast
- Easy configuration
- Din rail mount

The VAP30-20 Port is a DIN rail mount module which facilitates termination of a VAP30-20 twenty zone operator access unit, the VAP30-20 port consists of a robust “pod” which carries:

a) Field cable terminal connector block
b) Internal ribbon able connection headers

The VAP30-20 port is fitted with a 41 way terminal block capable of accepting up to 2.5 mm^2 cross sectional area conductors. Critical control lines are each protected by gas discharge tube devices to improve equipment reliability when used in areas where lightning discharge activity is possible.

The unit is intended operate in conjunction with VAP30-20 membrane fitted with a VAP100d-20 transceiver.

The VAP100d-20 is fitted with 40 x terminals TSA 1 – TSA 40 corresponding to VAP30-20 port TSA 1 – TSA 40. TSA 41 on the VAP30-20 port is reserved to enable termination of the field cable screen/shield.

The VAP30-20 port is connected to the host management by a 34 way twisted ribbon cable terminated on “PLB” and a 20 way flat or twisted ribbon cable terminated on PLA carries zone select data to ZTE4-20.

Technical data

Supply	DC 48 V from host VX/AT-M switch
Dimensions (width x height x depth)	125 mm x 220 mm x 60 mm (4.92 inch x 8.66 inch x 2.36 inch)
Weight	0.5 kg (1.1 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Zone Expansion Units ZTE4 & ZTE4-20

- Plug in/out no programming
- Status display
- 1U high 19 inch rack mount

The ZTE4 & ZTE4-20 are a compact low profile 19 inch 1U (unit) high rack mount units which enables the expansion of VX/AT-M PA/GA switch from four broadcast zones of address to seven (ZTE4) or twenty (ZTE4-20) broadcast zones.

Both units carries a status display window which provides indication of zone(s) selected, critical input status and engineers test facility.

The zone expansion units are connected to the host management VX/AT-M switch by plug in/out ribbon cable connections which enables very rapid installation and service.

Zone expansion is also available by using PAS88 unit which enables to provide up to 64 broadcast zones from 1 x VA300+M amplifier. See separate data sheet for more details.

Technical data

Supply	DC 48 V phantom powered
Current consumption	200 mA
Number of zones	ZTE4 - 4 zones ZTE4 - 20 - 20 zones
Dimensions (width x height x depth)	483 mm x 44.5 mm x 160 mm (19.02 inch x 1.75 inch x 6.30 inch) (19" rack mount, 1 unit)
Weight	≤ 2 kg (4.4 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

Communication port COM2

- Allows connection of multiple VX/S or RP8 to single VX/AT-M switch
- Allows connection of graphic equaliser or feedback destroyer
- Din rail mounted

The COM2 is a DIN rail mount module designed to locate in a central PA/GA rack MDF (main distribution frame). The unit facilitates connection of VX/S page/party switch(s) and a RP8/60 non volatile message store to a host VX/AT-M.

Basic VX/AT-M allows connection of only one source i.e. VX/S or RP8/60 where both page/party and stored messages are required access to a slave PA/GA rack a COM2 unit facilitates rack combined connection of the two sources.

The COM2 also allows convenient interposition of signal processing to either of the two input channels although such audio tailoring is targeted at the page/party input to obviate acoustic feedback from handsets co-allocated to live paging loudspeakers.

The COM2 plugs to the host equipment via 3 X 16 way ribbon connectors one 16 way ribbon cable to the Vodec VX/AT-M PA/GA management host second 16 way ribbon cable to VX/S page/party switch, third 16 way ribbon cable to RP8/60 message store.

The COM2 module allows convenient implementation of A+B PA/GA architecture by providing galvanically isolated drive output which is terminated in the remote 'B' rack on a 16 way breakout port.

Technical data

Supply	DC 48 V from host VX/AT-M switch
Dimensions (width x height x depth)	125 mm x 220 mm x 60 mm (4.92 inch x 8.66 inch x 2.36 inch)
Weight	0.5 kg (1.1 lbs)
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)

- Distributing of public adress broadcasts
- Open channel communication
- Indoor, outdoor, ATEX stations
- cost effective S/UTP cabling

The PSC VODEC integrated PA/GA and Page/Party system offers simple to use functionality utilising open channel handset communications and loudspeaker broadcast paging capability, integrated into a simple and easy to use package. This System enhances the user friendliness of traditional systems by the introduction of “Single Button Paging“ – allowing telephone sub-system paging broadcasts over the PA system to be initiated via one pushbutton. This is in addition to fully selective “point to point“ two way voice communication realised via modern PABX switching technology.

This System has no special cable requirements (operates over two non-critical cable pairs with overall shield) enabling multiple simultaneous private conversations, trunk line expandability to other PABX central switches or Public Address live voice, alarm broadcast and open channel “Page“ communications. Amplification is mounted centrally, giving the benefit of unlimited power capacity with no restrictions relating to the number of outstations whilst offering simple and convenient servicing.

A system consists of sub-scriber outstations, the system range includes:

- Indoor desk/wall mount handset suitable for control rooms, offices, switch rooms.
- Weather proof/bulkhead mount handset suitable for exposed locations, machinery rooms, process areas.
- Explosion proof/bulkhead mount handset suitable for sitting in all zone 1 IIC explosive locations (ATEX and IECEx certified).

VAP30 access panel

VAP01 Access Panel

PA/GA SYSTEM BASIC OPERATION

The operator can initiate live voice routine announcements to a menu of independently addressable paging zones by depressing the required zones of address and selecting the push to talk key.

- Paging chime initiation automatically precedes voice broadcasts
- Emergency speech is distributed to all zones on a priority basis upon preselection of the “important message“ key

- The user selects emergency speech button and live voice access is granted on a priority basis to all zones of address (Routine access is pre-assigned to zone 2 to 4 under one routine push to talk button action)
- Evacuate alarm is initiated to all areas by momentary depression of a dedicated button

VXS

CENTRAL EQUIPMENT CORE

VXS Allows connection for up to sixteen telephone stations and is expandable to 1024 subscribers in sixteen channel increments by specifying additional VX switches as required. The VXS switch can be stand alone with all (sub)systems connected or integrated into a PSC VODEC PA/GA public address and alarm system to form a complete supervised paging and alarm broadcast package. The PABX facility enables regular telephone communications with all subscribers and operation is identical to a standard telephone system.

PORTS

VX switches are designed to plug in/out of the host equipment cubical to facilitate service, it is impractical to terminate plug/socket connectors directly to field cables hence an interposing termination field is required. VXS is connected to subscribers and PABX switch via termination “break out“ ports that convert insulation displacement ribbon cables (IDC) to conventional screw terminals suitable for connection of, for example, standard ship/offshore cable conductors.

VX/AT-M Public Address and General Alarm

VX/AT-M carries the following facilities:

Up to two master access panel positions type VAP30 can be connected allowing the operator to discretely address up to four independent paging zones, initiate and cancel alarm tone signals manually, attenuate control facility (to reduce alarm tone loudspeaker sound pressure to a pre set level), select emergency priority paging and also determine overall paging system status. Up to two emergency/ routine “group call“ voice access units type VAP01 provide emergency voice access, routine paging (on a low priority basis) and initiation of evacuate/abandon alarm tone. Eight alarm tones are incorporated preassignable IMO and PFEER (i.e. four tones in each selection group). Alarms are each automatically initiated from volt free dry contacts, in addition to manual initiation of alarm 1 to 3 from VAP30 and alarm 1 from the VAP01. VX/AT-M incorporates reliable and sophisticated signal processing to assure the highest possible intelligibility of paging speech. VX/AT-M carries a menu of preannouncement signals (to alert listeners to a voice-paging broadcast) and also incorporates a comprehensive automatic supervisory to provide the operator with an early warning of voice/alarm system deterioration. VX/AT-M drives integral front panel status display which provides rapid maintenance and facilitate service. The unit is fitted with interface ports as standard to allow connection to other site systems including, fire and gas detection package, entertainment system, SCADA and event recording facility.

EXTERNAL SYSTEMS

- **Fire and Gas panel**
  The Fire and Gas panel can automatically initiate alarm tone menu by interposing volt free relay contact interface. Alarms are issued to all zones, cadence and frequency comply with IMO/NORSOK/PFEER regulations.
- **Entertainment system**
  Volt free muting contact to disable the entertainment package(s) during broadcast of alarms and emergency speech.
- **Event recording**
  A Volt free recorder start stop contact plus 0 dBm audio line to enable recording of all voice and alarm traffic for possible incident investigation.
- **Supervisory**
  The VX/AT-M provides a volt free contact fault report summery to remote paging and alarm system trouble warning.

- Non critical field cable requirement
- Open channel communications
- Safe and hazardous area certified stations
- Low cost installation
- Hazardous area communications

The PSC VODEC VXS based paging/intercom system facilitates the following communication plan specifically for offshore/petrochemical installations:

- All call paging on two priority/ zone levels,
  i.e. Routine page all subscribers,
  Emergency page all subscribers
- Open channel “party“ communications
- Point to point selective handset to handset communications (as on option)

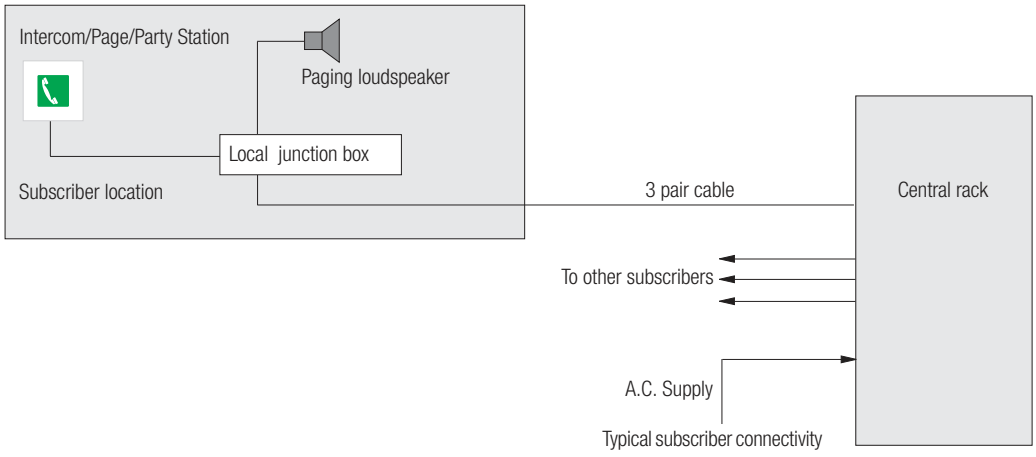
The system supports a range of subscriber access positions and is expandable up to 1012 stations.

