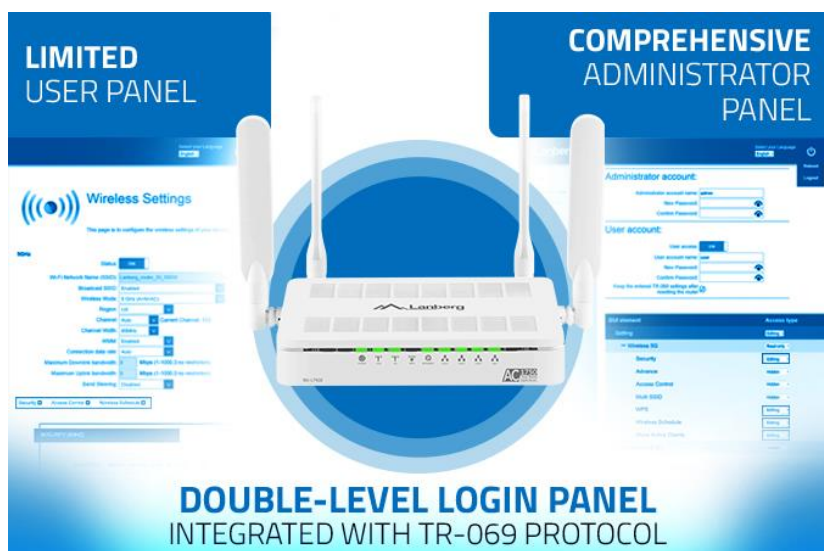




## ROUTER MENU WITH **DOUBLE-LEVEL ACCESS PANEL** DESIGNED FOR COMPREHENSIVE AND FLEXIBLE USER MANAGEMENT FOR **ISP**



Along with the 2nd firmware version, the routers have been fitted with a double access panel:

- 1) the administrator panel with all options available including the ISP-limited features,
- 2) the user panel with access only to certain features, approved by the administrator.

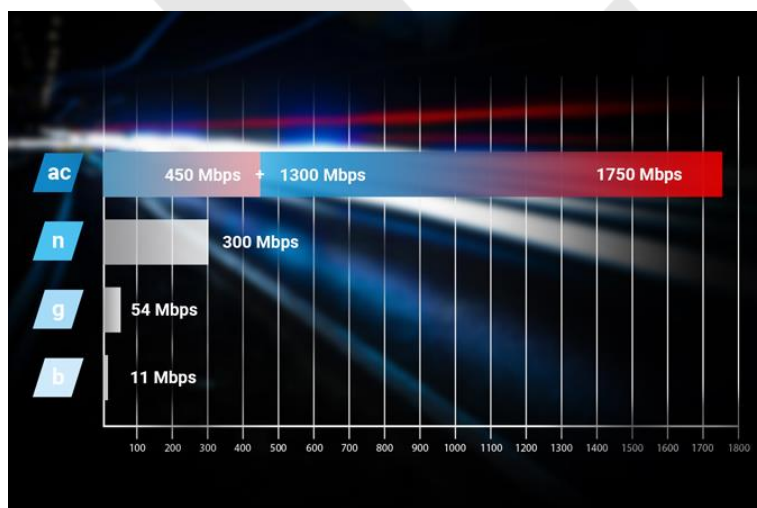
This software gives the administrator / ISP the right to decide which features the user should see and which not. By logging in to the router from the administrator panel, on a specially prepared intuitive website, it is easy to set which pages, subpages and modal windows are to be modified, and which to read or completely hidden from view.

