Delta Electronics EMEA
Industrial Ethernet Series

Ing. Jeroen Bloemendal

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- **Industrial Ethernet**
  - *Different switches*
  - *Terms, Features and Protocols*
- **Delta product portfolio**

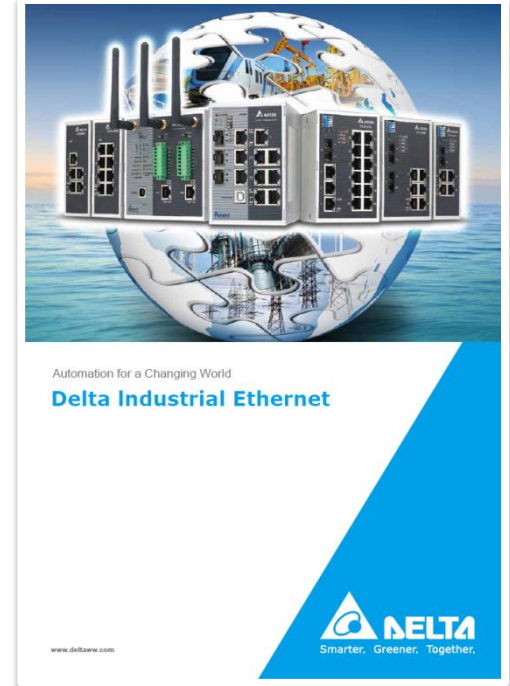- An **unmanaged switch** works right out of the box. It's not designed to be configured, so you don't have to worry about installing or setting it up correctly. Unmanaged switches have less network capacity than managed switches. You will usually find unmanaged switches in home networking equipment.

- A **managed switch** is configurable, offering greater flexibility and capacity than an unmanaged switch. You can monitor and adjust a managed switch locally or remotely, to give you greater network control

- **Switches** create a network. **Versus Routers** connect networks. A router links computers to the Internet, so users can share the connection. A router acts as a dispatcher, choosing the best path for information to travel so it's received quickly.

Terms, Features and Protocols

- VLAN for traffic segregation
- Trunking
- Quality of Service (QoS)
- Layer 2 and layer 3
- Power over Ethernet (PoE)
- Link Layer Discovery Protocol (LLDP)
- DHCP
- Various security features TACACS+, SSH, HTTPS, SNMPv3
- Rapid Spanning Tree (RSTP) for fast redundant rings
- SNMPv1 and v2 network management
- IGMP for Multicast filtering
- Broadcast and multicast storm protection
- RMON and port mirroring for diagnostics

Automation for a Changing World
Delta Industrial Ethernet

www.deltaww.com

Smarter, Greener, Together,

Industrial Ethernet Switches

- 5 year warranty
- MTBF 250.000+ hours
- -40 to +75 °C operation – no fans!
- Dual (redundant) power inputs
- ONE RING & ONE CHAIN, multi-network connection allows immediate self-recovery time of < 20ms
- Alarm outputs

![Delta logo] **Industrial Ethernet Switches**

Unmanaged (FE & Gig)

5-Port
DVS-005

8-Port
DVS-008

16-Port
DVS-016

5-Port
DVS-G005I00A

8-Port
DVS-G008I00A

Unmanaged (PoE+ & Gig)

8-Port
DVS-G408W01

DVS-G406W01-2GF

Managed (FE & Gig)

