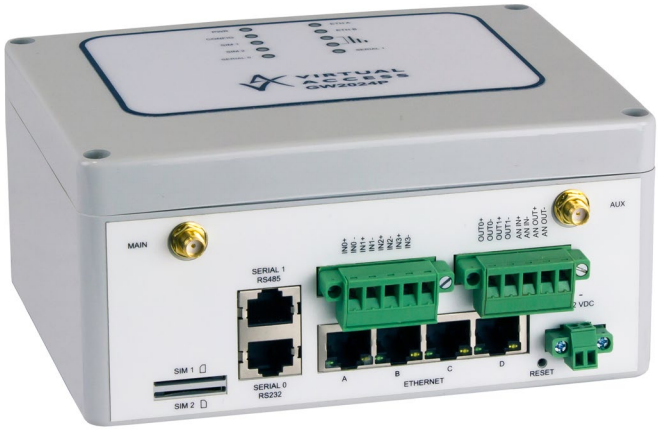
VIRTUAL ACCESS

CRITICAL APPLICATION CONNECTIVITY

GW2024P Series Ruggedised Router



Substation hardened for:

- Distribution automation
- SCADA
- Smart grid
- Smart metering
- Water and gas utilities
- Transport and rail

Router Features:

- Integrated mini RTU controllable from a SCADA master
- Protocol Gateway IEC 101, IEC 61850, IEC 104, Modbus, DNP3
- Dual SIM

Overview

The GW2024P Series router is an IP-rated, ruggedised router suitable for high isolation scenarios such as electrical transformation centres, substations and outdoor cabinets. It is DIN rail or wall mountable. Applications include SCADA, Telemetry, transportation, emergency services and other critical infrastructure.

The GW2024P Series router offers up to eight Ethernet ports and supports GPRS, 3G, LTE and optionally 450MHz CDMA. It offers secure WAN connectivity for internet and private networking environments over wireless broadband paths.

Mini RTU

The GW2024P functions as a mini RTU, meaning there are reduced deployment and operational costs as the RTU and router functionality are integrated in one device.

Multiple I/O and Serial Ports

Input and output ports can be controlled directly from SCADA master.

SCADA Protocol Conversion

SCADA protocol conversion allows utilities to consolidate SCADA protocols to a single protocol at the master without the need to upgrade RTUs remotely.

SCADA Protocol Support

SCADA protocol support includes IEC 60870-5-101, IEC 60870-5-104, IEC 61850, Modbus RTU/TCP, DNP3, RS232, RS485, digital inputs and digital outputs.

Dual SIM

Dual SIM architecture ensures that a backup 3G or LTE network can take over should the primary network fail. The router detects a network problem and fails over to a standby SIM/APN if necessary, ensuring customers' SLAs are upheld. The router 3G and LTE functions also include support for inbound and outbound SMS, so if all other WAN services are unavailable, commands can be sent to the router to perform diagnostics or even reset function.

Environmentally Hardened

The IP-rated GW2024P Series router is designed for high isolation and EMC immunity to EN standards for harsh environments such as electric power, rail and roads.

Ingress protection

To protect against rain and dust, the box is completely sealed other than the bottom connectors.

External vibration

The device is designed to withstand environments such as roadsides where there is a high level of vibration.

The GW2024P Series router is tested to random vibration, drop, topple and bump standards to ensure the device will continue to operate under conditions that would not be tolerated by commercial grade communications products. It has an optional conformal coating that protects against condensation.

EMC immunity, Safety, ESD and Electrical Isolation

Environments such as substations and transport can contain high levels of radiated emissions from switchgear, tracks and other power sources. In addition there are tight safety regulations to prevent injury or equipment damage. These require far higher levels of isolation than commercial grade communications equipment. The device is designed to meet the high EMC, safety, ESD and isolation standards mandated by these applications. The PVC enclosure enables the GW2024P Series router to be electrically isolated from ground, providing a high level of immunity from electrical surges and transients.

In addition, the RS232 and RS485 serial ports on the GW2024P Series router are fully isolated from the main circuit to a level of 2000V DC continuous. This provides a high level of reliability in harsh electrical environments.

Automatic Failover

Optional automatic failover from fixed to wireless circuits ensures business connectivity through network or last mile circuit outages, whilst email alerting and auto-failback confirm primary circuit restoration.

