

SCIENTIS SOLUTIONS
Connecting Networks



Wireless Network Management Solutions
HGX-D GSM / GPRS / UMTS / HSPA Series

HGX-D GSM (GPRS/EDGE) / UMTS 3G (HSPA) Series

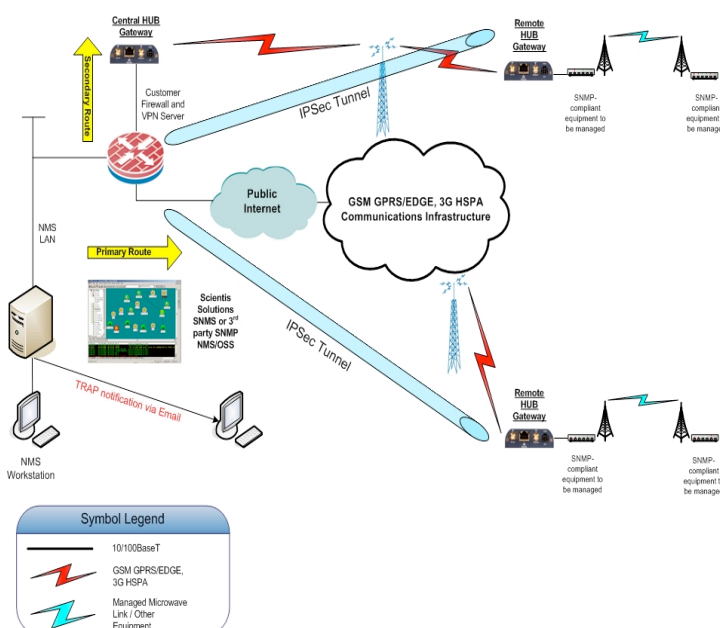
Our HGX-D series lowers your operational expenditure by eliminating expensive leased line connectivity for Network Management Communications to remote site equipment. The HGX-D HUB Gateway series provides wireless-based, fully functional NMS visibility of previously un-manageable equipment, for locations where leased-lines or other fixed-line connectivity were not feasible or too costly. The HGX-D Hub Gateway allows all local equipment MMI (man-machine interface) features to be available back at the NOC. In addition, any alarms or events received from a particular site can be interrogated from the NOC location.

Application

The HGX-D HUB Gateway is scalable to allow management of between 1 and 60 remote SNMP-based Network Elements. The radio network access method (GPRS/EDGE or 3G HSPA) also has a bearing on the number of remote NEs that can be supported. The most common deployment scenario would see multiple remote HGX-D nodes connected back to a central VPN Gateway, using the wireless network to connect the HGX-D nodes to the internet, and using the customer's existing fixed-line internet connection at the central location. The NMS would usually reside at the same location as the VPN Gateway. Another possible option, where no centralized fixed-line internet connection is available, is to deploy one or more additional HGX-D HUB Gateways, acting as central aggregation/ concentration points. It is also possible to create a hybrid of these two approaches i.e. use the existing high-capacity internet connectivity as the primary DCN path to the remote Wireless HGX-D HUB Gateways, and use the centralized wireless HGX-D devices as the NMS internet gateway. SNMP traps received from the remote monitored equipment are passed immediately to the central NOC/NMS location over the Wireless HGX-D HUB Gateway link via the mobile network, where they are displayed on the SNMP-compliant NMS, which could be the Scientis Solutions SNMS or existing platform.

