





Satellite Services Catalogue

About Us

Türksat A.Ş. is one of the leading satellite operators in the region and the company pioneers in the field of efficient use of satellite capacity for broadband and VSAT projects. While managing its orbital locations within the scope of national sovereignty, Türksat also provides cable TV and internet services to its domestic subscribers through its own cable platform. In addition, the company has undertaken the task of integrating the e-government portal's infrastructure with public institutions.

Türksat 3A
June 2008 - 2028

Türksat 4A
February 2014 - 2044

Türksat 4B
October 2015 - 2045

Our Satellites

TÜRKSAT 3A

Manufacturer Thales Alenia Space Industries
Platform SPACEBUS 4000B2
Stabilization Type 3 Axis Control
Start Date of Service 2008
Wingspan 30 m
Orbital Location 42° East Longitude

Payload General Properties

Uplink Coverage Areas

Turkey, East and West

Downlink Coverage Areas

West and East

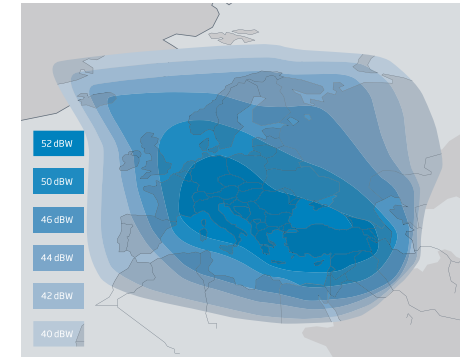
Number of Transponders 24

Total Bandwidth 1296 MHz

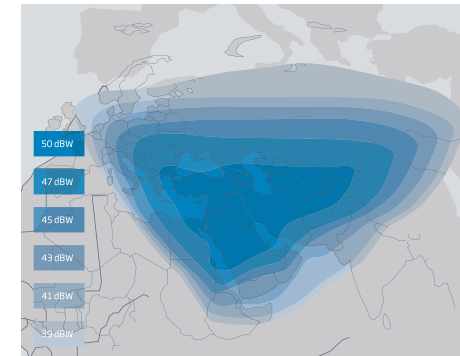
Platform Technical Properties

Nominal Launch Weight 3110 Kg

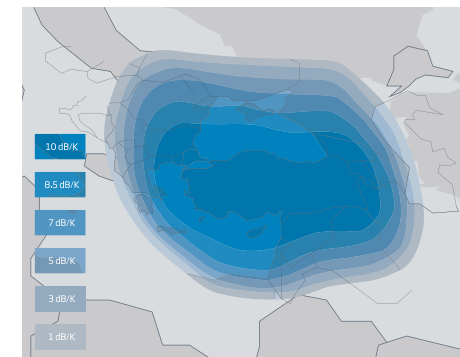
Maximum Power Consumption 6126.9 Watt



Türksat 3A West Coverage Area



Türksat 3A East Coverage Area



Türksat 3A Turkey Coverage Area

TÜRKSAT 4A

Manufacturer Mitsubishi Electric Corporation
Platform DS2000
Stabilization Type 3 Axis Control
Date of Launch 15 February 2014
Wingspan 25.27 m
Orbital Location 42° East Longitude

Payload General Properties

Ku-Band BSS Coverage Area

Turkey, East (Turkey, Middle East, Asia) and West (Turkey, North Africa, Europe)

