



## ProSwitch® Xtreme Managed and Unmanaged Industrial Switches

### Key Highlights

- ▶ Designed for extreme harsh interior and exterior environments such as unheated or uncooled “outdoor” applications
- ▶ All models provide six 10/100Base-TX ports. Models with two 100Base-FX single or multimode ports available.
- ▶ NEBS L3 and ETSI compliant
- ▶ Access management functions via the Web, CLI or Telnet
- ▶ Management software includes:
  - QoS
  - VLANs
  - STP
  - SNMP
  - BootP/DHCP
- ▶ Use fiber ports to daisy chain switches
- ▶ Plenum rated high temperature operation
- ▶ Operates in ambient temperatures of -40° to 167°F (-40° to 75°C)
- ▶ Plug and play installation and setup are transparent to system and application software
- ▶ Optional DIN-rail mounting kit
- ▶ Backed by Waters’ limited lifetime warranty
- ▶ Made in the U.S.A.

WATERS NETWORK SYSTEMS  
www.watersnet.com

Corporate Headquarters 7401 Metro Blvd., Suite 560 Edina, MN 55439 Toll Free: 800.862.3894 Phone: 952.831.5604 Fax: 952.831.5605	Manufacturing 945 37th Avenue, NW Rochester, MN 55901 Toll Free: 800.328.2275 Phone: 507.285.1951 Fax: 507.285.1952
---	--

## ProSwitch®-Xtreme Industrial Ethernet Switch 6 and 8-Port Hardened Switches



ProSwitch-Xtreme with two 100Base-FX ports and six 10/100Mbps copper ports

Waters Network Systems’ ProSwitch®-Xtreme is a specialized Ethernet switch designed to operate in harsh environments with inhospitable high/low temperature extremes. Models are available with or without management.

**Flexibility** The ProSwitch-Xtreme provides two 100Mbps switched fiber ports (multi or singlemode) and six 10/100Mbps switched RJ45 ports. The two fiber ports can connect up to 35 Xtreme switches over great distances for applications such as modular buildings, roadside traffic data collection and control stations, unheated or high temperature industrial plant locations, plenums and ceiling locations in commercial buildings, data communications huts and military field operations sites.

**Durability** Since the ProSwitch-Xtreme case is sealed, it prevents elements from entering the unit, including the penetration of insects. The Xtreme has no convection air flowing through the unit and no cooling fan failure to worry about. In addition, the Xtreme will not allow smoke inside, preventing internal damage to the electronics if installed adjacent to an accidental building or plenum fire.

**Temperature Fluctuations** The Xtreme case was engineered to function as a heat sink, to draw and dissipate the heat away from the internal electronics. In order to minimize the heat dissipation problem, the efficient design of the Xtreme uses only 10 watts of power. The ProSwitch-Xtreme withstands the extreme ranges of temperatures, operating up to 167°F (75°C) and down to -40°F (-40°C).

**Management** The management software supports industry standards including “SNMP, QoS, CLI, Telnet, Password Security, Port Settings Control, Spanning Tree Protocol, port-based VLANs, BootP/DHCP and GUI network management. The Link-Loss-Learn™ feature allows rapid operating recovery from a fault.

**Installation** When mounted in the field, the Xtreme is typically fastened to a metal pedestal or post that is planted in the ground, allowing an even larger heat sink to normalize the operating temperature of the electronics. The switch is not waterproof, however it is IEC 529 rated IP51, so it can be placed in NEMA 4 boxes, IP65 enclosures or similar waterproof enclosures to provide an all-weather outdoor network solution.

**Performance** To achieve high performance, large (1 MB) packet buffers and 16K address tables are standard. With the high reliability of the design (over 15 years MTBF), the ruggedness of the steel case and the temperature controlled design, the Xtreme provides an exceptional “industrial strength” Ethernet switching product.

# ProSwitch®-Xtreme Extreme Temperature Ethernet Switches

## ORDERING INFORMATION

Model	Description
ProSwitch-X2MSC	8-port switch with two 100Base-FX MM fiber ports with SC connectors and six 10/100Base-TX RJ45 ports
ProSwitch-X1M1SSC	8-port switch with one 100Base-FX MM fiber port with SC connectors and one 100Base-FX SM fiber port with SC connectors and six 10/100Base-TX RJ45 ports
ProSwitch-X2SSC	8-port switch with two 100Base-FX SM fiber ports with SC connectors and six 10/100Base-TX RJ45 ports
ProSwitch-X6TX	6-port switch with six 10/100Base-TX RJ45 ports (No fiber ports)
ProSwitch-X2MSC-M	8-port managed switch with two 100Base-FX MM fiber ports with SC connectors and six 10/100Base-TX RJ45 ports
ProSwitch-X1M1SSC-M	8-port managed switch with one 100Base-FX MM fiber port SC connectors and one 100Base-FX SM fiber port with SC connectors and six 10/100Base-TX RJ45 ports
ProSwitch-X2SSC-M	8-port managed switch with two 100Base-FX SM fiber ports with SC connectors and six 10/100Base-TX RJ45 ports
ProSwitch-X6TX-M	6-port managed switch with six 10/100Base-TX RJ45 ports (No fiber ports)

