Industrial Ethernet
DVS series
Instruction Sheet
安 裝 說 明
安 装 说 明

Managed Industrial Ethernet Switches
工業級網管型乙太網路交換器
网管型工业以太网交换机

2013-10-30
5018037600- DVS0

⚠ 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 Managed Industrial Ethernet Switches. The DVS series switches are equipped with the intelligent alarm, digital input 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

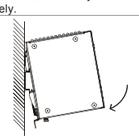
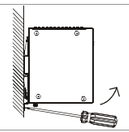
1. 10/100Base-T(X) (RJ45), 10/100/1000Base-T (RJ45), 100/1000Base-SFP Fiber
2. IEEE 802.3/802.3u/802.3ab/802.3x/802.3z
3. Auto-negotiation speed
4. Auto-MDI/MDI-X

❸ Package Checklist

1. One Delta DVS Managed Ethernet Switch
2. Protective Caps for unused RJ45 ports
3. Wall mounting Plate x1
4. USB Type A to Type B console cable x1
5. User manual and software CD
6. Instruction Sheet

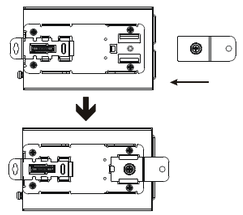
❹ Installation

▪ DIN-Rail Mounting

◆ Mounting	◆ Removal
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.	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.

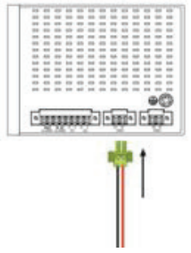


❺ Wiring the Redundant Power Input

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.

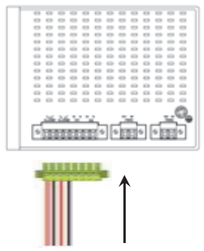


NOTE: Grounding the ground terminal on the DVS series switch can avoid the noise effect due to the electromagnetic interference (EMI).

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.

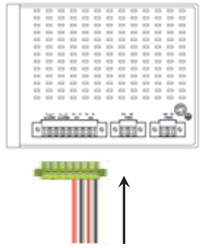
❻ Wiring the Alarm Contact

The DVS series switches are equipped with two sets of alarm (Alarm1 / Alarm2).The alarm contact is a dry relay. If one of the two power sources fails, one of digital input is triggered 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 Wiring the Digital Input

The DVS series switches are equipped with two sets of digital input (DI1 / DI2). If the power source between 0 to 5V, the state of DI is OFF. If the power source between 11 to 30V, the state of DI is ON. The maximum input current is 6mA.



The electrical circuit of DI1 and DI2 are independent, so you don't need to care about NPN type or PNP type of DI. If the electrodes positive and electrodes negative of DI has been reversed when you plug the cable, DI still can work properly.

❽ LED Indicators

▪ DVS-108W02-2SFP / 110W02-3SFP

LED	Color	Status	Description
ALARM	Red	ON	The communication is interrupted, there is a power failure, or alarm event which has been configured happened.
		OFF	The communication is not interrupted, there is no power failure, or alarm event which has been configured doesn't happen.
PWR1/PWR2	Green	ON	The power is supplied normally.
		OFF	The power is not supplied.
DI1/DI2	Green	ON	The DI is triggered.
		OFF	The DI is not triggered.
10/100M (RJ45)	Orange	ON	The port is connected at a speed of 10 or 100 Mbps.
		OFF	The port is disconnected.
10/100/1000M (RJ45)	Green	ON	The port is connected at a speed of 1000 Mbps.
	Orange	ON	The port is connected at a speed of 10 or 100 Mbps.
	OFF		The port is disconnected.
100/1000M (SFP Fiber)	Green	ON	The port is connected at a speed of 1000 Mbps.
	Orange	ON	The port is connected at a speed of 100 Mbps.
	OFF		The port is 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-

8-PIN RJ45

▪ 100/1000Base-SFP Fiber Connection

Each SFP module has TX and RX interface, make sure the fiber connect TX interface to RX interface between two SFP modules.

