# SigTEL

1 to 64 line emergency voice communication system

## disabled refuge systems

## fire telephone systems

## stadium marshalling systems

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1 to 64 line emergency voice communication system

**For most people, a simple instruction like "please leave the building by the nearest available exit" can be acted upon quickly and easily. But for wheelchair users, the disabled and infirm, this isn't always the case.**

Current Building Regulations recognise this and insist all new non-domestic buildings with more than one storey provide 'refuge' areas – relatively safe places where people who cannot easily use fire escapes and evacuation lifts can call for assistance and wait until help arrives.

Simple, effective two-way communication in these areas is essential, firstly to assist rescue teams in determining where assistance is required and secondly to reassure people help is on the way.

Communication systems in refuge areas are known as Emergency Voice Communication (EVC) Systems and SigTEL is suitable for use in all types of EVC application – be it a disabled refuge, fire telephone or stadium marshalling system.

Incredibly easy to use and offering true duplex speech, SigTEL meets and exceeds the requirements of standards such as BS 5839 part 9 in all areas and is hugely cost-effective in comparison to other systems on the market.

## Key features of the SigTEL emergency voice communication system

- Ideal for all disabled refuge, fire telephone and stadium marshalling applications
- Compact 1-8 line (expandable to 16 lines) wall-mounting controller saves valuable desk and floor space in crowded control rooms
- Powerful networking facility allows up to four master controllers (and slaves) to be interlinked allowing 64 line systems to be easily implemented
- Optional anti-tamper enclosures available for controllers located in areas accessible to the public
- 'Disabled Refuge' (Type B) stainless steel outstations offer true duplex hands-free speech
- 'Fire Telephone' (Type A) outstations are supplied in locking or non-locking red steel cabinets
- Outstations can be mixed and matched to suit the application - flush, surface & weatherproof versions are available
- Unique 'auto-learn' facility allows fast system set up
- All extensions can be named with user-defined text of up to 15 characters
- Fully monitored hardware and software
- System operates at 24 VDC. In the event of mains failure, operation can be maintained for 24 hours (standby) and 3 hours (in use) using 2 x 12V 7 Ahr batteries
- Optional FiTT line tester allows cable faults to be checked prior to equipment connection
- Can be easily interfaced to disabled persons toilet alarm systems, audio-frequency induction loop systems, strobes, beacons or CCTV activation relays
- Ideal for hotels, shopping malls, office blocks, transport terminals, banks, sports stadiums, entertainment complexes, etc

# SigTEL 1 to 64 line Controllers

SigTEL comprises a low-cost all-in-one wall-mounting Controller which can handle up to 8 lines (expandable to 16 via an 8 line expansion unit). Typically located in a building's control room (or on smaller applications at a fire services access point) it allows management and/or the emergency services to communicate via a telephone-style handset with the system's 'outstations'. For larger systems, up to four Controllers can be interlinked using a network communication card allowing systems of up to 64 lines to be easily implemented.

## ECU-8 SigTEL 8 Line Master Controller

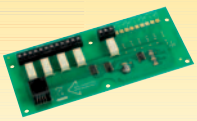
- Allows operators to communicate with up to eight Type A or B outstations
- Supplied with a backlit LCD and handset
- Requires 2 x 12V 7.0 Ah batteries
- Can be semi-flush mounted using the AFP385 bezel
- Optional BF359/2 tamper-resistant cabinet also available

## ECU-8S SigTEL 8 Line Expansion Unit

- Can be connected to an ECU-8 master controller to increase its line capacity to 16
- Does not require a separate mains supply or batteries
- Can be semi-flush mounted using the AFP385 bezel

## ECU721 Network Communication Card

- Allows the interconnection of up to 4 master controllers over a 1KM network
- One card required per networked master controller
- Allows systems of up to 64 lines (four ECU-8 masters each with an ECU-8S slave) to be easily set-up
- Any ECU-8 can take control of the system at any time by the input of a special code
- For networked systems that do not require multiple control points, Master Controllers without handsets are available (ECU-8NT)