## SPECIFICATIONS

### OPERATIONAL CHARACTERISTICS:

#### MAC Address Table

- ▶ Managed model: 4k nodes
- ▶ Unmanaged model: 16k

#### Switching Mode

- ▶ Store-and-forward

#### Packet buffers

- ▶ Managed: 256KB; Unmanaged: 1MB

#### Performance

- ▶ Non-blocking wirespeed
- ▶ Auto negotiation
- ▶ Auto-MDIX
- ▶ Flow control
- ▶ Latency: Less than 5µs (not including packet time) PDV: 50BT
- ▶ Forward/filtering rate: 1190K pps

### NETWORK STANDARDS:

#### All Models

- ▶ IEEE 802.3
- ▶ IEEE 802.3u

#### Managed Models:

- ▶ IEEE 802.1p
- ▶ IEEE 802.1d

### MANAGEMENT SOFTWARE:

- ▶ Menu driven interface from Console or Telnet
- ▶ SNMP
- ▶ Port setting for speed and duplex mode
- ▶ SNMP
- ▶ QoS
- ▶ Password security
- ▶ Spanning tree protocol
- ▶ Port based VLANs
- ▶ BootP/DHCP
- ▶ Event log
- ▶ Ping Utility

### LINK-LOSS-LEARN™ FEATURE:

Immediately triggers new MAC address learning on user-designated ports in the address table, providing faster fault recovery

### LED INDICATORS:

#### CHASSIS:

- ▶ LEDs are viewed from the top surface
- ▶ Power: Steady on when power applied

#### LED INDICATORS PER PORT:

- ▶ Speed: ON = 100Mbps; OFF=10Mbps (with LINK on)
- ▶ Link/Act: Steady ON for LINK with no traffic, blinking port transmitting and receiving

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

### MANAGEMENT CONSOLE CABLE

- ▶ DB9 male, industry standard null-modem

### NETWORK CABLE CONNECTORS:

#### Fiber

- ▶ 100Mbps MM or SM (SC)

#### Copper RJ45 shielded female

- ▶ 100Mbps: CAT5 UTP/STP
- ▶ 10Mbps: CAT3, 4, 5 UTP

### AGENCY APPROVALS:

- ▶ UL Listed (UL60950), cUL, CE, Emissions meet FCC Part 15, Class A
- ▶ NEMA TS-2 (1998) for traffic control equipment
- ▶ NEBS L3 and ETSI compliant
- ▶ IEEE P1613 Environmental Standard for Electrical Power Substations
- ▶ IEC61850 EMC and Operating Conditions Class C for Power Stations

### MEAN TIME BETWEEN FAILURE (MTBF)

#### Managed Models

- ▶ 8+ years, Telcordia (Bellcore) Method

#### Unmanaged Models

- ▶ 15+ years, Bellcore Method

### POWER SUPPLY:

- ▶ AC Power Input: 85-264vac, 47-63Hz, auto-ranging; AC Power Connector: IEC-type, male recessed
- ▶ DC Power Input: 100-275VDC (normal ratings of 125VDC, 250VDC); Input connector: floating + and -, ground, screw terminals, safety shield. Diode-protected to 250V against accidental reverse polarity connection
- ▶ Input Fuse: 3AG type, 0.5 Amp; a spare is included

#### Power Output

- ▶ 5VDC, up to 3 Amps
- ▶ DC Output Connector: 21 inch cord with military-style screw-lock female plug
- ▶ Power consumption: 10 watts typical, 2A at 5VDC; 15 watts at -40° to 167°F

### OPERATING ENVIRONMENT:

#### Ambient Temperature

#### Managed Models

- ▶ -40° to 167°F (-40° to 75°C) long term testing
- ▶ -58° to 212°F (-50° to 100°C) short term IEC type tests

### Unmanaged Models

- ▶ -40° to 160°F (-40° to 70°C)

#### All Models

- ▶ Plenum rated

- ▶ Cold start down to -4°F (-20°C)

#### Storage

- ▶ -40° to 185°F (-40° to 85°C)

#### Ambient relative humidity

- ▶ 10% to 95% (non-condensing)

#### Altitude

- ▶ -200 to 50,000 ft (-60 to 15,000m)

#### Operating Shock and Vibration

- ▶ Meets Bellcore GR-63CORE Sections 4.4.1 and 4.4.3

### MECHANICAL:

#### Enclosure

- ▶ Rugged 18-gauge high-strength steel case. Suitable for stand-alone, shelf, pedestal or wall mounting. The case also serves as a heat sink.

#### Metal Mounting Base

- ▶ 13-gauge steel (without the base, the box size is only 7" high).
- ▶ Mounting holes are a rectangle that is 3.35" x 8.25" (8.25 x 21cm) center to center.
- ▶ The lip at the bottom of the base can be used to anchor strain-relief for cables.
- ▶ Optional DIN-rail mounting kit

### PHYSICAL CHARACTERISTICS:

#### Dimensions

- ▶ Base Unit: 1.70" x 5.75" x 8.75" (4.3cm x 14.6cm x 22.2cm)
- ▶ Power Supply: 1.25" x 5.75" x 6.5" (3.2cm x 14.6cm x 16.5cm)

#### Weight

- ▶ Base Unit: 3.5 lbs. (1.6kg)
- ▶ Power Supply: 2.5 lbs. (1.3kg)

#### Cooling Method

- ▶ Convection with case operating as heat sink

Note: Internal steel brackets within the steel case conduct heat from electronic elements, acting as a heat sink. Internal chip temperatures are about 50°F (10°C) above case ambient during the steady state operation.

### WARRANTY:

Limited Lifetime