

## OPERATING MANUAL

### GS1016 and GS1024 Switches



**Unmanaged Switch with 16 or 24 10/100/1000-TX Ports  
Optional Slots for SFP Fiber Connectivity**

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## 1.0 Specifications

### OPERATIONAL CHARACTERISTICS

#### MAC Address Table

8K

#### Switching Mode

Store-and-forward

#### Memory Buffer Size

272KB

#### Performance

Non-blocking wire speed

Auto negotiation

Auto-MDIX

Back pressure flow control for half duplex

Flow control for full duplex

#### NETWORK STANDARDS:

IEEE 802.3

IEEE 802.3u

IEEE 802.3ab

IEEE 802.3x

IEEE 802.3z

#### EMI/SAFETY COMPLIANCE:

FCC Part 15 Class A, CE Mark Approval

#### NETWORK CABLE CONNECTORS:

RJ45 shielded female ports

#### POWER SUPPLY:

Internal power supply

Input Voltage

100 to 240 VAC, 50 to 60Hz

Power Consumption

30 watts maximum

#### OPERATING ENVIRONMENT

Ambient Temperature:

32° to 122°F (0° to 50°C)

Ambient Humidity

5% to 90%

#### MECHANICAL:

Cooling Method: Fan cooled

## **PHYSICAL CHARACTERISTICS**

Dimensions:

8.23 x 17.4 x 1.73 in (132 x 217 x 44 mm)

**WARRANTY:**

Limited Lifetime

## 2.0 Package Contents

Examine the shipping container for obvious damage prior to installing this product. Notify the carrier of any damage that you believe occurred during shipment. Ensure that the items listed below are included. If an item is missing, please contact your supplier.

- 16 or 24 port 10/100/1000 Ethernet switch (GS1016 or GS1024)
- SFP modules (optional)
- User's manual
- AC power cord
- Mounting accessory

## 3.0 Introduction

The Waters' GS switch is a sixteen or twenty-four port unmanaged switch which meets all IEEE802.3/u/x/z specifications. This wiring closet switch will seamlessly integrate with the rest of your network through its auto negotiating and non-blocking design. The switch provides up to 32/48GBps aggregate bandwidth for an effective method for high speed networking to the desktop.

Because both models (GS1016 and GS1024) have two optional slots for SFP fiber, ports 15 and 16 in the GS1016 and ports 23 and 24 in the GS1024 can support two types of media (copper or fiber). Use of the SFP module for fiber eliminates the use of the corresponding port in copper.

Both switches support MDI/MDI-X auto crossover, so no cross over cables are required.

## 4.0 Installation

Choose a surface for your switch that is clean, smooth and near a power outlet. Make sure that there is enough clearance around the switch to allow attachment of cables, power cord and air circulation.

1. Plug in the power cord into the switch.
2. Install the proper cable for network connection.
3. Plug the power cord into the power source.
4. Screw the mounting accessory to the front side of the switch.
5. Place the chassis into the 19-inch wiring closet rail.
6. Tighten the screw to secure the chassis to the wiring closet rail.

### 4.1 Installation of SFP Modules

The optional SFP modules are hot swappable, so you can install or remove the modules while the switch is ON. Follow these instructions to install an SFP module.

1. Verify that the SFP module is the correct model and conforms to the chassis.
2. Slide the module inside the slot.
3. Be sure that the module is properly seated against the connector.
4. Connect the cable with the connector.

## 4.2 Switch Topology

Theoretically, the switch partitions the collision domain for each port so you may link switches without limitations. However, network extension (cascading levels & overall diameter) must follow IEEE 802.3/802.3u/802.3z and other 802.1 series protocol specifications, in which the limitations are the timing requirement from physical signals defined by 802.3 series specification of Media Access Control (MAC) and PHY, and layer 2 protocols such as 802.1d, 802.1q, and LACP.

The following table describes the cable and devices' bit-time delay (round trip):

1000Base-X TP, Fiber		100Base-TX TP		100Base-FX Fiber	
Round trip Delay: 4096		Round trip Delay: 512			
CAT5	11.12/m	CAT5	1.12/m	Fiber Cable:	1.0/m
Fiber	10.10/m	TP to fiber converter: 56			
Bit time unit: 1ns (1sec./1000 Mega bit)		Bit time unit: 0.01 $\mu$ s (1sec./100 Mega bit)			

Table 4.1

## 5.0 LEDs

The following table provides the status and description of the LEDs:

LED	Color	Function
POWER	Green	Lit when +5V DC power is on and good
<b>10/100/1000Ethernet TP Port 1 to 8 LED</b>		
LINK/ACT	Green	Lit when connection with remote device is good Blinks when any traffic is present
10/100/1000Mbps	Green/ Amber	Lit green when 1000Mbps speed is active Lit amber when 100Mbps speed is active Off when 10Mbps speed is active

Table 5.1

If there is a no link status, the possible causes are as follows:

- The attached device is not powered on.
- The cable may not be the correct type or is faulty.
- The installed building premise cable is faulty.
- The port may be faulty.

## 6.0 Troubleshooting

All Waters' switching products are designed to provide reliability and consistently high performance in all network environments. The installation of a Waters' GS1016 and GS1024 switch is a straightforward procedure. Should problems develop during installation or operation, this section is intended to help locate, identify and correct these types of problems. Please follow the suggestions listed below prior to contacting your supplier. However, if you are unsure of the procedures described in this section or if the Waters' GS switch is not performing as expected, do not attempt to repair the unit; instead contact your supplier for assistance or contact Waters Network Systems' Customer Support Center at **800.328.2275** or email [carolynl@watersnet.com](mailto:carolynl@watersnet.com).

