norphonic

Heavy Duty VoIP Telephones

Application Guide:
Emergency Roadside Telephones

This document considers how public road administrators and highway agencies can improve safety by the provision of Emergency Roadside (ERT) solutions. It will also look at critical issues which needs to be addressed when selecting an effective telephone system.

Learn more about our Innovations at
www.norphonic.com

DISCLAIMER
This publication is a guide for reference only. Reference to local codes and standards for compliance of system design should always be sought. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose without the express written permission of Norphonic. Please contact Norphonic for further information.

Contents

Emergency Roadside Telephone (ERT)

This article considers how public road administrators and highway agencies can improve safety by the provision of Emergency Roadside Telephone (ERT), sometimes known as a Emergency Roadside Call System (ERCS) or Emergency Call Box (ECB). It will also look at critical issues which needs to be addressed when selecting an effective Emergency Roadside Telephone - ERT / Emergency Roadside Call System - ERCS / Emergency Call Box - ECB.

The challenge for Highway Agencies

Greater focus on public road safety records. Increasing numbers of motorists in distress due to roadside breakdowns. Targets on delivery of road improvements. Reduction in available budgets. Now, more than ever, it is important to find ways to reduce costs, increase efficiencies whilst maximising road safety.

Focus on Road Safety

Highway agencies and Public Road Administraors are measured on their road safety records, which is typically based on the number of incidents, accidents, injuries and fatalities. The challenge is to find a solution that can reduce the number of injuries and accidents inside underground road tunnels, on bridges or along public highways, whilst minimising the expenditure on public budgets.

ERT Phones: A Cost effective way of improving safety records

The provision of Emergency Call Box (ECB) / SOS call box telephones for use by stranded motorists or people in highway emergency situations is a tried and tested method of improving public road safety records. Typically, an Emergency Roadside Telephone - ERT system will reduce serious and long term injuries by 40% over a 3 year period, by virtue of alerting incidents faster and by delivering a more appropriate emergency response. To improve road safety, most countries worldwide also stipulates a regulatory requirement to install emergency roadside telephones. As an example, The European Parliament Directive of 2004/54/EC stipulates that all road tunnels above 500 meters in length should have Emergency Roadside Telephones installed at least every 150 meters.

Emergency Roadside Telephone - ERT are typically connected to a transport police control room and/or emergency breakdown services. An autodial on handset lift is often used to connect users directly to the remote control room for appropriate response in each situation. By using an Emergency Roadside Telephone - ERT system, the location of the incident will immediately be known to central control room staff, and it is this unique feature that makes Emergency Roadside Telephone - ERT systems such a critical part of the prevision of road security.

Norphonic has a long history of delivering Emergency Roadside Telephone - ERT systems in many countries, ensuring essential communications when it is most needed. In the remaining part this review we shall look at some of the issues that needs to be addressed when selecting your Emergency Roadside Telephone - ERT system.

VoIP vs. Analogue Telephones?

In roadside applications, the telephone of choice would always b a VoIP telephone. There are a number of reasons for this, but mainly, since the VoIP telephone use IP networks to carry voice communications, it has additional software features which makes such a system particularly attractive in roadside applications.

One feature, found in all Norphonic Heavy Duty VoIP telephones, is the self monitoring and fault check function, which allows central control room staff to automatically receive updates about the telephone components, if the telephone hook is left in an on/off position etc.

Second, control room staff can use the Norphonic Remote Management Feature to upload software updates from a central location, switch the telephone on/off, or control other telephone components, thereby slashing maintenance costs usually encountered with comparable analogue systems.

