

Transparent Gateway v2.021

The Asvito Transparent Gateway (TPGtw) is a cellular TCP/IP based gateway for industrial systems. It uses the Sierra Wireless 2.75G and 3G Fastrack series modems, and the basic feature is to provide a transparent interface between a field device and back end systems, eliminating the need for any other device to control the link.

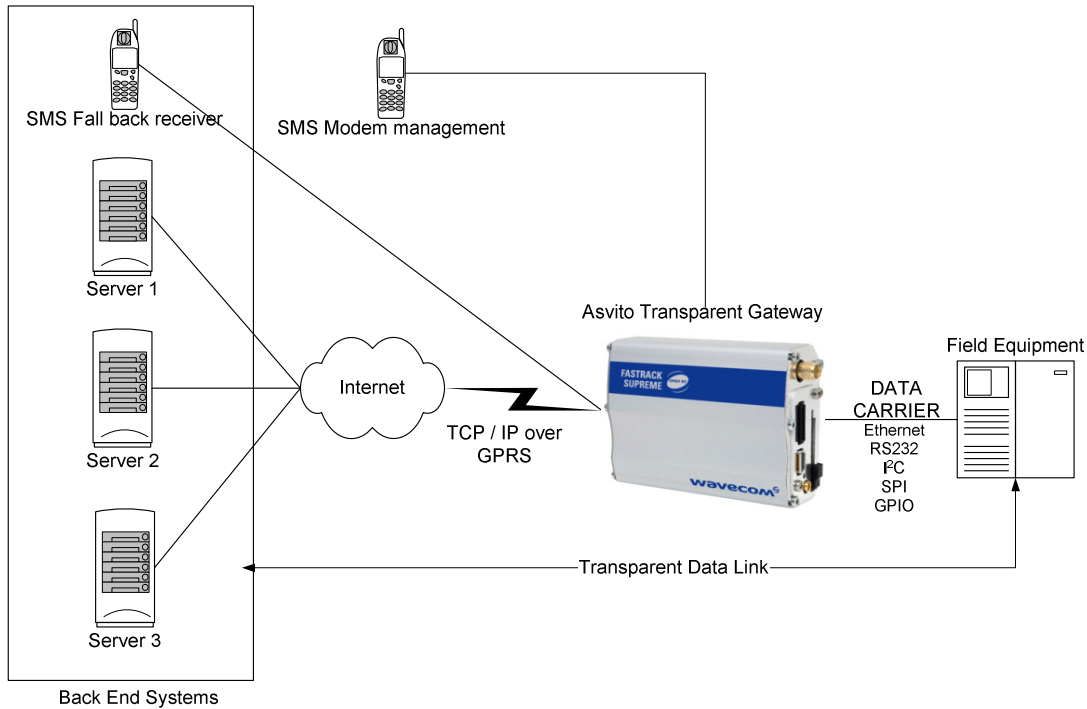
Features

The TPGtw have several useful features, making it an excellent field device which will help you save time and maintenance costs:

- **Multiple cellular interfaces** – Supports all common cellular interfaces like GSM / GPRS / EDGE for Fastrack Supreme series and also / HSDPA / HSUPA (**3G**) for the Fastrack Xtend.
 - **Takes full control of the communication** - Even dumb systems, which only produces data on the carrier, can be connected to the back end system without intermediate devices like an PLS.
 - **Binary Transparent Interface** – The TPGtw has the capability of transparently transport data to from the field installation and the back end systems.
 - **Buffering data during communication glitches** – If load on the cellular data line is high and data rate drops, the incoming data is buffered and sent when the connection is resumed.
 - **Supports multiple data carriers** - Communication over RS232, SPI, I2C, Ethernet (TCP / UDP / IP) interfaces and field radio system like ZigBee, Wireless M-Bus and generic 2,4 GHz (also see www.radiocrafts.com).
 - **Advanced cellular interface handling** – To recover from errors and low level events on the cellular interface (GPRS/EDGE/HSDPA) the TPGtw support error recovery based on low level base band events.
 - **Back end server redundancy** – The TPGtw have the ability to connect to several back end servers in sequence for redundancy. Each specified by own IP address and port.
 - **TCP client, server and dual mode** – The TPGtw can act as either a pure TCP client, connecting to the back end system when the field installation produces data on the carrier, or as a device server waiting for an incoming connection from the back end system. In dual mode, the TPGtw maintains an open TCP server socket while idle for connection from the back end system, and will close the server socket and open a TCP client connection when the field installation produces data on the carrier.
 - **SMS fallback** – If the cellular data base band system fails, the data TPGtw can use SMS as fall back on systems with low to moderate data production.
 - **Fleet control** – The fleet of modems with TPGtw can be controlled remotely either by SMS or remote command interface and it supports remote software upgrade / DOTA (download over the air).
 - **Extensive user documentation**– The user documentation contains detailed description of the operation combined with examples to ease understanding.
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General Operation

