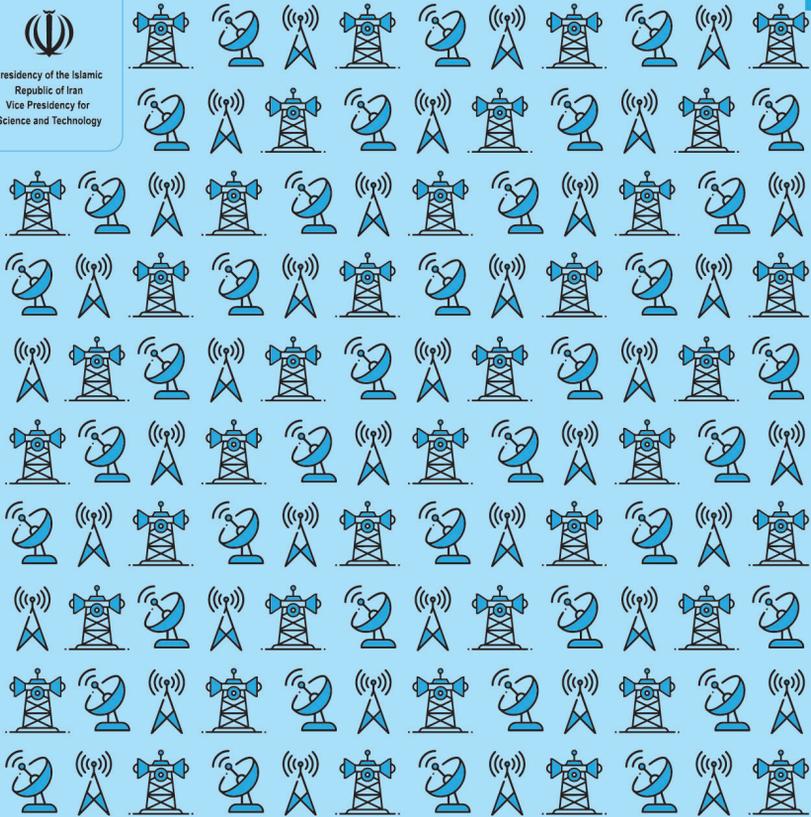




Presidency of the Islamic
Republic of Iran
Vice Presidency for
Science and Technology



Eighteenth Volume

TELECOMMUNICATIONS

Knowledge-Based Products and Equipment

مجلس المدینة العلمیة

Knowledge-Based Products and Equipment
Telecommunication





Presidency of the Islamic
Republic of Iran Vice Presidency for
Science and Technology

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Export Development &
Technology Transfer Fund

www.etdf.ir



www.ihit-expo.com

Knowledge-Based Products and Equipment Eighteenth Volume: **Telecommunication**

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Preface

One of the key factors in a nation's industrialization and economic complexity is technology. Complex economies can connect vast networks of individuals with relevant information to produce a variety of knowledge-based goods. Indeed, the types of goods or products that are ultimately supplied to international markets are taken into account when determining the complexity of an economy.

A knowledge-based economy is one in which the application of knowledge and information plays a significant role in shaping production and distribution, and where investments in knowledge-based businesses have drawn particular attention. Along with enhancing nations' competitiveness, the transformation of economies into knowledge-based economies has the potential to have a significant impact on international trade.

7000 knowledge-based businesses in Iran provide knowledge-based goods that are the result of the expertise and experience of professionals and university graduates. These businesses, which occasionally resemble enormous technology factories, sold more than 10\$ billion worth of goods last year and exported 1\$ billion or so to various nations. The Presidential Deputy for Science and Technology is recognized as the most significant authority for direction, leadership, and development of the technology area in Iran. It serves as a support organization for startups and knowledge-based businesses by finding and selecting these enterprises. This book, along with 19 other books, is a carefully curated selection of goods with a track record or export potential that was put together using data provided by chosen businesses for presentation to foreign clients, business people, and government and academic officials interested in using these goods. To review the company's manufacturing and distribution records, access to technical knowledge and specialized human resources, production and export capacities, and after-sales services, two specialized and commercial committees were formed separately, and each committee reviewed the products in detail with the participation of technical and commercial experts.

In this procedure, specialized committees were held with the collaboration of the experts of the center of companies and knowledge-based institutions of the Deputy for Science and Technology, headed by *Dr Reza Asadi Fard* and Coordinated by *Engineer Mojtaba Houshmandzadeh*. In addition, *Engineer Mehdi Ghaleh Noei* and *Engineer Ruhollah Estiri* presided over commercial committee meetings, which also included businessmen from the private sector, and I want to express my gratitude to these two groups for their work and assistance.

I also want to appreciate the project manager, *Zahra Afzali*, who has taken on a lot of responsibility and given close attention to the project's design and development from the beginning with innovative ideas.

I also think it's important to recognize and express my gratitude to my other colleagues for their efforts in gathering, reviewing, contacting firms, selecting, and rewriting texts, and finally editing and creating this book:

Project monitoring and editing team: *Mohammad Torabi, Fereshte Elahi*

Evaluation team: *Yaser Shadan, Seyed Rasoul Hosseinia, Mehran Zeinalipour, Mohammad Matin Shirzad*

Design team: *Mohammad Hossein Pourdabbaq, Masoud Khalili*

I want to underline that the aforementioned goods may be offered in a variety of ways in the country of destination, including export of end products, export of semi-finished and assembled products at the destination, joint production in the destination country and other economic cooperation. In each of the aforementioned scenarios, the Export Development and Technology Exchange Fund is prepared to co-invest in the target countries and guarantee the purchases as a financial sponsor of knowledge-based export enterprises.

The book's conclusion also includes a list of export management firms authorized by the Deputy for Science and Technology for communication, Iran Houses of Innovation & Technology (iHiTs), located in several countries, and commercialization and technology transfer agencies. Finally, I am hoping that this book will be beneficial to the readers and provide them with a thorough grasp of Iranian technological advancements.

Regards,
Mehrdad Amani Aghdam
CEO of Export Development and Technology Transfer Fund

Telecommunications



Knowledge-Based Products and Equipment

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Introduction

The Origin of Industry and Export in The Eyes of Iranians

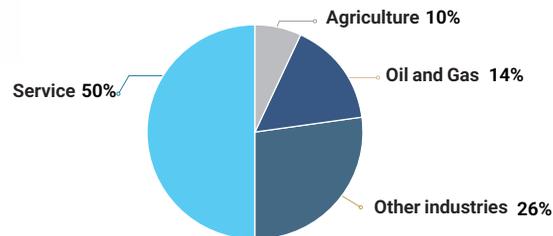
The ancient land of Iran has long been the source of knowledge and industry, and Iranians have played a significant role in the development, evolution and promotion of science and human awareness. Most historians of the world believe that most of the advances in science and human civilization are owed to Iranian civilization and the most brilliant works of art and the highest industrial levels has come from the minds of Iranians. Metalworking industries, agricultural industry, pharmacy and alchemy with themes including tile glazing, carpet dyeing, fabrics and glass were some of the industries that were considered by ancient Iranians. In parallel with the special attention to the development of industry, the history of mutual trade relations between Iranians and other civilizations in East and Central Asia, Europe and Africa has a long history, and Iranians have played a significant role in the expansion of global altruism since long ago by being on the route of the Silk Road and maritime trade.

We Iranians today, like our ancestors, consider industry, art and production in our ancient land to be a transformative and constructive place, and we consider the development of technological interactions and the trade of knowledge-based industrial products with other countries as an opportunity for friendship and the expansion of ties.

Industry and Export in Today's Iran

Industrial development has a very important place in the plans and policies of the Islamic Republic of Iran due to the creation of value added, job creation, increase in exports and reduction in imports, and the transition from an economy dependent on oil and mineral raw materials to an industrial and manufacturing economy, especially an economy dependent on new technologies, is a grand plan that has been adopted for this purpose. Currently, 50% of Iran's gross domestic product is allocated to services and another 50% to industry and manufacturing, which includes 10% agriculture and food industry, 14% oil and gas industry, and 26% other manufacturing industries.

The Share of Various Activities in Iran's GDP

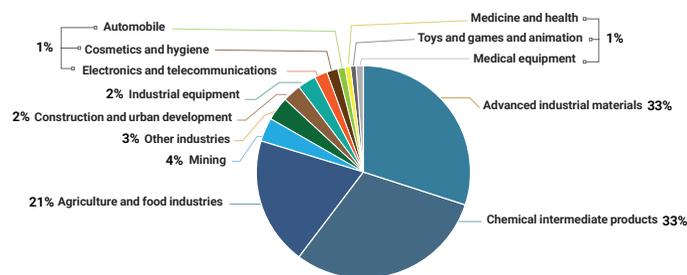


In the meantime, various industries such as pharmaceuticals, medical equipment, construction, communications and telecommunications, energy, mining, chemicals, etc. have a special share of Iran's gross domestic product, and their production, in addition to covering a considerable amount of country's domestic needs, are exported to various destinations.

According to World Customs Organization data, in 2021, the Islamic Republic of Iran had exports equal to 75 billion dollars, almost half of which is allocated to non-oil industries and processed industrial products. Advanced industrial materials, chemical intermediate products, agricultural products and food industry are all among the biggest exporting industries with more exports.

Iran's Exports in 2021

Ref: Trade Statistics for International Business Development ¹



¹ www.trademap.org

Regarding the main export destinations of Iran, it should be noted that China, India, Indonesia, Russia, Uzbekistan, Ghana, Germany and South Africa, as well as among the regional neighbours, Iraq, Turkey, UAE, Afghanistan, Pakistan, Oman, Turkmenistan, and Azerbaijan account for the largest dollar value of imports from Iran.

Where the New Technologies Stand in Iran's Industry

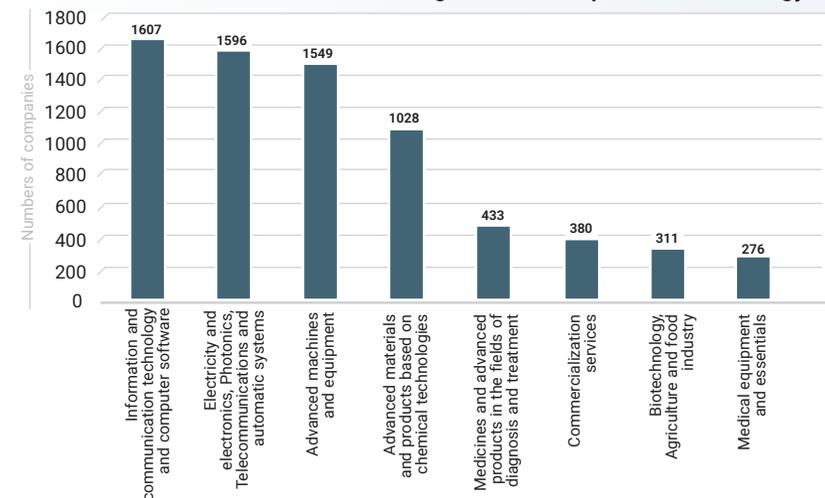
Paying attention to the development of new technologies, commercialization and its influence on manufacturing industries has caused the Islamic Republic of Iran to experience a growing progress in this field in the last decade; An issue that has taken place in Iran in the form of the development of knowledge-based enterprises. Based on this, the meaning behind knowledge-based enterprise is as follows:

A private company that produces products or provides services that have the following three features:

1. The product or service provided by the company has a high or medium to high technology level and its technical knowledge has a significant technical complexity (technology level condition).
2. The product or service design in the company is based on internal research and development or technology transfer (Research and development-based design condition).
3. The company is able to produce and provide the mentioned goods or services to the market (production condition).

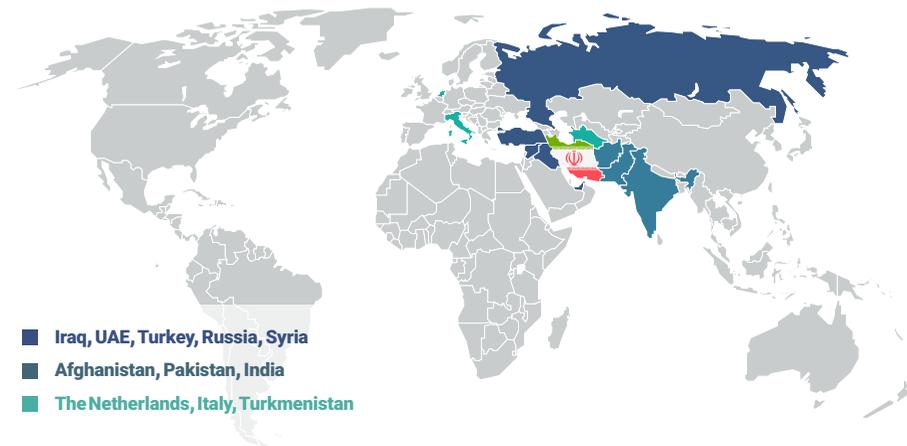
Currently, more than 7 thousand knowledge-based enterprises in Iran are producing products and providing services in the field of various technologies. These companies produce more than 15,000 products or services in total, and their direct employees, which generally include people with a high level of education, are around 250,000 people.

The Number of Knowledge-Based Companies - Technology Fields



The export of Iran's knowledge-based enterprises has been growing in the last 5 years, and these companies currently account for about %2 of Iran's non-oil exports.

The Largest Export Destinations of Iranian Knowledge-Based Enterprises in the Last 5 Years



The Status of Knowledge-Based Products in Telecommunication

The telecommunications industry is considered one of the most influential primary industries, consisting of the hardware equipment procurement and supply, installation and commissioning services, software design and provision. Telecommunications systems are widely used in various industries due to their high importance. The result of years of effort and experience in the telecommunications industry is the ability to implement various telecommunications systems in industries such as oil, gas and petrochemicals, power, maritime, rail, customs, and steel.

According to the reports of the Central Bank, the energy sector (which includes the electricity industry) accounts for about %8.2 of the gross domestic product. This industry also has a fundamental position in other sectors (especially other industries with a %26 share of GDP), and other industries such as petrochemicals, steel, construction, medical equipment, automotive, oil and gas, etc., are heavily dependent on the power grid. In other reports, the telecommunications industry has also been mentioned to account for %1 of the gross domestic product.

The main production of this industry is consumed by domestic industries in Iran. However, in recent years, an annual amount of about 260 million dollars, which accounts for about 0.5 percent of Iran's total exports, has been allocated to the electricity industry,

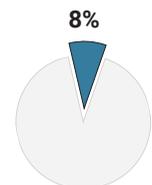
a significant portion of which is related to telecommunications equipment.

Given the vast consumer market and the dependence of all industries without exception on the electricity industry and power grid (which also include the products and equipment related to telecommunications), the foundations for the growth of many technologies and knowledge-based products have been provided in it. This matter is evident in the activities of over 950 Iranian knowledge-based companies and the supply of more than 1600 technological products by them.

In recent years with a special emphasis on self-sufficiency and maximum development of the country at the national level, the activities and production of knowledge-based companies related to the electricity industry, which also include the telecommunications sector, have been accompanied by good growth. This issue is confirmed by the fact that this sector comprises about %12 of the Iran's knowledge-based production and employment.

Finally, regarding the exports of knowledge-based products of this industry, it is worth mentioning that a total of 210\$ million worth of products produced by knowledge enterprises active in the field of telecommunications have been exported from Iran in the past five years with Iraq, China, Uganda, Turkmenistan, Turkey, the UAE, Kazakhstan, Afghanistan, Armenia, and Russia being the major export destinations of these companies, respectively.

The Percentage of Telecommunication Companies from All the Knowledge-Based Enterprises

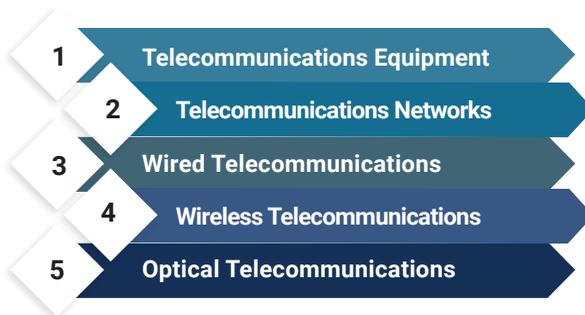


The Main Export Destinations of Iranian Knowledge-Based Enterprises in the Fields of Telecommunication



The Division of Knowledge-Based Products in Telecommunication

As previously mentioned, the vast and wide-ranging consumer market, as well as the universal dependence of all industries without exception on this industry and power grid (that include products and equipment related to telecommunications), have provided the foundations for the growth of many knowledge-based technologies and products in it. In this book, products have been collected that can be divided into the following categories:



The following describes each category and their subcategories in order to give a general understanding of these areas.

1 Telecommunications equipment

Telecommunications equipment generally refers to the hardware used for telecommunications, such as physical data transmission lines, radio transmitter stations, and fiber-optic communication. This communication includes various types of communication technologies including telephone, mobile, radio, internet and even computer. The products of this area can be classified as follows:

- **First Section | Radio and data Recording Systems:**

This category includes a wide range of telecommunication equipment such as broadcast equipment and receivers, monitoring systems, wireless systems and telecommunication racks.

- **Second Section | Amplifiers:**

Amplifier is a general term used to describe signal amplification circuits. Since amplifier circuits are not alike, they are categorized based on their circuit configurations and operating modes. However, the classification of amplifiers depends on things like signal magnitude, physical configuration, and how the input signal is processed (the relationship between the input signal and the load current).

- **Third Section | Dividers and Combiners:**

Dividers and combiners are central antenna equipment. The splitter or divider is used to branch off from the main line of the central antenna and as a result divide the signal between several consumers, and the mixer or combiner allows buildings that have a central antenna or a single antenna to combine aerial antenna signals with satellite signals and finally enables the household to watch all antenna and satellite channels and even cameras using a wire.