Managed Ethernet Switch

Managed Ethernet ports enable multiple devices to be connected in remote environments with the ability to segment into individually filtered subnets or DMZs. Tagged VLAN (802.1q) segmentation offers further versatility for diverse network applications.

Advanced Security & Routing Features

GW2024P Series routers deliver business grade security services including:

- IPSec (3DES and AES)
- L2TP
- Stateful firewall

Software Features

Management

- Automatic configuration using Activator server
- HTTP/HTTPS
- Command Line Interface via Telnet or SSH
- TFTP client download/upload
- SNMP agent
- SMS management support

Fault Investigation and Reporting

- Event logging
- Syslog support
- Packet tracing

Routing Features

- IPv4 and IPv6
- DHCP server/client
- DynDNS
- NAT
- NAT Traversal
- NTP Client
- VLAN support
- Packet filtering
- Firewall
- Port forwarding
- BGPv4, OSPF
- RIP (v1 and v2)
- IPSec/L2TP/GRE
- DMVPN
- SNMP v1/v2/v3
- TLS 1.2
- QoS
- VRRP

IPSec VPN

- IKE version 2
- X.509 certificates
- Elliptic Curve Cryptography (ECC)
- SHA2_512 support
- AES_CBC (256), 3DES and DES
- PFS
- SCEP
- DH_8192
- 802.1x authentication
- IEC 104

SIM

- 2 x SIM card socket with optional slot cover

Antenna

- Supports two SMA female antenna sockets
- Supports antenna Rx diversity in 2G or 3G modes and MIMO in LTE mode

SCADA Protocol Conversion

- Protocol conversion including the following:
  - IEC 60870-5-104
  - IEC 60870-5-101
  - IEC 61850
  - Modbus RTU
  - Modbus TCP
  - Modbus RTU to TCP automatic conversion
  - DNP3
  - Serial to Ethernet

RTU Functionality

- Control of I/O from SCADA master
- Protocol conversion
- Monitoring of comms. interface status from SCADA master
- Basic PLC functions

Terminal Server

- Serial RS232, RS485 to TCP/IP or UDP/IP conversion
- Connects serial ports to TCP or UDP streams

Hardware Features

LAN Interfaces

- Two or eight 10/100Mbps base-T Ethernet ports
- Auto detects full- or half-duplex operation
- Auto detects a regular or crossover cable for easy connection to a switch or hub
- Tag-based 802.1Q VLAN or port-based VLAN

WAN Interfaces

- Wireless WAN with 3G or LTE options
- Ethernet ports can optionally be configured for WAN use

RS232 Serial Interface

- Speeds up to 115,200bps
- RJ45 socket presentation
- Interface is fully isolated from the main circuitry and the other interfaces to 2000V DC.

RS485 Serial Interface

- Half duplex two-wire interface
- RJ45 socket presentation
- Interface is fully isolated from the main circuitry and the other interfaces to 2000V DC.

Digital Input(s)

- Digital inputs for detecting remote contact open/close
- Dry contact for connection to an external relay contact
- Configured as dry or wet
- Wet digital input: supports 0-30V DC input
- Dry connects to an external relay contact

Digital Output(s)

- Relay-based normally open contact pair
- Contact current rating 2 Amp

Approvals and CE Certificates

- EN 60950 safety approval
- EN 55022 and EN 55024 EMC
- IEC 61000-4-2 severity level 3 Table 13 IEC 60870-2-1, 6 kV discharge
- IEC 61000-4-3 severity level 3, Table 15 of IEC 60870-2-1, 10 V/m
- IEC 61000-4-4 class 4 fast transients Immunity
- IEC 61000-4-5 class 4 electrical surges Immunity
- IEC 61000-4-6 class 3 conducted immunity
- IEC 61000-4-8 severity level 3 Table 14 of IEC 60870-2, 30/300 A/m
- IEC 61000-4-12 class 4 ring wave immunity

Power Input

- GW2024P-4-48V DC 36-72V DC
- GW2024P-2: 24V AC or 9-36V DC
- GW2024P-8: 36V AC or 9-48V DC
- GW2024P-2 uses a 24V AC input and GW2024P-8 uses a 36V AC input to achieve 2.2 seconds of power hold-up. This enables a last gasp message to be reliably sent on power down.
- GW2024P-4-48VDC: 36-72V DC input optional last gasp power hold up.