Ku-Band FSS/Ka-Band Coverage Area

Africa, Turkey and Germany

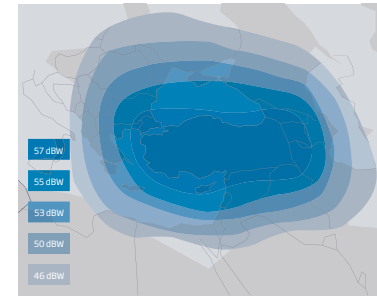
Number of Transponders 36

Total Bandwidth 2084 MHz

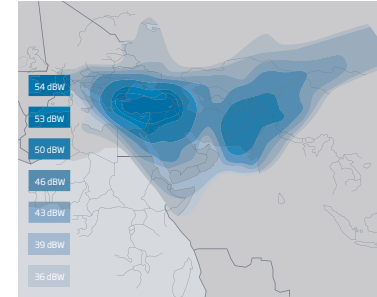
Platform Technical Properties

Nominal Launch Weight 4910 Kg

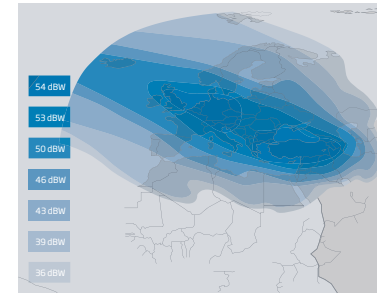
Maximum Power Consumption 7670 Watt



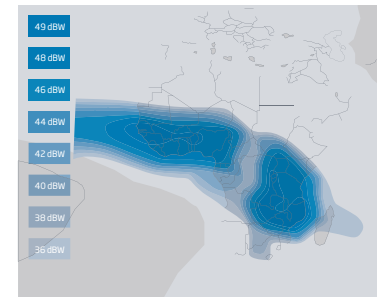
Türksat 4A Ku-Band BSS Turkey Coverage Area



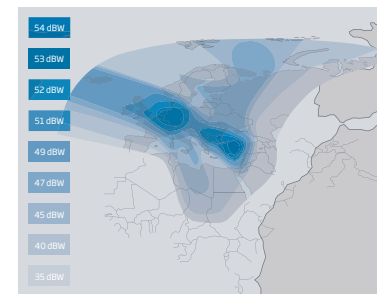
Türksat 4A Ku-Band BSS East Coverage Area



Türksat 4A Ku-Band BSS West Coverage Area



Türksat 4A Ku-Band FSS Coverage Area of Africa



Türksat 4A Ka-Band Coverage Area of Europe

TÜRKSAT 4B

Manufacturer Mitsubishi Electric Corporation
Platform DS2000
Stabilization Type 3 Axis Control
Date of Launch 16 October 2015
Wingspan 25.26 m
Orbital Location 50° East Longitude

Payload General Properties

Ku-Band Coverage Areas

Turkey, East (Turkey, Middle East, Asia) and
West (Turkey, North Africa, Europe)

C-Band Coverage Areas

Africa and Turkey

Ka-Band Coverage Areas

Spot Beams over Turkey, Middle East,
Europe and Asia

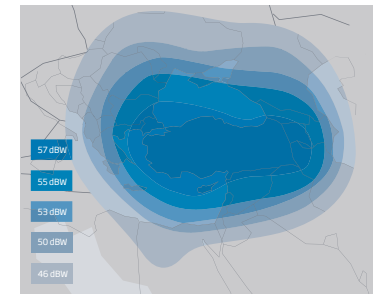
Number of Transponders 43

Total Bandwidth 3400 Mhz

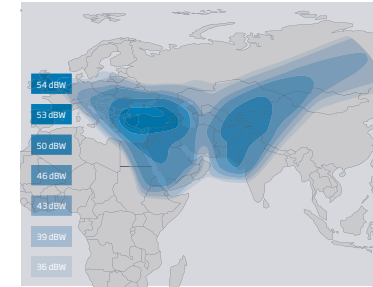
Platform Technical Properties

Nominal Launch Weight 4977 Kg

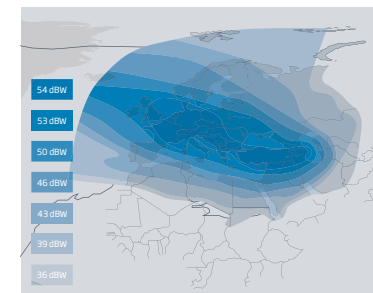
Maximum Power Consumption 7600 Watt



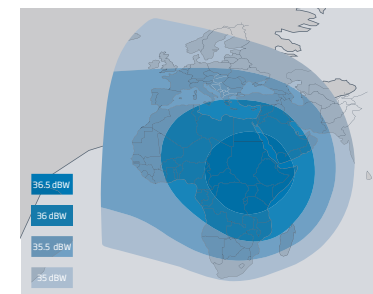
Türksat 4B Ku-Band Turkey Coverage Area



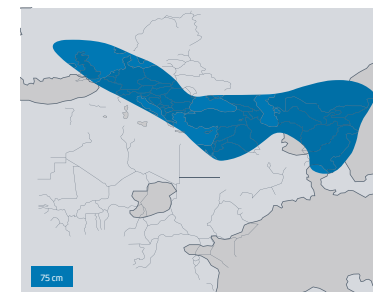
Türksat 4B Ku-Band East Coverage Area



Türksat 4B Ku-Band West Coverage Area



Türksat 4B C-Band Africa Coverage Area



Türksat 4B Ka-Band Spot Coverage Area



TÜRKSAT 1B

Türksat 1B	
Date of Launch	August 1994
Orbital Location	31° East
Deorbit Date	December 2005