- **Fourth Section | Other Telecommunications Equipment:**

Equipment such as filters, decoders, shifters, measuring equipment, multiplexers and power supplies are mentioned in this book in brief.

[Start chapter at page 22](#) »

2

Telecommunications Networks

A network is a set of transmitters and receivers that are connected through a telecommunication channel. The most common telecommunication networks include linear networks, fiber optic networks, radio networks, microwave networks, line-of-sight networks, Tropos Networks (T.S) and satellite networks (S.N). The products of this sector can be classified as follows:

- **First Section | Transducers:**

A transducer is a device that converts a form of energy into an electrical signal. A transducer uses a sensor and signal conditioning unit to carry out the transmission. The sensor senses any change in physical quantity or energy and provides a non-electrical output; then, using the signal-conditioning unit, it is converted into a proportional electrical signal.

- **Second Section | Switches:**

A switch is one of the active pieces of network equipment, which, while similar to a hub, is much smarter than it. The switch uses devices such as hubs, switches, routers, etc., to connect nodes in the network. This connection actually allows the transfer of information between devices in the network.

- **Third Section | Modems:**

A modem is a hardware device whose task is to convert digital signals to analog and vice versa. In the modem, the modulator section converts the output digital information from a computer (audible sounds) into an analog signal; thus, making it possible to send them through a telephone line, DSL or cable. The demodulator section converts the analog input signals into digital signals so that the computer can use them.

Start chapter at page 80 »

3

Wired Telecommunications

IP-based call centers of hybrid or low-capacity type are presented in this section. The important and main technical parts of a call center include the following parts:

- Switch
- MDF (Main Distribution Frame)
- Power
- Cable network

Start chapter at page 108 »

4

Wireless Telecommunications

A network is a set of transmitters and receivers that are connected through a telecommunication channel. The most common telecommunication networks include linear networks, fiber optic networks, radio networks, microwave networks, line-of-sight networks, Tropos Networks (T.S) and satellite networks (S.N). The products of this sector can be classified as follows:

- **First Section | Antennas:**

Antenna is a part of any electronic transmitter or receiver system. The antenna can be considered as the interface between the electronic system and the outer space. A transmitting antenna induces electric currents to the conductor's surface layers. As a result, electromagnetic waves are produced and dispersed in the air. These electromagnetic waves induce electric currents on specific surfaces of the receiving antennas.

- **Second Section | Transmitters:**

Modern telecommunication systems produced based on the use of electromagnetic waves, are composed of three main components: the transmitter, the communication channel and the receiver that transmits the information on an electromagnetic wave.

Start chapter at page 116 »

5

Optical Telecommunications

Optical communication is any form of information transmission in which light is the medium of data transmission. The channel of such communication can be the open space, air or optical fiber. This technology was created with the invention of laser and optical fiber.

Start chapter at page 176 »

Telecommunications

First Chapter Telecommunication Equipment



- Radio and Data Recording Systems
- Amplifiers
- Dividers and Combiners
- Filters
- Decoders
- Shifters
- Measuring Equipment
- Multiplexers
- Power Supply



Second Chapter Telecommunication Networks

- Processing and Transmission
- Transducers
- Switches
- Modems

Third Chapter Wired Telecommunication

- Call Center



Fourth Chapter Wireless Telecommunication

- Antennas
- Transmitters
- Radio and Data Recording Systems

Fifth Chapter Optical Telecommunication



First Chapter

Telecommunication Equipment



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Sections

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Amplifier	○
Dividers and Combiners	○
Filters	○
Decoders	○
Shifters	○
Measuring Equipment	○
Multiplexer	○
Food sources	○



➤ Indoor and Outdoor Telecommunications Power Racks and Equipment

◆ Iranian Telecommunication Manufacturing Co.

www.itmc.ir



Product Introduction:

Telecommunication power racks are used to provide the required power supply voltage for telecommunication equipment in the relevant sites and centers. Power racks are produced in two types, indoor and out door, depending on the needs. Indoor racks make it possible to supply power in telecommunication centers, roofed spaces and telecommunication conex boxes. The Out Door rack can also be used in the open space with an area of one square meter and without the need for a garage and in accordance with the country's climatic conditions, and it causes significant savings in the costs of creating telecommunication sites.

Main Export Destinations:

Hungary

Export History:

Up to 500,000 \$

Founded:

1966

Application:

Providing the required power supply voltage for telecommunication equipment in the relevant sites and centers

This product is a final B2B equipment.

Technical Specifications:

- * **Communication ports:** USB, LAN
- * **Protection class:** IP55
- * **Battery:** 4×12V/200Ah
- * **Maximum output power:** 43.2VDC ~ 57.6VDC
- * **Distribution panel:** AC & DC

Advantages:

- * Designing four-layer and six-layer control boards using modern ICs related to the work of each board
- * Production of 3KW rectifier with an efficiency of 95% in extremely small dimensions
- * Design of power rectifier boards using ZVCS resonance topology
- * Designing control systems based on the CAN BUS protocol and requiring full user communication with the system along with facilitating this communication.
- * Use of vertical grinding technology with accuracy of 0.0001

International Standards or Permission:

- * IEC60529
- * IEC 60950
- * EN 61000
- * IEC 60335
- * IEC 60721



➤ RMS Rack Management System

🏠 Kumeshian Co.

www.kumeshian.com



Product Introduction:

What is more complicated than controlling of the commodity in the warehouse, is controlling the equipment that is in operation, and the most difficult is the IT equipment which is not only very expensive but also installed in the limited rack space in the data center. Due to the diversity and extent of equipment in data centers and the possibility of moving equipment between different racks and different data centers, it is difficult to track all equipment and the extent of their movement during the operation period of each item of equipment. To solve this problem, a rack management system is designed.

Founded:

2011

Application:

- * Real-time tracking of data center equipment
- * Access to statistical data and imposing restrictions for users in different industries

This product is a final B2B service.

Technical Specifications:

- * **Passing current:** 400 mA
- * **Input voltage of magnetic locks:** 12 VDC
- * **RFID communication frequency:** 13.56 MHz
- * **Ethernet port:** 100 Mb/s
- * **Main hardware input voltage:** 220-250 VAC

Advantages:

- * Creating web-based software in a completely real-time way
- * Having a mechanism for updating the embedded software and updating the bootloaders themselves in a daisy-chain structure, 100% automatically



➤ Control Box, Telemetry System

◆ Zarrin Samane Shargh Engineering Co.

www.zarinsamaneshargh.com



Product Introduction:

The control box system has been designed and built to be used in the automation of distribution networks and to reduce downtime in faulty networks. This controller has powerful functions required for the automation of distribution networks, including measurement and display of electrical and communication parameters in order to control switches locally and remotely. One of the capabilities of this equipment is connection to various communication and telecommunication platforms such as optical fiber and Ethernet. All information related to errors and events can be displayed in text format on the screen or displayed graphically using external software. The user can change the settings according to different operating conditions; Also, it is possible to change from remote control mode to local control. This device reveals the error related to three phases as well as earth connection. The currents and the ground connection have a preset default value, and if any of the currents exceeds the set value, the corresponding error display will be lit.

Founded:

2007

Application:

Monitoring the situation and sending conditions in electricity distribution companies and water companies

This product is a final B2B equipment.

Technical Specifications:

- * **CPU:** 32 bits CORTEX M4
- * **Processor speed:** Up to 72 MHz
- * **Power:** 50 W
- * **Service temperature:** -30 to 60 degrees Celsius

Advantages:

Implementation of SCADA network algorithms based on technical standards

International Standards or Permission:

- * IEC 61000
- * IEC 60068



Application:

Receiving and sending information in the flight control center

➤ Satellite Support System for Flight Control Center

◆ Aseman Tajhiz Co.

www.asemantajhiz.com



Product Introduction:

The satellite support system of the flight control center is a kind of airport switching system, but this product is designed for the flight control center. In the airport tower, all the transmitters and receivers and telephone lines are installed in the airport and their communication with the control tower switching system is done by a cable, but in the flight control center, the transmitters and receivers are scattered and their information must be transmitted through telecommunications; these terrestrial communications are subject to frequent outages, and in order to solve this problem, the control center's support switching system is designed and built based on satellite communication with transmitter and receiver stations. In general, this system is very similar to the control tower switching system, but it is integrated with satellite network communication using network technology.

Founded:

2014

This product is a final B2B equipment.

Advantages:

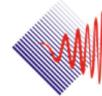
- ✦ Designing suitable internet interfaces for transmitters and receivers of aviation VHF band
- ✦ Setting up and using G729 audio CODECs
- ✦ Designing algorithms to reduce the volume of data packages on the network
- ✦ Design of Eco Canceller to eliminate the return of the sound during conversation by the speaker



➤ Broadcasting and Receiving Equipment

◆ Fanavari Pardazesh Novin Pardis Co.

www.pardistech.com



Product Introduction:

3XASI-STM1 converter device:

The International Telecommunication Union ITU has developed standards based on which ASI video signals can be fitted into a standard STM1 signal. By receiving three ASI signals and one STM-1 signal at a rate of 155Mbps, the 3XASI-STM1 converter device conforms to telecommunication standards and implements ASI signals in the opposite direction by receiving the STM-1 signal at the destination.

Satellite audio decoder:

By receiving the satellite signal and detecting and analyzing it, the satellite audio decoder removes a number of radio services from MPEG-2 and MPEG-4 and delivers them to local FM transmitters for broadcasting in EBS/EBU or analog digital format.

Satellite card receiver with ASI output:

One of the best and cheapest methods of signaling to the centers of the broadcasting organization is to use satellite. This device, by receiving satellite signals in a professional manner, detects them and produces the ASI output of a dedicated Broadcast signal.

Automatic ASI card switch:

Signaling to the digital transmitters of the Broadcasting Organization is possible from different routes such as radio link satellite and optical fiber. Usually, at least two signaling methods are used together so that if there is a problem in one (for example, an optical fiber failure), it will be possible to continue signaling (without interruption) from the other route. The automatic switch, by receiving two ASI

Founded:

2007

signals from two input sources and their continuous analysis and monitoring, provides the output signal from the reserve route as soon as faults are detected on the main route.

Remultiplexer (Remuxing device):

The Remux device is capable of combining the operation of signal reception (satellite/terrestrial/ASI), remuxing it and output digital sound production. This device enables convenient signaling to low power FM/AM transmitters.

DVB-T/T2 (DRD) receiver:

For signaling to digital audio and radio transmitters, there is a need for a safe method (in accordance with passive protection guidelines), with reasonable costs and without outages. The professional DVB-T/T2 receiver (DRD) is able to receive the signal from the transmitter of a distant city in a professional manner using strong antennas and detect it before delivering a digital image to the local transmitter for broadcasting.

MPEG-TS remultiplexer:

Television services are each received from different sources (such as different satellites, optical fiber and radio link). Since each TV transmitter frequency can send a large number of TV services, the Remux device, by receiving signals from different sources and analyzing them, allows the user to select a desired subset of TV services available in these sources.

IF Modulator / IF DeModulator:

This product has the task of receiving digital signals from television/communication equipment, processing them and then performing QPSK modulation operations and sending it as IF on 70 MHz frequency in the IFMOD product and in the opposite direction, receiving 70 MHz IF signals and performing demodulation operations, extracting digital signals from it and delivering it to television/communication equipment in the IFDEMODO product.

Application:

- * **3XASI-STM1 converter:** To transmit digital video signals
- * **Satellite audio decoder and Satellite card receiver with ASI output:** Satellite signal reception and detection and analysis of a number of radio services
- * **Automatic ASI card switch:** Provision of output signal from alternative routes in case of interruption of input signals
- * **Remultiplexer:** Filtering and reamping the signals received by the organization
- * **DVB-T/T2 (DRD) receiver:** Receiving the received signals and detecting the video signal
- * **MPEG-TS remultiplexer:** Receiving signals from different sources and analyzing them
- * **IF Modulator / IF DeModulator:** Receiving digital signals from television/communication equipment and processing them and performing QPSK modulation operations

This product is a final B2B equipment.

Technical Specifications:

3XASI-STM1 converter

- * Number of ASI ports: 3
- * ASI rate: Up to 108 Mbps
- * Input power: 220 VAC

Satellite audio decoder

- * Number of output ports: 3 digital ports (AES/EBU) 3 analog ports (XLR, L&R)
- * TS rate: 100 Mbps
- * Input power: 220 VAC

Satellite card receiver with ASI output

- * Number of ASI ports: 2
- * TS rate: 100 Mbps
- * Input power: 220 VAC

Automatic ASI card switch

- * Number of ASI input ports: 2
- * Number of ASI output ports: 4
- * Input power: 220 VAC

Remultiplexer

- * Number of ASI input ports: 8
- * Number of ASI output ports: 4
- * Input power: 100-220 VAC
- * Core: 4

DVB-T/T2 (DRD) receiver

- * TS rate: 50 Mbps
- * ASI rate: 50 Mbps at most
- * Input power: 220 VAC

MPEG-TS remultiplexer

- * TS rate: 100 Mbps
- * ASI rate: 100Mbps at most
- * Input power: 220 VAC

IF Modulator / IF DeModulator

- * Received signals: E1 and ASI/E3

International Standards or Permission:

3XASI-STM1 converter: NG-SDH

Satellite audio decoder: EN50083, 18033-ISO/IEC 3

Satellite card receiver with ASI output: EN50083, TR101290

Automatic ASI card switch: EN50083, TR101209

Remultiplexer: TR101290, EN50083

DVB-T/T2 (DRD) receiver: ETR290

MPEG-TS remultiplexer: ETS EN 302307, TR101290

IF Modulator / IF DeModulator: EN 300 421, EN50083, ITU-T Rec. G.703

Advantages:

3XASI-STM1 converter:

- * Supports input rate of more than 100 Mbps and output rate of 155 Mbps
- * Equipped with a precise and advanced control and monitoring system

Satellite audio decoder:

- * The possibility of delivering any sound output in digital and analog at the same time
- * Equipped with 1+1 online feeding

Satellite card receiver with ASI output:

- * The ability to send any TS generated in the Remux block on the network by setting the IP specifications and destination port of each selected router.
- * Completely independent operation of each Main card (with fully adjustable and separate tables)

Automatic ASI card switch:

- * Measuring and compensating the delay between two inputs in order to perform Hitless Switching
- * Full controllability of the switch with a relatively simple graphical interface along with a log of all system events

Remultiplexer:

- * The ability to receive signals from the network in UDP and RTP protocols with the settings of the IP specifications and the destination port of the streaming data.
- * The ability to send each of the generated TSs in Remux blocks on the network by setting the destination IP and port specifications
- * The possibility of using the ProMPEG FEC feature to recover lost packets in the network

DVB-T/T2 (DRD) receiver:

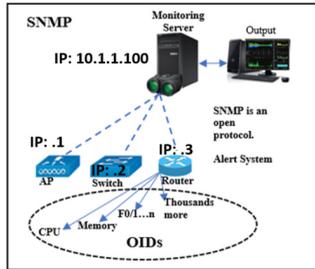
- * Professional DVB-T/T2 digital TV signal receiver with high sensitivity and professional ASI output
- * Use of high-tech FPGA chips

MPEG-TS remultiplexer:

- * Support for QPSK and 8PSK modulations to receive and detect the signal from the satellite
- * Support for input and output rates of more than 100Mbps and a large number of services (at least 80 services) in input and output

IF Modulator / IF DeModulator:

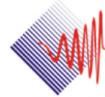
- * Implementation of QPSK modulation in FPGA along with Reed-Solomon FEC



► TV Transmitter Station Monitoring System and Telecommunication Equipment Monitoring System Equipped with SNMP Protocol

◆ Fanavari Pardazesh Novin Pardis Co.

www.pardistech.com



Product Introduction:

TV transmitter station monitoring system:

Due to the geographical vastness of the country (Iran), the Broadcasting Organization has a very large number of about 6000 transmitter stations in different provinces. In each of these stations, there are various pieces of equipment for signaling and television broadcasting, as well as station facilities. In case of problems in any of these pieces of equipment, it is necessary for the organization's expert to be present at the place and solve the problem on the spot. This monitoring system has made it possible to monitor, diagnose and report malfunctions in the equipment.

Telecommunication equipment monitoring system equipped with SNMP protocol:

Pardis-Vision product is an advanced software system for controlling and monitoring telecommunication and digital communication systems equipped with SNMP protocol. This system, by connecting to a complex network of advanced telecommunication equipment (such as H.264, Encoder, etc.), collects and displays their latest working status on a geographic map. Different types of management dashboards also enable integrated monitoring of all the equipment in the network in management centers with controlled access levels. This system can also receive the monitoring information of the equipment installed outside the network using the company's monitoring hardware and through the GSM network. This system is set up completely independent of the Internet network to provide maximum security to meet the needs of governmental bodies and also uses its own peripheral hardware to send management reports via SMS.

Founded:

2005

Application:

Controlling and monitoring systems of television transmitter stations and telecommunication equipment

This product is final B2B service and equipment.