## BF359/2 Anti-tamper Enclosure for ECU-8

- A tough tamper-resistant cabinet for housing the ECU-8 master controller in areas that are accessible to the general public
- Helps ensure the controller remains operational at all times by reducing the risk of vandalism
- Flush and semi-flush stainless steel and weather-resistant options also available

*controller not included*

# SigTEL Disabled Refuge & Fire Telephone Outstations

Two types of outstation are available - Type B (handsfree intercom-style) outstations for disabled refuge applications and Type A (telephone-style) outstations for fire telephone and/or stadium marshalling applications. Both versions offer high quality, full duplex speech and connect to the SigTEL Controller (or 8 line expansion unit) using two cores of 1.5mm² of enhanced fire rated cable of up to 1 KM in length.

## EVC302S Type B Surface Disabled Refuge Outstation

- Allows anyone in a disabled refuge to communicate with building control at the touch of a button and vice versa
- High-quality brushed stainless steel finish
- Includes connections for an optional audio-frequency induction loop system
- Easily interfaced to strobes, CCTV activation relays and/or disabled persons toilet alarm systems

## EVC302F Type B Flush Disabled Refuge Outstation

- A flush fitting version of the EVC302S
- Allows anyone in a disabled refuge to communicate with building control at the touch of a button and vice versa
- High-quality brushed stainless steel finish
- Includes all of the features and connections of the EVC302S surface outstation

## BF359/1 Anti-Tamper Enclosure for EVC302F

- An IP65 rated weather resistant enclosure designed for use with the EVC302S surface Type B outstation
- Allows an IP65 rated Type B disabled refuge outstation to be created for use in external areas such as car parks
- Supplied with a locking keyswitch mechanism that can be easily changed to a semi-secure handle mechanism
- Optional bezel available

## THS1-E Type A Fire Telephone Outstation

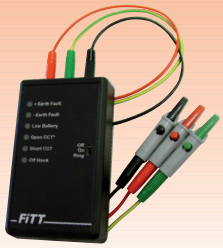
- Designed for use in fire telephone and stadium marshalling applications
- Allows fire marshals and stewards to communicate with building control via a telephone handset and vice versa
- Typically located at entrances and fire fighting lobbies
- Supplied in a lockable red steel wall-mounting cabinet that can be semi-flush mounted using an optional T-BEZ bezel
- Also available in non-locking 'T-Bar' cabinets (order code THS1-ET)

# SigTEL Accessories

A range of cost-effective accessories specifically designed for use with the SigTEL emergency voice communication system. The range incorporates a battery-operated line tester (to simplify installation and commissioning), a blue and amber strobe (to provide visual indication of an incoming call), an audio-frequency induction loop system (to assist the hard of hearing) and a disabled persons toilet alarm system (to allow communication to take place in accessible toilet areas)

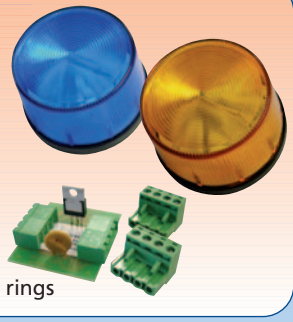
## FITT Line Tester

- A must-have commissioning tool for all SigTEL systems
- Allows cable faults to be checked and cleared prior to equipment connection
- Supplied with a non-rechargeable 9V PP3 alkaline battery allowing approximately 28 hours of use
- Includes all of the test cables and connectors you need




## XSB / XSA Xenon Strobes

- Can be interfaced to Type A or Type B outstations to provide visual indication of incoming calls
- Amber (XSA) and Blue (XSB) versions available
- Each strobe requires an external 12V 1A PSU and an SDM Driver Module which should be connected across the outstation's line to sense when the outstation rings



