



Products and Solutions

After Communications and Information Technologies (KİT) was established in 1987 with appointment of designing and providing in the information and electricity and electronics industry. From the beginning, the company's managers were determined to expand the company's activities and work under light of telecommunications sector and production equipment of information and electronics industry.

By employing experienced personnel in production equipment in wide range of manufacturing, technical, and laboratory equipment facilities, KİT made important and individual efforts in design and provide communication products, systems, and networks considering quality, reliability, security, and services with proper and competitive price.



KİT offers smart solutions to smart projects to provide value added services over widespread fiber optic infrastructure for residential, commercial, smart cities, etc. By using state of the art technologies based on security, reliability, and quality is implemented.

Smart bands with high network capacity

Value added fiber optic and value added services

Legacy services for low investment

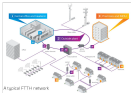
Fiber optic carries communication traffic much more than other infrastructure alternatives. For this reason, expansion or revolution infrastructure of fiber optic project is performed worldwide to provide high bandwidth service for final user. Turning point of implementing fiber optic projects is the FTTH projects. It includes a combination of civil architectural projects before service provision and final user to houses, offices or organizations. These projects are planned much more carefully and carefully considering future needs so that it causes to save time and implementation/maintenance cost.

Establishing Fiber Optic Infrastructure for Various Public/Private Services

From several years ago implementing early solutions for fiber optic infrastructure and providing installed services is accomplished by the KT's expert staff so that it supports technically for users by installing and supplying technology products, K/Line designed and manufactured state-of-the-art products that can be installed and set up easily/quickly with proper after sale services.

Creating Easy Access to the Network Based on Fiber Optics due to 'Technical' Solutions

Benefiting from years of experience on the FTTH projects and spending much more, KT can help you to optimize the network designing, select and using appropriate solutions for handling the projects in time with low price.



Introduction

Fiber optic networks are known as the country infrastructure communication. Economical implementing, high speed, and high-quality transmission over the fiber optic infrastructure cause developing using this technology to various applications. Always increase of applications for the equipment and increase of consumption in information cause to promote production and decrease the cost and as a result decrease competition price in market of this communication industry.

Data and communication services is essential factors have been provided using the copper infrastructure over the years, but it has some limits e.g. highly noise processes and signals loss through the path as well as possibility of limited data transmission. By growing in communication infrastructure and communication industry in the world, high speed and high quality

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Diagram illustrating a network topology. The central component is a hub or switch, which connects various devices and services. The connected components include:

- A monitor (labeled "Monitor") connected via "TCP/IP".
- A laptop (labeled "Laptop") connected via "TCP/IP".
- A desktop PC (labeled "PC") connected via "TCP/IP".
- A wireless router (labeled "Wireless Router") connected via "TCP/IP".
- A server (labeled "Server") connected via "TCP/IP".
- A database (labeled "Database") connected via "HTTP".
- A file server (labeled "File Server") connected via "FTP".

The central hub is labeled "Hub/Switch". The diagram also shows a list of network components:

1. Hosts
2. Links
3. Routers
4. Switches
5. Bridges
6. Gateways
7. Firewalls
8. Modems
9. Routers

Usually a PON is a point to multi-point optical network, with responsibility for data transmission from an Optical Line Terminal (OLT) to multiple Optical Network Terminals (ONT) of end users in residential areas. Considering that a thousand of such users estimate internet lines of Telecommunication Company are usually available inside several square rooms of the tower, the OLT systems are located inside the tower. As to the FTT solution used by Telecommunication Company of Iran, due to high quality fiber optic deployment, wiring and passing through standard/fiber, internet is distributed uniformly and directly without any loss.

Image	Application	Remarks	Product name
	Applicable inside building, communication, signal and structured	Light Series, Simplex, Duplex, Quadruplex, Bundles, with Indoor Flat FTTH, In-Gate Flat FTTH, B-Cable, Indoor FTTH Round Cable B-C	Indica Cable
	Applicable in FTTH projects within the distribution, short and plenum	Indica Flat FTTH B-C Cable, Indoor FTTH Round Cable B-C	FTTH Cable
	Applicable for optical passive interconnects for implementing the following systems	Multi-Mode Fiber Cable	Optical Cables for Multimode OM3/OM4
	Applicable for connecting optical and electronic signals continuously	Composi Hybrid Cable	Special Cable
	Applicable in FTTH projects for aerial and ground activities	New generation of the B-Cable with B-C	

• **Clouser**

Clouser is a device used for installing and implementing the fiber optics. This device is placed in basin location of your fiber optics for protecting the fiber and preventing it from pressure and cutting off. Fiber optic clousers produced in different types of ground, aerial, marine and industrial are related and used proportionate to installation location.



