



NEXCOM International Co., Ltd.

Mobile Computing Solutions

In-Vehicle PoE Switch

VES30-4S and VES30-8S

User Manual

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Preface

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Regulatory Compliance Statements

This section provides the FCC compliance statement for Class B devices and describes how to keep the system CE compliant.

Declaration of Conformity

FCC

This equipment has been tested and verified to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

e13 Mark

The “e” mark is the proof of compliance with directives (laws) required by the European Union. The Council of European communities in Brussels issues these directives and all members must accept approved products.

e13 - Luxembourg

For more information, visit http://www.tuv.com/jp/en/_e_mark_and_e_mark_homologation_for_vehicles_vehicle_components_.html.

RoHS Compliance



NEXCOM RoHS Environmental Policy and Status Update

NEXCOM is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with

European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2011/65/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force in to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

How to recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix “(LF)” will be added to the compliant product name.

All new product models launched after January 2013 will be RoHS compliant. They will use the usual NEXCOM naming convention.

Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needlenose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Precautions

- Read these safety instructions carefully.
- Keep this User Manual for later reference.
- Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
- For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.
- Do not leave this equipment in either an unconditioned environment or in an above 40°C storage temperature as this may damage the equipment.
- Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
- All cautions and warnings on the equipment should be noted.
- If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
- Never pour any liquid into an opening. This may cause fire or electrical shock.
- Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- If one of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.
 - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
- Do not place heavy objects on the equipment.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.
2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
 - Product name and serial number
 - Detailed information of the peripheral devices
 - Detailed information of the installed software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wordings of the error messages

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.
2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

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Package Contents

Before continuing, verify that the VES30 series package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Name	Description	Qty
1	5040420054X00	(N)VES30-8S Mount V Bracket VER: A JAN-YU	140x31x10mm SPCC NI Plating T=1.2mm	2
2	5040420053X00	(N)VES30-8S Mount H Bracket VER: A JAN-YU	140x24x23mm SPCC NI Plating T=1.2mm	2
3	50311F0110X00	(H)Flat Head Screw Long FEI: F3x5ISO+Nylok NIGP	F3x5 NI Nylok	8
4	4NCPM00302X00	(T)Terminal Blocks 3P Phoenix Contact: 1777992	5.08mm Male DIP Green	1

Ordering Information

The following provides ordering information for VES30-4S and VES30-8S.

- **VES30-8S (P/N: 10VE0003001X0)**

8x RJ45 10/100/1000 PoE port (802.3af), 1x RJ45 10/100/1000 Ethernet port, 9~36VDC input, ignition detection, low voltage protection, delay timer, E13 mark

- **VES30-4S (P/N: 10VE0003000X0)**

4x RJ45 10/100/1000 PoE port (802.3af), 1x RJ45 10/100/1000 Ethernet port, 9~36VDC input, ignition detection, low voltage protection, delay timer, E13 mark

Chapter 1: Product Introduction

Overview

VES30-8S and VES30-4S are mobile PoE switches with fanless enclosure designed for telematics applications in harsh environments. The VES30-8S and VES30-4S feature 9 and 5 Gigabit Ethernet ports respectively, including up to 8 and 4 IEEE 802.3af compliant PoE ports to transfer large amounts of video streams, voice and critical data across Ethernet networks smoothly and quickly.