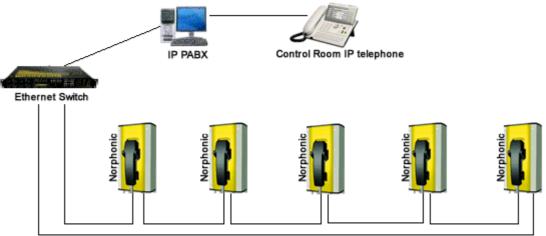## Fiber Optic / Ethernet Networks and Roadside Applications

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, including:

- VoIP Emergency Roadside Telephones (ERT)
- Tunnel Fans and Ventilation Control systems
- SCADA systems
- Access Control systems
- Public Address and Voice Alarm systems
- Tunnel Fire Detection systems
- Remote Video Monitoring systems

A Typical Emergency Roadside Telephone - ERT Installation

The below figure shows a typical Emergency Roadside Telephone - ERT installation. Emergency Call Box Telephones can either be connected in a circle formation to provide a redundant network or in a line to connect directly to a PBX. 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 150 meters between SOS Callbox / ERT telephones for public safety reasons.

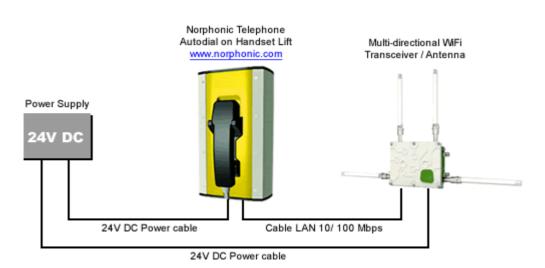Example Norphonic Emergency Roadside Telephone Solution

(Each Norphonic telephone have two integrated Fiber Optic Ports - Single Mode, 100 Mbit)

Emergency Roadside Telephone ERT - Going Wireless?

In some cases, where the end user wants to avoid laying down a fiber cable or where the environment prevents this, a wireless solution may be an option. Norphonic products are ideally suited for wireless applications too. In the below example, the Norphonic ECB telephone is connected to a WiFi anntenna which enables the signal to travel in different directions:

Example: Wireless Emergency / Industrial Telephone Solution

The flexibility of the Norphonic Emergency Roadside Telephone therefore means that it could be used on a fixed fiber cable layout or in a wireless VoIP environment. There are no particular barriers to installing Wireless / WiFi Emergency Roadside Telephone solutions, but the network designer should be aware of potential voice quality pit-falls and plan for these.

Some key things to be aware of in terms of voice quality when designing your network layout:

- **Latency** - delay from data is transmitted until it is received. Noticable in conversations if latency goes above 100ms.
- **Jitter** - variances in latency between packets. High jitter means large variance in packet latency and degrades speech quality.
- **Out of order datapackets** - degrades speech quality, is often caused by jitter

What to look for in an Emergency Roadside Telephone Solution?

There are many issues that needs to be addressed prior to commissioning a VoIP system for an Emergency Roadside Telephone application, such as evaluating the installation environment, functionality and temperature ranges. Below are some key pointers to look at when choosing your Emergency Roadside Telephone - ERT / Emergency Roadside Call System - ERCS:

- *Is autodial on handset lift available?* In most Emergency Roadside Telephone - ERT applications, it is an express wish that an autodial on handset lift is possible, which allows the end user to simply lift the handset to automatically direct the call straight to the control facility. This means that the roadside user do not worry about what number to dial in an emergency.
- *Is the telephone weather resistant?* Roadside help point telephones are often placed outside in areas with no or little supervision and therefore need to be robust to deal with attempted vandalism as well as exposure to rain, extreme temperatures and dust. An IP rating to IP65 is therefore recommended for Emergency Roadside Telephone - ERT applications. See definition of Ingress Protection in the Glossary on this webpage for further information.
- *Does the telephone have buildt-in Fiber Ports?* if you are looking to install a redundant solution, you should evaluate if the telephone comes with buildt in single mode fiber ports. This will save you from buying switches for every phone in order to hook the telephone up to the fiber optic

network. All Norphonic Heavy Duty VoIP Telephones are available with 100 Mbit Single Mode Fiber Ports buildt into the telephone, allowing cost effective redundant networking.

