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GarrettCom[®] Magnum 10XTS Configurable Router Terminal Server

Magnum 10XTS Router Terminal Server offers T1/E1 routing as well as advanced serial and Ethernet port configurability for heavy duty industrial applications where maximum port count and diversity are required.



Ideal for Large Substation Installations with Large Numbers of Serial and Ethernet Instruments and the Need for High-speed WAN Access.

Features

- Configurable Router Terminal Server with dual T1/ E1 WAN port and up to eight Ethernet ports or 28 serial ports
- Dual hot-swappable power supplies in a 1U rack-mount package
- Configurable IRIG-B Timing Modules available for precision timing to Protection & SCADA devices
- MNS-DX Software Supports Switching or Routing on all Ethernet Ports
- Substation-hardened, IEC 61850-3 compliant, no fans

Configurable and Reliable

The Magnum 10XTS Router Terminal Server offers T1/E1 routing as well as advanced serial and Ethernet port configurability for heavy duty industrial applications where maximum port count and diversity are required. The Magnum 10XTS is ideal for large substation installations with large numbers of serial and Ethernet instruments and the need for high-speed WAN access.

The Magnum 10XTS offers two WAN ports via a T1/E1 card, up to eight Ethernet ports or 28 serial ports and IRIG-B time coding. The 10XTS provides configurability, reliability, and functionality in a 1U hardened rack-mount package. The 10XTS also offers the flexibility of switching or routing on all of the Ethernet ports. Each 10XTS Router Terminal Server includes advanced thermal design techniques that result in cooler operation of internal electronic components, leading to longer life-time and increased reliability.

Next Generation Technology

The Magnum 10XTS offers next generation reliability and configurable redundancy, with high voltage AC/DC and low voltage DC hot-swappable power supplies. Software monitors each power supply, and detects power supply faults and signal when a power supply module swap is needed. The swap-out can readily be done while the 10XTS continues in operation.

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Next Generation industrial terminal server features, for mission-critical control devices such as those found in power utility facilities in the Smart Grid, importantly include IRIG-B timing synchronization. Each Magnum 10XTS may be configured with an IRIG-B Timing Card and a selection of IRIG-B port modules to provide time synchronization for Protection, SCADA and other devices.

The ten configuration slots in the Magnum 10XTS provide the flexibility for network designers to configure up to eight 100Mb Ethernet ports in different fiber and copper combinations and up to 28 serial ports. Both DB-9 and RJ45 serial connector types are available. Modules may be configured for regular port types, IRIG-B timing, or combinations.

Software and Security

The configurability of Magnum 10XTS extends to MNS-DX software features as well. A licensed software key unlocks additional features for extra security. Extra security features such as IPSec/VPN, firewall, RADIUS, syslog and other security capabilities can be added to MNS-DX via MNS-DX-SECURE, which also provides IP firewall features including address/port inspection/filtering; VPN connectivity over IPsec with strong 3DES and AES encryption and both shared key (PSK) and X.509 certificates.

VPNs comply to various IPSec/VPN standards and have proven interoperability with other industry standard VPN devices. Cyber security capabilities cover both electronic perimeter protection for remote sites and management security for the 10XTS. Advanced statistics and

event recording are available with downloadable local logs, SNMP MIBs and traps, and syslog remote logging. Advanced routing capability for OSPF and BGP networks is enabled using the MNS-DX-ADVANCED software license key.

Rugged Design

Magnum 10XTS Managed Terminal Servers have rugged metal cases for regular or "Reverse" rack-mounting, and auto-ranging power supplies for operation with standard AC power worldwide, or internal DC power supply choices. Moisture- and corrosion-protecting Conformal Coating is optional. The Magnum 10XTS unit is designed and manufactured in the USA.

Warranty

Five Years.