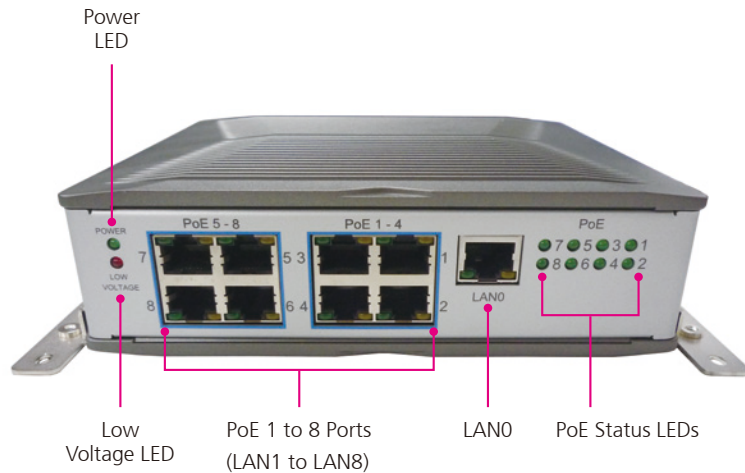
With PoE support, the PoE switches can power PoE-enabled IP camera without the need for additional power lines, simplifying device integration for surveillance applications in transportation. The mobile PoE switches also support wide operating temperatures of -30°C to 70°C, wide voltage input range of 9VDC to 36VDC and provide smart power management with low battery voltage protection, power-on and power-off delay timer, and auto ignition power on/off functions. These unique features can secure reliable operation and prevent premature failure of both the PoE switches and vehicle.

Key Features

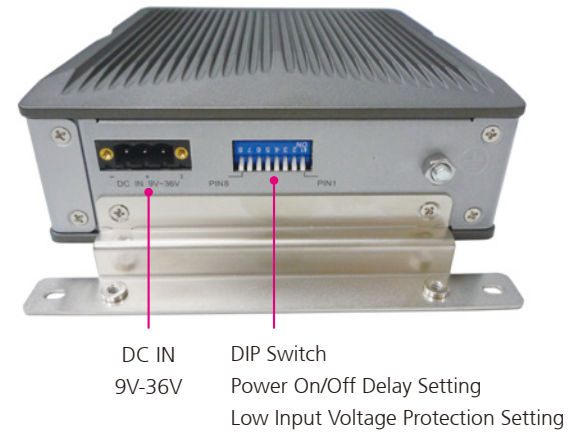
- 1+ 4/8x 10/100/1000 Mbps PoE port (802.3af compliance)
- 15.4W at 48VDC for each PoE port
- Low battery voltage protection
- CE/FCC, E13 mark certification
- Wide power input range 9~36VDC
- -30 ~ 70°C operating temperature
- Ignition power On/Off support
- Power On/Off delay time setting