Technical Specifications:

TV transmitter station monitoring system:

- * **Input port:** 2 Ethernet ports
- * **Internet:** 2G/3G
- * **Hardware:** Monitor Sit

Telecommunication equipment monitoring system equipped with SNMP protocol:

- * **Software model:** FCAPS

Advantages:

TV transmitter station monitoring system:

- * Using high-tech ARM chips based on Linux operating system
- * The possibility of communicating between the monitor site and the servers specific software through SMS, 3G and IP platform in the GSM network with a dedicated APN

Telecommunication equipment monitoring system equipped with SNMP protocol:

- * Generating as many separate threads as the devices available in the network automatically in the Linux section
- * Displaying the links between the equipment items on the GIS map and extracting the details of the signals on each link

International Standards or Permission:

SNMP



➤ Digital Half-Duplex Handheld Transceiver on the 3G Mobile Internet Platform for Automobiles

◆ Ertebat Sazan Sahand Co.

www.esstechnologies.net



Product Introduction:

Half-duplex car walkie-talkie is designed to use the cellular platform (telecommunication network) for wireless use (Push to talk over cellular). The third-generation car walkie-talkie has half-duplex communication. This device consists of two hardware and software parts. It is necessary for everyone in a group to have the same walkie-talkie hardware in order to communicate. This hardware has the ability to communicate with the software server (online center) and the IMEI of all devices is registered on the server-side system and users can communicate through it.

Founded:

2009

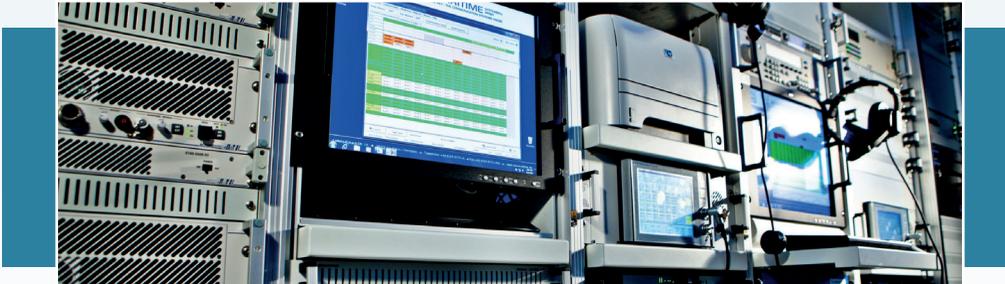
Application:

Communication of the car driver with the central server in the transportation industry

This product is a final B2B equipment.

Technical Specifications:

- * **Secondary memory:** 16 Megabits
- * **Central processor:** ARM Cortex M4
- * **Power supply:** 12-24 VDC



Application:

Integration of telecommunication and radio lines, including radio and telephone and serial communications, etc.

➤ ICS Communication System

◆ Safir Industries Co.

www.safirtelecom.com



Product Introduction:

ICS communication system is a strategy product with the ability to connect to all types of wireless and communication telephone lines. Using the designed hardware and software, the following are possible in this system:

- * Ability to connect to all types of telecommunication lines
- * Management of remote lines from the site or from the location of the devices
- * Providing all the facilities of these lines on the PC or computer panel to secure the operator
- * Provision of each of these lines to several operators
- * The possibility of two-way communication with special features

Founded:

2007

This product is final B2B service and equipment.

Technical Specifications:

- * **Power supply:** 48 and 220 VDC
- * **Service temperature:** -40 to +85 degrees Celsius
- * **Operating system:** Linux and Windows

Advantages:

- * Programming technology with ARM® Cortex™-A8 processors
- * Coding technology on BIOS
- * KERNEL programming technology
- * Support for redundancy

International Standards or Permission:

- * EMI
- * EMC



➤ Data Telecommunication Link with a Range of 50 km

◆ Meraj Technology Co.

www.merajtech.ir



Product Introduction:

Telecommunication links, transmitters and receivers are wireless devices that can transmit signals and information over long distances. This device is used to send and receive data over long distances without the need for wires; Also, it is usually used for places where access to the desired equipment is difficult and it is not possible to use wire.

Founded:

2017

Application:

Smart control and monitor for use in greenhouses, factories, drones, etc.

This product is a final B2B equipment.

Technical Specifications:

- * **Transmit frequency:** 860 to 925 MHz
- * **Transfer rate:** Up to 128 kbps
- * **Transmit power:** 2 W
- * **Modulation type:** LORA

Advantages:

- * Increasing receiver sensitivity with proper RF design
- * No eavesdropping by implementing Lora modulation
- * Using the RTOS operating system to code the system
- * Programming technology with ARM processors and building libraries related to AC sx1262
- * RF design technology to minimize return power



Application:

Controlling the motor in blowers and fans, elevator pumps and industrial machinery such as textile machines, conveyor belts, etc.

➤ Variable Frequency Drive

◆ Ati Bin Co.

www.atibinco.ir



Product Introduction:

Variable frequency drive is widely used to control the frequency and working voltage of three-phase motors and reduce energy consumption in industries and types of equipment. Frequency and voltage adjustment can be done through defined standard input types. By using this device, in addition to the possibility of controlling and reducing energy consumption and increasing the lifespan of induction motors, with the help of various protection systems, the likelihood of them being damaged is also decreased.

Founded:

2017

This product is a final B2B equipment.

Technical Specifications:

- * **The number of input phases:** Single phase
- * **Maximum output voltage:** 250 V
- * **Input voltage:** 230 V
- * **Output voltage:** 0.1 – 400 Hz
- * **Input frequency:** 50 Hz

Advantages:

- * IPM control programming technology, without involving the processor
- * Using a microcontroller for better isolation, reducing processing load and lower price
- * Design technology based on IPM
- * Hardware protection technology with adjustable recovery time
- * PCB design technology suitable for working in noisy industrial environments

International Standards or Permission:

- * EN 61800
- * IPC 2221



➤ 77GHz Millimeter Wave Imaging System

◆ Tera Modje Pars Engineering Co.

Product Introduction:

In recent years, a lot of research has been done in millimeter and terahertz wave science and technology, and one of the main applications is imaging. These waves can penetrate clothes, wood, plastic and some building materials. The interesting properties of these waves have caused them to be used in many fields such as medicine and security. One of the applications of the devices of this frequency field is the imaging system of the human body, which can detect objects hidden under a person's clothes without physical contact or removing the clothes. This system can identify illegal objects such as weapons, drugs and explosives hidden by a person.

Founded:

2015

Application:

- ✳ Providing security in sensitive places such as airports, religious places, sensitive governmental organizations, border entrances
- ✳ Implementation on helicopters to identify cables and fly at night
- ✳ Implementation on cars for intelligent control

This product is a final B2B equipment.

Technical Specifications:

- ✳ **Service frequency:** 76-77 GHz
- ✳ **Number of transmitting antennas:** 4
- ✳ **Number of receiving antennas:** 8

Advantages:

- ✳ Array antenna design with low mutual coupling and low VSWR
- ✳ Designing 77 GHz high frequency circuits



➤ Broadband Amplifier

in the Frequency Band of 80-1000 MHz

◆ Soroush Communication Mehr Co.

Product Introduction:

This product is a broadband amplifier in the frequency band of 80-1000 MHz with the ability to determine the signal frequency in two single frequency modes and frequency sweep mode, with the possibility of programming and applying different gains in different frequencies. The working class of this amplifier is class A and its cooling is based on FAN. This device can be installed in 19-inch industrial racks and includes an LCD display for displaying parameters along with control switches for programming and user communication.

Founded:

2006

Application:

Broadband amplifier in electronic and telecommunication research centers, reference laboratories and universities

This product is a final B2B equipment.

Technical Specifications:

- * **Weight:** 15 kg
- * **Dimensions:** 48.3 × 17.8 × 55 cm
- * **Frequency response:** 80-1000 MHz
- * **Ambient temperature:** 0 to +45 degrees Celsius
- * **Maximum output power:** 5 W

Advantages:

Designing and building a multiband power amplifier circuit



➤ KU Band Power Amplifier

◆ Noura Mowj Sharif Co.

www.nouramowj.com



Product Introduction:

This device receives the low-power Ku-band radio signal, amplifies it and increases the signal power to about 48 dBm (70 watts); Also, this device can be part of satellite and terrestrial TV transmitters and any type of high power radio link.

Founded:

2010

Application:

Strengthening the signals sent in terrestrial and satellite television broadcasting systems

This product is a final B2B equipment.

Technical Specifications:

- ※ **Output signal:** 48 dBm
- ※ **Technology:** GaN

Advantages:

- ※ Designing a radio signal power amplifier in the frequency band and with very high qualitative parameters for the project
- ※ Simulation of RF and high power circuits
- ※ Schematic design of RF circuit and high power
- ※ PCB design of RF circuit and high power



Application:
Military industries

➤ RF Power Driver L-Band

◆ Pooya Noor Sepsheh Co.

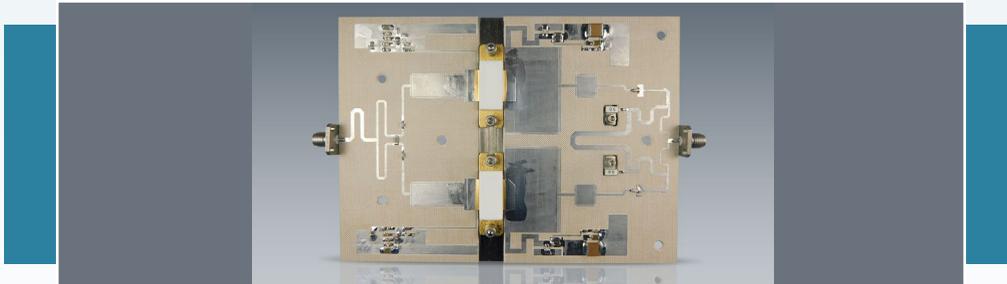
Product Introduction:

The radio signal enters this device and exits it in an amplified form due to the proper circuit design and creating the proper voltage. Therefore, it will be possible to send radio signals over long distances without causing distortion in the spectrum, and there will be no problem in signaling.

This product is a final B2B equipment.

Technical Specifications:

- * **Power:** 200 W output
- * **Bandwidth:** 100 Mhz



➤ L Band Power Amplifier

◆ Samaneh Azmaye Qaem Co.



Product Introduction:

The radio signal enters the power amplifier and is amplified by designing the appropriate circuit and creating the appropriate voltage to bias the transistor and placing it at the appropriate working point in the output state. This amplification, according to its application, should not disturb the spectrum and actually act linearly in the mentioned range. Its amount should not enter the saturated and non-linear area. Hence it is possible in this way to send signals for long distances without spectrum distortion.

Founded:

Application:

Sending signals in television transmitters, air avionics industries, telecommunication and communication links

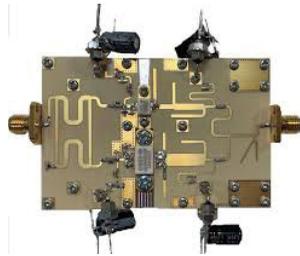
This product is a final B2B equipment.

Technical Specifications:

- * **Bandwidth:** 200 MHz
- * **Supply voltage:** 28 V
- * **Efficiency:** 25%
- * **Frequency band:** L
- * **Size:** 6×2×12 cm

Advantages:

Lower price than similar products



Application:

Power amplifier in modern wireless communication systems

➤ Asymmetric Doherty Broadcast Power Amplifier

◆ Sarat Advanced Technologies Co.

Product Introduction:

Doherty power amplifiers are used in systems with high peak-to-average power ratio (PAPR) to amplify power linearly and with high gain. In recent years, due to the ever-increasing development of wireless communication systems and the increasing demand for higher data transfer rates, new telecommunication standards such as WiMAX, W-CDMA, UMTS and LTE have emerged; These standards use modulation schemes including amplitude modulation that have high PAPR. The Doherty amplifier, by using two floors including the main amplifier and the auxiliary amplifier, adds to the range of linearity and efficiency of the amplifier and is considered a suitable option for use in these transmitters.

Founded:

2019

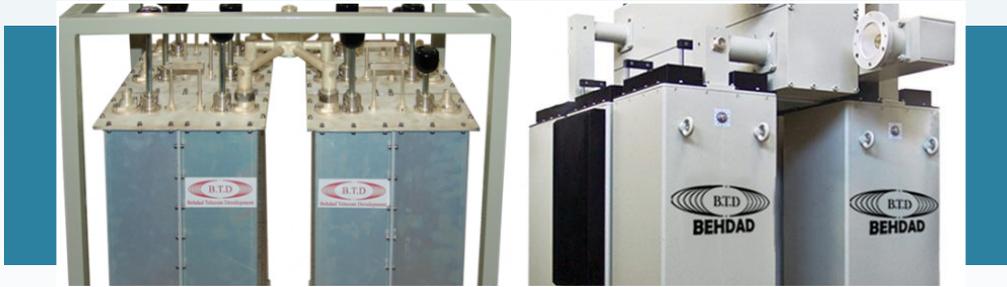
This product is a final B2B equipment.

Technical Specifications:

- * **Drain source voltage:** 50 V
- * **Static discharge current:** 600 mV
- * **Average input power:** 180 W

Advantages:

- * Using BLF989E chip
- * Cooling by air instead of water



➤ Voice and Image Transmitter Power Divider

◆ Behdad Telecom Development Co.

www.behdadtelecom.net



Product Introduction:

This product acts as a power divider; In this way, the power received from the input port can be divided in symmetrical (EQUAL) or asymmetrical (UNEQUAL) ratios from two to twelve outputs. This product is used as a distributor of input power from the transmitter system to several transmitter antennas in order to cover the waves in each region in the radio and television stations of the Broadcasting Organization.

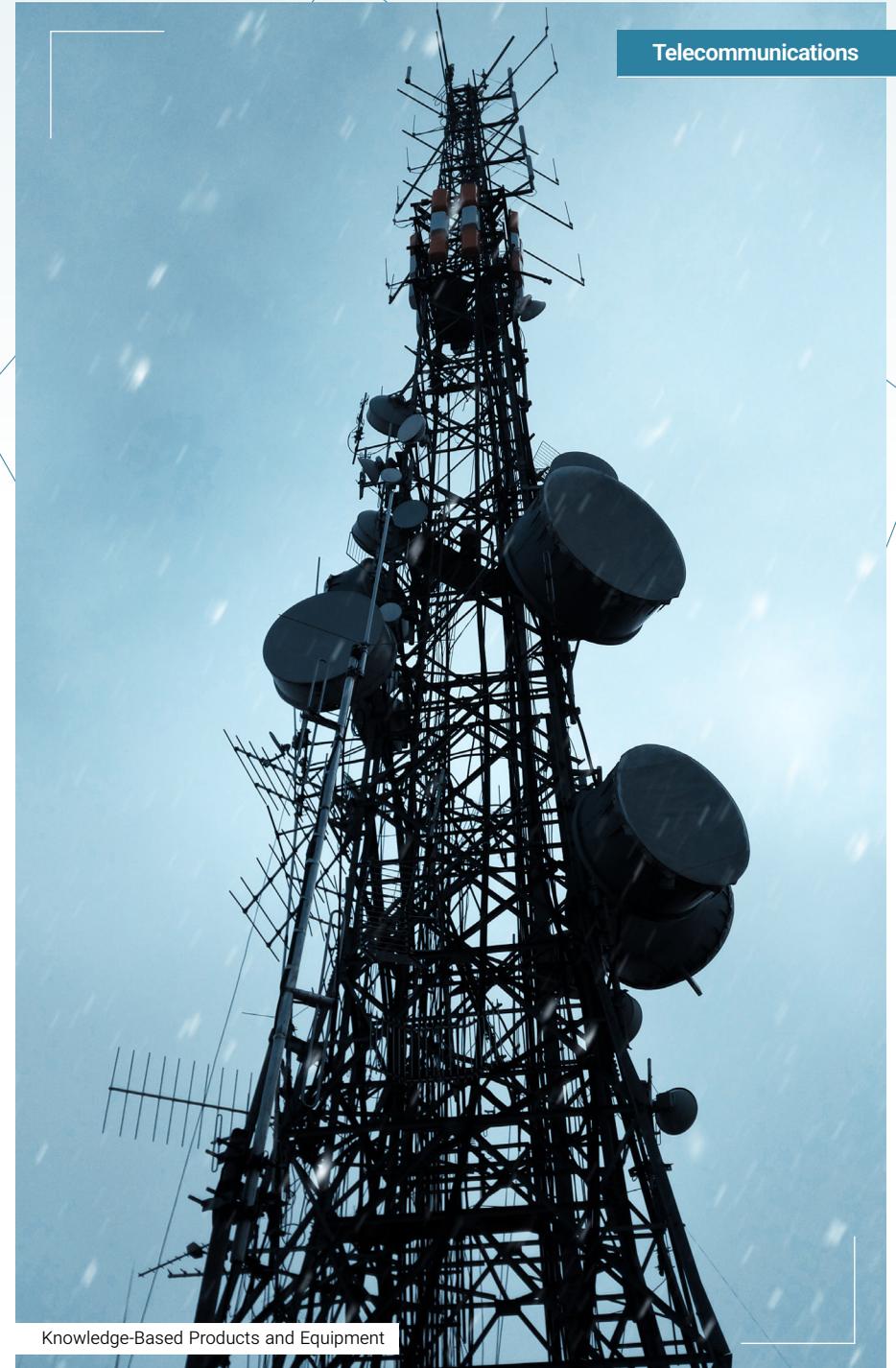
Application:

The input power distributor from the transmitter system to several transmitter antennas in radio and television stations

This product is a final B2B equipment.

Founded:

2008





Application:

Adjusting the antenna array of television and radio transmitters

➤ FM and UHF Bands Splitter

🏠 Anten Kar Co.

www.antenkar.com



Product Introduction:

Today and in the age of technological development, the application and use of frequency spectrums and radio waves is growing. The most important advantage of this technology is the reduction of the volume of connections and connecting tools such as wires and cables, which lead to a significant reduction in costs; So that wireless connections replace them as their safe alternative.

Founded:

1975

This product is a final B2B equipment.