❿ Mechanical Characteristics

	DVS-108W02-2SFP	DVS-110W02-3SFP
Case	IP40 Aluminum metal case	
Dimension(mm)	145.3 (H) x 75(W) x 108.2(D)	
Weight(g)	520	564

◆ 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工業級網管型乙太網路交換器。DVS系列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，數位輸入，通訊斷線警報輸出及-40 ~ 75°C寬溫工作標準。優越工藝技術，通過UL、CE與FCC等工業安規認證。

❷ 功能特色

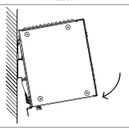
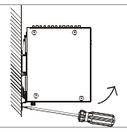
1. 10/100Base-T(X) (RJ45)、10/100/1000Base-T (RJ45)、100/1000Base-SFP 光纖
2. IEEE 802.3/802.3u/802.3ab/802.3x/802.3z
3. 自動傳輸速率偵測
4. MDI/MDI-X 自動跳線偵測

❸ 產品包裝

1. 台達 DVS 工業級網管型乙太網路交換器 x1
2. RJ45 保護蓋
3. 壁掛式金屬配件
4. USB A 公轉 B 公控制線 x1
5. 使用手冊及產品光碟
6. 安裝說明書

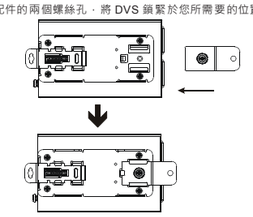
❹ 安裝方式

▪ 軌道式安裝

◆ 安裝	◆ 卸下
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	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。

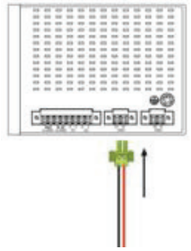


❺ 備援式電源輸入

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。

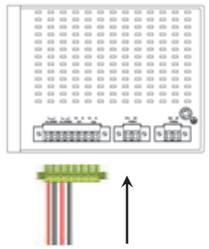
Please use Class 2 power sources.

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.

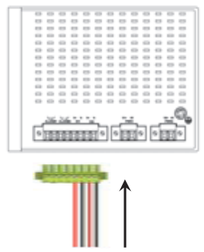
❻ 警報接點輸出

DVS內建兩組繼電器警報接點輸出。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 數位接點輸入

DVS內建兩組數位輸入接點。若輸入電壓介於0~5V，則DI的狀態為”OFF”；若輸入電壓介於11~30V，則DI的狀態為”ON”。最大輸入電流為6mA。



DI1 及 DI2 的電路互相獨立，因此無需在意 DI 的接線類型為 NPN 或 PNP。當插入纜線至 DI 時，正、負極若插反，DI 仍可正常運作。

❽ LED 燈指示說明

■ DVS-108W02-2SFP / 110W02-3SFP

指示燈	指示燈狀態		說明
ALARM	紅燈	恆亮	通訊中斷，電源中斷或已設定的警報事件發生
		恆滅	無通訊中斷，無電源中斷或已設定的警報事件未發生
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
DI1	綠燈	恆亮	數位訊號輸入正常
		恆滅	無數位訊號輸入
DI2	綠燈	恆亮	數位訊號輸入正常
		恆滅	無數位訊號輸入
10/100M (RJ 45)	橘燈	恆亮	10Mbps 或 100Mbps 速度連線
		恆滅	無連線
10/100/1000M (RJ 45)	綠燈	恆亮	1000Mbps 速度連線
	橘燈	恆亮	10Mbps 或 100Mbps 速度連線
	恆滅		無連線

指示燈	指示燈狀態		說明
100/1000M (SFP 光纖)	綠燈	恆亮	1000Mbps 速度連線
	橘燈	恆亮	100Mbps 速度連線
	恆滅		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

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)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+
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-

■ 100/1000Base-SFP 光纖埠連線

每一個 SFP 模組都有 TX 及 RX 介面，請確認光纖纜線連接的兩側，一側為 TX 介面，另一側為 RX 介面。

❿ 實體特性

	DVS-108W02-2SFP	DVS-110W02-3SFP
外殼	IP40 工業級鋁殼	
尺寸（mm）	145.3 (H) x 75(W) x 108.2(D)	
重量（公克）	520	564

