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Delta 5-Port FE Unmanaged Ethernet Switch DVS-005I00C User Manual

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Revision History

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DVS-005I00C User Manual

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Chapter 1 Operating Instructions

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1.1 Introduction

The DVS-005I00C is an entry-level 5-port unmanaged Ethernet switch with a compact design, ideal for industrial network applications. It provides a cost-effective solution for your industrial Ethernet networking needs.

The DVS-005I00C supports 12/24 VDC power input and operates reliably in temperatures ranging from -10 to 60°C, making it suitable for various harsh industrial environments. With an IP40-rated housing and DIN rail mounting design, it can be easily integrated into the control boxes.

LED status indicators on the front panel display real-time power and network connection status. This makes it a stable, reliable, and easy-to-use industrial Ethernet switch.

This manual describes the specification, functions, appearance, and dimensions of the DVS-005I00C switch, helping users quickly understand and correctly install and operate the device.

1.1.1 Related Models Overview

Classfication	Model Name	Description
Unmanaged Ethenet Switch	DVS-005I00C	Ports: 5 x 10/100 Mbps RJ45 Input voltage: 12/24 VDC Operating voltage: 9.6 to 28.8 VDC Operating temperature: -10°C to 60°C
	DVS-008I00C	Ports: 8 x 10/100 Mbps RJ45 Input voltage: 12/24 VDC Operating voltage: 9.6 to 28.8 VDC Operating temperature: -10°C to 60°C

1.2 Packaging Checklist

The packaging should contain the following items. If any items are missing or damaged, please contact your distributors. Also, keep the original packaging for future repair or replacement under warranty.

Item	Number
DVS-005I00C Unmanaged Ethernet Switch	1
User Information Manual	1
3-PIN Push-in Terminal Block	1

1.3 Features

The DVS-005I00C has following features:

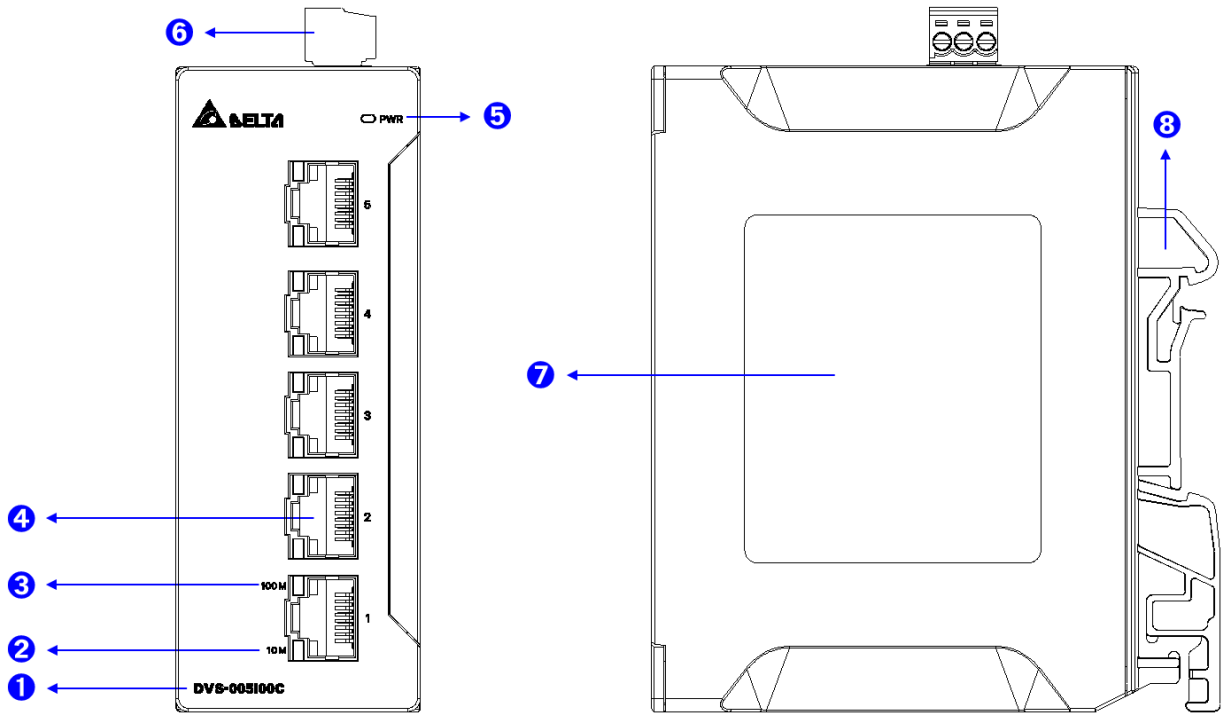
Feature	Descriptions
Auto MDI/MDI-X	Automatically detects the type of network cable (straight-through or crossover), allowing plug-and-play without manual configuration.
Auto Negotiation	Automatically negotiates speed (10/100 Mbps) and duplex mode (half/full) with the connected device; defaults to 10 Mbps half-duplex if negotiation is not supported.
Packet Switching and Filtering	Intelligently determines whether packets should remain on the current port or be forwarded to another, reducing unnecessary network traffic.
MAC Address Learning	Automatically learns MAC addresses of devices, supporting up to 1,000 entries.

