DVS series

Instruction Sheet

安　裝　說　明

安　装　说　明

2013-10-09

5018034000- DVS0

5/8/16-port Unmanaged Industrial Ethernet Switches

5/8/16埠工業級非網管型乙太網路交換器

5/8/16口非网管型工业以太网交换机

⚠ Warning ENGLISH

- ✓ This instruction sheet only provides information on electrical specifications, general specifications, installation and wiring.
- ✓ The components and the IC on the circuit board can be easily damaged by static electricity; therefore DO NOT touch them before precautions against static electricity are done. To prevent the danger and damage from occurring, people who are not maintenance staff should not operate or accidentally hit the body of the DVS series switch. Besides, DO NOT touch any terminal when the power is switched on.
- ✓ This product is equipped with Class 1 LASER/LED components. DO NOT stare directly at the LASER/LED beam to avoid serious injury to your eyes.
- ✓ Please read this instruction sheet thoroughly, and follow the instructions to prevent the damage to the device or injury to the staff.

❶ Introduction

Thank you for purchasing the DVS Unmanaged Industrial Ethernet Switches. The DVS series switches including 5, 8, and 16-port smart switches. Except the DVS-00I00/008I00 series, The DVS series switches are equipped with the intelligent alarm function, and allow the wide range of operating temperature (-40 to 75°C). The DVS series switches are designed to support the application in any rugged environment and comply with UL, CE and FCC standards.

❷ Functions

1. 10/100Base-T(X) (RJ45), 10/100/1000Base-T (RJ45), 100Base-FX (SC/ST-Type, SingleMode/MultiMode)
2. IEEE 802.3/802.3u/802.3ab/802.3x
3. Auto-negotiation speed
4. Auto-MDI/MDI-X

❸ Package Checklist

1. Delta DVS Unmanaged Ethernet Switch
2. Instruction Sheet
3. Wall Mounting Plate
4. Protective Caps for unused RJ45 ports

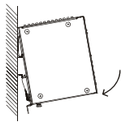
❹ Installation

■ DIN-Rail Mounting

◆ Mounting

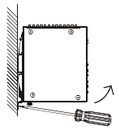
Step 1: Hook the upper end of the DIN clip of the DVS series switch on the DIN-Rail.

Step 2: Lightly push the DVS series switch toward the DIN-Rail until they contact each other closely.



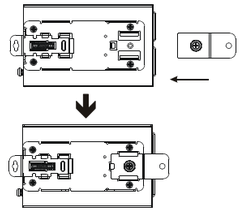
◆ Removal

Step 1: Insert the flat-blade screwdriver into the DIN clip and pull the DIN clip downward.
Step 2: Pull the DVS series switch, and you can remove it from the DIN-Rail.



■ Wall Mounting

Step 1: Insert the wall mounting bracket into the slot on the rear panel of the DVS series switch, and tighten the screw on it, as shown in the diagram below.
Step 2: Place the wall mounting bracket in an appropriate position, and tighten the two screws on the bracket and the DIN clip.



❺ Wiring the Redundant Power Input

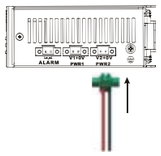
Except the DVS-005I00/008I00 series, the DVS series switches are equipped with two sets of DC input (PWR1 / PWR2). Both sets of DC input can be connected to a wide range of power sources (12 to 48VDC). If one power source fails, the other live source can work as a backup to ensure that the machine operates normally.

Step 1: Insert the negative and positive DC wires into the terminal block, and make sure that the positive DC wire is connected to V1+ or V2+, and that the negative DC wire is connected to 0V.

Step 2: To prevent the loose DC wires, tighten the wire clamp screws on the terminal block connector with the flat-blade screwdriver.

NOTE: Please use copper wire 60/75°C, conductor 16 to 24 AWG; screw up at torque 2.2kgf-cm(1.91 in-lbs)

Step 3: Insert the plastic terminal block connector into the terminal block receptor on the DVS series switch.



NOTE: Grounding the ground terminal on the DVS series switch can avoid the noise effect due to the electromagnetic interference (EMI).

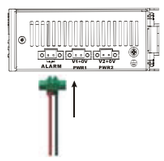
Please use Class 2 power sources.

