# special purpose telecommunication systems custom made, to solve customer specific needs



**Communications**First

#### Special Purpose Telecommunication Systems *Catalogue*

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# special purpose telecommunication systems custom made, to solve customer specific needs



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**About Fitre** 



Fitre is an industrial company that has been operating in the telecommunications field for over 65 years, with success founded on the technical innovation of its products and services offered to each client. The company's main activities focus on products and equipment for network service providers, products and systems for industrial telecommunications sector and on emergency calling systems and products for professional telecommunications.

Since its founding in 1943, **Fitre** has been active in the development of products and systems for communications and safety in hazardous environments, including industrial plants, transportation systems and public areas throughout the territory.



# **Communications**First

Here we have described some of the solutions that **Fitre** offers today for different applications in industrial sectors and throughout the territory. Thanks to the sound experience gained over its long history, **Fitre** has learned how to process and analyze the multiple operating needs of its clientele and partners, who are active in many different productive sectors.

**Fitre** supports its clientele in the development of innovative, appropriate solutions for their specific **communication** problems, what is a **primary factor in the growth** of each company and in the security of the territory.

For **Fitre** there is no ideal communication system, but instead careful analysis of the requirements expressed by the end client in order to create "the ideal system" for that particular user. Based on this concept, it is clear that one single technology cannot solve all types of communication issues.

**Fitre** supports and develops solutions based on several technologies (analog, digital, analog/digital), thus guaranteeing its clientele:

open, modular and flexible solutions based on international standards, avoiding proprietary solutions;
choice of the most suitable technology depending on working conditions and/or existing systems.

- **1871** Antonio Meucci presents the preliminary patent application in New York for his "telettrofono" (this was the name he gave to his first telephone) and founded his "Telettrofono Company".
- **1876** Alexander Graham Bell applies for a patent for his "Improvements in Telephonic Telegraph Receivers".
- **1878** The first telephone service provider begins operating in New Haven (USA).
- **1910** The first manual dial telephone service provider begins operating.
- **1920** The first automatic dial telephone service providers with electromagnetic step-switches begin operating.

It is exactly in the middle of this historical timeline **1943** spanning from the latter half of the 1800s up to present day that the founding of **Fitre** took place, which since its first day has concentrated its aim on the improvement of telephone communications in industrial plants.

> We now can quickly arrive at present day. **2000 Fitre** has continued its expansion in the industrial and civil telecommunications sectors, becoming a point of reference for the market. The continuous development of its own technological skills has permitted

the company to design and market IP digital terminals with VoIP technology since the start of this century.

Fitre was founded in 1943, at the halfway mark in the history of telephone technology







## **Fitre Communication Systems**

There are many different kinds of communications in every sector linked to the methods used by the personnel, as well as to more specific safety requirements.

The elements used in these environments are mainly "Terminals", "Speakers" and "Control Units". The system is made out of a group of elements managing the methods each company uses, in order to guarantee its own personnel the possibility to work in safety and with maximum efficiency.

Another element which is necessary for the creation of a "good system" is the careful evaluation of the operating methods of each sector, as well as the particular working conditions and/or system conditions within each single company.

**Fitre** acts as a partner for each of its clients, offering its experience and skills for analysis and resolution of every single problem.

**Fitre** can count on a wide range of solutions which have been developed over the years and the bulk of its know-how in this sector.

The range of solutions offered by **Fitre** includes the following types of systems:

- Telephone systems with analog and digital VoIP office devices, waterproof and explosion-proof, complete with telephone accessories including, for example, acoustic/optic ringer relays, telephone hoods, etc.
- Communication systems based on sound-powered technology, without the need for any type of power supply; the system can be interfaced with a LAN network.
- Systems for management of SOS emergency calls with specially designed waterproof industrial handsfree phones in compliance with the safety standards governing applications for highways, railroads, public open areas, etc.
- Supervision systems for emergency devices, in order to determine if the device is defective and record events and conversations; with the possibility of integrating them with a video.
- P.A. Systems (Public Address System) with anti-Larsen device and alarms management for automatic diffusion of alarm tones/messages in a single area, a group of areas or in all loudspeaker areas.
- Automatic public announcement diffusion systems with TTS (Text-To-Speech) for railroads, subways, large department stores, etc.
- Omnibus "ring" intercom systems based on a single communication bus.
- All-to-all intercom systems, which allow all users to freely select any other number through the intercom control unit.
- Selective intercom systems with direct calling, allowing to call only certain users.
- Protection systems for telephone and data lines against transients and/or connection problems "outside of the ground network".