1.4 Specification

Ethernet Interface	
10/100BaseT(X) (RJ45 port)	5 ports
	Full-Duplex/Half-Duplex
	Auto MDI/MDI-X
	Auto-negotiation
Standards	IEEE 802.3 for 10BaseT
	IEEE 802.3u for 100BaseT(X)
	IEEE 802.3x Flow Control
Switching Characteristics	
MAC Address Table Size	1K
Packet Buffer Size	448 kbits
Processing Type	Store and Forward
Switching capacity	1 Gbps
Forwarding rate	0.74 Mbps
MTBF	
Time	21,760,175 hours
Power Specification	
Input Voltage	12/24 VDC
Operating Voltage	9.6 to 28.8 VDC
Input Current	0.084A @ 12VDC 0.040 A @ 24VDC
Overcurrent Protection	Supported, with maximum allowable current of 3 A
Reverse Polarity Protection	Supported
Mechanical Characteristics	
Dimension	38 x 109.10 x 88.30 mm (includes TB & Din-Rail)
Weight	125.5 g
Case Material	Plastic
Protection Rating	IP40
Installation method	Din-rail Mounting
Environmental Requirements	
Environmental temperature for	-10 to 60°C (14 to 140°F)

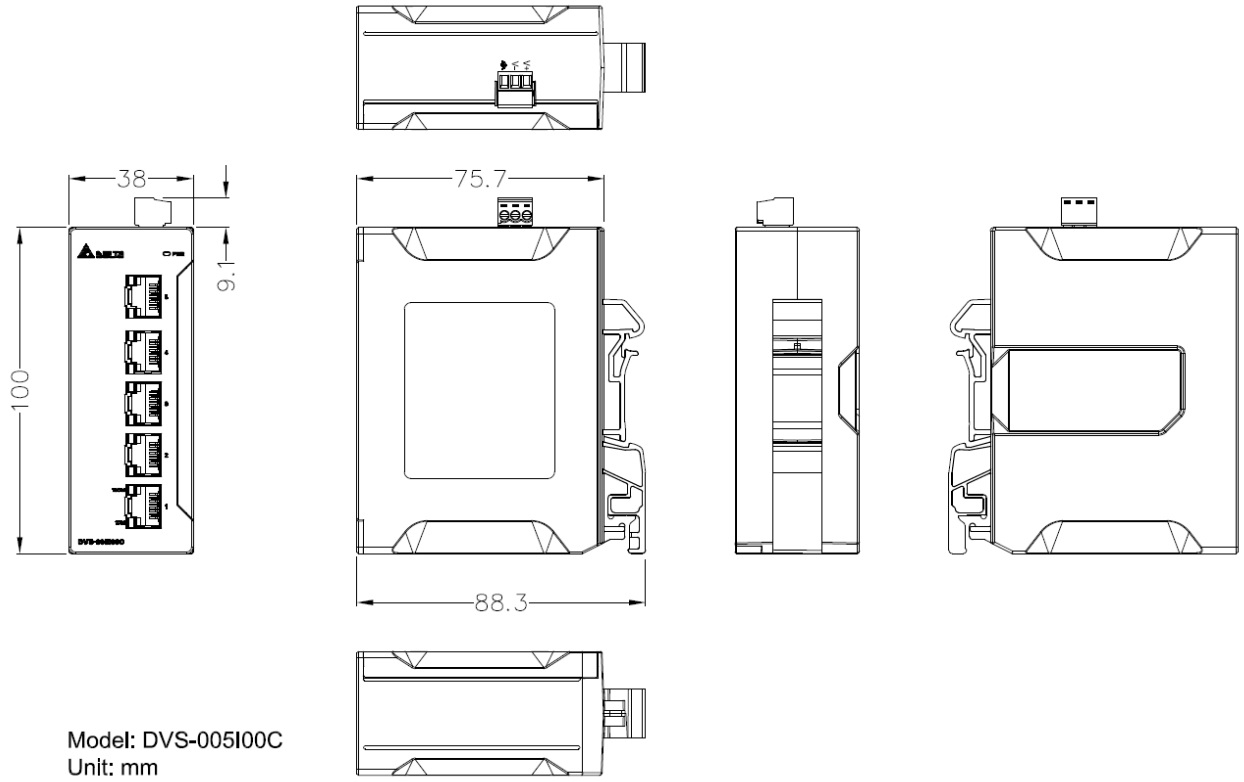
operation	
Environmental temperature for transport/storage	-40 to 85°C (-40 to 185°F)
Environmental humidity during operation, transportation, and storage	5 to 95% (non-condensing)
Certifications and Standards	
Safety	UL 61010-2-201 BSMI CNS 15598-1
EMI	EN 55032 EN 61000-6-4 AS/NZS CISPR 32 CISPR 32 FCC Part 15B Class A ICES-003 BSMI CNS 15936 KC KS C 9832
EMS	EN 55035 CISPR 35 EN 61000-6-2 KC KS C 9835 IEC 61000-4-2 (ESD) IEC 61000-4-3 (RS) IEC 61000-4-4 (EFT) IEC 61000-4-5 (Surge) IEC 61000-4-6 (CS) IEC 61000-4-8 (PFMF)
Shock Resistance	IEC 60068-2-27
Vibration Resistance	IEC 60068-2-6
Drop Test	ISTA 1A
Vibration Test	ISTA 1A

1.5 Module Profiles



No.	Name	Description
1	Model name	Unmanaged Ethernet Switch Model.
2	10 Mbps LED (Amber)	Indicates 10 Mbps Ethernet communication status. OFF: When the port is disabled or the Ethernet connection is lost. Blinking: Data is being transmitted through the port at 10 Mbps.