Product Specifications

Type	10XTS
Description	Magnum 10XTS base unit, configurable substation hardened, managed router/terminal server/Ethernet switch. Each unit offers up to 8 Ethernet or 28 serial ports as well as two E1/T1 WAN ports. Offers dual hot-swap power supplies.
Serial Protocols	
Async to TCP/IP – including Modbus gateway for connectivity to serial Modbus devices and to other Modbus Ethernet devices; TCP/IP to serial/reverse terminal server, Serial Multipoint & Multimaster Topologies; PPP with authentication.	
Performance	
WAN Ports	T1/E1: 1.544 Mbps / 2.048 Mbps G.703
Serial DB9 Ports	RS232/RS485 software selectable DB9 interface. Serial data rate from 300 bps to 230.4 kbps. <i>See the user guide pinout details and supported interfaces.</i>
Serial RJ45 Ports	Same functionality as DB-9 ports (RJ45 pinout conforms to EIA-561 DTE standard) <i>See the user guide pinout details and supported interfaces.</i>
RJ45 Ports	100 or 10 Mb speed, full- or half-duplex mode, per port, individually determined. 10/100 auto-negotiating & auto-cross
Fiber Ports, 100 Mb (multi-mode and single-mode)	Configurable in modules at 2/module, or SFF (Small Form Factor) for high fiber port density, 4 per module. Each FDX or HDX, default is FDX mode
Network Standards	
IEEE 802.3z, 802.3ab, 802.1p: 100BASE-TX, -FX, 1000BASE-SX, -LX	
IEEE 802.3u: Auto-negotiation on TP	
IEEE 802.3x, 802.1p: flow control and prioritization	
IEEE 802.1Q: VLANs, maximum 32 VLANs	
IEEE 8021.1d, 802.1w: Spanning Tree, Rapid Spanning Tree including	
RSTP 2004 extensions providing sub-second hop on rings	
IEEE 802.1p: DiffServ, traffic prioritization for routed IP flows/ports	
Software	
MNS-DX and MNS-DX-SECURE licensed software	
Management & Diagnostics	
Ease of use: Web-based Graphical User Interface (GUI) or CLI access remote SSH or TELNET connection Powerful built-in protocol analyzer to assist with trouble shooting Other: Comprehensive statistics, SNMP MIB II and SNMP Traps, Routing Information, DHCP, ARP and other tables.	

MAGNUM 10XTS

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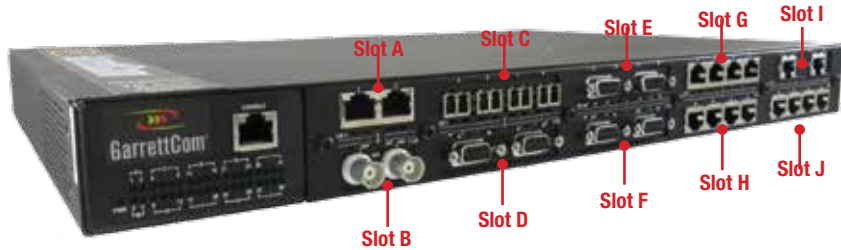
Product Specifications (continued)

Operating Environment	
IEC 60068 Operating Temperature	per "Type Test" -40° to 185°F (-40° to 85°C)
UL 60950 "Component Parts" Temperature Rating	140°F (60°C)
Storage	-40° to 185°F (-40° to 85°C)
Ambient Relative Humidity	5% to 95% (non-condensing)
Altitude	-200 to 13000ft (-60 to 4000m)
Conformal coating (humidity protection) Option	Request quote
Mechanical	
Enclosure	Rugged high-strength sheet metal. 1U rack-mounting
Rack-Mounting Brackets	19" included
Cooling Method	Convection
Dimensions	1.7in H x 17.5in W x 12.in D (4.3cm H x 44.5cm W x 30.7cm D)
Weight	Rack-mount 10.6 lbs. (4.8 kg)
Hot Swappable Power Supply Options	
Magnum 10XTS may be ordered with hot swappable power supplies. Up to two of the following supplies in matching pairs may be chosen:	
High (H) Nominal	Input 90 to 250V AC/DC
Low (L) nominal	Input 18 to 60VDC
Terminal Block	"-, GND, +"
Power Consumption	20 watts (for fully populated unit)
Fixed Power Supply Options	
High (H) Nominal	90-250V AC/DC; Terminal Block: "-, GND, +"
Low (L) nominal	Input 22VDC to 60VDC
AC	IEC-type, male recessed
Power Input, AC	100 to 240 VAC, 47 to 63 Hz (auto ranging)
Serial LED Indicators Per DB-9 or RJ45 Port	
One LED/port indicating active connection	
Ethernet LED Indicators Per RJ45 or Fiber Port	
L/A	One LED/port indicating Link (solid green) and Activity (blinks to indicate activity)
Relay Contacts for Alarms (except PoE version)	
Two alarm contact: HW & SW alarms are normally open until the unit is powered & software started. Under normal operation they are closed. Form C HW alarm will be opened with either 1) any power supply loss, 2) fan failures Form C SW alarm will be opened when any pre-defined SW event occurs	
Agency Standards Approval and Compliance	
UL/cUL 60950, EN55022 FCC Part 15	CE, EMC & ENV
IEC61850-3	EMC and Environmental Operating Conditions Class C for Power Substations
IEEE 1613 Class 2	Environmental Standard for Electric Power Substations
NEMA TS-2	Traffic Control
EN50155	Railways
Warranty	
Five years.	