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

⚠ 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网管型工业以太网交换机。DVS系列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，数字输入,通讯断线警报输出及-40 ~ 75℃宽温工作标准。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)、100/1000Base-SFP 光纤
2. IEEE 802.3/802.3u/802.ab/802.3x/802.3z
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 网管型工业以太网交换机 x1
2. RJ45 保护盖
3. 壁挂式金属配件
4. USB A 公转 B 公控制线 x1
5. 使用手册及产品光盘
6. 安装说明书
7. 保证卡

❹ 安装方式

■ 轨道式安装

◆ 安装

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

◆ 卸下

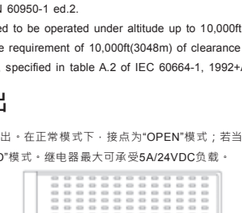
步骤一：将一字起子插入金属弹簧夹下的洞孔并向下拉

步骤二：拉起 DVS 底部即可顺势取出

■ 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 备援式电源输入

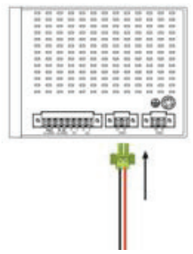
DVS内建两组12 ~ 48VDC直流电输入（PWR1/PWR2）。当其中一组电源故障时，另一组电源可以马上启动，确保机器正常运作。

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℃, 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.

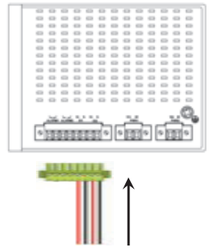
The devices is intended to be operated under altitude up to 10,000ft(3048m), the DC power supply source comply with the requirement of 10,000ft(3048m) of clearance is multiplied by the altitude correction factor(1.15), specified in table A.2 of IEC 60664-1, 1992+A1:2000.

❻ 报警接点输出

DVS内建两组继电器报警接点输出。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讯中断发生，接点将形成“CLOSED”模式。继电器最大可承受5A/24VDC负载。

❼ 数字接点输入

DVS内建两组数字输入接点。若输入电压介于0~5V，则DI的状态为“OFF”；若输入电压介于11~30V，则DI的状态为“ON”。最大输入电流为6mA。



DI1 及 DI2 的电路互相独立，因此无需在意 DI 的接线类型为 NPN 或 PNP。当插入缆线至 DI 时，正、负极若插反，DI 仍可正常运作。

❽ LED 灯指示说明

■ DVS-108W02-2SFP / 110W02-3SFP

指示灯	指示灯状态		说明
ALARM	红灯	恒亮	通信中断，电源中断或已设定的警报事件发生
		恒灭	无通信中断，无电源中断或已设定的警报事件未发生
PWR1	绿灯	恒亮	电源供应正常
		恒灭	无电源供应
PWR2	绿灯	恒亮	电源供应正常
		恒灭	无电源供应
DI1	绿灯	恒亮	数字讯号输入正常
		恒灭	无数字讯号输入
DI2	绿灯	恒亮	数字讯号输入正常
		恒灭	无数字讯号输入
10/100M (RJ 45 口)	橘灯	恒亮	10Mbps 或 100Mbps 速度联接
		恒灭	无通信
10/100/1000M (RJ 45 口)	绿灯	恒亮	1000Mbps 速度联机
	橘灯	恒亮	10Mbps 或 100Mbps 速度联接
	恒灭		无通信

指示灯	指示灯状态		说明
100/1000M (SFP 光纤)	绿灯	恒亮	1000Mbps 速度联机
	橘灯	恒亮	100Mbps 速度联接
	恒灭		无通信
LINK/ACT	绿灯	恒亮	已建立网络通信联接
		闪烁	数据封包传输中
		恒灭	未建立网络通信联接

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+
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-

■ 100/1000Base-SFP 光纤接线

每一个 SFP 模块都有 TX 及 RX 接口，请确认光纤缆线连接的两侧，一侧为 TX 接口，另一侧为 RX 界面。

❿ 实体特性

	DVS-108W02-2SFP	DVS-110W02-3SFP
外壳	IP40 工业级铝壳	
尺寸（mm）	145.3 (H) x 75(W) x 108.2(D)	
重量（公克）	520	564

◆ 更多完整产品安装信息请参考 http://www.deltaww.com