The devices are designed for operation with a LPS power supply of “12 to 48VDC, 1A power rating” in accordance with EN 60950-1 ed.2.

The devices is intended to be operated under altitude up to 10,000ft(3048m), the DC power supply source comply with the requirement of 10,000ft(3048m) of clearance is multiplied by the altitude correction factor(1.15), specified in table A.2 of IEC 60664-1, 1992+A1:2000.

❻ Wiring the Alarm Contact

The alarm contact is a dry relay. If one of the two power sources fails or the communication is interrupted, the contact will turns from an “OPEN” circuit to a “CLOSED” circuit. The relay can be connected to a 5A/24VDC power source.



❼ DIP Switch Setting

ON:	After the corresponding switch of the port is enabled, when the communication is interrupted, the relay will form a “CLOSED” circuit, and the alarm LED will be on.	
OFF:	After the corresponding switch of the port is disabled, when the communication is interrupted, the relay still forms an “OPEN” circuit, and the alarm LED will not be on.	

❽ LED Indicators

■ DVS-005I00 / 008I00 / G005I00A / G008I00A

LED	Color	Status	Description
PWR	Green	ON	The power is supplied normally.
		OFF	The power is not supplied.
100M	Orange	ON	The port is connected at a speed of 100 Mbps.
		OFF	The port is connected at a speed of 10 Mbps or disconnected.
10/100/1000M	Green	ON	The port is connected at a speed of 1000Mbps.
	Orange	ON	The port is connected at a speed of 100Mbps.
	OFF		The port is connected at a speed of 10 Mbps or disconnected.
LINK/ACT	Green	ON	The Network communication connection has been established.
		Blinking	The data is being transmitted.
		OFF	The Network communication connection has not been established.

■ DVS-005W01 / 008W01 / 016W01

LED	Color	Status	Description
ALARM	Red	ON	The communication is interrupted, or there is a power failure.
		OFF	The communication is not interrupted, or there is no power failure. The DIP switch is not enabled.
PWR1	Green	ON	The power is supplied normally.
		OFF	The power is not supplied.
PWR2	Green	ON	The power is supplied normally.
		OFF	The power is not supplied.
100M	Orange	ON	The port is connected at a speed of 100 Mbps.
		OFF	The port is connected at a speed of 10 Mbps or disconnected.
LINK/ACT	Green	ON	The Network communication connection has been established.
		Blinking	The data is being transmitted.
		OFF	The Network communication connection has not been established.

■ DVS-005W01 / 008W01 / 016W01 -Fiber Models

LED	Color	Status	Description
ALARM	Red	ON	The communication is interrupted, or there is a power failure.
		OFF	The communication is not interrupted, or there is no power failure. The DIP switch is not enabled.
PWR1	Green	ON	The power is supplied normally.
		OFF	The power is not supplied.
PWR2	Green	ON	The power is supplied normally.
		OFF	The power is not supplied.
100M (on the RJ45 port)	Green	ON	The fiber port is connected at a speed of 100 Mbps.
		OFF	The fiber port is not connected.
	Orange	ON	The port is connected at a speed of 100 Mbps.
		OFF	The port is connected at a speed of 10 Mbps or disconnected.
LINK/ACT	Green	ON	The Network communication connection has been established.
		Blinking	The data is being transmitted.
		OFF	The Network communication connection has not been established.

❾ Ethernet Interface

■ 10/100Base-T(X), 10/100/1000Base-T Connection

The 10/100Base-T(X) or 10/100/1000Base-T ports of the DVS series switches are used to connect to Ethernet. RJ45 ports support MDI (NIC–type) and MDI-X (HUB/Switch-type) modes, the pin definition of the Ethernet cable is as follows.

	10/100Base-T(X)		1000Base-T
PIN	MDI Mode	MDI-X Mode	MDI/MDI-X Mode
1	Tx+	Rx+	TP0+
2	Tx-	Rx-	TP0-
3	Rx+	Tx+	TP1+
4	n.c.	n.c.	TP2+
5	n.c.	n.c.	TP2-
6	Rx-	Tx-	TP1-
7	n.c.	n.c.	TP3+
8	n.c.	n.c.	TP3-

■ 100Base-FX Connection

❿ Mechanical Characteristics

	DVS-005/008I	DVS-008W	DVS-016W
Case	IP40 Aluminum metal case		
Dimension(mm)	145.3 (H) x 45(W) x 108.7(D)	145.3(H) x 75(W) x 108.7(D)	
Weight(g)	300	430	490

◆ For more information about the product, please visit http://www.deltaww.com.