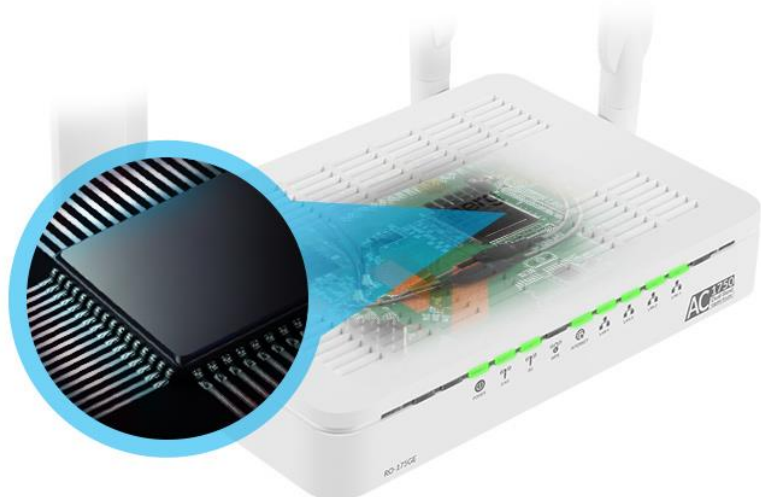
Moreover, adequately configured **TR-069** with the 2nd version of the software allows ISPs to save the settings and automatically download them from the operator's server (ACS) in case the customer intentionally or accidentally restores the router to the factory settings. Due to the specially designed function, the reset button does not change the TR-069 settings introduced by the administrator. After the reset, the router reconnects to the ISP, based on previously entered data, and re-downloads all the initial settings (including the access restrictions). The class that allows you to manage double access in the TR-069 tree is called InternetGatewayDevice.DeviceConfig.

## MEGA TRANSFER WITH **AC1750**

The use of technology in the leading AC1750 wireless standard allows simultaneous use of multiple devices requiring high network bandwidth, watching streaming in Ultra HD resolution (UHD / 4K)\* or playing online with more players simultaneously. Due to the AC standard used in this particular device - you gain almost up to 4 times higher transfer speed than the bandwidth offered by the previous generation N300 standard.

- **AC standard:** up to 1300 Mbps,
- **N standard:** up to 450 Mbps.





## HARDWARE NAT

Due to the use of Hardware NAT, address translation receives hardware support that has a direct impact on bandwidth, noticeably increasing it, to the expected value, as opposed to similar software solutions.

From now on, the difference between the transmission of data devices in the local area network (LAN) and the devices behind the network gateway (with hardware NAT enabled) becomes almost inexistent to the user for both scenarios: normal router operation mode with or without the use of VLANs.

## RO-175GE ROUTER OFFERS

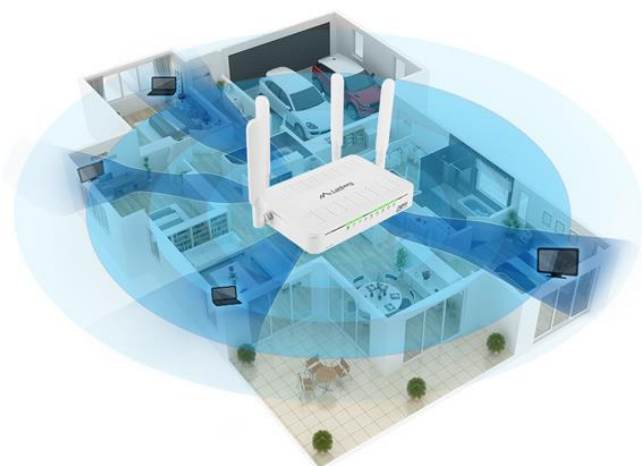
- Super-fast, stable and flexible transfer speeds up to 1750 Mbps,
- Dual-band wireless transmission – 2.4GHz and 5GHz,
- Highest and most commonly used security standards for network's optimal protection,
- Beamforming technology – formation of a focused beam for client devices,
- MIMO technology – use of multiple Tx-Rx antennas, to increase the diversification, multiplexing and network bandwidth gain,
- Multiple Gigabit Ethernet ports,
- Wide selection of operation modes to choose from,
- Hardware NAT
- Multiple levels of access control, filtering to the device and the Internet itself,
- User-friendly, simple, intuitive menu – designed with DIY principle in mind,
- Updated, more secure WPS - version 2.0,
- Creating virtual networks (VLANs) on the Ethernet and Wi-Fi interface.

## FLEXIBILITY AND VERSATILITY IN 1 = 5 DIFFERENT OPERATING MODES

From the very beginning, Lanberg's router has the ability to operate in as many as 5 commonly used modes.

