# USER MANUAL

DIN Rail Industrial Ethernet Switches

# Multilingual Instruction Manuals



## *https://wiwav.com/pages/downloads*

EN - Please scan QR code or visit website to download and browse the English version of WIWAV product instruction manual.

IT - Eseguire la scansione del codice QR o visitare il sito Web per scaricare e sfogliare la versione italiana WIWAV del manuale di istruzioni del prodotto.

DE - Bitte scannen Sie den QR-Code oder besuchen Sie die Website, um die deutsche Version der WIWAV Bedienungsanleitung herunterzuladen und zu durchsuchen.

FR - Veuillez scanner le code QR ou visiter le site Web pour télécharger et parcourir la version française du manuel d'instructions du produit WIWAV.

ES - Escanee el código QR o visite el sitio web para descargar y navegar por la versión WIWAV en español del manual de instrucciones del producto.

JP - QRコードをスキャンするか、Webサイトにアクセスして、WIWAVの日本語版製品取扱説明書をダウンロードしてご参照ください。

CN - 请扫描二维码或访问网站下载浏览WIWAV中文版产品使用说明书。

# *Contents*

## Introduction

## Product description

## Installation

Sales, Order & Technical Support - supports@wiwav.com | WIWAV Technical Support Center
WIWAV INC. 3048 Deerfield Pl, #A, Chino Hills, CA 91709
United States

**About This Manual**
The "Installation User Manual" document contains a device description, safety instructions, a display description and further information that you require to install the device.

**Description**
The WIWAV's Industrial Ethernet Switches are designed for the special requirements of industrial automation. They meet the relevant Environmental Regulations, provide very high operational reliability, even under extreme conditions, and also long-term reliability and flexibility.
You have the ability to connect devices or other segments to the ports of the switch via twisted-pair cables. All models work without a fan and mounted by latching in place on a DIN rail.

# General Safety Instruction

You operate this device with electricity. Improper usage of the device entails the risk of physical injury or significant property damage. The proper and safe operation of this device depends on proper handling during transportation, proper storage and installation, and careful operation and maintenance procedures.

- Before connecting any cable, read this document, and the safety instructions and warnings.
- Operate the device with undamaged components exclusively.
- The device is free of any service components. In case of a damaged or malfunctioning the device, turn off the supply voltage and return the device to WIWAV for inspection.
- The assembly guidelines provided in these instructions must be strictly adhered to in order to observe the EMC threshold values.

---

⚠ **WARNING**

---

**UNCONTROLLED MACHINE ACTIONS**

To avoid uncontrolled machine actions caused by data loss, configure all the data transmission devices individually.
Before you start any machine which is controlled via data transmission, be sure to complete the configuration of all data transmission devices.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

---

⚠

## Warning!
ELECTRIC SHOCK

Connect only a supply voltage that corresponds to the type plate of your device.
Never insert sharp objects (small screwdrivers, wires, etc.) into the connection terminals for the supply voltage, and do not touch the terminals.
Failure to follow these instructions can result in death, serious injury, or equipment damage.

**Note:**
The information provided in this catalog contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract. Availability and technical specifications are subject to change without notice.

All product designations may be trademarks or product names of WIWAV or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.

# Packing List

| Item No. | Description | Quantity |
|----------|-------------|----------|
| 1 | Industrial Ethernet Switches | 1 or 2 |
| 2 | User Manual | 1 |
| 3 | DC Power Pigtail Cable | 1 |
| 4 | Grounding Pigtail | 1 |

http://www.wiwav.com

| Item | Model | Description |
|------|-------|-------------|
| 1 | WDH-2ET1FX-DC | 3-Port 10/100Mbps Industrial Ethernet Media Converter |
| 2 | WDH-5ET-DC<br>WDH-5GT-DC | 5-Port 10/100Mbps & 10/100/1000Mbps Industrial Ethernet Switches |
| 3 | WDH-5ET-POE<br>WDH-5GT-POE | 5-Port 10/100Mbps & 10/100/1000Mbps PoE Industrial Ethernet Switches |
| 4 | WDH-4ET1FX-DC<br>WDH-4GT1GX-DC | 5-Port 10/100Mbps & 10/100/1000Mbps Industrial Ethernet Switches |
| 5 | WDH-4ET1FX-POE<br>WDH-4GT1GX-POE | 5-Port 10/100Mbps & 10/100/1000Mbps PoE Industrial Ethernet Switches |
| 6 | WDH-8ET-DC<br>WDH-8GT-DC | 8-Port 10/100Mbps & 10/100/1000Mbps Industrial Ethernet Switches |
| 7 | WDH-8ET1GT1GF-POE<br>WDH-9GT1GF-POE | 10-Port 10/100Mbps & 10/100/1000Mbps PoE Industrial Ethernet Switches |
| 8 | WDH-16ET-DC<br>WDH-16GT-DC | 16-Port 10/100Mbps & 10/100/1000Mbps Industrial Ethernet Switches |
| 9 | WDH-16ET2GF-DC<br>WDH-16GT2GF-DC | 18-Port 10/100Mbps & 10/100/1000Mbps Industrial Ethernet Switches |

## Quick Installation

This product is intended to be supplied by a LPS Listed Power Unit(Ext.), Output rated 12V~48VDC, 1A~2.5A, or 12V~48VDC, 1.5A~3A, or 48V~57VDC, 3A~6A, Tma= 75°C or 85°C, Altitude of operation 5000m, non-energy hazards.

The devices have been developed for practical application in a harsh industrial environment.

On delivery, the device is ready for operation. to configure and operating, follow these steps:

• Checking the package contents;

• Mounting the device (Wall Mount / Flat-Horizontal Mount / Hang / DIN-Rail Mount);

• Wiring the terminal block (P1 or P2)  for the supply voltage, general model for DC 12/24/36/48V (1~3A) or PoE model for 48/52/57V (3~6A) and the grounding;

• Operating the device, connecting data cables.
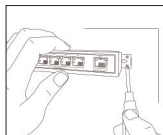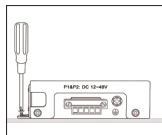


**Wall Mount**　　**Flat or Horizontal**　　**Hang**　　**DIN Rail Mount**
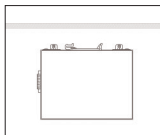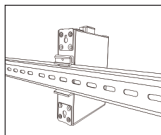
## 1.1 Plug and play simplicity with industrial-grade reliability

The WIWAV range of unmanaged industrial Ethernet switches are designed for use in such demanding applications as railways, water treatment, substation automation, roads and tunnels, as well as factory automation, IP surveillance and building automation systems (BMS). With multiple options for fibre optic and copper connectivity, PoE (Power over Ethernet) support, and little to no configuration required, our unmanaged industrial Ethernet switches ensure maintaining your network is made easy.

### The benefits at a glance – Highlights

- Cost-effective construction of small networks
- Comprehensive product portfolio
- Simple operation. Space-saving design
- Data transfer rates from 10/100Mbit/s or 1Gbit/s
- Auto-crossover/auto-negotiation. -30°C~+75°C

The robust WIWAV unmanaged Industrial Ethernet switches with electrical and/or optical port variants enable a cost-optimized machine level networking - even when subjected to extreme temperature fluctuations.
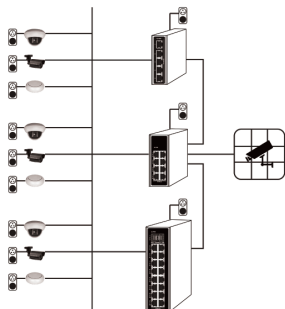
Conquer the tough demands of industrial environments Designed with a rugged IP30-rated housing, the network switch delivers maximum performance even in harsh industrial conditions. Its wide-range terminal block input gives you the flexibility to power the switch as required, based on your own power input source, while its wide operating temperature range keeps your network running smoothly. Get up and running in no time - This industrial ethernet switch is easy to install, with an attached metal bracket for DIN rail mounting on equipment racks and cabinets.

Besides the compact and small form factor, a robust network for extreme ambient conditions also is an important factor. For instance, switches are used in the food production in refrigerated warehouses and freezers. For that, Ethernet components must be able to withstand temperatures below freezing. The switches must function not only in true critical temperature environments but also in potentially explosive atmospheres, e.g., caused by gases, vapors or mists.

## 2.1 WDH-2ET1FX-DC

### 2.1.1 Overview of the device elements

Figure 2-1 shows the mechanical dimension details of the 3 Port Industrial Ethernet Media Converter series model.

● 2 x 10/100Mbit/s RJ45 + 1 x 100Mbit/s Built-in BIDI Single-mode SC Fiber,  Up to 20km

 ● The compact MINI design lets you work in practically any size space, including close to electrical cabinet and walls, without compromising performance.