3	100 Mbps LED (Green)	Indicates 100 Mbps Ethernet communication status. OFF: When the port is disabled or the Ethernet connection is lost. Blinking: Data is being transmitted through the port at 100 Mbps.
4	Ethernet communication port	For connecting Ethernet network.
5	Power indicator (Amber)	Indicates the power status of the power supply. ON: the power is supplied normally. OFF: the power is not supplied.
6	Port for power supply	Ground and Power Input Terminal.
7	Label	Nameplate.
8	DIN rail securing clip	Secure the modules on the set.

1.6 Dimensions



Model: DVS-005I00C
Unit: mm

Case	IP40-rated plastic
Dimensions	38 x 109.10 x 88.30 mm (includes TB & Din-Rail)
Weight	125.5 g (0.28 lb)

1.7 Installation

1.7.1 Precautions

- **Installation Planning Recommendations**

  Before installing the equipment, please confirm the module's physical dimensions and structural layout. Pay attention to the dimensions of communication cable connectors and the required installation clearances, which should all be included in the planning considerations to avoid insufficient space that could affect system integration and future maintenance.

- **Environmental Condition Verification**

  Ensure that the actual operating conditions of all components are within the product specification range. Basic environmental control conditions are recommended, such as temperature and humidity control mechanisms, dust prevention, and anti-corrosion protection, to ensure long-term stable operation of the components.

- **Electromagnetic Compatibility (EMC) Planning**

  To prevent system malfunctions caused by electromagnetic interference (EMI), please properly plan **EMC protection mechanisms** during the system design. These measures include: proper grounding, using shielded cables, and maintaining signal and power isolation.