## NC951 Disabled Persons Toilet Alarm Kit

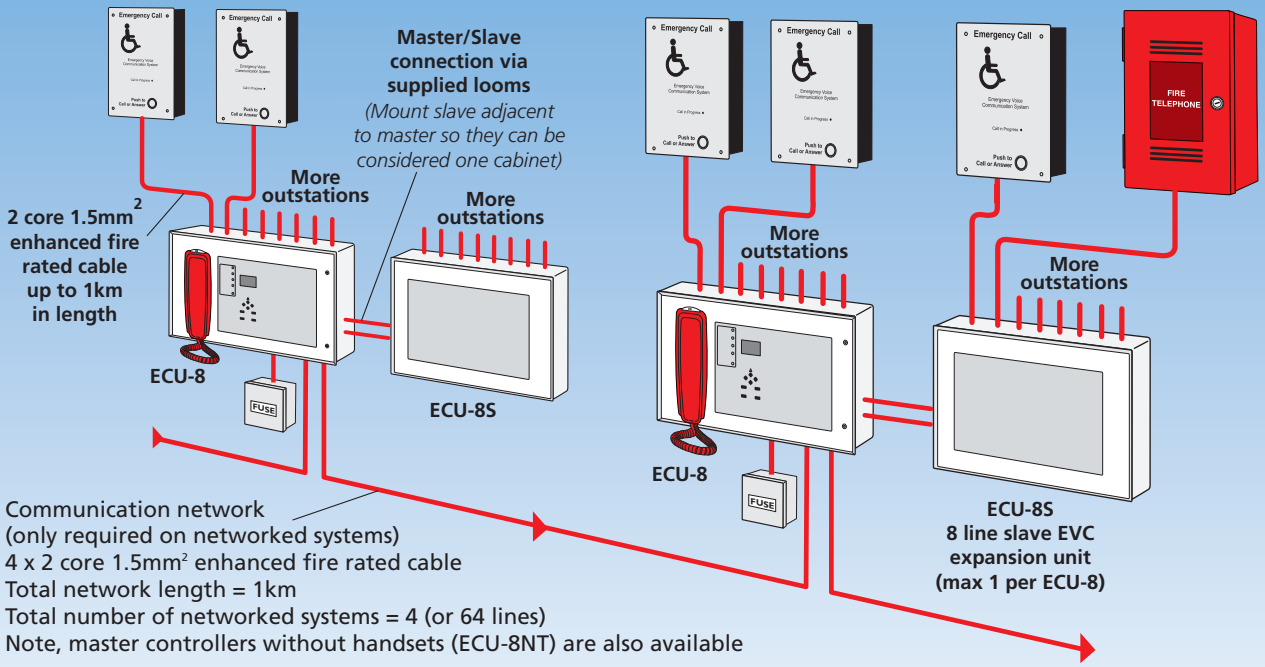
- Includes everything required for a BS8300 compliant emergency assistance alarm
- Easily interfaced to a Type B outstation via its volt-free relay contacts and the outstation's Off-Hook and -Ve terminals

*Activation of the alarm will have the same effect as pressing the outstation's push to call button. When the call is answered at the controller, a direct speech channel will be established between controller and the outstation.*

## ML1/K1 Audio-Frequency Induction Loop Kit

- A cost-effective induction loop system easily interfaced to a Type B outstation's loop connectors
- Exceeds the magnetic field strength requirements of BS EN60118-4 when the loop is correctly installed at ceiling or floor height (excat location will depend on the application and building)
- Helps facilitate to compliance with the Disability Discrimination Act

# SigTEL Wiring Overview




Communication network
(only required on networked systems)
4 x 2 core 1.5mm² enhanced fire rated cable
Total network length = 1km
Total number of networked systems = 4 (or 64 lines)
Note, master controllers without handsets (ECU-8NT) are also available

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## What is an Emergency Voice Communication (EVC) System?

An emergency voice communication system is a life safety intercom (or telephone) system designed to operate reliably in a fire alarm emergency. Its equipment and wiring must be monitored for faults that might occur prior to the emergency and its cabling and battery backup supply must ensure it keeps working during the emergency. According to BS5839 part 9, there are two types of EVC system; disabled refuge and fire telephone. They may be separate, or they may be combined into one system.