Key Features

- ✓ Always-connected - simulates fixed-line DCN connections - similar reliability & Quality of service
- ✓ Open platform architecture & Vendor-independent
- ✓ The HGX-D HUB Gateway is scalable to allow management of between 1 and 60 remote Network Elements
- ✓ Seamless integration into SNMP NMS platforms; has internal SNMP MIB
- ✓ The radio network access method (3G HSPA / 2G GPRS / 2G EDGE) has a bearing on the number of remote NEs that can be supported per HGX-D
- ✓ The NMS operator has the ability to connect to the Network Element that reported the alarm(s), and use existing 3rd party tools or Scientis Solutions developed tools for further interrogation and fault resolution (SNMS/SEMS/SAPM/BulkFirmwareTool)
- ✓ An additional feature allows the NMS to forward alarm notifications to interested parties via email or via SMS (requires additional software and hardware components)
- ✓ Compatible with dynamic or static IP assignment from operator
- ✓ Can use any type of 2G GSM or 3G UMTS SIM
- ✓ Secure transport via IPSec/Open VPN or GRE tunneling
- ✓ 1 or 4 Ethernet ports for connection to the monitored equipment
- ✓ NOC to remote Site connectivity for: Fault -, Performance-, Inventory-, and Configuration Management
- ✓ Ruggedised: -25C to +70C operational temperature range, DIN rail mounting, ESD protection on all external interfaces, anti-steal SIM slot
- ✓ Deployment flexibility: +/-48 to +/-12V DC natively, with a low power consumption of 4 Watts
- ✓ Fully Automated connection to the VPN gateway: software and hardware watchdogs monitoring the tunnels



Technical Specification

Platform	CPU	200 MIPS ARM9
	FLASH	8 Mbytes
	SDRAM	16 Mbytes
	O/S	Linux 2.6
Cellular	GPRS 2G	GSM/GPRS 900/1800 MHz Dual Band or 850/900/1800/1900 MHz Quad Band optional, GPRS Class 10, DL/UL 85.6/21.4 Kbps or 64.2/42.8 Kbps
	HSUPA 3G	UMTS 850/900/1900/2100 MHz Quad Band, GSM/GPRS 850/900/1800/1900 MHz Quad Band, DL/UL 7.2/5.76 Mbps
	USB	USB 2.0 host port x1, connects to external 3G USB Modem (without embedded cellular module) *Refer to "3G Modem Support List" to make sure your wireless modem is supported *
	APN	APN or VPDN
	Authentication	CHAP/PAP/MS-CHAP/MS-CHAP2
	Always Online	PPP LCP Echo/Reply and ICMP keep alive for link inspection
	High Sensitivity	Low signal strength required (CSQ>12)
	Dial On Demand	Triggered by Call/SMS/Local data flow
Ethernet Interface	Number of Ports	1 LAN or 4 LAN Ports *NOTE* 4 LAN Port versions are 4 LAN or 1 WAN 3 LAN or 1 WAN 2 LAN, 1 DMZ
	Speed	10 / 100Mbps
	Connection	8-pin RJ45
	Magnetic Isolation	1.5 KV built-in protection
Serial Interface	Serial Standards	RS232 / RS485 optional (Only one type of serial port per unit)
	Number of Ports	1
	Connection	5mm pluggable terminal block
	Serial Line Protection	15 KV ESD protection for all signals
Serial Communication Parameters	Data Bits	5, 6, 7, 8
	Stop Bits	1, 1.5, 2
	Parity	None, Even, Odd, Space, Mark
	Flow Control	None
	Baud Rate	1200bit/s to 115200bit/s
Serial Signals	RS 232	TxD, RxD, GND
	RS 485 2w	Data+, Data-, GND
Debug Console Interface	Serial Standards	RS232
	Number of Ports	1
	Connection	RJ45
SIM Interface	Number of SIMS	1
	SIM Control	3V
	SIM Card Protection	screw covered - Internal SIM card slot, provides SIM card anti-theft
Embedded Advanced Functions	LED Indicators	4 x Status LEDs: POWER, STATUS, WARN, ERROR
	Watchdog	both software and hardware watchdog
	Real-Time Clock	Provides the system with accurate local time
	Beep	Configurable alarm output
	Reset Button	Restart system or restore to factory by hardware