Technical Specifications:

- * **Frequency:** 174-230 MHz
- * **Service temperature:** -40 to +70 degrees Celsius
- * **Resistance:** 50 Ohms

**Application:**

Data combiner in TV and radio transmitters

➤ FM and UHF Combiner

🏠 Anten Kar Co.

www.antenkar.com

**Product Introduction:**

In television or radio transmitter sites where there are several transmitters for different networks and frequencies, the output signal of these transmitters must be sent and radiated on a set of antennas. The device that collects these signals and sends the total on the antenna system in compliance with all the standards, is called a combiner.

Founded:

1975

This product is a final B2B equipment.

Technical Specifications:

- * **Product Type:** P2P Antenna
- * **Frequency:** 7.2 - 8.5 GHz
- * **Diameter:** 120 Cm



➤ Broadcasting Organization Transmitter Filter and Combiner

◆ Behdad Telecom Development Co.

www.behdadtelecom.net



Product Introduction:

The filter and combiner of voice and image is the first high-power digital TV filter. This product includes two filter components and a 3DB coupler and is used to combine a narrowband channel with a broadband channel. By connecting these combiners in series, several separate narrowband channels can be sent with a transmission line and a transmitter antenna. 10KW FM combiner and 3KW UHF combiner are used in TV transmitters and FM combiners are used in radio transmitters.

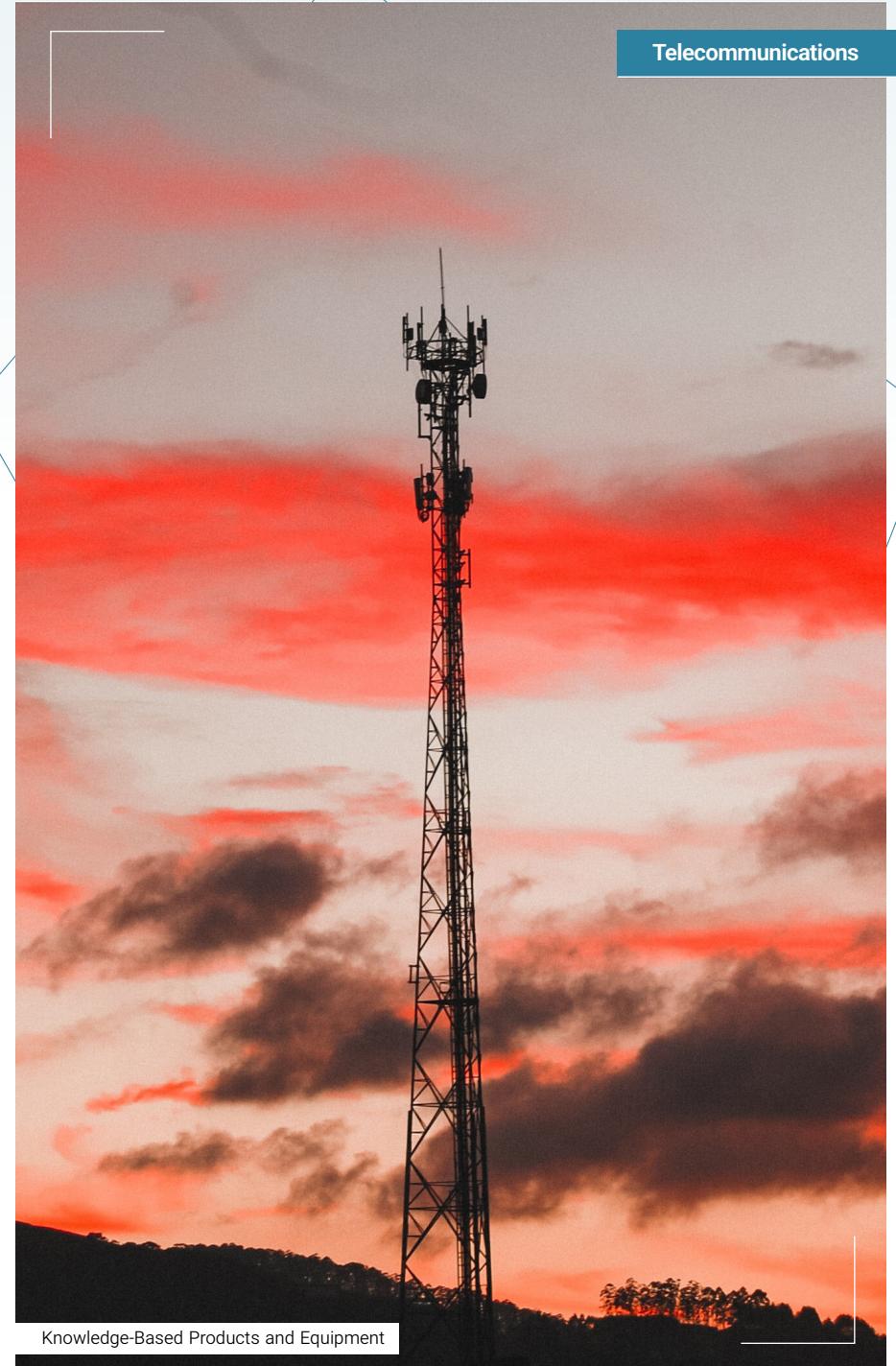
Application:

Data filter and combine in TV and radio transmitters

◆ *This product is a final B2B equipment.*

Founded:

2008



Knowledge-Based Products and Equipment



➤ Multi Input Audio Decoder

◆ Basamad Advanced Computer & Communication Co.

www.basamadco.com



Product Introduction:

Transmission of radio programs in TS (Transport Stream) format with ASI format is done in the broadcasting network through satellite or optical transmission platform, and in order to broadcast these programs in digital or analog transmitter stations, such a converter must be installed to transfer radio programs from TS extract and convert to AES/EBU or analog format and deliver to the transmitter for broadcasting.

Founded:

1995

Application:

Extracting 8 items of sound from the sound and image on the input TS

This product is a final B2B equipment.

Technical Specifications:

- * **Sampling rate:** 32 / 48 KSPS/24
- * **Analog frequency range:** 20 Hz – 20 kHz
- * **User interface:** Network (Ethernet) under WEB RS232 serial with DB9 connector

Advantages:

- * Programming technology with DSP processors
- * Hardware programming technology
- * Real Time software development technology

International Standards or Permission:

- * ISO/IEC 13818
- * ISO/IEC 14496
- * ETSI TS 102 034
- * ETSI EN 302-755
- * ETSI EN 300-744
- * ETSI EN 307-421
- * ETSI EN 300-421
- * ETSI EN 300-468



► Ferrite Microwave Waveguide Phase Shifter with an Average Power of 200 Watts

◆ Hamun Teyf Ertebat (THE) Co.

www.hamunteyf.com



Product Introduction:

The phase shifter is a bipolar block in which the phase difference between input and output is adjusted by a control signal. Phase shifter is a ferrite-based microwave waveguide product that is in the Ku band, which allows controlling the phase shift by controlling the current bias.

Founded:

2017

Application:

- * phased array radars (Phased Array RADAR).
- * Can be used in phase noise measuring devices, military aircraft tracking radars, etc.
- * Phase error compensation in power amplifiers

This product is a final B2B equipment.

Technical Specifications:

- * **Frequency:** 13 – 15 GHz
- * **Current control:** from 125 mA to -125 mA
- * **Phase shift:** 0 to 720 degrees

Advantages:

- * High frequency band in Ku
- * Yoke design suitable for complete magnetic flux cycle
- * Polarizer design suitable for converting linear polarization to circular in order to avoid the error caused by Faraday rotation inside the ferrite.
- * Installation of nickel belts to move the curve and have a linear phase shift with current



Application:

Establishing and setting up and maintaining ISUP links in the telecommunications industry

➤ Protocol Analyzer (PT#7)

♣ Almass Shabakeh Daran Co.

www.almaas.ir



Product Introduction:

Protocol Analyzer (PT#7) is a relatively old product that is used for the tests necessary to establish and maintain ISUP links. The mentioned device can display and test the set of signals and messages of the ISUP, MTP2 and MTP3 layers of signaling #7. In general, the operation of the device is such that the inputs are received and the information of each link is displayed on the supported protocols. There are features such as separating different layers of messages, freezing the display screen, searching and storing information.

Founded:

2004

This product is a final B2B equipment.

Technical Specifications:

- * **Processor:** FPGA
- * **Hard drive:** 4 MB
- * **RAM:** 4 MB
- * **Clock extraction unit:** HDB3



➤ Protocol Converter of TDM and IP Networks Model KPC7

◆ KIATEL Co.

www.kiatelco.com



Product Introduction:

Due to the fact that the connection between the new network based on IP technology and the old network based on TDM technology is required, a suitable piece of equipment that can support the communication protocols of both networks is required. Therefore, the product of the KPC7 protocol converter for TDM and IP networks comes with a power supply in a standard rack with dimensions of 1U.

Founded:

1990

Application:

Supporting communication protocols in Iran Telecommunication Company and multi-user telephone subscribers such as organizations, medical and health centers, universities, factories and companies

This product is a final B2B equipment.

Technical Specifications:

- * **Power supply:** 220 VAC and 48 VAC
- * **Weight:** 4 kg
- * **Service temperature:** +5 to +40 degrees Celsius

Advantages:

- * Has programming technology with DSP processors
- * Has IP technology
- * Has TDM technology



➤ 48-Volt Indoor Telecommunication Charger

◆ power supplies Production Co.

www.psp.ir



Product Introduction:

A power supply is a device that receives the electrical energy of an energy source at the input and converts it into voltage and current suitable at the output for feeding the consumer or electrical load. One of the characteristics of a good power supply is the stability of the output voltage and current characteristics. The power supply of this company has a three-phase or single-phase input, which has a BOOST rectifier in the input part, which has PFC and its THDi is less than 5%. In its DC-DC part, Totem-Pole topology is used, which has high efficiency. The input voltage of this device is 230 volts and its output dc voltage is 48 volts. This rectifier has a galvanic isolation transformer to isolate the input from the output. In places where high power is required, several of these modules are paralleled and feed high-capacity loads.

Founded:

1984

Application:

Used in data centers, urban telecommunication infrastructures and control and message transfer network centers and mobile phone networks

This product is a final B2B equipment.

Technical Specifications:

- * **Input voltage:** 220 VAC (165 ~ 253V)
- * **Frequency:** 45-55 Hz
- * **Power factor:** 0.99 in 100% load

Advantages:

- * Using rectifier boost technology
- * Reducing harmonics of network input current to less than 5%
- * Compensating the voltage range with ultra-fast controllers in less than 5 milliseconds
- * Increasing system efficiency to 98% at rated load
- * Regulation of less than 0.1% in the output

International Standards or Permission:

IATF 16949



➤ Remote Monitoring and Control System of Telecommunications Power Sources

◆ Sepehr Electrogaster Asia Engineering Co.

www.electrogostar.com



Product Introduction:

The monitoring and remote-control system consists of electronic hardware with various inputs (digital/analog voltage/current input and various sensors) and output relays, which are installed on site to measure environmental conditions and receive alarms from peripheral equipment; Also, a central server is formed with monitoring and supervisor software, which has the task of recording alarms, transmitting alarms to people, and monitoring the performance of subordinate systems. By installing and setting up such a system, it will be possible to know the status of power equipment in any telecommunication center or to monitor the status of equipment located in data centers and server rooms, and in case of any alarms and abnormal conditions, the relevant alarms will be recorded and in addition to creating and the display of emergency conditions in the monitoring and control center, the repair and maintenance forces are immediately notified of the condition by an SMS or calling.

Founded:

2020

Application:

Remote monitoring and control of equipment (battery voltage measurement and generator performance status and power status) in telecommunication centers and data centers

This product is final B2B service and equipment.

Technical Specifications:

- * **Circuit voltage:** 24-60 VDC
- * **Maximum current consumption:** 750 mA in 48 V
- * **Number of digital inputs:** 16
- * **Temperature sensor:** DC18B20

Advantages:

- * Support software and online monitoring of the status of monitored systems with special capabilities and high flexibility to adapt to different equipment and facilities used.
- * Isolation design of all the hardware parts of the electronic circuit to measure the status and measure the inputs and the isolation connection with peripheral hardware
- * Wide range of power supply circuit for the possibility of using in different conditions
- * Wide range of digital and analog input voltages
- * Special design of hardware to enable use in noisy environments

Second Chapter

Telecommunication Networks



2nd CHAPTER

First chapter

Second Chapter

Third Chapter

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Telecommunications Networks

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Sections

Transducers ○
Converters ○
Switches ○
Modems ○



➤ Data Processing and Transfer Systems

Models: PSS2430, PSS2440

◆ Parman Co.

www.parman.ir

پارمان
بروتکناس نوین

Product Introduction:

The ever-increasing speed of information transfer, as well as the extent of people's use of computer networks and the Internet, has made the importance of switching in telecommunication networks even more obvious, and therefore it is especially important to deal with layer-2 switches, which are considered to be one of the most practical switching systems. Layer-2 Ethernet management switches and Ethernet to E1 converters are products that are used to establish communications in the network. A network switch connects network points or devices to each other. This term usually refers to multi-port devices that perform data processing and transmission at the second layer of the OSI model. Medium to large networks typically include one or more managed switches. A switch is used to connect various devices such as computers, routers, network printers, CCTV cameras, etc., in cable networks.

Main Export Destinations:

Uganda

Export History:

Between 500,000 - 1,000,000 \$

Founded:

2001

Application:

Creating and establishing communications in the network of the telecommunications industry

This product is a final B2B equipment.

Technical Specifications:

PSS2430 system:

- * **Jumbo frameassistant

- * **Jumbo frame:** 2046 bytes
 - * **Maximum bandwidth:** 8.8 Gbps
 - * **Switching capacity:** 6.5 Mpps
 - * **Security policies:** 802.1x / Port Security

PSS2440 system:

- * **Jumbo frame:** 9600 bytes
 - * **Maximum bandwidth:** 52 Gbps
 - * **Switching capacity:** 38 Mpps
 - * **Security policies:** 802.1x / Port Security

Advantages:

- * Advanced technology in the field of hardware for transmitting frequency signals higher than 10G
 - * Design of multilayer boards and high frequency boards
 - * Technology of working with programmable IC (FPGA)
 - * Using IBERT software to analyze the eye diagram of 10Gbps links
 - * Using TCL codes to automate code implementation processes in Vivado software

International Standards or Permission:

IEEE 802.3

80

81**



Application:

Sending Ethernet services on the platform of E1 networks of these centers, including ports and shipping, fire fighting, emergency, crisis management, oil and gas dispatching, etc.

➤ Ethernet Over E1 Converter

◆ Fatech Electronic Co.

www.fatechelectronic.com



Product Introduction:

This system is used in access and subway networks in order to facilitate optimal transmission of TDM data to provide data services, which is used in the SDH network as an end point to provide Ethernet service on the E1 platform.

Main Export Destinations:

China

Export History:

Up to 500,000 \$

Founded:

2004

This product is a final B2B equipment.

Technical Specifications:

- * **Supply voltage:** 220V AC , -48 V DC
- * **Transmission capacity of Ethernet service:** 32 mb/s
- * **Voltage consumption:** (- 48 DC) and 220 volts (AC)
- * **Average lifespan:** 10 years

Advantages:

- * Flexibility in providing Ethernet service and using FPGA processor as the central core with high processing capability and high system speed
- * Using the highest volume of E1 to send Ethernet service up to 2 megabits
- * Failure detection on E1 through the central processor in hardware

International Standards or Permission:

- * IEEE 802.3
- * IEEE 802.1Q



➤ RoIP Device with 1 and 4 Channels

◆ Safir Industries Co.

www.safirtelecom.com



Product Introduction:

This device has the ability to connect to different radios and handheld transceivers through hardware and software and separates the two parts of the panel and remote radios from each other through the network connection and delivers the user panel of the radios to the operator. This makes the operator away from the radio radiation and makes it impossible for the enemy to identify the location of the troops.

Founded:

2007

Application:

- * Keeping the operator away from radio radiation
- * The possibility of radio communication and all its capabilities remotely for the operator of radio sites, radio communication dispatching centers, radio communication centers

This product is a final B2B equipment.

Technical Specifications:

- * **Supply voltage:** 48 and 220 VDC
- * **Service temperature:** -40 to +85 degrees Celsius
- * **Operating system:** Linux and Windows

Advantages:

- * Programming technology with ARM® Cortex™-A8 processors
- * Coding technology on BIOS
- * KERNEL programming technology
- * Support for redundancy

International Standards or Permission:

- * EMI
- * EMC



Application:

Network switch for data transmission and supplying devices, sensors, telephones under the network

➤ Programmable POE Network Layer 2 Switches

◆ Kavosh Dadeh Pardazan Safir Co.

www.kdt.ir



Product Introduction:

To connect different devices through the network, if the number of devices is more than the number of servers, network switches should be used that can transfer information, IP, and different protocols between the server and the devices. On these switches, it is possible to provide power transmission, which are known as POE (POWER ON ETHERNET) ports.

This part is separate from the data transmission and is controlled by another part that can provide up to 30W on each port on this device. Network switches are interfaces between network equipment such as computers, CCTV cameras, printers, etc. The POE network switch, in addition to supplying power to a networked device such as a CCTV camera, also transmits data; According to the facilities placed on this switch, each port can be connected and disconnected by the control software that is connected to the control port on the switch; Also, it is possible to disconnect and connect the service on a router, and such activities are required in smart switches for better network control.

Kavosh Dadeh Pardazan switches are produced in two models:

- * 1- 32 ports (24 POE ports and 8 uplink ports)
- * 2- 10 industrial ports (8 POE ports and 2 uplink ports)

Founded:

2008

This product is a final B2B equipment.