• **Micro duct**

Using the micro-duct, actually on independent path is provided for securing security and safety of fiber optic cables.



• **Adaptor**

Adaptor is a small equipment used for connecting fiber optic cables to each other. They also called fiber optic coupler. Considering different shapes and shapes, fiber optic adaptor can be categorized in different classes with similar connections(PC to PC, SC to SC, and LC to LC) and dissimilar hybrid connections(SC to PC, SC to LC, and PC to LC).



PC adaptor



SC adaptor



SC adaptor



LC adaptor

• **Fiber optic Pigtail**

Actually, fiber optic pigtail are fiber optic cables with connector on their one ends so that can be connected to other systems and equipments via the end. There is no connector on another end and it usually basin optional. Various connectors can be used on end of the pigtail (e.g. PC, LC, and SC). Three types of interfaces are generally located inside the fiber optic patch panel in single/double port.



SC/APC - Pigtail

• **Fiber optic Patch cord**

Actually, fiber optic patch cords are fiber optic cables with connector on their both ends so that can be connected to other systems and equipments. Various connectors can be used on ends of the patch cords (e.g. PC, LC, and SC). Three types of interfaces are generally located inside the fiber optic patch panel from the CPE to optical modules of the fiber optics in single/double port.



SC/APC - Patch Cord

1. Splitters

The sharing transmitted signals in the PON and GPON systems with splitters, optical splitters play important roles in communication systems. The passive equipment of the network is responsible for branching from fiber optic strings to divide equal power of the fiber optic cable and distribute it to each fiber-optic link. In addition, it is considered between the OLT system and network so that in case of implementing the FTTH network or F2F, it is installed inside the rack.

Splitters are produced and used in different types of 1x1 and 2x2. Here 1x1 is number of output ports. Due to 1xN and 2xN configuration of the splitter a PON physical fiber optic network can be converted to a single OLT port provided for several ONUs subscribers. Splitters has no electrical charge and avoid generating electricity.



2. Patch Panel

Making connections using the patch-cable to each new cable fiber-optic connections and more-arranged, beautiful and available fiber-optic networks as well as making changes quickly without any substantially managing the network system and more-convenient and improving efficiency. In addition, network manager can define accurately which part of the network use each fiber optic string and the string is responsible for making connections with which network equipment.



A patch panel patch port



A patch panel patch port

There panels are available with capacity of different ports from 32 to 48 and are located in the rack for gathering ports for fiber optic communication.



• Rack

This rack is located inside the Main power lines of communication lines of the tower in cabinet for integrating the systems related to work-center of the building.



• F.O.F (Fiber Optic Feeder Box)

F.O.F is an ODF/ODF including a fiber optic connector for Fusion Splicing, a place for installing the fiber optic splitters, and a panel with ports supporting up to 32 fiber optic ports. In location of the fiber optic ports, fiber optic adapters is installed and when the splitter is installed, input fiber optic of Communication building is available at one side and some pairs of sub-fiber are considered as another side.

Usually a F.O.F includes the following parts:

- Splitter for separating power of input fiber optic and distributing it through output fiber optic
- Patch panel (adapters) for connecting the splitters to digital propellerators to pairs of fiber optical fiber optic
- (Cable) where fiber optical fiber optic are located here



Concrete splitter inside the F.O.F

■ Plastic optical cable

Except fiber optic cables, the POF line is called **plastic cable**. This cable is common residential/commercial building and is formed fiber optic is not there. By developing the POF cable, using the clear substrate instead of pure fiber and the process of manufacturing the cables for copper cables is completed faster to manufacture more advanced broadband carrying modern communication systems like.



■ ODN (Optical Network Device)

This type of router is used for connecting fiber optic network router/ODN technology.



■ Test, measuring, and high speed equipment of fiber optic network



Cable measurement



Equipment of Test and fiber optic power



Equipment of power and fiber optic power power (High speed)

Active Equipment

High bandwidth access using the POF technology provides the highest quality signal for the fiber optic cable, voice, and video in long distances. Main advantage of the POF technology is that to deliver with higher power consumption is possible between the OLT and ONT ports so that the network costs are decreased considerably. In addition, in the POF technology, fiber optic consumption is decreased extremely in the network infrastructure because a string of fiber optics is enough for the subscribers from central node to the splitter.

- OLT system
- Gigas-byte Ethernet switch (port 1)
- ONT switch
- ONT module
- IP-based access without router (e.g. the NVR system, IP-based camera, POF switch, and computer monitor for remote education)

- FullF system
- IP Phone local system of the IPPhone IP phone including the panel located in front of entrance door + the panel located inside the flat and remote operation feature + Android software of the IPPhone
- IPPhone system
- for Tap Box
- IP TV and in all scenarios e.g. access + monitor + IPTV software
- flat of your building e.g. different scenario

• OLT (Optical Line Terminal) system

Basically this system is made of cable and, interface between service provider and service customer gives customer all services and features individual bundleable for each service customer. The main essential responsibility of the OLT is to control information exchange through which the fiber-optic line between network of transmitting receiving side.