Disabled refuge systems

A disabled refuge system typically connects handsfree intercom outstations to a central control room and is used to inform management that someone needs immediate assistance to exit the building.

Fire telephone systems

A fire telephone system is used by management (and marshals at a sports ground) and the fire service before, during and after a fire to communicate with fire marshals and fire fighters.

## Regulations affecting EVC systems?

The installation of an emergency voice communication system is governed by BS5839 Part 9: Code of practice for the design, installation, commissioning and maintenance of emergency voice communication systems.

Disabled Refuge Systems are called for by:

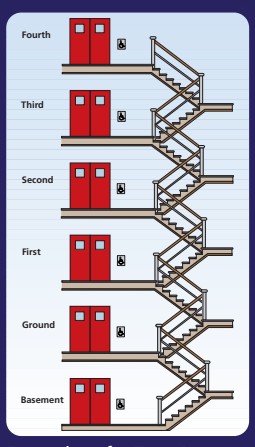
- Building Regulations; Approved Document B (Fire Safety); Volume 2, Section 4: Design for vertical escapes
- BS5588 Fire precautions in the design, construction and use of buildings; Part 8: Code of practice for means of escape for disabled people
- Regulatory Reform Order (Fire Safety Order) Oct 2005
*Risk assessments undertaken by the responsible person must make provision for means of escape for disabled people.* Supplementary Guide: Means of escape for disabled people, written in association with the Disability Rights Commission

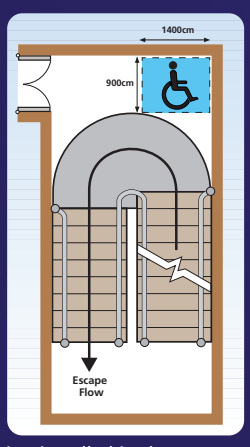
Fire telephone systems are called for by:

- BS5588 Fire precautions in the design, construction and use of buildings; Part 5: Code of practice for firefighting stairs & lifts; Part 10: Code of practice for shopping complexes; Part 11: Code of practice for shops, offices, industrial, storage and other similar buildings
- London District Surveyors Association in conjunction with LFCDA Fire Safety Guide No. 3; Section 2: Fire Safety Measures
- London Fire and Civil Defence Authority (London Fire Brigade) Fire Safety Guidance Note Number: 30 (Rev 3)
- Guide to safety at sports grounds; 16.11: Telephone communications – internal

## Where are disabled refuges / Type B outstations required?

Refuge areas are called for in all non-domestic buildings with more than one storey and they should be provided at each storey exit (i.e. each protected stairway affording egress).

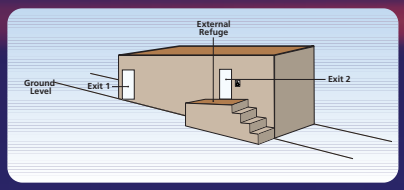


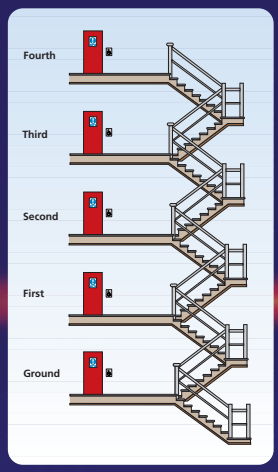




*Examples of a Type B outstation installed in the protected stairway providing egress from each storey*

Examples of a refuge area include an enclosure such as a protected lobby, corridor or stairway or an area in open air such as a flat roof, balcony, podium or similar place which is sufficiently protected (or remote) from any risk of fire and has its own means of escape.

Type B outstations should be provided in all refuge areas. They should be wall mounted, in an easily accessible, well illuminated and unobstructed position 900 mm to 1.2 m above the ground. They should allow members of the evacuation team to determine how many disabled people there are, the nature of their disabilities and the refuges in which they are located.