All of the emergency system components (control unit, devices, etc.) were developed entirely in Fitre R&D Laboratories, which boast total know-how of mechanical, electronic and software development design.

Thanks to the adoption of an **open, modular type architecture based on international telephone standards, Fitre** is able to integrate communication functions with other systems (for example TVCC) and to develop communication protocols with external supervisory and diagnostic systems.

All of the communication systems are based on telephone standards with analog and digital (VoIP) technologies, thus giving the possibility of creating mixed architectures (analog and VoIP).



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## **Main applications of Fitre solutions**

The systems offered by **Fitre** are widely used in all industrial market sectors that demand flexibility and quality as priorities:

- \* Steelworks and metallurgical industries
- **\* Petrochemical plants**
- **\* Electric power plants**
- **\*** Cement production plants
- **\* Glass production plants**
- \* Railroads: network and on board systems
- \* Railroads: tunnel emergency systems
- \* Subways: network and on board systems
- \* Highways: SOS emergency call systems for highways and tunnels
- \* Public spaces: emergency/information call systems integrated with a video surveillance system

## What to choose? Digital VoIP or analog?

**Analog architecture** requires that each user of the communication system is connected to his/her own control unit via a telephonic twisted-pair wire, which is an example of the traditional telephone technology.

The system functions are closely linked to the type of PABX control unit, as well as to the type of devices used.

**Fitre** has developed a series of VOX devices based on analog technology and equipped with their own diagnostic system, to solve the operating needs of SOS emergency systems.

Each device can be connected from a distance of approximately 2-3 km from the control unit and the devices do not require a local power supply, which is present only in cases that require a call signal reinforcement.

The **digital architecture** is based on the **Voice over IP** system (Voice via Internet protocol), usually named **VoIP**, a technology that makes it possible to carry out a telephone conversation by using an internet connection on a dedicated network that uses IP protocol, as opposed to passing through the traditional telephone network (PSTN).

Among other advantages in respect to traditional telephone systems, this technology provides:

- lower infrastructure costs: when an IP network is available, no other infrastructure is necessary;
- it facilitates the outsourcing of the system management elements (control unit, operator stations, etc.);
- new advanced functions;
- implementation of future options does not require replacement of the hardware.

This technology therefore allows the use of pre-existing network resources, permitting a notable reduction of costs in both private and public facilities as well as a geographical distribution of the system elements.

The same network can be used both for vocal communications (telephone intercom emergency communications) as well as for the transportation of TVCC images, thus simplifying the installation procedure.



Each VoIP device is part of the IP network, and therefore is connected to its network switch via a cable cat. 5 or 6 with a maximum length of 90 meters, which can be increased by using suitable media converters.

Each device requires power supply via PoE (Power over Ethernet) or from a local source.

Different communication protocols can be used in VoIP technology. Fitre has selected SIP, since SIP (Session Initiation Protocol) is a protocol based on IP, defined by RFC 3261 and used mainly for telephone applications on IP or VoIP.

Using SIP protocol it is possible to transfer various types of data (audio, video, text messaging, etc.). In addition, SIP allows for modular or scaled architecture, or architecture that is able to grow with the number of service users. This potential has made SIP the most diffused VoIP protocol in the communications market, leaping ahead of many other protocols such as H.323 and MGCP.

In addition, by adopting SIP protocol it is possible to use various standard devices designed to facilitate the use of VoIP by all kinds of users. Some examples of these devices are ATA (Analogue Telephone Adapters) or Gateways, which can convert the signals of a normal analog telephone into an IP data flow.