Physical Features

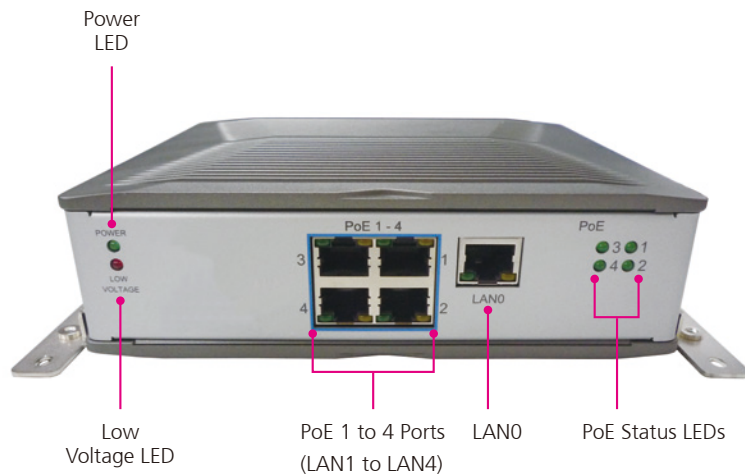
VES30-8S Front View



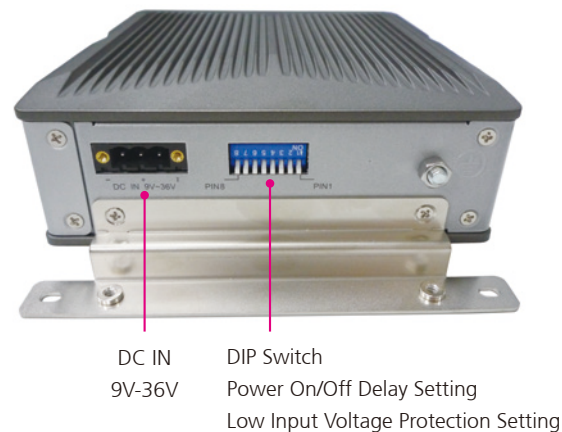
VES30-8S Bottom View



VES30-4S Front View

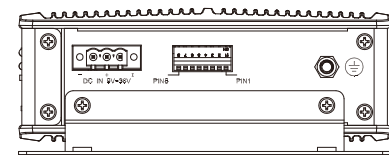
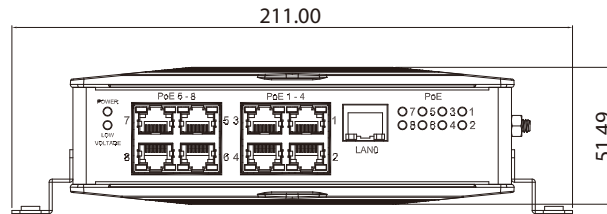
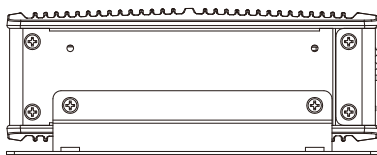
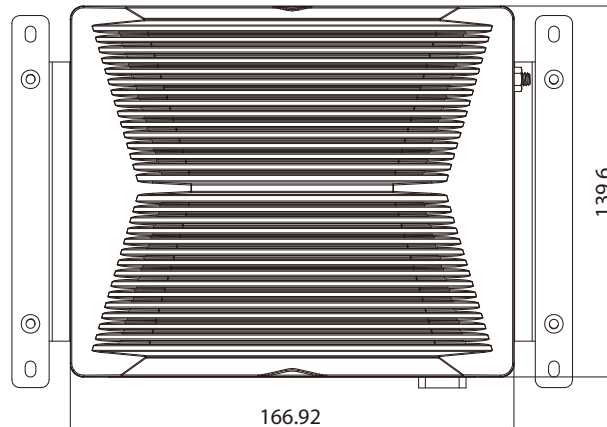
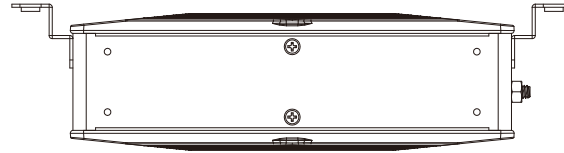


VES30-4S Bottom View

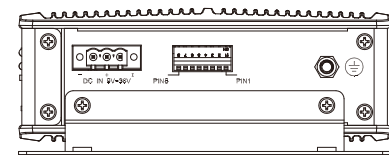
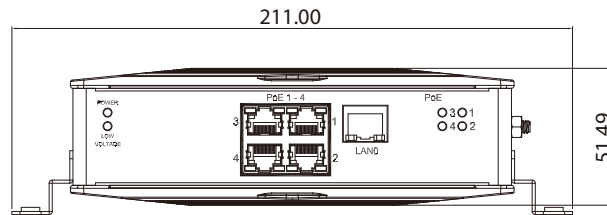
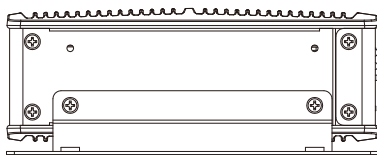
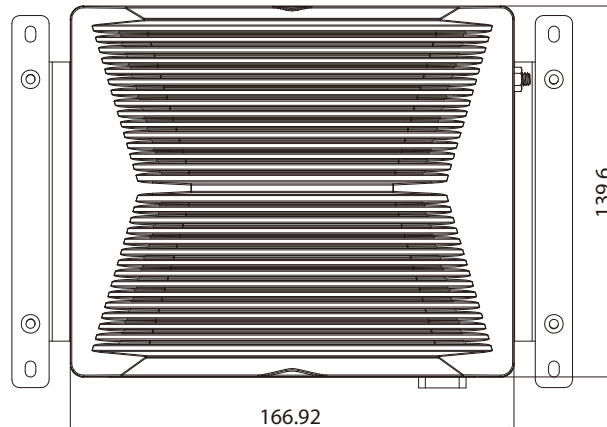
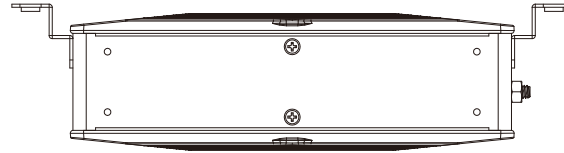