Operating Temperature

- Operating temperatures vary, refer to RF Band table below

Physical and Environment

- All models unit size: W160 x H120 x D75mm
- DIN rail mountable

GW2024P Series Models and RF Band Options

GW2024P Series Models												
Model	Ethernet	SIM Sockets	3G	LTE	CDMA450	RS232	RS485	USB	Digital Input(s)	Digital Inputs Dry	Digital Outputs	Input Voltage
GW2024P-2	2	2	●	●	●	1	1	-	-	-	-	24V AC/DC
GW2024P-2-2U-24VDC	2	3	●	●	●	2	2	2	-	-	-	9-36V DC
GW2024P-8	8	2	●	●	●	1	1	-	-	-	-	36V AC/DC
GW2024P-4-48VDC	4	2	●	●	●	1	1	-	4-6	-	2-4	36-72V DC
GW2024P-4-18_72VDC	4	2	●	●	●	1	1	-	4-6	-	2-4	18-72V DC
GW2024P-4-9_36VDC	4	2	●	●	●	1	1	-	4-6	-	2-4	9-36V DC
GW2024P-RFE	2	2	●	●	●	1	-	-	-	1	-	+24V AC/DC

● = Optional

Note: Some model options subject to MOQ, lead time on request.

RF Band Options							
RF Band	Region	2G Bands	3G Bands	LTE Bands	LTE Category	Operating Temp	Order Code
A	Europe China	850/900/1800 1900	900/2100	-	-	-40ºC to 70ºC	-RFA
B	Europe Asia	850/900/1800 1900	850/900/1900/2100	-	-	-40ºC to 70ºC	-RFB
C	Europe Asia	850/900/1800 1900	850/900/1900/2100	B1/B2/B3/B5/B7/B8/B20	-	-30ºC to 70ºC	-RFC
D	Worldwide	-	-	B3/B7/B20/B31	-	-20ºC to 60ºC	-RFD
E	Europe	900/1800	900/2100	B1/B3/B7/B8/B20/B38/B40	3	-30ºC to 70ºC	-RFE
F	Worldwide	-	CDMA TX 452.500 ~ 457.475 RX 462.000 ~ 467.475	-	-	-20ºC to 60ºC	-RFF
G	Worldwide	850/900/1800 1900	850/900/2100	B1/B3/B5/B7/B20	-	-40ºC to 70ºC	-RFG
J	Worldwide	450	-	-	-	-40ºC to 70ºC	-RFJ
L	Europe APAC	900/1800	900/2100	-	-	-40°C to 70°C	-RFL
M	North America	-	850/1900	B2/B4/B5/B17	-	-30°C to 70°C	-RFM
N	Worldwide	-	850/900/1700/1800 1900/2100	B1/B2/B3/B4/B5/B7/B12/B13 B20/B25/B26/B29/B30/B41	-	-40°C to 70°C	-RFN
P	Australia New Zealand Latin America Taiwan	850/900/1800 1900	850/900/1900/2100	B1/B2/B3/B4/B5/B7/B8 B28/B40	4	-40°C to 70°C	-RFP
Q	Mexico/USA Canada	-	850/1900	B1/B2/B4/B5/B12/B13	4	-40°C to 70°C	-RFQ
Q1	Mexico/USA Canada	-	850/1900	B1/B2/B4/B5/B12/B13	1	-40°C to 70°C	-RFQ1
R	EMEA/Korea Thailand Indonesia	900/1800	850/900/2100	B1/B3/B5/B7/B8/B20/B38 B40/B41	4	-40°C to 70°C	-RFR
R1	EMEA/Korea Thailand	900/1800	850/900/2100	B1/B3/B5/B7/B8/B20	1	-40°C to 70°C	-RFR1
S	Europe	900/1800	850/900/2100	B1/B3/B5/B7/B8/B20/B38 B40/B41	4	-40°C to 70°C	-RFS
T	Asia/Pacific	900/1800	800/850/900/1700/2100	B1/B3/B5/B7/B8/B18/B19/B21 B28/B38/B39/B40/	6	-40°C to 70°C	-RFT
U	EMEA/North America/Latin America/APAC/ Japan/Australia	-	800/850/900/ 2100/1900/1800/1700	B1/B2/B3/B5/B7/B8/B18/B19/B21 B25/B26/B38/B39/B40/B41/B66	6	-40°C to 70°C	-RFU
X	Australia	-	850/2100	B1/B3/B5/B7/B28	4	-40°C to 70°C	-RFX
X1	Australia	-	850/2100	B1/B3/B5/B7/B28	1	-40°C to 70°C	-RFX1