Elemec3

Networked Public Address and General Alarm System (PA/GA)

GAI-TRONICS®

Elemec3 (E3) is a network enabled Public Address and General Alarm (PA/GA) system designed for life critical installations in the world's toughest industrial communications markets.

Using IP technologies to fully utilize end user infrastructure, the ***Elemec3*** high integrity PA/GA systems are commonly used on Oil & Gas Platforms, FPSOs, Power Generation Plants, Refineries, Chemical Plants and industrial facilities worldwide where the safety of all personnel is primary importance.

The equipment is specifically and fundamentally designed for failsafe operation, with extensive system and fault status monitoring for maximum availability at all times.

Prioritized paging and emergency broadcasts, alarms may be automatically or manually initiated from any point on the system with system expansion being defined by the user's network.

- **Multiple combined single, N+1 and A/B architectures supported on a single network**
- **Seamless connection to and from VoIP telephones, amplified telephones and paging stations**
- **Class D intelligent power amplifiers Dual 300W (D600i), Single 550W (D550i) or Single 300W (D300i)**
- **Prioritized paging and alarm access**
- **Up to 35.2 kW (64 amplifiers) of audio power per controller**
- **Up to 64 programmable audio zones per controller**
- **Compliant to UKOOA, PFEER, IMO, ABS, SOLAS, DNV, CCS, NORSOK guidelines**
- **Multiple hot standby power amplifiers**
- **Modular design for easy maintenance**
- **Full range of network and local connection Ex and industrial access panels available**
- **Audio storage >1.5GB per controller**
- **System status and fault monitoring via Portal remote monitoring software**
- **Two audio paths per controller for simultaneous broadcasting requirements, in accordance with IEC 60849**
- **Configurable PABX telephone access**
- **Page/Party® access**
- **Touch-screen engineers test panel**
- **Optional fiber optic links**
- **Auto alarm inhibit via key switch**
- **Ultrasonic loudspeaker network monitoring**
- **Up to 256 inputs / outputs per controller with optional monitoring**
- **CE compliant**

Elemec3 - Networked Public Address and General Alarm System (PA/GA)

System Network Controller

Designed for 19" cabinet mounting, the 1U ***Elemec3*** system controller utilizes current ARM® µP technology to produce a totally configurable IP platform.

This control unit continuously monitors its local system modules (access panels, alarm generators, I/O and amplifiers) while maintaining network connection and monitoring to ensure a high level of integrity and reliability is achieved network wide.

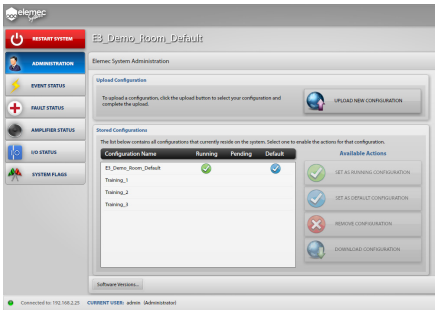
Audio enhancement circuitry is included within the controller design to ensure that the quality of speech and intelligibility meets industry standards.

The system controller supports all formats of system architecture such as single, N+1 and A/B levels of redundancy. The controller includes a vast range of features such as event chaining, zone aware output, mix substitution and the capability to adjust the volume of individual amplifiers; auto adjust of hot standby volume to meet the amplifier volume that has been substituted.

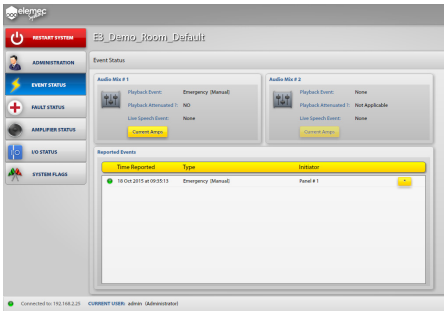
The event driven software is able to schedule alarms, inputs, outputs, messaging and paging (i.e. weekly alarm testing or scheduled messages) can be configured to activate automatically.