The VXS consists therefore of:

- Central equipment rack
- Subscriber station:
  - Safe area/office style
  - Weatherproof/marine outdoor protected
  - ATEX certified Zone 1 protected

Connectivity is by a non critical two pair cable which can be CAT5 or similar telephony cable. The system allows loudspeaker voice paging to all or a nominated subscriber group, access is on a priority basis which ensures only one subscriber can address the intercom paging loudspeakers at any one time. Priority is configured either on a “first come/first served“ basis or on a “descending“ access basis. Open channel party line communications allow hot line handset to handset two way full duplex speech on a non private basis. The VXS switch can be stand alone or integrated into a PSC VODEC PA/GA public address and alarm system to form a complete supervised paging and alarm broadcast package.

Diagram



- 8 party lines
- Dual priority emergency/ routine paging access
- Integrated status display
- Selective point to point communications
- Multiple simultaneous conversions
- Operational call and safety emergency access
- Private handset speech

The PSC VODEC VXS-8 is a compact 1 unit 19 inch rack mount unit designed to allow subscribers to address PA/GA broadcast loudspeaker networks and to support up to eight discrete party line communication channels. Each VXS-8 shelf provides connection for up to sixteen handsets with cascade switching capability to maximum of 512 stations. The unit is connected to the host panel by locking quick release flat ribbon cable connectors which enable rapid installation/service.

VXS-8 consists of a robust enclosure which houses a single surface mount (SMD) P.C. style motherboard, fascia mounted LED status display array and rear panel plug/socket connectors. The page/party system handsets are connected to the VXS-8 switch by a noncritical standard 2 twisted pair 18 AWG minimum size shielded/ screened field cable. No special multi core cables are required with this system. Field cables are landed onto VXS-8 port which is equipped with screw terminations ribbon cable conversion to allow direct connection to the VXS-8 switch. VXS-8 incorporates VSOC (PSC VODEC system on a chip) technology that obviates conventional software based solutions. This eliminates possible latent software bugs, software license requirements, reboot/boot ups following supply brown outs and vastly improves EMC tolerance. The VXS-8 switch extends paging capability to all handsets, enabling single button address of PA/GA system loudspeakers on a “push to page“ release to party basis. Possible risk of acoustic feedback due to proximity of a PA/GA loudspeaker to a live sub-scriber handset is obviated, by either real time muting (RTM), or digital delay feed forward (DDF). VXS-8 obviates antiquated technology, mechanical rotary switches and instead, employs modern vandal resistant push button key pads, which have become commonplace on conventional telephone apparatus. The VXS-8 switch also allows subscribers to establish point to point selective telephone PBX style communications, in addition to the embedded eight party line connectivity. This maybe be implemented by incorporation of an automatic telephone switch either within the PA/GA system or as an interface to a PABX external to the PSC VODEC package.

Technical data

Supply	DC 48 V + 15 %
Consumption	350 mA
Number of P3 subscriber inputs	16
Subscriber interface	4 wire
Weight	1 kg (2.2 lbs)
Dimensions (width x height x depth)	483 mm x 44.5 mm x 160 mm (19.02 inch x 1.75 inch x 6.30 inch) (19" rack mount)
Heat emission	2 W
Temperature range	0 °C to +50 °C (+32 °F to +122 °F)
Operating system	VSOC (PSC VODEC system on a chip)

VXS-8 subscriber operation

The VXS-8 system operates in three modes:

- Handset paging over secure PA/GA loudspeaker networks
- Open party line handset communications
- Point to point PABX based selective private handset communications

To enter “page“ mode, the subscriber lifts the handset and depresses “push to page“ button and maintains whilst delivering the paging message. Upon message completion the “push to page“ button is released. Paging is delivered to the PA/GA loudspeakers on a “routine priority“ level and is over-ridden by other higher priority PA/GA access sources. The VXS-8 allows the subscriber to manually select one of eight open channel party lines. Party lines are non private. To access the party bus switch the subscriber lifts the handset and depresses the party line button momentarily. The subscriber can then select the party line number as required. When the user returns the handset to the cradle hook the selected party line is released. It should be noted that party line talk time can be limited to obviate possible spurious party line engagement due to handset left off hook following a party communication. The user may “hop“ from party line to party line by repeating the party line process selection. The panel can be equipped with a PABX or can be interfaced to an external PABX switch. Where this facility is included the P3 subscriber can initiate point to point conventional selective telephone communications. At any time the subscriber can leave the PBX architecture and enter either page or party mode by depressing the appropriate page/party button.

The VXS-8 switch is fitted with a comprehensive LED display that clearly provides the following details:

- Subscriber page status routine/emergency
- Subscriber party bus selected status
- System status

The VXS-8 is connected to the host PA/GA system by a single ribbon cable which carries emergency, routine paging access as well as phantom DC 48 V power supply.

Diagram Simple diagram showing arrangement with integral PBX capability.

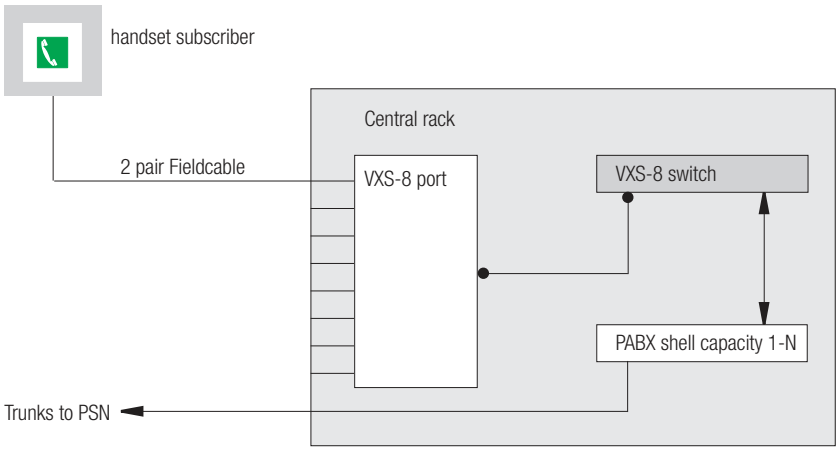
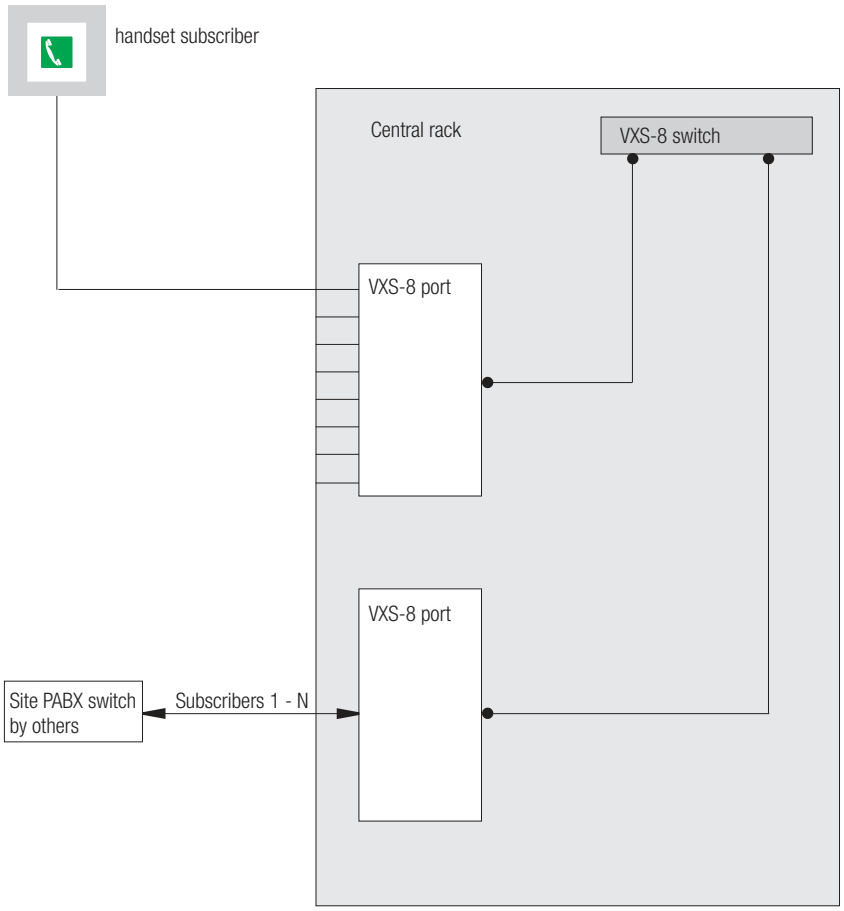


Diagram Simple diagram showing arrangement with externalPBX capability.



- Fully Monitored
- Automatic off-hook sensing
- VSOC operating system
- Fibre Optic connectivity
- Private handset speech

The HTM01 is a hotline telephone system that allows secure point-to-point communication between two HTM01-T telephone subscribers.

The system supports either copper or fibre-optic cable inter-station connectivity.