TÜRKSAT 1C

Türksat 1C	
Date of Launch	July 1996
Orbital Location	42° East
Deorbit Date	September 2010

TÜRKSAT 2A

Türksat 2A	
Date of Launch	10 January 2001 (Ariane 4)
Orbital Location	42° East
Deorbit Date	28 September 2016



Research and Development Activities

Research and Development Activities

- Ka-Band VSAT terminal development project
- Development of Regional Positioning System through Türksat satellites
- Development of Air Platform with helium balloons project
- The development of Space Object Observation and Warning System using Türksat Observatory
- Atomic time broadcast through Türksat satellites
- Carrier Tracking System development project
- Realization of Türksat Channel Update System (TKGS) tests

The Development of Space Object Observation and Warning System

Close to 450 satellites located in geostationary orbit, located 35,786 km from the equator, are actively serving. Türksat, the only communication satellite operator in our country, has three active satellites in this orbit. With new satellite projects this number is set to increase.

The launching of new satellites by countries/companies with orbit rights close to Türksat satellites, has increased the number of satellites neighboring Türksat satellites. Therefore, in order to measure distances between satellites more precisely, frequently and accurately, it has become a necessity to carry out possible collision analyzes. For this reason, an observatory in Türksat was established in 2013. Türksat observatory was built with a fully automatic dome and 50cm diameter telescope. In this context, we are working on a system in which collision analyzes can be carried out by calculating the distances between our satellites and other satellites and space objects, by processing the obtained images of Türksat satellites, neighboring satellites and other objects in orbit. With this infrastructure and system, it will contribute greatly to the security of Türksat’s satellites, which are of vital importance to our country.



Türksat Observatory: Cosmos 2397 satellite passing by Türksat 2A, Türksat 3A, and Türksat 4A satellites



Türksat Balloon System Project

Türksat Balloon System is a system that can provide continuous high-resolution video at altitudes up to 1000 meters using cable guided helium balloons. With this system, different volumes of helium balloons can be used, ranging from 25 m³ to 150 m³. The helium balloons were manufactured with domestic resources. The crane system and the copper wires used to conduct electricity were made from domestic resources. Useful loads can be installed on the system ranging in weight and for different purposes (observation, radar, internet service, etc.)

Türksat Balloon System, as part of the Turkish General Staff’s request, was tested between September-October 2015 at the Köprübatı Boarder Police Station located in Karkamış, Gaziantep and found to be successful. The efforts to develop the Balloon System in line with the demands of the Turkish General Staff is ongoing.



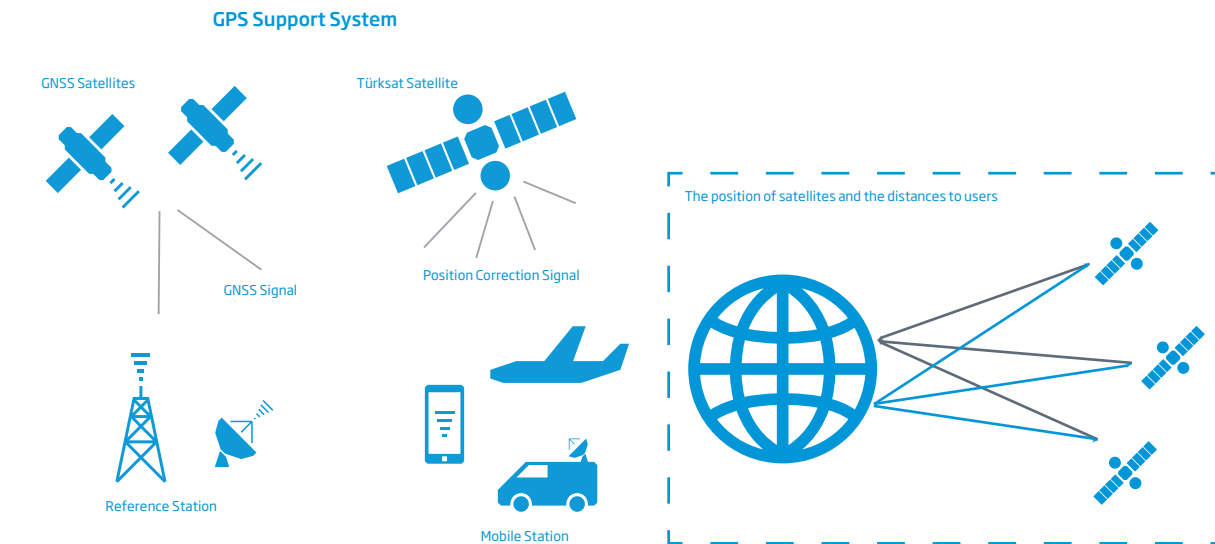
The town of Cerablus from the Balloon System's Camera.

