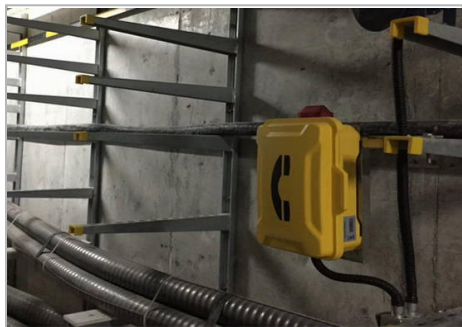


# Emergency Tunnel Call System (ETCS) / OVER IP

AUDIO&VIDEO INTERCOM / EMERGENCY CALL / PUBLIC ADDRESS



## SYSTEM DESCRIPTION

ETCS is a cost effective system with the application of the advanced IP Audio TM technology for highway and Tunnel. ETCS is typically connected to a control center and/ or emergency breakdown services. An auto-dial on handset lift is often used to connect users directly to the remote control center for appropriate response in each situation, or point to point communication by keypad for routine maintenance inspection staff.

ETCS system can support to make general or group paging via master console at control room, even very complex, by combining the proper elements, such as extra siren / speaker or flash beacon.

ETCS system device support Fiber Optic Network. Modern and efficient road administration facilities utilise improved control methods and increased mechanisation to achieve better control whilst reducing costs. The use of fiber optics for effective communications and to monitor, analyse and control the equipment and facilities is proven to improve efficiency. Fiber Optic networks are therefore used to manage, control and interconnect a wide range of traffic technology such as Public address / SCADA / Fire Detection system.

## SYSTEM FUNCTION

### Basic functions

Routine / Emergency Call

Communicate via Handset or Hands-free by different phone model, a mode of full-duplex.

A quick call to a target terminal by pick up handset (Hotline); Through numerical keys to randomly call any terminals.

Group Call

The system automatically calls a group of terminals. If any of the terminal responses, the call to the rest will be terminated.

Conference Call, Auto / Manual Answer, Busy Line Transfer, No-Response Transfer and Time Period Transfer.

DND&Call forward state synchronization, Call Recording.

### Advanced functions

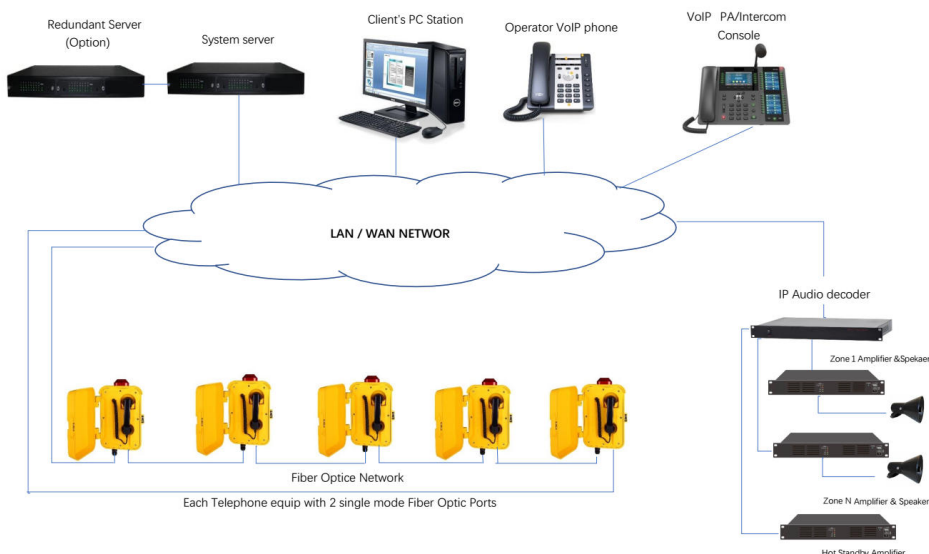
Zone Paging

To broadcast to certain / all of part of zones via IP network paging microphone.

To broadcast MP3 or WAV format pre-record alarm message to speakers which inside of tunnel.

## SYSTEM DIAGRAM

The below figure shows a typical ETCS System configuration. Emergency Call Telephones can either be connected in a circle formation to provide a redundant fiber optic network or in a line to connect directly to a IPBX. The distance between telephones can differ somewhat in various countries, depending on local regulations and best practice. For example, for European road tunnels, the European Directive 2004/54/EC on Minimum Safety Requirements in Tunnels stipulates that road administrators do not extend beyond 150M between each emergency call telephones for public safety reasons.