10-Port
DVS-110W02-3SFP

IEEE 802.11 WLAN

Wireless AP / WDS /
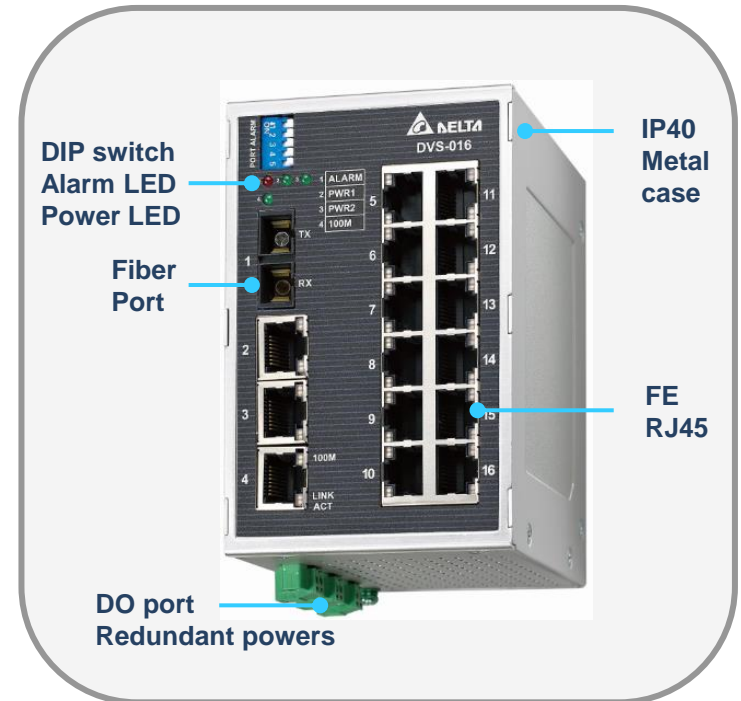Client / Gateway

DVW-W02W2-E2

SFP Fiber Transceivers

LCP-GbE Series
LCP-1FE Series

TAIWAN
EXCELLENCE
2014

Unmanaged Switches

Ethernet Ports	FE ports	RJ45 ports	5 or 8 or 16 10/100Base-T(X)
		Fiber ports	1 or 2 100Base-FX
	Gigabit ports	RJ45 ports	5 or 8 10/100/1000Base-T
Fiber Optic	Multi Mode	5km	
	Single Mode	30km, 60km	
DIP switch	Link-down alarm enable		
DO	Link-down and power failure alarm		
Certificate	UL508, CE, FCC, RCM		
Case	IP40 metal		
Operating Temperature	-40~75℃ (-40~167℉)		
Power Inputs	Redundant, 12 to 48VDC		

DIP switch
Alarm LED
Power LED

Fiber Port

IP40 Metal case

FE RJ45

DO port
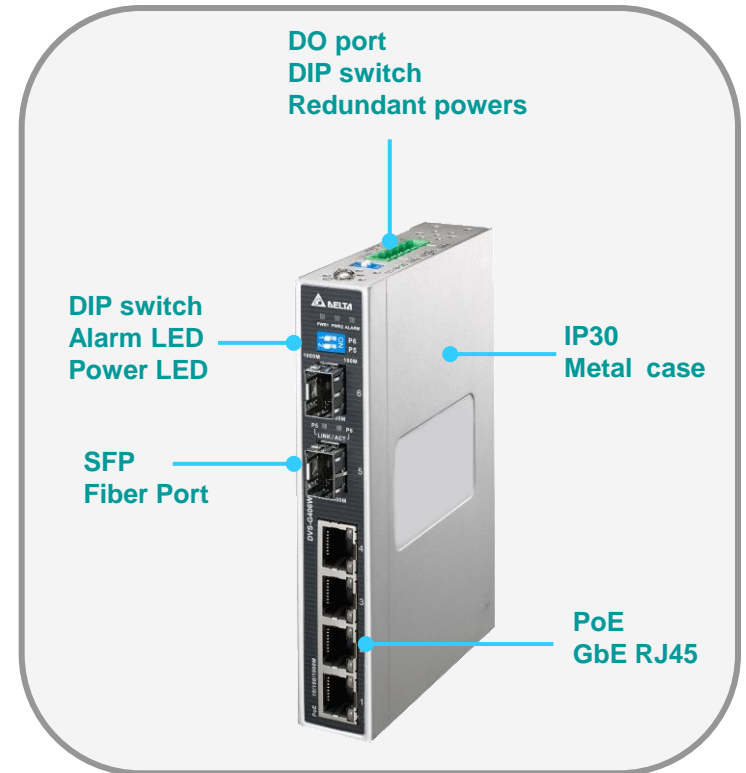**Redundant powers**

Delta Confidential

![Delta logo]