- **Component Installation Specifications**

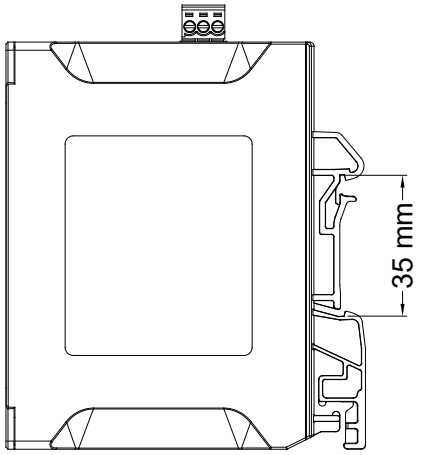
  For components required during the installation process (such as screws, washers, etc.), if the product manual specifies certain standards, be sure to use parts that meet these specifications. This ensures both structural integrity and installation stability.

- **Communication Cable Connection Confirmation**

  When connecting communication cables to the device's communication ports, please ensure that the connector's latch or fastening screws are correctly secured to the module port. This guarantees good contact and prevents communication errors or disconnections.

- **DIN Rail Mounting Specifications**

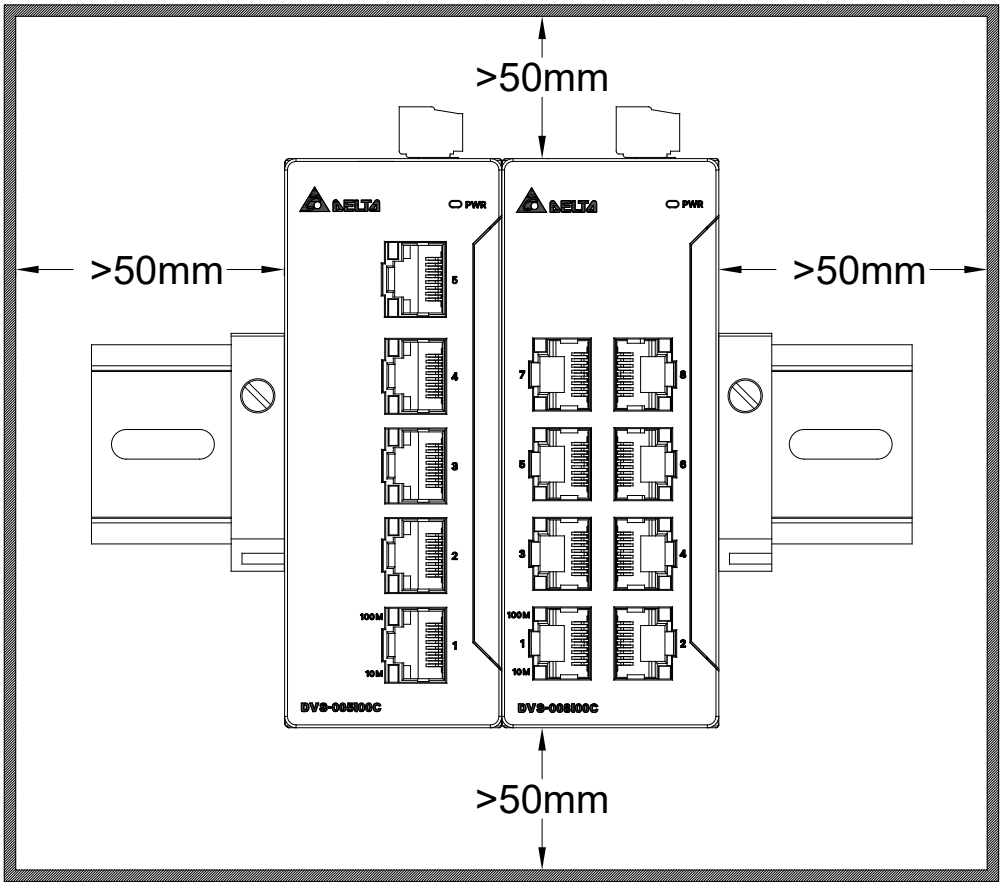
  This device must be mounted on a 35 mm DIN rail (as shown in the figure below) or other mounting rails compliant with the EN 60715 standard to ensure mechanical compatibility and secure installation.