⚠ 注意事項 繁體中文

- ✓ 此安裝手冊只提供電氣規格、一般規格、安裝及配線。
- ✓ 電路板上的零件與 IC 易受靜電破壞，未做好防靜電措施前請勿用手觸摸。防止非維護人員操作或意外衝擊本體，造成危險與損壞，且請勿在上電時觸摸任何端子。
- ✓ 本產品可能內建 Class 1 LASER/LED 光收發器，請勿直視光纖埠口，否則將對眼睛造成嚴重的傷害。
- ✓ 請務必仔細閱讀本安裝說明，並依照說明指示進行操作，以免造成產品受損，或導致人員受傷。

❶ 產品簡介

感謝您使用台達DVS工業級非網管型乙太網路交換器。DVS系列包括有5、8、16-port等產品組合，是專為應用於各式嚴苛環境所設計之解決方案。具備電源故障或通訊斷線警報輸出及-40 ~ 75°C寬溫工作標準（除DVS-005I00/008I00系列外）。優越工藝技術，通過UL、CE與FCC等工業安規認證。

❷ 功能特色

1. 10/100Base-T(X) (RJ45)、10/100/1000Base-T (RJ45)、100Base-FX（SC/ST-Type，單模/多模）
2. IEEE 802.3/802.3u/802.3ab/802.3x
3. 自動傳輸速率偵測
4. MDI/MDI-X 自動跳線偵測

❸ 產品包裝

1. 台達 DVS 工業級非網管型乙太網路交換器
2. 安裝說明書
3. 壁掛式金屬配件
4. RJ45 保護蓋

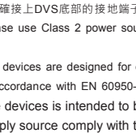
❹ 安裝方式

■ 軌道式安裝

◆ 安裝

步驟一：將 DVS 背後的金屬安裝配件扣住 DIN-Rail

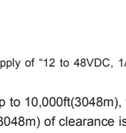
步驟二：將 DVS 向內推，直到金屬彈簧夾與 DIN-Rail 完全緊合



◆ 卸下

步驟一：將一字起子插入金屬彈簧夾下的洞孔並向下拉

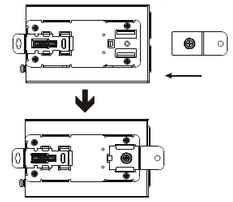
步驟二：拉起 DVS 底部即可順勢取出



■ 壁掛式安裝

步驟一：將附送的壁掛式金屬配件插入 DVS 後的凹槽，並用十字螺絲起子將金屬配件鎖緊於 DVS

步驟二：經由 DVS 後金屬配件的兩個螺絲孔，將 DVS 鎖緊於您所需要的位置。



❺ 備援式電源輸入

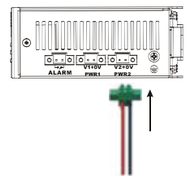
除DVS-005I00/008I00系列外，DVS內建兩組12 ~ 48VDC直流電輸入（PWR1/PWR2）。當其中一組電源故障時，另一組電源可以馬上啟動，確保機器正常運作。

步驟一：將端子座公頭從 DVS 取下，並將 DC 直流電電源線插入端子座公頭上，並確認正級接入 V1+或 V2+而負級接入 0V

步驟二：利用小一字螺絲起子將電源線鎖緊於端子座公頭上

註：請使用60/75°C，導體線徑為16-24AWG之銅線；其鎖螺絲之扭力為2.2kgf-cm（1.91 in-lbs）

步驟三：將端子座公頭插回 DVS 端子座母座上



註：請務必正確接上DVS底部的接地端子，可提高抗EMI雜訊能力。

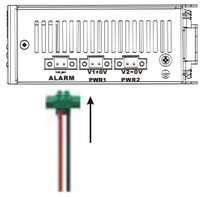
Please use Class 2 power sources.

The devices are designed for operation with a LPS power supply of “12 to 48VDC, 1A power rating” in accordance with EN 60950-1 ed.2.

