

4G/LTE Gateway



The 4G/LTE Gateway is a small, lightweight, and energy-efficient industrial gateway equipped with mission-critical LTE capabilities, Gigabit Ethernet interface, digital Inputs/Outputs, and micro-USB port.

This 4G/LTE Gateway has been specially selected for use with the XL2 Sound Level Meter. It connects XL2+NetBox to the internet for remote monitoring of noise levels.

Features

- Connectivity: 4G/LTE (Cat 4), 3G, 2G
- Rugged aluminum housing
- Small size, easy installation

Installation

- Unscrew two back panel hex bolts and remove the back panel.
- Insert your SIM card into the SIM socket.
- Attach the panel and tighten the hex bolts.
- Attach the mobile antenna and connect the USB cable.
- Power on the device and connect the USB cable to your computer; the boot up might take 30 s.

Settings for continuous Connection

- Enter `http://192.168.2.1` into the URL field of your internet browser.
Username: admin
Password: admin01
- For continuous connection enable “Periodic Reboot” for a daily reboot, e.g. 23.00 hours.

^ PERIODIC REBOOT				
ACTION	DAYS	TIME	ENABLE	
Reboot	Mon, Tue, Wed, Thu, Fri, Sat, Sun	23:00	<input checked="" type="checkbox"/> off on	<input type="text"/> <input type="text"/>
<input type="button" value="ADD"/>				

- Additionally activate the “Ping Reboot Settings” as follows

^ PING REBOOT SETTINGS						
TYPE	ACTION	INTERVAL (MIN)	PING TIMEOUT (SEC)	TRY COUNT	HOST	
Ping	Reboot	5	5	2	8.8.8.8	<input checked="" type="checkbox"/> off on
-	None	-	-	-	-	<input type="checkbox"/> off on

Forwarding SMS to Email

Your SIM card provider may send you SMS with the used data volume. These SMS may be forward to email.

- Select System -> Administration -> User & Recipients
- Add a user with email settings
- Select Services -> Mobile Utilities -> SMS Gateway
- Set forwarding rules

Specifications

Mobile	<ul style="list-style-type: none"> • Mobile module: 4G (LTE) – Cat 4 up to 150 Mbps, 3G – Up to 42 Mbps, 2G – Up to 236.8 kbps • Status: Signal strength (RSSI), SINR, RSRP, RSRQ, EC/IO, RSCP Bytes sent/received, connected band, IMSI, ICCID. • SMS/Call: SMS status, SMS configuration, send/read SMS via HTTP POST/GET, EMAIL to SMS, SMS to EMAIL, SMS to HTTP, SMS to SMS, scheduled SMS, SMS autoreply, Call utilities • USSD: Supports sending and reading Unstructured Supplementary Service Data messages • Black/White list: Operator black/white list • Band management: Band lock, Used band status display • APN: Auto APN • Bridge: Direct connection (bridge) between mobile ISP and device on LAN • Passthrough: Gateway assigns its mobile WAN IP address to another device on LAN • Multiple PDN: Possibility to use different PDNs for multiple network access and services
Ethernet	<ul style="list-style-type: none"> • LAN: 1 x RJ45 port, 10/100/1000 Mbps, supports auto MDI/MDIX crossover
Network	<ul style="list-style-type: none"> • Network protocols: TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, SMTP, SSL v3, TLS, PPP, PPPoE, SSH, DHCP, SNMP, MQTT, Wake on LAN (WOL) • Routing: Static routing • Connection monitoring: Ping Reboot, Wget Reboot, Periodic Reboot, LCP and ICMP for link inspection • Firewall: Port forwards, traffic rules, custom rules • DHCP: Static and dynamic IP allocation • QoS / Smart Queue Management (SQM) (planned): Traffic priority queuing by source/destination, service, protocol or port • DDNS: Supported >25 service providers, others can be configured manually • SSHFS: Possibility to mount remote file system via SSH protocol
Security	<ul style="list-style-type: none"> • Authentication: Pre-shared key, digital certificates, X.509 certificates • Firewall: Pre-configured firewall rules can be enabled via the WebUI, unlimited firewall configuration via CLI; NAT; NAT-T • Attack prevention: DDOS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPS attack prevention), port scan prevention (SYN-FIN, SYN-RST, X-mas, NULL flags, FIN scan attacks) • Mobile quota control: Set up custom data limits for SIM card • WEB filter: Blacklist for blocking out unwanted websites, Whitelist for specifying allowed sites only • Access control: Flexible access control of TCP, UDP, ICMP packets, MAC address filter