**MAIN CONTACT : A2S (ADVANCED SAFETY SOLUTIONS)**  
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## SYSTEM EQUIPMENT

### CENTRAL CABINET

Doors and sides are removable, lockable  
Lock upgrade options available  
Cable pass-throughs on bottom of rack  
With different size from 12 to maxi 42U



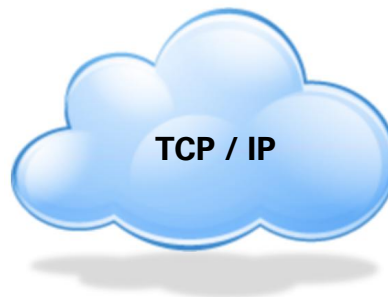
### CONTROL ACCESS CONSOLE

Indoor console used for for broadcasting, intercom and video call in the control room. Compatible with standard SIP protocol. With a paging microphone and 4.3"LCD With 77 keys



### CENTRAL SERVER

Administers 16 ports FXO/FXS, Maxi 200 SIP Users  
Standard SIP protocol allow other SIP terminals to register into themselves.  
Ethernet port 1 (10/100/1000M Base-T)



### LOCAL SONO BOX



Wall mounted SONO box, IP66 for outdoor application. With telephone interface board with relay, for incoming ring reminder or broadcasting. Fiberglass polyester body. with 2 cable glands

### IP AMPLIFIER



IP network decoder built-in 100V/8 Ohm. Rated power output of 120/240/350/500W. Enable to broadcast Mp3 program or pre-recorded voice message from PC server to IP amplifier. Remote volume control and program.

### POWERFUL SPEAKER



Indoor / Outdoor Speaker, from 10 to 30W by different model. Plastic or Metal enclosure, IP66 70/100V transformer with variable power adaption.

## LOCAL CALL STATION

### IP INTERCOM TERMINAL



#### WEATHER PROOF IP66 ATHOS

- Durable with composite SMC casing and stainless steel components.
- 2 variants: Full keyboard and hotline (no keyboard)
- SIP PoE model, or Fiber Optic via Network, power by 24Vdc or 230Vac.
- With integrated dry contact relay.

### IP INTERCOM TERMINAL



#### HANDS FREE CALL STATION HADES

- Cold Rolled Steel (CRS) enclosure, with mushroom button. IP66/67
- With build in amplifier / Speaker
- Orange as standard color, optional for blue, yellow, gray
- Power over Ethernet (PoE) or 12-24V DC.

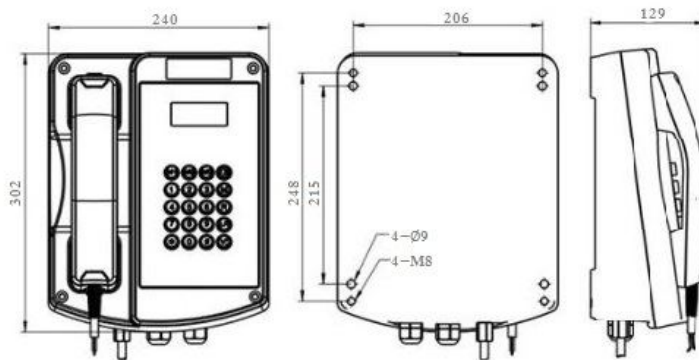
# Explosion proof telephone for paging system

Analog & VOIP

## ExJResisTel Explosion-proof analogue telephone

- The JREX106 Analog explosion proof telephone are designed to provide safe, reliable communication in hazardous areas –zone 1, 2, 21, 22
- Degree of protection IP 66 & impact resistance IK09
- The housing is made of impact and shock-resistant GRP and even resistant to acids, alkali and lubricants
- For Refineries, Power Generation Facilities, Chemical Plants applications
- Large urethane coated watertight keypad
- Programmable with alphanumeric display
- Housing colours black, red, yellow
- Models with or without keypad/display available as hotline telephone

II 2G Ex e ib [ib] mb IIC T4 Gb  
 II 2D Ex ib [ib] tb IIIC T135 °Db  
 C ≤ Ta ≤ +60 °C/+40°C° 40-  
 Zone 1,2,22