● Overload, Reverse connect protection
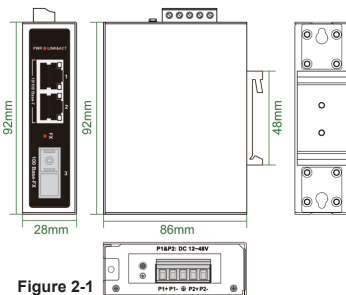


**Figure 2-1**

The WDH-2ET1FX-DC is designed for setting up electrical or optical networks with direct current (12~48 VDC) for the easy connection of Ethernet nodes in buildings and for industrial purposes.The 3 Port unmanaged Industrial Ethernet Media Converters of the WDH product line facilitate flexible and straight forward media conversion from copper to fiber-optic cables.

| | | |
|---|---|---|
| **FEATURES & BENEFITS** | COMPACT MINI SIZE | Compact 3-port Ethernet switch with 100Mbps automatic MDI/MDI-X crossover for plug-and-play |
| | LOW POWER CONSUMPTION | Energy-Efficient Ethernet (Power Consumption <2 watts) , Wide range 12/24/36/48V DC terminal block input |
| | ROBUST AND RELIABLE | Can be used in extreme industrial environments; Supports a wide range of operating temperatures -22°F~167°F (-30°C~+75°C) |
| | EASY TO USE | DIN rail mountable with built-in bracket, Robust IP30-rated housing |

### 2.1.2 Datasheet 2-1  Front Panel

After the working voltage is set up, the software starts and initializes itself.

Afterwards, the device performs a self-test. During this process, various LEDs light up.

| Display | Meaning | Color | LED Status | Instruction |
|---|---|---|---|---|
| PWR | Power Status | Green | Lights up | The device has been activated |
| | | | Turn off | Device is not ready for operation |
| LINK&ACT | Ports Status | Yellow &Green | Flashing | Device is transmitting and/or receiving data |
| | | | Turn off | No connection or link lost during data transfer |

### 2.1.3 Datasheet 2-2  Slide Panel

| Figure | Specification of the supply voltage |
|---|---|
| P1 / P2 | Rated voltage range DC 12V~48V, pluggable terminal block for power supply and grounding. |
| ⊕ ⊕ ⊥ | Functional ground connection. |

### 2.1.4 Datasheet 2-3  Rear Panel

| Accessories | Description |
|---|---|
| DIN Rail Clip | The sturdy DIN rail clip come in handy for standard 35mm DIN rail mounting devices. |
| Metal Brackets | With "L" shaped metal brackets, More easy to mounting on equipment racks and cabinets. |

### 2.1.5 Datasheet 2-4  Product Specifications

| Interfaces | | | |
|---|---|---|---|
| WDH-2ET1FX-DC | 2 x 10M/100M RJ45 + 1 x 100M Built-in BIDI SC Optical Transceiver Module, Up to 20km | | |
| **Specifications** | | | |
| Communication Protocol | IEEE 802.3u 10/100Base-TX + 802.3u 100Base-TX/FX | | |
| MAC Table | 1K | Packet Forwarding Rate | 0.4464Mpps |
| Packet Buffer | 448K | Switching Capacities | 600Mbps |
| *Power Consumption* | | | |
| Max. Power Consumption | <2W | No-load Power Consumption | <1W |
| **Connectors and Cabling** | | | |
| Ethernet Ports | 100 Meter ( RJ45 ) | Fiber Slot | 1 x Built-in BIDI SC / 20km |
| Power Terminal | 5 x 5.08mm terminal block | PoE Function | Not Support |
| **Safety Certifications & Compliance Specifications** | | | |
| Environmental Regulation | RoHS / REACH（SVHC) | QMS | ISO9001 |
| Compliance Marking | UL / cUL / IEC EN 62368-1 / FCC (North America) / CE (Europe) / PSE (Japan) | | |
| EMI and EMC Compliance Reliability Testing | FCC 47 CFR Part 15, Subpart B  |  EMC Directive 2014/30/EU  EN 61000-4-2 ESD Level 4 (±8kV Contact Discharge ±15kV Air Discharge),  EN 61000-4-3 RS Level 4 (30V/m 1kHz),  EN 61000-4-4 EFT Level 4 (4kV 2kV),  EN 61000-4-5 Surge Level 4 (4kV Line to Ground),  EN 61000-4-6 CS Level 3 (10Vrms 1kHz),  EN 61000-4-8 PFMF Level 4 (30A/m)  |  Mechanical Shock Test / IEC 60068-2-27:2008, Sinusoidal Vibration Test / IEC 60068-2-6:2007,  Free Fall / IEC 60068-2-31:2008 | | |
| **Environmental Specifications** | | | |
| Operating Temperature | -22°F~167°F (-30°C~75°C) | Storage Temperature | -49°F~185°F (-45°C~85°C) |
| Humidity | 5%-95% (Noncondensing) | MTBF | 357,000 hours |
| **Mechanical** | | | |
| Housing | Metal & Fanless | Degree of Protection | IP30 |
| Weight | 0.3kg | Mounting | DIN-Rail / Wall / Flat / Hang |
| Dimensions | W: 28mm x H: 92mm x D: 86mm (Not including DIN rail and accessories) | | |

## 2.2 **WDH-5ET-DC / WDH-5GT-DC**

### *2.2.1 Overview of the device elements*

Figure 2-2 shows the mechanical
dimension details of the various 5 Port
WDH series models.

● 5 x RJ45 socket for 10/100/1000Mbit/s or
10/100Mbit/s Twisted Pair connections
● 5-Pin pluggable terminal block
● LED display element for device status
● Low Power Consumption
● Overload, Reverse connect protection
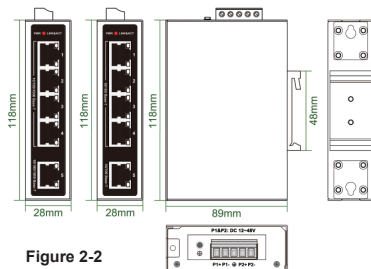● Metal Brackets for DIN and Multi-Mounting



**Figure 2-2**

WIWAV 5 Port industrial ethernet switch provides top performance in a wider range of operating
temperatures than conventional network switches, making it ideal for factories and warehouses.
The WDH series give you full/half-duplex auto-negotiation and auto MDI/MDIX operation, enabling
you to connect your network devices quickly and easily with little to no configuration required.

| | | |
|---|---|---|
| **FEATURES & BENEFITS** | COMPACT SIZE | Compact 5-port Ethernet Switch with 10/100 or 1000Mbps automatic MDI/MDI-X crossover for plug-and-play |
| | LOW POWER CONSUMPTION | Energy-Efficient Ethernet (Power Consumption <1 watts or 4 watts) , Wide range 12/24/36/48V DC terminal block input |
| | FAST DATA TRANSMISSION | Each port supports both 10/100 or 1000Mbps speed auto negotiation, Supports IEEE 802.3, 802.3u, 802.3x standard |
| | ROBUST AND RELIABLE | Can be used in extreme industrial environments; Supports a wide range of operating temperatures -22°F~167°F (-30°C~+75°C) |
| | EASY TO USE | DIN rail mountable with built-in bracket, Robust IP30-rated housing |

### *2.2.2 Datasheet 2-5  Front Panel*

After the working voltage is set up, the software starts and initializes itself.

Afterwards, the device performs a self-test. During this process, various LEDs light up.

| Display | Meaning | Color | LED Status | WDH-5ET-DC | WDH-5GT-DC |
|---|---|---|---|---|---|
| PWR | Power Status | Green | Lights up / Turn off | The device has been activated / Device is not activated | |
| LINK& ACT | Ports Status | Yellow &Green | Yellow flashing | Device is transmitting and/or receiving data | |
| | | | Yellow turn off | No connection or link lost during data transfer | |
| | | | Green flashing / lights up | Device is transmitting and/ or receiving data | 1000M connected and working |
| | | | Green turn off | No connection or link lost | 100M connected and working |

8

### 2.2.3 Datasheet 2-6  Slide Panel

| Figure | Specification of the supply voltage |
|---|---|
| P1 / P2 | Rated voltage range DC 12V~48V, pluggable terminal block for power supply and grounding. |
| ⊕ ⊜ ⏚ | Functional ground connection. |

### 2.2.4 Datasheet 2-7  Rear Panel

| Accessories | Description |
|---|---|
| DIN Rail Clip | The sturdy DIN rail clip come in handy for standard 35mm DIN rail mounting devices. |
| Metal Brackets | With "L" shaped metal brackets, More easy to mounting on equipment racks and cabinets. |