PoE+ Switches

- IEEE 802.3af 15w (PoE)
- IEEE 802.3at 30w (PoE+)

Ethernet Ports	PoE Gigabit ports	RJ45 ports	4 or 8 10/100/1000Base-T
		SFP ports	2 100-Base-FX/1000Base-X
Fiber Optic	Multi Mode		550m, ,5km
	Single Mode		10km, 30km, 40km, 60km
DIP switch	SFP speed & power failure alarm enable		
DO	power failure alarm		
Certificate	CE, FCC, RCM		
Case	IP30 metal		
Operating Temperature	-40~70℃ (-40~167℉)		
Power Inputs	Redundant, 48 to 57VDC		

DO port
DIP switch
Redundant powers

DIP switch
Alarm LED
Power LED

IP30
Metal case

SFP
Fiber Port

PoE
GbE RJ45

Managed Switches

Ethernet Ports	RJ45 ports	7 or 6 or 8 10/100Base-T(X)	
	Gigabit combo ports	RJ45 ports	3 or 2 or 1 10/100/1000Base-T
		SFP fiber ports (DDM)	3 or 2 or 0 100/1000Base-SFP
Management	VLAN, QoS, LACP, SNMP V1/V2c/V3, IGMP Snooping V1/V2/V3		
Network redundancy	STP/RSTP/MSTP		
Network Security	IEEE 802.1X, TACACS+,SSH and HTTPS		
Remote Monitoring	SNMP, MODBUS TCP, EtherNet/IP		
Fiber Optic	Multi Mode	550m, ,5km	
	Single Mode	10km, 30km, 40km, 60km	
Consoles	Web Browser, Utility, SNMP, Telnet, USB		
I/O	2 set Digital Inputs, 2 sets Relay Outputs		
Auto Warning	Relay, System log, E-mail & SNMP trap		
Certificate	UL508, CE, FCC, RCM		
Case	IP40 metal		
Operating Temperature	-40~75℃ (-40~167℉)		
Power Inputs	Redundant, 12 to 48VDC		

Reset button

Alarm LED
Power LED
DI LED

SFP Combo Ports

USB Console port

IP40 Metal case

FE RJ45

DI & DO ports
Redundant powers

ONE RING
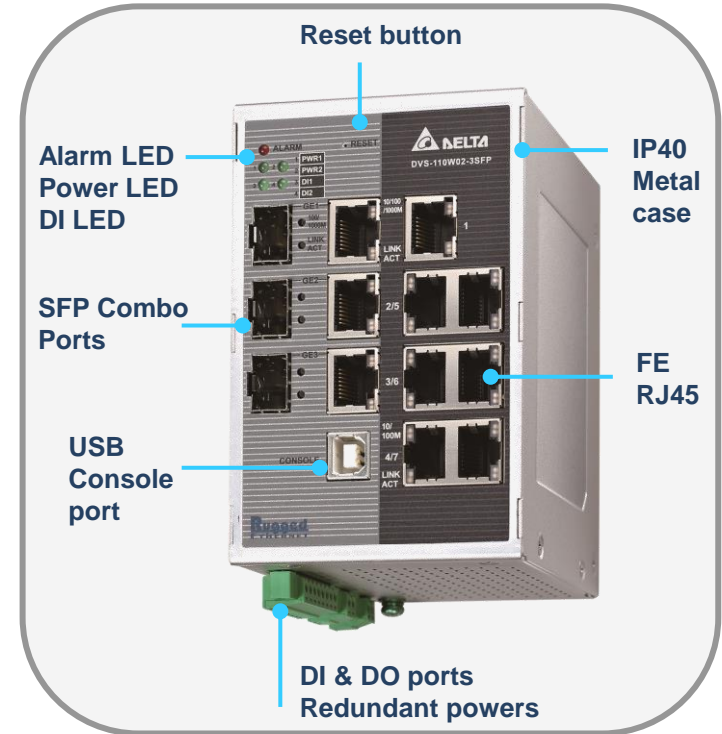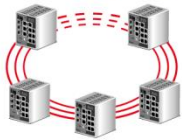
Trunking Ring **Multi-Ring** **Ring Coupling**
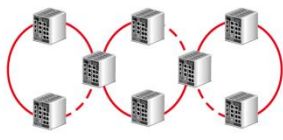
Dual-Homing