Regional Positioning and Positioning Support System

Regional Positioning and Positioning Support System

With the Türksat Regional Positioning System project, an independent positioning system is being developed using Türksat satellites. The sensitivity and efficiency created using our satellites located at the 31°, 42° and 50° East orbital location will be further expanded with new satellites. Production of the TürkNAV Regional Positioning stimulator, which forms the foundation of the Türksat Regional Positioning System, has been completed. Simulations along with satellite tests are performed using the TürkNAV System.

Positioning Support System, is based on the principle of broadcasting positioning support signals through Türksat satellites, with the purpose of increasing the sensitivity of GPS satellite's positioning. The correction signal generated at the Gölbaşı campus is broadcasted through the satellite, which is later received by satellite antenna and transmitted to the GPS receiver. Measurements obtained from the provinces of Ankara, İstanbul, Eskişehir, İzmir, Muğla and Erzurum have reached centimeter level precision.



Teleport and TV Uplink Services

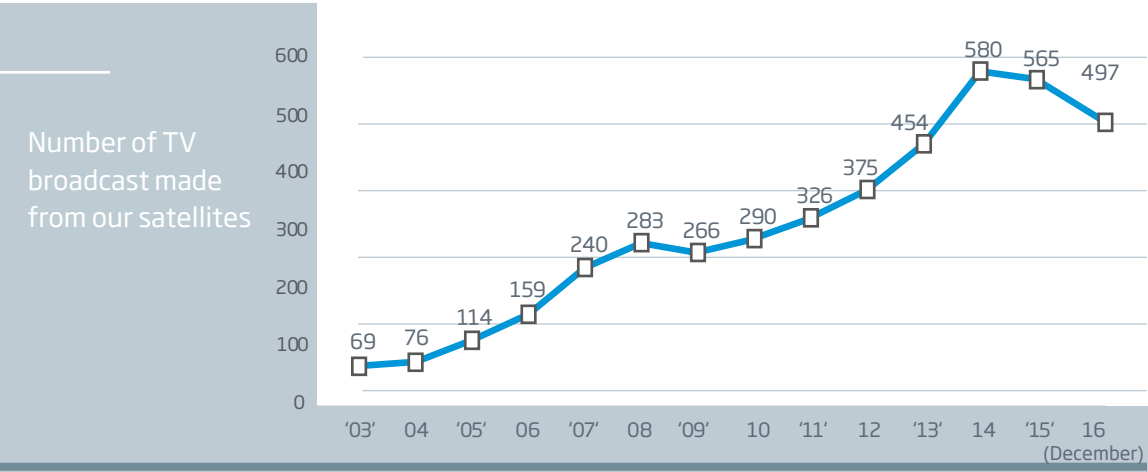
Fiber, metro ethernet, TTVPN, other satellites, and TV and radio broadcasts by means of radio link lines are converted into digital broadcast and delivered through Türksat satellites. From the Türksat Gölbaşı campus, C-Band, Ku-Band and DBS Band uplink and downlink services can be provided through satellites between 20° West - 100° East.

Taking into consideration the quality standards in digital package broadcasts, continuous improvements are being carried out. In the year 2016, new software and hardware were added to our infrastructure.

By the end of 2016, from Ankara Türksat Teleport Centre 19, from Germany, Cyprus and Georgia 1 each, a total of 22 package broadcast transmissions were realized

In addition, including one DVB-S2 Ultra HD 4K package, with a total of 23 digital packages, a total of 180 TV, 54 radio and 10 data services are transmitted to Türksat satellites. Moreover, uplink services are provided to Dijitürk (Bein Group), Güç Dijital and Tivibu (Türk Telekom).

In the year 2016, EPG services have started to be provided to all customers who request it. Live broadcast requests from the public and private sectors are met through two of Türksat's live broadcast vehicles equipped with backup uplink systems. In 2016, live or tape broadcast transmission requests were made domestically.