### 2.2.5 Datasheet 2-8  Product Specifications

| Interfaces | WDH-5ET-DC | | WDH-5GT-DC | |
|---|---|---|---|---|
| Port Description | 5 x 10M/100M RJ45 | | 5 x 10M/100M/1000M RJ45 | |
| Communication Protocol | IEEE 802.3/u 10/100Base-TX | | IEEE 802.3/u/ab 10/100/1000Base-T | |
| **Specifications** | | | | |
| MAC Table | 1K / 2K | Packet Forwarding Rate | 0.74Mpps / 7.44Mpps | |
| Packet Buffer | 448K / 1M | Switching Capacities | 1Gbps / 10Gbps | |
| **Power Consumption** | | | | |
| Max. Power Consumption | <1W / <4W | No-load Power Consumption | <0.5W / <1W | |
| **Connectors and Cabling** | | | | |
| Ethernet Ports | 100 Meter ( RJ45 ) | Fiber Slot | None | |
| Power Terminal | 5 x 5.08mm terminal block | PoE Function | Not Support | |
| **Safety Certifications & Compliance Specifications** | | | | |
| Environmental Regulation | RoHS / REACH（SVHC) | QMS | ISO9001 | |
| Compliance Marking | UL / cUL / IEC EN 62368-1 / FCC (North America) / CE (Europe) / PSE (Japan) | | | |
| EMI and EMC Compliance Reliability Testing | FCC 47 CFR Part 15, Subpart B ｜ EMC Directive 2014/30/EU  EN 61000-4-2 ESD Level 4 (±8kV Contact Discharge ±15kV Air Discharge), EN 61000-4-3 RS Level 4 (30V/m 1kHz), EN 61000-4-4 EFT Level 4 (4kV 2kV), EN 61000-4-5 Surge Level 4 (4kV Line to Ground), EN 61000-4-6 CS Level 3 (10Vrms 1kHz), EN 61000-4-8 PFMF Level 4 (30A/m) ｜ Mechanical Shock Test / IEC 60068-2-27:2008, Sinusoidal Vibration Test / IEC 60068-2-6:2007, Free Fall / IEC 60068-2-31:2008 | | | |
| **Environmental Specifications** | | | | |
| Operating Temperature | -22°F~167°F (-30°C~75°C) | Storage Temperature | -49°F~185°F (-45°C~85°C) | |
| Humidity | 5%-95% (Noncondensing) | MTBF | 357,000 hours | |
| **Mechanical** | | | | |
| Housing | Metal & Fanless | Degree of Protection | IP30 | |
| Weight | 0.35kg | Mounting | DIN-Rail / Wall / Flat / Hang | |
| Dimensions | W: 28mm x H: 118mm x D: 89mm (Not including DIN rail and accessories) | | | |

## 2.3 WDH-5ET-POE / WDH-5GT-POE

### 2.3.1 Overview of the device elements

Figure 2-3 shows the mechanical dimension details of the various 5 Port WDH PoE series models.

● 5 x RJ45 socket for 10/100/1000Mbit/s or 10/100Mbit/s Twisted Pair connections
● Power Over Ethernet PoE Models
● LED display element for device status
● Overload, Reverse connect protection
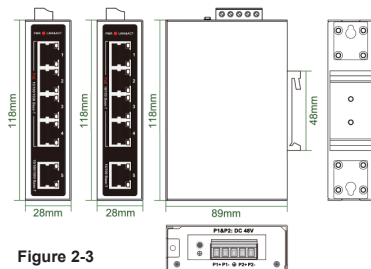● Metal Brackets for DIN and Multi-Mounting

**Figure 2-3**

The WDH 5 Port PoE series feature different port characteristics which enables small networks to be constructed with the right switch for the respective application, e.g. for hazardous areas. The available port density helps to save costs. And with WDH-5ET-POE and WDH-5GT-POE, These are possible to supply up to 4 terminal devices via Power-over-Ethernet (PoE) with data and power simultaneously.

| | | |
|---|---|---|
| **FEATURES & BENEFITS** | COMPACT SIZE | Compact 5-port Ethernet Switch with 10/100 or 1000Mbps automatic MDI/MDI-X crossover for plug-and-play |
| | PoE SUPPORT | Power-Over-Ethernet PoE function supports |
| | FAST DATA TRANSMISSION | Each port supports both 10/100 or 1000Mbps speed auto negotiation, Supports IEEE 802.3, 802.3u, 802.3x standard |
| | ROBUST AND RELIABLE | Can be used in extreme industrial environments; Supports a wide range of operating temperatures -22°F~167°F (-30°C~+75°C) |
| | EASY TO USE | DIN rail mountable with built-in bracket, Robust IP30-rated housing |

### 2.3.2 Datasheet 2-9  Front Panel

After the working voltage is set up, the software starts and initializes itself.

Afterwards, the device performs a self-test. During this process, various LEDs light up.

| Display | Meaning | Color | LED Status | WDH-5ET-POE | WDH-5GT-POE |
|---|---|---|---|---|---|
| PWR | Power Status | Green | Lights up / Turn off | The device has been activated / Device is not activated | |
| LINK& ACT | Ports Status | Yellow &Green | Yellow flashing | Device is transmitting and/or receiving data | |
| | | | Yellow turn off | No connection or link lost during data transfer | |
| | | | Green flashing / lights up | Device is transmitting and/ or receiving data | 1000M connected and working |
| | | | Green turn off | No connection or link lost | 100M connected and working |

### 2.3.3 Datasheet 2-10  Slide Panel

| Figure | Specification of the supply voltage |
|---|---|
| P1 / P2 | PoE 48~57V ( 4 Ports PoE support ) pluggable terminal block for power supply and grounding. |
| ⊕ ⊕ ⏚ | Functional ground connection. |

### 2.3.4 Datasheet 2-11  Rear Panel

| Accessories | Description |
|---|---|
| DIN Rail Clip | The sturdy DIN rail clip come in handy for standard 35mm DIN rail mounting devices. |
| Metal Brackets | With "L" shaped metal brackets, More easy to mounting on equipment racks and cabinets. |

### 2.3.5 Datasheet 2-12  Product Specifications

| Interfaces | WDH-5ET-POE | | WDH-5GT-POE | |
|---|---|---|---|---|
| Port Description | 5 x 10M/100M RJ45 | | 5 x 10M/100M/1000M RJ45 | |
| Communication Protocol | IEEE 802.3/u/af/at 10/100Base-TX | | IEEE 802.3/u/ab/af/at 10/100/1000Base-T | |
| **Specifications** | | | | |
| MAC Table | 1K / 2K | Packet Forwarding Rate | 0.74Mpps / 7.44Mpps | |
| Packet Buffer | 448K / 1M | Switching Capacities | 1Gbps / 10Gbps | |
| **Max. Power Consumption** | | | | |
| PoE Power Consumption | <63W / <64W | Non-PoE Power Consumption | <1W / <4W | |
| **Connectors and Cabling** | | | | |
| Ethernet Ports | 100 Meter ( RJ45 ) | Fiber Slot | None | |
| Power Terminal | 5 x 5.08mm terminal block | PoE Function | Support | |
| **Safety Certifications & Compliance Specifications** | | | | |
| Environmental Regulation | RoHS / REACH（SVHC） | QMS | ISO9001 | |
| Compliance Marking | UL / cUL / IEC EN 62368-1 / FCC (North America) / CE (Europe) / PSE (Japan) | | | |
| EMI and EMC Compliance Reliability Testing | FCC 47 CFR Part 15, Subpart B ｜ EMC Directive 2014/30/EU EN 61000-4-2 ESD Level 4 (±8kV Contact Discharge ±15kV Air Discharge),  EN 61000-4-3 RS Level 4 (30V/m 1kHz),  EN 61000-4-4 EFT Level 4 (4kV 2kV),  EN 61000-4-5 Surge Level 4 (4kV Line to Ground),  EN 61000-4-6 CS Level 3 (10Vrms 1kHz),  EN 61000-4-8 PFMF Level 4 (30A/m) ｜ Mechanical Shock Test / IEC 60068-2-27:2008,  Sinusoidal Vibration Test / IEC 60068-2-6:2007,  Free Fall / IEC 60068-2-31:2008 | | | |
| **Environmental Specifications** | | | | |
| Operating Temperature | -22°F~167°F (-30°C~75°C) | Storage Temperature | -49°F~185°F (-45°C~85°C) | |
| Humidity | 5%-95% (Noncondensing) | MTBF | 357,000 hours | |
| **Mechanical** | | | | |
| Housing | Metal & Fanless | Degree of Protection | IP30 | |
| Weight | 0.35kg | Mounting | DIN-Rail / Wall / Flat / Hang | |
| Dimensions | W: 28mm x H: 118mm x D: 89mm (Not including DIN rail and accessories) | | | |

## 2.4 **WDH-4ET1FX-DC / WDH-4GT1GX-DC**

### *2.4.1 Overview of the device elements*

Figure 2-4 shows the mechanical dimension
details of the various 5 Port Industrial Ethernet
Media Converter series models.