ONE CHAIN
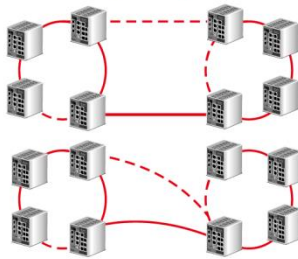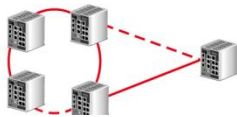
Multi-Network self-healing

Reset button

Alarm LED
Power LED
DI LED

SFP Combo Ports

USB Console port

IP40 Metal case

FE RJ45

DI & DO ports
Redundant powers
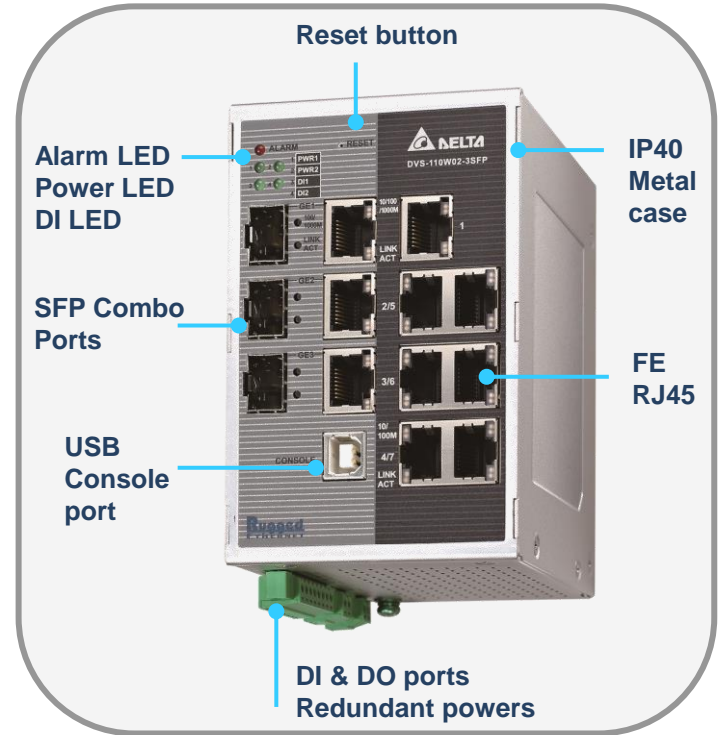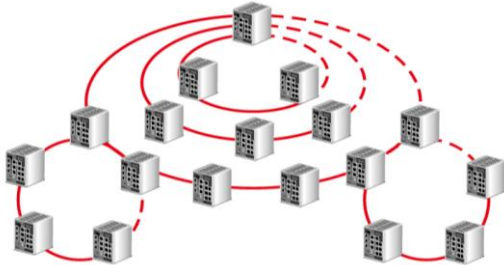
Wireless Access Point