### SPECIFICATIONS

**Dialling method** Dialling method LD and DTNF (switchable)

**Power Supply:** Line powered i.e. drawn from telephone line  
 It doesn't require any external AC Supply

**Tone ringing volume** Max. approx. 90dB(A) in 1 m distance

**Transportation/storage temperature** -40°C/+70°C

**Housing** High Impact Glass fibre-reinforced polyester (black, red, yellow)

**Cable entry** 2xM20 Cable Gland Entry Points

**Connection technology** up to 4 mm<sup>2</sup> rigid, up to 2.5 mm<sup>2</sup> flexible

**Operating temperature** -25°C bis +60°C (T4)

**Degree of protection** IP66 according to EN60529

**Impact resistance** IK 09 according to EN50102

**Approval** ECM 0B170629 ATEX / IECEx EUT 17.0011X

**Technology** analogue

**Keypad** stainless steel keypad 20-piece,

**Wiring Access** 2xM20 Cable Gland Entry Points

**Noise suppression** Noise canceling microphone

**Supply voltage** 24 V DC-66 V DC

**M.T.B.F.** In excess of 50,000 hours using

**Ringing alternating** ( Max. approx. 90dB(A) in 1 m distance 30 V AC-90 V

**Pulse/Pause ratio programmable** 60/40ms 1.5:1

**Flash time** 300ms set as default 100ms-900ms can be programmed

**Enquiry key** Flash function can be adjusted from 40 ms-399 ms

**W conductor** Option to connect external call signalling sounder

**Weight** 6.5 Kg

**Display** Back-lit LCD display-2 line x15 character: English  
 128x 64 pixels

**Mouthpiece** Electret microphone

**Receiver** Hearing Aid Compatible (HAC)

**Stabiliser bracket**

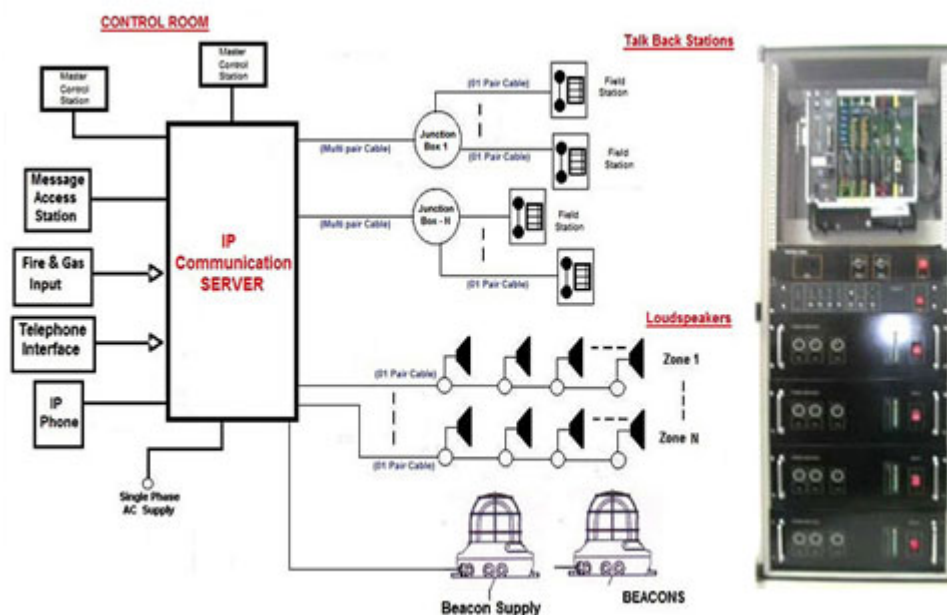
**Handset cord** Heavy duty curly handset cord or vandal resistant armored

**Bracket** vertical wall mounting or table mounting

## Explosion proof loudspeaker for paging system

<p><b>DSP-15EExmN(T)</b></p>  <p><b>Ex-proof loudspeaker</b></p> <p>25W Ex plastic horn speaker. This versatile model can be ordered with different transformers for more tapings and power ratings</p>	<p><b>DSP-15EExmNL (T)</b></p>  <p><b>Ex-proof loudspeaker</b></p> <p>Are you in need for an ATEX horn speaker that is light in weight but heavy on sound coverage? Our new long flare version of DSP-15 EExmNT is an excellent choice when required .SPL needs to be high</p>
<p><b>DSP-25EExmN(T)</b></p>  <p><b>Ex-proof loudspeaker</b></p> <p>25W Ex plastic horn speaker. This top selling DNH ATEX horn loudspeaker is supplied with two M20 blanking plug as standard. Now also with certificate for USA and Canada</p>	<p><b>BA-56EExeN (T)</b></p>  <p><b>Ex-proof ceiling speaker</b></p> <p>6W 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</p>
<p><b>CAREEX-6(T)</b></p>  <p><b>Ex-proof speaker</b></p> <p>6W ATEX-approved bi-directional speaker made from aluminum. Used for cabins, hallways etc. in hazardous areas</p>	<p><b>HS-15EExIIN(T) Zone 2</b></p>  <p><b>Ex-proof loudspeaker</b></p> <p>This is DNH's famous HS-15 model in aluminum. This is a .Zone 2 version - 15W</p>

### Industrial paging system



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