Depending on the demand, it can adopt the classical mode of **Wi-Fi Router or Access Point (AP)**, and can also act as **WISP**, **Signal Extender** and **Client** by receiving the source (Internet) signal via radio transmission instead of the classic Ethernet interface.





## STABLE NETWORK WITH **BEAMFORMING**

Beamforming technology allows focused transmission of a wireless signal (Wi-Fi) that creates data beams focused strictly on the receiving devices. The router's antennas automatically detect the direction of the received signal and then form the wave beam in such a way that the transmission is directed as much as possible to the receiving device.

This technology allows you to increase the strength, infiltration and stability of the signal compared to current, ordinary transmissions, while maintaining the same environmental conditions as optical obstacles.

In practice, the user gains much more stable, focused Wi-Fi connection with increased efficiency and usability.

## DUAL-BAND **TRANSMISSION**

The router achieves a total speed of up to 1750 Mbps as a result of dual-band use.

For more demanding users - 5 GHz reaches up to 1300 Mbps, while the standard wireless band 2.4 GHz is capable of delivering bandwidth up to 450 Mbps. With RO-175GE router, watching Ultra HD (UHD / 4K) movies over Wi-Fi ceases to be just a dream – streaming videos in such resolution is now entirely possible\*. Enjoy the full details, depth, dynamic image and sound nuances while using the 5 GHz band with its maximum potential. Such solution gives full freedom to the user, allowing you to connect demanding client devices on the 5 GHz band and less relevant equipment on 2.4 GHz. This solution provides flexibility and does not limit the user – it supports older devices utilizing an older wireless network standard type (b/g/n) or the new Wi-Fi standard (ac), guaranteeing that even after connecting multiple demanding devices with well-chosen wireless network frequency will not cause a significant decrease in the value of the transfer, which this networking equipment requires.





## 20/40 MHZ AUTO-BANDWIDTH SWITCHING

This function is an intelligent solution that increases the stability of Wi-Fi network for N mode. The operation of 2.4GHz wireless network with a channel width of 40 MHz allows you to increase the fixed transfer rate, at the expense of signal susceptibility to interference and reduction of "free" channels for other networks. When there are many other wireless networks nearby the router, they can interfere with each other, which can lead to more frequent packet loss and associated retransmissions, and most importantly - to the drops in performance and the transfers of Wi-Fi networks.

Lanberg's router scans the surroundings in terms of mutual and disruptive Wi-Fi networks and detects the situation itself, thus automatically changing the frequency from 40 to 20 MHz. The network remains stable and more resistant to possible interference.



## POWERFUL 3T4R – MIMO ANTENNAS



With the use of MIMO technology, the user gains only benefits, due to the increased bandwidth of a wireless network based on multi-antenna transmission, both on the transmitting side and on the receiving side:

- Increased signal reliability due to increased resistance to fading,
- Increased signal-to-noise ratio (SNR) resulting from a collective reception - a radio signal is received by all receiving antennas,
- Increased bandwidth of radio connection as a result of data streams being divided into sub-streams, which in turn leads to a multiplexing gain.

## OPTIMAL POWER UNDER THE HOOD

The router is equipped with an efficient switching and management chip: RTL8954E responsible for efficient processing of traffic on an Ethernet, and 2 wireless units: RTL8194AR and RTL8814AR allowing a steady, fast and stable Wi-Fi network signal for 2 parallel transmission bands: 2.4 GHz and 5 GHz.

In addition, NAT supports hardware acceleration embedded in the chip, and mobile users can enjoy targeted Wi-Fi transmission due to beamforming technology. The memory of the device is 8 MB SPI Flash-EPROM and 128 MB of DDR2 operating memory.

## MULTIPLE WIRELESS + GUEST NETWORKS

The user is given the opportunity to create up to four different, additional and independent wireless networks for 2.4 GHz and 5 GHz bands. Each of them can have its own encryption mode with a separate password and name - all options are exactly the same as for configuring the main wireless network.

