



Hardware Installation Guide

Industrial Ethernet Switch

IES-C1160
IES-C1160-1P

1. Introduction

IES-C1160 series Ethernet Switch are designed with a very compact housing size and are fitted with a robust housing. To ensure reliable, error-free operation, and to prevent damage or injury, please read the operating instructions, all safety information provided in this document and any other safety information that were supplied with the product.

2. Safety notice

	Switch off the electrical power before removing the power connection! Éteignez le courant avant de le débrancher!
	The device heats up during operation. Allow the unit to cool down or use protection gloves when carrying out any work. L'équipement se réchauffe pendant le fonctionnement. Laissez l'appareil refroidir ou utilisez des gants de protection lorsque vous effectuez des travaux.
	The device may only be connected to the supply voltage shown on the product label. Higher voltage than specified will destroy the device. L'appareil ne peut être connecté qu'à la tension d'alimentation indiquée sur l'étiquette du produit. Une tension supérieure à celle spécifiée peut endommager l'appareil. The device must be supplied by a class 2 source. L'équipement doit être fourni par une source d'alimentation de classe 2.
	Installation, commissioning and maintenance may only be performed by qualified electricians. Seuls les électriciens qualifiés peuvent effectuer l'installation, la mise en service et la maintenance.
	Observe the operating instructions. Suivez les instructions de fonctionnement.
	<ul style="list-style-type: none"> Indoor use and pollution degree 2, it must be wiped with a dry cloth for clean up the device and label. L'utilisation intérieure et la contamination sont de classe 2I et doivent être essuyées avec un chiffon sec pour nettoyer l'équipement et les étiquettes. Shall be mounted in the Industrial Control Panel and ambient temperature is not exceed 60 degrees C. Doit être installé dans le panneau de commande industriel, la température ambiante ne dépasse pas 60 °C

Intended use

The device is intended for the realization of communication networks within an industrial environment. The device may only be used within the scope of the specified technical data. The device is intended to be mounted to a well-grounded mounting surface, such as a metal panel. Any other use may result in unintentional malfunction and damage. Observing the documentation is part of the intended use.

Environmental conditions

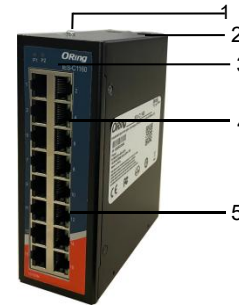
This equipment is intended to be used in a restricted access location. When planning the installation site make sure that the ambient temperature during operation will not exceed the temperature given in the technical data. Also make sure that the air flow will not be compromised by other devices. Ensure that the mounted and wired device is not exposed to any mechanical stress.

3. Package Checklist

Your Ethernet Switch is shipped with the following items:

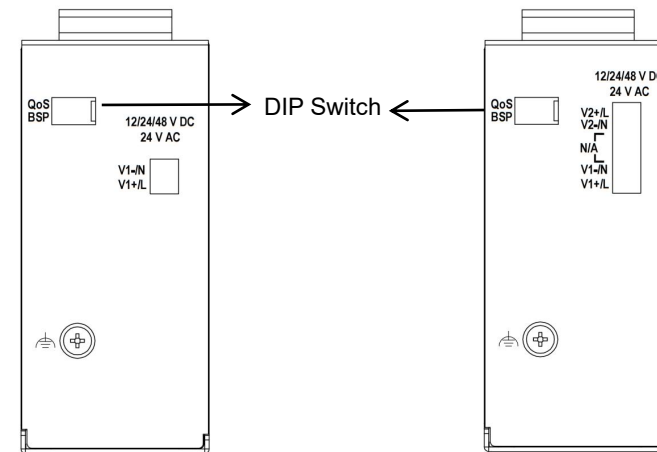
- Ethernet Switch
- Hardware Installation Guide (printed)
- 2/6-Pin Terminal connector

4. Panel Layouts



1. Grounding screw / Frame ground
Note: The shielding ground of the LAN port is electrically connected to the grounding screw.
2. Terminal block for power input PWR
3. Power input LED
4. 16 x 10/100Base –TX Port
5. LAN Port Link/Activity LED

