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# DY-D8050

## Industrial Gigabit Ethernet Miniature Switch Datasheet (Miltary Grade / Temperature Hardened) UL Class 1 Division 2

DYMEC, LLC

For further information, please visit our website at: DYMEC.com
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Kansas City, Missouri, USA

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# Product Overview

The **DYMEC** Industrial Series is a range of rugged and compact Industrial Ethernet switches designed to power and connect various industrial applications in a highly reliable - non-stop network. The **DYMEC** Industrial Series products, offer a variety of features not found in lesser switch products. The DYMEC series has a wide temperature range (-40~+85C), line rate switching, non-blocking switch fabric, vibration resistance, IP40 Rated and is designed to survive harsh environments. These military grade devices are ideal for SCADA, ITS, Railway, Transportation, Telco and OSS networks. Designed for network flexibility, resiliency, reliability and security.

# Product Features

## Advanced Hardware Architecture

- Advanced hardware design: Dymec Industrial Series features Military Grade Aluminum casing, mainstream industrial chips, high-performance CPU, non-blocking switch fabric and an industrial-level power module to meet the demanding requirements across industrial networks.
- Designed tough for industrial use. Supports fanless cooling, -40 to 85ºC operating temperature range, IP40 class protection, lightning protection power>=6KV, power supply with anti-vibration feature, electromagnetic interference 4-class standard, shock and vibration resistance.

## Complete Set of Network and Security Features

- DYMEC Clean Code Technology: Prevents viruses and unwanted code from being enbedded on the device. Used for clean silicon paths to insure network security and safety.
- IEEE802.3x: Flow Control and Back Pressure
- Auto MDI / MDI-X function. Full & Half Duplex
- EN50155 / EN60068-2-6 Vibration
- EN55022 / 24 - ITE Equipment
- EN50155 / EN60068-2-27 Shock
- EN50155 / EN60068-2-32 FreeFall
- Redundant Power Inputs NEMA TS-2, RoHS
- EN50155 - Railway Application Electronics Equipment used on Rolling Stock
- EN50121-3-2 - Railway Applications Electromagnetic Compatibility / Part 3-2
- EN55011 - Industrial, Scientific and Medical (ISM) Equipment
- EN60950-1 - Safety
- EN50121-4 - Railway Applications Electromagnetic Compatibility Part 4
- FCC Part 15, Subpart B, Class A CE EN 55022 Class A
- EMC / EMS - CE, FCC, VCCI

## Flexible Deployment and Management

- Plug and Play UnManaged Industrial Ethernet Devices
- Full Line Rate Forwarding on All Ports
- Best price to performance ratio, includes easy installation.
- Flexible network deplyment & installation
- Supports both Copper and Optical (Fiber Ports)
- Supports both Fast Ethernet and Gigabit Ports
- Supports both SFP and SC Optical (Fiber) Connections
- Supports both Multimode & Singlemode Fiber Connections
- Supports both single and dual Optical (Fiber) Ports (SFP & SC)
- Full Five Year DYMEC Warranty

# Technical Specifications

| Model | Description |
|---|---|
| Fixed Ports | 5 x 10/100/1000 BaseT(X) RJ-45<br>(Military Grade / Temperature Hardened) |
| Data Processing | Store & Forward |
| Switching Capacity | 16 Gbps / Non-Blocking / includes 9K Jumbo Frame Support |
| Forwarding Rate | 14.3.Mpps |
| MAC Address Table | 1048 Entries |
| Environment | Operating temperature: -40 to 85°C |
| | Operating Humidity: 5 to 97% RH |
| | Protection Class: IP40 |
| | MTBF: >30 years |
| Electromagnetic Interference | ESD (IEC 61000-4-2) Level 4 (8K/15K)<br>RS (IEC 61000-4-3) Level 3 (10V/m)<br>EFT (IEC 61000-4-4) Level 3 (1V/2V)<br>CS (IEC 61000-4-6) Level 3 (10V/m)<br>PFMF (IEC 61000-4-8) Level4 (30A/m)<br>Surge (IEC 61000-4-5) Level 4+ (6KV/2KV)<br>DIP (IEC 61000-4-11) Level3 (10V) |
| L2 Protocols | IEEE 802.3, IEEE 802.3u, IEEE 802.3z, IEEE 802.3x,<br>Clean Code Technology, American Certified Ethernet |
| MTBF & Housing | Mean Time Between Failure - Calculated by (MIL-HDBK-217F)<br>Calculation Temperature of +25C<br>MTBF Hours - 510,304<br>Military Grade Aluminum with Structural Reinforcement<br>Dimensions: 103.5 mm x 81.5 mm x 32 mm (L x W x D)<br>Cooling Diffusion Technology via Housing (Patent Pending)<br>Removable Terminal block<br>UL/cUL Class1, Div 2, CE |
| IPv6 | Pass-through Support for IPv6.<br>Priority queue: 8 |
| Security Features | Clean Code Technology<br>American Certified Ethernet<br>Filter rogue code pass through<br>Carrier Detect LED<br>Dual Power Inputs<br>Parity Check<br>Supports ARP<br>Support for speed limitation on packet transmission<br>Supports broadcast storm suppression<br>Small form factor<br>Clean Code Technology / Secure Video Technology<br>Jumbo Frame Support 9KB |