1.7.2 Installation in Control Box

a). When installing the switch, please mount it inside an enclosed control box, and maintain at least 50 mm clearance around the device for proper heat dissipation (as shown in the figure below).

b). If there is a vibration source on-site, it is recommended to install anti-vibration baffles on both sides of the switches to stabilize all modules, as shown in the image below.



⚠	Keep the device as far as possible from high voltage equipment, high voltage cables, motors, and other mechanical equipment.

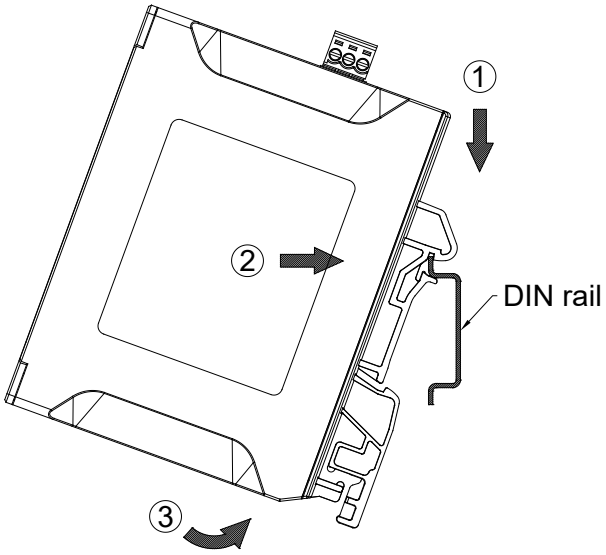
1.7.3 DIN-Rail Mounting

- **Installation Method**

  Step 1: Hook the upper mounting clip slot of the switch onto the DIN rail following arrow direction ①.

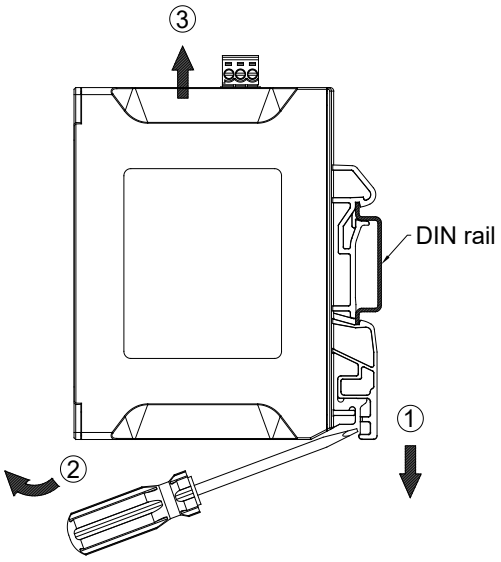
  Step 2: Push the mounting clip in direction ② to ensure the slot is securely engaged with the DIN rail.

  Step 3: Press the lower mounting clip onto the DIN rail following the arrow direction ③ to complete the installation.

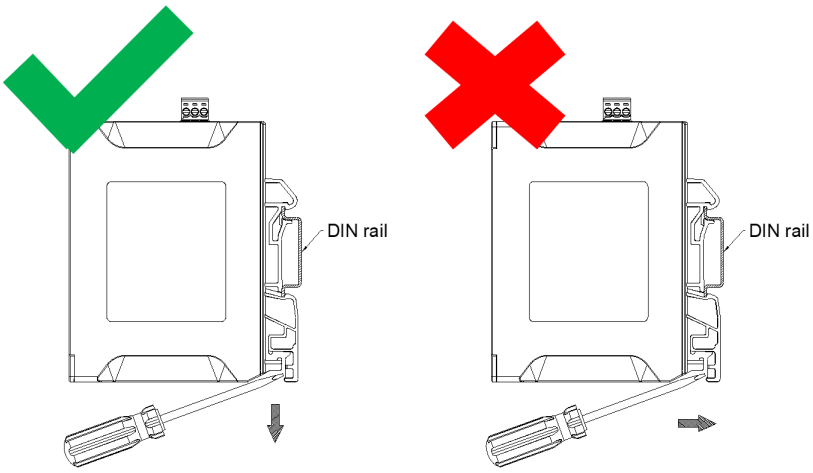


- **Removal Method**

  Step 1: Use a flat-blade screwdriver to pull the DIN clip downward following the arrow direction ①, then remove the switch following the arrow direction ② and ③.



