Integrated networking solutions

- **1 GPON port**
- **Gigabit router**
- **FXS port for analogue phone connection**
- **USB 2.0 port for network storage or printer connection**
- **Wi-Fi 802.11b/g/n**
- **Wi-Fi 802.11a/n/ac**



ONT NTU are high-perfomance network terminals which are designed for providing access to voice services, IPTV, OTT, high speed Internet. Also, with NTU-RG series optical network terminals, operators will be able to provide their subscribers with a wide range of local network operation services and capabilities.

PON Technology

PON Technology is the most modern and effective “last mile” solution. This solution reduces amount of cable and provides data transfer with downlink rate up to 2.5 Gbps and uplink rate up to 1.25 Gbps. PON-based solutions in access networks allow end users to have access to a set of services based on IP protocol.

Universal Devices

Integrated 4-port[1] 10/100/1000 Base-T Gigabit router allows to create a high-performance connection for network devices. FXS port enables VoIP services. The USB port can be used for USB-enabled devices (USB flash drives, external HDD, printer).



Supported services:

– High-speed Internet access
– Video streaming/ High Definition TV/IP TV, Video on Demand (VoD), Video conferencing
– VoIP
– Online educational and entertainment programs

Applications

– Providing of broadband access services to subscribers located in apartment houses, residential areas, campuses or suburban settlements
– Corporate network construction at large strategic enterprises, or in office buildings with high requirements in terms of security and data transfer rates

Wireless Connection

NTU-RG-1402G-W and и NTU-2W user routers allow you to connect Wi-Fi clients via IEEE 802.11b/g/n standard.

NTU-RG-1422G-Wac and NTU-RG-1422G-Wac user routers support 802.11ac standard, provide data transfer rates up to 1300 Mbps and deliver modern high-performance services to client equipment through the wireless network. Two integrated Wi-Fi controllers ensure the simultaneous dual band operation, i.e. 2.4 GHz and 5 GHz.

ONT NTU Interface Configuration

ONT name	WAN	LAN	FXS	RF	Wi-Fi	USB
NTU-2V	1xGPON	1x100M + 1x1G	1			
NTU-2VC	1xGPON	1x100M + 1x1G	1	1		
NTU-2W	1xGPON	1x100M + 1x1G			802.11b/g/n	1xUSB2.0
NTU-RG-1402G-W	1xGPON	4x1G	2		802.11b/g/n	2xUSB2.0
NTU-RG-1421G-Wac	1xGPON	4x1G	1		802.11n, 2x2 -300 Mbps - 2.4 GHz 802.11ac, 3x3 - 1.3 Gbps - 5 GHz	2xUSB2.0
NTU-RG-1431G-Wac	1xGPON	4x1G	1		802.11n, 3x3 -450 Mbps - 2.4 GHz 802.11ac, 3x3 - 1.3 Gbps - 5 GHz	2xUSB2.0

[1] For NTU-RG-1421G-Wac, NTU-RG-1431G-Wac

Functionality

PON Interface Specifications

– 1 GPON port
– Complience with ITU-T G.984.2, ITU-T G.984.5 Filter, FSAN Class B+, SFF-8472
– SC/APC connector type
– Transmission medium: fibre optical cable SMF-9/125, G.652
– Maximum reach: 20km
– Transmitter: 1310nm DFB Upstream Burst Mode Transmitter
  – Data Rate: 1244Mb/s
  – Average Launch Power +0,5..+5 dBm
  – Spectral Line Width -20 dB 1nm
– Receiver: 1490nm APD/TIA Downstream CW Mode Digital Receiver
  – Data Rate: 2488Mb/s
  – Receiver Sensitivity -28 dBm With BER better than or equal to $1.0x10^{-10\ (-30)}$
  – Receiver Optical Overload -4 dBm

CaTV Rx (NTU-2VC)

– 1550 nm Downstream Linear CaTV Video Receiver
– Optical Input Power: -8..+2 dBm
– Compound Second Order (CSO): -55 dB
– Compound Triple Beat (CTB): -55 dB
– Carrier to Noise Ratio (CNR): 46 dB
– RF Bandwidth: 47 to 870 MHz
– RF Output: 17 dBmV/ch with 4 dB positive tilt
– RF Output Impedance: 75 Ω