Wireless Protocol	IEEE 802.11a/b/g/n	
Ethernet Ports	RJ45 ports	2 10/100/1000Base-T
Serial Ports	2 RS-232/422/485, Terminal Block(8 contacts per port)	
Wireless Mode	Client, AP, WDS	
Frequency Band	2.412GHz ~ 5.825GHz	
Management	VLAN, QoS, SNMP V1/V2c/V3	
Network redundancy	STP/RSTP	
Network Security	MAC/IP/TCP/UDP filtering, IEEE 802.1X, TACACS+,SSH and HTTPS	
Remote Monitoring	SNMP V1/V2c/V3, MODBUS TCP	
Consoles	Web Browser, Utility, SNMP, Telnet, USB	
I/O	1 Digital Input, 1 Relay Output	
Auto Warning	SNMP trap, System log, E-mail & Relay	
Certificate	UL508, CE, FCC	
Case	IP40 aluminum	
Operating Temperature	-40~75℃ (-40~167℉)	
Power Inputs	Redundant, 12 to 48VDC	

2dB antenna

Strength LED
Serial LED
Alarm LED
Power LED
DI LED

150Ω terminal resistor

RS-232/422/485

USB console

GbE RJ45

Reset button

IP40 metal case

DI & DO ports
Redundant powers
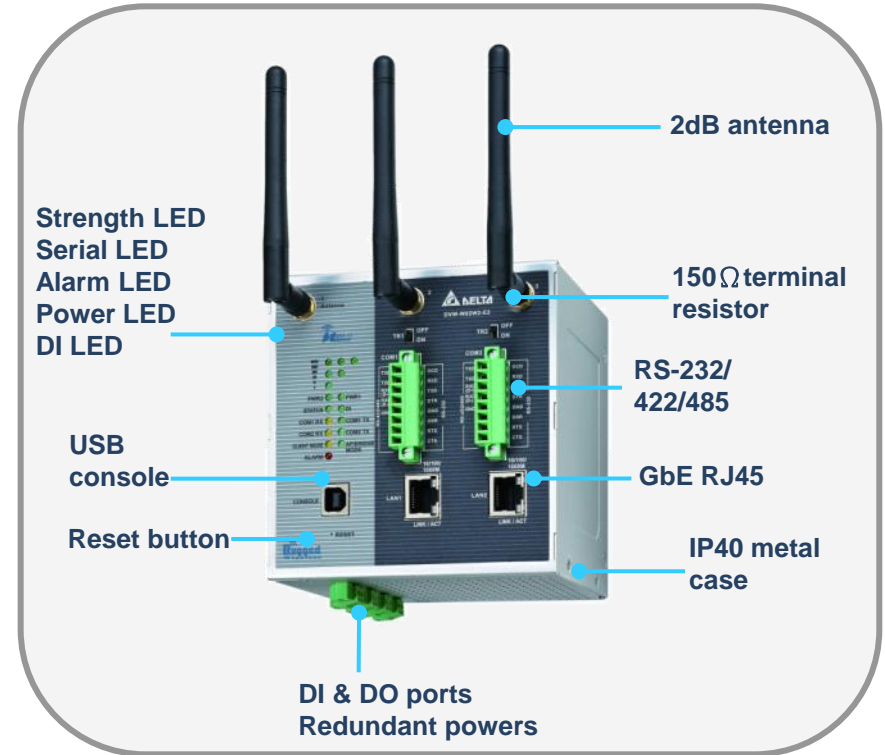
Fiber Transceivers

- Digital Diagnostics Monitoring (DDM)
- -40°C to 85°C Wide temperature
- LCP-1FE series100Mbps bandwidth
- LCP-GbE series 1000Mbps bandwidth

	Port	Status	Temperature		Voltage		Bias		Tx Power		Rx Power	
			Current	Range	Current	Range	Current	Range	Current	Range	Current	Range
☐	0/8	Present	47.1 C	-5.0 - 85.0	3.3 V	3.1 - 3.5	15.2 mA	0.0 - 45.8	-11.1 dBm	-14.1 - -8.1	-15.0 dBm	-33.0 - -5.0