VPN	<ul style="list-style-type: none"> • OpenVPN: Multiple clients and a server can run simultaneously, 12 encryption methods • OpenVPN Encryption: DES-CBC, RC2-CBC, DES-EDE-CBC, DES-EDE3-CBC, DESX-CBC, BF-CBC, RC2-40-CBC, CAST5-CBC, RC2-64-CBC, AES-128-CBC, AES-192-CBC, AES-256-CBC • IPsec: IKEv1, IKEv2, supports up to 5 x VPN IPsec tunnels (instances), with 5 encryption methods (DES, 3DES, AES128, AES192, AES256) • GRE: GRE tunnel • PPTP, L2TP: Client/Server services can run simultaneously, L2TPv3 support • ZeroTier: ZeroTier VPN • WireGuard: WireGuard VPN client and server support
Modbus TCP Slave	<ul style="list-style-type: none"> • ID filtering: Respond to one ID in range [1;255] or any • Allow remote access: Allow access through WAN • Custom registers: MODBUS TCP custom register block, which allows to read/write to a file inside the router, and can be used to extend MODBUS TCP slave functionality
Modbus TCP Master	<ul style="list-style-type: none"> • Supported functions: 01, 02, 03, 04, 05, 06, 15, 16 • Supported data formats: 8 bit: INT, UINT; 16 bit: INT, UINT (MSB or LSB first); 32 bit: float, INT, UINT (ABCD (big-endian), DCBA (little-endian), CDAB, BADC), HEX, ASCII
MQTT Gateway	<ul style="list-style-type: none"> • Gateway: Allows sending commands and receiving data from MODBUS Master through MQTT broker
DNP3	<ul style="list-style-type: none"> • Supported modes: TCP Master, DNP3 Outstation
Data to Server	<ul style="list-style-type: none"> • Protocol: HTTP(S), MQTT, Azure MQTT, Kinesis
Monitoring & Management	<ul style="list-style-type: none"> • WEB UI: HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, system log, kernel log • FOTA: Firmware update from sever, automatic notification • SSH (v1, v2) • SMS: SMS status, SMS configuration, send/read SMS via HTTP POST/GET • Call: Reboot, Status, Mobile data on/off, Output on/off, answer/hang-up with a timer • TR-069: OpenACS, EasyCwmp, ACSLite, tGem, LibreACS, GenieACS, FreeACS, LibC-WMP, Friendly tech, AVSystem • MQTT: MQTT Broker, MQTT publisher • SNMP: SNMP (v1, v2, v3), SNMP trap • JSON-RPC: Management API over HTTP/HTTPS • MODBUS TCP status/control • Remote Management System (RMS)
IoT Platforms	<ul style="list-style-type: none"> • Cloud of Things: Allows monitoring of: Device data, Mobile data, Network info, Availability • ThingWorx: Allows monitoring of: WAN Type, WAN IP Mobile Operator Name, Mobile Signal Strength, Mobile Network Type • Cumulocity: Allows monitoring of: Device Model, Revision and Serial Number, Mobile Cell ID, ICCID, IMEI, Connection Type, Operator, Signal Strength, WAN Type and IP • Azure IoT Hub: Can send device IP, Number of bytes send/received/ 3G connection state, Network link state, IMEI, ICCID, Model, Manufacturer, Serial, Revision, IMSI, Sim State, PIN state, GSM signal, WCDMA RSCP WCDMA EC/IO, LTE RSRP, LTE SINR, LTE RSRQ, CELL ID, Operator, Operator number, Connection type, Temperature, PIN count to Azure IoT Hub server

