ZADS

ADDRESSABLE SPEAKER SYSTEM

DS-160 Issue 03

Thank you for your interest in Ziztel - we are a UK based manufacturer of PAGA and Intercom products. Our systems are mainly designed for use in Military, Marine and the Hazardous Oil / Gas Petrochemical industries. Consequently, our products are very robust and designed to comply with international standards. The ZADS system described in this data sheet enables the user to monitor individual loudspeaker devices including voice coils as well as allow convenient alteration of speaker sound pressure level output.

ZIZTEL ZADS

Automatic monitoring for mission critical life-safety PAGA broadcast systems – eliminates routine patrols

No additional field cable conductors required – easy to install

No local power supply required – simple configuration

No unreliable high frequency carriers – reliable and stable

Ziztel ZADS addressable speaker system provide the operator with the ultimate assurance of PAGA / MBS system availability and is an essential fit for a life-safety critical broadcast system.
The ZADS comprises over two sets of hardware;

- Central rack interface, called ZADSC, which enables data to be superimposed on and collected from the associated loudspeaker field cable circuit.
- The ZLSM outstation which is assigned to each loudspeaker on the network and operates over the associated loudspeaker field cable pair. No additional field cable conductors or local power supply are required to enable communication to/from each speaker location and the ZADSC central equipment.

Voice coil supervision.

Unlike conventional loudspeaker network supervisory systems which only check field cable connectivity, the ZADSC system includes monitoring of each loudspeaker voice coil and line transformer thereby

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providing the operator with complete assurance of the security of the broadcast system. Routine manned field patrols to check individual loudspeaker performance can now be reduced resulting in:

- Significant cost savings.
- The user being alerted to system deterioration much more quickly – a major enhancement to safety.

Sound pressure level adjustment

ZADS also allows the engineer to assign/re-assign power settings and therefore volume level at each loudspeaker from a central position. Loudspeakers are often located in positions that are difficult to access, possibly requiring scaffolding or require special permits to work (example Zone 1 hazardous area). ZADS eliminates the requirement for physically visiting loudspeaker locations and gaining access to the line transformer level setting tappings; such changes are now available from a convenient supervisory terminal.

Operation

ZLSM outstation transports data to the ZADSC concerning the status of each respective loudspeaker voice coil including checks on the associated critical path from amplifier to each loudspeaker. In addition, the system allows the engineer to quickly and conveniently alter volume power settings on individual loudspeakers from a central position thereby eliminating requirement to visit the field location and physically alter wiring.

The system operates by sending out a VCSR *voice coil status request* which is sent to all devices fitted to the system. This is followed by the broadcast of a short in-band 1 KHz tone of 100 milliseconds duration. The scheme checks the loudspeaker and associated critical path at base band audio frequencies i.e. *the same* frequencies that the system will be used operationally for emergency speech and alarm tones.

The test signal voltage and current passing through the voice coil is monitored and results compared to preset references held within the system microprocessor non-volatile memory. Status is then transmitted back to the host ZADSC and the display and event log is updated accordingly. The ZADS test can be manually initiated or can be automatically set to deliver a monitoring cycle at time intervals decided by the engineer.

Comprehensive site-wide status of each loudspeaker is clearly and unambiguously displayed on ZMIS core GUI graphical user interface and thereby provides ultimate confidence of PAGA / MBS system integrity. Data displayed on ZMIS core can also be delivered to any location worldwide by inclusion of Ziztel ZMIS Global operating system which enables numerous sites to be supervised down to individual field device level.

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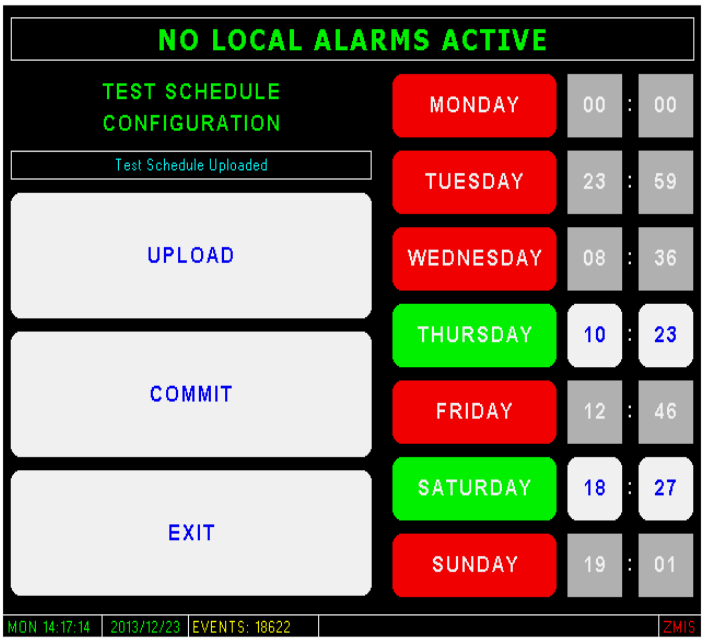