● 4 x 10/100Mbit/s or 1000Mbit/s RJ45 and
1 x 100Mbit/s or 1000Mbit/s Built-in BIDI
Single-mode SC Fiber,  Up to 20km
● LED display element for device status
● Low Power Consumption
● Overload, Reverse connect protection
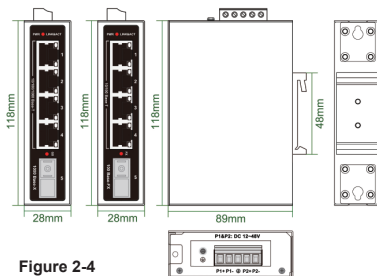● Metal Brackets for DIN and Multi-Mounting    **Figure 2-4**

The WDH-4ET1FX-DC and WDH-4GT1GX-DC are designed for setting up electrical or optical
networks with direct current (12~48 VDC) for the easy connection of Ethernet nodes in buildings
and for industrial purposes.The 5 Port unmanaged Industrial Ethernet Media Converters of the WDH
product line facilitate flexible and straight forward media conversion from copper to fiber-optic cables.

| | | |
|---|---|---|
| **FEATURES & BENEFITS** | COMPACT SIZE | Compact 5-port Ethernet Switch with 10/100 or 1000Mbps automatic MDI/MDI-X crossover for plug-and-play |
| | LOW POWER CONSUMPTION | Energy-Efficient Ethernet (Power Consumption <2 watts or 4 watts) , Wide range 12/24/36/48V DC terminal block input |
| | FAST DATA TRANSMISSION | Each port supports both 10/100 or 1000Mbps speed auto negotiation, Supports IEEE 802.3, 802.3u, 802.3x standard |
| | ROBUST AND RELIABLE | Can be used in extreme industrial environments; Supports a wide range of operating temperatures -22°F~167°F (-30°C~+75°C) |
| | EASY TO USE | DIN rail mountable with built-in bracket, Robust IP30-rated housing |

### *2.4.2 Datasheet 2-13  Front Panel*

After the working voltage is set up, the software starts and initializes itself.

Afterwards, the device performs a self-test. During this process, various LEDs light up.

| Display | Meaning | Color | LED Status | WDH-4ET1FX-DC | WDH-4GT1GX-DC |
|---|---|---|---|---|---|
| PWR | Power Status | Green | Lights up / Turn off | The device has been activated / Device is not activated | |
| LINK& ACT | Ports Status | Yellow &Green | Yellow flashing | Device is transmitting and/or receiving data | |
| | | | Yellow turn off | No connection or link lost during data transfer | |
| | | | Green flashing / lights up | Device is transmitting and/ or receiving data | 1000M connected and working |
| | | | Green turn off | No connection or link lost | 100M connected and working |

### 2.4.3 Datasheet 2-14  Slide Panel

| Figure | Specification of the supply voltage |
|---|---|
| P1 / P2 | Rated voltage range DC 12V~48V, pluggable terminal block for power supply and grounding. |
| ⊕ ⏚ ⊥ | Functional ground connection. |

### 2.4.4 Datasheet 2-15  Rear Panel

| Accessories | Description |
|---|---|
| DIN Rail Clip | The sturdy DIN rail clip come in handy for standard 35mm DIN rail mounting devices. |
| Metal Brackets | With "L" shaped metal brackets, More easy to mounting on equipment racks and cabinets. |

### 2.4.5 Datasheet 2-16  Product Specifications

| Interfaces | WDH-4ET1FX-DC | | WDH-4GT1GX-DC | |
|---|---|---|---|---|
| Port Description | 4 x 10M/100M RJ45 + 1 x Built-in 100M BIDI SC, Up to 20km | | 4 x 10/100/1000M RJ45 + 1 x Built-in 1000M BIDI SC, Up to 20km | |
| Communication Protocol | IEEE 802.3u 10/100Base-TX + 802.3u 100Base-TX/FX | | IEEE 802.3/u/ab 10/100/1000Base-T + IEEE 802.3z 1000Base-LX | |
| **Specifications** | | | | |
| MAC Table | 1K / 2K | | Packet Forwarding Rate | 0.74Mpps / 7.44Mpps |
| Packet Buffer | 448K / 1M | | Switching Capacities | 1Gbps / 10Gbps |
| **Power Consumption** | | | | |
| Max. Power Consumption | <2W / <4W | | No-load Power Consumption | <1W |
| **Connectors and Cabling** | | | | |
| Ethernet Ports | 100 Meter（RJ45） | | Fiber Slot | 1 x Built-in BIDI SC / 20km |
| Power Terminal | 5 x 5.08mm terminal block | | PoE Function | Not Support |
| **Safety Certifications & Compliance Specifications** | | | | |
| Environmental Regulation | RoHS / REACH（SVHC） | | QMS | ISO9001 |
| Compliance Marking | UL / cUL / IEC EN 62368-1 / FCC (North America) / CE (Europe) / PSE (Japan) | | | |
| EMI and EMC Compliance Reliability Testing | FCC 47 CFR Part 15, Subpart B ｜ EMC Directive 2014/30/EU<br>EN 61000-4-2 ESD Level 4 (±8kV Contact Discharge ±15kV Air Discharge), EN 61000-4-3 RS Level 4 (30V/m 1kHz), EN 61000-4-4 EFT Level 4 (4kV 2kV), EN 61000-4-5 Surge Level 4 (4kV Line to Ground), EN 61000-4-6 CS Level 3 (10Vrms 1kHz), EN 61000-4-8 PFMF Level 4 (30A/m) ｜ Mechanical Shock Test / IEC 60068-2-27:2008, Sinusoidal Vibration Test / IEC 60068-2-6:2007, Free Fall / IEC 60068-2-31:2008 | | | |
| **Environmental Specifications** | | | | |
| Operating Temperature | -22°F~167°F (-30°C~75°C) | | Storage Temperature | -49°F~185°F (-45°C~85°C) |
| Humidity | 5%-95% (Noncondensing) | | MTBF | 357,000 hours |
| **Mechanical** | | | | |
| Housing | Metal & Fanless | | Degree of Protection | IP30 |
| Weight | 0.35kg | | Mounting | DIN-Rail / Wall / Flat / Hang |
| Dimensions | W: 28mm x H: 118mm x D: 89mm (Not including DIN rail and accessories) | | | |

## 2.5 WDH-4ET1FX-POE / WDH-4GT1GX-POE

### 2.5.1 Overview of the device elements

Figure 2-5 shows the mechanical dimension details of the various WDH 5 Port PoE Industrial Ethernet Media Converter models.

● 4 x 10/100Mbit/s or 1000Mbit/s RJ45 and 1 x 100Mbit/s or 1000Mbit/s Built-in BIDI Single-mode SC Fiber,  Up to 20km
● Power Over Ethernet PoE Models
● LED display element for device status
● Overload, Reverse connect protection
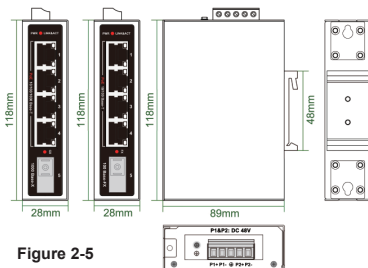● Metal Brackets for DIN and Multi-Mounting

**Figure 2-5**

The WDH 5 Port Industrial Ethernet Media Converter PoE series feature different port characteristics which enables small networks to be constructed with the right switch for the respective application, e.g. for hazardous areas. The available port density helps to save costs. And with WDH-4ET1FX-POE and WDH-4GT1GX-POE, These are possible to supply up to 4 terminal devices via Power-over-Ethernet (PoE) with data and power simultaneously.

| FEATURES & BENEFITS | | |
|---|---|---|
| | COMPACT SIZE | Compact 5-port Ethernet Switch with 10/100 or 1000Mbps automatic MDI/MDI-X crossover for plug-and-play |
| | PoE SUPPORT | Power-Over-Ethernet PoE function supports |
| | FAST DATA TRANSMISSION | Each port supports both 10/100 or 1000Mbps speed auto negotiation, Supports IEEE 802.3, 802.3u, 802.3x standard |
| | ROBUST AND RELIABLE | Can be used in extreme industrial environments; Supports a wide range of operating temperatures -22°F~167°F (-30°C~+75°C) |
| | EASY TO USE | DIN rail mountable with built-in bracket, Robust IP30-rated housing |

### 2.5.2 Datasheet 2-17  Front Panel

After the working voltage is set up, the software starts and initializes itself.