The devices is intended to be operated under altitude up to 10,000ft(3048m), the DC power supply source comply with the requirement of 10,000ft(3048m) of clearance is multiplied by the altitude correction factor(1.15), specified in table A.2 of IEC 60664-1, 1992+A1:2000.

❻ 警報接點輸出

DVS內建一組繼電器接點輸出，在正常模式下，接點為"OPEN"模式；若當兩組電源中有一組故障或是通訊中斷發生，接點將形成"CLOSED"模式。繼電器最大可承受5A/24VDC負載。



❼ DIP 撥碼開關設定（僅提供第 1~5 埠）

ON（開）：	當網路埠相對應的開關為ON時，若該埠有通訊中斷事件發生時，繼電器將會形成"閉合迴路"模式且ALARM燈將會亮起	
OFF（關）：	當網路埠相對應的開關為OFF時，若該埠有通訊中斷事件發生時，繼電器不會動作，將維持"開放迴路"模式且ALARM燈將不會亮起	

❽ LED 燈指示說明

■ DVS-005I00 / 008I00 / G005I00A / G008I00A

指示燈	指示燈狀態		說明
PWR	綠燈	恆亮	電源供電正常
		恆滅	無電源供應
100M	橘燈	恆亮	100Mbps 速度連線
		恆滅	10Mbps 速度連線或無連線
10/100/1000M	綠燈	恆亮	1000Mbps 速度連線
	橘燈	恆亮	100Mbps 速度連線
	恆滅		10Mbps 速度連線或無連線
LINK/ACT	綠燈	恆亮	已建立網路通訊連線
		閃爍	資料封包傳輸中
		恆滅	未建立網路通訊連線

■ DVS-005W01 / 008W01 / 016W01

指示燈	指示燈狀態		說明
ALARM	紅燈	恆亮	通訊中斷或電源故障事件發生
		恆滅	無通訊中斷或電源故障事件發生；或 DIP 撥碼開關為 OFF
PWR1	綠燈	恆亮	電源供應正常
		恆滅	無電源供應
PWR2	綠燈	恆亮	電源供應正常
		恆滅	無電源供應
100M	橘燈	恆亮	100Mbps 速度連線
		恆滅	10Mbps 速度連線或無連線
LINK/ACT	綠燈	恆亮	已建立網路通訊連線
		閃爍	資料封包傳輸中
		恆滅	未建立網路通訊連線

■ DVS-005W01 / 008W01 / 016W01 -光纖機種

指示燈	指示燈狀態		說明
ALARM	紅燈	恆亮	通訊中斷或電源故障事件發生
		恆滅	無通訊中斷或電源故障事件發生；或 DIP 撥碼開關為 OFF
PWR1	綠燈	恆亮	電源供應正常
		恆滅	無電源供應
PWR2	綠燈	恆亮	電源供應正常
		恆滅	無電源供應
100M	綠燈	恆亮	光纖埠以 100Mbps 速度連線
		恆滅	光纖埠未連線
100M (RJ45 埠)	橘燈	恆亮	100Mbps 速度連線
		恆滅	10Mbps 速度連線或無連線
LINK/ACT	綠燈	恆亮	已建立網路通訊連線
		閃爍	資料封包傳輸中
		恆滅	未建立網路通訊連線

⚠ 注意事項 簡体中文

- ✓ 此安装手册只提供电气规格、一般规格、安装及配线。
- ✓ 电路板上的零件与 IC 易受静电破坏，未做好防静电措施前请勿用手触摸。防止非维护人员操作或意外冲击本体，造成危险与损坏，且请勿在上电时触摸任何端子。
- ✓ 本产品可能内建 Class 1 LASER/LED 光收发器，请勿直视光纤端口，否则将对眼睛造成严重的伤害。
- ✓ 请务必仔细阅读本安装说明，并依照说明指示进行操作，以免造成产品受损，或导致人员受伤。

❶ 产品简介

感谢您使用台达DVS非网管型工业以太网交换机。DVS系列包括有5, 8, 16口等产品组合，是专为应用于各式严苛环境所设计之解决方案。具备电源故障或通信断线报警输出及-40 ~ 75°C宽温工作标准（除DVS-005I00/008I00系列外）。优越工艺技术，通过UL, CE与FCC等工业安规认证。

