

# Vigor C510ax

**5G Mobile Broadband Router with  
Failover to Ethernet Fibre,  
Wi-Fi 6 AX3000 Wireless,  
and VPN Secured Tunnels**



**Datasheet**

## Product Overview

The Ideal Branch-Office 5G Networking Gateway. The DrayTek Vigor C510ax is a low-cost firewall VPN router with the 5G/4G mobile Internet connection method. In addition, it can use any one of the three methods for its primary WAN (Internet) connectivity, falling back to one of the others in case of service interruption. It has a Dual-SIM cellular 5G/4G modem, Ethernet (RJ45 – which can connect to many other WAN delivery sources), and wireless WAN ('ax' models can fall back to a wireless hotspot such as phone's tethering, a web café, someone else's office etc.).

The Wi-Fi 6 module can provide Internet access and support local wireless LAN at the same time. The Vigor C510ax routers also offer extensive Firewall features, Content Filtering, VPN client/server and Quality of Service controls. The latest DrayTek DrayOS 5 system enhance security-focused capabilities of the router.

## Key Features & Benefits

### 5G/4G Mobile Broadband Modem

Integrated 5G/4G Category 19 modem supports fast connections. Ideal for multiple purposes, either for primary internet connection or as a reliable back up. Unlocked, enabling connected devices to operate on any mobile network for maximum flexibility and uptime.

**Benefits:** High speed Mobile Broadband. Ensure constant connectivity.

### High-Performance VPN Router for SMB

Securely connect remote sites at high speed, up to 4 VPN tunnels. Connect remote workers to network resources and secure connectivity, with OpenVPN support and Wireguard support.

**Benefits:** Fast and Secure encrypted network access for remote workers.

### Wi-Fi 6 - AX3000 Performance

Wi-Fi 6 wireless provides gigabit Wi-Fi with reliable throughput. Ideal for time-sensitive video conferencing, low latency gaming and handling 4K Ultra-HD streaming, without buffering.

**Benefits:** Improve wireless performance. Built with the latest technologies.

### 3+1 Gigabit LAN Ports with VLANs

Attach Computers, Servers and Network Attached Storage directly, with up to 5 LAN ports. Use VLANs to supply Broadband and VPN connectivity to as many as 4 separate networks.

**Benefits:** Improve the quality of service for private and guest data traffic. Mix fixed and virtual configurations.

### Identity and Access Management (IAM)

The new Identity and Access Management (IAM) feature enables the admin to control access to local resources (servers, NAS drives etc.) based on pre-defined policies, MFA, and external authentication methods.

**Benefits:** Policy-based access to the local network resources.

### Easily Manage Local APs/Switches with the Virtual Controller

Manage devices locally thanks to the router's Virtual Controller feature. Automatic discovery allows the router to add connected DrayTek switches and APs to the management pool.

**Benefits:** Monitor, maintain, and provision directly on the Vigor router.

## Key Specification

- Multi-WAN Router with Failover
- 5G / 4G built-in modem with dual SIM slot for second backup telco
- 1x Gigabit Ethernet WAN (RJ45)
- 1x Gigabit Ethernet WAN (RJ45) / LAN switchable
- 3x Gigabit RJ-45 LAN Ports
- Wireless WAN backup ('ax' models)
- Up to 940Mbps Firewall Throughput
- Up to 370Mbps IPsec VPN Throughput
- 4x LAN-to-LAN & Remote Teleworker VPN Tunnels
- AX3000 – Wi-Fi 6 Dual Band Wireless
- 4 LAN Subnets with VLANs (Port-based / 802.1q)
- SPI Firewall and Content Filtering
- Optional VigorCare Available
- Compatible with VigorACS central management platform

## Vigor C510ax Router Models

| UK Product Code | EAN           | Product Name         | Product Description                                                                                         |
|-----------------|---------------|----------------------|-------------------------------------------------------------------------------------------------------------|
| VC510AX-K       | 4710484748706 | Vigor C510ax (UK/IE) | Vigor C510ax 5G Mobile Broadband Wireless AX3000 Ethernet Router with integrated sim slot, VPN and Firewall |