Afterwards, the device performs a self-test. During this process, various LEDs light up.

| Display | Meaning | Color | LED Status | WDH-4ET1FX-POE | WDH-4GT1GX-POE |
|---|---|---|---|---|---|
| PWR | Power Status | Green | Lights up / Turn off | The device has been activated / Device is not activated | |
| LINK& ACT | Ports Status | Yellow &Green | Yellow flashing | Device is transmitting and/or receiving data | |
| | | | Yellow turn off | No connection or link lost during data transfer | |
| | | | Green flashing / lights up | Device is transmitting and/ or receiving data | 1000M connected and working |
| | | | Green turn off | No connection or link lost | 100M connected and working |

14

### 2.5.3 Datasheet 2-18  Slide Panel

| Figure | Specification of the supply voltage |
|---|---|
| P1 / P2 | PoE 48~57V ( 4 Ports PoE support ) pluggable terminal block for power supply and grounding. |
| ⊕ ⊕ ⏚ | Functional ground connection. |

### 2.5.4 Datasheet 2-19  Rear Panel

| Accessories | Description |
|---|---|
| DIN Rail Clip | The sturdy DIN rail clip come in handy for standard 35mm DIN rail mounting devices. |
| Metal Brackets | With "L" shaped metal brackets, More easy to mounting on equipment racks and cabinets. |

### 2.5.5 Datasheet 2-20  Product Specifications

| Interfaces | WDH-4ET1FX-POE | | WDH-4GT1GX-POE | |
|---|---|---|---|---|
| Port Description | 4 x 10M/100M RJ45 + 1 x Built-in 100M BIDI SC, Up to 20km | | 4 x 10/100/1000M RJ45 + 1 x Built-in 1000M BIDI SC, Up to 20km | |
| Communication Protocol | IEEE 802.3/u/af/at 10/100Base-TX + 802.3u 100Base-TX/FX | | IEEE 802.3/u/ab/af/at 10/100/1000Base-T + IEEE 802.3z 1000Base-LX | |
| **Specifications** | | | | |
| MAC Table | 1K / 2K | | Packet Forwarding Rate | 0.74Mpps / 7.44Mpps |
| Packet Buffer | 448K / 1M | | Switching Capacities | 1Gbps / 10Gbps |
| **Max. Power Consumption** | | | | |
| PoE Power Consumption | <63W / <64W | | Non-PoE Power Consumption | <2W / <4W |
| **Connectors and Cabling** | | | | |
| Ethernet Ports | 100 Meter ( RJ45 ) | | Fiber Slot | 1 x Built-in BIDI SC / 20km |
| Power Terminal | 5 x 5.08mm terminal block | | PoE Function | Support |
| **Safety Certifications & Compliance Specifications** | | | | |
| Environmental Regulation | RoHS / REACH（SVHC） | | QMS | ISO9001 |
| Compliance Marking | UL / cUL / IEC EN 62368-1 / FCC (North America) / CE (Europe) / PSE (Japan) | | | |
| EMI and EMC Compliance Reliability Testing | FCC 47 CFR Part 15, Subpart B ｜ EMC Directive 2014/30/EU EN 61000-4-2 ESD Level 4 (±8kV Contact Discharge ±15kV Air Discharge), EN 61000-4-3 RS Level 4 (30V/m 1kHz), EN 61000-4-4 EFT Level 4 (4kV 2kV), EN 61000-4-5 Surge Level 4 (4kV Line to Ground), EN 61000-4-6 CS Level 3 (10Vrms 1kHz), EN 61000-4-8 PFMF Level 4 (30A/m) ｜ Mechanical Shock Test / IEC 60068-2-27:2008, Sinusoidal Vibration Test / IEC 60068-2-6:2007, Free Fall / IEC 60068-2-31:2008 | | | |
| **Environmental Specifications** | | | | |
| Operating Temperature | -22°F~167°F (-30°C~75°C) | | Storage Temperature | -49°F~185°F (-45°C~85°C) |
| Humidity | 5%-95% (Noncondensing) | | MTBF | 357,000 hours |
| **Mechanical** | | | | |
| Housing | Metal & Fanless | | Degree of Protection | IP30 |
| Weight | 0.35kg | | Mounting | DIN-Rail / Wall / Flat / Hang |
| Dimensions | W: 28mm x H: 118mm x D: 89mm (Not including DIN rail and accessories) | | | |

## 2.6 **WDH-8ET-DC / WDH-8GT-DC**

### *2.6.1 Overview of the device elements*

Figure 2-6 shows the mechanical
dimension details of the various 8 Port
WDH series models.

● 8 x RJ45 socket for 10/100/1000Mbit/s
or 10/100Mbit/s Twisted Pair connections
● LED display element for device status
● Low Power Consumption
● Overload, Reverse connect protection
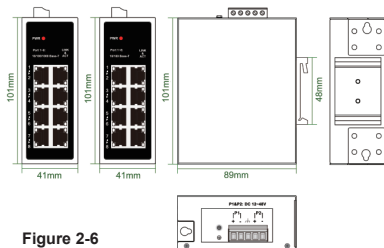● Metal Brackets for DIN and Multi-Mounting

**Figure 2-6**

WIWAV 8 Port industrial ethernet switch provides top performance in a wider range of operating
temperatures than conventional network switches, making it ideal for factories and warehouses.
The WDH series give you full/half-duplex auto-negotiation and auto MDI/MDIX operation, enabling
you to connect your network devices quickly and easily with little to no configuration required.

| | | |
|---|---|---|
| **FEATURES & BENEFITS** | COMPACT SIZE | Compact 8-port Ethernet Switch with 10/100 or 1000Mbps automatic MDI/MDI-X crossover for plug-and-play |
| | LOW POWER CONSUMPTION | Energy-Efficient Ethernet (Power Consumption <2 watts or 4 watts) , Wide range 12/24/36/48V DC terminal block input |
| | FAST DATA TRANSMISSION | Each port supports both 10/100/1000Mbps speed auto negotiation, Supports IEEE 802.3, 802.3u, 802.3x standard |
| | ROBUST AND RELIABLE | Can be used in extreme industrial environments; Supports a wide range of operating temperatures -22°F~167°F (-30°C~+75°C) |
| | EASY TO USE | DIN rail mountable with built-in bracket, Robust IP30-rated housing |

### *2.6.2 Datasheet 2-21 Front Panel*

After the working voltage is set up, the software starts and initializes itself.

Afterwards, the device performs a self-test. During this process, various LEDs light up.

| Display | Meaning | Color | LED Status | WDH-8ET-DC | WDH-8GT-DC |
|---|---|---|---|---|---|
| PWR | Power Status | Green | Lights up / Turn off | The device has been activated / Device is not activated | |
| LINK& ACT | Ports Status | Yellow &Green | Yellow flashing | Device is transmitting and/or receiving data | |
| | | | Yellow turn off | No connection or link lost during data transfer | |
| | | | Green flashing / lights up | Device is transmitting and/ or receiving data | 1000M connected and working |
| | | | Green turn off | No connection or link lost | 100M connected and working |

### 2.6.3 Datasheet 2-22  Slide Panel

| Figure | Specification of the supply voltage |
|---|---|
| P1 / P2 | Rated voltage range DC 12V~48V, pluggable terminal block for power supply and grounding. |
| ⊕ ⊕ ⊥ | Functional ground connection. |

### 2.6.4 Datasheet 2-23  Rear Panel

| Accessories | Description |
|---|---|
| DIN Rail Clip | The sturdy DIN rail clip come in handy for standard 35mm DIN rail mounting devices. |
| Metal Brackets | With "L" shaped metal brackets, More easy to mounting on equipment racks and cabinets. |