- ***Can the system work with your existing systems and infrastructure?*** The key thing to look for in this regard, is to examine if the telephone is built on Open Standard SIP technology. Norphonic Heavy Duty VoIP systems are built on Open Standard SIP technology, and tested to be compatible with all major PBX and network systems (Alcatel, Cisco, Asterisk etc)
- ***Is the system future proof? Can the system be upgraded or changed in the future without having to change all the telephones and the entire network?*** All Norphonic telephones use Open Source SIP technology and offers an unified and consistent approach to delivering products that can interface with other communication systems, thereby reducing costs and eliminating inefficiencies of using proprietary and non-reusable solutions. Therefore, the Norphonic Heavy Duty VoIP Telephones can be changed with other systems without loss or differentiation to the level of service.
- ***Is the system shock and vibration proof?*** telephones need to be able to withstand shock and vibration, so check this prior to purchase. Does the hookswitch contain moving parts? All Norphonic Heavy Duty VoIP telephones do not contain moving parts, and can therefore operate in extreme areas where dust or exposure to grime is a challenge for traditional telephone systems.
- ***Can the system work in extreme temperatures?*** There are wast differences between temperature levels along roads, from sunny summer days to cold winter days, so a wide operating temperature functionality is recommended, from –20 up to +50 celcius degrees.
- ***Does the telephone incorporate VSQ - Voice Sound Quality?*** This is a standard feature in all Norphonic telephone systems, ensuring loud and clear sound, even in noisy ambiance areas.
- ***Is the Emergency Call Box ECB telephone condensation proof?*** –This can otherwise lead to severe problems in operation as water can easily form inside the unit, affecting performance.
- ***Does the telephone incorporate a QoS – Quality of Service functionality?*** This feature, found in all Norphonic telephones, guarantees a certain level of performance in a data flow, ensuring impeccable delivery of voice communications in an IP Network. (see reference to Jitter, Latency and out of order datapackets above)
- ***Is the system easy to install and to maintain?*** Norphonic Heavy Duty VoIP telephones are easy to install and have in-built status monitoring and fault check function. This means that the status of the telephones can be monitored from a remote location, saving you considerable maintenance costs.
- ***Is the telephone colored in such a way that it is easily identified by roadside users?*** The Norphonic Heavy Duty VoIP comes in a bright yellow color as standard. Special colors and logos can also be customised depending on the user needs and order volumes.
- ***Is the telephone CE approved?*** CE marking means that the product is certified to meet EU consumer safety, health or environmental requirements. End users should be aware that some telephones use the intentionally confusing term "CE" for "China Export", and the only way consumers can check this is to closely examine the CE mark/ logo as the two logos are very similar.

Copyright Notice

GLOSSARY – Definition of Relevant Terms

Access Control Telephone
Often used as a part of a larger Access Control system to communicate with a central control room at door entrance points and access gates.

Armoured Stainless Steel Cord
Vandal proof telephone cord

ATEX Telephone / Eex Telephone / Ex Tele
The ATEX directive consists of two EU (European Union) directives describing what equipment and work environment is allowed in an environment with an explosive atmosphere. ATEX derives its name from the French title of the 94/9/EC directive: "Appareils destinés à être utilisés en ATmosphères EXplosibles". As of July 2006, organisations in EU must follow the directives to protect employees from explosion risk in areas with an explosive atmosphere. Employers must classify areas where hazardous explosive atmospheres may occur into zones. The classification given to a particular zone, and its size and location, depends on the likelihood of an explosive atmosphere occurring and its persistence if it does. The aim of directive 94/9/EC is to allow the free trade of 'ATEX' equipment and protective systems within the EU by removing the need for separate testing and documentation for each member state. See the ATEX Directive for further information.

Autodial on handset lift
The telephone will automatically dial a number when the handset is lifted, thereby eliminating the need for the user to remember a telephone number when in distress.

BPDU
Bridge Protocol Data Unit. Data packets which are sent from STP, RSTP and MSTP switches to share information about the switches.

Braille
The Braille system is a method that is widely used by blind people to read and write, invented by Luis Braille in 1822 and used on many telephone keypads worldwide

CE mark / CE approved Telephone
CE approval / marking means that the product is certified to meet EU consumer safety, health or environmental requirements. End users should be aware that some telephones use the intentionally confusing term "CE" for "China Export", and the only way consumers can check this is to closely examine the CE mark/ logo as the two logos are very similar.