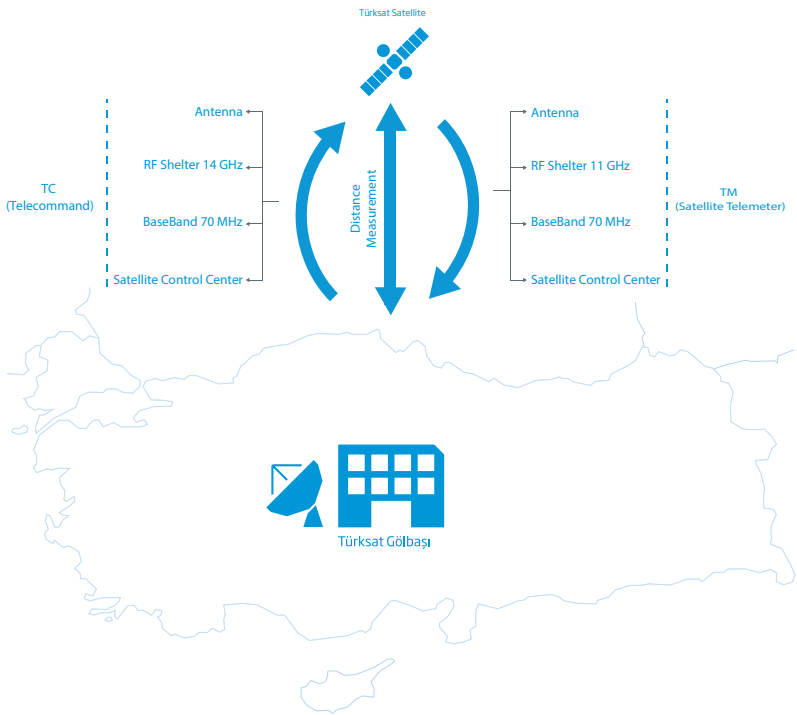


Satellite Ground Control Stations

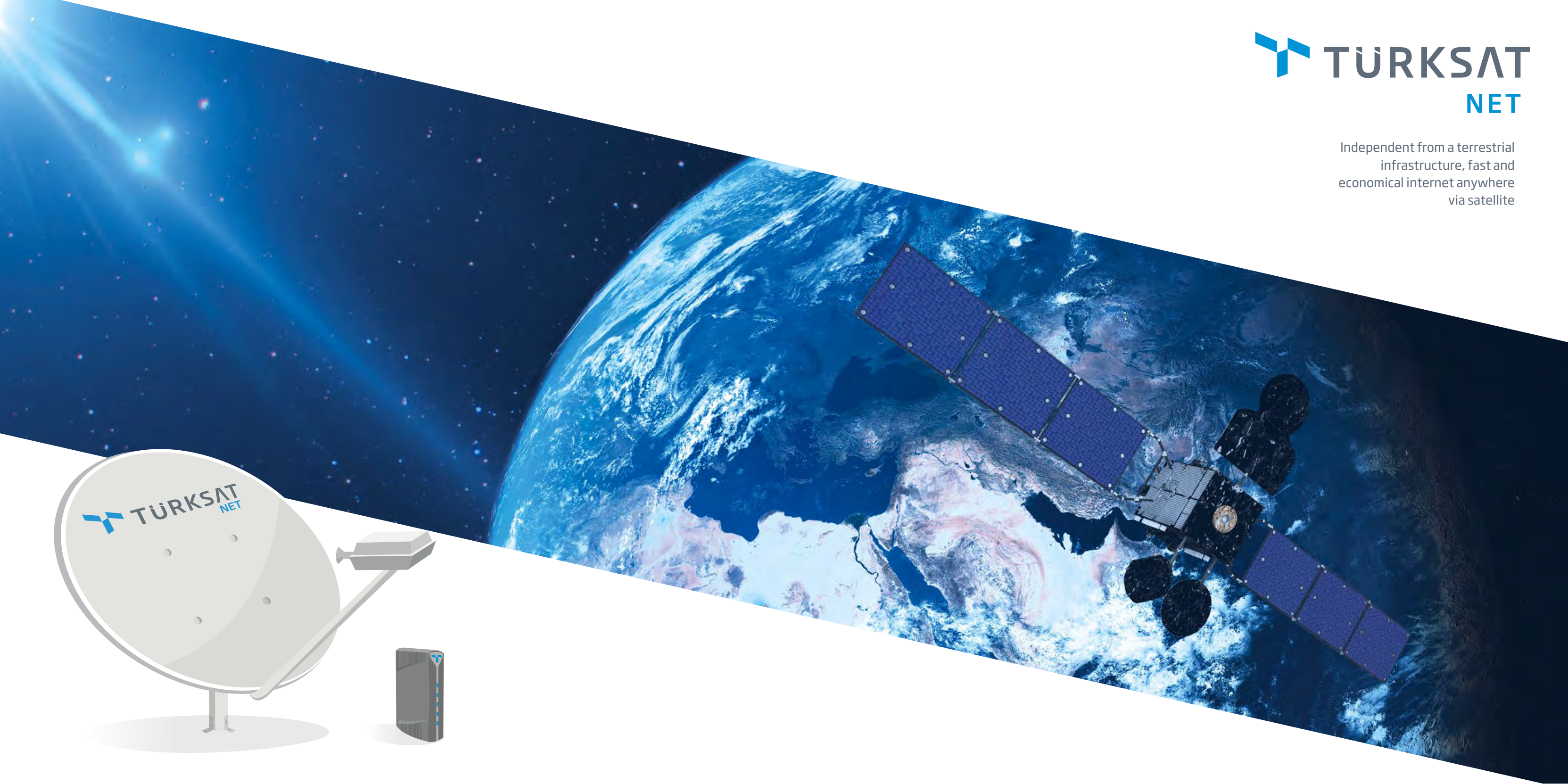
The command and controls of Türksat satellites are provided through two satellite ground control stations, one being the main and the other acting as the backup control station. Operations are carried out on a 24/7 basis, in addition to the short, medium and long term planning for satellite orbital operations, detection of satellites' orbit, the planning and realization of satellite maneuvers, the protection of distances between satellites, of which these operational procedures are performed securely in encrypted mode.