The HTM01 station comprises of two parts, i.e.:

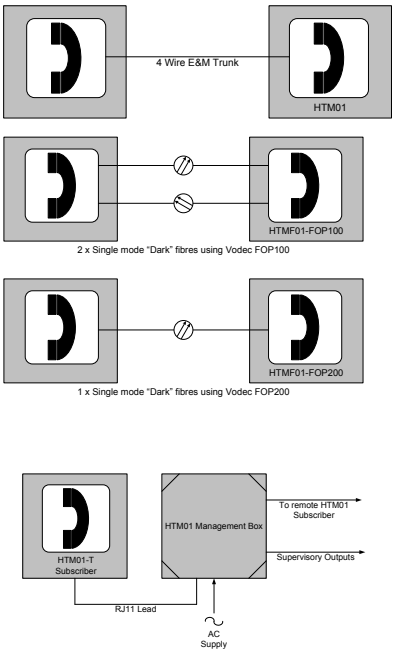
1) The HTM01-T handset
2) The HTM01 Management Box

Management box facilitates connection of the following:

1) HTM01-T subscriber (by RJ11 connector)
2) AC mains supply input
3) Either fibre or copper cable termination for remote subscriber connections
4) Fault report output termination

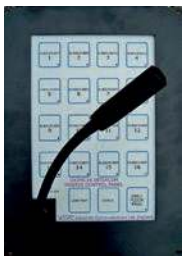
The management box performs line interface which may be 4 wire E&M (i.e. six conductors) or single mode “dark” fibre. AC mains supply is AC 230 V 50/60 Hz.
Please refer to PSC VODEC Data Sheet DS0242 –
PSC VODEC HTM01-T Hotline Telephone System Subscriber.
Set for further information.

Diagram



DRILLERS INTERCOM SYSTEMS

Drillers Talkback Intercom System DX3+1



- Hands-free operation
- 16 subscriber selectors fitted as standard
- Star wired system architecture
- Single pair field cables no multi-core or special cable
- Safe, simple communication
- Simple, easy maintenance
- Elimination of common mode failure

The PSC VODEC DX3+1 Driller's Intercom system has been specifically designed in conjunction with drilling operations to provide reliable, simple two way voice communications on board a drilling rig. The system is primarily designed to enhance health and safety on board the rig. It is developed to the same high standards of security as the PSC VODEC Public Address and General Alarm (PA/GA) System which is a prime life safety package. The DX3+1 system comprises of a central panel, (which carries switching and amplification) Driller's cabin master control, subscriber station(s) and paging loudspeaker(s).

The entire system is designed to facilitate control from the driller's position, to this end all stations are hands-free including the Driller's station.

The Driller position comprises of the following ATEX certified DX3+ apparatus:

- 200 mm/600 mm long reach gooseneck mounted intrinsically safe Exi microphone fitted to DX3MC16 control membrane panel
- Thigh/Knee/Foot Ex switch to facilitate communication control type KNS01
- Driller "receive speech" Ex Loudspeaker

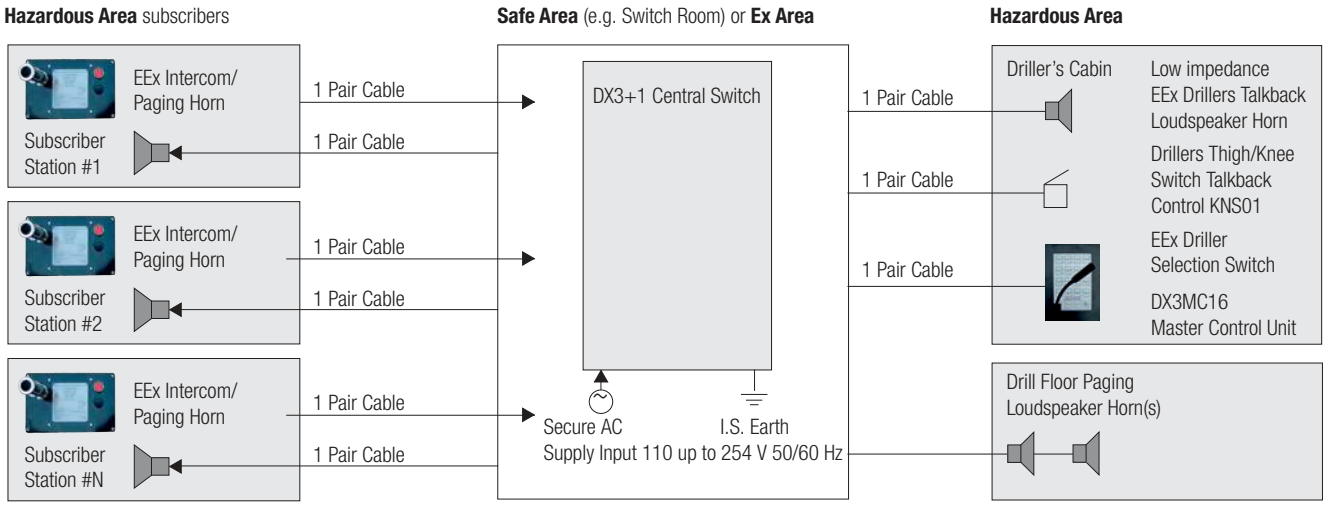
Subscriber stations

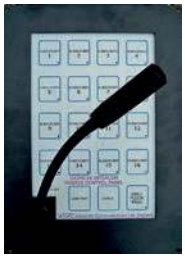
Subscriber positions comprise of glass reinforced microphone and loudspeaker unit with up to sixteen stations possible to connect to a single DX3+1 switch.

- VAP01-GO can be fitted where an extended reach microphone is required
- Simple subscriber unit with microphone and single button
- For certain locations, e.g. shale shaker, an acoustic shelter aids intelligible communications

The DX3+1 switch can support a Driller's cabin fitted with dual chairs. In this instance two KNS01 knee/thigh control switches and two master control access panels type DX3MC16 are installed to allow dedicated control to each chair.

Diagram of Hands-free Drillers Talkback Intercom System





- 16 subscriber selectors fitted as standard
- Single pair connectivity
- Membrane keyboard
- Simple system expansion
- Easy installation, rapid commissioning

The PSC VODEC DX3+1 is a driller's talkback intercom system designed to enable reliable safety critical two way communication between a master Driller's position and strategic rig locations. The DX3+1 system is managed and controlled from a DX3MC16 control panel which allows the driller to conveniently establish communication plans for hands-free operation.

Explosion protection

Marking	Ⓔx II 2G Ex ib IIC T4 -40 °C ≤ T_a ≤ +60 °C

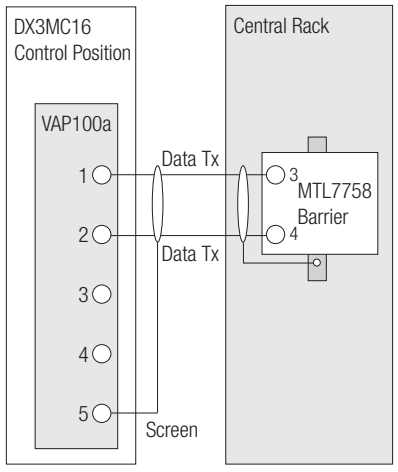
Technical data

ATEX certified	Zone IIC T4 Hazardous Area 1 Certification
Dimensions (width x height x depth)	250 mm x 350 mm x 55 mm (9.84 inch x 13.78 inch x 2.17 inch)
Weight	1 kg (2.2 lbs)
Finish	back enclosure electroplate steel
Power supply	DC 5 V phantom powered
Transceiver	VAP100a

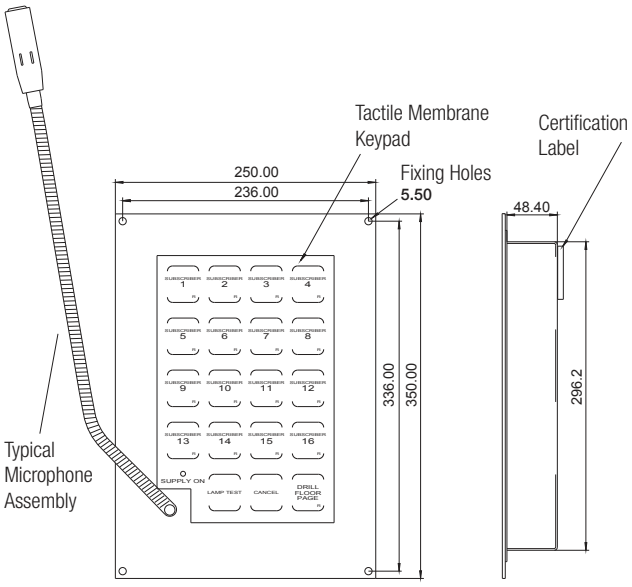
The unit comprises of a robust low profile enclosure which carries a tactile membrane keyboard (which is fitted with large illuminating subscriber channel selector keys) and an extended "long reach" gooseneck mounted noise cancelling microphone. The DX3MC16 is ATEX certified for safe use in a Zone 1 IIC potentially explosive atmospheres and is rated intrinsically safe when used in conjunction with PSC VODEC central equipment. The DX3MC16 is fitted with a PSC VODEC VAP100a transceiver which provides modular plug in/out interface facilitating rapid service. Connection between the control unit and the host DX3+1 central rack is by a single cable pair which carries phantom DC power supply, data and status indication control.

Diagram

shows connection of DX3MC16 master control unit linked to host equipment



Drawing



7

DSP-15EExmN(T)

25 W Ex plastic horn speaker. This versatile model can be ordered with different transformers for more tappings and power ratings. DSP-15 EExmN(T) is light and has M20 entries in the back lid for easy cable mounting. Extra termination space for loop in loop out purpose as standard. Now also with certificate for USA and Canada.