## **Fitre VoIP Technology**

Since the early years of introduction to the IP technology, **Fitre** has developed communication systems and message diffusion on IP networks for industrial facilities. It is therefore now possible to propose solutions which have had positive results on IP networks for intercoms and public address systems, in particular for safety systems.

The advantages are above all evident in cases where the IP network is already well distributed and used in the same area for other applications. In this way the user can operate on a single network, with consequent savings in regards to installation and maintenance. However, also in cases where the IP network must be created, an IP network is advantageous, providing flexibility and the possibility to keep the critical components in the system under constant control.

Last but not least, it also provides the advantage of easily connecting the system to the outside world over the Internet and therefore to also perform the same usage, configuration and control operations that are available locally from a great distance.

**Fitre** has developed a series of digital VoIP industrial telephones in waterproof case with SIP protocol and equipped with PoE power supply as well as local power supply at 12-56 Vdc voltage; all of which are suitable for hazardous areas.







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## **ASTRO System Manager**

# Fitre ASTRO System Manager: the system platform that answers to required needs using standard components.

In order to guarantee software and hardware maintenance, **Fitre** has developed the concept of a modular platform to then be used with standard "building blocks" (functional hardware and software units).

It is evident that by using the same elements **Fitre** can guarantee constant technological updating of the units used for creating the systems.

The main "building blocks" used by **Fitre** are as follows:

- telephone devices/intercoms/analog (VOX series) and digital (VoIP series) emergency devices in waterproof and explosion-proof casings;
- Gateway unit, GFX series;
- IP-DAD (Digital-Analogue-Decoder), digital interface for P.A. and PAGA functions;
- power amplifiers with diagnostic circuit, line integrity control and automatic fault switching;
- indoor loudspeakers, waterproof and explosion-proof, with line transformer;
- amplified, waterproof and explosion-proof loud speakers;
- amplified and automatically controlled loudspeakers, which are able to automatically adjust the output volume according to the noise level in the surrounding area;
- acoustic/luminous signals, waterproof and explosion-proof;
- PC client for remote system configuration, maintenance and diagnostics;
- TONO-IP, industrial operator station for control, supervision and maintenance;
- \* software for the management of the various communication functions: "intercom", "P.A.", "PAGA", "emergency", "audio/video integration", "telephone systems", "diagnostics", "maintenance", "configuration", "interface with other systems".

Clearly, the list of "building blocks" presented here is by no means complete. Other system components can be found in the **Fitre** Product Catalogues. In order to provide "custom made systems" that can meet all the requirements, Fitre keeps a constantly updated list of a wide range of product components made by "third parties", which are tested and guaranteed by **Fitre** for functioning within its own communication systems.



# main components of Fitre Systems



## **Types of components used into Fitre Systems**



## **Types of components used into Fitre Systems**



#### **PC client**

Personal computer for remote configuration, maintenance and diagnostic of the system.



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#### **Operator set**

Industrial operator set  $``TONO-IP''\ type, for\ control\ rooms,\ supervision\ and\ maintenance.$ 



#### Software

Software for management of various communication functions: "Intercom", "PA", "PAGA", "Emergency", "Audio/Video Integrating", "Telephony", "Diagnosis", "Maintenance", "Settings" and "Interface with other systems".





## **Railway Station** • **Underground** Integrated System for Emergency/video Communications

and Public Address for the Railway Stations in Milan

#### Railways

SOS pillar for Stations - Integrated Emergency System with CCTV system for video-surveillance

#### Railways

Emergency and Public Address System for Railway Tunnels

#### **Metropolitan Railway**

**Digital VoIP Emergency System** integrated with video surveillance and sound-powered equipment for gallery

#### Petrochemical & Gas

Public Address System on single area or group of zones and general call activated by telephone sets

#### Petrochemical & Gas

Telephony & PAGA System (no redundancy configuration) distributed through existing fiber optic cables

### **Petrochemical & Gas**

PAGA System (redundant configuration) distributed through existing fiber optic cables

#### Roads and Highways

**Emergency System for Road and Highway Tunnels** 

## Roads and Highways

Emergency System for Tunnel with detection of presence/absence of fire extinguisher

#### **Roads and Highways**

**Emergency System for Tunnel** with management of alarm events

#### **Steel Industry**

Phone/Intercom System, on the land and on board of cranes

#### Steel Industry

Intercom and Public Address System, on the land and on board of cranes

#### **Power Industry**

Intercom, Paging and Communication **Ring System for Power Plants** 

#### **Power Industry**

Telephone, Intercom and Paging, Party-line System



# application examples



## **Railway Station** • Underground



Integrated System for Emergency/video Communications and Public Address for the Railway Stations in Milan

Architecture based on ASTRO System Manager with GFX and IP-DAD Interfaces.