Door Telephone
Used to communicate with a central control room to facilitate the control and access to closed sites such as utility power factories

Elevator Telephone
Used to call for help in case of emergencies including entrapment or fire.

Emergency Roadside Call System (ERCS)
See definitions under "ERT -Emergency Roadside Telephone" and "Emergency Telephone"

Emergency Roadside Telephone (ERT)
Emergency Roadside Telephones (ERT) are typically used in "SOS" Call Boxes alongside public highways, inside tunnels and on bridges. Emergency Roadside Telephones (ERT) are often referred to as: RET - Roadside Emergency Telephone, RT - Roadside Telephone, ERCS - Emergency Roadside Call System or ETS - Emergency Telephone System.

Emergency Telephone
Often referred to as a SOS telephone or Emergency Callbox. This is a common generic term for a telephone which is used in emergency situations, to notify a central control room about a fire, evacuation or entrapment. Emergency Telephones are often used in places where people may feel vulnerable or unsafe at night, such as University Campuses, Underground Car Parking Facilities, Public Swimming Pools or along the Coastline where the public may wish to report swimmers or boats in danger at sea.

Emergency Telephone System (ETS)
See definitions under "ERT -Emergency Roadside Telephone" and "Emergency Telephone"

Ex Telephone / Eex Telephone
An "EX telephone" is a general term for a telephone that is approved to be used in potentially explosive areas or environments also known as "unsafe areas" (including Gas refineries, Oil rigs or deep coal mines) where a combination with sufficient oxygen and fuel in gas, mist, vapor or dust form, can cause an explosion. Methane, hydrogen or coal dust are examples of possible fuels. See also relevant definitions under "ATEX Telephone" and "Unsafe Area" and "intrinsically safe"

FPSO
Floating Production Storage Offloading (FPSO) - a term used on the Norphonic website to describe the vessels used to store and offload oil & gas.

Heavy Duty Telephone
Generic term for industrial and emergency telephones used in challenging environments. For example telephones that that are exposed to high levels of air humidity, dust, vibration, shock, extreme temperatures, rain, seawater or attempted vandalism. Heavy duty telephones is used in many applications including transport, offshore, production floors, chemical processing sites, mines, transit tunnels, university campuses and other public places.

Industrial Telephone
General term for a telephone used in challenging areas, for example production floors, wind turbines, machinery or other industrial environments

Intrinsically Safe Telephone
Intrinsically Safe Telephones are telephones that are approved for use in chemical plants, refineries, coal mines, grain elevators and any other environment where volatile gases and dust are a major consideration.

IP Rating / Ingress Protection Rating /
The IP rating classifies the degrees of protection provided against the intrusion of solid objects, dust, accidental contact, and water in electrical enclosures. The standard aims to provide users more detailed information than vague marketing terms such as "waterproof". The standard consists of the letters IP followed by two digits and an optional letter: for example, the Norphonic Heavy Duty VoIP telephone have been approved to the highest rating against dust "dust proof" (6) and can be sprayed with water by a water jet from any direction without any harmful effects (5). Therefore, in this case, the Norphonic Heavy Duty VoIP telephone has a rating of "IP65".

Jitter
Jitter is a term used in VoIP data communications and refers to variances in latency between data packets. High jitter means large variance in packet latency and degrades speech quality. See also Latency, QoS (Quality of Service), ToS (Type of Service), MOS (mean opinion score) and Out of order data packets.

LAN - Local Area Network
A LAN connects network devices over a relatively short distance. A networked office building, school, or home usually contains a single LAN, though sometimes one building will contain a few small LANs (perhaps one per room), and occasionally a LAN will span a group of nearby buildings. In addition to operating in a limited space, LANs are also typically owned, controlled, and managed by a single person or organization.

Latency
Latency is a term used in connection with VoIP signals or data packets. It refers to the delay from when data is transmitted until it is received. This Latency is noticable in conversations if latency goes above 100ms. See also QoS (Quality of Service), ToS (Type of Service), MOS (mean opinion score), Jitter and Out of order data packets.