OLT has two parts for exchanging information systems involving various types of data/service traffic from external and downstream involving data/service/data traffic from the network and transmitting it through OLT network of access side.



OLT LTP-4S and OLT LTP-4S models of the OLT system

PCB printed the OLT system proper located panel. The optical network is that each one of these PCB units can be connected to 44 subscribers via splitter. Access to operators' networks can be gained via the Optical NGI port on each panel simultaneously.



Installing eight-SPR ports in total at the 10, 11, 12-13 and four-SPR ports in total at the 14, 15, 16-17.

Remotely-controlled with four-CLB eight-SPR

Meeting the 100M, 100M and 100M standards

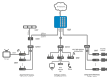
Proper for small areas and residential blocks

For compatible independent units

■ 10-4000-PS 100.7 system

Using this system designed for establishing networks with the SPR technology suitable for more systems can be constructed without additional time pressure at high capacity. Managing the main systems, traffic controlling, and connecting to transmission networks is accomplished by this system mode.

Control devices of the 10-4000-PS is an Ethernet-type two-control operated along with the PS-CL port module for connecting to external systems in the SPR technology.



4. OLT module

These modules are designed to exchange services from users to that of each individual components for receiving voice, IPTV, FTT, and high speed internet services.

In addition, different data received from clients can be transmitted, collected, and stored as well as forwarding them to upper OLT.

Available services:

Video streaming/high quality IPTV,
Video on Demand (VoD), P2P, Video surveillance

Online gaming/entertainment game

Applications:

Providing web-based access services for the subscribers in flats, residential areas, camps, or suburban buildings

Establishing corporate networks in large buildings or governmental offices with security and high data transmission rate

Hardware facilities of model according to the Region

A, F20 port

A, GPON port

A, Base-T 10/100-port

A, Base-T 10/100/1000-port

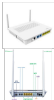
Flow rate: 10Gps up/20G 10Gps-down, 128k

External Service for the PON2+40

MAXIOM module is, four layer-2 managed modules series that includes 24 ports of the 10/100/1000Base-T and 4 ports of the GPON. These modules are designed for connecting to fixed users, networks of large companies, small middle networks and networks of service providers using the gigabit Ethernet ports.

Applications of the switch includes physical stacking, supporting for VLAN, multicast groups, and advanced security issues.

This switch can be connected to battery when the LPS Main power supply is cut off. In the FTTH location, this switch is connected for transmitting all the services without uplink. These switches include power supply just for charging/battery when the LPS Main power supply is cut off.



In the FTTH location, the switch is connected for
 transmitting all the services to the all uplink.



Enterprise Access Switches (ACCESS-SP) (POE Available)

Enterprise switches are three layer-3 managed switches that include 24 ports of the 10/100/1000Base-T with capability of the PoE and 16 ports of the SFP/SFP+ . These switches are designed for connecting your final users, networks of large companies, small/medium networks, and networks of user organizations using the 10/100/1000Base-T ports.

Applications of the switch include physical marking, supporting the VLAN, customer groups, and advanced security issues.



Abstract

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1. *Journal of Management Studies*, 1996, 33, 1, 1-14.
 2. *Journal of Management Studies*, 1996, 33, 2, 1-14.

Abstract



IP-Based Door Phone System

Today, communication has become important for customers and suppliers who communicate constantly. In order to expand their facilities, many requirements of the building/complex are increased. When the IP-based network is constructed in a complex for the current-day communication, IP-based door phones compatible with the VoIP are introduced to enhance their phone service overall. Many facilities/abilities are added to the complex communication network. Using the system, video communication can be made between the user and visitors. Security can realize themselves when the user's not available there. In this case, message also can be opened.

- Capability of sending group message/text to guest panel/intercom
- Capability of sending announcement from intercom
- Supporting VoIP-based network
- Supporting various doors
- Opening the door via password or ID card
- Supporting alarm system (alarm of door being open)
- Integrated calling/line system-line interface
- Capability of pairing and setting the phone handset network
- Ability to define IP-based system/setting for VoIP server
- Capability of updating firmware remotely



Facilities

- Remote control
- Supporting the door's access

Capacity

- Maximum 10 lines in a network
- Maximum 1000 maximum lines
- Maximum 1000 panel/intercom system
- Maximum 1000 panel/intercom system
- Maximum 1 display screen in a unit



How to connect with the communication equipment

The main/intercom/line telephone and/or video camera is connected to internal line phone unit by pressing the main button. Integrated voice of intercom connection/communication part of internal line phone inside the building around projects built inside.