- Communication management by the existing "SV" and "TEA" supervisory systems by RFI (Italian Railways).
- Integration with an audio system from another supplier.
- Management of one or more remote operators (geographically installed in other sites in the WAN/LAN network of RFI) allowing the operators to activate the telephone/intercom communications and the public address, on a system from another supplier.
- Priority levels management among different users and audio resources.
- When an user presses the emergency call button, the VOX device sends a ON/OFF command to the camera associated with it (CCTV system from other supplier), to activate sending and recording of the images related to the emergency.
- Emergency equipment VOX analog series, using the copper existing network.
- The devices are connected to the RFI control center via the GFX units and the fiber optic RFI network.



concept layout of the system





SOS pillar for Stations - Integrated Emergency System with CCTV system for video-surveillance

Architecture based on ASTRO System Manager, digital VoIP emergency apparatus.

- \* Architecture based on ASTRO System Manager, digital VoIP emergency apparatus.
- Management of all emergency calls from VoIP phones, with queuing and caller identification.
- VoIP apparatus for pillar, with analog audio output (conversation) for integration with IP camera supplied by others.
- VoIP apparatus for pillar configured with I/O board for the management of local alarms (anti-tamper, rolling, burglary, etc.).
- $\boldsymbol{\ast}$  Software interface for the supervision system provided by others, based on webserver and web-service.
- The supervision operator can access to the call management functions using its GUI interface, via web-service.
- Management of "silent listening" function from every pillar.
- \* Diagnostics management and remote configuration via CTM client.



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## **Railways**



**Emergency and Public Address System** for Railway Tunnels

Architecture based on ASTRO System Manager, IP-DAD units, digital VoIP "RFI Gallery" emergency apparatus.

- Fully redundant architecture: two control units, redunded between them, and installed at sites geographically distant from each other.
- Each site is provided with an ASTRO System Manager, with power supply and redundant hard-disk. In case of failure of one unit, the second unit is able to manage all the functions of the system.
- All units, both in the tunnel and for system management, are linked together via fiber optic cables, while, in each tunnel, copper cables are used to connect the speakers.
- The apparatus for tunnel consists of a VoIP phone with a red button "mushroom shape" and a lock with RFI railway key. The red button is available to the passengers for activating an emergency call to the center operator. The lock is available to railway RFI staff to turn on the call to the center operator and to activate public address system in the tunnel.
- Speakers and amplifiers with 4 kV insulation, standards RFI.
- Possibility to install amplifiers for gallery in configuration 1+n or 1+1, anyway with control of the integrity of the line speakers.
- Ability to manage multiple tunnels simultaneously.
- Management of all events with recognition of the button and/or position of the key activated for each device in the gallery.
- Management of diagnostics and remote configuration via CTM client.



## **Metropolitan Railway**



Digital VoIP Emergency System integrated with video surveillance and sound-powered equipment for gallery

Architecture based on ASTRO System Manager, digital VoIP emergency apparatus for station, with integration of CCTV functions, and sound-powered emergency equipment for gallery.

- Fully redundant architecture: two control units, redunded between them, and also installed at sites geographically distant from each other.
- Each site is provided with an ASTRO System Manager, with a power supply and redundant hard-disk. In case of failure of one unit, the second unit is able to manage all functions of the system.
- Dual redundant LAN network, for the highest level of reliability.
- The apparatus for tunnel consists of a sound-powered phone (no power supply source) connected to the center via the IP-DAD units and the fiber optic network.
- Automatic activation of the CCTV system, with recording of streaming, audio and video, relating to the emergency call.
- Management of diagnostics and remote configuration via CTM client.
- Availability of emergency calls in gallery (sound-powered) even in total absence of power supply and/or on failure of the LAN.
- Complete management of emergency events.
- Automatic recording of conversations and video images.
- Possibility of integration with public address function.