The TPGtw provides a transparent TCP/IP link between various field equipment and back end servers, eliminating the need for other device for controlling the connection, like a PLS. Field equipment suitable for interfacing are data loggers, alarm systems, GPS devices, device network interfaces, field bus interfaces (CAN, Profibus, Modbus) or any other system which can be connected using data carriers like Ethernet, RS232, I²C, SPI or GPIO.



The default configuration is a TCP / IP client waiting for the field equipment to produce data over the local data carrier (Ethernet, RS232, I²C, SPI or GPIO). When new data are received, the **TPGtw** will buffer the data and automatically set up a connection to a back end server and deliver the data. The connection is kept open until the communication timeout is reached. The communication timeout timer is reset each time data are sent over the interface, in either direction.

In device server mode **TPGtw** will buffer any incoming data while waiting for an incoming connection from the back end system. When the connection is established, the data is delivered.

The data is as default sent over a TCP / IP socket connection to the remote servers. If the socket connection fails (e.g. bearer failure), SMS is used as fall back to make sure that the data is sent to the server.

To enable fleet control and remote upgrade of the software, the **TPGtw** supports a remote AT interface and DOTA (download over the air). The remote AT interface enables remote control of the modem by issuing AT commands. The user is able to execute almost all AT commands defined by Open AT and the application specific commands. Using DOTA the application and the Open AT firmware can be upgraded to support new features without having to send people in the field. The remote AT interface and the DOTA function is initiated using SMS.

Most of the application specific settings can also be changed using SMS, this includes GPRS settings, server settings, SMS fall back settings, DOTA settings and remote reset of the modem.

PRODUCT BRIEF



The gateway application must be configured before the modem device is connected to the field equipment. Parameters which are need:

- IP addresses of all the supported back end servers.
- Communication port.
- Communication timeout.
- GPRS Bearer settings (APN, APN Username, APN Password).
- Serial line parameters (baud rate, data bits, parity bits, stop bits and flow control).
- SMS Phone number for backup (optional).
- DOTA settings (FTP server, and login)
- Remote AT settings.

Supported hardware:

- Sierra Wireless Fastrack Supreme 10 / 20
- Sierra Wireless Fastrack Xtream
- Sierra Wireless Fastrack Xtend
- Sierra Wireless WMP 100

Highlights:

- Supports any field device using common carriers.
- Highly suitable for field equipment with no or limited programming support.
- Maintains a complete control of the connection
- Just fit it to the modem directly to the equipments serial port or other carrier using an expansion card.
- Can be delivered preconfigured with **your** settings.

Tailoring

The gateway application can easily be tailored to meet specific features, protocols, operation mode or other functionality specified by the customer. For example to send data to several data harvest servers, or other data carrier protocols like FTP, HTTP, WebServices or Mail (SMTP / POP3).

Technical Specification

Wireless platform:	Sierra Wireless Fastrack Supreme 10 / 20 Sierra Wireless Fastrack Xtend FX001 and FX003
Wireless band:	GSM Quad Band: 850 / 900 / 1800 / 1900 MHz
Processor:	ARM 946, 32 bit, 104 MHz, 88 MIPS max.
Mechanical characteristics:	Dimensions: 73x54.5x25.5 (88x54.5x25.5) mm Aluminum profiled housing.
Electrical characteristics:	Operating range: 5.5V to 32.0V Current consumption: 480 mA average, 2.1A peak at 5.5V.
Antenna:	Frequency range: Quad-band (GSM800/900/1800/1900). Impedance: 50 Ohms nominal, Gain: 0 dbi, VsWR: 2
Environmental characteristics:	Full performance: -20 to +55 C Degraded performance: -30 to +85 C Storage: -40 to 85

Contact

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