

# Opal5

## 5 Port Entry Level Unmanaged Din-Rail Switch



- Entry level industrial Ethernet switch
- 1 10/100Base-TX RJ45 port or 1 100M Base FX port in SC/ST connect, 4 10/100Base-TX RJ45 ports
- Supports Auto-Sensing, Auto-Negotiation, Auto-Crossing
- Uplink port supports optional broadcast storm control (selectable through dip switch)
- Support both standard temperature models (-10 to 60°C) and wide temperature models (-40 to 75°C)
- EMC industrial level 3
- IP30 protection class
- Certification: UL508(pending), Class 1 Div 2(pending), ATEX II(pending), CE, FCC



### » Overview

The Opal5 series 5 port unmanaged Din-Rail switches are Kyland new entry level products specially designed for all industrial applications. The Opal5 switches are available with a standard operating temperature range from -10 to 60°C, or with a wide operating temperature range from -40 to 75°C. All models are with IP30 protection class and meet EMC industrial level 3 requirements.

Opal5 series support IEEE 802.3i and IEEE802.3u with 10/100M full/half-duplex, MDI/MDI-X auto-sensing. The Opal5 switches provide 9-60VDC/9-40VAC power supply with up to 2.64w full load power consumption. These switches are specially designed for harsh industrial environments certified by UL508, UL Class 1 Div 2, and ATEX II certifications.

### » Technical Specifications

#### **Standard**

IEEE 802.3i  
IEEE 802.3u  
IEEE802.3x

#### **Switch Properties**

MAC table: 2K  
Packet Buffer: 1Mbit  
Packet Forwarding Rate: 0.8Mpps  
Switching Delay: <5μs

#### **Interface**

Fast Ethernet Fiber Ports: 1 100Base-FX, SM/MM ports, SC/ST connector  
Fast Ethernet RJ45 Ports: max 5 10/100Base-TX RJ45 ports

#### **LED**

LEDs on Front Panel:  
Power LED: PWR1, PWR2  
Interface LED: Link/ACT, Speed (RJ45 port); Link/ACT(fiber port)

#### **Transmission Distance**

Twisted Pair:  
100m (Standard CAT5, CAT5e network cable)  
Multi Mode Fiber:  
1310nm, 5km (100M)  
Single Mode Fiber:  
1310nm, 40km (100M)

**Power Requirements**

Power Input:  
9-60VDC/9-40VAC  
Power Terminal:  
4-pin 5.08mm-spacing plug-in terminal block  
Power Consumption:  
Opal5-1S-4T/Opal5-1M-4T/Opal5-E-1S-4T/Opal5-E-1M-4T: full load 2.64w, standby 1.7w  
Opal5-5T/Opal5-E-5T: full load 2.16w, standby 1.2w

Overload Protection: Support  
Reverse Connection Protection: Support  
Redundancy Protection: Support

**Physical Characteristics**

Housing: Metal, fanless  
Protection Class: IP30  
Dimensions (W×H×D):  
30×115×68 mm (1.18×4.53×2.68 in.)  
Weight: 0.25kg (0.55 pound)  
Mounting: DIN-Rail

**Environmental Limits**

Operating Temperature:  
Standard Models: -10 to 60°C (14 to 140°F)  
Wide Temperature Models: -40 to 75°C (-40 to 167°F)  
Storage Temperature: -40 to 85°C (-40 to 185°F)  
Ambient Relative Humidity: 5 to 95% (non-condensing)

**MTBF**

361,000 hrs

**Warranty**

5 years

**Approvals**

UL508 (pending), Class 1 Div 2 (pending), ATEX II (pending), CE, FCC

**Industrial Standard**

EMI:  
FCC CFR47 Part 15, EN55022/CISPR22, Class A

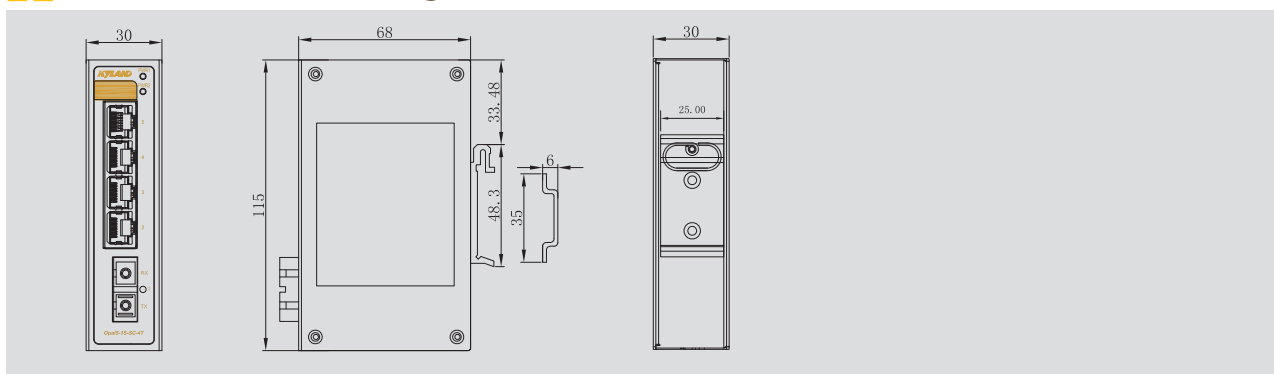
**EMS:**

IEC61000-4-2 (ESD): ±6kV (contact), ±8kV (air)  
IEC61000-4-3 (RS): 10V/m (80MHz-2GHz)  
IEC61000-4-4 (EFT): Power Port: ±2kV; Data Port: ±1kV  
IEC61000-4-5 (Surge): Power Port: ±1kV/DM, ±2kV/CM; Data Port: ±1kV  
IEC61000-4-6 (CS): 3V (10kHz-150kHz); 10V (150kHz-80MHz)

**Machinery:**

IEC60068-2-6 (Vibration)  
IEC60068-2-27 (Shock)  
IEC60068-2-32 (Free Fall)

Industry: IEC61000-6-2  
Railway: EN50155, EN50121-4  
Industry: IEC61000-6-2

**» Mechanical Drawing****» Ordering Information**

Opal5 -      -      -       
Temp Ports Connector

**Temp: Working Temperature**

E = Standard temperature models with working temperature of -10 to 60°C  
None = Wide temperature models with working temperature of -40 to 75°C

**Ports**

5T = 5 10/100Base-TX RJ45 ports  
1M-4T = 1 100Base-FX multi mode fiber port, 4 10/100Base-TX RJ45 ports  
1S-4T = 1 100Base-FX single mode fiber port, 4 10/100Base-TX RJ45 ports

**Connector: Fiber Connector**

SC = SC Connector  
ST = ST Connector

**Example Order Codes**

Opal5-E-1M-4T-SC  
1 100Base-FX multi mode fiber port with SC connector, 4 10/100Base-TX RJ45 ports, -10 to 60°C working temperature