## **Petrochemical & Gas**



#### **Public Address System on single area or group of zones and general call activated by telephone sets**

#### Architecture based on ASTRO System Manager with PABX and IP-DAD.

- Management of communication through PABX phone exchange and related analog ACB telephone equipments, weather-proof and explosion-proof (ATEX EExd IIC T6), to use the existing copper network.
- Each unit is equipped with acoustical and luminous loud ringer (for telephone calls), weather-proof and explosion-proof.
- Each user can freely call the phone number of any other user.
- \* Each user can access to the public address system (single area, group of areas, general call) and broadcast his message using the telephone.
- ASTRO automatically eliminates the risk of feed-back noise (larsen effect), so that each user can broadcast the message even if through a telephone installed close to one or more speakers.
- Anaging of on/off contacts, activated by existing alarm systems, for the automatic broadcasting of messages recorded by ASTRO System Manager.
- Each speaker zone is managed through the IP-DAD unit, with amplifier diagnostic circuit.
- Management of priority levels between users and audio resources.









Telephony & PAGA System (no redundancy configuration) distributed through existing fiber optic cables

#### Architecture based on ASTRO System Manager, GFX and IP-DAD units.

- All the "zones" of the plant are linked together via fiber optic cables, but each area is provided with copper cables to connect apparatus and speakers.
- The redundancy of ASTRO System Manager is not required, although the system is equipped with dual power supply.
- Each apparatus can call any other apparatus of the system. ASTRO can be configured for the management of the "hot-line" function (direct call to the operator).
- Each area of the plant is divided into one or more zones of public address. ASTRO operates the call in a single zone, in a group of zones and in all zones in an area, as well as the call to a single area, a group of areas and to all areas.
- In each area there is the possibility to manage on/off contacts, triggered by existing alarm systems, for the automatic broadcasting of messages and/or alarm tones through speakers.
- Complete programmability of association among alarm event with area and/or zone into which the message or the alarm tone is broadcast.
- Management of signalling lamps associated with the call through the speakers.
- Interface with existing PABX through GFX units.
- Management of diagnostics and remote configuration via CTM client.



concept layout of the system



## **Petrochemical & Gas**



#### **PAGA System (redundant configuration)** distributed through existing fiber optic cables

## Architecture based on ASTRO System Manager, IP-DAD units, VoIP digital access points.

- Fully redundant "A & B" architecture.
- Each zone is provided with two identical systems, everyone managed by an ASTRO System Manager unit, with power supply and hard-disks redundancy. In case of failure of an ASTRO System Manager unit, the second one is able to manage all the functions of the system.
- All units of the plant are linked together via fiber optic cables, but each area is provided with copper cables to connect speakers and signalling lamps.
- Digital VoIP microphone operator "access point" type, installable at any point on the network, so totally independent from the amplification rack.
- Each "access point" unit may also call any other "access point" device (configurable function).
- Each area of the plant is divided into one or more zones of public address. ASTRO operates the call in a single zone, in a group of zones and in all zones in an area, as well as the call to a single area, a group of areas and to all areas
- In each area there is the possibility to manage on/off contacts, triggered by existing alarm systems, for the automatic dissemination of messages and/or alarm tones through speakers.
- Complete programmability of association among alarm event with area and/or zone into which the message or the alarm tone is broadcast.
- \* Management of signalling lamps associated with the call through the speakers.
- Management of diagnostics and remote configuration via CTM client.