❷ 功能特色

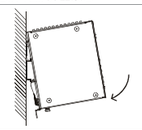
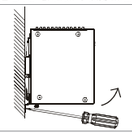
1. 10/100Base-T(X) (RJ45)、10/100/1000Base-T (RJ45)、100Base-FX（SC/ST-Type，单模/多模）
2. IEEE 802.3/802.3u/802.ab/802.3x
3. 自动传输速率检测
4. MDI/MDI-X 自适应

❸ 产品包装

1. 台达 DVS 非网管型工业以太网交换机
2. 安装说明书
3. 壁挂式金属配件
4. 保证卡
5. RJ45 保护盖

❹ 安装方式

■ 轨道式安装

◆ 安装	◆ 卸下
步骤一：将 DVS 背后的金属安装配件扣住 DIN-Rail 步骤二：将 DVS 向内推，直到金属弹簧夹与 DIN-Rail 完全紧合	步骤一：将一字起子插入金属弹簧夹下的洞孔并向下拉 步骤二：拉起 DVS 底部即可顺势取出
	

❾ 乙太網路介面

■ 10/100Base-T(X), 10/100/1000Base-T 連線

DVS RJ45 10/100Base-T(X)或10/100/1000Base-T埠是用來連接乙太網路的介面。RJ45埠可同時支援MDI(NIC-type)與MDI-X(HUB/Switch-type)自動跳線偵測模式，腳位定義如下：

	10/1000Base-T(X)		1000Base-T	
腳位	MDI 模式	MDI-X 模式	MDI/MDI-X 模式	
1	Tx+	Rx+	TP0+	8-PIN RJ45
2	Tx-	Rx-	TP0-	
3	Rx+	Tx+	TP1+	
4	n.c	n.c	TP2+	
5	n.c	n.c	TP2-	
6	Rx-	Tx-	TP1-	
7	n.c.	n.c	TP3+	
8	n.c.	n.c	TP3-	

■ 100Base-FX 光纖埠連線

❿ 實體特性

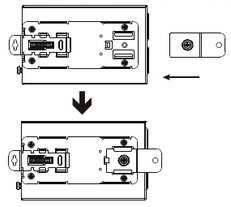
	DVS-005/008I	DVS-008W	DVS-016W
外殼	IP40 工業級鋁殼		
尺寸（mm）	145.3 (H) x 45(W) x 108.7(D)	145.3(H) x 75(W) x 108.7(D)	
重量（公克）	300	430	490

◆ 更多完整產品安裝資訊請參考 http://www.deltaww.com

■ 壁挂式安装

步骤一：将附送的壁挂式金属配件插入 DVS 后的凹槽，并用十字螺丝起子将金属配件锁紧于 DVS

步骤二：经由 DVS 后金属配件的两个螺丝孔，将 DVS 锁紧于您所需要的位置。



❺ 冗余式电源输入

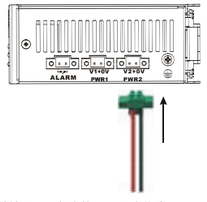
除DVS-005I00/008I00系列外，DVS内建两组12 ~ 48VDC直流电输入（PWR1/PWR2）。当其中一组电源故障时，另一组电源可以马上启动，确保机器正常运作。

步骤一：将端子座公头从 DVS 取下，并将 DC 直流电电源线插入端子座公头上，并确认正级接入 V1+或 V2+而负级接入 0V

步骤二：利用小一字螺丝起子将电源线锁紧于端子座公头上

注：请使用 60/75°C, 导体线径为 16-24AWG 之铜线；其锁螺丝之扭力为 2.2kgf-cm（1.91 in-lbs）。

步骤三：将端子座公头插回 DVS 端子座母座上



注：请务必正确接上 DVS 底部的接地端子，可提高抗 EMI 噪声能力。

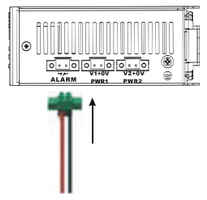
Please use Class 2 power sources.

The devices are designed for operation with a LPS power supply of "12 to 48VDC, 1A power rating" in accordance with EN 60950-1 ed.2.

The devices is intended to be operated under altitude up to 10,000ft(3048m), the DC power supply source comply with the requirement of 10,000ft(3048m) of clearance is multiplied by the altitude correction factor(1.15), specified in table A.2 of IEC 60664-1, 1992+A1:2000.