In order to meet the users' expectations, the manufacturer provided the possibility to create links for separate, logically separated virtual networks – VLAN - for each of the four additional Wi-Fi networks.

Lastly, Wi-Fi client isolation feature allows convenient separation of devices connected wirelessly, providing an additional level of protection and reducing the risk of attack on other computers connected to the same Wi-Fi network.

## NETWORK SCHEDULE AND PARENTAL CONTROL

Easy to use and configure wireless network schedule allows you to accurately determine the time of Wi-Fi being operation and to create detailed network schedules.

The function is useful in places or at times where there is no need for continuous operation of the network, thus providing an additional layer of protection.

Additionally, Lanberg's router is equipped with **Parental control**, which enables detailed management of the user's access time the Internet, which is very useful when taking parents with children into consideration. By using this feature, device administrators, including parents, no longer have to worry about enforcing rules regarding the time frame of wireless network. From now on, the whole process is focused only on creating the right entry, and the rest will be done by the router. Your personal intervention in limiting Internet access will no longer be necessary - router will do it for you.

## EASIER AND SAFER DEVICE(S) CONFIGURATION WITH WPS 2.0

With the implementation of the WPS button, the user gains the ability to easily and quickly connect any devices to the router using the WPS function. You no longer have to configure each device repeatedly and enter complicated passwords to connect those devices to the router.

Version 2.0 provides an increased level of security, thereby significantly reducing the chances of success of the "brute-force attack". While striving to increase security, the manufacturer left PIN availability only on the web configuration page, making it impossible to physically obtain a default password from the router's label.

\* Does not apply to native UHD (4K) movies from Blu-Ray (HDR / Dolby Vision) discs and from those converted to SDR quality.

## CONTENTS OF THE PACKAGE

- Broadband wireless router: RO-175GE,
- Quick guide,
- 1.5 m 8- wire patch cord,
- Power supply: AC 100 ~ 240 V, 50 / 60 Hz, 0.7 A, DC 12 V, 1.5 A.

## SPECIFICATION

Chipset		Realtek: RTL8954E, RTL8194AR, RTL8814AR	
CPU model		MIPS 1074Kc V2.4	
Operating system; SDK		Linux 3.10.90; Realtek SDK 4.4.7 1459 build	
The amount and type of device memory		8 MB SPI FLASH - EPROM	
The amount and type of operating memory		128 MB DDR3	
Ethernet interface	Quantity; speed; WAN port type		1 x RJ-45 port; 1000 Mb/s; auto: MDI-MDIX + negotiation
	Quantity; speed; type of LAN ports		4 x RJ-45 port; 1000 Mb/s; auto: MDI-MDIX + negotiation
	Data transfer rate		10BASE-T (Ethernet): 10 Mb/s (half-duplex); 20 Mb/s (full duplex); 100BASE-TX (Fast Ethernet): 100 Mb/s (half-duplex); 200 Mb/s (full duplex); 1000BASE-T (Gigabit Ethernet): 1000 Mb/s (half-duplex); 2000 Mb/s (full duplex);
	Total switching bandwidth		10.0 Gb/s (8.0 LAN, 2.0 WAN)
	Compatible network cables		TIA/EIA-568-A lub TIA/EIA-568-B: 10BASE-T (Ethernet): 100 Ω UTP / 150 Ω STP; category 3 or higher; ≤ 100 m; 100BASE-TX (Fast Ethernet): 100 Ω UTP / 150 Ω STP; category 5e or higher; ≤ 100 m; 1000BASE-T (Gigabit Ethernet): 100 Ω UTP / 150 Ω STP; category 5e or higher; ≤ 100 m;
	Standards		IEEE 802.1d: STP; IEEE 802.1p; IEEE 802.1q: VLAN; IEEE 802.1x; IEEE 802.3ab: 1000BASE-T; IEEE 802.3az: Green Ethernet; IEEE 802.3i: 10BASE-T; IEEE 802.3u: 100BASE-TX; IEEE 802.3x: Flow control;
Wi-Fi interface	Type, speed; modulation – 2.4 GHz		IEEE 802.11b: up to 11 Mb/s; DSSS (CCK [DBPSK + DQPSK]); IEEE 802.11g: up to 54 Mb/s; DSSS (CCK [DBPSK + DQPSK]) + OFDM (BPSK + QPSK + QAM-16 + QAM-64); IEEE 802.11n: up to 450 Mb/s; OFDM (BPSK + QPSK + QAM-16 + QAM-64);
	Radio power (E.I.R.P.) – 2.4 GHz		IEEE 802.11b: 19.64 dBm IEEE 802.11g: 19.61 dBm IEEE 802.11n 20 MHz: 19.93 dBm IEEE 802.11n 40 MHz: 19.93 dBm
	Type, speed; modulation – 5 GHz		IEEE 802.11a: up to 54 Mb/s; OFDM (BPSK + QPSK + QAM-16 + QAM-64); IEEE 802.11n: up to 450 Mb/s; OFDM (BPSK + QPSK + QAM-16 + QAM-64); IEEE 802.11ac: up to 1300 Mb/s; OFDM(QAM-256);
	Radio power (E.I.R.P.) – 5 GHz		802.11a: 22.97 dBm 802.11n 20 MHz: 22.97 dBm 802.11n 40 MHz: 22.97 dBm 802.11ac 20 MHz: 22.97 dBm 802.11ac 40 MHz: 22.97 dBm 802.11ac 80 MHz: 22.97 dBm
	Antennas – 2.4 GHz	Quantity, type, type, streams	4 x antenna; external, fixed, dipole; MIMO; 3T4R;
		Return loss	< -10 dB
		VSWR	< 1.5
		Energy gain	5 ± 1 dBi
		Impedance	50 Ω
		Cable diameter	1.13 mm
		Efficiency	> 70 %
	Operating channels		USA (FCC): 11 channels: 2.412 GHz ~ 2.462 GHz; Europa (ETSI): 13 channels: 2.412 GHz ~ 2.472 GHz;