Leaky Feeder
A leaky feeder is a communications system used in underground mining and other tunnel environments. It consists of a coaxial cable running along the tunnels which emits and receives radio waves. The cable is leaky in that it has gaps or slots in its outer conductor to allow signal to leak into or out of the cable along its entire length. Because of this leakage of signal, line amplifiers are required to be inserted at regular intervals, typically every 350 to 500 meters, to boost the signal back up to acceptable levels.

Level Crossing Telephone
Used for emergency calls or information access at platforms and railway crossings

Managed Switch
Managed switch, a type of Ethernet switch, allows the administrator to take control of the network, allows ports to talk to other ports or none at all. For example, a managed switch may have the option to run VLAN (virtual local area network), which means that you in theory could shut down all data traffic apart from the emergency communications, or in other ways control the switch / data signals. Also, a management switch allows better network security, ie: control ability over network in case of hacker attack. Network Security is getting ever more important for large constructions and industrial manufacturing places. Generally, therefore, a Managed switch is considered a better investment than an Un-Managed switch (see also Un-Managed Switch / opposite term).

Maritime VoIP Telephones
See definitions under "Offshore Telephones", "Seaproof Telephones" and "VoIP".

Mining Telephone / Mining Phone
Generic term describing a robust heavy duty telephone used in sub-surface mining applications. Typically, mining telephones need to be dust and waterproof (See Ingress Protection) and resistant to condensation and corrosion effects. Mining telephones also need to be able operate in extreme temperatures.

Modbus
Modbus is a serial communications protocol published by Modicon in 1979 for use with its programmable logic controllers (PLCs). It has become a de facto standard communications protocol in industry, and is now the most commonly available means of connecting industrial electronic devices. Modbus is a standard feature found in all Norphonic Heavy Duty Telephones and refers to the Modbus UDP and Modbus TCP open protocols which enables remote access for status monitoring and control. Examples of telephone status monitoring include: link status, condition of telephone components, microphone check, etc.

MOS
Numerical measure of the perceived audio quality of a telephone connection. The MOS is expressed as a single number in the range 1 to 5, where 1 is lowest perceived audio quality, and 5 is the highest perceived audio quality

MSHA
"MSHA" is the abbreviation for the US-based "Mine Safety and Health Administration" which is the Federal enforcement agency responsible for the health and safety of miners working in the United States of America. The related term "MSHA Approval" relates to MSHA's Approval and Certification Center which approves and certifies certain mining products for use in underground coal and gassy underground metal mines. See also the related listings under ATEX Telephone, EX Telephone.

MSTP
Multiple Spanning Tree Protocol

Noise Reduction
Process of reducing noise in a communications signal.

Norphonic
A leading manufacturer of heavy duty VoIP telephones that are used in a wide variety of applications worldwide, including transport (air, sea, road, rail), industry, mining, public places and emergency areas.

Norphonic Heavy Duty VoIP Telephone
The Norphonic Heavy Duty VoIP Telephone is a robust, weather resistant telephone built to withstand extreme temperatures, humid and dirty environments.

Norphonic Remote Management
"Norphonic Remote Management" is a software program which delivers all of the features that are necessary for administrators to access, view, control, manage and modify remote Norphonic Heavy Duty VoIP Telephones from a central web-browser interface. Norphonic Monitoring is a total solution for integrated control and monitoring of your Norphonic Heavy Duty VoIP Telephone system.

Offshore Telephone
Typically used to describe a rugged telephone which is waterproof & immune to corrosion by seawater. See also seaproof telephone.

OLE
Object Linking and Embedding

OSPF
OSPF stands for Open Shortest Path First. OSPF is a dynamic routing protocol.

Out of order datapackets
Out of order datapackets - a term used in VoIP voice communications and refers to incidents which degrades speech quality, is often caused by jitter. (see also Jitter)

Outdoor Telephone
Used in public places such at at train terminals, car parks, university campuses, at bridges, alongside public beaches and other public places

PA/VA Telephone
Public Address / Voice Alarm telephone is used as part of a larger PA/VA system to transfer voice, data and/or images to a Central Station

PABX / PBX / EPABX
A private automatic branch exchange (PABX) is a telephone exchange that serves a particular business or office, as opposed to one that a common carrier or telephone company operates the general public

PABX hotline / Hot-line
Describes the feature where a hotline is immediately connected when the handset is lifted.