### 6.1 Before Calling for Assistance

1. If difficulty is encountered when installing or operating the unit, refer back to the Installation Section of this manual. Also check to make sure that the various components of the network are operational and compatible.
2. Check the cables and connectors to ensure that they have been properly connected and the cables/wires have not been crimped or in some way impaired during installation. (About 90% of network downtime can be attributed to wiring and connector problems.)
3. Make sure that an AC power cord is properly attached to the GS switch.
4. Be certain that each AC power cord is plugged into a functioning electrical outlet. Use the PWR LEDs to verify each unit is receiving power.
5. If the problem is isolated to a network device other than the Waters' GS switch, it is recommended that the problem device be replaced with a known good device. Verify whether or not the problem is corrected. If not, go to next step. If the problem is corrected, the Waters' GS switch and its associated cables are functioning properly.
6. If the problem continues, contact Waters Network Systems Customer Service at 800.328.2275 or email [carolynl@watersnet.com](mailto:carolynl@watersnet.com) for assistance.

### **When Calling for Assistance**

Please be prepared to provide the following information.

1. A complete description of the problem, including the following:
  - a. The nature and duration of the problem
  - b. Situations when the problem occurs
  - c. The components involved in the problem
  - d. Any particular application that, when used, appears to create the problem

2. An accurate list of Waters Network Systems product model(s) involved. Include the date(s) that you purchased the products from your supplier.
3. It is useful to include other network equipment models and related hardware, including personal computers, workstations, terminals and printers; plus, the various network media types being used.
4. A record of changes that have been made to your network configuration prior to the occurrence of the problem. Any changes to system administration procedures should all be noted in this record.

## 6.2 Return Material Authorization (RMA) Procedure

All returns for repair must be accompanied by a Return Material Authorization (RMA) number. To obtain an RMA number, call Waters Network Systems Customer Service at 800.328.2275 during business hours of 8:00 am to 5:00 pm (CT) or email [carolynl@watersnet.com](mailto:carolynl@watersnet.com). When calling, please have the following information readily available:

- Name and phone number of your contact person
- Name of your company/institution
- Your shipping address
- Product name
- Failure symptoms, including a full description of the problem
- Waters Network Systems will carefully test and evaluate all returned products, will repair products that are under warranty at no charge, and will return the warranty-repaired units to the sender with shipping charges prepaid (see Warranty Information at the end of this manual for complete details). However, if Waters cannot duplicate the problem or condition causing the return, the unit will be returned as: **No Problem Found**.

Waters Network Systems reserves the right to charge for the testing of non-defective units under warranty. Testing and repair of product that is not under warranty will result in a customer (user) charge.

### 6.3 Shipping and Packaging Information

Should you need to ship the unit back to Waters Network Systems, please follow these instructions: Package the unit carefully. It is recommended that you use the original container if available. Units should be wrapped in a "bubble-wrap" plastic sheet or bag for shipping protection. (You may retain all connectors and this Installation Guide.) CAUTION: Do not pack the unit in Styrofoam "popcorn" type packing material. This material may cause electro-static shock damage to the unit.

Clearly mark the Return Material Authorization (RMA) number on the outside of the shipping container. Waters Network Systems is not responsible for your return shipping charges.

Ship the package to:

Waters Network Systems  
Attention: Customer Service  
945 37<sup>th</sup> Avenue, NW  
Rochester, MN 55901

## 7.0 Warranty

### Waters Network Systems' Warranty Statement

Waters Network Systems' products are warranted against defects in materials and workmanship. The warranty period for each product will be provided upon request at the time of purchase. Unless otherwise stated, the warranty period is for the useable life of the product.

In the event of a malfunction or other indication of product failure attributable directly to faulty materials and/or workmanship, Waters Network Systems will, at its option, repair or replace the defective products or components at no additional charge as set for herein. This limited warranty does not include service to repair damage resulting from accident, disaster, misuse, neglect, lightning, acts of God, tampering or product modification.

If a product does not operate as warranted during the applicable warranty period, Waters shall, at its option and expense, repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item. All products that are replaced will become the property of Waters. Replacement products may be new or reconditioned. Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

Waters shall not be responsible for any custom software or firmware, configuration information, or memory data of Customer contained in, stored on, or integrated with any products returned to Waters pursuant to any warranty.

Service under the warranty may be obtained by contacting Waters Network Systems and receiving a Return Material Authorization (RMA) number from Waters Network Systems. Returned product accompanied with the issued RMA number and prepaid shipping will be repaired or replaced by Waters Network Systems. Repaired or replaced products will be returned at no cost to the original Buyer and shipped via the carrier and method of delivery chosen by Waters Network Systems.

Specific warranty by product family is as follows:

ProSwitch-FixPort:	Limited Lifetime
ProSwitch-FlexPort:	Limited Lifetime
ProSwitch-GS Series	Limited Lifetime
ProSwitch-Lite:	3 Years from date of manufacture (see note)
ProSwitch-POE Series	Limited Lifetime
ProSwitch-Secure:	Limited Lifetime (see note)
ProSwitch-SecureAir+:	Limited Lifetime
ProSwitch-Xpress:	Limited Lifetime
ProSwitch-Xtreme:	Limited Lifetime (see note)
ProSwitch-CS and CSX	3 Years from date of manufacture (see note)
ProMedia Converters	3 Years from date of manufacture (see note)

Note: Warranty period for any and all external power supplies is one (1) year from date of purchase.

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