In these stations, highly precise satellite tracking, professional antennas capable of high output and input, RF/Baseband systems, satellite control software and hardware systems are backed-up completely within themselves. Data is archived in the system during the satellite's lifespan for the purpose of retrospective viewing.

The orbital dynamics software used for the purpose of determining our satellites' orbital location, also requires the azimuth and elevation angle in regards to the satellite's position, in addition to the measurements between the satellite and the station for 48 hours before and after maneuvers. For these reason antennas with highly precise satellite tracking is used. Our antennas, which differ from other antenna systems from this perspective, are operated by way of precise procedures.



Independent from a terrestrial
infrastructure, fast and
economical internet anywhere
via satellite



Hardware Used

The TürksatNet system consists of three types of antennas. They are 74cm, 98cm, 120cm. The LNB-BUC-FEED equipment used for the 98cm and 120cm antenna units are similar. The LNB-BUC-FEED equipment used for the 74cm antenna differs. The 74cm antenna is used mostly within the borders of Turkey.

Equipment belonging to the TürksatNet System is listed as below:

- Antenna Base
- Antenna Mount
- Reflector (Antenna)
- De-icing Unit (Optional)
- Indoor Equipment (Satellite Router)
- LNB-BUC-FEED equipment and RG-6 Cable Connector

RATES

You can own Türksat Net with the different quota rates it has to offer.

10 GB	25 GB	50 GB
100 GB	200 GB	300 GB

Up to 6/25 Mbps (upload/download)



Observatory

Observatory

Türksat Observatory is situated at Türksat Gölbaşı Campus. The observatory is Ankara's largest and is one of Turkey's most advanced telescope systems. It is the only fully automatic observatory in Turkey. It is composed of two units, the Observatory Building and the Control Office.

Observatory Building: It consists of a fully automated dome with dual retracting doors situated on a 5m in diameter foundation. The telescope inside is 50 cm in diameter, has autofocus and works with an integrated CCD 2048x2048 resolution camera.

Control Office: Is a container office where the telescope system is controlled in accordance with the dome. It has a meteorology station, air quality and rain sensor, and a 360° sky camera system.

At the end of an 18-month building process, it began operation in September of 2013.



Türksat Observatory



Lagari Hasan Çelebi Satellite and Space Museum

Lagari Hasan Çelebi Satellite and Space Museum

The Lagari Hasan Çelebi Satellite and Space Museum, which was established in the year 2011, is a museum that displays satellite and space technologies. The models displayed at the museum are handmade and are all produced by our company. In our museum, satellite and rocket models, as well as real components used on satellites and equipment belonging to satellite ground control systems can be seen on display. Operations to expand the museum's inventory is ongoing.

Our museum, which hosts a wide range of visitors from elementary school to university students, from public institution employees to satellite and space technology specialist, at the same time fills in an important gap in terms of being the first and only space/satellite museum in Ankara.