Technical Specifications:

-32port:

- * **Body:** Metal
- * **1000/100/10 Port:** 24
- * **UPLINK Port:** 8
- * **Control Port:** 1

Industrial 10-port:

- * **Body:** Metal
- * **1000/100/10 Port:** 8
- * **UPLINK Port:** 2
- * **Control Port:** 1

Advantages:

- * Information transmission at a speed of 1000 megabits per second between the switch and the socket
- * Having hardware with a PCB design with a low number of layers
- * DSP operation with external temporary memories

International Standards or Permission:

IEEE 802.3at



➤ Ethernet Network Switch

◆ Safir Industries Co.

www.safirtelecom.com



Product Introduction:

The Ethernet network switch comes in different number of ports with different features and has POE and fiber ports and 10/100/1000 sockets. These switches are equipped with a console port to connect to their management software; Also, redundant input power is another feature of this product.

Founded:

2007

Application:

Serial transmission and networking in all telecommunications and communication centers

This product is a final B2B equipment.

Technical Specifications:

- * **Power consumption:** 5 W
- * **Service temperature:** -40 to +85 degrees Celsius
- * **Operating system:** Linux

Advantages:

- * Programming technology with ARM® Cortex™-A8 processors
- * Coding technology on BIOS
- * KERNEL programming technology
- * Support for redundancy
- * Anti-explosion and anti-spark electronic circuits



Application:

Transferring information from remote terminals (RTU) to dispatching centers

➤ FSK Modem

◆ Modje Niroot Co.

www.modjeniroo.com



Product Introduction:

Due to the widespread use of telecommunication systems and the making of home modems to communicate better and more effectively, engineers are always trying to increase the speed of information transmission through the FSK telecommunication signal, to an extent that in recent years, people have developed the ability to transmit at a speed of thousands of bits per second. And in this way, they transfer a lot of information directly and wirelessly to different places every day; In addition, with the design and manufacture of optical modems, this speed has been able to reach several megabits per second, which can be considered a revolution in sending data and information through the FSK signal. FSK modem has the ability to convert digital information into FSK analog signal and vice versa.

Founded:

1992

This product is a final B2B equipment.

Technical Specifications:

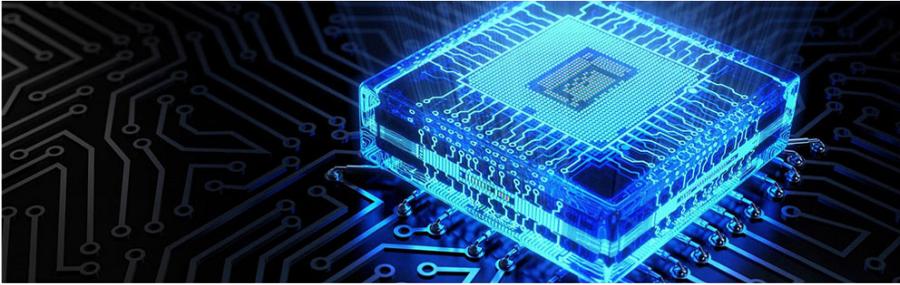
- * **High receiving sensitivity:** At least -30 dBu
- * **Selected power input:** 24, 48 and 110 VDC
- * **LED:** RTS-DCD-TX-RX

Advantages:

Research and development of FIR digital filters

International Standards or Permission:

- * IEC 60255-5
- * IEC 61000-4-2(EMC)



➤ G2_2.5G_3G_4G_LTE Industrial Modem

🏠 Control Pardazandeh Co.

www.controlpardazandeh.com

کنترل پردازنده

Product Introduction:

Currently, industrial centers tend to buy industrial modems to meet all the needs of their staff, because industrial modems make it possible for devices to access the Internet without losing quality and connection speed. Industrial modem offers items for better management of connected devices and bandwidth. Therefore, G2/2.5G/3G/4G/LTE industrial modem and router with the possibility of encryption is used to create secure private networks in public cellular networks.

Founded:

1991

Application:

Communications, data storage and processing in the power industry, power plants, utilities and utilities

This product is a final B2B equipment.

Technical Specifications:

- * **Processor:** 32 bit
- * **Communication portal:** Wi-Fi, Bluetooth
- * **Input supply voltage:** 12VDC-36VDC

Advantages:

- * The ability to convert into a password box for communication protocols and the importance of this issue in connection with SCADA systems and the issue of cyber security in these networks.
- * Management of basic industrial protocols (remote control).



Application:

- * Measurement of values of industrial sensors
- * Communication with other industrial loggers
- * Automatic transmission of instrumentation measurement data Measured data storage, data monitoring
- * Displaying data moments on the device display screen in measuring stations of water studies, meteorology and oil studies

➤ Data Logger and Data Transmission Modem

🏠 Nar Co.

www.nar-co.net



Product Introduction:

This data logger is designed to receive analog and digital data from various sensors and devices in order to save and send them and then display them after receiving the information. This device has in its memory the protocols of different data logging devices and different digital sensors, including the devices of RCOKTEST, FREDRICH, SOMMER, LAMBRECHT, OTT, etc., companies, and it can communicate with these devices to obtain information, set the data logger and send data.

Founded:

2012

This product is a final B2B equipment.

Technical Specifications:

- * **Microcontroller:** STM32F4
- * **Number of analog inputs:** 2-8
- * **Communication control:** GPRS, GSM



Secure Telecom Modems of DSSS

Direct Sequence Spread Spectrum

◆ Kara Fan Pardaz Mobtaker Mana Co.

www.karafanpardaz.com



Product Introduction:

This data logger is designed to receive analog and digital data from various sensors and devices in order to save and send them and then display them after receiving the information. This device has in its memory the protocols of different data logging devices and different digital sensors, including the devices of RCOKTEST, FREDRICH, SOMMER, LAMBRECHT, OTT, etc., companies, and it can communicate with these devices to obtain information, set the data logger and send data.

Founded:

2015

Application:

Establishing very secure and resistant telecommunication and communication links against eavesdropping, interception and disruption in defense industries, etc.

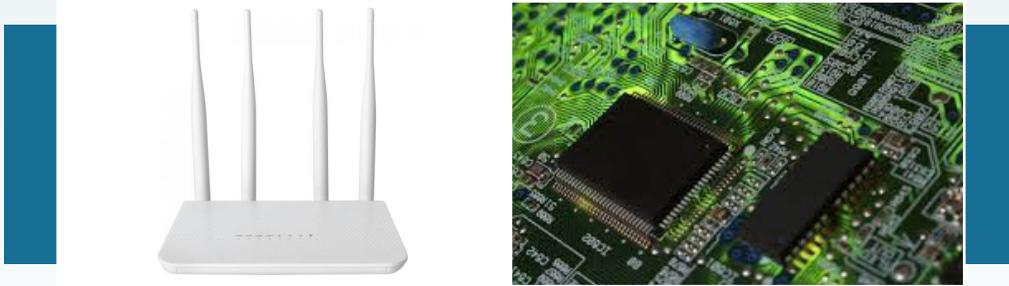
This product is a final B2B equipment.

Technical Specifications:

- * **Bandwidth:** 30 MHz at most
- * **Communication port:** LAN or RS232
- * **Receiver input impedance:** 50 Ω
- * **Power supply:** 12 VDC
- * **Noise figure:** Better than 10

Advantages:

- * Designing a very complex algorithm for DSSS signal synchronization, interception and tracking
- * Optimum and creative implementation of the DSSS receiver algorithm on the FPGA processor
- * Integrating both Short Code and Long Code receiving modes on one system
- * Interception and tracking of the received signal in long code mode has a much higher complexity in design and implementation, which most link builders refrain from it.
- * Has a very high processing gain (dB39)

**Application:**

Sending and receiving data in different centers

➤ APN Modem

♣ Control Pazhuhan Partmehvar Co.

www.cppart.ir

**Product Introduction:**

APN modem is used to send and receive data and commands. This modem can send and receive the required data in a dedicated cloud space and increase information security after having a SIM card introduced in the dedicated network (APN) by the Irancell operator. Although data exchange in the form of APN service is based on the TCP/IP protocol, it is more stable due to its lack of dependence on the Internet.

Founded:

2010

This product is a final B2B equipment.

Technical Specifications:

- * **Main core:** LPC 1768 chip
- * **Telecommunication module:** Sim 5320



➤ 4G Modem

◆ NIKAN Key Co.



Product Introduction:

The 4G modem device is a part of the automation system of electricity distribution stations. In fact, this modem provides a communication bridge between the RTU and the dispatching center. The communication with the dispatching center is done on the 4G internet platform, and the communication with the RTU is established through serial and LAN communication. The main use of this product is the automation of power stations, but it can be used in other cases if developed. Cases such as solar power plants where there is a need to create a communication platform between a device and the monitoring center are considered as one of these cases.

Founded:

2017

Application:

Use in the automation system of electricity distribution stations

This product is a final B2B equipment.

Technical Specifications:

- * **Power:** 24 VDC
- * **Service temperature:** -25 to +70 °C
- * **Service humidity:** 5-30%
- * **Dimensions:** 4×9×3 cm

Advantages:

- * Programming with ARM processors
- * Isolation between power supply and communication with the device
- * Realtime and high-volume data transfer

International Standards or Permission:

- * DNP 3
- * DIN 46277



Application:

Receiving and sending two-way information in industrial systems, electricity distribution network, meteorology, etc.

➤ Universal Modem

◆ Teyf Pardazan Spadana (TPS) Co.

www.teyfpardazan.ir



Product Introduction:

Universal modem is designed for wireless communication in the mobile network at long distances between the control center and electrical devices in water, electricity and gas networks, meteorological stations, etc., and in general, any organization, factory and industry that needs this solution to monitor and control its equipment remotely.

Founded:

2013

This product is a final B2B equipment.

Technical Specifications:

- * **Body:** Aluminum
- * **Dimensions:** 154 × 90 × 50 mm
- * **Weight:** 450 g
- * **Protection type:** IP 54
- * **Power supply:** 12-24 VDC

Advantages:

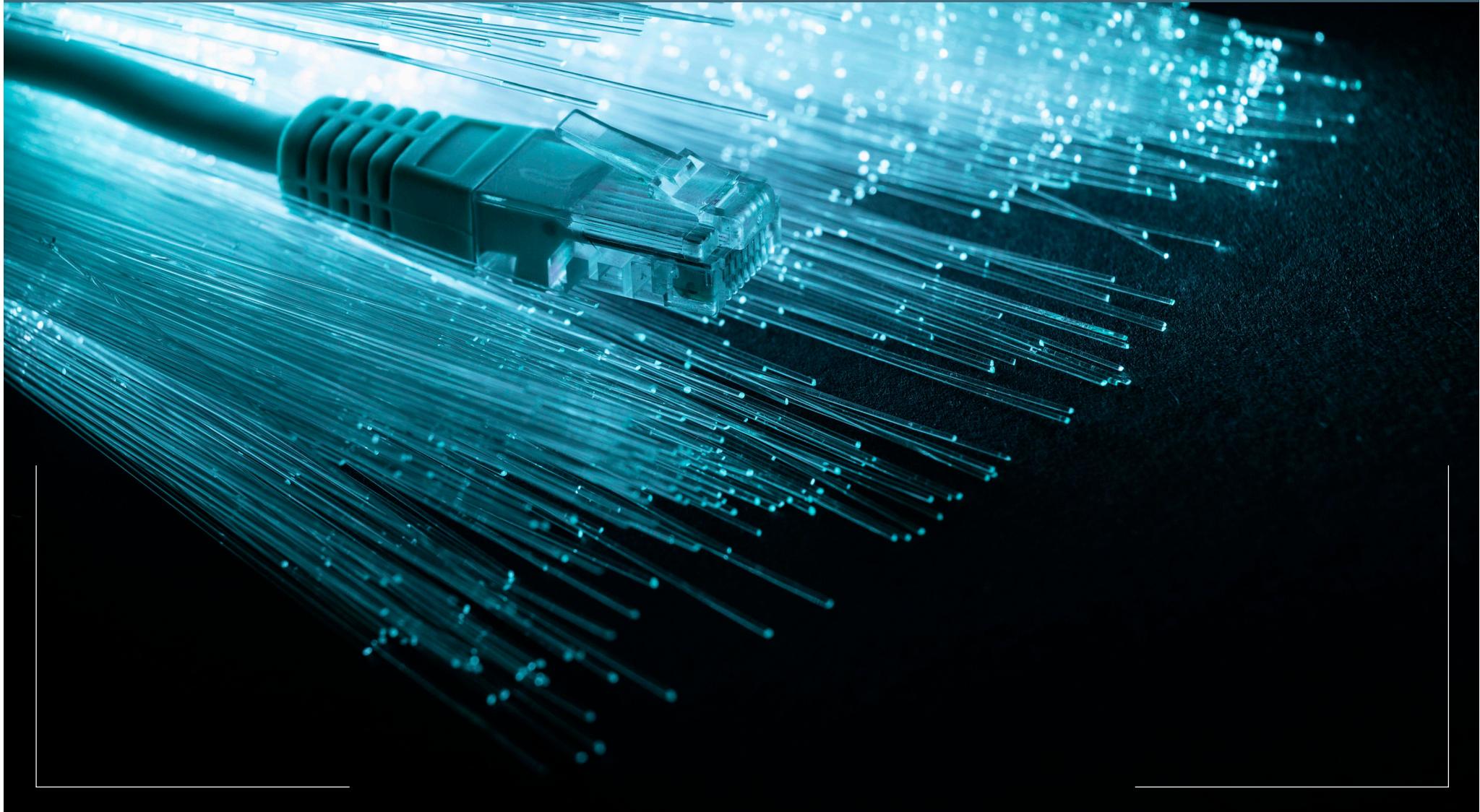
- * Top board design in 4G sample in 4 layers
- * Electrostatic protection on SIM card, RS232 and RS485 port and 5V power supply
- * Memory up to 32 MB to store received information
- * Remote Firmware Update (FOTA)
- * Ability to communicate with digital meters with DLMS/COSEM standard

International Standards or Permission:

- * IEC 62053
- * IEC 62052
- * IEC 61000

Third Chapter

Wired Telecommunication



3rd CHAPTER

First chapter

Second Chapter

Third Chapter

Fourth Chapter

Fifth Chapter

Wired Telecommunications

Hybrid Private Telephone Center (Converged Digital + IP) KVG Model | 108

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Sections

Telephone Center ○



➤ Hybrid Private Telephone Center (Converged Digital + IP) KVG Model

◆ KIATEL Co.

www.kiatelco.com



Product Introduction:

With the implementation of NGN, multi-user telephone subscribers such as organizations, medical and health centers, universities, factories and companies need telephone centers that can connect to the new IP network and use its services and facilities, while still maintaining their connection with the existing TDM network and not impose the costs of removing the cable network, equipment and phones and replacing them with new hardware to the customers. In order to meet this need, Kiatel has designed and produced KVG model converged telephone centers in different capacities of 200/184, 200/344 and 400/1000. Such centers, which are also called hybrids, are offered based on the required capacity in one or more standard racks with different dimensions and installation methods in the rack, wall and standing, along with power supply and peripheral equipment.

Founded:

1990

Application:

Establishing intra-organizational telephone communication with the possibility of communicating with outside the organization through common routes while maintaining the facilities, equipment and network available in organizations, medical and health centers, universities, factories and companies

This product is a final B2B equipment.

Technical Specifications:

- * **Analog port capacity:** 32-1600
- * **Power supply:** AC and DC and a backup battery
- * **Weight:** 8-115 kg

Advantages:

- * Has programming technology with DSP processors
- * Has IP technology
- * Has TDM technology



➤ Low-Capacity IP-Based Call Center

◆ Pejvak Communication Co.

www.pejvakgostar.ir



Product Introduction:

In administrative offices and organizations, in order to establish a telephone communication internally or externally, there is a need for a telephone center device, which is known as a central telephone. The built device is actually a call center with a capacity of 128 VIP subscribers and 8 analog lines (can be connected to telecommunication lines or analog telephones). This product is suitable for small and medium-sized offices and provides various telephone services such as call transfer, call waiting, conference, video call, on hold music, voicemail, automatic call answering and dozens of other telecommunication functions.

Founded:

2012

Application:

Creating a platform for intra-organizational telephone communication, recording conversations and automatic answering, etc. in small companies and organizations

This product is a final B2B equipment.