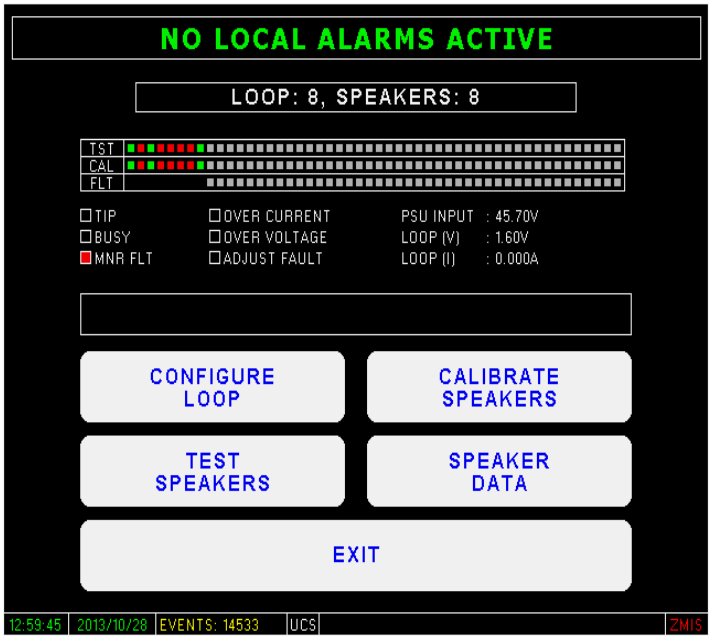

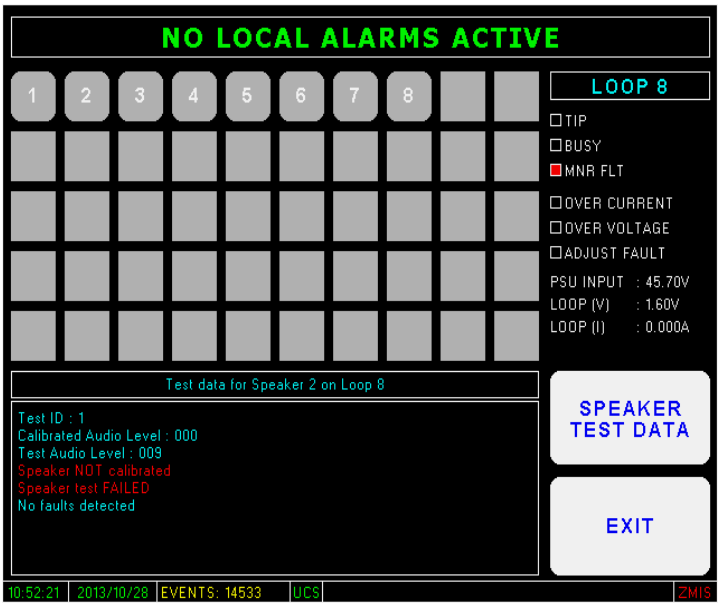

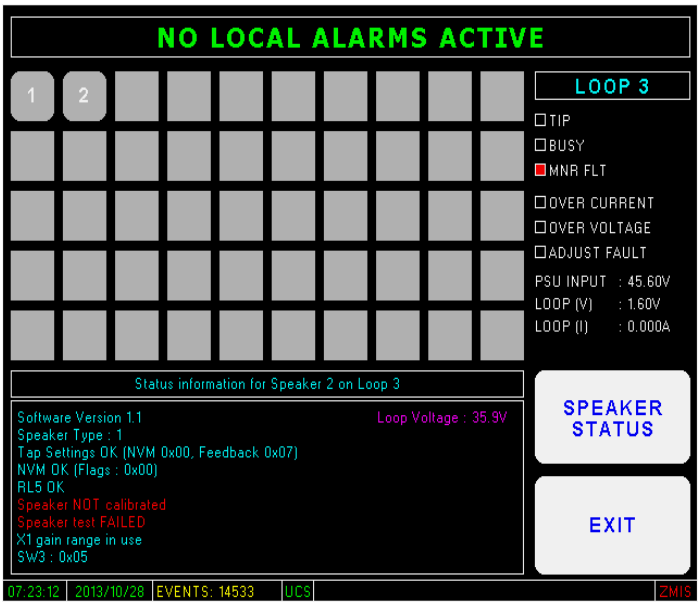

The engineer can assign loudspeaker tappings enabling centralised assignment of speaker volume sound pressure level output. The GUI facility allows the engineer to address each speaker and assign a tap from a menu of options covering virtually all known loudspeaker types currently available on the market.