# PRODUCT CARD



Wi-Fi interface	Antennas – 5 GHz	Quantity, type, type, streams	4 x antenna; external, fixed, dipole; MIMO; 3T4R;
		Return loss	< -10 dB
		VSWR	< 1.7
		Energy gain	5 ± 1 dBi
		Impedance	50 Ω
		Connector type; cable diameter	I-PEX; 1.37 mm
		Efficiency	> 70 %
		Operating channels	USA (FCC): 45 channels: 5.180 GHz ~ 5.825 GHz; Europa (ETSI): 35 channels: 5.180 GHz ~ 5.560 GHz, 5.580 GHz, 5.660 GHz ~ 5.825 GHz;
	Security		WPS 2.0; WPS-PBC; WPS-PIN; 64/128-bit WEP; WPA/WPA2; WPA2 PSK (TKIP & AES); MAC address filtering; Broadcasting the wireless network name (SSID); RADIUS client; Isolation of connected clients in the Wi-Fi network;
	Internet interface (WAN) modes		Frame aggregation (A-MPDU [BA] + A-MSDU); Asynchronous energy saving method (U-APSD); CCX; Beamforming; 3x4 MIMO; IAPP; Short Guard Interval [400ns]; LDPC; STBC; Low latency immediate Block Acknowledgement (BA);
Management		IEEE 802.11a; IEEE 802.11b; IEEE 802.11e; IEEE 802.11g; IEEE 802.11i; IEEE 802.11k; IEEE 802.11n; IEEE 802.11w (Management frame protection); IEEE 802.11ac;	
Router modes		Router; Access Point (AP); Client; Bridge; Repeater; WISP;	
Internet interface (WAN) modes		DHCP; Static IP address; PPPoE; PPTP; L2TP;	
Management		Web page: locally, remotely; CWMP (TR-069); SNMP v1/v2/v2c; Telnet**;	
Functions	LANBERG_FW_RO_175GE_V1_01R_180625_1400	Aggregation of Wi-Fi frames; Automatic bandwidth switching (20/40 MHz); Automatic channel selection + Bluetooth coexistence support; Auto-restart; Bandwidth control; Beacon interval; Beamforming; Broadcast storm control; Control of additional sideband channel; CSMA/CA-ACK; DDNS; DHCP server; DHCPv6; DMZ; Domain / URL filtering; EAP-MD5; EAP-PEAP; EAP-TLS; EAP-TTLS; Fragmentation threshold; Guest network; Hardware NAT; IAPP; ICMP Broadcast protection; ICMP Redirect protection; IEEE 802.1q: VLAN – Ethernet + Wi-Fi (only WAN-LAN); IEEE 802.1x EAP (Extensible Authentication Protocol); IGMP proxy v1/v2/v3 (+ on the physical interface); IGMP v1/v2 + MLD v1/v2 snooping; IP filtering; IP Land; IP Spoof; IP Teardrop; IPTV; IPv6 Neighbor Discovery; IPv6 tunnel through IPv4 (6in4); Isolation of connected clients in the Wi-Fi network; LAN & Wi-Fi client list; LAN IPv6; LDPC; Limitation of Wi-Fi output power; Limiting the bandwidth of downloading/uploading; MAC address cloning (WAN Ethernet); Management frame protection (MFP); MIB II; Multiple wireless networks (Multi SSID); NDP (Neighbor Discovery