Technical Specifications:

- * **Processor:** 400 MHz
- * **RAM:** 64 Megabits
- * **Supply voltage:** 12 V
- * **Power consumption:** 5 W
- * **Ethernet:** 10/100 MHz

Advantages:

- * Use of multilayer PCB boards
- * Lower price than similar samples

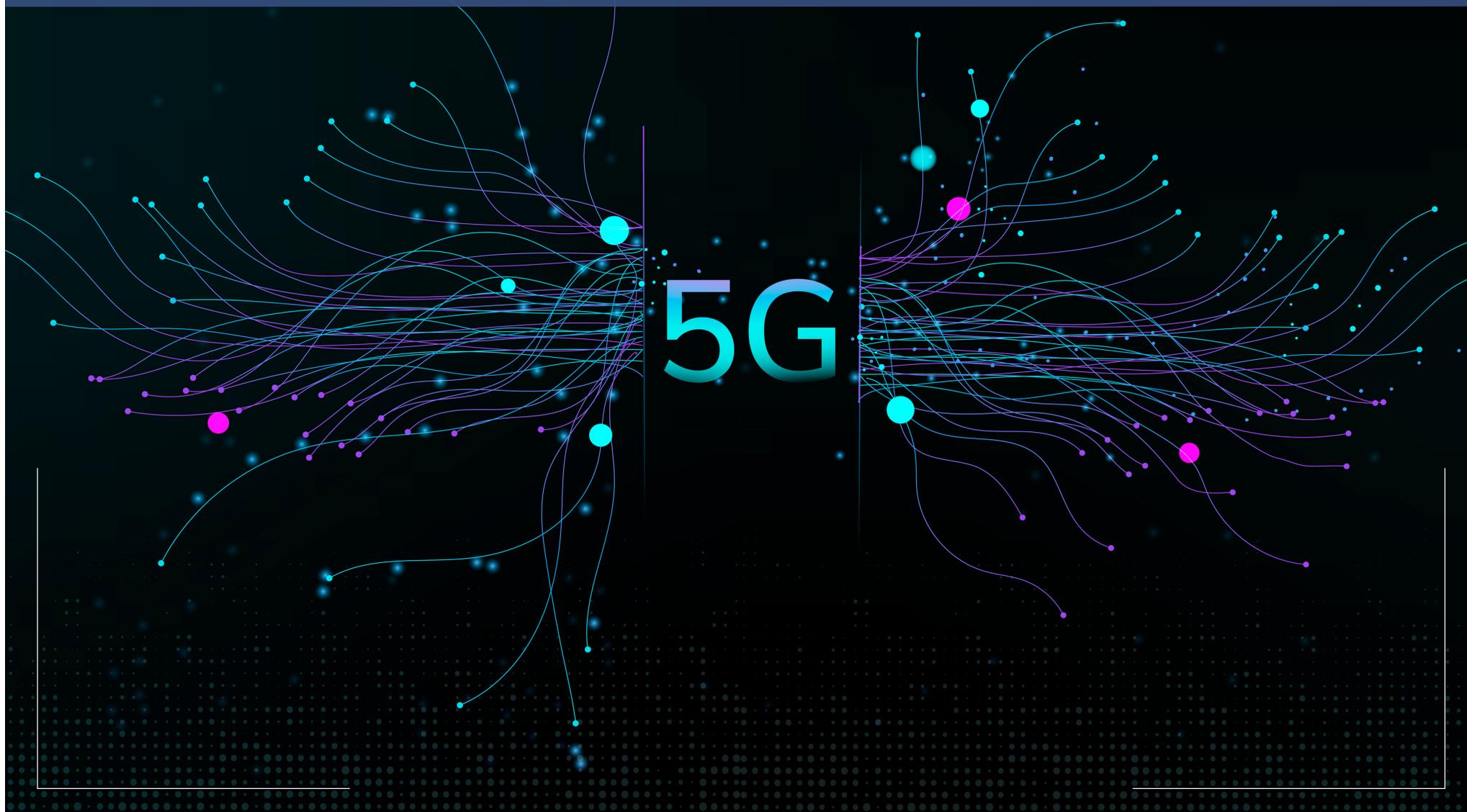
International Standards or Permissions:

- * A-Tick
- * FCC
- * CE

Fourth Chapter
Wireless Telecommunication



5G



4th CHAPTER

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Wireless Telecommunications

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➤ Modern Radar

◆ Shiraz Electronic Industry Co.

Product Introduction:

Modern radar, including long-range surface and ground surveillance radars. The modern radar device is a tool to detect and track people and objects using the x-band signal, with the ability to network and easy to carry. In fact, this product is inspired from Basir's ground surveillance radar, which was developed about 15 years ago. (Basir Radar was a long-range ground surveillance radar (15 km range) with a power of 250 Watts for Naja) and in fact it can be considered a continuation of the Basir project.

Founded:

2004

Application:

Discovery of pedestrian targets and light and heavy vehicles for monitoring, detecting, tracking and classifying targets within the scope of the radar.

This product is a final B2B equipment.

Technical Specifications:

- * **Target speed:** 3.5 to 150 km/h
- * **Detection accuracy:** 7.5-meter range
- * **Separability of targets:** Within the range of 10 meters
- * **Antenna rotation speed:** 1,2,3,4,5 rpm
- * **Bandwidth:** 400 MHz

Advantages:

- * The technology of using a solid state transmitter with low radiation power and the ability to send coded pulses
- * The technology to automatically identify and determine the type of targets and produce an audio signal corresponding to the Doppler shifting of the targets
- * Automatic target tracking technology
- * The technology of displaying the path of at least ten tracked targets

International Standards or Permissions:

MIL-STD-810



Application:

Used in powerful radars of VTS systems of harbors

➤ Terma Radar Modulator and Motherboard

◆ Poya Control Electronic Co.

www.poyacontrol.com

PCE

Product Introduction:

Modulators are one of the most important and vital components of radars, and in general, their main task is to produce a high-energy pulse to be delivered to the duplexer and magnetron for propagation through the antenna.

The motherboard is located at the heart of the TERMA radar system and has two sections, POWER and CONTROL, which, in addition to identifying other units connected to it, such as modulator, receiver, encoder, RSD, TC3, etc., repetitive processing on the input signals, it has the task of intelligent feeding of all of them.

Founded:

2005

This product is a final B2B equipment.

Technical Specifications:

- * **Power:** 25 kW
- * **Frequency:** 5 kHz

Advantages:

Extracting bulky and complex circuits and analyzing the circuits and drawing the PCB of this product

International Standards or Permissions:

- * UL
- * IPC



Application:

Operators' service to mobile subscribers at mobile transmitter stations

➤ Wireless Communication Antennas

◆ Behdad Telecom Development Co.

www.behdadtelecom.net



Product Introduction:

Wireless communication antennas are installed in mobile transmitter stations (BTS) in order for the operators to serve the mobile subscribers. These antennas are used in connection with electromagnetic waves in the frequency bands of 900, 1800 and 2000 MHz in two polarizations of +45 and -45 and with the gain and controlled radiation angle for regional transmission and reception.

Founded:

2008

This product is a final B2B equipment.

Technical Specifications:

- * **Electric tilt:** 0 - 10 degrees
- * **Software:** HFSS, CST, CATIA, SOLIDWORKS
- * **Isolation between two ports:** > 30 DB



► Telecommunication Antennas of Single and Dual Polarization 5 GHz Band with Different Gains

◆ Pion Aria Co.

www.pionaria.ir

pionaria

Product Introduction:

Telecommunication antennas are used in order to strengthen the signal sent in radio transmitters and the signal received in radio receivers and create a communication platform for transmitting any data (including data, voice and image) between two different geographical points using radio waves (instead of cable or optical fiber). With the proper design of the telecommunication system, which also includes choosing the right antenna, it is possible to establish long-distance communications. Telecommunication antennas of 5-GHz band single and dual polarization (regular and HIGH PERFORMANCE) with different gains are considered as products that provide point-to-point communication of different centers.

Founded:

2005

Application:

Communicating in banks, bandwidth providing companies, governmental bodies and military centers

This product is a final B2B equipment.

Technical Specifications:

- * **Frequency range:** 4.8 to 6.2 GHz
- * **Efficiency:** >65%
- * **Frequency gain:** Between 23dbi and 34dbi



➤ 3300 to 3800 MHz Frequency Band Beamforming Antenna

◆ Karen Antennas Technology Co.

www.karenatc.com



Product Introduction:

This telecommunication product, called antenna, is placed on metal telecommunications towers at the end of the wireless communication system. Wireless telecommunication between fixed and mobile users and radio systems in the telecommunication base station (BTS) is done by antenna.

Founded:

2014

Application:

Implementation of the TD-LTE network in the 3300-3800 MHz frequency band

This product is a final B2B equipment.

Technical Specifications:

- * **Frequency band:** 3300 to 3800 MHz
- * **Dimensions:** 958 x 326 x 116.5 mm
- * **Port impedance:** 50 Ohms
- * **Input power:** 25 W
- * **Weight:** 10 kg

International Standards or Permissions:

AISG V.2

Auto Point Antenna



Application:

Receiving national channels from satellite while moving and broadcasting in train compartments

➤ On the Move Antennas in Train Antenna Model

◆ Eshtad Pars Mobile Communication Technology Co.

www.eshtadtech.com



Product Introduction:

The train satellite antenna is available for sending and receiving telephone communications and internet data in passenger trains. When the train is moving, two important issues are considered important and should be maintained: first, antenna stability; That is, removing the effect of the speed and shocks and vibrations of the train on the antenna, and second, holding the antenna on the satellite (maintaining communication) while moving at speeds above 140 km per hour, i.e. tracking. The most important characteristic of this antenna is its low height, which makes it possible to install it on the roof of the train without causing any problems when passing through tunnels. Four satellites are stored in the controller of this antenna that the user can choose any of them. The controller is also designed based on the web and can connect to a mobile phone - notebook - and remote control.

Founded:

2010

This product is a final B2B equipment.

Technical Specifications:

- * **Weight:** 30 kg
- * **Frequency band:** 14.11 GHz
- * **Receiving band:** 10.7 – 1275
- * **Sending band:** 13.75 – 14.5
- * **Dimensions:** 40 × 100 cm

Advantages:

- * Design and implementation technology of satellite tracking system by Adaptive Conical scanning method
- * The technology of using sensors and correcting their error by software method to reach the accuracy of 0.1-0.2 degrees.
- * Designing and implementing the method of simultaneous application of stability and tracking algorithms
- * Optimum design of mechanical system for optimal dynamic performance

International Standards or Permissions:

ITU

آنتن های
دریایی



Application:

Communication of ships in the seas with each other or with ports and any fixed or mobile place in the commercial and military industry

➤ On the Move Antennas in Marine Antenna Model

◆ Eshtad Pars Mobile Communication Technology Co.

www.eshtadtech.com



Product Introduction:

Marine satellite antenna is available for sending and receiving telephone communications and internet data in light and heavy military or commercial ships. When the ship moves in the sea, it is important to maintain two issues: first, the stability of the antenna; That is, removing the effect of ship turbulence on the antenna, and secondly holding the antenna on the satellite (maintaining communication) in motion; which means tracking. 400 satellites are stored in the controller of this antenna, and the user can choose any of them. The controller is designed based on the web and has the ability to connect to a mobile phone - notebook - and remote control.

Founded:

2010

This product is a final B2B equipment.

Technical Specifications:

- * **Weight:** 100 kg
- * **Receiving frequency band:** 1070-1275 MHz
- * **Sending frequency band:** 1375-1450 MHz
- * **Antenna gain in reception:** 40 dB
- * **Antenna gain in sending:** 42 dB

Advantages:

- * Design and implementation technology of satellite tracking system by Adaptive Conical scanning method
- * The technology of using sensors and correcting their error by software method to reach the accuracy of 0.1-0.2 degrees.
- * Designing and implementing the method of simultaneous application of stability and tracking algorithms
- * Optimum design of mechanical system for optimal dynamic performance

International Standards or Permissions:

ITU



➤ Reflector Antenna in Two Types

5.5 to 6.5 GHz and 4.9 to 6.1 GHz

♣ Saba Communication Sharif Co.

Product Introduction:

In the age of information technology, it is very necessary to establish all kinds of communication with high speed and reliability and with the lowest cost and minimum necessary infrastructure. Antennas are used as one of the main pillars of all types of communication between two or more points, without the need for cabling (wireless) and at low cost, for long distances. Another group of antennas are designed to communicate with satellites and thereby transmit all kinds of information, including audio, video, etc., at distances of several thousand kilometers using satellites that are 36,000 km away from the earth.

Main Export Destinations:

Iraq

Export History:

Up to 500,000 \$

Founded:

2011

Application:

- ※ Establishing wireless links to provide fast internet
- ※ Communication in oil platforms
- ※ Communication infrastructure of traffic control cameras
- ※ Establishing computer networks
- ※ Transmission of audio and video and other types of information on the IP platform without the need for a license

This product is a final B2B equipment.

Technical Specifications:

5.5-6.5 GHz:

- ※ **Range:** 120 km
- ※ **Reflector's diameter:** 40-105 cm
- ※ **Radiation gain:** 26-34 dB

4.9-6.1 GHz:

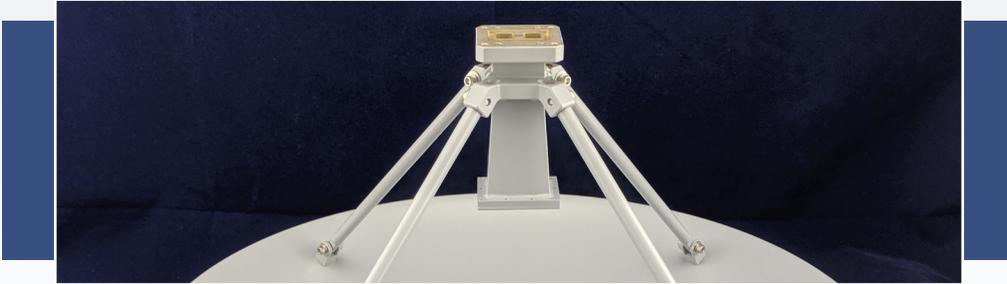
- ※ **Range:** 120 km
- ※ **Reflector's diameter:** 40-105 cm
- ※ **Radiation gain:** 25.5-33.5 dB

Advantages:

Using nano technology to protect the antenna from solar radiation

International Standards or Permissions:

- ※ ANSI/IEEE Std 149-1979
- ※ ANSI/IEEE Std 145-1993



➤ Ultra High Performance Reflective Microwave Antenna, 8GHz Band

Anten Kar Co.

www.antenkar.com



Product Introduction:

Reflector antennas are high-gain reflector antennas used for radio, television, data communications, and radio positioning systems (radar). These parabolic antennas are used as high-gain antennas for point-to-point communications, in applications such as microwave repeater links that carry television and telephone signals between nearby cities.

Founded:

2011

Application:

- * Radio, TV, data communications and telecommunication companies

This product is a final B2B equipment.

Technical Specifications:

- * **Gain:** 37, 40, 43 dpi
- * **Diameter:** 120-180-130 Cm
- * **Frequency:** 7,2-8,5 Ghz



➤ 4.5-Meter Reflector Antenna for Sending and Receiving, Ku Band, DBS and ka

◆ Pishgam Satellite Receiver Co.

Product Introduction:

The manufacture of sending and receiving antennas is associated with many complications and there are a limited number of companies in the world engaged in this industry. Due to the fact that the international regulations on the transmission of signals on satellite (ITU) are very strict, this issue becomes doubly important. It should be noted that the possibility of using low-quality antennas for transmission is associated with sanctions and punishment; Therefore, the satellite platform is used to broadcast television signals (as well as long-distance data communications such as the Internet and rural telephone). To send and receive on the satellite (in the Ku, DBS and Ka bands), the transmitting and receiving antenna will be needed in large dimensions, and this product satisfies this need.

Founded:

2019

Application:

Sending and receiving data in military communications, cross-border communications, satellite control and tracking centers, etc.

This product is a final B2B equipment.

Technical Specifications:

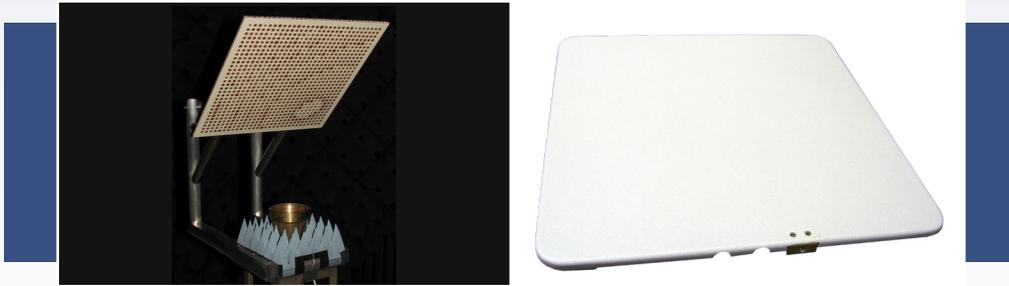
- * **Antenna gain:** 53 in Ku band
- * **Triple-degree bandwidth:** 0.3 degrees in the Ku band
- * **Surface accuracy:** Less than 0.2 mm
- * **Efficiency:** 95%
- * **Movement speed in direction and height:** 0.001 degrees per second

Advantages:

- * The technology of using gel coat to increase the accuracy of the surface
- * Laser technology to increase surface accuracy (ray tracking method)
- * Production technology of all types of gearboxes (with desired speed/power ratio)

International Standards or Permissions:

- * ITU-R S.580-4
- * Eutelsat
- * Arabsat



Application:

- * Establishing wireless links to provide high-speed internet
- * Communication in oil platforms
- * Communication infrastructure of traffic control cameras
- * Establishing computer networks
- * Transmission of audio and video and other types of information on the IP platform without the need for a license
- * Communicating in military departments

➤ ISM and Ku-Band Flat Antenna

🏠 Saba Communication Sharif Co.

Product Introduction:

Flat panel antennas, like other types of antennas, are used to focus the waves in the direction desired by the user. Among the advantages of this antenna, we can mention the mechanical structure and simpler manufacturing process compared to other antennas.

Main Export Destinations:

Iraq

Export History:

Up to 500,000 \$

Founded:

2011

This product is a final B2B equipment.

Technical Specifications:

- * **Range:** 20 km
- * **Radiation gain:** 20-27 dB

Advantages:

Lower price than similar products



Application:

- * Can be used in military microwave broadband jamming systems, satellite ground stations and communication systems in the UHF/SHF band for military and civilian applications.
- * Can be used in fixed, semi-mobile and mobile frequency monitoring and monitoring systems for military applications or frequency spectrum monitoring by the Radio Communications Regulatory Organization.

➤ 2 to 18 GHz Horn Antenna 10 to 24dbi

◆ Hamun Teyf Ertebat (THE) Co.

www.hamunteyf.com



Product Introduction:

One of the important communication tools in any system is the antenna, whose high quality and efficiency will greatly help in optimizing the system and reducing costs. This product is a very broadband antenna from 2 GHz frequency to 18 GHz frequency with high gain and high power tolerance.

