

GW2024P Series Ruggedised LTE 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, ruggedized 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 LTE. State of the art VPN encryption secures all communication ensuring the highest level of integrity over private APNs or public internet.

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 a SCADA master, using a variety of protocols including Modbus TCP, DNP3 and IEC-104.

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.

Connection Monitoring & Dual SIM

The connection monitor ensures the GW2024P Series router delivers maximum availability so long as the cellular network is available. For critical applications, a dual SIM architecture ensures that a backup LTE network can take over should the primary network fail.

The GW2024P Series router detects a network problem and fails over to a standby SIM/APN.

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

The GW Series router offers the highest level of VPN (IPSec and SSL) encryption and advanced routing features. The inbuilt stateful firewall offers the user compliance to IEC 62443 and IEC 62351 industrial cyber security standards.

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)
- SCEP
- DH_8192
- 802.1x authentication
- IEC 104

SIM

- 2 x SIM card socket

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

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 Inputs/Digital Outputs

- 4 dedicated inputs
- 2 dedicated outputs
- 2 configurable as input or output
- Configured as dry inputs
- Dry connects to an external relay contact
- Relay-based normally open contact pair
- Contact current rating 2 Amp

Cellular Technologies

- LTE category 4
- LTE FDD Bands:
 - B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B26/B28
- LTE TDD Bands:
 - B38/B39/B40/B41
- WCDMA Bands:
 - B1/B2/B4/B5/B8/B6/B19
- GSM Bands:
 - B2/B3/B5/B8

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

- 18-60V DC input
- Isolated
- 6 Watts maximum

Operating Temperature

- 40°C to +70°C

Physical and Environment

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

GW2024P Series							
Article No.	Model	Power Input	Isolated Power Input	Ethernet Ports	Serial Ports	SCADA	RTU
3490-0100	GW2024PW-4E-GPIO-QFR-DC24	18-60V DC	Yes	4	2	Yes	Yes