Platform Telephone / Station
Used by operators to convey information at metro, underground or railway stations and/or platforms

Point to Point Communication Telephone
Used to communicate between two points, often installed in large lifting machinery, cranes, underground mines and wind power systems. Usually, point to point communication telephones are hooked up directly with each other, eliminating the need to go through a private automatic business exchange (PABX) or a common telephone carrier.

PSTN

The Public Switched Telephone Network (PSTN) is the network of the world's public circuit-switched telephone networks, in much the same way that the Internet is the network of the world's public IP-based packet-switched networks. Originally a network of fixed-line analog telephone systems, the PSTN is now almost entirely digital and includes mobile as well as fixed telephones.

Public Emergency Telephone / SOS Telephone

Used in places where people may feel vulnerable or unsafe at night, such as University Campuses, Underground Car Parking Facilities, Public Swimming Pools or along the Coastline where the public may wish to report swimmers or boats in danger at sea.

Public Information Telephone

Used in "call-for-assistance" type applications, for example in large shopping centres, airports, car parks or transport terminals

QoS

Quality of Service (QoS) is a feature found in all Norphonic telephones and refers to the ability to provide different priority of voice and data flows, or to guarantee a certain level of performance to a data flow, ensuring impeccable delivery of voice communications in an IP network.

Refuge Bay Telephone

Refuge Bays usually refers to specifically constructed underground evacuation rooms in mining environments. These rooms usually contain an emergency telephone system as well as drinks, foods and medical supplies for miners in case of emergency evacuation. Refuge bays can also be found in other underground tunnel environments, including road and train tunnels.

RIO

Remote Input Output. Device for control of digital input and digital outputs.

Robust Maritime VoIP Telephones

"Robust Maritime VoIP Telephones" is often used in the maritime industry to describe "Norphonic Heavy Duty VoIP Telephones". The term usually refers to the phone's ability to withstand seawater, ice, grime and extreme temperatures encountered in maritime areas such as onboard Oil & Gas Rigs, Floating Production Storage Offloading (FPSO) ships, Cargo Ships, Tankers, Bulk Carriers, Container Ships, Passenger Ships, Shipbuilding Yards, Offshore Machine Rooms, Ports, Docks and other maritime areas. See also "Seaproof Telephones".

RoHS Compliant Telephone

"RoHS compliant" means that the product is tested against, and does NOT contain: lead, mercury, cadmium, hexavalent chromium, poly-brominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).

RSTP

Stands for Rapid Spanning Tree Protocol is a faster variant of "STP", which is a protocol implemented in switches to stop logical loops of data.

RTP

Real Time Protocol

Safe Area

Typically refers to an area which is safe from explosions or areas that do not contain ignitable gases, fumes or substances. Safe areas typically do not need explosion proof telephones (see also "ATEX Telephone / Eex Telephone / Ex Tele").

SCADA

SCADA stands for "Supervisory Control and Data Acquisition" system. It generally refers to industrial control systems: computer systems that monitor and control industrial, infrastructure, or facility-based processes. In the telephone-world, the SCADA system would be used to control and manage the telephones (communication failure, off-hook sensing, alarm handling etc).

Seaproof Telephone
The term Seaproof telephone is usually used to describe a rugged telephone unit which is immune to seawater and waterproof. Typically used onboard vessels, oil rigs and other maritime areas. See also IP / Ingress Protection.

Seawater Resistant Telephone
Telephones that are resistant to corrosion from seawater, often metal coated with a protective solution paint

Self Monitoring and Fault Check
is a feature in Norphonic telephones, allowing the telephone to carry out automatic health-check and fault sensing and communicate this, thereby improving uptime and performance whilst reducing maintenance work

Service Telephone
Used by service engineers and maintenance personnel to communicate with a central control room

Signal Telephone / Trackside Telephone
Used at railway signal stations and along railway tracks

SIP
Session Initiation Protocol (SIP) is an IETF-defined signaling protocol, which is the most widely used protocol for controlling multimedia communication sessions such as voice and video calls over Internet Protocol (IP).