5. DIP Switch



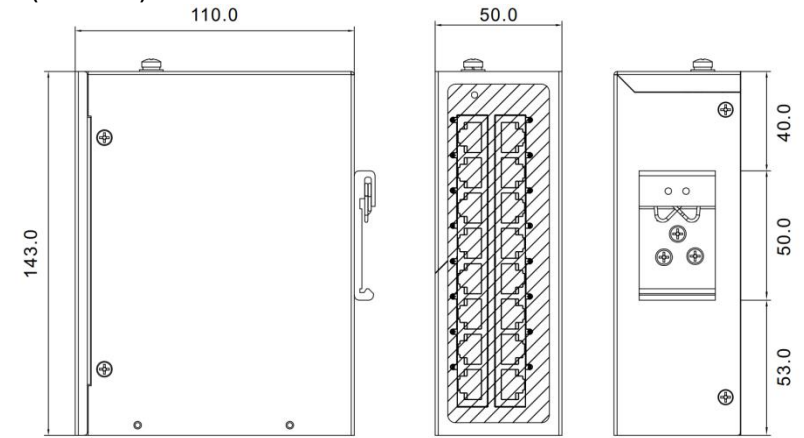
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DIP Switch	Setting	Description															
Quality of Service (QoS)	ON	Enable the Quality of Service to handle packet priorities in four WRR queues. QoS priority mapping matrix in each queue <table border="1" style="margin-left: 20px;"> <tr> <td>QoS3bit priority</td> <td>7,6</td> <td>5,4</td> <td>3,2</td> <td>1,0</td> </tr> <tr> <td>Queues</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>WRR</td> <td>8</td> <td>4</td> <td>2</td> <td>1</td> </tr> </table>	QoS3bit priority	7,6	5,4	3,2	1,0	Queues	3	2	1	0	WRR	8	4	2	1
	QoS3bit priority	7,6	5,4	3,2	1,0												
Queues	3	2	1	0													
WRR	8	4	2	1													
	OFF	Disable the Quality of service															
Broadcast storm protection (BSP)	ON	Enables broadcast storm protection (only allow maximum of 2000 broadcast packets per second) for each Ethernet port.															
	OFF	Disables the broadcast storm protection															

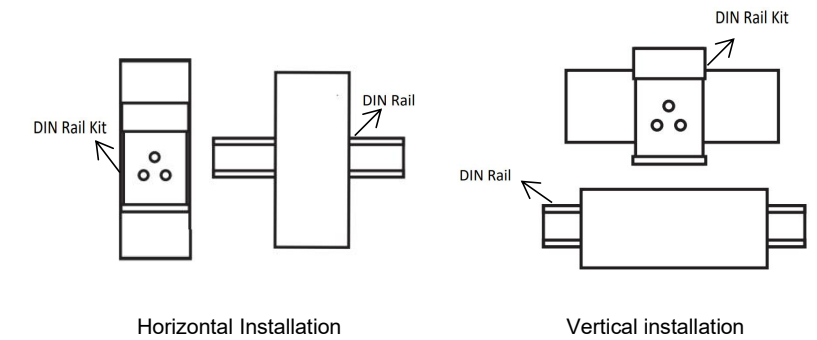
6. Mounting Dimensions

(units=mm)



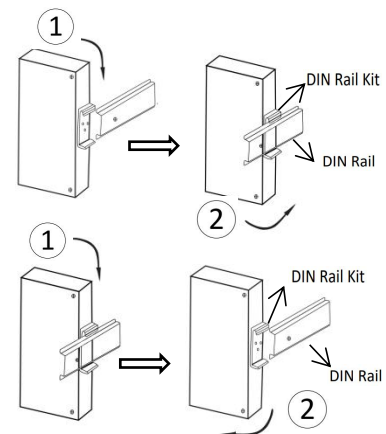
7. DIN-Rail Mounting

The Switch support horizontal and vertical installation. The DIN rail kit can be adjusted according to the actual application to meet different installation requirements.



Installation

Step 1: Select the mounting position for the device and guarantee adequate space and heat dissipation. Clip the upper part of the rail holder to the DIN rail, push the upper part of the device down slightly in the direction of arrow 1.
Step 2: push the front of the module toward the mounting surface until it audibly snaps into place in the direction of arrow 2.



Uninstallation

Step 1: As shown in the following figure, press the device downward in the direction of arrow 1 until the bottom of the device is detached from the DIN rail.
Step 2: Rotate the device in the direction of arrow 2 until the device is removed from the DIN rail.

8. Grounding Ethernet Switch

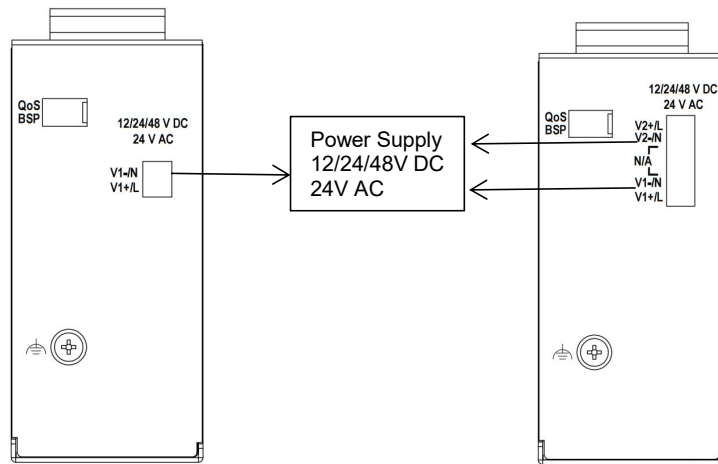


ATTENTION

- Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI).
la mise à la terre et le câblage aident à limiter les effets du bruit causé par les interférences électromagnétiques (EMI).
- Available wire of the earth ground is 10AWG, and applicable tightening torque of the earth ground is 5N·M~6N·M. Grounding resistance <math><0.1\Omega</math>. Le fil disponible à la terre est 10awg et le couple de serrage applicable à la terre est de 5n · M ~ 6N · m. Résistance à la terre $\pm 0,1 \Omega$.
- Connect the ground screw to the grounding surface
- fixer la vis de terre à la surface de terre

9. Wiring the Power Inputs

The switch power supply inputs which are located on the 2/6-pin terminal block. Refer to illustration below for correct wiring. IES-C1160 supply redundant power, user can connect any one power: V1 or V2, and also can connect V1 and V2 at the same.