concept layout of the system



special purpose telecommunication

systems

## **Roads and Highways**



**Emergency System for Road and Highway Tunnels** 

#### Architecture based on multi-ASTRO System Manager, with GFX.

- Each tunnel, as well as the control center, are managed by its own ASTRO System Manager unit, which are connected among them via the existing optical fiber LAN network, already used for the management of other systems (PLC automation, smoke monitoring, traffic lights control, fans, etc.).
- In case of failure of the LAN network, each tunnel is able to operate independently: tunnel's ASTRO records the events and, when the center will be online again, it will update history data.
- Each ASTRO System Manager unit is interfaced to the PSTN fixed phone network and to the GSM network.
- Emergency calls are managed by the center operator (queuing, event management with date/time and dialogues registration).
- $\$  In case of no operator response, the system is configured to send the call to PSTN or GSM network.
- Each gallery is provided with a gallery operator, usually dedicated to maintenance activities.
- Management of diagnostics and remote configuration via CTM client.
- Emergency analog equipment, VOX type, able to use the existing copper network.



## **Roads and Highways**



#### **Emergency System for Tunnel** with detection of presence/absence of fire extinguisher

#### Architecture based on ASTRO System Manager with GFX.

- Each tunnel is managed through GFX units, to connect analog apparatus VOX series to use the existing copper cables.
- \* Each tunnel is connected to the control center via existing fiber optic network.
- The ASTRO System Manager unit is interfaced to the national PSTN fixed phone network, to be able of transferring emergency calls directly to public utilities.
- Emergency calls are managed by the center operator (queuing, event management with date/time and dialogues registration).
- Each unit is configured with an additional 2W amplifier to ensure the highest audio quality even with high ambient noise (vehicles in transit).
- Each apparatus of the tunnel is equipped with an I/O card to manage on/off contacts from the hook of extinguisher: information of presence/absence of the extinguisher managed in presence or absence of conversation.
- Management of diagnostics and remote configuration via CTM client.



#### concept layout of the system



for further information about products, visit the site **www.fitre.i** 

special purpose telecommunication

systems

## **Roads and Highways**



**Emergency System for Tunnel** with management of alarm events

## Architecture based on ASTRO System Manager with VoIP and I/O emergency equipments.

- $\mbox{ } \mbox{ Each emergency point in the tunnel consists of a digital VoIP apparatus, configured with the I/O card.$
- All the elements of the system are connected together and to the center through the existing optical fiber LAN network.
- The ASTRO S.M. unit is interfaced to the national PSTN fixed phone network, in case of transferring emergency calls directly to public utilities.
- Emergency calls are managed by the center operator (queuing, event management with date/time and dialogues registration).
- In addition to the usual keys for the emergency calls activation, each digital apparatus is able to manage alarm events. In particular, there are two additional keys, installed on the rack in the tunnel, for "alarm activation" and "local ringer mute".
- \* "Alarm activation": event managed by ASTRO S.M., that registers and activates the display of maintenance operator. Also, it activates all the sound/light signalling with which each unit in tunnel is equipped.
- \*"Local ringer mute": it exclusively has effect on the device from which the alarm was activated.
- The center operator is the only one who, after having taken note of the event, can put aside the warning alarm.
- All events are automatically recorded by ASTRO System Manager.
- Highest audio quality even with high ambient noise (vehicles in transit).
- Management of diagnostics and remote configuration via CTM client.



concept layout of the system





## **Steel Industry**



**Phone/Intercom System**, on the land and on board of cranes

#### Architecture based on ASTRO System Manager with VoIP apparatus and mobile DECT units.

- All the equipments on land are digital VoIP type, to use the existing LAN network.
- Each unit can call any other equipment, which answers in "intercom" mode, automatically activating the hands free conversation.
- In relation to the ambient noise, the apparatus can be equipped with additional 25W amplified horn, adjustable.
- Use of existing indoor VoIP equipments (SIP standard).
- Interface with existing PABX through GFX unit.
- ✤ Interface with DECT system through GFX unit.
- The DECT equipment on board of the crane can use all the resources of the system; in particular, it can call and be called to/from any device on land. ASTRO can be configured to handle any call restrictions.
- Intercom call management on single device, on a group of devices and to all the apparatus (general call).
- Manage of on/off contacts, triggered by existing alarm systems, for the automatic public address of messages and/or alarm tones recorded by ASTRO System Manager. Public address through the speakers on the apparatus and through the amplified horns.
- Management of diagnostics and remote configuration via CTM client.