The ***Elemec3*** system controller ensures that the system can be intuitively configured to meet the customer's requirements within a set of standard building modules.

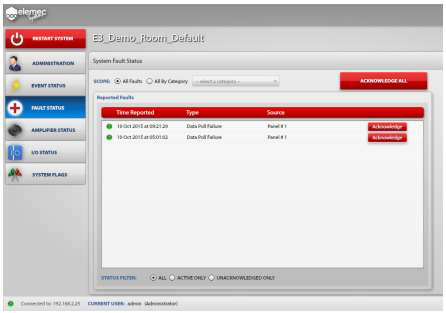
Portal – Remote Monitoring Software



Home Page



Event Status



Fault Status

The E3 Portal software enables remote monitoring of the entire E3 network.

The Portal is connected to the networked ***Elemec3*** controllers via LAN, WAN, direct, or connected to the Internet, giving world-wide access to system monitoring; a major advantage for maintenance personnel.

Real time status of the system's alarm and beacon outputs, together with the control inputs can be monitored.

Real time status of the network's inputs and outputs enables the user to monitor inputs from other devices such as the fire & gas system, extending the monitoring capacity of the connection.

Additionally the user to has remote display of all current messages processed by the system controllers within the ***Elemec3*** network.

Monitored Relay Module (MRM) & Monitored Input Module (MIM)

The Monitored Relay Module (MRM) controls relays typically used for alarm notification, e.g. strobe lights to supplement alarm broadcasts.
Each MRM is capable of switching and supervising up to eight (8) relay circuits.

The Monitored Input Module (MIM) interrogates input switch status changes for an alarm initiation request or various line fault conditions.

Each MIM is capable of supervising up to eight (8) initiating inputs. Each input can be configured independently to monitor single or multiple activation or deactivated if not used.

Both MRM and MIM lines are supervised for open, short circuits and earth leakage faults.

Class D Intelligent Power Amplifier

The Class D intelligent power amplifier is designed for use in GAI-Tronics high integrity PA/GA systems.
The field proven amplifier is designed for performance in a range of applications, from continuous 300W RMS rated outputs for alarm systems to high quality music reproduction.

Amplifiers are available in 2 channels x 300W, 1 x 300w and 1 x 550w outputs with each channel capable of independent operation.

Fault protection and ultrasonic load sensing are contained within the amplifier. Load sensing is easily configured and allows loudspeaker monitoring through automated live speaker testing, detecting and reporting changes in the load of the connected loudspeakers.

Thermostatically controlled fans, integral to each unit, provide forced air cooling to the output power devices only during high temperature operation.

Hot standby amplifier control can be provided whereby a powered spare amplifier(s) is automatically connected to the loudspeaker network of a failed amplifier(s).

Access Panels

A range of access panels is available for use with the ***Elemec3*** PA/GA system.

Network enabled variants offer password protected user level access to defined points within the system. From simple single system view to all system page and alarm, access and control is fully configurable.

Multiple level screens offer paging and/or alarms to be configured to the users' access and requirements.

Prioritized control point access is limited by the users' network.

Local access panels are available in a range of enclosures, and are monitored for integrity and communicate via a 3 pair cable regardless of the standard features selected.

19'' console, desktop and bulkhead access panels are available for indoor and outdoor use and suitable for both safe and hazardous areas. Each of these variants use the same standardised panel insert. For hazardous areas, muster panels can be supplied for Zone 1, ATEX certified to EEx ib IIB T4.

The access panel insert assembly comprises a mild steel plate pierced to accommodate 30 pushbuttons, with a textured polycarbonate overlay and 'secret until lit' status indicators.

Pushbuttons can be individually programmed by software to perform any of the panel functions (zone selection, alarm tones, routine & emergency speech etc.).

Emergency speech and alarm pushbuttons can be fitted behind a Perspex cover to prevent accidental operation. 'All call' and Sleeping Quarter zone pushbuttons can similarly be fitted behind the cover if required.