Magnum 10XTS Configuration Guide

Magnum 10XTS Configurable Router Terminal Server

Magnum 10XTS base unit, configurable substation hardened, managed router/terminal server/Ethernet switch. Each unit offers up to eight Ethernet or 28 serial ports as well as two E1/T1 WAN ports. Offers dual hot-swap power supplies.



Step 1a. Choose 10XTS chassis and power input type

Model No.	Description, Base Unit of Magnum 10XTS Terminal Server
10XTS-HSPHH	Front mount with two "H" AC/DC (90-250) power slots
10XTSR-HSPHH	Reverse mount with two "H" AC/DC (90-250) power slots
10XTS-HSPHL	Front mount w/ one "H" AC/DC (90-250) & one "L" 24/48VDC slot
10XTSR-HSPHL	Reverse mount w/ one "H" AC/DC (90-250) & one "L" 24/48VDC slot
10XTS-HSPLL	Front mount with two "L" 24/48VDC slots
10XTSR-HSPLL	Reverse mount with two "L" 24/48VDC slots
10XTS-H	Front mount with AC/DC power (90-250V)
10XTS-HH	Front mount with two fixed AC/DC power (90-250V) power supplies
10XTSR-H	Reverse mount with AC/DC power (90-250V)
10XTSR-HH	Reverse mount with two fixed AC/DC power (90-250V) power supplies
10XTSR-HL	Reverse mount with two fixed power supplies, one 90-250 AC/DC and one 24-48VDC
10XTS-L	Front mount with 24/48VDC power
10XTS-LL	Front mount with two fixed 24/48VDC power supplies
10XTSR-L	Reverse mount with 24/48VDC power supply
10XTSR-LL	Reverse mount with two fixed 24/48VDC power supplies
10XTS-HL	Front mount with two fixed power supplies, one 90-250 AC/DC and one 24-48VDC
10XTS-AC	Front mount w/ worldwide AC power (100-240V)
10XTSR-AC	Reverse mount w/ worldwide AC power (100-240V)
10XTS-SPHSPLL	Front mount with two "L" 24/48VDC slots; Supports PoE.
10XTS-SPR-HSPLL	Reverse mount with two "L" 24/48VDC slots; Supports PoE.
10XTS-SP-L	Front mount w/ 24/48VDC power; Supports PoE.
10XTS-SPR-L	Reverse mount with 24/48VDC power; Supports PoE.
10XTS-SP-LL	Front mount with two fixed 24/48VDC power supplies; Supports PoE.
10XTS-SPR-LL	Reverse mount with two fixed 24/48VDC power supplies; Supports PoE.

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Step 1b. If "HSP" base unit with hot swap power supplies is selected, choose up to two power supply modules.

Model No.	Description
HSPM-H	AC or DC power (90-250V)
HSPM-L	24/48VDC power (22-60V)
10K-PSBLNK	Blank cover for one hot-swap power supply slot, 10-series.

Step 2. Choose Ethernet modules for Slot A or Slot B (may be blank).