Explosion protection

Marking ATEX	Ⓔx II 2G Ex d e mb IIB+H2/IIC T4 Gb
Certification ATEX	Nemko 09ATEX1322X
Marking IECEx	Ex d e mb IIB+H2/IIC T4 Gb
Certification IECEx	IECEx NEM 05.0005X

Technical data

Material/Colour	Anti-static PA / Black
Mounting	Bracket or swivel bracket
Termination	E-chamber, loop in/out, push terminals
Weight	2.2 kg (4.9 lbs)
Protection class	IP66, IP67
Temperature range	-50 °C to +60 °C (-58 °F to +140 °F)
Rated/max power	25 W / 30 W
SPL 1W / 1m	106 dB
SPL Rated Power	118 dB
Effective freq. Range:	380 up to 8000 Hz
Primary Tappings	25,0 W; 15,0 W; 6,5 W; 5,0 W; 2,5 W; 1,5 W

DSP-15L(T)

25 W plastic IP67 marine grade weatherproof horn speaker with an extra large termination chamber allowing for easier installation and reducing the requirements for additional junction boxes. Suitable to cover large areas or in environment that are extremely noisy.

Technical data

Material/Colour	ASA / Black RAL7035
Mounting	Bracket
Termination	Inside screw terminals
Weight	1.9 kg (4.2 lbs)
Protection class	IP67
Temperature range	-50 °C to +90 °C (-58 °F to +194 °F)
Rated/max power	25 W / 25 W
SPL 1W / 1m	110 dB
SPL Rated Power	122 dB
Effective freq. Range:	290 up to 11000 Hz
Primary Tappings	25,0 W; 14,5 W; 9,5 W; 8,0 W; 4,0 W; 2,4 W

VES561(T)

5" 6 W BS5839 Part8 VA compliant, metal ceiling speaker with steel firedome, ceramic terminal block and thermal fuse. Dual M20 top or side cable entry options, 7 step ratchet secure fitting, fold away terminal block, and a 3 legged cam variable ceiling thickness mounting make this the most popular selling low cost VA/PA speaker in the range.

Technical data

Material/Colour	Steel / White
Mounting	3 Screws
Termination	Ceramic terminals
Weight	1.1 kg (2.4 lbs)
Protection class	IP22
Temperature range	-20 °C to +110 °C (-4 °F to +230 °F)
Rated/max power	6 W / 8 W
SPL 1W / 1m	90 dB
SPL Rated Power	97 dB
Effective freq. Range:	130 up to 15000 Hz
Primary Tappings	6,0 W; 3,0 W; 1,5 W; 0,5 W

BA56EEx

Ex certified ceiling speaker for flush mounting. An IP-rating of 54, makes the loudspeaker very flexible regarding placement and the sound characteristics ensure high quality sound in any situation. Please be aware that this speaker can have different transformers in order to get the dB lower than with a 6 W transformer. Now also with certificate for USA and Canada.

Technical data

Material/Colour	Aluminum / RAL 9010
Mounting	3 screws
Termination	E-chamber, screw terminals
Weight	3.0 kg (6.6 lbs)
Protection class	IP54
Temperature range	-20 °C to +50 °C (-4 °F to +122 °F)
Rated/max power	6 W / 6 W
SPL 1W / 1m	88 dB
SPL Rated Power	95 dB
Effective freq. Range:	160 up to 15000 Hz
Primary Tappings	6,0 W; 3,0 W; 1,5 W; 0,5 W

BH125

BH150

- Sound recording or customisation
- 63 Alarm tones
- Built-in volume control

BH125 / BH150 Ex Sounder/Horn is designed according to ATEX and IECEx standards. It especially apples to Oil & Gas, Chemical, Petrochemical, Refinery, Marine and Offshore Industries for the high-corrosion and hazardous areas.

According to user control system, 3 stages of alarm tones can be sent out, from less critical stage (stage 1) to the most critical stage (stage 3). Every stage tone can be selected separately. 63 tones are available. Users can record sounds or customize sounds into the sounder by using 4 spare tones. Tones can be preset during installation.

Explosion protection

Marking ATEX	Ⓔx II 2 GD Ex d IIC T5 Gb
Certification	PRESAFE 14 ATEX 5381X
Marking IECEx	Ex tb IIIC T100˚C
Certification	IECEx PRE 14.0044X

Technical data

Tones		63
Sound output		Up to 115 dB @ 1 M/1 W
Power supply		DC 12/48 V or AC 100/240 V 50/60 Hz
Power consumption		5 up to 20 W (adjustable)
Nominal current		DC 12 V: 910 mA (max. 10 W) DC 24 V: 960 mA DC 48 V: 500 mA AC 110 V: 210 mA AC 220 V: 100 mA
Terminal		< 2,5 mm² cable
Cable Entry		2 x M20, 1 gland (COD: 9-16) and 1 plug is standard
Ambient temperature		-40 ˚C to +70 ˚C (-40 ˚C to +60 ˚C/ T5/T100 °C on standard label) -40 °F to +158 °F (-40 °F to +140 °F)
Material	BH125	Enclosure: Stainless steel SS304 Bracket: Stainless steel
	BH150	Enclosure: GRP Bracket: Stainless steel
Enclosure finish colour		Red (RAL 3001) or black (RAL 9004)
Protection class		IP66
Weight	BH125 BH150	7.8 kg (17.2 lbs) 6.5 kg (14.3 lbs)
Dimensions	BH125	L: 243 mm Ø1: 187 mm Ø2: 123 mm L: 9.57 inch Ø1: 7.36 inch Ø2: 4.84 inch
	BH150	L: 320 mm Ø1: 283 mm Ø2: 150 mm L: 12.60 inch Ø1: 11.14 inch Ø2: 5.91 inch

Order code BH

Material	Voltage	Cable entries	Finish
125 - Stainless Steel 150 - GRP	DC AC	A - M20	RD - Red BK - Black

Flashing Beacon VB3

- Low cost combined visual/ audible warning as standard
- Corrosion resistant marine grade alloy construction ATEX certified for hazardous areas
- Three independent xenon tubes with 30 Joules
- Exchangeable coloured fresnal optic lens
- Design eliminates external junction boxes

The PSC VODEC VB3 is an ATEX/IECEx certified visual warning (alarm) device designed to produce regular pulses of high intensity light. The unit is specified for use in the most demanding of applications (which include offshore oil installations and refineries) and provides reliable service in extremes of climate. A robust alloy enclosure resists corrosion risk and will not support organic growths associated with plastic Ex d enclosures.

Explosion protection

ATEX marking	Ⓔx II 2G Ex d IIB T3
Certification	Baseefa09ATEX0322
IECEx marking	Ex d IIB T3 Gb
Certification	IECEx BAS 13.0006
Ambient temperature	-40 °C to +60 °C

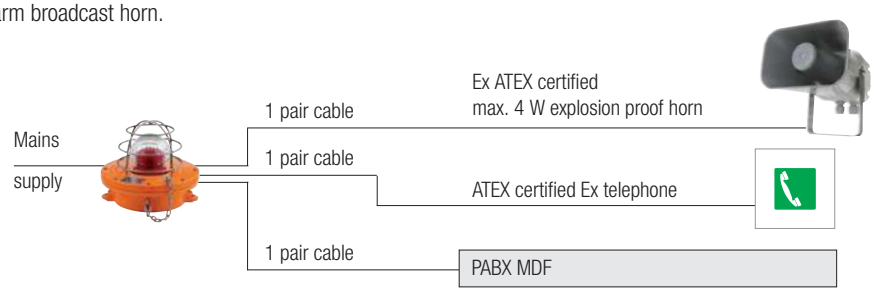
Technical data

Supply input	DC 24 V to 140 V AC 110/120 V or AC 220/240 V 50/60 Hz
Power consumption	max. 60 W
Protection class	IP66
Telephone ring voltage	18 to 60 V RMS
Telephone line loading	REN 1
Combined flash energy	30 Joules
Flash rate	2 or 4 per second
Dimensions (width x depth)	250 mm x 300 mm (9.84 inch 11.81 inch)
Weight	7 kg (15.4 lbs)
Gland entry	up to 4 x M20
Operating temperature range	-40 °C to +60 °C (-40 °F to +140 °F)
Enclosure colour	orange RAL 2003 special colours are available

The enclosure is designed without spigot threaded joint which eliminates seizures and eases maintenance. VB3 has no moving parts and is based upon Xenon gas discharge tube technology, three tubes are fitted each with dedicated firing electronics to ensure highest integrity. Beacon colour is fixed by use of a specifically developed fresnal optic lens which provides both efficient light dispersion and simple field changeable colour assignment. A range of fresnal lens colours are available to assure compliance with worldwide regulations. It should be noted that the connection to the telephone subscriber line is via high integrity optical isolator which eliminates any possible risk of insulation breakdown between high tension flashing beacon electronics and the telephone system. VB3 is also fitted with a high power alarm tone drive output to serve an external explosion proof projector horn. A range of alarm tone signals are generated internally and are user selectable by integral tamper proof switches. External junction boxes are eliminated in all applications of VB3 by provision of up to four M20 gland entries and sufficient discrete terminals to allow cable loop through and connection of all cable screens where fitted.

Combined audible/visual warning system (telephone activated)

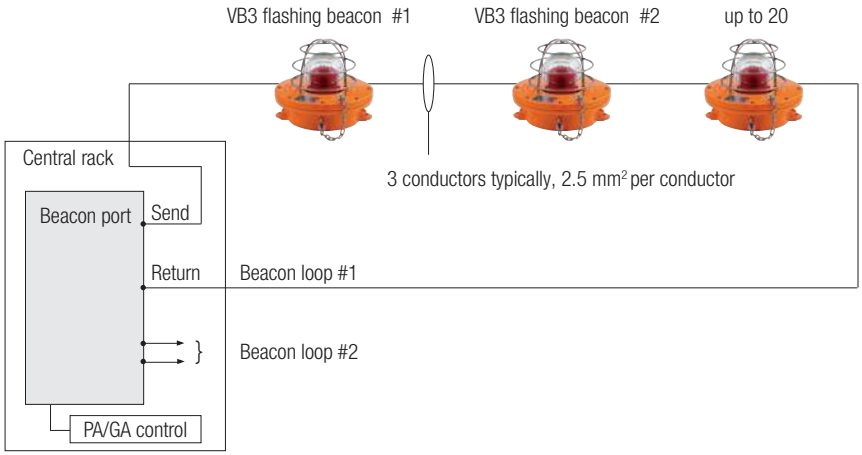
The VB3 beacon incorporates telephone detector as standard which can be arranged to also drive a supplementary alarm broadcast horn.