SFP DDM

Configuration options

- Cisco-like Telnet Command Line Interface (CLI)
- Web based Graphical User Interface (GUI)
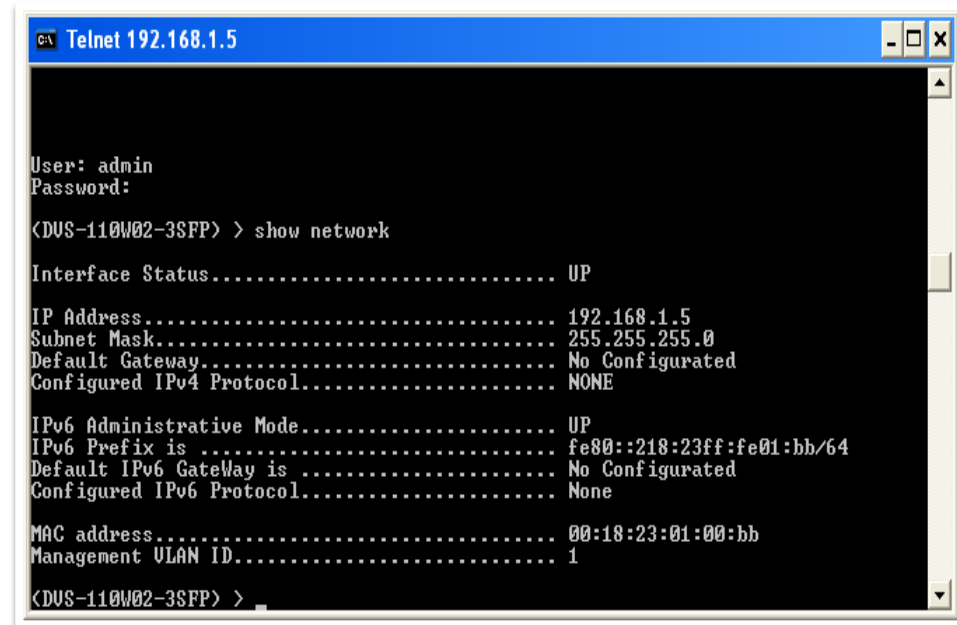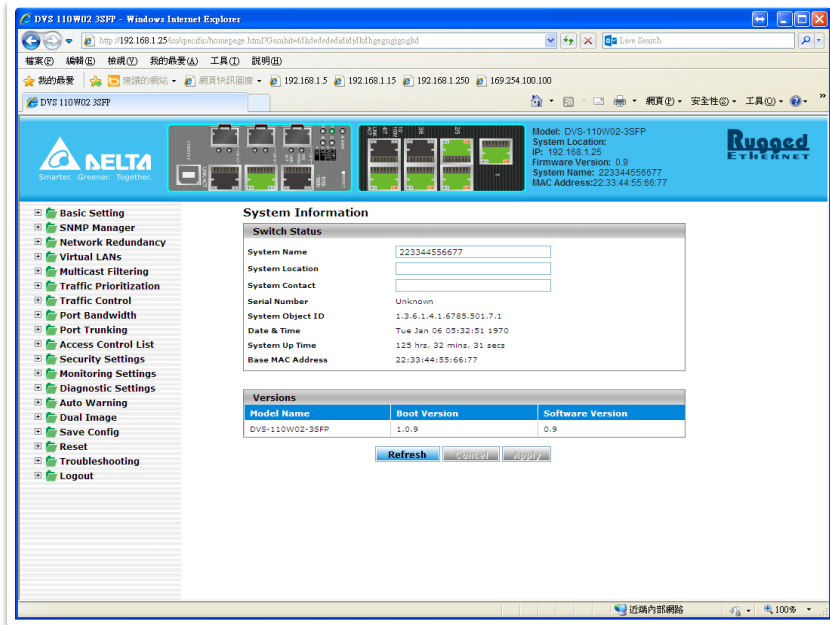
IEXplorer

- IP address search
- Basic configuring
- Link to WEB interface
- Down and Upload of Firmware and configuration
- Reset

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