

Features

- 8-port hardened Ethernet Switch in a "2070" form factor. Six 10/100 copper ports and two 100 Mb fiber ports
- Fully contained within a 2070 chassis, draws power from the Model 2070 chassis power supply
- All Ethernet cabling is from rear access ports, no Model 2070 chassis backplane signal pin conflicts
- Stand-alone plug-and-play Ethernet switch operation, no set-up or programming required
- For use in curb-side traffic control boxes, designed to meet TS-2 specifications, tested at -40°C to 75°C ambient



The Magnum™ ITS Blade is a hardened eight-port Ethernet Switch in a board-level module designed to fit into slot A1 or A2 of a standard 2070 Traffic Controller chassis. It allows Ethernet to quickly and easily be configured as the high bandwidth communications protocol for the new generation of Intelligent Traffic Control systems.

Six Ethernet RJ-45 10/100Mb twisted pair copper cable ports connect to local devices at the intersection such as video cameras and the Model 2070 Controller, while two Ethernet fiber optic 100 Mb ports connect upstream to the TOC or to intermediate Ethernet Switches in the traffic control network. The Magnum ITS Blade module is entirely contained in a standard 2070 Traffic Control chassis, drawing power from the 2070 chassis power supply. Because no backplane signal pins are used, the ITS Blade module can be fitted into either a new or existing Model 2070 chassis without conflicting with other modules in the 2070. ITS Blade specifications comply with Caltrans and NEMA TS-2-1998 Standards for Traffic Controller Assemblies.

Deployment of Model 2070 Traffic Control chassis units is in temperature un-controlled roadside boxes, and the Magnum ITS Blade can take the heat . . . and the cold. Unique thermal techniques (patent pending) developed by GarrettCom technologists extend the ambient temperature operating range beyond standard product ratings, and improve operating lifetime and reliability. Ambient operating temperatures can be from -40°C to $+75^{\circ}\text{C}$. The extreme temperature Ethernet technology is derived from the proven design of the companion product, the Magnum P62F Switch, already widely in use in Traffic Control Systems and other Outdoor Industrial Ethernet LAN applications.

There are three TC62F models of the Magnum ITS Blade available to suit installations using multi-mode fiber cable, single-mode fiber cable, or combinations of these fiber cable types. All are constructed for high reliability and EMI noise immunity. They insert into the A1 or A2 slot of a Model 2070 chassis, and operate from 5 VDC internal power. MTBF is over 20 years.

The Magnum ITS Blade and all Magnum products are designed and manufactured in the USA and are backed by a three-year warranty.



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PERFORMANCE:

RJ-45 Ports: # 2-6 are 100 or 10 Mb, auto-negotiating for speed and F/H duplex mode.

Fiber Ports: # 1 and # 8 are 100 Mb fiber, full-duplex
Processing type: Store and Forward, with IEEE 802.3x full duplex, flow control non-blocking.

System aggregate forwarding and filtering rate: 1190K pps

Packet buffers: 256 KB

Address Table size: 4K nodes

Latency: less than 5 μ s (not including packet time)

PDV: 50BT

NETWORK STANDARDS:

Ethernet: IEEE 802.3u, 10BASE-TX, FX; IEEE 802.3, 10BASE-T
QoS: 802.1p Packet Prioritization

Auto Negotiation: IEEE 802.3u, occurs at LINK enable for each RJ-45 port

All 10 Mb ports obey the rules for configuring 10 Mb Ethernet, all 100 Mb ports use Fast Ethernet rules

MODEL 2070 CHASSIS STANDARDS:

Fits into Slot A1 or A2, draws power from the Model 2070 chassis power supply. Note- the ITS Blade is stand-alone for Ethernet operations; it does not plug into any backplane signal pins.

MTBF (calculated per Telcordia standards): over 20 years
305,054 hrs. (35 years) @ 40°C
229,803 hrs. (26 years) @ 60°C

MECHANICAL:

Dimensions: 7.0 in H x 1.6 in W x 8.7 in D
(177 mm x 40.4 mm x 220 mm)

Weight: 0.5lb. (0.25 kg)

Bezel Color: Aluminum, black letters

OPERATING ENVIRONMENT:

Ambient Temperature: -40° to 167°F (-40° to 75°C)

Cold start down to -25°C

Storage: -40° to 185°F (-40° to 85°C)

Ambient Relative Humidity: 10% - 95% (non-condensing)

Altitude: to 15,000 ft. operating

Operating Shock and Vibration: Designed to exceed Caltrans and ATC requirements and Telcordia GR-63-CORE Sections 4.4.1 and 4.4.3

Conformal Coating applied

Note: Unique thermal techniques (patent pending) developed by GarrettCom technologists extend the ambient temperature operating range beyond standard product ratings, and improve operating lifetime and reliability.

NETWORK CABLE CONNECTORS:

Fiber: 100 Mb Multi-mode SC type (2km), 100 Mb Single-mode SC-type (20km.) Other types (ST, LC, MTRJ) available via RFQ.

RJ-45 shielded female, 100 Mb: Category 5 UTP/STP, 10 Mb: Cat. 3,4, 5 UTP

POWER INPUT:

5VDC at 1.9 Amps, 2070 backplane pins ABC29 per TEES 03/02

Power Consumption: 8 watts typical, 10 watts max.

LED INDICATOR, UNIT:

PWR: Steady on when power applied

LED INDICATORS PER PORT:

Speed: ON = 100 Mb; OFF = 10 Mb (with LINK ON)

Link/Act: Steady ON for LINK with no traffic, blinking indicates port is transmitting-receiving

F/H: ON for full-duplex mode, OFF for half-duplex

AGENCY APPROVALS AND STANDARDS COMPLIANCE:

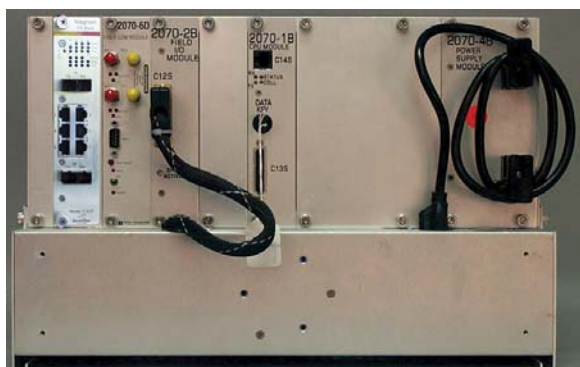
Emissions meet FCC Part 15, Class A

NEMA TS-2 (1998) for traffic control equipment.

WARRANTY:

Three years

Made in USA



Typical Model 2070 Chassis, rear view

Ordering Information

Magnum ITS Blade, 8-port Ethernet Switch for Model 2070 Traffic Control Chassis

TC62F-2MSC Board-level Ethernet Switch for Model 2070 with six 10/100 RJ-45 and two 100 Mb FDX fiber multi-mode SC-type ports. Has 4K address table and 256KB packet buffers. For use in slot A1 or A2 of standard 2070 Controller chassis, which supplies power. Ethernet cable connections are from the rear of the 2070 Chassis. Operates at -40°C to +75°C ambient temperature.

TC62F-1M1SSC Same as TC62F-2MSC, except one 100 Mb Ethernet fiber port is 20km single-mode SC.

TC62F-2SSC Same as TC62F-2MSC, except both 100 Mb Ethernet fiber ports are 20km single-mode SC

TC62F-NOF Same as TC62F-2MSC, except no fiber ports. (Has six 10/100 Ethernet ports only).

TC62F-PS-TEST Power supply for ITS Blade bench tests. Universal AC input, mating TC62F DC jack plug.



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