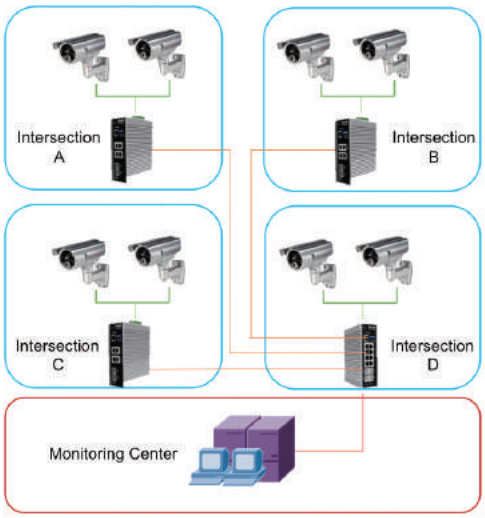
| Model | Description |
|---|---|
| Switch Architecture | Non-blocking Switch Fabric - 16 Gbps<br>Store and Forward |
| MAC Address Table<br>Packet Buffer Size | 2096 Entries<br>1 MB |
| Power Relay Contact | 6 Pin Molex Connector for PWR1, PWR2, and Alarm Relay Contact |
| Hardware Architecture | Military Grade Aluminum Housing |
| | Installation Mode: DIN rail-mount, wall-mount, or shelf mount |
| Power | DC Input:<br>Rated voltage range: 9 ~ 56 Volts DC // 18 ~36 Volts AC<br>Dual Power Inputs / Polarity Protected<br>Alarm Relay contact: 1A @ 24 Volts DC<br>Rated current: 0.5A / Overload Protected |
| Power Consumption | ≤6W (Full forwarding Rate) |
| Convection Cooling | Fanless design with high efficiency internal cooling fins |

# Typical Application

## Intelligent Layer 2 Flat IP Network Surveillance System

Each intersection is deployed with four PZT cameras (each respectively pointing north, south, east and west). Three DYMEC switches supply channels with images and videos to three HDTV monitors. Video and Data is reliably transmitted over the network to the intersection via Gigabit optical fiber. The DYMEC switch aggregates and transmits traffic lights control details, environmental monitoring data and video data to the control branch through optical fiber. Such data are finally sent to the traffic control and maintenance center via the core network.

Use **DYMEC** Switches or DYMEC Traffic Switches




Intelligent IP Surveillance System
for Security & Intelligent Traffic Systems

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# Switch Ordering Information

| Model Number | Product Description |
|---|---|
| **DY-6041SC** | 5-port Industrial - 4 x 10/100 BaseT(X) RJ-45 & 1 x 100 Mbps SC, MM, 2Km |
| **DY-6041SC-30** | 5-port Industrial - 4 x 10/100 BaseT(X) RJ-45 & 1 x 100 Mbps SC, SM, 30Km |
| **DY-6041T** | 5-port Industrial - 5 x 10/100 BaseT(X) RJ-45 (Military Grade) |
| **DY-6042SC** | 6-port Industrial - 4 x 10/100 BaseT(X) RJ-45 & 2 x 100 Mbps SC, MM, 2Km |
| **DY-6042SC-30** | 6-port Industrial - 4 x 10/100 BaseT(X) RJ-45 & 2 x 100 Mbps SC, SM, 30Km |
| **DY-D8050 (Gig)** | 5-port Industrial - 5 x 10/100/1000 BaseT(X) RJ-45 |
| **DY-D8080 (Gig)** | 8-port Industrial - 8 x 10/100/1000 BaseT(X) RJ-45 (Military Grade) |

# Power Supply, Surge Protection & SFP Ordering Information

| Model | Description |
|---|---|
| **KY-PS48-120W** (Din Rail / PoE) | 48 Volts DC - 120 Watt Power Supply, 110/220 VAC 50/60Hz (PoE / Temperature Hardened / Military Grade) |
| **KY-PS48-240W** (Din Rail / PoE) | 48 Volts DC - 120 Watt Power Supply, 110/220 VAC 50/60Hz (PoE / Temperature Hardened / Military Grade) |
| **KY-SPD-GRJ45PoE** SPD | Mini, Gigabit, RJr5, Heavy Duty, Industrial, Fast Clamping SPD (PoE / Temperature Hardened / Military Grade) |
| **KY-PS24-18W** | 24 Volts DC - 18 Watt Power Supply, 110/220 VAC |
| | **SFP with Diagnostics (SM Only)** |
| **KY-CGSFP-TXRJ** | 1000BASE-TX, SFP Transceiver (100m) (Supports CAT5-7) |
| **KY-MGSFP-550M** | 1000BASE, SFP Transceiver, MM (850nm, 550m, LC) |
| **KY-MGSFP-LR2KM** | 1000BASE, SFP Transceiver, MM (1310nm, 2Km, LC) |
| **KY-SGSFP-LX10K** | 1000BASE, SFP Transceiver, SM (1310nm, 10Km, LC) |
| **KY-SGSFP-LX20K** | 1000BASE, SFP Transceiver, SM (1310nm, 20Km, LC) |
| **KY-SGSFP-LX40K** | 1000BASE, SFP Transceiver, SM (1310nm, 40Km, LC) |
| **KY-SGSFP-ZX80K** | 1000BASE, SFP Transceiver, SM (1550nm, 80Km, LC) |

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## American Certified Ethernet

Dymec Products are American Certified Ethernet and are guaranteed to not contain counterfeit chips or assemblies from China, or Asia. Counterfeit IC's and assemblies result in slower performance and degraded product lifetimes. Premature failure and hazardous ignition can occur with the use of counterfeit ic assemblies.

American Certified Ethernet guarantees only first quality materials, subject to stringent ISO, IEC, MIL-STD, MIL-PRF, ISO9001 and IEEE standards are used.




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