Founded:

2017

This product is a final B2B equipment.

Technical Specifications:

- * **Frequency:** 2 – 18 GHz
- * **Antenna power:** 10 ~ 24 dBi
- * **Weight:** 3.8 kg

Advantages:

- * Very wide frequency band from 2 to 18 GHz
- * Having a VSWR of less than 2 in the entire band
- * Reach antenna gain of more than 10 dBi at the beginning of the band and gain of 20 dBi at the end of the band
- * Ability to withstand high power
- * Suitable cover (Radom) to protect the antenna without bad effect on the antenna response



► Types of Parabolic Antennas in C, E, S, Ku and X Frequency Bands

◆ Parda Communication Waves Co.



Product Introduction:

This antenna converts electrical energy into magnetic waves and vice versa, which is used in radio communication to transmit information. Parabolic antennas, which are one of the most widely used directional antennas, refer to circular parabolic antennas that have a main reflector and a reflector at their parabolic focal point. These antennas, in point-to-point radio links or on one side of point-to-multipoint radio links, establish communication between the two sides of the link, which have a direct line of sight, up to a distance of several tens of kilometers. According to the working frequency of digital radios, the connection between the antenna and the radio may be made with a cable or directly, through waves. These antennas have different gains and technical characteristics depending on their size and operating frequency.

Founded:

2009

Application:

Establishing radio communications in radio and military centers and...

This product is a final B2B equipment.

Technical Specifications:

※ **Dimensions:**

60, 90, 120, 125 and 150 cm

※ **Advantages:**

Making the surface of the main reflector and making the feed as a waveguide of the 80 GHz band with very precise tolerances.

※ **International Standards or Permissions:**

※ ETS 300833

※ MIL-STD 810



➤ Automatic Portable Satellite Antenna

◆ Ertebat Sanat Yeganeh Co.

www.esytech.ir



Product Introduction:

Antenna is one of the main components of any system of sending and receiving waves; especially in mobile systems, the role of the antenna and the control and coordinating system is very decisive and differentiating. Intelligence, agility, performance speed, less user time, and the automaticity of the coordinating and controlling mechanism of the antenna can make the system powerful and dynamic. This product has been conceptualized, designed, prototyped, optimized and tested by researching and developing from the ground up and modeling the existing systems and solving their inadequacies, and it can automatically and manually control and direct the antenna and LNB in horizontal, vertical and rotating directions so that communication is established faster.

Founded:

2014

Application:

Sending and receiving waves in mobile disaster management systems, mobile weather stations, mobile bank ATMs, exploration systems related to oil and gas industries and mines, and military communication systems.

This product is a final B2B equipment.

Technical Specifications:

- * **Number of automatic axes:** 3
- * **Types of automatic axes:** Azimuth Elevation Polar
- * **Dimensions:** 45×120×90 cm
- * **Weight:** 55 kg

Advantages:

- * Using the inverted offset angle to reduce the reception of ambient noise by the receiver (dish) in satellite antennas.
- * Multiple signal search algorithms to reduce the time of finding the right direction
- * Compensating the base slope of the structure in the orientation of the structure
- * Self-protection algorithm in case of risk and reaching the end of the course



➤ Digital News Gathering Machine (SNG) Antenna Equipment

◆ Pishgam Satellite Receiver Co.

Product Introduction:

To broadcast TV signal (as well as long-distance data communication such as Internet and rural telephone), the satellite platform is used. Establishing satellite communication, in a situation where there is no sending and receiving infrastructure, requires a vehicle called SNG, which is equipped with an antenna and a satellite radio transmitter. SNG vehicles can be recognized by the large satellite dish on its roof. The antenna placed on the roof of this car moves and is placed in a direction that can communicate with one of the fixed satellites on the ground and in this way, transmit data and images to the main studio.

Founded:

2019

Application:

Establishing communications in critical situations, radio and television and military communications, etc.

This product is a final B2B equipment.

Technical Specifications:

- * **Antenna gain:** 43 dB
- * **Antenna type:** Gregorian
- * **Surface accuracy:** Higher than 0.5 mm
- * **Efficiency:** Higher than 80%
- * **Movement speed in direction and height:** Better than 3 degrees per second

Advantages:

- * Color technology of high frequency parts (to lower the noise figure)
- * The technology of using and setting up types of SDR
- * Boat surface aerodynamic technology (antenna holder, in highly variable motion conditions)

International Standards or Permissions:

- * ITU-R S.580-4
- * Eutelsat
- * Arabsat



➤ 24GHz Speedometer Radar

♣ Tera Modje Pars Engineering Co.

Product Introduction:

For more than three decades, speed cameras have been used in highways and freeways to measure the speed of cars and record the license plates of offending cars. According to the presented statistics, illegal speed is introduced as the second cause of traffic accidents leading to death on highways in Iran. The radar speedometer system makes it possible to measure the speed of cars. This system can scan all lanes of a crossing route and eliminate the need for several speedometer systems for each lane. According to the working frequency of the system, the separation of cars in different lanes can be done correctly.

Founded:

2015

Application:

- * Implementation on roads and highways for speed measurement
- * Implementation on helicopters to identify cables and fly at night
- * Implementation on cars for intelligent control
- * Implementation at border points

This product is a final B2B equipment.

Technical Specifications:

- * **Service frequency:** 23.7-24.3 GHz
- * **Number of transmitting antennas:** 2
- * **Number of receiving antennas:** 8

Advantages:

- * Array antenna design with low mutual coupling and low VSWR
- * Designing 24 GHz high frequency circuits
- * Implementation of the algorithm on FPGA



Remote or Communication Device with a Remote Radio Transmitter

Fatech Electronic Co.

www.fatechelectronic.com



Product Introduction:

Since the use of radios causes problems such as their destructive effects on the user, discovery by the enemy, sending jamming, eavesdropping operations, and the possibility of discovering the direction and distance by the enemy, a device called remote is used. The device is placed at a distance from the radio and can control the radio from this distance and carry out the task of voice and data transmission. In this situation, by discovering the radio signal, the exact location of the radio user is not revealed; Also, the user of the radio receives less radiation than when he is in close proximity to the radio.

Main Export Destinations:

China

Export History:

Up to 500,000 \$

Founded:

2004

Application:

The possibility of creating radio communication on network platforms, optical fiber, twisted pair, E1, etc., and remoting analog and digital walkie-talkies in various industries

This product is a final B2B equipment.

Technical Specifications:

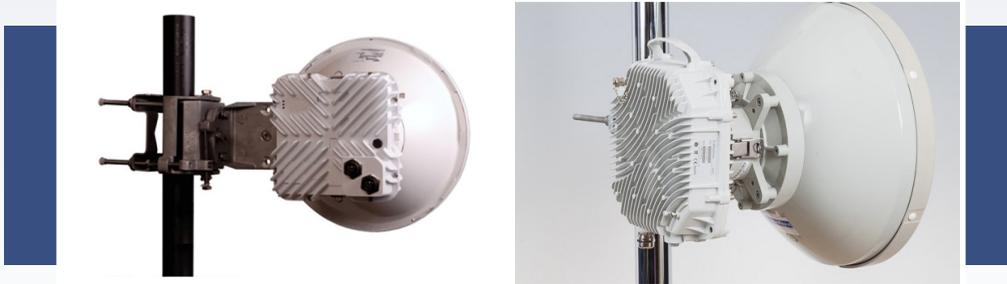
- * **Software applications:** Altium Designer, IAR
- * **Data transfer rate:** 300-9600-19200-56 Kbps
- * **Power supply:** (180V_260V) AC - (10V_36V) DC

Advantages:

- * Using ISDN technology to move the radio away from the panel by shielded twisted pair cables
- * Use of Fiber Optic technology
- * Implementation of Codec ADM in the software

International Standards or Permissions:

IEEE 802.3

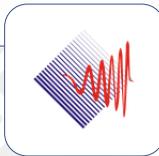


➤ Microwave Radio Link

with the Capacity of Transmitting Three TS Signals and the Capacity of STM-1 in the X Band

◆ Fanavari Pardazesh Novin Pardis Co.

www.pardistech.com



Product Introduction:

Microwave radio link with the capacity of transmitting three TS signals:

The TS radio link is used to establish a terrestrial communication independent of the satellite, for signaling to the digital television transmitters of the Broadcasting Organization. With the help of this link, by combining the radio and switch in one system, the total cost has been reduced and it actually incorporates two high-tech systems.

Microwave radio link with STM-1 capacity in X-band:

The STM-1 radio link is used to establish terrestrial and satellite-independent communication at a high rate for signaling between centers or signaling to the digital transmitters of the Broadcasting Organization. This radio link which is built in 1+2 architecture, is capable of sending two STM-1 signals each of 155Mbps along with a reservation path. This link consists of different parts of baseband, RF, modem and branching.

Founded:

2005

Application:

Signaling to digital television transmitters of Broadcasting organization

This product is a final B2B equipment.

Technical Specifications:

Microwave radio link with the capacity of transmitting three TS signals:

- * Frequency band: 7.7~8.2 GHz
- * Bandwidth: 29.6 MHz
- * Maximum bitrate: 74 Mbps
- * Transmit power: 30Watt \pm 1dBm
- * Receiver sensitivity: -80 dBm

Microwave radio link with STM-1 capacity in X-band:

- * Service frequency: 8.088 GHz and 7.777 GHz
- * Bandwidth: 29 MHz
- * Channel distance: 29.65 MHz
- * Frequency plan: ITU-R F.386 ANNEX6

Advantages:

Microwave radio link with the capacity of transmitting three TS signals:

- * 30dBm transmit power and excellent sensitivity -80dBm in the 7.7~8.2 GHz frequency band and 74 Mbps bit rate
- * Fully Indoor modular structure

Microwave radio link with STM-1 capacity in X-band:

- * Using -128QAM modulation to achieve high bit rate in 29.6MHz bandwidth
- * High detection quality and power with LDP coding

International Standards or Permissions:

Microwave radio link with the capacity of transmitting three TS signals:

- * ETSI EN 302307
- * TR101290
- * EN50083



➤ Medium Wave (AM) Radio Transmitters with an Output Power of 1kw-600kw

🏠 Nasir Modje Gostar Co.

www.nmg-co.com



Product Introduction:

High-power medium-wave radio transmitters with amplitude modulation are used to broadcast radio sound over long distances. In these transmitters, first the audio signal is amplified by sound amplifiers, and in the next step, the signal is amplified by amplitude modulation and then are converted by high-power radio amplifiers to different power levels of 800, 600, 400, 300, 200, 100, 50, 20, 10, 1000 and 1 kilowatt needed by Broadcasting Organization and delivered. Transmitter systems include: power supply, radio and audio frequency amplification, power combiners, filters, and monitoring and control.

Founded:

2001

Application:

High power medium wave radio transmitters for use in broadcasting

This product is a final B2B equipment.

Technical Specifications:

Input power of the audio device: 10 DBM

Advantages:

Designing and manufacturing a radio power amplifier with an efficiency of better than 90% with the ability to work continuously

**Application:**

Sending digital images of satellite TV

➤ DVB-S2 TV Transmitter Modulator

🏠 Noura Mowj Sharif Co.

www.nouramowj.com

**Product Introduction:**

The DVB-S2 television transmitter modulator receives the compressed video in MPEG format through the standard ASI port, performs the necessary processing operations according to the DVB-S2 standard on it, and produces the radio signal for broadcasting television images in the IF frequency band and the L band. The output signal of this product can be received and displayed by commercial satellite television receivers. This product is a part of television broadcasting systems and provides the radio signal for the power amplifiers of these transmitters.

Founded:

2010

This product is a final B2B equipment.

Technical Specifications:

- * **Data transfer rate:** 200 Mbit/s
- * **Baud rate range:** 0.05 – 45Mbaud

Advantages:

Development of codes related to standard modulations



➤ Second Generation Terrestrial Digital TV Transmitter with a Power of 100 Watts

◆ Sarat Advanced Technologies Co.

Product Introduction:

Terrestrial digital TV transmitter, for sending TV audio and video signals, has the highest global standard for sending terrestrial digital TV signals. This device has been created in order to estimate and compensate for the channel frequency range and support the transmission bandwidth up to 10 MHz, by using various methods of signal protection against noise and interference and the possibility of broadcasting digital TV signal with very high image resolution in very destructive atmospheric and geographical conditions.

Founded:

2019

Application:

Image coverage in radio and television of Broadcasting Organization

This product is a final B2B equipment.

Technical Specifications:

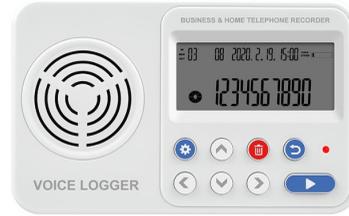
- * **Supply voltage:** 110-250 VAC, 50-60 Hz
- * **Remote control:** WEB
- * **Operating temperature inside the building:** 0 to +50°C
- * **Storage temperature:** -25 to +55°C

Advantages:

- * Ineffectiveness of the system part of the power amplifier
- * System temperature stability and system cooling at rated power
- * Optimizing efficiency according to similar samples

International Standards or Permissions:

DVB-T2



➤ **Wireless Local Call Recording System**
on 395 to 470 MHz Requency

◆ Kahroba Tarasheh Co.

www.kt-co.com



Product Introduction:

This product records conversations that are conducted by radio in various centers such as railways, police force and other sensitive centers in local stations and transfers them online to the command center on the central server. Radio receivers tuned to desired channels receive radio signals and convert them into baseband signals.

Founded:

1998

Application:

Recording conversations in sensitive places such as railways, police forces, universities and sensitive military and commercial centers

This product is a final B2B equipment.

Technical Specifications:

Number of RF receiver inputs: 16

Advantages:

RF signal processing



Application:

To record radio and telephone calls (black box) in airports and mobile command centers

➤ Mobile Voice Recording (MVR)

◆ Behin Samaneh Farda Co.

www.bsfc.com



Product Introduction:

One of the paramount issues in any businesses is recording calls. The totally resistant MVM system is a product of Behin Samane Farda Engineering Company, which includes all the requirements and considerations of a military system. The MVR system has been designed and produced with the aim of being used in mobile centers (move after installation) and electromagnetic compatibility. The mechanical characteristics of the device are designed to be resistant to shock and vibration. The MVR system can be installed inside military shelters, rock and on the table.

Founded:

1996

This product is a final B2B equipment.

Technical Specifications:

- * **memory:** automatic archive on SD Card
- * **battery:** internal
- * **charges:** military
- * **Main processor:** TOUGHBOOK Panasonic

Advantages:

- * Reliability in recording complete calls
- * Can be used in mobile centers

International Standards or Permissions:

- * MIL-STD-461E
- * MIL-STD-810F
- * IEC-68-2-27
- * IEC68-2-6
- * IEC 60-950
- * IEC-68-2-14



Application:

Recording telecommunication signals

➤ Intermediate Frequency Recorder (IF Recorder)

◆ Hamgam Radin Co.

www.hamgamradin.com



Product Introduction:

The intermediate frequency recorder is used to record telecommunication signals with high speed and bandwidth. The recorded signals can be transferred from the device to any computer and it is very easy and convenient to work with it. The storage bandwidth can be adjusted according to the bandwidth of the input signal. By using this device, it is possible to observe and record the current signals in the environment and analyze and examine the recorded signals at the right time.

Founded:

2014

This product is a final B2B equipment.

Technical Specifications:

- * **HDD:** 2 TB
- * **Operating current:** 2 A
- * **Operating voltage:** 12 V
- * **The number of IF inputs:** 2
- * **weight:** 4 kg

Advantages:

- * Very high speed of recording (3.4 Gb/s) and retrieving information (960 Mb/s) with the parallel use of 4 SATA hard drives
- * Using a powerful Kintex-7-410T processor
- * Ability to select the sampling frequency from 213.3, 200, 180 and 150 MHz.
- * Ability to choose 92 different bandwidths in the range of 2.34 to 106.6 MHz.
- * Reducing the amount of recording by selecting a low bandwidth and matching the input signal



► Portable Journalism Link Including Encoder, Decoder and Converter

◆ Omid Co.

www.omid.co.ir



Product Introduction:

The portable link of audio and video is a complete and uniform set for receiving, sending and monitoring audio and video, made by putting together professional Panorama (4000-series) compression devices (MCE), professional Infinity (2000-MCD series) audio and video receivers and 1000IPNA network converter. Therefore, it is possible to send and receive audio and video with the best quality and the least delay in live television communications; Also, this collection, by using IPNA-1000 network converter, has the ability to receive and send audio and video on various communication platforms such as optical fiber, telecommunication networks (E3/E1) SDH, third and fourth generation mobile data network, Wi-Fi wireless networks, Max - Wi/ADSL networks and wireless networks up to a range of 50 km, thus eliminating the need for users to use other interface devices to receive and send information such as microwave audio and video links.

Founded:

2004

Application:

Receiving, sending and monitoring audio and video in telecommunications, conference halls, etc.

This product is a final B2B equipment.