## Technical Specification (UK Hardware Spec.)

### Physical Interfaces

- WAN Ports: 1x Gigabit Ethernet (1G/100M/10M), RJ-45
- WAN/LAN Switchable Port: 1x Gigabit Ethernet (1G/100M/10M), RJ-45
- LAN Ports: 3x Gigabit Ethernet (1G/100M/10M), RJ-45
- 2x Removable Wireless LAN antennas
- 2x Removable 5G Cellular antennas
- Wireless On / Off / WPS button
- Recessed Factory Reset button
- SIM Slot: 2x Nano-SIM (1 Active SIM)

### Performance

- NAT Performance:
  - Up to 940 Mb/s NAT Throughput
  - 50,000 NAT Sessions
- VPN Performance:
  - 370 Mb/s IPsec VPN Performance
  - Max. 4 Concurrent VPN Tunnels

### WAN Interfaces

- WAN1: Gigabit Ethernet
- WAN2: Gigabit Ethernet (LAN switchable)
- WAN3: 2.4GHz Wireless WAN
- WAN4: 5GHz Wireless WAN
- WAN5: Integrated 5G/4G Modem

### Internet Connection

- Hardware Acceleration (Always On)
- 802.1p/q Multi-VLAN Tagging
- Multi-VLAN/PVC
- 2.4GHz or 5GHz Wireless WAN
- WAN Active on Demand: Link Failure, Traffic Threshold
- Connection Detection: ARP Detect, Ping Detect
- WAN Data Budget
- Dynamic DNS
- DrayDDNS – with automated LetsEncrypt Certificates
- IPv4 Connection Types: PPPoE, DHCP, Static IP
- IPv6 Connection Types:
  - Ethernet: PPP, DHCPv6, Static IPv6, TSPC, 6rd, 6in4 Static Tunnel

### Wireless Features

- AX3000 Wi-Fi 6 Wireless:
  - 802.11ax 2x2 wireless access point
  - Compatible with 802.11a/b/g/n/ac wireless
  - Dual-band (2.4/5GHz) simultaneous wireless
  - Up to 2402Mbps PHY rate at 160MHz with 5GHz
  - Up to 574Mbps PHY rate at 40MHz with 2.4GHz
  - Channel Bandwidth: 20/40MHz for 2.4GHz, 20/40/80/160MHz for 5GHz
  - OFDMA
  - MU-MIMO
  - Tx Beamforming
  - 1024-QAM
- Mesh Root support with DrayTek VigorAP Mesh Nodes^
- Up to 8 SSIDs per radio band
- Extended 5GHz Band - Channels 36-48, 52-64, 100-140
- Wireless Optimisation: Assisted Client Roaming, Band Steering
- WMM (Wireless MultiMedia)
- WPS - WiFi Protected Setup
- Wireless Security:
  - OWE
  - WEP
  - WPA
  - WPA2/WPA
  - WPA3
  - Pre-Shared Key authentication
  - Enterprise 802.1x authentication
  - Identity Access Policies (MAC address, Login, Guest Hotspot)

### Antenna Specifications

- Wireless LAN Antennas:
  - 2x External Dipole
  - 5GHz Gain: 2.8 dBi
  - 2.4GHz Gain: 2.1 dBi
  - RP-SMA fitting antenna connectors
- 5G/4G Cellular Antennas:
  - 2x External Dipole
  - 2x Internal PIFA
  - Gain: 4 dBi
  - SMA fitting antenna connectors

## Integrated 5G Modem Features

- Dual-SIM Failover
- 5G Modem / LTE Category 19 Modem
- Unlocked to any network (EE, 3, O2, Vodafone, Eircom)
- 5G Max Data Rates:  
*Please note that the maximum real-world throughput speed is estimated to be approximately 600Mbps. Below are the theoretical maximum data link rates for 5G New Radio Standalone (NR SA) and 5G New Radio Non-standalone (NR NSA) for the device.*
  - 5G NR SA
    - 2.4Gbps Downlink
    - 900Mbps Uplink
  - 5G NR NSA
    - 3.4Gbps Downlink
    - 550Mbps Uplink
- 5G NR Sub-6 SA Bands: 1, 3, 7, 8, 20, 28, 38, 40, 77, 78
- 5G NR Sub-6 NSA Bands: 1, 3, 7, 8, 20, 28, 38, 40, 77, 78
- 4G LTE (FDD) Bands: 1, 3, 7, 8, 20, 28
- 4G LTE (TDD) Bands: 38, 40
- 3G (WCDMA) Bands: 1, 8
- 2x Internal 4G/5G PIFA Antennas
- 2x External 4G/5G Antennas included
- Per-SIM-Card WAN Data Budget
- 2x Nano-Size SIM-Card Slots
- Removable SIM slot cover
- SMS Inbox - Send & Receive SMS text messages