❻ 报警接点输出

DVS内建一组继电器接点输出。在正常模式下，接点为"OPEN"模式；若当两组电源中有一组故障或是通信中断发生，接点将形成"CLOSED"模式。继电器最大可承受5A/24VDC负载。



❼ DIP 拨键开关设定（仅提供第 1~5 埠）

ON（开）：	当网络端口相对应的开关为ON时，若该端口有通信中断事件发生时，继电器将会形成"闭合回路"模式且ALARM灯将会亮起	
OFF（关）：	当网络端口相对应的开关为OFF时，若该端口有通信中断事件发生时，继电器不会动作，将维持"开放回路"模式且ALARM灯将不会亮起	

❽ LED 灯指示说明

■ DVS-005I00 / 008I00 / G005I00A / G008I00A

指示灯	指示灯状态		说明
PWR	绿灯	恒亮	电源供电正常
		灯灭	无电源供应
100M	橘灯	恒亮	100Mbps 速度通信
		灯灭	10Mbps 速度通信或无通信
10/100/1000M	绿灯	恒亮	1000Mbps 速度通信
	橘灯	恒亮	100Mbps 速度通信
	灯灭		10Mbps 速度通信或无通信
LINK/ACT	绿灯	恒亮	已建立网络通信连接
		闪烁	数据封包传输中
		灯灭	未建立网络通信连接

■ DVS-005W01 / 008W01 / 016W01

指示灯	指示灯状态		说明
ALARM	红灯	恒亮	通信中断或电源故障事件发生
		灯灭	无通信中断或电源故障事件发生；或 DIP 拨码开关为 OFF
PWR1	绿灯	恒亮	电源供应正常
		灯灭	无电源供应
PWR2	绿灯	恒亮	电源供应正常
		灯灭	无电源供应
100M	橘灯	恒亮	100Mbps 速度通信
		灯灭	无通信
LINK/ACT	绿灯	恒亮	已建立网络通信连接
		闪烁	数据封包传输中
		灯灭	未建立网络通信连接

■ DVS-005W01 / 008W01 / 016W01 -光纤机种

指示灯	指示灯状态		说明
ALARM	红灯	恒亮	通信中断或电源故障事件发生
		灯灭	无通信中断或电源故障事件发生；或 DIP 拨码开关为 OFF
PWR1	绿灯	恒亮	电源供应正常
		灯灭	无电源供应
PWR2	绿灯	恒亮	电源供应正常
		灯灭	无电源供应
100M	绿灯	恒亮	光纤端口以 100Mbps 速度通信
		灯灭	光纤端口未通信
100M（RJ45 口）	橘灯	恒亮	100Mbps 速度通信
		灯灭	10Mbps 速度通信或无通信
LINK/ACT	绿灯	恒亮	已建立网络通信连接
		闪烁	数据封包传输中
		灯灭	未建立网络通信连接

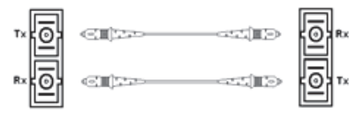
❾ 以太网接口

■ 10/100Base-T(X), 10/100/1000Base-T 接线

DVS RJ45 10/100Base-T(X)或10/100/1000Base-T端口是用来连接以太网的接口。RJ45端口可同时支持MDI(NIC-type)与MDI-X(HUB/Switch-type)自适应模式，脚位定义如下：

	10/100Base-T(X)		1000Base-T	
引脚	MDI 模式	MDI-X 模式	MDI/MDI-X 模式	
1	Tx+	Rx+	TP0+	8-PIN RJ45
2	Tx-	Rx-	TP0-	
3	Rx+	Tx+	TP1+	
4	n.c.	n.c.	TP2+	
5	n.c.	n.c.	TP2-	
6	Rx-	Tx-	TP1-	
7	n.c.	n.c.	TP3+	
8	n.c.	n.c.	TP3-	

■ 100Base-FX 光纤接线



❿ 实体特性

	DVS-005/008I	DVS-008W	DVS-016W
外壳	IP40 工业级铝壳		
尺寸（mm）	145.3 (H) x 45(W) x 108.7(D)	145.3(H) x 75(W) x 108.7(D)	
重量（公克）	300	430	490

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