### 2.6.5 Datasheet 2-24  Product Specifications

| Interfaces | WDH-8ET-DC | | WDH-8GT-DC | |
|---|---|---|---|---|
| Port Description | 8 x 10M/100M RJ45 | | 8 x 10M/100M/1000M RJ45 | |
| Communication Protocol | IEEE 802.3/u 10/100Base-TX | | IEEE 802.3/u/ab 10/100/1000Base-T | |
| **Specifications** | | | | |
| MAC Table | 1K / 4K | Packet Forwarding Rate | 1.1904Mpps / 11.904Mpps | |
| Packet Buffer | 448K / 2M | Switching Capacities | 1.6Gbps / 16Gbps | |
| **Power Consumption** | | | | |
| Max. Power Consumption | <2W / <4W | No-load Power Consumption | <1W | |
| **Connectors and Cabling** | | | | |
| Ethernet Ports | 100 Meter ( RJ45 ) | Fiber Slot | None | |
| Power Terminal | 5 x 5.08mm terminal block | PoE Function | Not Support | |
| **Safety Certifications & Compliance Specifications** | | | | |
| Environmental Regulation | RoHS / REACH（SVHC） | QMS | ISO9001 | |
| Compliance Marking | UL / cUL / IEC EN 62368-1 / FCC (North America) / CE (Europe) / PSE (Japan) | | | |
| EMI and EMC Compliance Reliability Testing | FCC 47 CFR Part 15, Subpart B ｜ EMC Directive 2014/30/EU EN 61000-4-2 ESD Level 4 (±8kV Contact Discharge ±15kV Air Discharge), EN 61000-4-3 RS Level 4 (30V/m 1kHz), EN 61000-4-4 EFT Level 4 (4kV 2kV), EN 61000-4-5 Surge Level 4 (4kV Line to Ground), EN 61000-4-6 CS Level 3 (10Vrms 1kHz), EN 61000-4-8 PFMF Level 4 (30A/m) ｜ Mechanical Shock Test / IEC 60068-2-27:2008, Sinusoidal Vibration Test / IEC 60068-2-6:2007,  Free Fall / IEC 60068-2-31:2008 | | | |
| **Environmental Specifications** | | | | |
| Operating Temperature | -22°F~167°F (-30°C~75°C) | Storage Temperature | -49°F~185°F (-45°C~85°C) | |
| Humidity | 5%-95% (Noncondensing) | MTBF | 357,000 hours | |
| **Mechanical** | | | | |
| Housing | Metal & Fanless | Degree of Protection | IP30 | |
| Weight | 0.4kg | Mounting | DIN-Rail / Wall / Flat / Hang | |
| Dimensions | W: 41mm x H: 101mm x D: 89mm (Not including DIN rail and accessories) | | | |

## 2.7 WDH-8ET1GT1GF-POE / WDH-9GT1GF-POE

### 2.7.1 Overview of the device elements

Figure 2-7 shows the mechanical dimension details of the various 10 Port PoE WDH series models.

● 8 x RJ45 Socket for 10/100Mbit/s or 10/100/1000 Mbit/s + 1 x RJ45 Socket for 1000Mbit/s + 1 x 1.25G SFP
● Power Over Ethernet PoE Models
● LED display element for device status
● Overload, Reverse connect protection
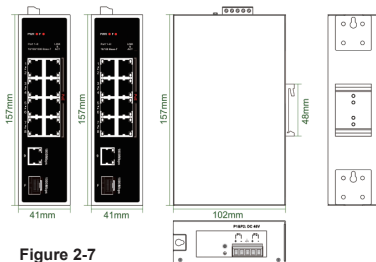● Metal Brackets for DIN and Multi-Mounting



**Figure 2-7**

The WDH 10 Port PoE series feature different port characteristics which enables small networks to be constructed with the right switch for the respective application, e.g. for hazardous areas. The available port density helps to save costs. And with WDH-8ET1GT1GF-POE and WDH-9GT1GF-POE, These are possible to supply up to 8 terminal devices via Power-over-Ethernet (PoE) with data and power simultaneously.

| FEATURES & BENEFITS | | |
|---|---|---|
| | COMPACT SIZE | Compact 10-port Ethernet Switch with 10/100 or 1000Mbps automatic MDI/MDI-X crossover for plug-and-play |
| | PoE SUPPORT | Power-Over-Ethernet PoE function supports |
| | FAST DATA TRANSMISSION | Each port supports both 10/100 or 1000Mbps speed auto negotiation, Supports IEEE 802.3, 802.3u, 802.3x standard |
| | ROBUST AND RELIABLE | Can be used in extreme industrial environments; Supports a wide range of operating temperatures -22°F~167°F (-30°C~+75°C) |
| | EASY TO USE | DIN rail mountable with built-in bracket, Robust IP30-rated housing |

### 2.7.2 Datasheet 2-25  Front Panel

After the working voltage is set up, the software starts and initializes itself.

Afterwards, the device performs a self-test. During this process, various LEDs light up.

| Display | Meaning | Color | LED Status | WDH-8ET1GT1GF-POE | WDH-9GT1GF-POE |
|---|---|---|---|---|---|
| PWR | Power Status | Green | Lights up | The device has been activated | |
| | | | Turn off | Device is not ready for operation | |
| LINK& ACT | Ports Status | Yellow &Green | Yellow flashing | Device is transmitting and/or receiving data | |
| | | | Yellow turn off | No connection or link lost during data transfer | |
| | | | Green lights up | 100M connected and working | 1000M connected and working |
| | | | Green turn off | 10M connected or unlinked | 10/100M connected or unlinked |

### 2.7.3 Datasheet 2-26  Slide Panel

| Figure | Specification of the supply voltage |
|---|---|
| P1 / P2 | PoE 48~57V ( 8 Ports PoE support ) pluggable terminal block for power supply and grounding. |
| ⊕ ⏚ ⏛ | Functional ground connection. |

### 2.7.4 Datasheet 2-27  Rear Panel

| Accessories | Description |
|---|---|
| DIN Rail Clip | The sturdy DIN rail clip come in handy for standard 35mm DIN rail mounting devices. |
| Metal Brackets | With "L" shaped metal brackets, More easy to mounting on equipment racks and cabinets. |

### 2.7.5 Datasheet 2-28  Product Specifications

| Interfaces | WDH-8ET1GT1GF-POE | | WDH-9GT1GF-POE | |
|---|---|---|---|---|
| Port Description | 8 x 10M/100M RJ45 + 1 x 1000M RJ45 + 1 x 1.25G SFP | | 8 x 10M/100M/1000M RJ45 + 1 x 1000M RJ45 + 1 x 1.25G SFP | |
| Communication Protocol | IEEE 802.3/u/af/at 10/100Base-TX + IEEE 802.3/u/ab 1000Base-T + IEEE 802.3z 1000Base-LX | | IEEE 802.3/u/ab/af/at 10/100/1000Base-T + IEEE 802.3z 1000Base-LX | |
| **Specifications** | | | | |
| MAC Table | 4K | | Packet Forwarding Rate | 4.166Mpps / 14.88Mpps |
| Packet Buffer | 4M | | Switching Capacities | 5.6Gbps / 20Gbps |
| **Max. Power Consumption** | | | | |
| PoE Power Consumption | <125W / <128W | | Non-PoE Power Consumption | <4W / <6W |
| **Connectors and Cabling** | | | | |
| Ethernet Ports | 100 Meter ( RJ45 ) | | Fiber Slot | 1 x SFP / 1.25Gbps |
| Power Terminal | 5 x 5.08mm terminal block | | PoE Function | Support |
| **Safety Certifications & Compliance Specifications** | | | | |
| Environmental Regulation | RoHS / REACH（SVHC) | | QMS | ISO9001 |
| Compliance Marking | UL / cUL / IEC EN 62368-1 / FCC (North America) / CE (Europe) / PSE (Japan) | | | |
| EMI and EMC Compliance Reliability Testing | FCC 47 CFR Part 15, Subpart B ｜ EMC Directive 2014/30/EU<br>EN 61000-4-2 ESD Level 4 (±8kV Contact Discharge ±15kV Air Discharge),  EN 61000-4-3 RS Level 4 (30V/m 1kHz),  EN 61000-4-4 EFT Level 4 (4kV 2kV),  EN 61000-4-5 Surge Level 4 (4kV Line to Ground),  EN 61000-4-6 CS Level 3 (10Vrms 1kHz),  EN 61000-4-8 PFMF Level 4 (30A/m) ｜ Mechanical Shock Test / IEC 60068-2-27:2008,  Sinusoidal Vibration Test / IEC 60068-2-6:2007,  Free Fall / IEC 60068-2-31:2008 | | | |
| **Environmental Specifications** | | | | |
| Operating Temperature | -22°F~167°F (-30°C~75°C) | | Storage Temperature | -49°F~185°F (-45°C~85°C) |
| Humidity | 5%-95% (Noncondensing) | | MTBF | 357,000 hours |
| **Mechanical** | | | | |
| Housing | Metal & Fanless | | Degree of Protection | IP30 |
| Weight | 0.65kg | | Mounting | DIN-Rail / Wall / Flat / Hang |
| Dimensions | W: 41mm x H: 157mm x D: 102mm (Not including DIN rail and accessories) | | | |

## 2.8  WDH-16ET-DC / WDH-16GT-DC

### 2.8.1 Overview of the device elements

Figure 2-8 shows the mechanical
dimension details of the various
16 Port WDH series models.