Please pay attention to the following force directions when you remove the switch.



Use a flat-blade screwdriver with a blade width of 4-6 mm for proper installation and removal.

The system assembler is responsible for both the installation of this equipment and the overall security of any system that includes it.

This is an OPEN TYPE module and should be installed in a protective enclosure with sufficient mechanical strength and appropriate IP rating.

1.7.4 Power Supply

- **Wiring requirements**

  a). Power cables and device signal cables should be routed separately. If paths must cross, signal cables or communication cables must not share the same cable tray with power cables to avoid electromagnetic interference.

  b). Keep input and output cables separated.

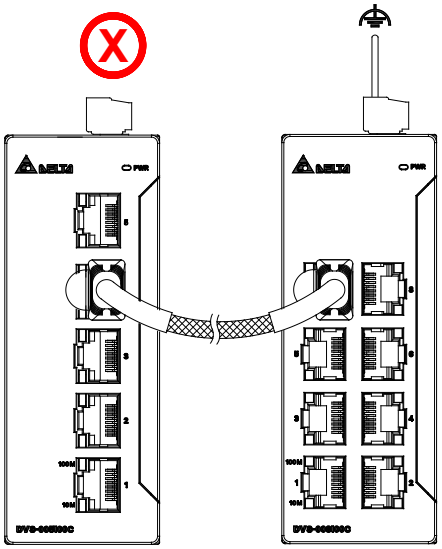
  c). All cables in the system should be properly labeled for easy identification and maintenance.

⚠	Make sure to disconnect the power cable before installation and wiring. Calculate the maximum possible current for each power cable and common wire, and comply with the maximum allowable current for each wire gauge as specified in electrical regulations. If the current exceeds the rated value, the wiring may overheat and cause serious damage to the equipment.

- **Grounding requirements**

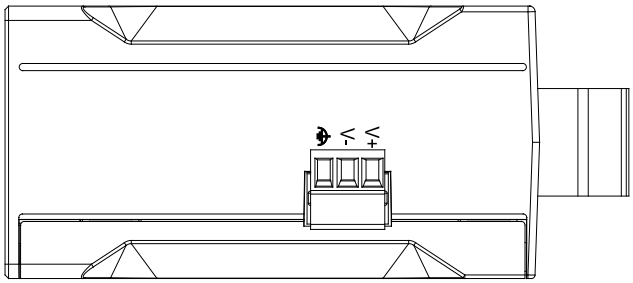
  a). First connect the ground wire from the grounding point of the terminal block to the ground plane, then connect other device wiring while keeping input and output lines separated. Proper grounding and wiring path design can effectively reduce electromagnetic interference (EMI) noise.

  b). When using shielded twisted pair (STP) cables to connect two Ethernet devices, if the cable shielding creates an additional ground loop, it may cause ground current to flow into the Ethernet ports, resulting in equipment damage.



- **Power wiring**

  The 3-pin terminal block connector on the top panel uses the top two pins, V- and V+, for DC 12/24 V power input.



Step 1: Connect Power Wires

Insert the negative and positive wires of the 12 V/24 V DC power supply into the V- and V+ terminals respectively. Connect the grounding wire to the leftmost terminal and ensure it is properly grounded.

Ensure that the power supply voltage is stable and originates from an isolated secondary circuit with reinforced or double insulation, or with shielding and grounding.

Step 2: Tighten the Clamp Screws

Use a small flat-blade screwdriver to tighten the wire clamp screws on the terminal block to prevent wires from loosening.

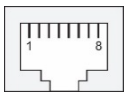
Step 3: Insert the Terminal Block

Insert the plastic terminal block into the slot on the top panel of the DVS series switch.

