



DES-1016R+  
DES-1024R+

Top: DES-1016R+ switch with 16 auto-sensing 10/100Mbps ports.  
Bottom: DES-1024R+ switch with 24 auto-sensing 10/100Mbps ports.  
Each switch is equipped with an open slot (on the front) for you to fit in an optional 2-port 100Mbps Fast Ethernet fiber module.

## 10/100Mbps Switches for Workgroups

*These unmanaged 10/100Mbps switches are designed to enhance workgroup performance while providing a high level of flexibility. Powerful yet easy to use, these devices allow users to simply plug any port to either a 10Mbps or 100Mbps network to multiply bandwidths, boost response time and satisfy heavy load demands.*

### Choices of 16 or 24 10/100Mbps Ports

Two choices of switches are available: one with 16 10/100Mbps ports, the other with 24 10/100Mbps ports. These ports detect the network speed and auto-negotiate between 100BASE-TX and 10BASE-T, as well as full- and half-duplex.

### Auto-adjustment of MDI/MDIX Cross Over

All 10/100Mbps ports auto-adjust MDI/MDIX twisted-pair cable cross-over, eliminating the need for cross-over cables or uplink buttons. You simply plug any port to a server, a workstation or a hub, using the usual straight-through twisted-pair cable. The port will auto-sense the attached device type and adjust the Tx, Rx pin assignments accordingly before transmitting and receiving data.

### Optional 100Mbps Fiber Ports

An open slot is provided on the front panel to let you install an optional Fast Ethernet fiber module. This module provides 2 100Mbps fiber ports for 2 server connections or switch-to-switch cascading over the reliable fiber cables, which can be up to 2km long.

### Flow Control Protects Against Data Loss

Using flow control (in full duplex and applicable to all 10/100Mbps ports), the switch monitors the buffer status of each port. During peak usage, if the buffer fills to capacity, the switch detects this and signals to the attached node to delay sending new data until the switch can accept it. This operation minimizes the chance of any buffer overrun where incoming data overwrites the current data that has not been completely flushed out of the buffer. This function works with flow control supported Fast Ethernet adapters (installed in servers) connected to the switch in dedicated bandwidth configuration. It can also be applied to switch-to-switch cascading.

### Easy Expansion

Cascading 2 switches together to expand the network using the twisted-pair ports is easy. As all 10/100Mbps ports support auto-negotiation of MDI/MDIX twisted-pair cable cross-over, you simply connect 2 switches together without having to find a cross-over cable or to make sure the ports are uplink ports. At 200Mbps full-duplex speed, all ports provide a fast switch-to-switch dedicated bandwidth. 16 or 24 10/100Mbps ports

### Key Features

- 1 expansion slot for 2 optional 100Mbps fiber ports
- Full/half duplex support for each port
- Auto-learning of network configuration
- IEEE 802.3x flow control in full duplex mode for protection against data loss
- Back pressure in half duplex mode
- Auto-adjustment of MDI/MDIX cross over for each port
- Auto-correction of twisted-pair polarity reverse
- RAM buffer dynamically allocated for each port

# DES-1016R+/1024R+

## Technical Specifications

### General

#### Standards

- IEEE 802.3 10BASE-T Ethernet
- IEEE 802.3u 100BASE-TX Fast Ethernet
- IEEE 802.3u 100BASE-FX Fast Ethernet
- ANSI/IEEE 802.3 NWay auto-negotiation
- IEEE 802.3x Flow Control

#### Protocol

CSMA/CD

#### Data Transfer Rates

- Ethernet:
  - 10Mbps (half duplex)
  - 20Mbps (full duplex)
- Fast Ethernet:
  - 100Mbps (half duplex)
  - 200Mbps (full duplex)

#### Topology

Star

#### Network Cables

- 10BASE-T:
  - 2-pair UTP Cat. 3, 4, 5 (100 m)
  - EIA/TIA-568 100-ohm STP (100 m)
- 100BASE-TX:
  - 2-pair UTP Cat. 5 (100 m)
  - EIA/TIA-568 100-ohm STP (100 m)
- 100BASE-FX:
  - Multi-mode (62.5/125 um or 50/125 um fiber cabling with SC connector)

#### Number of Built-in Ports

- DES-1016R+: 10/100Mbps port x 16
- DES-1024R+: 10/100Mbps port x 24
- DES-102F: 100BASE-FX port x 2

#### Media Interface Exchange

Auto-negotiation of MDI-II/MDI-X for all 10/100Mbps ports

#### Twisted-pair Rx Reverse Polarity

Auto-correction

#### LED Report

- Per device:
  - Power
- Per 10/100Mbps port:
  - 100Mbps speeds
  - Link/activity

### Performance

#### Transmission Method

Store-and-forward

#### MAC Address Table

4K entries per device

#### Packet Filtering Rates

- Ethernet: 14,880 pps per port (half-duplex)
- Fast Ethernet: 148,810 pps per port (half-duplex)

#### Packet Forwarding Rates

- Ethernet: 14,880 pps per port (half-duplex)
- Fast Ethernet: 148,810 pps per port (half-duplex)

#### RAM Buffer

256KB per 8 ports

#### Flow Control

- IEEE 802.3x flow control per 10/100Mbps port in full Duplex
- Back pressure per 10/100Mbps port in half duplex

### Physical & Environmental

#### AC Input

100 - 240 VAC, 50/60 Hz  
Internal universal power supply

#### Power Consumption

## 10/100Mbps Unmanaged Switches

Office LAN

- DES-1016+: 39 watts (max.)
- DES-1024+: 39 watts (max.)

#### Ventilation

- DES-1016R+: 12V - 0.09A DC fan x 1
- DES-1024R+: 12V - 0.09A DC fan x 1

#### Operating Temperature

0 - 50 C (32 - 122 F)

#### Storage Temperature

-30 - 60 C (-22 - 140 F)

#### Humidity

5% - 95% non-condensing

#### Dimensions

441 x 207 x 44 mm  
(17.4 x 8.15 x 1.732 inches)  
19-inch rack-mount width, 1 U height

#### Weight

- DES-1016R+: 2.55 kg (5.62 lb.), 2.6kg (with DES-102F module)
- DES-1024R+: 2.65 kg (5.84 lb.), 2.7 kg (with DES-102F module)

#### Emission (EMI)

- FCC Class A
- CE Class A
- C-Tick
- VCCI Class A
- BSMI Class A

#### Safety

- UL (UL1950)



ACN 052 202 838



LISTED  
ITE  
E141136  
66F9

## Ordering Information

#### Ethernet/Fast Ethernet Switches

DES-1016R+ 16 10/100Mbps ports  
DES-1024R+ 24 10/100Mbps ports

#### Optional Module

DES-102F 2 100Mbps Fast Ethernet fiber ports (SC connectors)

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