Application diagrams

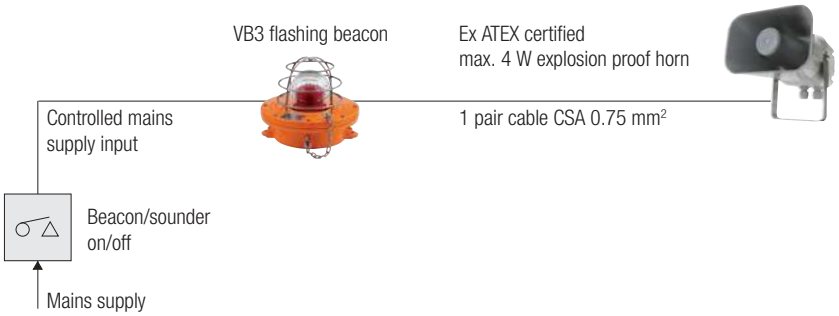
Beacon application in a PA/GA system

Simple diagram shows PSC VODEC VB3 emergency visual alarm annunciator as part of an overall PA/GA broadcast system.
Loop wiring ensures continued operation in event of a single field cable disconnection.



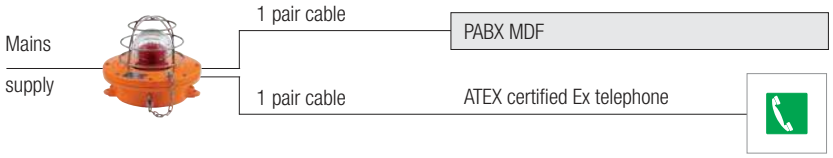
Combined audible/visual warning system (direct switched)

The diagram shows VB3 and explosion proof horn to form a complete alarm annunciator package providing efficient acoustic and visible coverage.



Combined visual warning system (telephone activated)

The VB3 incorporates a telephone ringing voltage detector, upon resolution of ring voltage the beacon is initiated and provides continuous flashing annunciation until the subscriber handset is taken off hook. Telephone line is galvically isolated from the beacon by integral optical coupling device which assures safety.



Alarm tones

Alarm	Tone
1	Ramp 1200 Hz to 500 Hz in 1 sec.
2	1 kHz, 1 sec. ON - 1 sec. OFF
3	1 kHz, Continuous Tone
4	500 Hz for 0.5 sec.; 1 kHz for 0.5 sec.
5	7 Short Pulses of 1 kHz for 7 sec. followed by a 1 kHz Blast for 7 sec.
6	800 Hz Continuous Tone
7	800 Hz, 1 sec. ON / 1 sec. OFF
8	500 Hz 1 sec., 1kHz 1 sec., 500 Hz 1 sec. repeating

Alarm	Tone
9	2 kHz, 0.25 sec. ON, 0.25 sec. OFF
10	1 kHz for 1 sec. / 800 Hz for 1 sec.
11	500 Hz Continuous Tone
12	800 Hz, 2 sec. ON / 2 sec. OFF
13	1 kHz for 0.25 sec./ 800 Hz, 0.25 sec.
14	1 kHz, 2 sec. ON, 2 sec. OFF
15	800 Hz, 1 sec. ON, 1 sec. OFF
16	1 kHz for 1 sec., 500 Hz for 1 sec.

Fresnal colours

Fresnal colour	Code no.
amber	VBB 001 AM
blue	VBB 001 BL
clear	VBB 001 CL
red	VBB 001 RD
yellow	VBB 001 YL
green	VBB 001 GR

- Seawater-resistant
- External trigger
- Siren card available
- Wide temperature range
- Multiple dome colors

PSC TECHNOR's TNFCD/M series is an extreme duty flash beacon solution for use in hazardous location on- or offshore. Designed for the most demanding environments of the North Sea, the beacons have for more than 25 years proven their excellence, providing a low maintenance solution for operators and rig owners worldwide. Available in Ex de, Ex d or non-Ex. The beacon offers a multiple of options like power on when connected, external trigging or a siren card for acoustic warning.

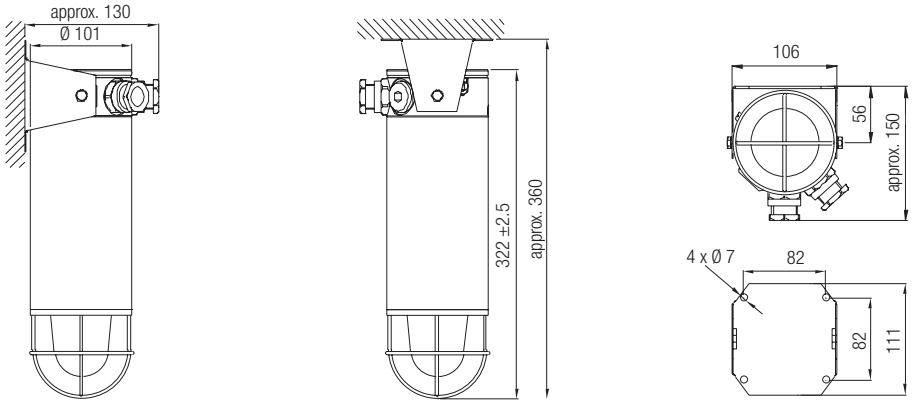
Explosion protection

Marking	
TNFCD TNFCDM	Ⓔx II 2G Ex d IIC T4 Gb or Ex de IIC T4 Gb Ⓔx II 2G Ex d IIC T4 Gb
Certification	NEMKO 01 ATEX 430
Other approvals and certificates, see www.psc-vodec.com	
Ambient temperature	-50 °C to +60 °C (-58 °F to +140 °F)

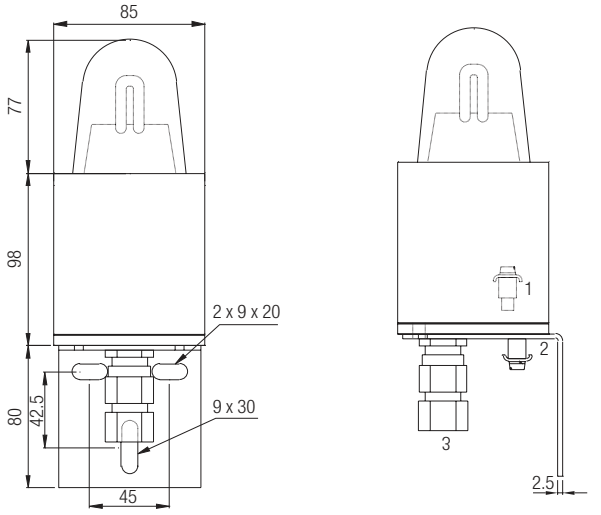
Technical data

Material	stainless steel 316L/CF-3M	
Surface treatment SS316L	machined/shot blasted	
Earth terminal	inside and outside	
Cable entry	TNFCD TNFCDM	Standard M25 Standard M25, M20 or flying lead on request
Real humidity	100 %	
Dome colours	red, yellow, blue, green, orange, clear	
Flash frequency	1 Hz	
Flash energy	TNFCD TNFCDM	10 joule 5 joule
Dimensions (width x depth)	TNFCD TNFCDM	130 mm x 360 mm (5.12 inch x 14.17 inch) 85 mm x 255 mm (3.35 inch x 10.04 inch)
Weight	TNFCD TNFCDM	5.1 kg (11,2 lbs) 2.5 kg (5.5 lbs)
Protection class	IP66 (IP67 upon request)	
Standards	EN/IEC: 60079-0, 60079-1, 60079-7, 50281-1-1	

Dimensions TNFCD (mm)



Dimensions TNFCDM (mm)



1 Internal earth
2 External earth
3 Ex d approved cable gland must be used

1 Internal earth
2 External earth
3 Ex d approved cable gland must be used

Flashing beacon TNFCD

Rated voltage	Voltage range	Rated current	Power consumption	Supply frequency	Typical start current	Triggering	Fuse	Siren card for acoustic warning
AC 220 to 254 V	±10 %	110 mA	24 VA	50/60 Hz	>1 A in max. 1 msec.	direct, telephone, DC 24 to 48 V, fail safe	1 to 2 A < time-lag fuse is recommended	8 W, 20 W or 25 W for Ex-loudspeaker (8 ohm, 20 ohm or 100 V line)
AC 110 to 120 V	±10 %	220 mA	24 VA	50/60 Hz				
DC 24 to 48 V	±10 %	DC 24 V/670 mA DC 48 V/330 mA	16 VA					

Flashing beacon TNFCDM

Rated voltage	Voltage range	Power consumption	Typical start current	Triggering
AC 220 to 254 V	AC 190 to 272 V	100 mA	1 A in max. 1 msec	direct
AC 110 to 127 V	±20 %	100 mA		
DC 24 V	±10 %	380 mA		
DC 48 V	±10 %	200 mA		

BB125

BB150

- Xenon or LED
- 5 Lens colours
- Optional telephone relay

BB125 / BB150 Ex flashing beacon is designed according to ATEX and IECEx standard. This product is certified for use and installation in Zone 1 and Zone 2 areas with gas groups IIA, IIB, IIC and temperature class T4-T6. It especially applies to Oil & Gas, Offshore Platforms, Chemical, Petrochemical, Refinery and Marine Industries.

It has telephone initiated function (optional) and can be used as the second ring output indicator of industrial telephones which apply to special locations where the environment is noisy. Various colours are selectable for lens cover.