LAN Interface Specifications

NTU-2V, NTU-2VC, NTU-2W

– 1 x Ethernet 10/100/1000 Base-T (RJ-45) port
– 1 x Ethernet 10/100 Base-T (RJ-45) port

NTU-RG-1402G-W, NTU-RG-1421G-Wac, NTU-RG-1431G-Wac

– 4 x Ethernet 10/100/1000 Base-T (RJ-45) ports

FXS Interface Specifications

– 1 x FXS port (NTU-2V, NTU-2VC, NTU-RG-1421, NTU-RG-1431)
– 2 x FXS ports (NTU-RG-1402G-W)
– SIP support
– Audio codecs: G.729 (A), G.711(A/U), G.723.1
– Fax transmission: G.711, T.38
– Loop resistance: up to 2kΩ
– Dialing mode: pulse/frequency (DTMF)
– Caller ID broadcasting

Wireless Interface Specifications

NTU-2W, NTU-RG-1402G-W

– 802.11 b/g/n standards
– MIMO: 2x2
– Frequency range: 2400 – 2483,5 MHz
– Security of wireless connection: WEP, WPA/WPA2

Data transfer rate, Mbps[1]

– 802.11b: 1, 2, 5.5, 11 Mbps
– 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
– 802.11n: from 6,5 to 300 Mbps (from MCS0 to MCS15)

Maximum output power of the transmitter[2]

– 802.11b (11Mbps): 17 dBm
– 802.11g (54 Mbps): 15 dBm
– 802.11n (MCS7): 15 dBm

Modulation schemes

– IEEE 802.11b: DQPSK, DBPSK, CCK
– IEEE 802.11g: BPSK, QPSK, 16QAM, 64QAM, OFDM
– IEEE 802.11n: BPSK, QPSK, 16QAM, 64QAM with OFDM

NTU-RG-1421G-Wac, NTU-RG-1431G-Wac

– 802.11a/b/g/n/ac standards
– Frequency range: 2400 – 2483.5 MHz, 5150 – 5350 MHz, 5650 – 5850 MHz
– Simultaneous Dual Band
– CCK, BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM modulation

Active Channels

– 802.11b/g/n: 1-13
– 802.11 a/n/ac: 36–64, 132–165

Data transfer rate, Mbps

– 802.11b: 1, 2, 5.5 and 11 Mbps
– 802.11g: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps
– 802.11n: 300 Mbps (20 MHz channel), 450 Mbps (40 MHz channel)[3]
– 802.11ac: 1300 Mbps (80 MHz)

Maximum output power of the transmitter[2]

– 802.11b (11 Mbps): 17 dBm
– 802.11g (54 Mbps): 15 dBm
– 802.11n (MCS7): 15 dBm
– 802.11ac (MCS0): 19 dBm

USB Interface Specifications (NTU-RG)

– 1 x USB 2.0 port for USB-enabled devices (NTU-2W)
– 2 x USB 2.0 ports for USB-enabled devices (NTU-RG)

[1] Maximal speed rate is defined due to IEEE 802.11n/ac standard specifications. The real speed rate will be a little different.
[2] Maximal power amount will be changed due to radio regulation rules of each country.
[3] For NTU-RG-1431G-Wac.

Integrated networking solutions

Functionality

Physical specifications and ambient conditions

– Dimensions: 122x96x32 mm, desktop design (NTU-2V)
– Dimensions: 151x107x40 mm, desktop design (NTU-2VC)
– Dimensions: 147x110x24 mm, desktop design (NTU-2W)
– Dimensions: 187x120x32mm, desktop design (NTU-RG)
– Power. External power adaptor of direct current 12 V/2 A
– Power consumption:
  – NTU-2V: 5W max.
  – NTU-2VC: 6W max.
  – NTU-2W: 10W max.
  – NTU-RG: 15W max.
– Operating temperature range: from +5°C to +40°C
– Relative humidity up to 80%

Supported standards

– ITU-T G.984.x - GPON
– ITU-T G.988 OMCI specification
– IEEE 802.1D
– IEEE 802.1Q
– IEEE 802.1P