SmartPanel

- High profile design according to the IP65 standard
- 10" diagonal screen with 160° angle of view
- External control equipment is absent
- Supports the HMI electrical loads
- Strong anti-vandal-resistant frame
- Features
 - Image sensor (HIDCC)
 - Image driver: 160°
 - Customized Gellan
 - Resistance against water splash (IP65)
 - Resolution: 1920x1080
 - Power supply: 10V/100mA
 - Power consumption: 10W/100mA
 - Operating temperature: -40°C ~ +85°C
 - Dimensions: 160x100x10mm
 - Color of back cover



Industrial Panel

- Supports the standard
- Resisting to shock tests
- Supports the strong performance
- Supports the 10" and 15" diagonal displays
- Supports the HMI electrical loads
- Features
 - Resolution: 1920x1080~4K
 - Property: supporting 10-150° viewing angle
 - Customized Gellan
 - Resolution: 1920x1080~4K
 - Power supply: 10V/100mA
 - Power supply: 10V/100mA
 - Power consumption: 10W/100mA (max. 100W for 15 inch)
 - Operating temperature: -40°C ~ +85°C
 - Dimensions: 160x100x10mm
 - Color: black/gray

IP PBX



- IP based IP-PBX system (soft-switching)
- Adding VOIP functionality to existing IP-PBX over digital phone network
- Providing communication with external IP-based network using third party services
- SIP support
- Access, administration by Software-Defined (SD) Subscribers
- Basic call, video file services
- Support Call forwarding

IP-Base VoIP Telephone Set



It is an IP-based telephone set for use in the VoIP telephone network. The telephone set is connected to the SIP provider network using the network configuration methods. It includes a liquid crystal display. The telephone supports 3 lines and can communicate from three SIP service providers simultaneously. Supports various security, this telephone set meets the fire protection measures.

General Specifications

- Supports SIP accounts
- Supports for call presentation display screen
- Supports ringing feature
- Supports various SIP protocols
- Supports various for speed-dialling VoIP telephone set
- Capable of holding up to 10 parties conference
- Supports the DSS, DTMF, CDT, and DTMF mode
- Supports various, transfer, hold, auto-park, waiting, and ...
- Supports multi-call
- Supports the DSS

IPTV solution

Traditionally television only a real-time video stream from available channels, whereas IPTV solution, television provide resources and information for the system, user request information stream to television and actually user defines which channel is requested a desired time. User requests are sent to the server via the IP network and the television stream is transmitted to the network. In this case, the channel requested by user is sent to the user via the network and the television.

IPTV is an extension of these resources system to manage programming, propagating the stream content, creating location information, and user interface information. User requests facilities of the IPTV system are integrating two elements: first, how various sources, including request, content, resources, connecting to stream, integrating two elements, changing the stream, receiving and controlling stream equipment, managing users, obtaining the resources, managing resources, obtaining media resources, managing the stream and its transfer, obtaining content and copyright policies, testing and testing, testing, receiving the data and ...

Advantages

- User interface with capability of customization and changing the theme
- Integration with various types of digital signage advertising channels
- Low maintenance and high performance
- Operable in multiple places, indoor, and outdoor
- Possibility to create type of information system for monitoring and controlling resources
- Providing services and off-line by sharing TV channels via satellite and cable
- Online service, remote settings via internet, and automatic troubleshooting



- Capacity of technology to enhance national statistical facilities and enhance existing data sources
- Managing the timely dissemination from satellite, web, cellular, internet, and other remote sensing processing and geospatial internet technologies and use
- Capacity of organizations and its geospatial-related use
- Managing information derived for user from categorized/other activities publicly and confidentially for its organization
- Capacity of existing the following integrated system to be constructed in their facilities:
 - Satellite remote sensing
 - Satellite internet access (ISPS)
 - Geospatial information system facilities
 - Local communication and information-related material
 - Local cellular network
 - Photocopying, plot and bridge survey
 - Geographical map
- Communication and services including web, message generation, text from resources, online, systems, remote sensing, and changing electronic mode
- Geospatial use in map and online tooling
- Geospatial information in managing information related to user-defined, feasible, and statistical issues
- Capacity of existing a national geospatial facility to be integrated statistically:
 - Data collection and storage, data access, distribution
 - Processing, data storage by allowing, viewing, web-based access
 - Display and viewing facilities, internet, digital, mobile, wireless
 - To be geospatial development
- Identifying the gaps in the field/geospatial information system, infrastructure, tools, and facilities and capabilities in the field
- Identify geospatial-related equipment information related to state of the country and update on the equipment used in the geospatial





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