*Example of a Type B outstation installed on an external fire escape staircase providing egress from each storey (right) and the final exit (left).*

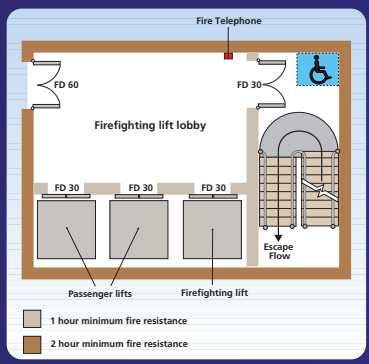
Note that refuges are intended for temporary use only (a few minutes) whilst building management are sending trained staff to deal with the evacuation and should not be confused with "places of relative safety".

## Where are fire telephones / Type A outstations required?

In buildings which require a fire telephone system, Type A outstations should be located at every fire fighting entrance point, fire escape landing and fire fighting lobby. They should be wall mounted 1.3 m to 1.4 m above the ground in an easily accessible, well-illuminated and unobstructed position.

In sports stadiums, emergency telephones should be located no more than 30 metres from stewards' positions or other normally manned areas such as turnstiles, public address operating booths, offices of senior officials, lighting control points, first aid rooms, police rooms, etc.

They should allow communication between management and/or fire marshals and/or the fire service before, during and after a fire.




*Example of a Type A outstation installed opposite a firefighting lift within the firefighting lift lobby on each floor*

## Master Controller Location

The system's Master Controller should be located in the control room, security room or next to the main fire panel or repeater panel and it should be permanently manned in an emergency. The centre of the Controller's controls (if wall mounted) for a standing operator should be 1.4 m to 1.5 m above the floor.

If the power supply to the Controller fails, the batteries provided should run the system in its quiescent state for at least 24 hours and then allow emergency voice communication for at least 3 hours. The Controller (and all Outstations) should also offer full duplex speech, i.e. the concurrent transmission and reception of speech in both directions.

Communication between the Controller and an Outstation should normally be initiated from the Outstation. However, the ability to call an Outstation from a Controller is also allowed. Indeed, standards such as BS5588 part 8 acknowledge keeping people informed during an emergency will help avoid anxiety and confusion.

## Cables, wiring and interconnections

All of the cables used in an EVC system should be of enhanced fire resistance (26.2e of BS 5839-1:2002) except for underground sections of cabling at sports grounds.

## Inspection and servicing

Inspection and servicing should be carried out every six months by a competent person/organisation with specialist knowledge of the installed equipment.

# SigTEL Emergency Voice Communication System Technical Specifications

## MASTER CONTROLLERS (ECU-8 / ECU-8NT)

| | |
|---|---|
| **Power Supply** | |
| Mains supply | 230 VAC, 50/60 Hz |
| Power supply output 1 | 24 VDC |
| Power supply output 2 | 5 VDC |
| Output current @ 24 VDC | 0.5 A max |
| Supply and batteries monitored for failure | Yes |
| Standby battery requirements (size and type) | 2 x 12 V, 7 Ah VRLA (Valve Regulated Lead Acid) connected in series |
| Mains fuse 1 A (T) | 20 mm HRC |
| Battery fuse 1 A (F) | 20 mm |
| Max. current draw from battery (Mains failed) | 500 mA (16 Type B outstations fitted (8 via an ECU-8S), one outstation connected, 15 outstations calling in) |
| **Line specification** | |
| Max. number of lines | 8 (expandable to 16 if an ECU-8S expansion unit is fitted). Networking option allows up to 64 line systems |
| Number of outstations per line | 1 |
| Lines monitored for open and short circuit faults | Yes |
| Outstation cabling requirements | 2 core 1mm² or 1.5mm² enhanced fire rated cable, up to 1km per line. Max cable resistance = 40 ohms |
| **Output ratings** | |
| OP1, OP2, OP3 open collector outputs | 24 V, 50 mA max |
| Change-over relay | 30 V, 1 A max |
| 24 V output | 200 mA max |
| **Indicators, controls and physical appearance** | |
| External indicators | LCD display, Disablement, System fault, PSU fault, General fault, Power On |
| External controls | Handset (ECU-8 only), Scroll up, Scroll down, Hold, Call/Accept, Function, Directory, Silence Buzzer |
| Internal controls | Engineer mode button, Reset button |
| Dimensions / weight | W 412 x H 250 x D 80mm (base); W 435 x H 269 x D 11mm (lid); 3.1kg |
| Physical appearance | Lid and base RAL7305 (Grey texture), label background Pantone 429C |
| **Network specification** | |
| Max no. of master controllers per network | 4 (providing 32 lines, or 64 lines if each master controller has an ECU-8S expansion unit fitted) |
| Connection | Via ECU721 network communication card, one required per networked master |
| Network cabling requirements | 4 x 2 core 1.5mm² enhanced fire rated cable, up to 1km in length |
| **Optional BF359/2 anti-tamper enclosure** | |
| Dimensions | W 603 x H 465 x D 200mm |