● 16 x RJ45 socket for 10/100/1000 Mbit/s
or 10/100Mbit/s Twisted Pair connections
● 5-Pin pluggable terminal block
● LED display element for device status
● Fast Data Transmission
● Overload, Reverse connect protection
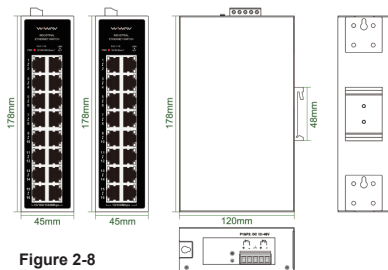● Metal Brackets for DIN and Multi-Mounting



**Figure 2-8**

WIWAV 16 Port industrial ethernet switch provides top performance in a wider range of operating
temperatures than conventional network switches, making it ideal for factories and warehouses.
The 16 Port series give you full/half-duplex auto-negotiation and auto MDI/MDIX operation, enabling
you to connect your network devices quickly and easily with little to no configuration required.

| | | |
|---|---|---|
| **FEATURES & BENEFITS** | COMPACT SIZE | Compact 16-port Ethernet Switch with 10/100 or 1000Mbps automatic MDI/MDI-X crossover for plug-and-play |
| | REDUNDANT POWER | The 16-port network switch has dual redundant power inputs with overload and reverse current protection |
| | FAST DATA TRANSMISSION | Each port supports both 10/100 or 1000Mbps speed auto negotiation, Supports IEEE 802.3, 802.3u, 802.3x standard |
| | ROBUST AND RELIABLE | Can be used in extreme industrial environments; Supports a wide range of operating temperatures -22°F~167°F (-30°C~+75°C) |
| | EASY TO USE | DIN rail mountable with built-in bracket, Robust IP30-rated housing |

### 2.8.2 Datasheet 2-29  Front Panel

After the working voltage is set up, the software starts and initializes itself.

Afterwards, the device performs a self-test. During this process, various LEDs light up.

| Display | Meaning | Color | LED Status | WDH-16ET-DC | WDH-16GT-DC |
|---|---|---|---|---|---|
| PWR | Power Status | Green | Lights up | The device has been activated | |
| | | | Turn off | Device is not ready for operation | |
| LINK& ACT | Ports Status | Yellow &Green | Yellow flashing | Device is transmitting and/or receiving data | |
| | | | Yellow turn off | No connection or link lost during data transfer | |
| | | | Green lights up | 100M connected and working | 1000M connected and working |
| | | | Green turn off | 10M connected or unlinked | 10/100M connected or unlinked |

### 2.8.3 Datasheet 2-30  Slide Panel

| Figure | Specification of the supply voltage |
|---|---|
| P1 / P2 | Rated voltage range DC 12V~48V, pluggable terminal block for power supply and grounding. |
| ⊕ ⊕ ⊥ | Functional ground connection. |

### 2.8.4 Datasheet 2-31  Rear Panel

| Accessories | Description |
|---|---|
| DIN Rail Clip | The sturdy DIN rail clip come in handy for standard 35mm DIN rail mounting devices. |
| Metal Brackets | With "L" shaped metal brackets, More easy to mounting on equipment racks and cabinets. |

### 2.8.5 Datasheet 2-32  Product Specifications

| Interfaces | WDH-16ET-DC | | WDH-16GT-DC | |
|---|---|---|---|---|
| Port Description | 16 x 10M/100M RJ45 | | 16 x 10M/100M/1000M RJ45 | |
| Communication Protocol | IEEE 802.3/u 10/100Base-TX | | IEEE 802.3/u/ab 10/100/1000Base-T | |
| **Specifications** | | | | |
| MAC Table | 8K | Packet Forwarding Rate | 2.38Mpps / 23.8Mpps | |
| Packet Buffer | 4M / 4.1M | Switching Capacities | 3.2Gbps / 32Gbps | |
| **Power Consumption** | | | | |
| Max. Power Consumption | <3W / <10W | No-load Power Consumption | <2W / <3W | |
| **Connectors and Cabling** | | | | |
| Ethernet Ports | 100 Meter ( RJ45 ) | Fiber Slot | None | |
| Power Terminal | 5 x 5.08mm terminal block | PoE Function | Not Support | |
| **Safety Certifications & Compliance Specifications** | | | | |
| Environmental Regulation | RoHS / REACH（SVHC） | QMS | ISO9001 | |
| Compliance Marking | UL / cUL / IEC EN 62368-1 / FCC (North America) / CE (Europe) / PSE (Japan) | | | |
| EMI and EMC Compliance Reliability Testing | FCC 47 CFR Part 15, Subpart B ｜ EMC Directive 2014/30/EU EN 61000-4-2 ESD Level 4 (±8kV Contact Discharge ±15kV Air Discharge), EN 61000-4-3 RS Level 4 (30V/m 1kHz), EN 61000-4-4 EFT Level 4 (4kV 2kV), EN 61000-4-5 Surge Level 4 (4kV Line to Ground), EN 61000-4-6 CS Level 3 (10Vrms 1kHz), EN 61000-4-8 PFMF Level 4 (30A/m) ｜ Mechanical Shock Test / IEC 60068-2-27:2008, Sinusoidal Vibration Test / IEC 60068-2-6:2007, Free Fall / IEC 60068-2-31:2008 | | | |
| **Environmental Specifications** | | | | |
| Operating Temperature | -22°F~167°F (-30°C~75°C) | Storage Temperature | -49°F~185°F (-45°C~85°C) | |
| Humidity | 5%-95% (Noncondensing) | MTBF | 357,000 hours | |
| **Mechanical** | | | | |
| Housing | Metal & Fanless | Degree of Protection | IP30 | |
| Weight | 0.8kg | Mounting | DIN-Rail / Wall / Flat / Hang | |
| Dimensions | W: 45mm x H: 178mm x D: 120mm (Not including DIN rail and accessories) | | | |

## 2.9 **WDH-16ET2GF-DC / WDH-16GT2GF-DC**

### *2.9.1 Overview of the device elements*

Figure 2-9 shows the mechanical dimension details of the various 18 Port WDH series models.

● 16 x RJ45 Socket for 10/100/1000Mbit/s or 10/100Mbit/s + 2 x 1.25G SFP
● 5-Pin pluggable terminal block
● LED display element for device status
● Fast Data Transmission
● Overload, Reverse connect protection
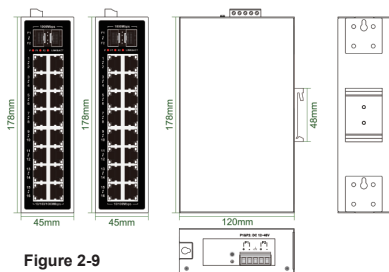● Metal Brackets for DIN and Multi-Mounting



**Figure 2-9**

WIWAV 18 Port industrial ethernet switch provides top performance in a wider range of operating temperatures than conventional network switches, making it ideal for factories and warehouses. The 18 Port series give you full/half-duplex auto-negotiation and auto MDI/MDIX operation, enabling you to connect your network devices quickly and easily with little to no configuration required.

| | | |
|---|---|---|
| **FEATURES & BENEFITS** | COMPACT SIZE | Compact 18-port Ethernet Switch with 10/100/1000Mbps automatic MDI/MDI-X crossover for plug-and-play |
| | REDUNDANT POWER | The 18-port network switch has dual redundant power inputs with overload and reverse current protection |
| | FAST DATA TRANSMISSION | Each port supports both 10/100/1000Mbps speed auto negotiation, Supports IEEE 802.3, 802.3u, 802.3x standard |
| | ROBUST AND RELIABLE | Can be used in extreme industrial environments; Supports a wide range of operating temperatures -22°F~167°F (-30°C~+75°C) |
| | EASY TO USE | DIN rail mountable with built-in bracket, Robust IP30-rated housing |

### *2.9.2 Datasheet 2-33  Front Panel*

After the working voltage is set up, the software starts and initializes itself.