SMCP
Standard Marine Communication Phrases (SMCP) is a set of key phrases in the English language (which is the internationally recognised language of the sea), supported by the international community for use at sea and developed by The International Maritime Organization (IMO). An example of SMCP is the message: "I have developed stability problems, heavy icing. Request ice breaker assistance".

SNMP
Simple Network Management Protocol, is used in network management systems to monitor network-attached devices for conditions that warrant administrative attention.

SOS Telephone / SOS Callbox
See definition under "Emergency Telephone".

STI
Speech Transmission Index, short STI is a measure of speech transmission quality. The STI measures some physical characteristics of a transmission channel (a room, electro-acoustic equipment, telephone line, etc.), and expresses the ability of the channel to carry across the characteristics of a speech signal. STI has a numeric representation measure whose value varies from 0 = bad to 1 = excellent.[4] On this scale, an STI of at least .5 is desirable for most applications.

STP
Spanning Tree Protocol, a slower form of RSTP / see definition under "RSTP"

Type of Service (ToS)
Type of Service (ToS) is a feature found in all Norphonic telephones, delivering packet precedence (i.e., priority) in network traffic, thereby ensuring low delay, high throughput and high reliability.

Un-managed Switch
Un-managed switch, a type of Ethernet Switch, is sometimes also referred to as a "dumb" switch, with resulting data network called a "dumb-hub". -This is because the switch will do nothing apart from simply allowing traffic to go through your network, leaving you with little or no control over your data network. See also "Managed Switch" / opposite term.

Unsafe Area
Typically refers to an area which is unsafe when it comes to potential explosions or areas that contain easily ignitable gases, fumes or substances. Examples include oil rigs, deep coal mines and petrochemical production environments. See also "ATEX Telephone / Eex Telephone / Ex Tele".

Vandal Proof Telephone
Vandal proof telephone is a generic term describing a robust heavy duty telephone handset, cord or telephone casing that is resistant to vandalism or sabotage attempts. Telephones placed in public areas are often prone to vandalism and therefore need to feature a vandal proof cord, keypad and/or handset.

VLAN
Virtual Local Area Networks

Voice Sound Quality (VSQ)
Voice Sound Quality (VSQ) is an unique feature found in Norphonic telephones, treating the sound so that it is heard extremely clearly even in noisy ambient areas.

VoIP
Voice over Internet Protocol is a general term for delivery of voice communications (voice, facsimile and voice-messaging applications) over an IP network, rather than the public switched telephone network (PSTN). Other related terms frequently encountered and synonymous with VoIP are IP telephony, Internet telephony, voice over broadband (VoBB), broadband telephony, broadband telephone and SIP telephone (see separate definition of SIP- Session Initiation Protocol".

VRRP
VRRP stands for "Virtual Router Redundancy Protocol" and is a protocol that enables two routers to share one common IP address. If the master router fails, then the slave router will inherit the IP address.

WAN - Wide Area Network
As the term implies, a WAN spans a large physical distance. The Internet is the largest WAN, spanning the Earth. A WAN is a geographically-dispersed collection of LANs (see LAN -Local Area Network). A network device called a router connects LANs to a WAN. In IP networking, the router maintains both a LAN address and a WAN address. A WAN differs from a LAN in several important ways. Most WANs (like the Internet) are not owned by any one organization but rather exist under collective or distributed ownership and management.

Water proof telephone
A generic term for a telephone which is resistant to water ingress. See also "IP Rating / Ingress Protection Rating".

Weather proof telephone
A generic term for a telephone which can handle extreme temperature ranges and bad weather. See also "IP Rating / Ingress Protection Rating".

WLAN - Wireless Local Area Network
A Wireless Local Area Network is a LAN (see "Local Area Network") based on WiFi wireless network technology