## EXPANSION UNITS (ECU-8S)

| | |
|---|---|
| Mains supply and standby battery requirements | Not applicable (power derived from ECU-8 or ECU-8NT master controller) |
| Cabling requirements (from ECU-8 or ECU-8NT) | 2 x CAT5 patch leads (supplied). These must be protected to BS5839 standards by joining the two cabinets with a short length of 25mm steel conduit (45 to 60mm in length) and passing the cables through |
| Dimensions / weight | W 412 x H 250 x D 80mm (base); W 435 x H 269 x D 11mm (lid); 3.1kg |
| Physical appearance | Lid and base RAL7305 (Grey texture), label background Pantone 429C |

## DISABLED REFUGE (TYPE B) OUTSTATIONS (EVC302F / EVC302S)

| | |
|---|---|
| Input voltage (from controller) | 5 VDC in use, 10.7 VDC quiescent; |
| Current consumption @ 24 VDC | 25 mA in use, 3 mA quiescent |
| Frequency response | 250 Hz to 5 kHz ±3 dB (microphone); 250 Hz to 4 kHz ±3 dB (loudspeaker) |
| Audio output level | 0 dB (775 mV) balanced line level |
| Switch output | Opto-isolated normally open open-collector, max 24 VDC 3 mA |
| External indicators | Red call in progress LED |
| Controls | External Push to Call or Answer button (Off Hook); Internal Loudspeaker volume & Engineer's On Hook pins |
| Dimensions & Weight (EVC302F Flush Outstation) | W 175 x H 250 D 55mm (assembled); W 152 x H 228 x D 53mm (back box only); 1.4kg |
| Dimensions & Weight (EVC302S Surface Outstation) | W 175 x H 240 x D 53mm (assembled); 1.4kg |
| Physical appearance | Stainless steel fascia, RAL9005 (jet black) base |
| Optional BF359/1 weatherproof endosure dimensions | W 200 x H 298 x D 124mm approx. (unassembled, no handle fitted) |

## FIRE TELEPHONE (TYPE A) OUTSTATIONS (THS1-E / THS1-ET)

| | |
|---|---|
| Input voltage (from controller) | 5 VDC in use, 10.7 VDC quiescent; |
| Current consumption @ 24 VDC | 25 mA in use, 3 mA quiescent |
| Frequency response | 250 Hz to 5 kHz ±3 dB (microphone); 250 Hz to 4 kHz ±3 dB (loudspeaker) |
| Audio output level | 0 dB (775 mV) balanced line level |
| External indicators | Red power LED (unlit when handset Off Hook, flashes when ringing) |
| Controls | Lifting telephone handset makes unit Off Hook |
| THS1-E Fire Telephone Type A Outstation c/w key | W 200 x H 350 x D 105mm; 3.8kg |
| THS1-ET Fire Telephone Type A Outstation c/w T-bar | W 200 x H 345 x D125mm; 3.8kg |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