Gooseneck or fist microphone options are available with "VU" indication. LEDs adjacent to the pushbuttons illuminate only when the switch press has been accepted by the Central Equipment to provide added confidence to the operator. Pushbutton legends are easily interchangeable.

Up to 16 fully fitted microphone panels can be connected to the ***Elemec3*** PA/GA system. Audio broadcasts can be prioritised in order to prevent routine announcements overriding Alarm tones and Emergency messages. During Emergency Speech broadcasts the audible Alarms can be programmed to attenuate (typically 12dB) or mute for the duration of the announcement.

TECHNICAL SPECIFICATIONS

System Controller

Keyswitch - Used to inhibit Auto Alarm inputs e.g. to prevent false alarms during fire and gas system commissioning.
USB Ports - to upload alarm tones
Status Indicators – for PA in use, system status, and power
SD Card - to store alarm tones and messages

Mechanical
Dimensions: W431.8 x H43.7 x D226.3 (mm) DIN standard 1U
Material: Aluminum

Electrical
Power 24V DC +/-10% <800mA (unit itself)

- 100mA fused outputs provided for Access Panels, Beacon Relays etc.
- Microphone Panel Audio Input 2.2V p.p. 600Ω
- Page/Party interface Input Level 1.5V rms
- CAN BUS to Input/Output Cards
- Amplifier Audio Output 2.2V p.p.
- Amplifier Data Link RS485 semi-duplex
- A/B System interlink 9 pair connection Audio 2.2V p.p.
- Auxiliary Inputs e.g. background music 2.2V p.p. 600Ω
- Auxiliary outputs e.g. voice recording 2.2V p.p. 600Ω
- Remote diagnostics and configuration

Class D Intelligent Power Amplifier

LCD Indicator Panel displays the following information:

- High Temperature Operation
- Output Overload Condition
- Amplifier Shutdown Protection Active
- Power Healthy
- Amplifier Enabled / Disabled
- Fuse Failure
- Zone Allocation
- Pargraph (output level)

Electrical

- Output power: 2 x 300W, 1 x 550W, 1 x 300W
- Line output voltage: 70V or 100V rms (or client spec)
- Input sensitivity: 0dBm (0.775V rms) for rated output
- Frequency response: 50Hz - 18kHz (-3dB points)
- Total harmonic distortion: <2% at 1kHz, full load
- Operating Voltage Options: 48V DC, Mains 120V or 230V AC
- Operating Temperature: -20°C to +50°C
- Efficiency: 80% (typ)
- Signal to Noise ratio: 60dB (A)

Mechanical

- Dimensions: 483W x 88H x 390D (mm) DIN standard 2U
- Mounting: 19” Standard Rack (Shelf or Slider)
- Material: Welded Steel Tray with Vented Lid
- Finish: Black Textured Stoved Enamel
- Output Audio Connectors: WAGO 5 way connector
- AC Power: IEEE Standard, 3 pin
- DC Power: Molex 2 way 100mm Mini Fit connector
- Audio / Data Comms (RS485): IDC
- Weight: 24Kg max

Access Panel - Local or Network

Network

- Password protected user level access
- Zone buttons as required
- Alarm initiate buttons as required
- Multiple page as required
- Network defined

Local

- Up to 30 pushbuttons
- System Status indicators
- 300mm gooseneck or fist microphone
- 3 pair connection cable

	Dimensions (mm)	Mounting	Material	Connections	Enclosure Rating
19” Console Panel	483W x 177H x 135D	19” Console	Mild Steel	2.5mm² screw terminal	
Desktop Panel	269W x 90H x 230D	Desktop	Mild Steel	15 way ‘D’ connector	
Indoor Bulkhead Panel	450W x 324H x 173D	Wall Mount	Mild Steel	2.5mm² screw terminal	
Outdoor Bulkhead Panel	400W x 300H x 210D	Wall Mount	Stainless Steel	2.5mm² screw terminal	IP66 (doorclosed)
GRP	280W x 280H x 170D	Wall Mount	GRP Polycarb	2.5mm² screw terminal	IP66