Technical Specifications:

- * **Image output:** HDMI
- * **Service temperature:** 0-50 degrees Celsius

Advantages:

The ability to receive and send audio and video on various communication platforms such as optical fiber, telecommunication networks (E3/E1) SDH, third and fourth generation mobile data networks, Wi-Fi wireless networks, Max Wi/ADSL networks and wireless networks up to 50 km range using IPNA-1000 network converter



➤ Digital Microwave Radio in the Frequency Band 4-4 to 26 GHz

◆ Samanehaye Rahe Door Co.

www.srdhightech.com



Product Introduction:

Point-to-point digital radios are designed and manufactured in 4.5, 15, 18, 23 GHz frequency bands. These radios are suitable for communicating between centers and other things such as rural and urban telephone communication. The functional goal of the system is to transfer information in E1 and Ethernet protocols between two points with a fixed distance. These inputs are delivered to the internal unit and after performing the necessary processing and allocating space according to the bandwidth assigned to each of the inputs by the user, it multiplexes them and puts the result in the frame sent to the external unit. In fact, multiplexing and demultiplexing the input information with a specific protocol based on the bandwidth assigned to that type of information is the most important task of the internal unit and the work of modulation of the transmitted signal and demodulation and preparation of the received signal is performed in the external unit. Microwave sections and modulator/demodulator units are located in the outer unit area, and other components such as multiplexer and user interface ports are embedded in the inner unit. In radio transmission systems, the correct operation of the system is usually dependent on the correct operation of all its main components at the same time; Therefore, from the point of view of failure rate calculations, it is considered a serial system. Now, if some units that have a high probability of failure are paralleled with another unit, a new combination

Founded:

1999

is created which is a series and parallel system, so the probability of failure is reduced. During the switch, it is very important to determine the damaged and healthy unit as well as the switch time. The main modules of this product are: SRD-IDU-16E1, BASEBAND, Modulator & Demodulator, Power Amplifier, E1MUX multiplexer, combiner, and microwave parabolic antennas from 4-4 to 38 GHz up to 120 cm diameter

Application:

Communicating between centers in telecommunications and military centers

This product is a final B2B equipment.

Technical Specifications:

- * **Frequency range:** 14.4 to 15.35 GHz (ITU-R F.636-3)
- * **Channel distance:** 28 MHz
- * **Power consumption (1+1):** > 60 W
- * **Frequency stability:** ± 5 ppm
- * **Traffic capacity:** 2E1 ~ 16E1 G.703

Advantages:

- * Using different modulations to increase the reliability and security of information
- * Can compete with foreign products

International Standards or Permissions:

- * ITU-T Military
- * ETSI
- * MIL-STD- 810F



➤ Millimeter Wave Imaging System Using Ka Band

Basir Wave Technologies Co.

www.basirtechnologies.com



Product Introduction:

The millimeter wave imaging device, using millimeter waves, prepares a complete image of the person's body; Therefore, it is used in security systems. Due to the fact that millimeter waves pass through the clothes, this product has the ability to detect all objects hidden under the clothes, both metal and non-metal (such as weapons, explosives, etc.); Also, it can compete with foreign systems and can be modified and adjusted according to the customer's needs in macro and micro dimensions; Moreover, it improves security and mental peace of people and creates jobs and enables training specialists.

Founded:

2018

Application:

Security monitoring of people when entering sensitive places such as airports, railways, sensitive government and law enforcement and military buildings, holy places and shrines of Imams Athar

This product is a final B2B equipment.

Technical Specifications:

- * **Weight:** 570 kg
- * **Scanning time:** 3 seconds
- * **Processing time:** 6 seconds
- * **Transverse resolution:** 10 mm
- * **Voltage:** 220 V

Advantages:

- * Transmitter board manufacturing technology with low phase noise and high frequency switching speed to reduce scanning time
- * Design and manufacture of frequency generator
- * Design and manufacture of antennas in millimeter wave band with high bandwidth
- * Low noise design in the receiver
- * High dynamic range receiver design

International Standards or Permissions:

- * FCC
- * TSA



➤ LoRaWAN Internet of Things Communication Gateway

🏠 Linkap Co.

www.linkap.net

Linkap

Product Introduction:

In order to connect the server with IoT sensors, the gateway (GATEWAY) can establish communication with a special communication protocol, which is the LORA communication protocol. This device is placed in the communication route between the server and the sensor, and transmits the requests and frame of the server without interfering to the sensor and transmits the received information and data to the server. Sometimes due to the lack of internet coverage nearby, the GATEWAY data must be stored in the GATEWAY and be emptied from it after a few days by connecting the computer to the GATEWAY, and in this case the GATEWAY and the data storage section in the DATABASE are placed on the GATEWAY.

Founded:

2018

Application:

Creating radio coverage and equipment communication with the server

This product is a final B2B equipment.

Technical Specifications:

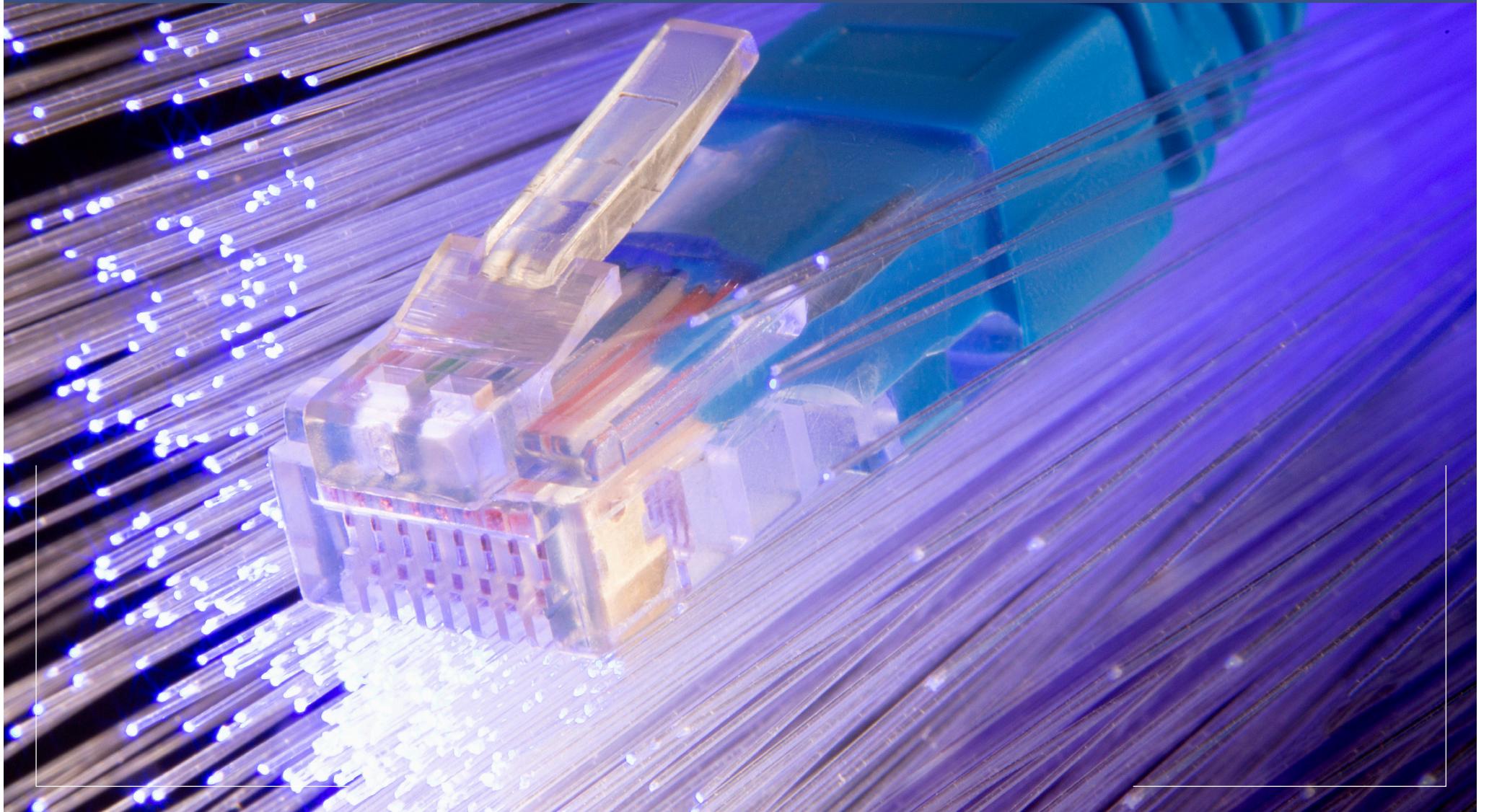
- * **Body material:** Aluminum
- * **Antenna gain:** 0-12 DBI
- * **Input voltage:** 9-36 V
- * **Output voltage:** 5 V

Advantages:

Use of LORA protocol and radio communication with IOT sensors

Fifth Chapter

Optical Telecommunication



5th CHAPTER

First chapter

Second Chapter

Third Chapter

Fourth Chapter

Fifth Chapter

Optical Telecommunications

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This product is a final B2B equipment.

➤ Optical Telecommunication Systems

◆ Parman Co.

www.parman.ir

پارمان
برق و تماس نوین

Product Introduction:

Optical telecommunication systems: One of the most important pillars of the development of telecommunication services are the transmission networks, which have the task of creating reliable high-speed and high-quality routes for communication between telecommunication centers. In the past few decades, we have witnessed significant changes in the development of the capacity, range and quality of providing these services in optical networks, and the technologies in this field are advancing at a great speed. The old PDH technologies have given way to new and advanced technologies such as SDH, and the speed of optical systems has increased from the range of a few megabits per second to several thousand megabits per second; Therefore, optical systems form the main communication routes of all telecommunication networks. Optical transmission telecommunication systems include models (PTS6010, PTS4010P, PTS4010, PTS2025P, PTS2025, PTS1020, PTS1010P, PTS1010)

Application:

Creating reliable high-speed and high-quality routes for communication between telecommunication centers, oil companies, railways, regional power companies and armed forces.

Main Export Destinations:

Uganda

Export History:

Between 500,000 - 1,000,000 \$

Founded:

2001

Technical Specifications:

PTS-1010 system:

- * **Clock interface:** 2.048Mbps
- * **Management interface:** Ethernet 10/100
- * **Ethernet interface:** 10Gbps

PTS-1010P system:

- * **Nominal capacity:** 622Mbps
- * **The number of 100Mbps electrical Ethernet interfaces:** 8 at most
- * **The number of 100Mbps optical Ethernet interfaces:** 8 at most

PTS-2025 system:

- * **Nominal capacity:** 622Mbps
- * **The number of 100Mbps electrical Ethernet interfaces:** 24 at most
- * **The number of 100Mbps optical Ethernet interfaces:** 12 at most

PTS-2025P system:

- * **Nominal capacity:** 2.5Gbps
- * **The number of 100Mbps electrical Ethernet interfaces:** 24 at most
- * **The number of 100Mbps optical Ethernet interfaces:** 12 at most

PTS-4010 system:

- * **Nominal capacity:** 622Mbps
- * **The number of 100Mbps electrical Ethernet interfaces:** 32 at most
- * **The number of 100Mbps optical Ethernet interfaces:** 16 at most

PTS-4010P system:

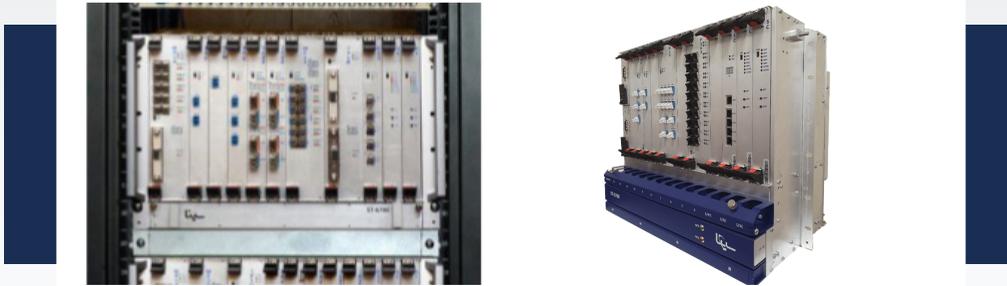
- * **Nominal capacity:** 2.5Gbps
- * **The number of 100Mbps electrical Ethernet interfaces:** 40 at most
- * **The number of 100Mbps optical Ethernet interfaces:** 20 at most

PTS-6010 system:

- * **Nominal capacity:** 240 Gbps
- * **The number of 100/1000Mbps electrical Ethernet interfaces:** 96 at most
- * **The number of 10GB optical interfaces:** 24 at most

Advantages:

- * Advanced technology in the field of hardware (transmitting frequency signals of higher than 10 gigabytes)
- * Design of multilayer boards and high frequency boards
- * Technology of working with programmable IC (FPGA)
- * Programming technology for Linux and development of Linux drivers and development of hardware drivers (chips and ICs)



► POTN_DWDM Optical Transmission System with Transmission Capacity Up to TB_S 19.2 200

◆ Sina Communication Systems Co.

www.sinacomsys.ir



Product Introduction:

The DWDM optical transmission system of the ST-6700 series is designed by using the latest information transmission technology on the optical fiber platform and with the aim of meeting the current and future needs of the infrastructure of telecommunication networks. This product is an optical transmission system with OTN technology, which, in addition to all the main capabilities of optical transmission systems, also supports the features of packet-based networks; also, it can be used in the optical transmission platform of urban, intercity, national and international infrastructure networks.

Founded:

2015

Application:

- * Connection of data centers, used in urban, provincial telecommunication infrastructure and international data transit in telecommunication operators.
- * Creating a communication network in oil and gas industries, municipality, banking, etc.

This product is a final B2B equipment.

Technical Specifications:

- * **Transmission capacity:** 19.2 Tb/s
- * **Transfer rate:** 200 Gb/s
- * **Number of supported wavelengths:** 96

Advantages:

- * Designing cards with high number of layers (up to 12 layers) and high frequency (28 GHz)
- * Full integration of features from network management software to the card in the shelf
- * Setting up high-speed communication between IC and FPGA

International Standards or Permissions:

- * ITU-G.709
- * RFC 2544
- * IEEE 802.3



Iran House of Innovation and Technology (iHiT)

Iran House of Innovation and Technology (iHiT) is one of the types of export intermediaries that launched under the auspices of the Vice President for Science and Technology in Kenya, China, Russia, Turkey, Syria and Iraq. In addition to accessing the export instructions, these houses provide variety of services for companies to enter the interactional service markets such as: private and shared workspace, permanent exhibition of products, finding business partners and investing in the target countries of export, company registration, product registration, medicine, medical equipment and trademarks registration, dispatch and admission of business delegations, hiring local specialists to present products and service.





TEHRAN iHiT

Manager: Mohammad Karami

Field of Activity: Permanent International Exhibition | Export of products and services of knowledge-based, creative and technology companies in Tehran

Country: Islamic Republic of Iran – Tehran

Services:

- Holding permanent exhibition of knowledge-based products and services
- Holding specialized events and meetings
- Providing dedicated and shared workspace in Tehran
- Identifying export opportunities
- Identifying opportunities for scientific, technological and industrial cooperation

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website: www.ihit-expo.com

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NAIROBI iHiT

Manager: Ali Baniamerian

Field of Activity: Export of products and services of knowledge-based, creative and technology companies

Country: Republic of Kenya – Nairobi

Services:

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Providing export instructions of the Center for International Science and Technology Cooperation

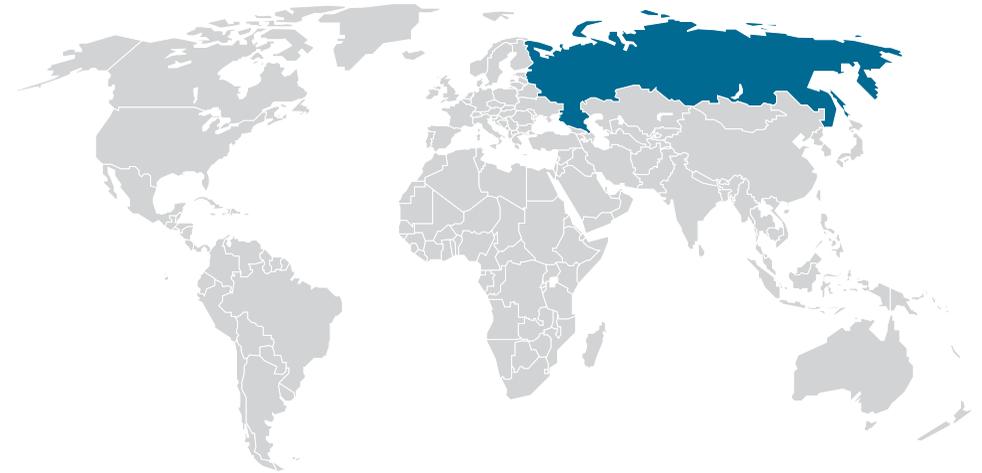
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Field of Activity: Export of products and services of knowledge-based, creative and technology companies

Country: People's Republic of China - Shanghai

Services:

- Holding Permanent exhibition of products and services
- Export development of knowledge-based products
- Providing dedicated and co-working space
- Identifying opportunities for scientific, technological and industrial cooperation
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Providing export instructions of the Center for International Science and Technology Cooperation

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MOSCOW iHiT

Manager: Mahdi Deilam Salehi

Field of Activity: Export of products and services of knowledge-based, creative and technology companies

Country: Russian Federation – Moscow

Services:

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Providing export instructions of the Center for International Science and Technology Cooperation

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Services:

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Providing export instructions of the Center for International Science and Technology Cooperation

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DAMASCUS iHiT

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Country: Syria – Damascus

Services:

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Providing export instructions of the Center for International Science and Technology Cooperation

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Country: Iraq – Sulaymaniyah

Services:

- Holding Permanent exhibition of products and services
- Providing dedicated and co-working space
- Holding the National Pavilion of the Islamic Republic of Iran in international exhibitions
- Export development of knowledge-based products
- Identifying opportunities for scientific, technological and industrial cooperation
- Providing export instructions of the Center for International Science and Technology Cooperation

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This book includes
selected knowledge-based Iranian products
in the field of

TELECOMMUNICATIONS

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