Explosion protection

Marking ATEX	Ⓔx II 2 GD Ex d IIC T5 Gb
Certification	PRESAFE 14 ATEX 5389X
Marking IECEx	Ex tb IIIC T100˚C
Certification	IECEx PRE 14.0049X

Nominal current

	LED 10 W	Xenon 10 J	Xenon 20 J
DC 12 V	1100 mA	850 mA	NA
DC 24 V	530 mA	490 mA	960 mA
DC 48 V	240 mA	250 mA	480 mA
AC 110 V	160 mA	100 mA	180 mA
AC 220 V	80 mA	60 mA	110 mA

Technical data

Light source type		Xenon 5 J, 10 J, 15 J, 21 J or LED 5 W or 10 W
Flash rate		1Hz
Power supply		DC 12/48 V or AC 100/240 V 50/60 Hz
Terminal		up to 2,5 mm^2 cable
Cable Entry		2 x M20, 1 gland (COD: 9-16) and 1 plug is standard
Ambient temperature		-40 ˚C to +70 ˚C (-40 ˚C to +60 ˚C / T5/T100 °C on standard label) -40 °F to +158 °F (-40 °F to +140 °F)
Material	BB125	Enclosure: Stainless steel SS304 Lens cover: Tempered glass
	BB150	Enclosure: Corrosion resistance GRP Lens cover: Tempered glass
Enclosure finish colour		Red (RAL 3001)
Lens colour		red, amber, green, blue or clear
Protection class		IP66
Weight	BB125 BB150	5.4 kg / 11.9 lbs 3.8 kg / 8.3 lbs
Dimensions	BB125	L: 125 mm / 4.92" W: 125 mm / 4.92" H: 181.2 mm / 7.13"
	BB150	L: 150 mm / 5.91" W: 150 mm / 5.91" H: 212 mm / 8.35"

Order code BB

Material	Lens Colour	Xenon or LED	Power	Voltage	Cable entries	Finish	Telephone relay
125 - Stainless Steel 150 - GRP	R - Red A - Amber B - Blue G - Green C - Clear	X - Xenon L - LED	05 (5 W or 5 J) 10 (10 W or 10 J) 15 (15 J) 21 (21 J)	AC DC	A - M20	RD - Red BK - Black	Y - Yes N - No

BCP125

BCP150

- Break glass type
- Lift flap available as option
- Optional LED indicator

BCP125 / 150 Ex Manual Call Point is designed according to ATEX and IECEx standards. It especially applies to Oil & Gas, Chemical, Petrochemical, Refinery, Marine and Offshore Industries for the high-corrosion and hazardous areas. It is compatible with PLC, DCS and ESD system with 4-20 mA output. It is ideal to be used as an ex Manual Call Point for Fire Alarm System with Addressable Module fixed.

The design of two LED indicators (Green and/or Red) is unique. During normal operation, the Green LED is on. When device fault or alarm status arises, the Green LED will be cut off and Red LED will be on. We provide colors of Red (RAL3001), Yellow (RAL1003) and Blue (RAL5005) for customer's selection.

Explosion protection

BCP125	
Marking ATEX	Ⓔx II 2 GD Ex d IIC T6 Gb
Certification	PRESAFE 14 ATEX 5395X
Marking IECEx	Ex tb IIIC T85˚C, IP66
Certification	IECEx PRE 14.0052X

BCP150	
Marking ATEX	Ⓔx II 2 GD Ex d IIC T6 Gb
Certification	PRESAFE 14 ATEX 5391X
Marking IECEx	Ex tb IIIC T85˚C, IP66
Certification	IECEx PRE 14.0050X

Technical data

Switch rating		DC 30 V 6 A (Resistive), 6 A (Inductive) AC 250 V 11 A (Resistive), 6 A (Inductive)
Output		On-off Output (NC/NO)
Terminal		up to 2,5 mm² cable
Cable Entry		4 x M20, 1 gland (COD: 9-16) and 3 plugs is standard
Ambient temperature		-40 ˚C to +70 ˚C (-40 °F to +158 °F)
Material	BCP125 BCP150	Enclosure: Stainless steel 304 Enclosure: GRP
Enclosure finish colour		Red (RAL 3001), Yellow (RAL1003), Blue (RAL5005)
Protection Class		IP66
Weight	BCP125 BCP150	4.9 kg / 10.80 lbs 4.2 kg / 9.26 lbs
Dimensions	BCP125 BCP150	L: 125 mm / 4.92" W: 125 mm / 4.92" H: 143.5 mm / 5.65" L: 150 mm / 5.91" W: 150 mm / 5.91" H: 164 mm / 6.46"

Order code BCP

Material	Switch	LED Indicator	Features	Cable entries	Entry position	Finish
125 - Stainless Steel 150 - GRP	D - Double	R - Red G - Green L - Red & Green N - no LED	F - lift flap R - resistor D - diode N - no features*	A - M20	B - Bottom	RD - Red BU - Blue YE - Yellow

*Combined choice available. Resistor / diode must be specified separately.

Manual Call Point BCP135

- Break glass type
- Lift flap available as option
- Optional LED indicator

BCP135 Ex Manual Call Point is designed according to ATEX and IECEx standards. It especially applies to Oil & Gas, Chemical, Petrochemical, Refinery, Marine and Offshore Industries for the high-corrosion and hazardous areas. It is compatible with PLC, DCS and ESD system via 4-20 mA output. It is ideal to be used as an ex Manual Call Point for fire alarm system with addressable module fixed.

The design of two LED indicators (Green and/or Red) is unique. During normal operation, the green LED is on. When device fault or alarm status arises, the green LED will be cut off and red LED will be on. We provide colors of Red (RAL3001), Yellow (RAL1003) and Blue (RAL5005) for customer's selection.

Explosion protection

Marking ATEX	Ⓔx II 2 G Ex d IIB+H2 T6 Gb Ⓔx II 2 G Ex tb IIIC T85˚C, IP66
Certification	PRESAFE 14 ATEX 5385X
Marking IECEx	Ex tb IIIC T85˚C, IP66
Certification	IECEx PRE 14.0047X

Technical data

Switch rating	DC 30 V 6 A (Resistive), 6 A (Inductive) AC 250 V 11 A (Resistive), 6 A (Inductive)
Output	On-off Output (NC/NO)
Terminal	up to 2,5 mm^2 cable
Cable Entry	2 x M20, 1 gland (COD: 9-16) and 1 plug is standard
Ambient temperature	-40 ˚C to +70 ˚C (-40 °F to +158 °F)
Humidity	≤95% RH
Material	Enclosure: GRP
Enclosure finish colour	Red (RAL 3001), Yellow (RAL1003), Blue (RAL5005)
Protection Class	IP66
Weight	1.5 kg / 3.31 lbs
Dimensions	L: 135 mm / 5.31" W: 135 mm / 5.31" H: 80.5 mm / 3.17"

Order code BCP

Material	Switch	LED Indicator	Features	Cable entries	Entry position	Finish
135 - GRP	D - Double	R - Red G - Green L - Red & Green N - no LED	F - lift flap R - resistor D - diode N - no features*	A - M20	B - Bottom	RD - Red BU - Blue YE - Yellow

*Combined choice available. Resistor / diode must be specified separately.

8

BPB125

BPB135

BPB150

- Push button type
- Key reset
- Optional LED indicator

BPB125/135/150 Ex Push Button is designed according to ATEX and IECEx standards. It especially applies to Oil & Gas, Chemical, Petrochemical, Refinery, Marine and Offshore Industries for the high-corrosion and hazardous areas. It is compatible with PLC, DCS and ESD system with 4-20 mA output. It is ideal to be used as an Ex Manual Call Point for Fire Alarm System with addressable module fixed.

The design of two LED indicators (Green and/or Red) is unique. During normal operation, the Green LED is on. When device fault or alarm status arises, the green LED will be cut off and red LED will be on. The product finish is power coating with strong adhesion. We provide colors of Red (RAL3001), Yellow (RAL1003) and Blue (RAL5005) for customer's selection.

Explosion protection

BPB125	
Marking ATEX	Ⓔx II 2 GD Ex d IIC T6 Gb
Certification	PRESAFE 14 ATEX 5395X
Marking IECEx	Ex tb IIIC T85˚C, IP66
Certification	IECEx PRE 14.0052X

BPB135	
Marking ATEX	Ⓔx II 2 GD Ex d IIB+H2 T6 Gb
Certification	PRESAFE 14 ATEX 5387X
Marking IECEx	Ex tb IIIC T85˚C, IP66
Certification	IECEx PRE 14.0048X

BPB150	
Marking ATEX	Ⓔx II 2 GD Ex d IIC T6 Gb
Certification	PRESAFE 14 ATEX 5391X
Marking IECEx	Ex tb IIIC T85˚C, IP66
Certification	IECEx PRE 14.0050X

Technical data

Switch rating		DC 30 V 6 A (Resistive), 6 A (Inductive) AC 250 V 11 A (Resistive), 6 A (Inductive)
Output		On-off Output (NC/NO)
Terminal		up to 2,5 mm² cable
Cable Entry		4 x M20, 1 gland (COD: 9-16) and 3 plugs is standard
Ambient temperature		-40 ˚C to +70 ˚C (-40 °F to +158 °F)
Material	BPB125 BBP135 BBP150	Enclosure: Stainless steel 304 Enclosure: GRP Enclosure: GRP
Enclosure finish colour		Red (RAL 3001), Yellow (RAL1003), Blue (RAL5005)
Ingress Protection		IP66
Weight	BPB125 BBP135 BBP150	4.9 kg / 10.80 lbs 1.5 kg / 3.31 lbs 4.2 kg / 9.26 lbs
Dimensions	BPB125 BBP135 BBP150	L: 125 mm / 4.92" W: 125 mm / 4.92" H: 143.5 mm / 5.65" L: 135 mm / 5.31" W: 135 mm / 5.31" H: 80.5 mm / 3.17" L: 150 mm / 5.91" W: 150 mm / 5.91" H: 164 mm / 6.46"

Order code BPB

Material	Switch	Reset	LED Indicator	Features	Cable entries	Entry position	Finish
125 - Stainless Steel 135 - GRP 150 - GRP	D - Double	K - Key reset	R - Red G - Green L - Red & Green N - no LED	F - lift flap R - resistor D - diode N - no features*	A - M20	B - Bottom	RD - Red BU - Blue YE - Yellow

*Combined choice available. Resistor / diode must be specified separately.