Software	Configuration	Web, Telnet, Serial-Hyper Terminal
	Firmware Upgrade	Remote upgrade and local web upgrade based on redundant firmware backup
	Network Management	SNMP MIB-II or Device Manager self developed large scale management system
	Network Protocols	ICMP, TCP/IP, UDP, DHCP, PPP, ARP, Telnet, DNS, DNS Relay, SNMP, SSH, VRRP, HTTP, HTTPS, SNTP, DDNS, VRRP, DMZ, Static Routing
	NAT / PAT	Network Address Translation (NAT) and Port Address Translation (PAT), hiding internal IP addresses and expanding IP address space.
	Connection Inspection	PPP LCP Echo/Reply and ICMP keep alive, keeps device always online
	Open VPN, PPTP, L2TP	Client/Server
	VPN IPsec tunnel	Client/Server; Encryption: DES, 3DES, AES; Data verification: MD5 and SHA-1 Authentication: pre-shared key, digital certificate (CA)
	Firewall	Stateful Packet Inspection(SPI), filtering multicast, filtering PING packet, preventing DoS attack, different firewall strategies, MAC address bundling
	Port Mapping	Allow extranet user to access specific intranet port
	Access Control	Flexible access control of TCP, UDP, ICMP packet
	Traffic Control	Download and upload speed control
	Reboot Control	Reboot via SMS command
	Serial Communications (DTU)	Supports data transparent transmission via serial port TCP Virtual Port, TCP client/server, UDP, Modbus RTU to Modbus TCP
Physical Characteristics	Housing	1mm Aluminum, providing IP30 protection
	Weight	490 g
	Dimensions	(L x W x H): 46 x 100 x 110 mm - 1 Lan Port (L x W x H): 46 x 100 x 130 mm - 4 Lan Port
	Installation Method	Din-Rail mounting or wall mounting
Environmental Limits	Operating Temperature	-25°C to 70°C
	Storage Temperature	-40°C to 85°C
	Operating Humidity	5 to 95% RH
Power Supply	Input Voltage	12 to 48VDC, anti-RCE (reverse connection error), over-current protection
	Power Consumption	Communication: 300mA @ 12V(max), Idle: 120mA @ 12V (max)
	Burst protection	4 KV
	Surge Protection	2 KV
	Connector	5mm pluggable terminal block

Approvals	CE, R&TTE Certification FCC Certification	For all 3G / 2G RS232 variants
	Safety	IEC60068-2-27 (Anti-shock)
		IEC60068-2-23 (Drop)
		IEC60068-2-6 (Vibration)
	EMC	EN61000-4-2 (ESD) Level 4
		EN61000-4-3 (RF Electromagnetic Field Immunity) Level 3
		EN61000-4-4 (Electric Fast Transient/burst) Level 4
		EN61000-4-5 (Surge) Level 3
		EN61000-4-6 (RF conducted interference) Level 3
		EN61000-4-8 (Power-frequency electromagnetic fields Immunity) Level 3
	EN61000-4-12 (Damped oscillation Immunity) Level 3	

Ancillaries supplied:

HGX-D HUB Gateway

Magnetic mount GSM Antenna (standard or high-gain options)

35mm DIN-rail mounting kit

Ethernet Cable RJ45-RJ45

CD containing User Guide

Features	1 Ethernet / RS232 with VPN	1 Ethernet / RS485 with VPN	4 Ethernet / RS232 with VPN	4 Ethernet / RS485 with VPN
GPRS (Asia)	HGXD-1xx-232	HGXD-1xx-485	HGXD-1xx-232	HGXD-1xx-485
GPRS (Worldwide)	HGXD-120-232	HGXD-120-485	HGXD-420-232	HGXD-420-485
HSUPA	HGXD-100-232	HGXD-100-485	HGXD-400-232	HGXD-400-485
USB 2.0	HGXD-130-232	HGXD-130-485	HGXD-430-232	HGXD-430-485

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