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Warning

Warning / Avertissement

- Terminal block is mating with Plug and suitable for 16-28AWG. Torque value 1.7 lb-in.
La boîte de jonction correspond à la fiche et convient au 16 - 28awg. Valeur de couple 1,7 LB in.
- The maximum working temperature of the power connection wire should not be lower than 75°C.
La température maximale de fonctionnement du cordon de connexion d'alimentation ne doit pas être inférieure à 75 °C.
- The connection conductor type of the power connection wire use copper conductors only
Types de conducteurs de connexion pour les lignes de connexion d'alimentation utilisant uniquement des conducteurs en cuivre
- Supplied by a class 2 source.
Fourni par une alimentation de niveau 2

10. Communication Connections

IES-C1160-1P and IES-C1160 are equipped with following communication interfaces: 16x10/100Base-T(X) ports

Please only use cables suitable for the respective type of communication and ensure that signals are protected from possible interference.

10.1 10/100Base-T(X) RJ45 Ports

The 10/100Base-T(X) ports located on Ethernet Switch's front panel are used to connect to Ethernet-enabled devices. Below we show pinouts for both MDI (NIC-type) ports and MDI-X (HUB/Switch-type) ports. Auto MDI-X ensures that both wiring-schemes are supported. (Automatic crossover function)

Each RJ45 Ethernet port independently supports auto-negotiation for recognizing the transmission speed 10 Mbps or 100 Mbps according to the IEEE802.3 standard. This means that some of connected Ethernet devices could operate at 10 Mbps, while at the same time other nodes are operating at 100 Mbps.

10/100Base-T(X) RJ45 Pinouts

MDI Port Pinouts		MDI-X Port Pinouts		8-pin RJ45
Pin	Signal	Pin	Signal	
1	Tx+	1	Rx+	
2	Tx-	2	Rx-	
3	Rx+	3	Tx+	
6	Rx-	6	Tx-	



Note about "Duplex mismatching":

If the switch's auto-negotiation port is connected to a non-negotiating device, then the switch will set its port transmission speed same as the connected device but is unable to correctly detect the duplex mode.

Si le port auto - négocié du commutateur est connecté à un périphérique non négocié, le commutateur règle la vitesse de transfert de son port sur le même que le périphérique connecté, mais ne détecte pas correctement le mode duplex.

As result the port is set to the correct speed but is using always the half duplex mode as required by the IEEE 802.3u standard in such cases.

Par conséquent, le port est réglé à la vitesse correcte, mais dans ce cas, le mode semi - duplex requis par la norme IEEE 802.3u est toujours utilisé.

For correct transmission, the non-negotiating port must be set to half-duplex mode

Pour une transmission correcte, le port non négocié doit être réglé en mode semi - duplex.

11. LED Indicators

The front panel of the Ethernet Switch contains several LED indicators. The function of each LED is described in the table below.

LED	Color	Status	Description
Power	Green	On	Power is being supplied to power input PWR
		Off	Power is not being supplied to power input PWR
LNK/ACT	Green	On	Port's link is active.
		Off	Port's link is inactive.
		Blinking	Transmitting data.

12. Specifications

Technology	
Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3x for Flow Control IEEE 802.1p for Class of Service
Processing Type	Store and Forward
MAC Table size	8K
Packet buffer size	4Mbit
Interface	
RJ45 Ports	10/100Base-T(X) auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection
LED Indicators	PWR, LNK/ACT
Power	
Input Voltage	IES-C1160-1P: 12/24/48VDC or 24VAC 50/60Hz single power IES-C1160: 12/24/48VDC or 24VAC 50/60Hz redundant power
Operating Voltage	IES-C1160-1P: 9.6~60VDC & 18~30VAC single power IES-C1160: 9.6~60VDC & 18~30VAC redundant power
Power Consumption	10W
Connection	IES-C1160-1P: One removable 2-pin terminal block IES-C1160: One removable 6-pin terminal block
Overload Current Protection	Present
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	IP40 protection, metal
Dimension (W x H x D)	50 x 143 x 110 mm
Weight	IES-C1160-1P: 520g IES-C1160: 540g
Installation	DIN-rail
Environmental conditions	
Operating Temperature	-10 to 60°C (14 to 140°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	up to 2000 m
Pollution Degree	2
Regulatory Approvals	
Safety	EN 62368-1, UL 61010-1, UL 61010-2-201
EMC	EN 55032, EN 55035, Class A, IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV, IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10V/m, IEC 61000-4-4 EFT: Power: 2kV; Signal: 2 kV, IEC 61000-4-5 Surge: Power: 2kV; Signal: 2 kV, IEC 61000-4-6 CS: 10 Vrms
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Warranty	
Time Period	5 years

Contact Information

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