Polyester distribution boxes for Zone 1 and Zone 21, black

Aluminium distribution boxes for Zone 1 and Zone 21

High quality stainless steel distribution boxes

ExCite™ Explosion Proof Junction Box BJB125

ExCite™ Explosion Proof Junction Box BJB150

For more information please visit our website www.psc-vodec.com

or ask for Electrical Safety Solutions catalogue

8

BHB125-1

BHB150-1

- Xenon or LED
- 63 Alarm tones
- 4 Stages of alarm output

BHB125-1 / 150-1 series Ex Sounder & Beacon is designed according to ATEX and IECEx standards. Product is available in two versions of enclosure material: Stainless Steel 304 or UV and corrosion resistance GRP (Glass Reinforced Polyester). This product is certified for use and installation in Zone 1 and Zone 2 areas with gas groups IIA, IIB, IIC and temperature class T4-T6. It specially applies to Oil & Gas, Offshore Platforms, Chemical, Petrochemical, Refinery and Marine Industries. BHB125 / 150 single unit Sounder and Beacon has features of both BB125 / 150 and BHB125 / 150.

According to user control system, 4 stages of alarm tones can be sent out, from less critical stage (stage 1) to the most critical stage (stage 4). 63 tones are selectable. Tone can be preset during installation. At the same time, four stages of alarm light can also be sent out.

Explosion protection

Marking ATEX	Ex II 2 GD Ex d IIC T5 Gb
Certification	PRESAFE 14 ATEX 5382X
Marking IECEx	Ex tb IIIC T100˚C
Certification	IECEx PRE 14.0045X

Technical data

Tones		63
Sound output		Up to 115 dB @ 1 M/1 W
Light source type		Xenon (5 J, 10 J, 15 J or 21 J) or LED (5 w or 10 W)
Flash rate		1Hz
Power supply		DC 12/48 V or AC 100/240 V 50/60 Hz
Working currency		Sounder: 250 mA to 1500 mA Xenon: 10 J: 650 mA (max) 20 J: 1,4 A (max) LED: 220 mA (max)
Terminal		up to 2,5 mm^2 cable
Cable Entry		2 x M20, 1 gland (COD: 9-16) and 1 plug is standard
Ambient temperature		-40 ˚C to +70 ˚C (-40 ˚C to +60 ˚C / T5 / T100 °C on standard label) -40 °F to +158 °F (-40 °F to +140 °F)
Material	BHB125	Enclosure: Stainless steel SS304 Bracket: Stainless steel
	BHB150	Enclosure: Corrosion resistance GRP Bracket: Stainless steel
Enclosure finish colour		Red (RAL 3001) or black (RAL 9004)
Protection class		IP66
Weight	BHB125	8.0 kg / 17.6 lbs
	BHB150	6.5 kg / 14.3 lbs
Dimensions	BHB125	L - 335 x dia. 187.5 mm w/o lens guard (L - 13.19 x dia. 7.36 inch)
	BHB150	L - 441 x dia. 281 mm w/o lens guard (L - 17.36 x dia. 11.06 inch)

Order code BHB

Material	Lens Colour	Xenon or LED	Power	Voltage	Cable entries	Finish	Telephone relay
125 - Stainless Steel 150 - GRP	R - Red Y - Yellow B - Blue G - Green C - Clear	X - Xenon L - LED	05 (5 W or 5 J) 10 (10 W or 10 J) 15 (15 J) 21 (21 J)	AC DC	A - M20	RD - Red BK - Black	Y - Yes N - No

BHB125-X

BHB150-X

- Combined sounder, beacon and activation button fitted on mounting plate
- 63 Alarm tones
- 4 Stages of alarm output

BHB125-X / 150-X Multi Way Combination Unit is designed according to ATEX and IECEx standards. This product is certified for use and installation in Zone 1 and Zone 2 areas with gas groups IIA, IIB, IIC and temperature class T4-T6. It especially applies to Oil & Gas, Offshore Platforms, Chemical, Petrochemical, Refinery and Marine Industries for hazardous areas. The combined unit has 3 stages of alarm output. 63 tones are selectable. It has telephone initiated function and can be used as the second ring output and indicator of industrial telephones which apply to special location where the environment is noisy on the engineering site.

The design of the combination with a push button is unique. Sounder mute or on-site activation functions can be achieved by combining the push button. When the button is pushed down, sounder will mute or the whole unit will be activated. The functions are very considerate for the operations of the field service engineers to do the routine testing, maintenance or repairment no matter they want to activate and test the unit on site directly without the assistance of the control room or they need to communicate with the control room by voice in a quiet environment. The mute or activation can be lasted from 30 seconds to 30 minutes with preset by the manufacture upon customer's request. The factory setting is 2 minutes. The push button is self reset type. The unit will be recovered automatically after the mute or activation duration.

Explosion protection

Marking ATEX	Ⓔx II 2 GD Ex d IIC T5 Gb
Certification	PRESAFE 14 ATEX 5382X
Marking IECEx	Ex tb IIIC T100˚C
Certification	IECEx PRE 14.0045X

Order code BHB

Material	Combination type	Lens Colour	Xenon or LED	Power	Voltage	Cable entries	Finish	Telephone relay
125 - Stainless Steel 150 - GRP	2J/P - 1 sounder, 1 beacon and junction box or push button 3J/P - 1 sounder, 2 beacon and junction box or push button 4J/P - 1 sounder, 3 beacon and junction box or push button	R - Red Y - Yellow B - Blue G - Green	X - Xenon L - LED	05 (5 W or 5 J) 10 (10 W or 10 J) 15 (15 J) 21 (21 J)	AC DC	A - M20	RD - Red BK - Black	Y - Yes N - No

Technical data

Tones		63
Sound output		up to 115 dB @ 1 M/1 W
Light source type		Xenon (5 J, 10 J, 15 J or 21 J) or LED (5 w or 10 W)
Flash rate		1Hz
Power supply		DC 12/48 V or AC 100/240 V 50/60Hz
Terminal		up to 2,5 mm^2 cable
Cable Entry		3 x M20, 1 gland (COD: 9-16) and 2 plugs is standard
Ambient temperature		-40 ˚C to +70 ˚C (-40 ˚C to +60 ˚C / T5/ T100 °C on standard label) -40 °F to +158 °F (-40 °F to +140 °F)
Material	BHB125-X	Enclosure: Stainless steel SS304 Bracket: Stainless steel
	BHB150-X	Enclosure: Corrosion resistance GRP Bracket: Stainless steel
Enclosure finish colour		Red (RAL 3001)
Protection class		IP66
Weight	BHB125-2J	11.0 kg/24.25 lb
	BHB125-3J	16.7 kg/36.82 lb
	BHB125-4J	22.5 kg/49.60 lb
	BHB150-2	10.4 kg/22.93 lb
	BHB150-3	14.5 kg/31.97 lb
	BHB150-4	19.0 kg/41.89 lb
Dimensions	BHB125-2J	532 mm x 185 mm x 234 mm 20.95" x 7.28" x 9.21"
	BHB125-3J	682 mm x 185 mm x 234 mm 26.85" x 7.28" x 9.21"
	BHB125-4J	822 mm x 185 mm x 234 mm 32.36" x 7.28" x 9.21"
	BHB150-2	517 mm x 200 mm x 300 mm 20.35" x 7.87" x 11.81"
	BHB150-3	686 mm x 200 mm x 300 mm 27.01" x 7.87" x 11.81"
	BHB150-4	855 mm x 200 mm x 300 mm 33.66" x 7.87" x 11.81"

Nominal current

	LED 10 W	Xenon 10 J	Xenon 20 J
DC 12 V	1100 mA	850 mA	NA
DC 24 V	530 mA	490 mA	960 mA
DC 48 V	240 mA	250 mA	480 mA
AC 110 V	160 mA	100 mA	180 mA
AC 220 V	80 mA	60 mA	110 mA

BSL125

BSL150

- Combined beacon and activation button fitted on mounting plate
- Xenon or LED light
- 4 Stages of alarm output

BSL125 / BSL150 series Ex status lights is designed according to ATEX and IECEx standards. This product certified for use and installation in Zone 1 and Zone 2 areas with gas groups IIA, IIB, IIC and temperature class T4-T6. It specially applies to Oil & Gas, Offshore Platforms, Chemical, Petrochemical, Refineries and Marine Industries.

The PSC range of Ex status lights can be configured for use as a combination of visual status lights using LED or Xenon beacons with the flexibility of adding junction boxes and manual call points. Three working status-flash, rotary and steady are available (LED Beacon & Light). Different flash or rotary rate can be adjusted. Working status type and flash/rotary rate are preset during installation. Junction box (BJB***) or push button (BPB***) can also be combined with BSL125 / BSL150 unit.