Security Features Support

– Port transfer rate limiting
– FEC coding

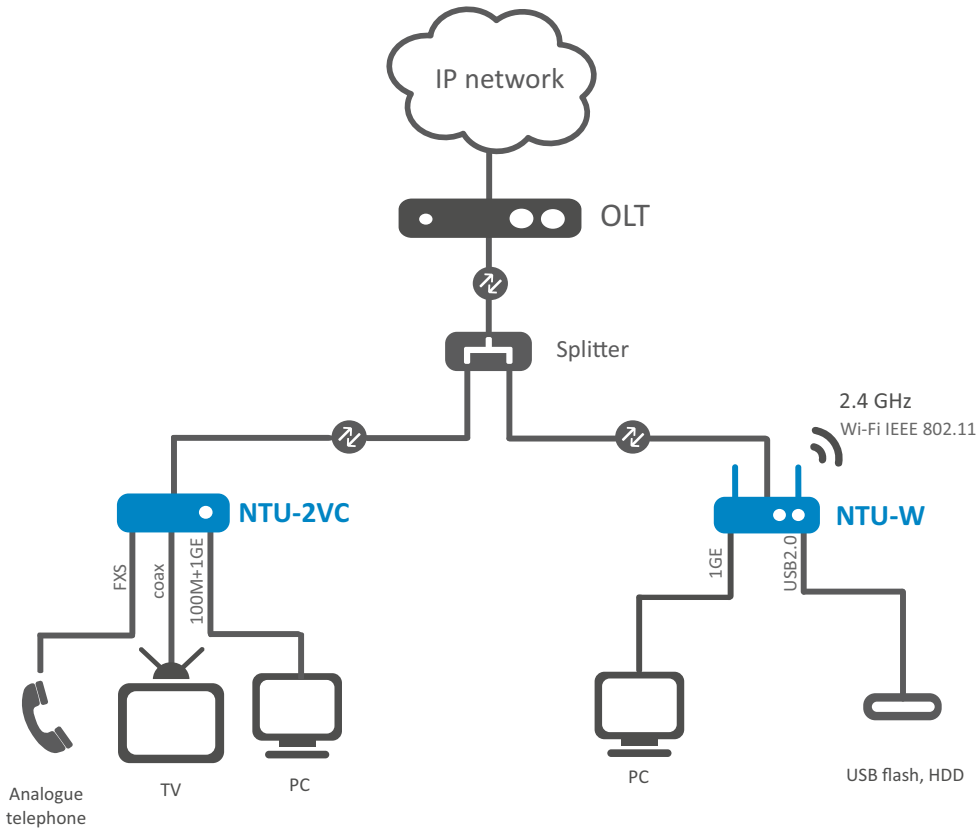
Performance Specifications

– TR-069 support
– 'Bridge' and 'Router' operation modes, incl. virtual router mode
– PPPoE support (auto, PAP, MSCHAP and CHAP authorization)
– IPoE support (DHCP-client and static)
– DHCP server on LAN side
– Multicast traffic transmission via Wi-Fi
– DNS (Domain Name System)
– DynDNS (Dynamic DNS) Wi-Fi IEEE 802.11b/g/n/(ac)[1]
– UPNP (Universal Plug and Play)
– NAT (Network Address Translation)
– NTP (Network Time Protocol)
– QoS
– IGMP Snooping
– IGMP Proxy
– SMB, FTP-alg, Print Server
– VLAN complying with IEEE 802.1Q