special purpose telecommunication

systems

## **Steel Industry**



Intercom and Public Address System, on the land and on board of cranes

## Architecture based on ASTRO System Manager with IP-DAD, VoIP apparatus and mobile DECT units.

- \* All the equipments on land are digital VoIP type, to use the existing LAN network.
- Each unit can call any other equipment, which answers in "intercom" mode, automatically activating the hands free conversation.
- In relation to the ambient noise, the apparatus can be equipped with additional 25W amplified horn, adjustable volume.
- Public address management via IP-DAD unit and amplified horns: single area, group of areas and general call for all loudspeakers areas.
- Interface with DECT system through GFX unit.
- The DECT equipment on board of the crane can use all the resources of the system; in particular, it can call and be called to/from any device on land. ASTRO can be configured to handle any call restrictions.
- Intercom call management on single device, on a group of devices and to all the apparatus (general call).
- Management of diagnostics and remote configuration via CTM client.



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## **Power Industry**



#### Intercom, Paging and Communication Ring System for Power Plants

#### Ring architecture, without the need of a control unit (central unit).

- All apparatus are parallel connected each other through a multi-pairs telephone cable and a 48Vdc power supply cable.
- Each apparatus is equipped with an integrated 30W amplifier for the management of horns with paging function.
- ✤ A line of "page", paging through all the speakers.
- Two or more "party line" conversation lines.
- Direct call to the control room.
- Activation of functions through a single key (direct dial).
- Two or more conversation lines.



## **Power Industry**



**Telephone, Intercom and Paging, Party-line System** 

#### Architecture based on ASTRO System Manager with GFX and IP-DAD units.

- Simultaneous management of telephone and intercom call functions with paging through the speakers network.
- $\boldsymbol{\ast}$  Management of multiple speakers areas and of general call.
- $\boldsymbol{\ast}$  Management of lines dedicated to the intercom function.
- $\boldsymbol{\ast}$  Each apparatus is keypad equipped for making phone calls to any other unit of the system.
- Management of one or more lines of "page", paging on one or more loudspeakers areas.
- $\boldsymbol{\diamond}$  Two or more "party-line" conversation lines.
- Direct call to the control room.
- Activation of functions through a single key (direct dial).
- Possibility to interface with PABX and/or DECT systems.



concept layout of the system





#### IP protection degree decoding table

DIN 40050 - IEC 529 (EN 60529)	
$1^{\mathrm{st}}$ digit: protection against penetration of solid objects	2 <sup>nd</sup> digit: protection against penetration of water
<b>0</b> no special protection	0 no special protection
1 objects > 50,0 mm	1 vertically dripping water
<b>2</b> objects > 12,0 mm	<b>2</b> angled dripping water (15° from the vertical)
<b>3</b> objects > 2.5 mm	<b>3</b> sprayed water (60° from the vertical)
4 objects > 1.0 mm	4 splashed and sprayed water (all directions)
5 entry of dust	5 low pressure jet water
6 complete protection against entry of dust	6 sea waves
	7 temporary immersion
	8 continuous submersion

#### Classification table for apparatus in explosive areas





special purpose telecommunication systems

## Literature available on request

List of technical documentation	
concerning other products and systems by Fitre,	
available on request:	
* Telephony Products Catalogue	
(DSA Division issue)	
* Special Purpose Telecommunication	
Products Catalogue	
Fioducts Catalogue	
Self-powered telephones intrinsically safe	
(for marine, mines, chemical plants)	
* Lift emergency telecom systems	
Intercom and public address VoIP systems	
* Intercom and public dualess voir systems	
Train call & communication systems	
Amplified horns and loudspeakers,	
weather and explosion proof,	
also with automatic volume control	
* Padia paging systems	
* Radio paying systems	
* High insulation transformers	
(for the protection of devices	
within ground network)	
* Portable and fixed detectors	
for toxic and explosive gases	
* Emission Dust analyzers	
* Magnetic switches for heavy industry	
* Laser equipments for measuring	
and data transmission	
* Railway wheels passage detectors	
within the start of the start o	



**\*** Avalance rescue beacons

# **Communications**First



## www.fitre.it



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