Explosion protection

Marking ATEX	Ⓔx II 2 GD Ex d IIC T5 Gb
Certification	PRESAFE 14 ATEX 5393X
Marking IECEx	Ex tb IIIC T100˚C
Certification	IECEx PRE 14.0051X

Technical data

Light source type		Xenon (5 J, 10 J, 15 J or 21 J) or LED (5 w or 10 W)
Flash rate		1 Hz
Power supply		DC 12/48 V or AC 100/240 V 50/60 Hz
Power consumption		Xenon: 10 J: 15 W; 20 J: 25 W
Working current consumption		Xenon: 10 J: 650 mA, 20 J: 1,4 A LED: 220 mA (max)
Terminal		up to 2,5mm² cable
Material	BSL125	Enclosure: Stainless steel Mounting plate: Stainless steel Lens guard (optional): Stainless steel Lens cover: Tempered glass
	BSL150	Enclosure: UV and Corrosion Resistance GRP (anti static GRP Optional Mounting plate: Stainless steel Lens guard (optional): Stainless steel Lens cover: Tempered glass

Cable Entry	3 x M20, 1 gland (COD: 9-16) and 2 plugs is standard
Ambient temperature	-40 ˚C to +70 ˚C (-40 ˚C to +60 ˚C / T5 / T100 °C on standard label) -40 °F to +158 °F (-40 °F to +140 °F)
Enclosure finish colour	Red (RAL 3001)
Protection class	IP66
Weight	BSL125-A 10.2 kg (22.5 lbs) BSL125-B 14.2-15.0 kg (33.1 lbs) BSL125-C 19.1-20.0 kg (44.1 lbs) BSL125-D 24.0-24.8 kg (54.7) BSL150-A 8.9 kg (19.6 lbs) BSL150-B 12.6-13.1 kg (28.9 lbs) BSL150-C 16.9-17.4 kg (38.4 lbs) BSL150-D 21.1-21.6 kg (47.6 lbs)
Dimensions	BSL***-A: 400 mm x 185 mm x 199 mm (15.75 inch x 7.28 inch x 7.83 inch) BSL***-B: 500 mm x 185 mm x 199 mm (19.69 inch x 7.28 inch x 7.83 inch) BSL***-C: 650 mm x 185 mm x 199 mm (25.59 inch x 7.28 inch x 7.83 inch) BSL***-D: 690 mm x 185 mm x 199 mm (27.17 inch x 7.28 inch x 7.83 inch)

Order code BSL

Material	Combination type	Lens Colour	Xenon or LED	Power	Voltage	Cable entries	Finish	Telephone relay
125 - Stainless Steel 150 - GRP	B3J - 2 beacons, 1 junction box C4J - 3 beacon, 1 junction box D5J - 4 beacons and junction box D5P - 4 beacons and push button	R - Red Y - Yellow B - Blue G - Green C - Clear	X - Xenon L - LED	05 (5 W or 5 J) 10 (10 W or 10 J) 15 (15 J) 21 (21 J)	AC DC	A - M20	RD - Red BK - Black	Y - Yes N - No

FIELD EQUIPMENT - ACOUSTIC HOODS

"Eliminator" Acoustic Hoods

VE100

VE10

VE1

- All glass re-enforced GRP construction
- Lightweight
- Reliable operation in hostile service conditions
- Self-coloured yellow
- High background noise attenuation
- Intelligible communications

The "Eliminator" range of, extremely robust, acoustic hoods have been designed to facilitate reliable two-way speech communications in high ambient noise locations. The "Eliminator" acoustic hood is manufactured from rot/vandal resistant glass re-enforced polyester which requires no routine maintenance and is light in weight. The enclosure shell colour is impregnated within the manufacturing process and is therefore protected against ultra violet radiation or other agents that would affect the throughlife colour stability. The "Eliminator" acoustic hoods are resistant to chemical spillage/vapours and are fireretardant. Glass re-enforced polyester is an extremely strong material, consequently the PSC VODEC "Eliminator" unit is much more robust than traditional metal fabrications. The "Eliminator" range includes a choice of background noise attenuation performance depending upon the application. The VE10 and VE100 are high performance units which include a non-hygroscopic rot-proof acoustic absorption barrier integrated into the inner shell of the housing.

The use of an "Eliminator" acoustic hood not only provides improved intelligibility of communications but also provides shelter for equipment. PSC VODEC are able to supply, as an option, the "Eliminator" acoustic hood fully loaded with, for example pre-wired flashing beacon, telephone instrument and sounder to client specification. Both the "Eliminator" VE10 and VE100 feature the PSC VODEC patented high performance acoustic inner liner. The acoustic matting represents a major improvement on out dated rock-wool/mesh fabrications which have limited performance, require specialised health and safety handling during manufacture and are much heavier. The material is fire retardant to class 0, complies with BS476 and is effective over a wide temperature range. The material is highly stable and is unaffected by sunlight, a special barrier is impregnated during the manufacture which ensures that the complete assembly is totally rot-proof in the most arduous of climatic environments.

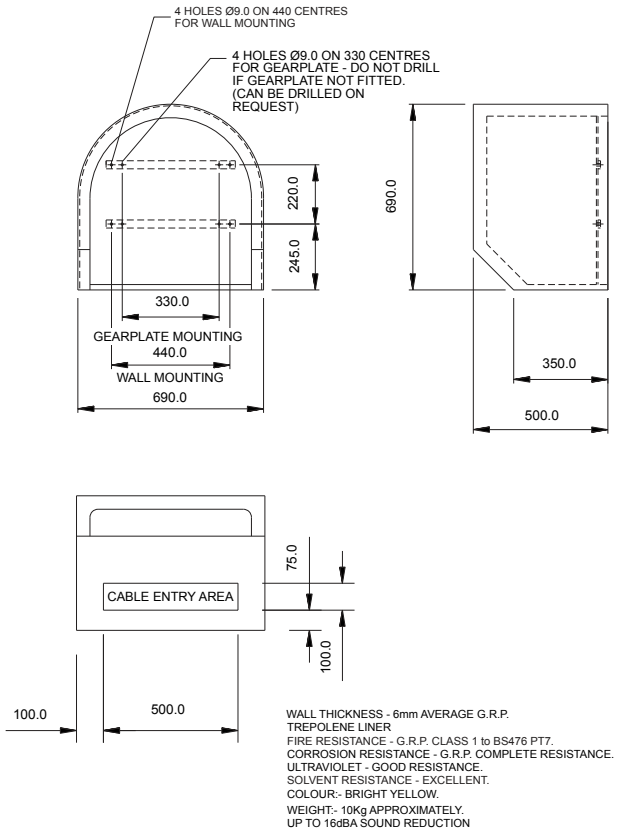
Technical data

Acoustic Booth	VE100	VE10	VE1
Temperature range	-50 °C to +70 °C (-58 °F to +158 °F)	-50 °C to +70 °C (-58 °F to +158 °F)	-50 °C to +70 °C (-58 °F to +158 °F)
Humidity	up to 100 %	up to 100 %	up to 100 %
Weight	approx. 35 kg (77.2 lbs)	approx. 15 kg (33.1 lbs)	approx. 13 kg (28.7 lbs)
Dimensions (width x height x depth)	775 mm x 1000 mm x 600 mm 30.51" x 39.37" x 23.62"	690 mm x 690 mm x 500 mm 27.17" x 27.17" x 19.69"	690 mm x 690 mm x 500 mm 27.17" x 27.17" x 19.69"
Noise attenuation	better than 23.5 dBA	better than 21.5 dBA	better than 9 dBA
Colour (RAL)*	1023 yellow, 2004 orange, 3020 red	1023 yellow, 2004 orange, 3020 red	1023 yellow, 2004 orange, 3020 red
Maximum load weight	20 kg	20 kg	20 kg

* Other colours are available on request

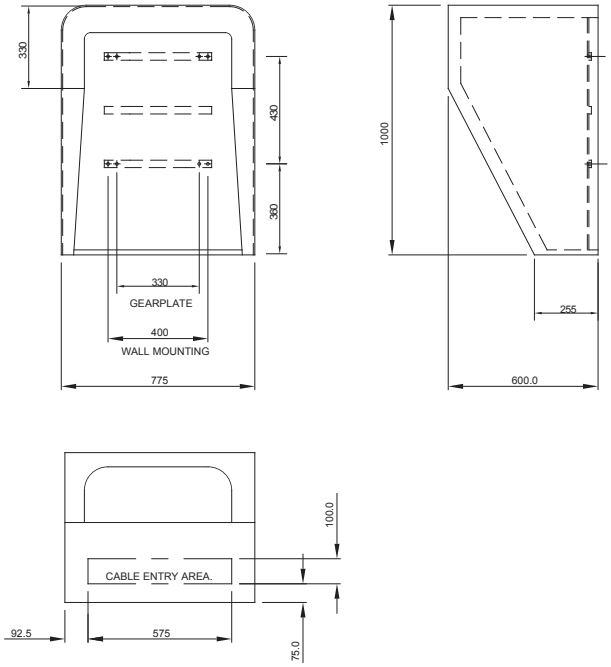
"Eliminator" Acoustic Hoods

Dimensions VE1, VE10



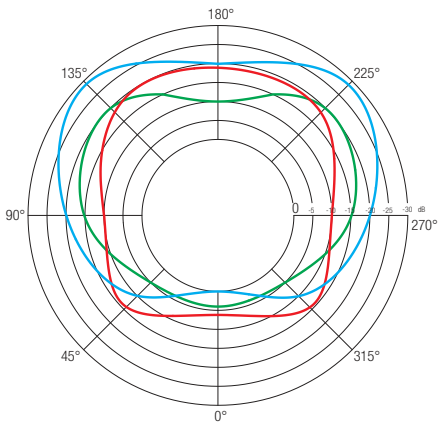
WALL THICKNESS - 6mm AVERAGE G.R.P.
TREPOLENE LINER
FIRE RESISTANCE - G.R.P. CLASS 1 to BS476 PT7.
CORROSION RESISTANCE - G.R.P. COMPLETE RESISTANCE.
ULTRAVIOLET - GOOD RESISTANCE.
SOLVENT RESISTANCE - EXCELLENT.
COLOUR:- BRIGHT YELLOW.
WEIGHT:- 10Kg APPROXIMATELY.
UP TO 16dBA SOUND REDUCTION

Dimensions VE100



Front enclosure

Frequency 500 Hz
Frequency 1k Hz
Frequency 4k Hz



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Reservation

Technical data subject to change without notice. No claims for damages arising from alterations, errors or misprints shall be allowed. Attention is drawn to the applicable standards and regulations on safety components and systems together with the relevant operating and installation instructions.