Configuration and Monitoring

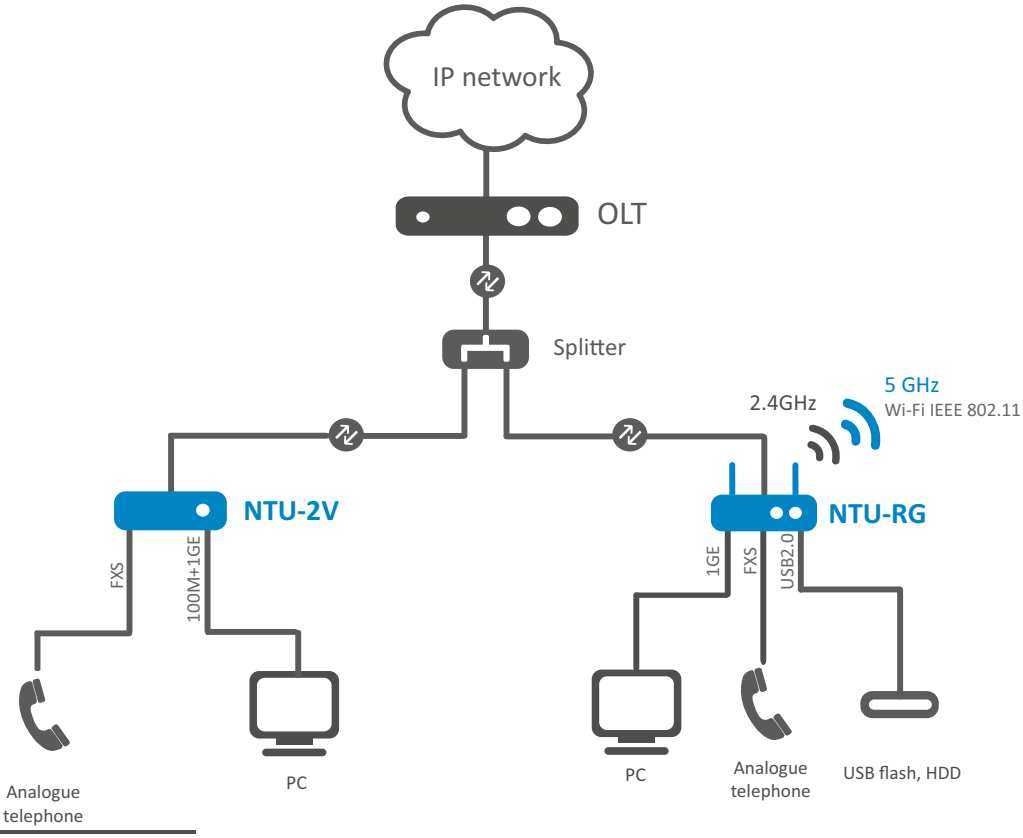
– Due to TR-142:
  – Remote control via OMCI protocol
  – Remote control via TR-069 protocol
– WEB/CLI local control
– Software updates: OMCI, TR-069, HTTP, TFTP

Application diagram for NTU-2VC and NTU-2W



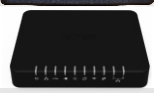
Integrated networking solutions

Application diagram for NTU-2V and NTU-RG



[1] For NTU-RG-1421G-Wac, NTU-RG-1431G-Wac

Ordering information

Name	Description	Image
NTU-2V	ONT NTU-2V, 1xLAN 10/100/1000Base-T, 1xLAN 10/100Base-T, 1xFXS	
NTU-2VC	ONT NTU-2VC, 1xLAN 10/100/1000 Base-T, 1xFXS, 1xRF	
NTU-2W	ONT NTU-2W, 1xLAN 10/100/1000 Base-T, 1xUSB, WiFi (802.11n, 2*2 - 300 Mbps - 2.4GHz)	
NTU-RG-1402G-W	ONT NTU-RG-1402G-W, 4xLAN 10/100/1000 Base-T, 2xUSB, 2xFXS, WiFi (802.11n, 2*2 - 300 Mbps - 2,4GHz)	
NTU-RG-1421G-Wac	ONT NTU-RG-1421G-Wac, 4xLAN 10/100/1000 Base-T, 2xUSB, 1xFXS, WiFi (802.11n, 2*2 - 300 Mbps - 2,4GHz + 802.11ac, 3*3 - 1.3 Gbps - 5 GHz)	
NTU-RG-1431G-Wac	ONT NTU-RG-1431G-Wac, 4xLAN 10/100/1000 Base-T, 2xUSB, 1xFXS, WiFi (802.11n, 3*3 - 450 Mbps - 2,4 GHz + 802.11ac, 3*3 - 1.3 Gbps - 5 GHz)	
Related software		
ACS-CPE-512	ACS-CPE-512 option of Eltex.ACS system for Eltex CPE autoconfiguration: 512 user devices	
ACS-CPE-1024	ACS-CPE-1024 option of Eltex.ACS system for Eltex CPE autoconfiguration: 1024 user devices	

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About EltexAlatau

EltexAlatau company is one of the first communication equipment manufacturers in Kazakhstan established in 2012. The main focus of the enterprise is a set of solutions and the opportunity of their seamless connection to the customer's infrastructure.