Protocol); NTP client; Parental control; PBC function; Per-Source IP Flood: FIN, ICMP, SYN, UDP; PingOfDeath; Port filtering; Port forwarding; Port scanning TCP/UDP; Preamble length control; Preventing DoS attacks (ICMP Smurf; Protection of B/G mode of the wireless network; QoS; RADIUS per (physical/virtual) Wi-Fi network; RADVD; Remote syslog; RIP (Routing Information Protocol) v1/v2; Router's own domain name; RTS threshold; Schedule for network access; Short Guard Interval; SNMP trap; SPI (Stateful Packet Inspection); Static DHCP leases; Static routing; STBC; STP; Support of IPsec, PPTP, L2PT packets (VPN Pass-through); Syslog; TCP scanning; TCP SynWithData; TFTP (Trivial File Transfer Protocol); UDP Bomb; UDP EchChargen; UPnP; Virtual networks (VAP) – 4; Whole System Flood: FIN, ICMP, SYN, UDP); Wi-Fi Multimedia (WMM, WMM-SA client mode, WMM-APSD); Wi-Fi time schedule; WPS 2.0; WPS-PBC; WPS-PIN	
	LANBERG_FW_RO_175GE_V1_02R_190131_1800	Band-steering; Double-login panel (administrator & user); Information about signal strength and uptime of Wi-Fi clients; Mini-schedule of router reset (daily, weekly); Modification of existing VLAN entries; Port forwarding in ranges; Manual modification of the MCS index; Table of active connections per port (MAC and speed); Maintenance the entered TR-069 data after resetting the router to the factory settings; Managing a two-level panel through TR-069 (including changing administrator and user credentials); Change of activation of the reset button after a specified time (6s, 15s, 30s)	
	Power supply type		External adapter
Power - AC	Voltage	100 ~ 240 V	
	Frequency	50 / 60 Hz	
	Current	0.7 A	
	Power consumption	14.2 W	
Power - DC	Voltage	12 V	
	Frequency	50 / 60 Hz	
	Current	1.5 A	



# PRODUCT CARD



Cooling	Passive
LED indicators	Power; Internet; Wi-Fi (2.4 GHz + 5 GHz); WPS; LAN (1-4);
Buttons	Power; Reset (at the back of the device); WPS; Wi-Fi;
Storage temperature	-5 ~ 70 °C
Storage humidity	10% ~ 90% non-condensing
Operating temperature	0 ~ 40 °C
Operating humidity	10% ~ 90% non-condensing
Dimensions (Length x Width x Height)	174 x 117 x 29 mm

\*\* By default, no changes are applied, that restrict access to this type of services. There may be a situation in which the appropriate requirement of the distributor for a given country may be implemented appropriate security or a dedicated password. In order to get access, please contact the Lanberg distributor in your country.