

FOX615/612

COSI1 VoIP gateway interface module.



01 COSI1 VoIP gateway interface module

Most power utilities use a private voice system for operational purposes, which are particularly important in extreme situations, such as wide area blackouts.

Private voice systems are designed to operate independently of public infrastructure. In order to guarantee operation/ functionality also during blackout conditions allowing communication between the control center and substations or between substations. As essential insurance for power grid operation, they must deliver precise operation and the highest possible availability.

Bringing telephone services to the Ethernet

Traditional private voice systems have been based on 2-wire technology. With the fast migration of voice systems from conventional analog voice to an IP-based Voice over Internet Protocol (VoIP), more and more telephony exchange suppliers are migrating their complete portfolio and out-facing traditional exchange systems with VoIP solutions. This forces power utilities to install VoIP systems, which leads to new problems since the installed base of telephone sets and cables is based on analog 2-wire technology. With the new COSI1 interface, which is part of the FOX615 platform, ABB offers a smart and easy solution for this migration. Allowing the power utility to keep the installed base of POTS (Plain Old Telephone Service) telephone sets and cables in the substation, while the VoIP gateway COSI1 connects POTS subscribers to the new VoIP environment.

COSI1 key features

- Media gateway for POTS to SIP (Session Initiation Protocol)
- Registration with several IP PABX (Private Automatic Branch Exchange) possible
- 1:1 equipment protection supported
- Local call routing in case of lost connection to IP PABX supported
- QoS (Quality-of-Service) supported
- Up to 916 subscribers supported per card
- Up to 200 simultaneous calls supported
- Fully integrated in FOX615 platform and Network management system
- Fully supervised solution
- Subscribers from FOX515 (e.g. SUBH1) or FOX615 (LESU1) can be integrated

Benefits

Keeping the installed POTS subscribers provides benefits, including:

- Limited costs for migration
- Fast migration since only central components (PABX) need to be migrated while distributed infrastructure in the field can remain untouched
- VoIP limitations, such as subscribers further than 100m away from the switch/router ports, can be avoided
- No powering issues since VoIP phones need a separate power supply (if Power over Ethernet, or PoE, is not used), at the critical stage the protection relay is notified

COSI1- integrated VoIP interface

For the reliability of your private voice system.

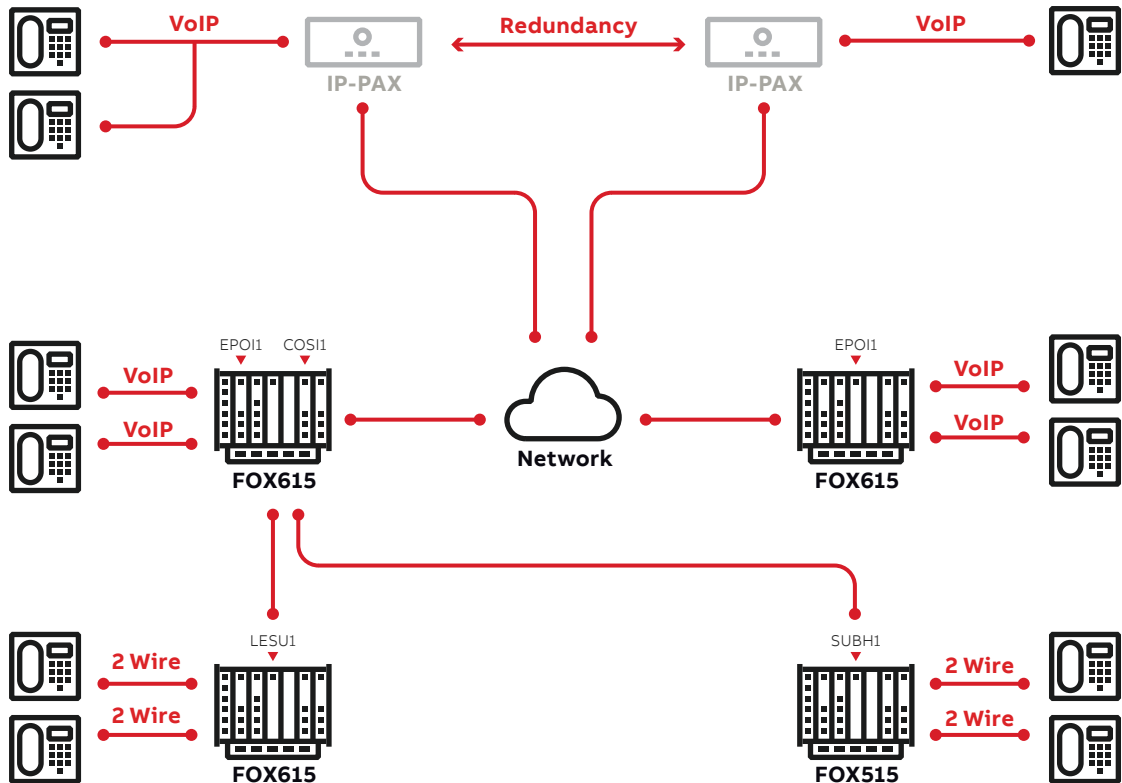
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02 COSI1 application
integrating traditional
2 wire telephone sets
in a VoIP system