Mechanical Dimension

VES30-8S



VES30-4S



Hardware Specifications

Architecture

- Switch architecture. Highly integrated, unmanaged-smart gigabit, store and forward switch
- 4K entry MAC address table with automatic learning and aging

Power over Ethernet

- PoE standard IEEE 802.3af Power over Ethernet/PSE
- PoE power supply type end-span
- PoE power output per port 48V DC, 350mA. max. 15.4 watts

Network Connector

- 8-port RJ45 for 10/100/1000 base-T. PoE IEEE 802.3af compliance, total 120W (VES30-8S)
- 4-port RJ45 for 10/100/1000 base-T. PoE IEEE 802.3af compliance, total 60W (VES30-4S)
- 1-port RJ45 for 10/100/1000 base-T

Standard Compliance

- IEEE 802.3 for 10BaseT Ethernet
- IEEE 802.3u for 100BaseT(X) Fast Ethernet
- IEEE 802.3ab for 1000BaseT(X) Gigabit Ethernet
- IEEE 802.3x for flow control
- IEEE 802.3af Power Over Ethernet

I/O Interface

- Power: 1x 9~36VDC input with ignition
- Ethernet:
 - 8x RJ45 10/100/1000 Mbps PoE port, 802.3af compliance (VES30-8S)
 - 4x RJ45 10/100/1000 Mbps PoE port, 802.3af compliance (VES30-4S)
 - 1x RJ45 10/100/1000 Mbps
- LED:
 - 1x power indicator
 - 8x PoE indicator (VES30-8S)

- 4x PoE indicator (VES30-4S)
- 1x low voltage protection indicator

Power Management

- Selectable boot-up & shut-down voltage for low power protection by DIP switch
- Power on/ off delay time setting by DIP switch

Dimensions

- 167 x 58.8 x 139.6 mm (65.75" x 23.14" x 54.96")
- Weight: 1kg
- Support Horizontal Mounting, DIN-Rail Mounting (option) and vertical Mounting (option)

Environment

- Operating temperatures: Ambient with air -30°C to 70°C
- Storage temperatures: -35°C to 85°C
- Relative humidity: 10% to 90% (non-condensing)
- Vibration (random): 1g@5~500 Hz
- Vibration:
 - Operating: MIL-STD-810G, Method 514.6, Category 4, common carrier US highway truck vibration exposure
 - Non-Operating: MIL-STD-810G, Method 514.6, Category 24, minimum integrity test
- Shock:
 - Operating: MIL-STD-810G, Method 516.6, Procedure I, functional shock=20g
 - Non-Operating: MIL-STD-810G, Method 516.6, Procedure V, crash hazard shock test=75g

Standards/Certifications

- CE approval
- FCC Class B
- E13 Mark

Chapter 2: Description of the LED Indicators

Power and Low Voltage Protection LEDs

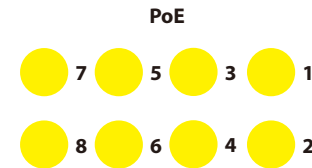
POWER



LOW VOLTAGE

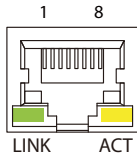
LED	LED Behavior
POWER	Light Off: Power Off. Light On (Green): Power On.
LOW VOLTAGE	Light Off: Battery voltage is normal. Light On (Red): The status of low voltage occurs.

PoE Status LEDs



LED	LED Behavior
1 to 4 (VES30-4S)	Light Off: Power is not supplied to PD (Powered Device). Light On (Yellow): Power is supplied to PD (Powered Device).
1 to 8 (VES30-8S)	Light Off: Power is not supplied to PD (Powered Device). Light On (Yellow): Power is supplied to PD (Powered Device).