Model No.	100Mb Ports
10TS2-RJ45	Two 10/100Mb RJ-45 ports
10TS2-HSFP	Two 100Mb SFP Open Ports
Model No.	100Mb SFP Transceivers
SFP100P-FXMM2	100FX Fiber Optic SFP transceiver, multi-mode, 2Km
SFP100P-FXSM20	100FX Fiber Optic SFP transceiver, single-mode, 20Km
SFP100P-FXSM40	100FX Fiber Optic SFP transceiver, single-mode, 40Km
SFP100P-RJ45	100Mb Copper SFP transceiver, 10/100 auto-negotiating

Step 3. Choose Ethernet module or IRIG-B module for Slot B (may be blank)

Choose one Ethernet module from Step 2 list for Slot B	
OR select	
IRIGB-TMODULE	Timing module for IRIG-B in the 10ETS Slot B

Step 4a. Optional: For Slot C, select Ethernet module from the following list; if no Ethernet ports are desired for Slot C, go to Step 4b. (may be blank)

Model No.	10/100	10BASE-FX (MM)	10BASE-FX (SM)	10BASE-FL
10K4-RJ45	4			
10K4PX-RJ45*	4 PoE+	802.3at PoE +		
10K4-MLC		4 (LC)		
10K4-SLC			4 (20km LC)	
10K4-SLCL			4 (40km LC)	
10K4-MTRJ		4 (MTRJ)		
10K2-MST		2 (ST)		
10K2-MSC		2 (SC)		
10K2-SSC		2 (SC)	2 (20km SC)	
10K2-SSCL		2 (SC)	2 (40km SC)	
10K2-F10ST				2 (ST)

* Requires PoE-supporting chassis.

Step 4b. Optional: Choose 1 Serial module for Slot C Modules can be blank.

Model No.	Description
10TS2-DB9-DTE	2 port DB-9 (female DTE)
10TS2-DB9-DCE-IRIGB	*2 port DB-9 (female DCE) with IRIG-B
10TS2-DB9-DTE-IRIGB	*2 port DB-9 (female DTE) with IRIG-B
10TS2-DB9-DCE	2 port DB-9 (female DCE)
10TS2-DB9-X-IRIGB	*2 port DB-9 (female) with IRIG-B
10TS4-RJ45	4 port RJ45
10TS4-RJ45-IRIGB	*4 port RJ45 with IRIG-B

*Prerequisite: IRIG-B timing module in Slot B

Step 5. If 10-2T1E1 dual T1/E1 WAN adapter is chosen it will be placed in Slot I. Optional choose serial module for Slots D, E, F, G, H, I, J.

Model No.	Description
10-2T1E1	Dual T1/E1 WAN adapter
10TS2-DB9-DTE	2 port DB-9 (female DTE)
10TS2-DB9-DCE-IRIGB	*2 port DB-9 (female DCE) with IRIG-B
10TS2-DB9-DTE-IRIGB	*2 port DB-9 (female DTE) with IRIG-B
10TS2-DB9-DCE	2 port DB-9 (female DCE)
10TS2-DB9-X-IRIGB	*2 port DB-9 (female) with IRIG-B
10TS4-RJ45	4 port RJ45
10TS4-RJ45-IRIGB	*4 port RJ45 with IRIG-B

* Indicates Prerequisite: IRIG-B timing module in Slot B

Step 6. Choose options & extras:

Model No.	Description
CONSOLE-CBLQD	Console attachment cable serial null Modem cable with one RJ-45 for the 10XTS and a DB-9
CONSOLE-CBLQU	Console attachment cable serial null Modem cable with one RJ-45 for the 10XTS and a USB
MNS-DX-SECURE-LIC1	Optional, licensed per 10XTS switch for extra security
CONFORM05-RMOD	Conformal coating, 5 mil, for moisture protection
CONFORM08-RMOD	Conformal coating, 8 mil, for corrosive environments
DUAL-SRC-L	Provides two separate 24/48VDC power inputs (the unit will operate from either or both) to accommodate redundant 24/48V installations for increased availability and ease of DC power source maintenance. Includes internal diode protection to prevent feedback. Order this option as a line item, for factory configuration. The unit will have its model number changed to append "-DSRC". ONLY available on "L", "LL" or "HSPLL" chassis options. Note - not needed for "LL" PoE chassis which are inherently dual-source.