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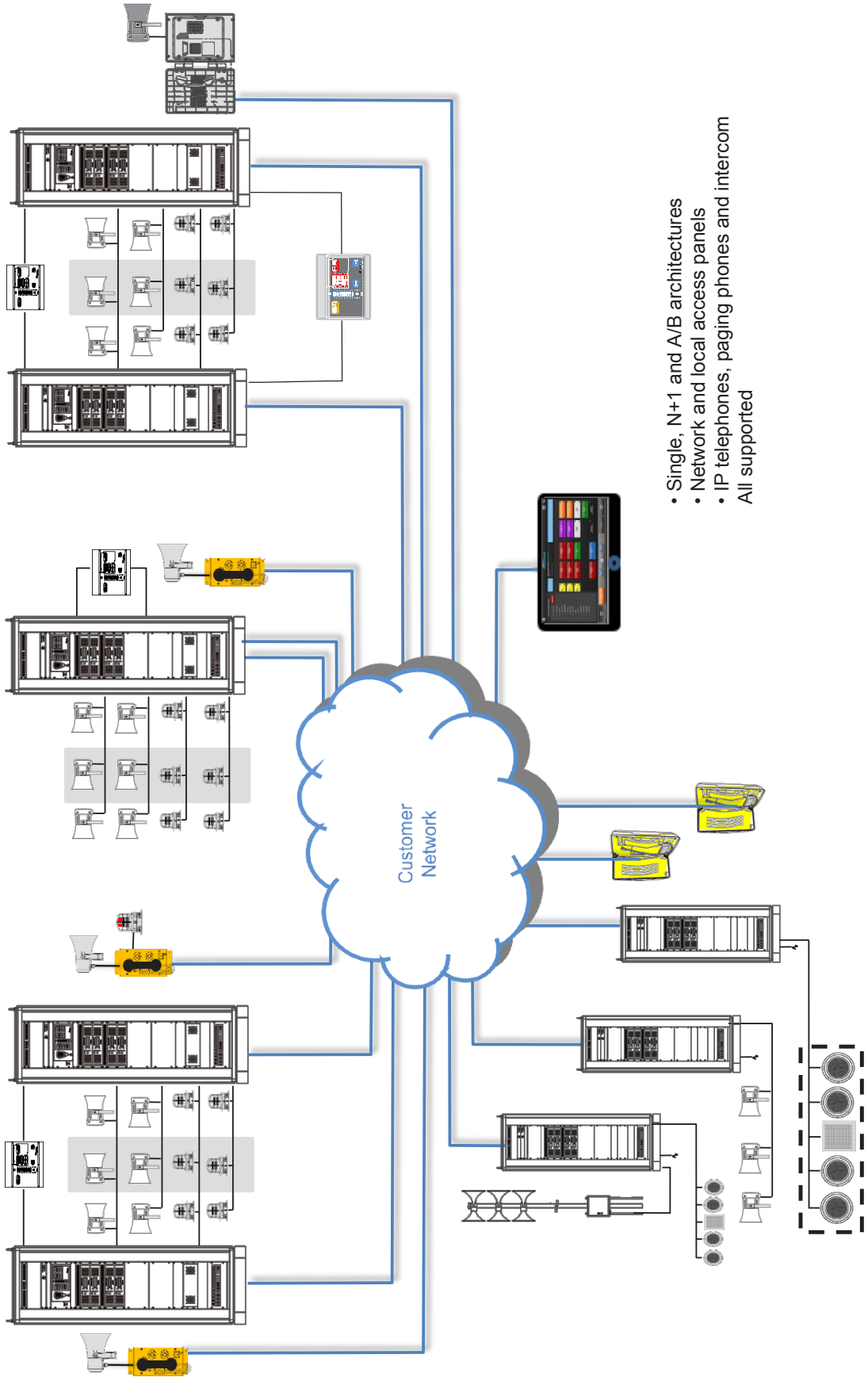

- Single, N+1 and A/B architectures
- Network and local access panels
- IP telephones, paging phones and intercom
All supported

www.gai-tronics.co.uk

GAI-TRONICS®

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