System Characteristics	<ul style="list-style-type: none"> • CPU: ARM Cortex-A7 1.2 GHz CPU • RAM: 128 MB (50 MB available for user space) • FLASH storage: 512 MB (200 MB available for user space)
Firmware / Configuration	<ul style="list-style-type: none"> • WEB UI: Update FW from file, check FW on server, configuration profiles, configuration backup • FOTA: Update FW/configuration from server • RMS: Update FW/configuration for multiple devices • Keep settings: pdate FW without losing current configuration
Firmware Customization	<ul style="list-style-type: none"> • Operating system: RutOS (OpenWrt based Linux OS) • Supported languages: Busybox shell, Lua, C, C++ • Development tools: SDK package with build environment provided
Input / Output	<ul style="list-style-type: none"> • Configurable I/O: 2 x Configurable Inputs/Outputs. Digital input 0 - 6 V detected as logic low, 8 - 30 V detected as logic high. Open collector output, max output 30 V, 300 mA (not available in TRB140*2****) • Output control: HTTP POST/GET, Schedule • Events: SMS, EMAIL • I/O juggler: Allows to set certain I/O conditions to initiate event
Power	<ul style="list-style-type: none"> • Connector: 4 pin industrial DC power socket • Input voltage range: 9 – 30 VDC (4 pin industrial socket), reverse polarity protection, surge protection >33 VDC 10us max • PoE (passive): Passive PoE over spare pairs. Possibility to power up through LAN port, not compatible with IEEE802.3af, 802.3at and 802.3bt standards • Power consumption: < 5 W
Physical Interfaces	<ul style="list-style-type: none"> • Ethernet: 1 x RJ45 port, 10/100/1000 Mbps • I/Os: 2 x Configurable I/O pins on 4 pin power connector (I/O not available in TRB140*2****) • USB: 1 x Virtual network interface via micro-USB • Status LEDs: 3 x connection type status LEDs, 5 x connection strength LEDs, 2 x LAN status LEDs, 1x Power LED • SIM: 1 x SIM slot (Mini SIM – 2FF), 1.8 V/3 V • Power: 1 x 4 pin DC connector • Antenna: 1 x SMA for LTE • Reset: Reboot/User default reset/Factory reset button
Physical Specifications	<ul style="list-style-type: none"> • Casing material: Aluminum housing • Dimensions (W x H x D): 74.5 x 25 x 64.4 mm • Weight: 134 g • Mounting options: Bottom and sideways DIN rail, Flat surface
Operating Environment	<ul style="list-style-type: none"> • Operating temperature: -40 °C to 75 °C • Operating humidity: 10 % to 90 % non-condensing • Ingress Protection Rating: IP30
Regulatory & Type Approvals	<ul style="list-style-type: none"> • Regulatory: CE/RED, EAC, RoHS, WEEE

EMI	<ul style="list-style-type: none"> • Standards: Draft ETSI EN 301 489-1 V2.2.0, Draft ETSI EN 301 489-19 V2.1.0, Draft ETSI EN 301 489-52 V1.1.0 • ESD: EN 61000-4-2:2009 • RS: EN 61000-4-3:2006 + A1:2008 + A2:2010 • EFT: EN 61000-4-4:2012 • Surge protection: EN 61000-4-5:2014 • CS: EN 61000-4-6:2014 • DIP: EN 61000-4-11:2004
RF	<ul style="list-style-type: none"> • Standards: EN 300 511 V12.5.1, ETSI EN 301 908-1 V11.1.1, ETSI EN 301 908-1 V11.1.2, EN 301 908-2 V11.1.2, ETSI EN 301 908-13 V11.1.2
Safety	<ul style="list-style-type: none"> • Standards: IEC 62368-1:2014(Second Edition), EN 62368-1:2014+A11:2017 • EN 50385:2017 • EN 62232:2017
Scope of Supply	<ul style="list-style-type: none"> • 4G/LTE Gateway • Power Supply 4.5 W • LTE antenna (magnetic mount, SMA male, 3 m cable) • Micro-USB cable (0.8 m) • Hex key • LAN cable • Rack mount adapter • Power cable for connection to NetBox
Order Information	<p>4G/LTE Gateway NTi Audio # 600 076 011</p>