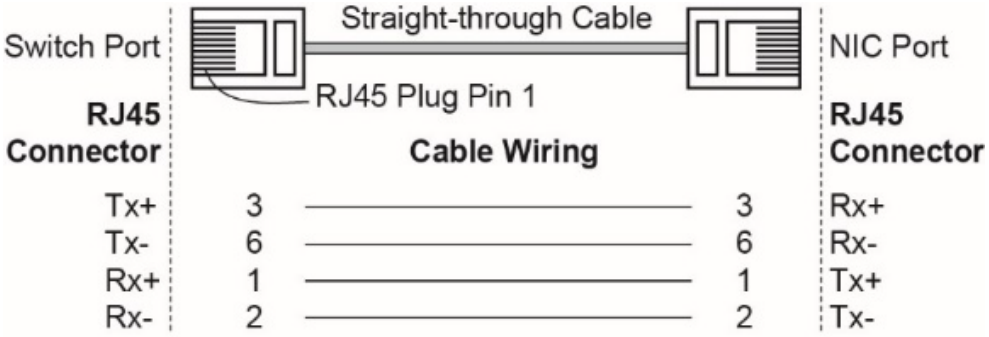
⚠	The product should be powered by a Listed Power Supply (LPS) with an output voltage of 12/24 VDC and a maximum current of 0.084 A.
	Use 28–14 AWG solid wires, with a tightening torque of 1.7 lb-in.
	Ensure the cable used has minimum temperature rating of 105°C.

1.8 Pin Definition

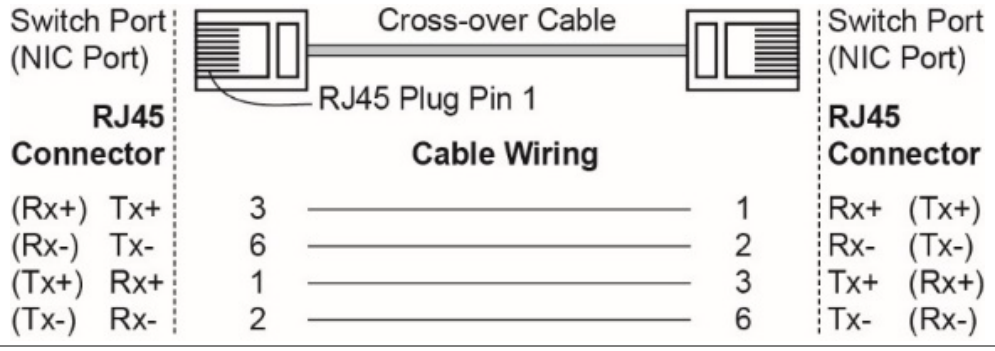
The following illustrates RJ45 pin definitions, MDI (NIC-type) and MDI-X (Hub/Switch-type) ports, and provides wiring diagrams for straight-through and crossover Ethernet cables.

MDI Mode Definition (8-pin RJ45)					 **8-Pin RJ45**
Pin	1	2	3	6	
Signal	TX+	TX-	RX+	RX-	
MDI-X Mode Definition (8-pin RJ45)					
Pin	1	2	3	6	
Signal	RX+	RX-	TX+	TX-	

RJ45 (8-pin) to RJ45 (8-pin) Straight-through Cable Wiring



RJ45 (8-pin) to RJ45 (8-pin) Cross-over Cable Wiring

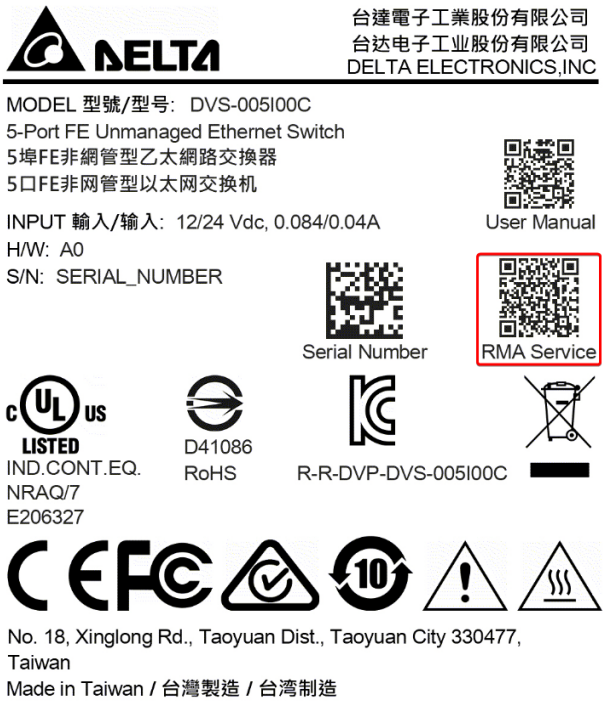


1.9 RMA

If you need to apply for a Return Merchandise Authorization (RMA), please follow the steps below:

a). Please contact Delta's sales representative first and wait for confirmation before proceeding to the next step.