Afterwards, the device performs a self-test. During this process, various LEDs light up.

| Display | Meaning | Color | LED Status | WDH-16ET2GF-DC | WDH-16GT2GF-DC |
|---|---|---|---|---|---|
| PWR | Power Status | Green | Lights up | The device has been activated | |
| | | | Turn off | Device is not ready for operation | |
| LINK& ACT | Ports Status | Yellow &Green | Yellow flashing | Device is transmitting and/or receiving data | |
| | | | Yellow turn off | No connection or link lost during data transfer | |
| | | | Green lights up | 100M connected and working | 1000M connected and working |
| | | | Green turn off | 10M connected or unlinked | 10/100M connected or unlinked |

### 2.9.3 Datasheet 2-34  Slide Panel

| Figure | Description |
|---|---|
| P1 / P2 | Rated voltage range DC 12V~48V, Pluggable terminal block for power supply and grounding. |
| ⊕ ⊕ ⏚ | Functional ground connection. |

### 2.9.4 Datasheet 2-35  Rear Panel

| Accessories | Description |
|---|---|
| DIN Rail Clip | The sturdy DIN rail clip come in handy for standard 35mm DIN rail mounting devices. |
| Metal Brackets | With "L" shaped metal brackets, More easy to mounting on equipment racks and cabinets. |

### 2.9.5 Datasheet 2-36  Product Specifications

| Interfaces | WDH-16ET2GF-DC | | WDH-16GT2GF-DC | |
|---|---|---|---|---|
| Port Description | 16 x 10M/100M RJ45 + 2 x 1000M SFP | | 16 x 10M/100M/1000M RJ45 + 2 x SFP | |
| Communication Protocol | IEEE 802.3/u 10/100Base-TX + IEEE 802.3z 1000Base-LX | | IEEE 802.3/u/ab 10/100/1000Base-T + IEEE 802.3z 1000Base-LX | |
| **Specifications** | | | | |
| MAC Table | 8K | Packet Forwarding Rate | | 5.36Mpps / 26.78Mpps |
| Packet Buffer | 4M / 4.1M | Switching Capacities | | 7.2Gbps / 36Gbps |
| **Power Consumption** | | | | |
| Max. Power Consumption | <5W / <11W | No-load Power Consumption | | <2W / <4W |
| **Connectors and Cabling** | | | | |
| Ethernet Ports | 100 Meter（RJ45） | Fiber Slot | | 2 x SFP / 1.25Gbps |
| Power Terminal | 5 x 5.08mm terminal block | PoE Function | | Not Support |
| **Safety Certifications & Compliance Specifications** | | | | |
| Environmental Regulation | RoHS / REACH（SVHC） | QMS | | ISO9001 |
| Compliance Marking | UL / cUL / IEC EN 62368-1 / FCC (North America) / CE (Europe) / PSE (Japan) | | | |
| EMI and EMC Compliance Reliability Testing | FCC 47 CFR Part 15, Subpart B ｜ EMC Directive 2014/30/EU EN 61000-4-2 ESD Level 4 (±8kV Contact Discharge ±15kV Air Discharge), EN 61000-4-3 RS Level 4 (30V/m 1kHz), EN 61000-4-4 EFT Level 4 (4kV 2kV), EN 61000-4-5 Surge Level 4 (4kV Line to Ground), EN 61000-4-6 CS Level 3 (10Vrms 1kHz), EN 61000-4-8 PFMF Level 4 (30A/m) ｜ Mechanical Shock Test / IEC 60068-2-27:2008, Sinusoidal Vibration Test / IEC 60068-2-6:2007, Free Fall / IEC 60068-2-31:2008 | | | |
| **Environmental Specifications** | | | | |
| Operating Temperature | -22°F~167°F (-30°C~75°C) | Storage Temperature | | -49°F~185°F (-45°C~85°C) |
| Humidity | 5%-95% (Noncondensing) | MTBF | | 357,000 hours |
| **Mechanical** | | | | |
| Housing | Metal & Fanless | Degree of Protection | | IP30 |
| Weight | 0.8kg | Mounting | | DIN-Rail / Wall / Flat / Hang |
| Dimensions | W: 45mm x H: 178mm x D: 120mm (Not including DIN rail and accessories) | | | |

The devices have been developed for practical application in a harsh industrial environment.

On delivery, the device is ready for operation.

The device is for mounting on a 35 mm DIN rail in accordance with DIN EN 60715.
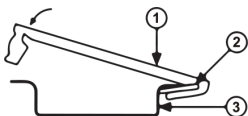


1.Din Rail Clip  2.Din Rail Spring  3.Din Rail
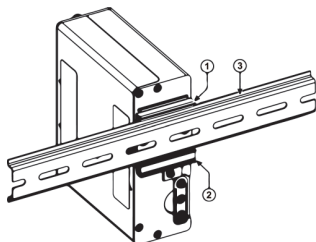
### Mounting the device

To mount the device onto a horizontally mounted 35 mm DIN rail according to the proceed as follows:

● Slide the upper snap-in guide of the device into the DIN rail.
● Press the media module downwards onto the clip-in bar.
● Snap in the device.

### Disassembly

Proceed as follows:

● Disconnect the data cables.
● Disable the supply voltage.
● Remove the power connector from the device.
● Use a screwdriver to pull the rail lock gate downwards.
● Pull the device downwards from the DIN rail module.
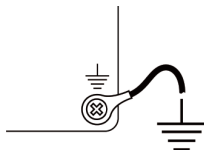
### 3.1.1 10/100/1000 Mbit/s twisted pair port

The 10/100/1000 Mbit/s twisted pair port offers you the ability to connect network components according to the IEEE 802.3 10BASE-T/100BASE- TX/1000BASE-T standard.
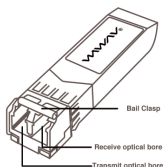
This port supports:

● Autonegotiation, Autopolarity, Autocrossing
● 1000 Mbit/s full duplex
● 100 Mbit/s half-duplex mode, and full duplex mode
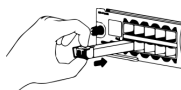● 10 Mbit/s half-duplex mode, 10 Mbit/s full duplex mode

### Pin assignments

| RJ45 | Pin | 10/100 Mbit/s | 1000 Mbit/s |
|---|---|---|---|
| | 1 | TX+ | BI_DA+ |
| | 2 | TX− | BI_DA− |
| | 3 | RX+ | BI_DB+ |
| | 4 | — | BI_DC+ |
| | 5 | — | BI_DC− |
| | 6 | RX− | BI_DB− |
| | 7 | — | BI_DD+ |
| | 8 | — | BI_DD− |

### 3.1.2 SFP Port



**SFP Transceiver Module Installation**

You can use any combination of SFP transceiver modules that your WIWAV device supports.

The only restrictions are that each port must match the wavelength specifications on the other end of the cable and that the cable must not exceed the stipulated cable length for reliable communications.

SFP Transceiver Module
(Fiber-Optic LC Connector)

### 3.1.3 Wiring the terminal block for the supply voltage and the grounding

5-pin, pluggable terminal block for power supply and grounding
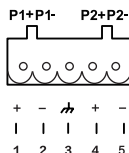


5-pin terminal block is used for the grounding and for connecting the supply voltage.The supply voltage is only connected with the ground connection via protective elements.

The shielding ground of the connectable twisted pair cables is connected to the ground connection as a conductor.

### 3.1.4 Operating the device

By connecting the supply voltage via the terminal block, you start the operation of the device.
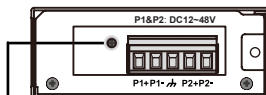


**Ground Connection**

Proceed as follows:

● Ensure the required conditions for connecting the supply voltage.

● Pull the terminal block off the device.

● Connect the ground connection.

● Connect the power supply cables.

● Plug the terminal block into the connection on the housing.

Please refer to **Figure - Power Terminal** below for the definition of 5 pin 5.08mm separation distance plug-in connection terminal.
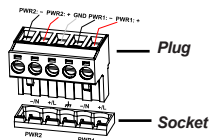
| Terminal Number | Terminal Name | DC connection definition |
|---|---|---|
| 1 | P1+ | Power1: + |
| 2 | P1– | Power1: - |
| 3 | ⏚ | GND: Protect Ground |
| 4 | P2+ | Power2: + |
| 5 | P2– | Power2: - |

**Figure - Power Terminal**



*Plug*

*Socket*

WIWAV industrial ethernet switches support dual redundant power supply, If one fails, the other power supply starts running to keep the switch powered up. Which greatly improves the reliablility of network operation.

Note: The sectional area of power cable is more than 0.75mm$^2$ (max sectional area 2.5mm$^2$) and the ground resistance is required to be less than 5 Ω.

**Security information**

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept.

WIWAV' products and solutions only form one element of such a concept.
For more information about industrial security, please visit http://www.wiwav.com

---

 **Further Support**
Technical Questions

For technical questions, please contact any WIWAV dealer in your area or WIWAV directly.
You will find the tech info at http://www.wiwav.com or E-mail us: supports@wiwav.com.

Also, You can contact us in the North America region at
WIWAV INC. ■ 3048 Deerfield Pl, #A, Chino Hills, CA 91709 United States.
In the Asia and Pacific region at
WIWAV LIMITED. ■ Office Unit No.3, 13th Floor of Grand City Plaza, No.1-17 Sai Lau Kok Road, Tsuen Wan, New Territories, Hong Kong.

---

# ШШЛV®

---

## Americas Headquarters

WIWAV INC., A Corporation of California.

Chino Hills, CA 91709

United States

## Asia Pacific Headquarters

WIWAV LIMITED.

Tsuen Wan, New Territories, 999077

Hong Kong

---