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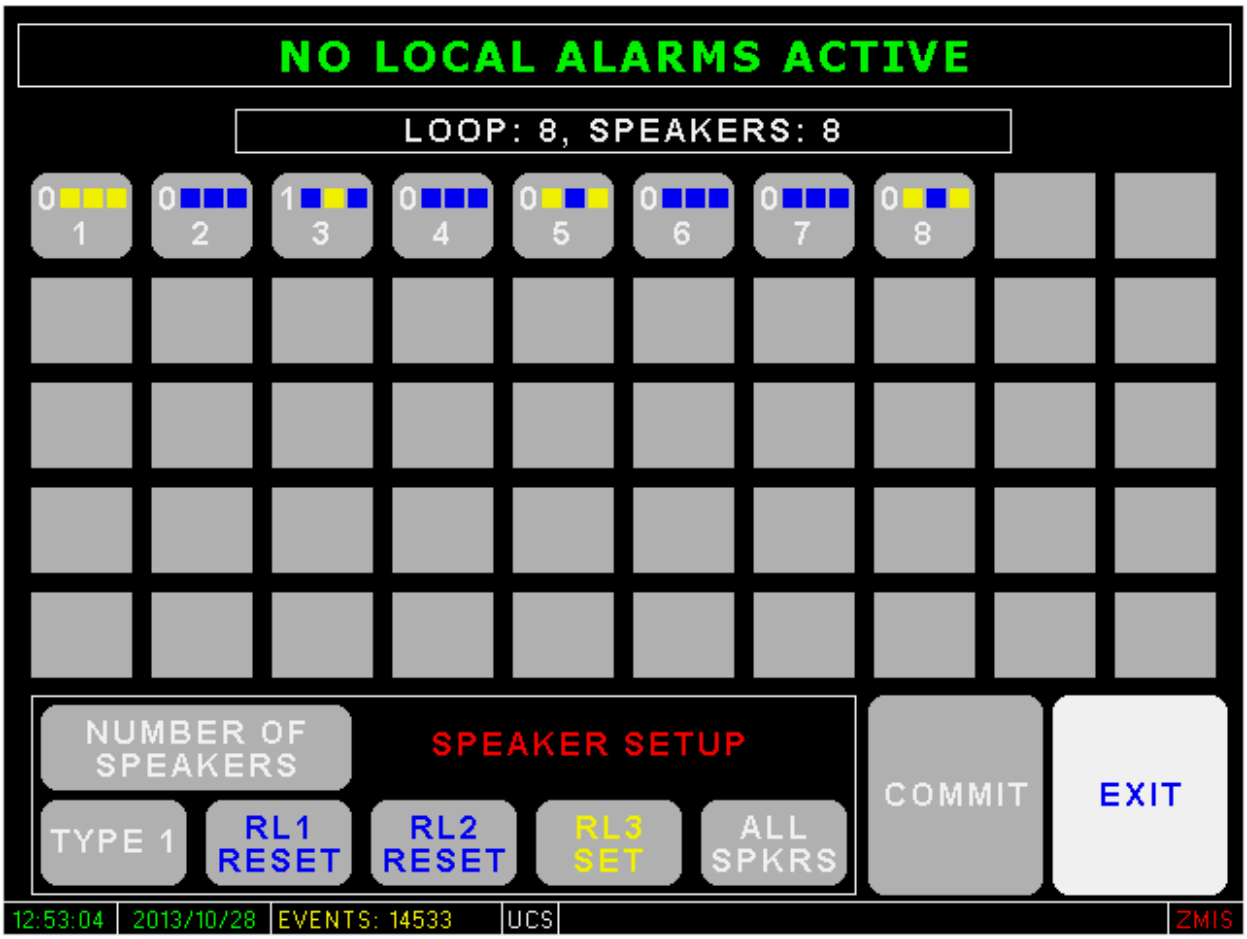

ZADS is fitted with a group fault report trouble output which can be used to extend status to external management equipment enabling a totally integrated telecommunications supervisory sub system to be implemented (example a Dispatcher system).

Implementation

ZADS is non-invasive and a possible fault condition cannot impact on the security of the operational PAGA / MBS capabilities. Field cable interconnection architecture is non-critical and either loop, star, tree and branch or radial wired solutions are supported without compromise to the ZADS performance and reliability. Up to fifty (50) ZLSM outstations can be connected to a single amplifier output line and each ZADSC interface supports a fully populated 350A SR sub rack, i.e. eight amplifier outputs.