FOX615 powers up your voice system

Considering the different interfaces of FOX615, ABB provides a smart and optimized solution for your voice system. We deliver a fully mixed system that consists of POTS and VoIP, even in a mixed environment consisting of FOX515 and FOX615. POTS phones can be integrated into the corresponding POTS interfaces of the relevant device, and routed to the FOX615, where the COSI1 interface will perform conversion to SIP. To ensure

high availability, 1:1 protection can be applied and redundant registration to several IP PABX is possible. At newer locations where VoIP phones are already installed, the EPOI1 PoE interface can be integrated into FOX615 with the ability to feed IP phones directly from the multiplexer. This ensures the availability of the voice system during blackout conditions, since the multiplexer is usually installed along with a backup power system.

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Local call routing.

Enabling the highest availability of your voice system.

03 Enhanced availability by having local call routing with COSI1 enabling voice calls between POTS phones

The local call routing option further increases the availability of the voice system. If this option is chosen, the COSI1 interface can act as a local PABX for all connected POTS subscribers, in case the connection to the IP PABX system is lost. Together with the hardware redundancy option, as well as the ability to register on various IP PABX, this feature helps users build telephony networks of the highest availability.

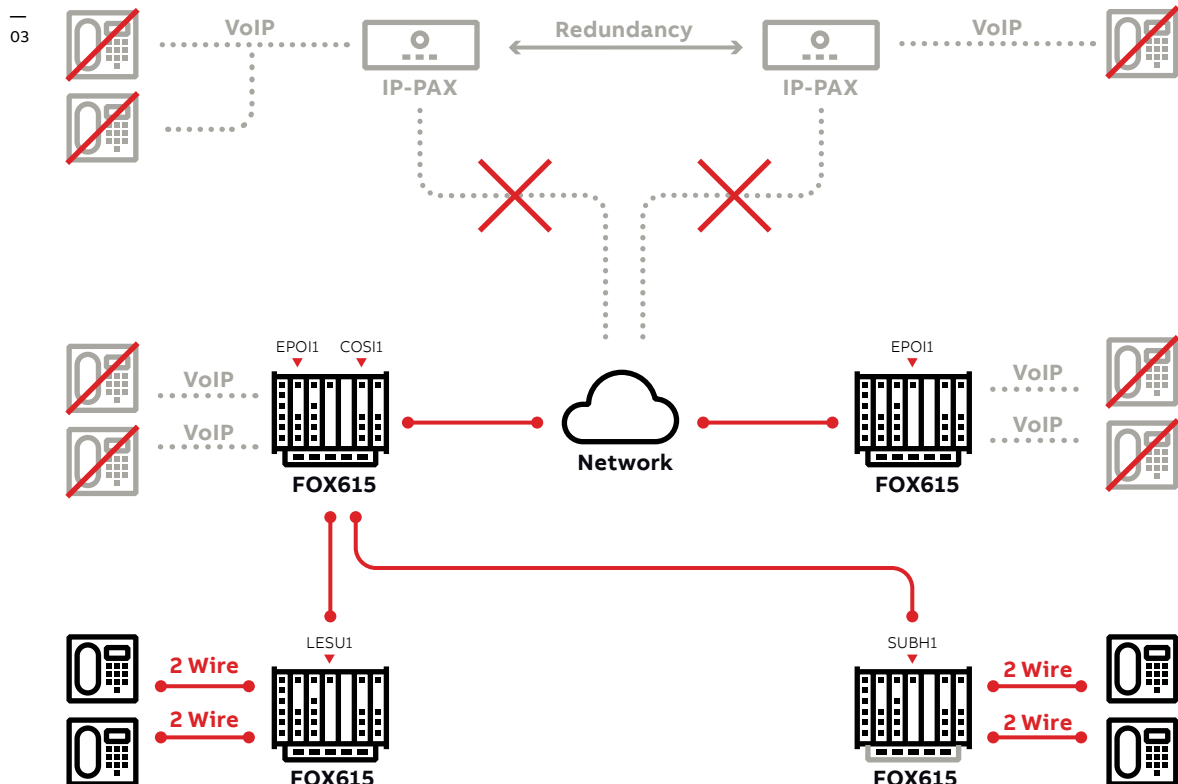
The SIP solution has been fully tested for the following list of IP-PABX systems:

- SOPHO SIP@NET
- Inovaphone
- Cisco Call Manager
- NEC Univerge SV-Series

Management System