b). After receiving confirmation, scan the QR code on the product label.



c). Complete the required fields marked with * on the service request page.

d). You can also go to On-Line Repair Request- CSR page and fill in the required information.

Safety Precautions

⚠	The device is for indoor use only. Do not expose to high humidity and corrosive environments to ensure reliable operation and safety.
	The device shall be used only in environments with Pollution Degree 2.
	This equipment has been evaluated for use in commercial environments and should not be installed or used in residential or domestic environments to avoid electromagnetic and radio interference risks. (KR)이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

Disclaimers and Limitation of Liabilities

To the maximum extent permitted by law and regardless DELTA be aware or has been advised of the possibility of these damages, DELTA is not liable to any user or anyone else for:

(a) Any loss of use, data, reputation, goodwill, credit, opportunity, economy or profits, whether or not foreseeable;

(b) Any special, incidental, indirect, consequential, or punitive damages whatsoever;

(c) Any losses or damages based on any theory of liability, including breach of contract or warranty, negligence or other tortious action;

(d) Any losses or damages resulting from use or unable to use the systems or devices to which the Software or Services are incorporated or co-operated; and

(e) Any losses or damages arising from any other claim or in connection with the use of or access to the Software or Services.

FCC Supplier's Declaration of Conformity

The following equipment:

Product Model: As shown on product label

Trade Name: DELTA

It's herewith confirmed this device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

It is understood that each unit marketed is identical to the device as tested, and any changes to the device that could adversely affect the emission characteristics will require retest.

CAN ICES-003(A) / NMB-003(A)

中國 RoHS 产品中有害物质的名称及含有信息表

部件名称 Part Name	有害物质									
	铅(Pb)	镉 (Cd)	汞 (Hg)	六价铬 (Cr Vi)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)	邻苯 二甲酸二正丁酯 (DBP)	邻苯 二甲酸二异丁酯 (DIBP)	邻苯 二甲酸丁基苄酯 (BBP)	邻苯 二甲酸二(2-乙基)己酯 (DEHP)
外壳	O	O	O	O	O	O	O	O	O	O
印刷电路板及其电子组件	X	O	O	O	O	O	O	O	O	O
电缆/电线/连接器	X	O	O	O	O	O	O	O	O	O

1. O：表示该有害物质在该部件所有均质材料中的含量均不超出电器电子产品有害物质限制使用国家标准要求。
X：表示该有害物质至少在该部件的某一均质材料中含量超出电器电子产品有害物质限制使用国家标准要求。但所有部件都符合欧盟 RoHS 要求。
2. 以上未列出的部件，表明其有害物质含量均不超出电器电子产品有害物质限制使用国家标准要求。

电器电子产品有害物质使用标志，数字明示出产品的环保使用期限，是指用户按照产品说明正常使用时，电器电子产品中含有的有害物质不会发生外泄或突变，不会对环境造成严重污染或对其人身、财产造成严重损害的期限。

BSMI 限用物質含有情況標示聲明書

設備名稱：5 埠 FE 非網管型乙太網路交換器 Equipment name	型號（型式）：DVS-005I00C Type designation (Type)

單元Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
外殼	○	○	○	○	○	○
印刷電路板及其電子組件	-	○	○	○	○	○
電纜/電線/連接器	-	○	○	○	○	○
機械部件-非金屬	○	○	○	○	○	○

備考 1.〝超出 0.1 wt %〞及〝超出 0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。
Note 1：“Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.
備考 2.〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。
Note 2：“○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.
備考 3.〝-〞係指該項限用物質為排除項目。
Note 3：The “−” indicates that the restricted substance corresponds to the exemption.

MEMO

Smarter. Greener. Together.

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