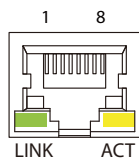
LAN Port LEDs



LED	LED Behavior
LINK	Light Off: No link. Light On (Green): 100Mbps or 1Gbps network link.
ACT	Light Blinking (Yellow): Data is being transmitted or received. Light Off: No data is being transmitted or received.

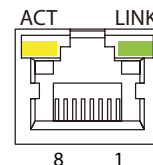
Chapter 3: Description of the External Connector Pinouts

LAN0



Pin	Definition	Pin	Definition
1	LAN_MDI_0P	2	LAN_MDI_0N
3	LAN_MDI_1P	4	LAN_MDI_2P
5	LAN_MDI_2N	6	LAN_MDI_1N
7	LAN_MDI_3P	8	LAN_MDI_3N
9	LAN_LINK#	10	LAN_LED1
11	LAN_ACTLED#	12	LAN_LED2

LAN1~4, PoE (VES30-4S) LAN5~8, PoE (VES30-8S)



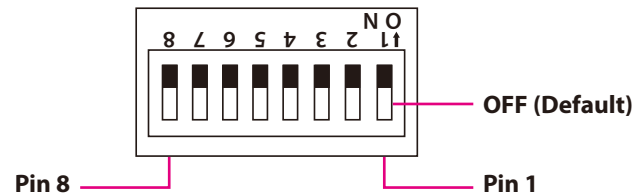
Pin	Definition	Pin	Definition
1	LAN_MDI_0P	2	LAN_MDI_0N
3	LAN_MDI_1P	4	LAN_MDI_2P
5	LAN_MDI_2N	6	LAN_MDI_1N
7	LAN_MDI_3P	8	LAN_MDI_3N
9	LAN_LINK#	10	LAN_LED1
11	LAN_ACTLED#	12	LAN_LED2

DC Input 9V-36V



Pin	Definition
1	GND_IN
2	V_IN
3	IGNITION

Power On/Off Delay Settings

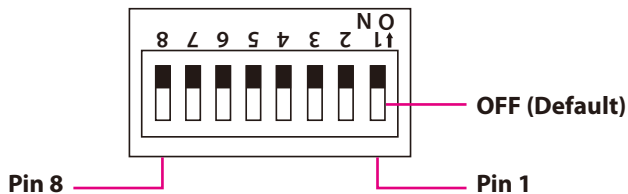


Power ON Delay Time	Pin 2	Pin 1
Disabled(*)	0	0
10 seconds	0	1
30 seconds	1	0
60 seconds	1	1

Power OFF Delay Time	Pin 4	Pin 3
Disabled(*)	0	0
1 minute	0	1
5 minutes	1	0
10 minutes	1	1

(*) Default setting

Low Voltage Protection Settings



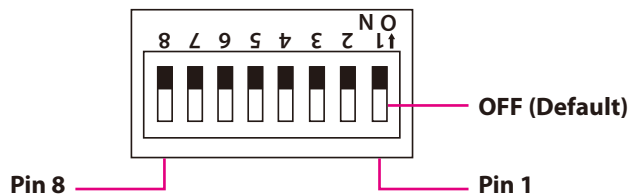
Low Voltage Protection					
12V System		24V System			
Minimum power on voltage	Minimum operation voltage	Minimum power on voltage	Minimum operation voltage	Pin 6	Pin 5
Disabled (9~36V)(*)	Disabled (9~36V)(*)	Disabled (9~36V)(*)	Disabled (9~36V)(*)	0	0
11.5V	10.5V	23V	21V	0	1
12V	11V	24V	22V	1	0
12.5V	11V	25V	22V	1	1

* If the vehicle battery voltage drops lower than the above minimum power on and minimum operation voltages for 6 minutes, VES30 will be shut down.

** If the vehicle battery voltage ranges between 6V~9V for 30 seconds, VES30 will be shut down.

(*) Default setting

Input Voltage Settings



Voltage Range	Pin 8	Pin 7
9~36VDC(*)	0	0
12VDC	0	1
24VDC	1	0

(*) Default setting