

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, four 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

Fibre Ethernet Interface (Optional)

- Two SFP fibre sockets for 1 Gigabit Ethernet interface

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

IP Rating

- IP33

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.
- For SFP option only: reverse polarity protection and dedicated terminal for ground connection

Operating Temperature

- -40°C to +70°C

Physical and Environment

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

GW2024P Series Models

Model Code	Input Voltage	Ethernet Ports	SIM	3G/LTE CDMA450	RS232	RS485	USB	SFP	Digital Input(s)	Digital Inputs Dry	Digital Outputs	RF Bands
GW2024P-2	24V AC/DC	2	2	●	1	1	-		-	-	-	Refer to Radio Module datasheet
GW2024P-2-2U	9-36V DC	2	3	●	1 or 2*	1 or 2*	2		-	-	-	
GW2024P-8	36V AC/DC	8	2	●	1	1	-		-	-	-	
GW2024P-4-48VDC	36-72V DC	4	2	●	1	1	-		4-6	-	2-4	
GW2024P-4-18_72VDC	18-72V DC	4	2	●	1	1	-		4-6	-	2-4	
GW2024P-4-9_36VDC	9-36V DC	4	2	●	1	1	-	2**	4-6	-	2-4	
GW2024P	+24V AC/DC	2	2	●	1	-	-	-	-	1	-	

● = Optional

Append the relevant suffix to the base model number.

RF band: select from the list on the Radio Module datasheet.

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

* GW2024P-2-2U there are two serial ports in total; each one can be configured as RS232 or RS485.

** SFP option is subject to a MOQ, there are no digital inputs or digital outputs on the SFP option