All FOX615 modules, including a variety of services and applications, are managed centrally by FOXMAN management system, the network management system for the complete communications portfolio. Easy and intuitive configuration with user dialogues and equipment views is ensured by FOXCST, the graphical configuration tool.

With FOXMAN and FOXCST solutions, utilities can enhance the overall performance of their operational networks, saving costs and accelerating the circuit provisioning process.



PSTN Characteristics	
Media gateway control protocol	SIP (RFC 3261)
Speech algorithm and compression	ITU-T G.711 PCM 64 kbit/s ITU-T G.729 A/B
Echo cancellation	ITU-T G.168, tail length up to 128ms
Silence suppression	Supported
Comfort noise generation	Supported
Services/Characteristics	
POTS	Supported
FAX and modems	Speech band data or T.38
Traffic-carrying performance characteristics	Supported
Proxy/domain	Support of primary/secondary outbound proxy servers Support of line-based multiple SIP domains, outbound proxies and registrars
Capacity	
Number of user interfaces per card	Up to 912 POTS
Active channels per card	Up to 200 (G.711 Codec) Up to 80 (G.729 A/B Codec)
Quality of service	
Class-of-service	Differentiated services (DiffServ)
Redundancy	
Card redundancy	1:1 equipment protection
Interoperability with 3rd party devices	
With SIP servers	Supported
Management	
FOXCAST	For local management and offline configurations
FOXMAN-UNEM	Central management
Standards compliance	
Standards	IEEE 1613, IEC 61850-3, EN 61000-6-3/2, IEC 61000-4-2/3/4/5/6/8/16/29, EN 60950-1, IEC 60253-5

List of abbreviations	
FOXCAST	Configuration Tool for FOX615/612
MCMI	Modified Code Mark Inversion
MPLS-TP	Multi-protocol label switching
NRZ	Non Return to Zero
PSN	Packet-switched networks
PTP	Precision time protocol (IEEE 1588V2)
SFC	Secure Frame Concept
SFP	Small Form Pluggable
TDM	Time division multiplexing
WAN	Wide area network