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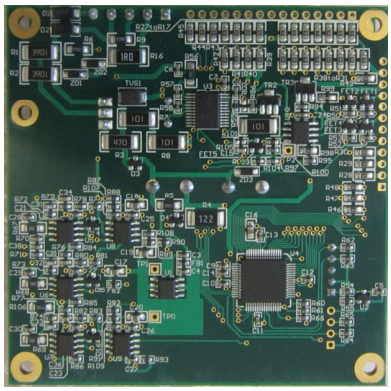
ZADSC

The ZADSC is a DIN rail mount module designed to locate in the central rack MDF, the unit interfaces directly by pre formed plug socket cable connection to the host amplification and line termination device. The ZADSC connects to the amplifier sub rack via a ribbon cable and extends connectivity to the field loudspeaker networks either by a LTD003 (Type A loop based self-healing network) or LTD007 (Type B radial / star / tree and branch network)

ZADSC control and interface module shown below

ZLSM

There are two basic types of ZLSM – Safe area and Hazardous, further information on the outstation is available on data sheets DS112, DS113 and DS114. The ZLSM module is also available as a separate entity enabling use in a range of different speaker packaging applications.



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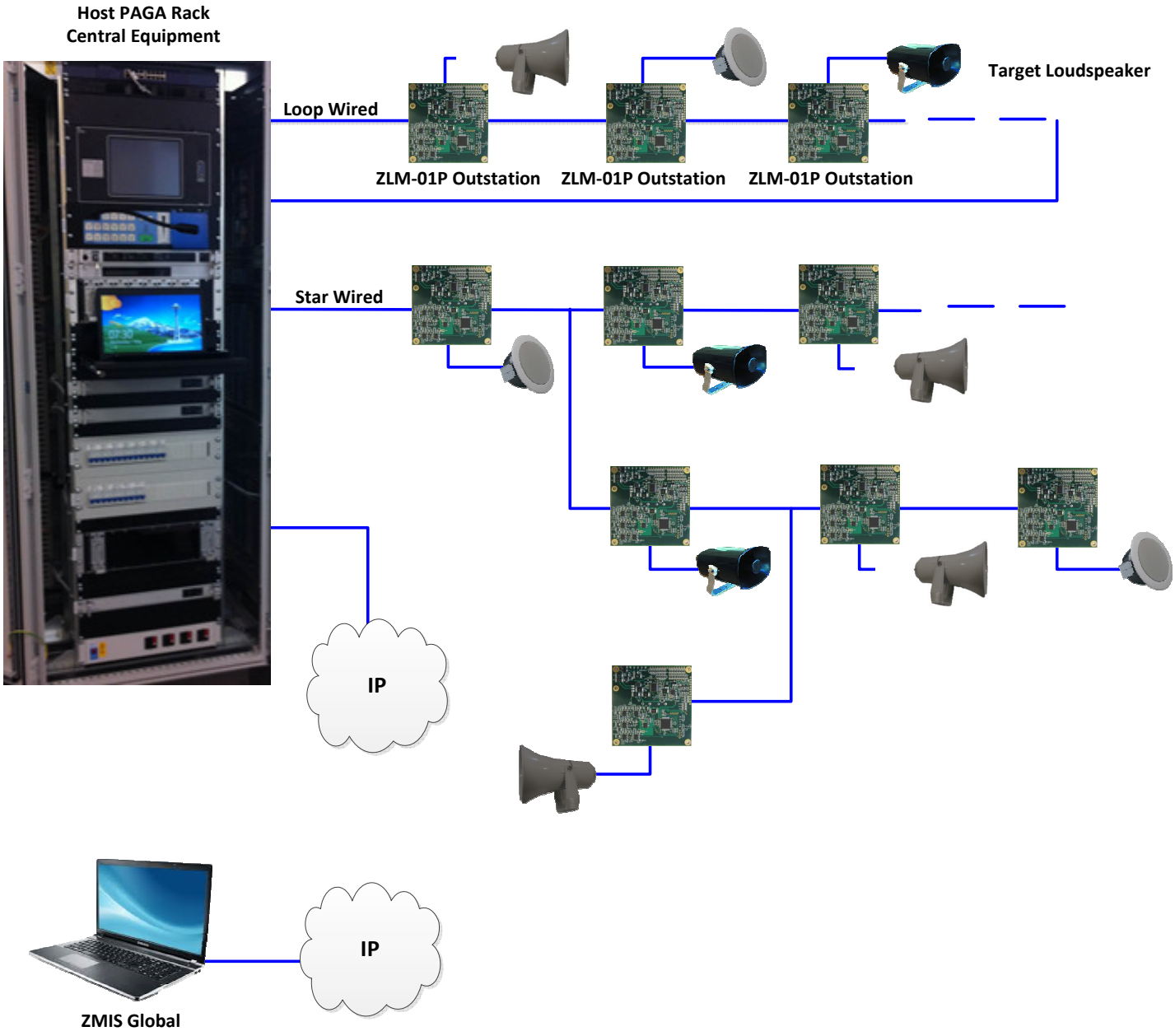
System Topology



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