## Firewall & Content Filtering

- IP-based Firewall Policy
- DoS Attack Defence
- Spoofing Defence
- Content Filtering:
  - Application Content Filter
  - URL Content Filter
  - DNS Keyword Filter
  - Web Features
  - Web Category Filter\*

## NAT Features

- NAT Port Redirection
- Open Ports
- Port Triggering
- DMZ Host
- UPnP
- ALG (Application Layer Gateway): SIP, RTSP

## LAN Management

- 802.1q Tag-based, Port-based VLAN
- Up to 4 LAN Subnets (NAT or Routing mode selectable per LAN interface)
- Up to 8 VLANs
- DHCP Server:
  - Multiple IP Subnet
  - Custom DHCP Options
  - Bind-IP-to-MAC
  - DHCP Pool Count up to 253 addresses for LANs 1-4
  - DHCP Relay per LAN
- Wired 802.1x Port Authentication
- Local DNS Server
- Conditional DNS Forwarding
- Hotspot Web Portal
- Hotspot Authentication: Click-Through, External Portal Server

## Networking Features

- Policy-based Routing: Protocol, IP Address, Port
- DNS Security (DNSSEC)
- Local RADIUS server
- Multicast: IGMP Proxy, IGMP Snooping & Fast Leave
- Routing Features: IPv4 & IPv6 Static Routing, Inter-VLAN Routing, RIP v1/v2/ng, BGP, OSPF

## VPN Features

- Up to 4 active VPN tunnels
- Up to 370Mb/s IPsec
- LAN-to-LAN - Dial-In VPN Server & Dial-Out VPN Client
- Teleworker-to-LAN - Dial-In VPN Server
- User Authentication: Local, RADIUS, TACACS+, mOTP, TOTP
- IKE Authentication: Pre-Shared Key and Digital Signature (X.509)
- Encryption: DES, 3DES, AES (128/192/256)
- Authentication: SHA-256, SHA-1
- Dead Peer Detection (DPD)
- IPsec NAT-Traversal (NAT-T)
- VPN Protocols:
  - IPsec IKEv1, IKEv2, IKEv2 EAP
  - IPsec-XAuth
  - OpenVPN
  - WireGuard

## Bandwidth Management

- IP-based Bandwidth Limit
- IP-based Session Limit
- QoS (Quality of Service):
  - 4 Priority Queues
  - App QoS
  - VoIP Prioritization

## Management

- Local Service: HTTP, HTTPS, Telnet, SSH, FTP, TR-069
- Config File Export & Import
- Firmware Upgrade via TFTP, HTTP, TR-069
- Access Control Features: Access List, Brute Force Protection
- Syslog
- SMS, E-mail Notification Alert
- SNMP: v1, v2c, v3
- Managed by VigorACS

## Router-based Central Management Features:

- AP Management: Up to 20 VigorAP access points
- Switch Management: Up to 5 VigorSwitch network switches
- DrayTek Mesh: Up to 7 VigorAP access points^

## Operating Requirements

- Power Requirements: 100-240VAC
- Power Consumption (Watts, maximum): 16W
- Temperature Operating: 0 °C ~ 45 °C
- Storage: -25 °C ~ 70 °C
- Humidity 10% ~ 90% (non-condensing)
- Operating Power: DC 12V @ 1.4A (via external PSU, supplied)
- Wall Mountable

## Box Contents

- Vigor C510ax series router
- Quick Start Guide
- Cat-5e RJ-45 Network Cable
- 2x Detachable Wireless LAN Antennas
- 2x Detachable Cellular Antennas
- DC 12V Power Supply with UK Plug

## Physical Specifications

- Dimensions:
  - 207mm Width
  - 131mm Depth
  - 42mm Height
- Weight: 840g

## ROHS, UKCA & CE Compliant Warranty:

- Standard: Two (2) Year, RTB
- Software security updates:
  - 5 years after the EOL notification. Please note that this only applies to products sold in the UK
- VigorCare Extended Warranty
  - VigorCare A3 3 Year Subscription: VCARE-A3
  - VigorCare A5 5 Year Subscription: VCARE-A5

\*- subscription required: Group B, URLR-B (includes free 30-day trial)

^ - visit the DrayTek Mesh Model Compatibility page for mesh compatibility details