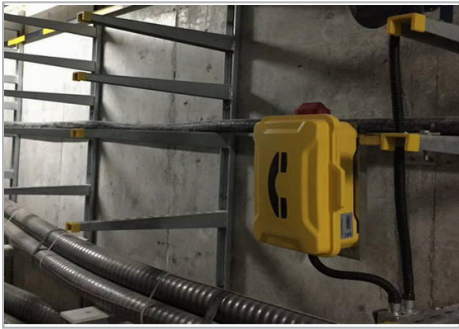# Emergency Tunnel Call System (ETCS) / OVER IP

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

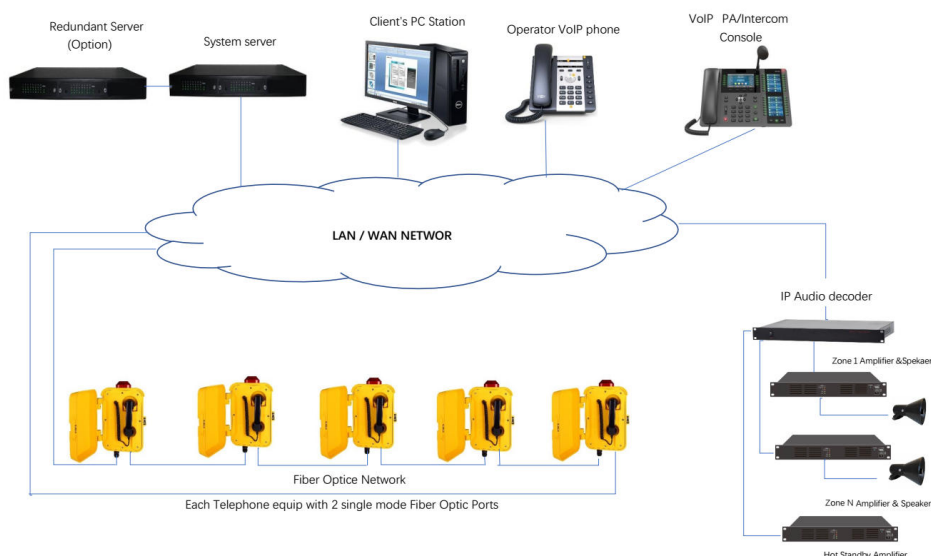| Basic functions	Routine / Emergency Call
	Communicate via Handset or Hands-free by different phone model, a mode of full-duplex.
	A quick cal l to a target terminal by pick up handset (Hotline); Through numerical keys to randomly call any terminals.
	Group Call
	The system automatically calls a group 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 configration. 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.

Emergency Tunnel Call System (ETCS) / OVER IP

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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 from12 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)

TCP / IP

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

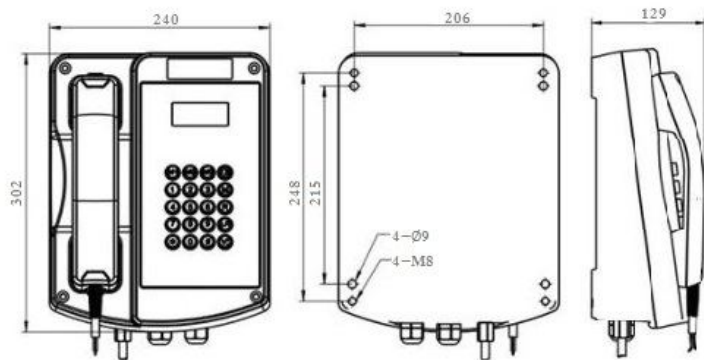| IP INTERCOM TERMINAL	IP INTERCOM TERMINAL
WEATHER PROOF IP66 **ATHOS** ▪ Durable with composite SMC casing and stainless steel components. ▪ 2 variants: Full keyboard and hotline (no keyboard) ▪ SIP PoE model, or Fiber Optic via Network, power by 24Vdc or 230Vac. ▪ With integrated dry contact relay.	**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 urehane 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 mm² rigid, up to 2.5 mm² 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 x15character: 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 loadspeaker for paging system

DSP-15EExmN (T)

Ex-proof loadspeaker

25W Ex plastic horn speaker.This versatile model can be ordered with different transformers for more tappings and power ratings

DSP-15EExmNL (T)

Ex-proof loadspeaker

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

DSP-25EExmN (T)

Ex-proof loadspeaker

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

BA-56EExeN (T)

Ex-proof ceiling speaker

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

CAREEX-6 (T)

Ex-proof speaker

6W ATEX-approved bi-directional speaker made from aluminum. Used for cabins, hallways etc. in hazardous areas

HS-15EExIIN (T) Zone 2

Ex-proof loadspeaker

This is DNH's famous HS-15 model in aluminum. This is a .Zone 2 version - 15W

Industrial paging system