

# Installation Guide

## 16 I/O HSL Module

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## Introduction

This documentation contains important technical information and describes the installation, commissioning and maintenance procedures for the device. Read the instructions below carefully before performing any operation.

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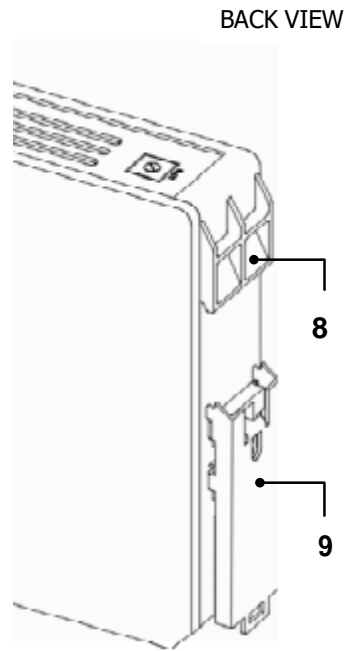
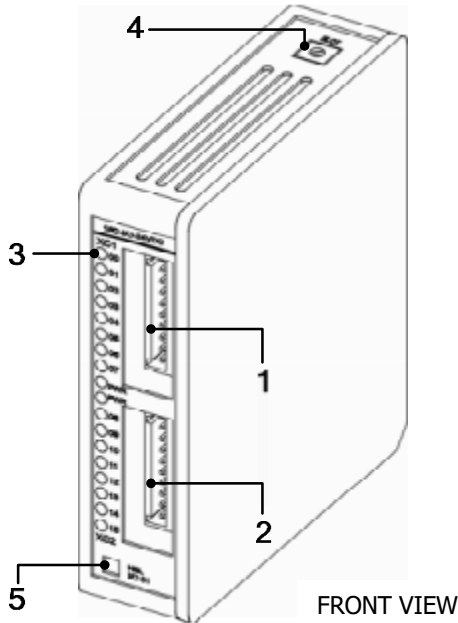
In case of doubt about the translation of the text into a foreign language, what is indicated in the documentation in Italian is valid.

In this documentation, pictograms will be used to highlight hazards or important information:

<b>Pictogram</b>	<b>Meaning</b>
	<b>IMPORTANT!</b> Identifies important information for proper device assembly/use.
	<b>WARNING!</b> Identifies information about actions or circumstances that could result in injury or property damage. The warning helps us identify the danger and avoid it.

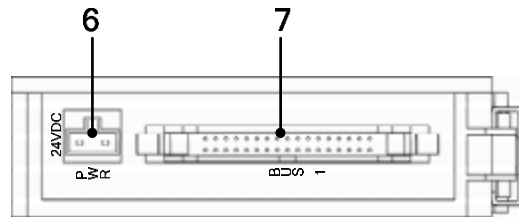


# Description du Module



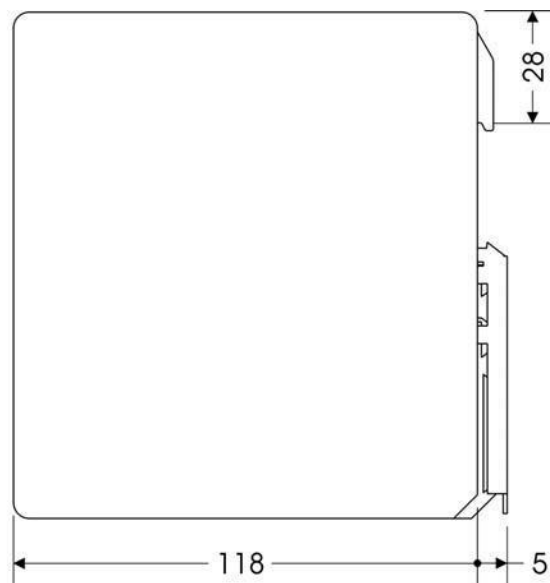
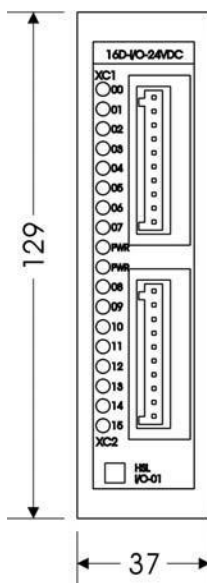
Ref.	Description
------	-------------

- |   |                               |
|---|-------------------------------|
| 1 | I/O XC1 Connector             |
| 2 | I/O XC2 Connector             |
| 3 | I/O status indication LED     |
| 4 | Module Addressing Switch      |
| 5 | Slot for marking module       |
| 6 | Module Power Plug             |
| 7 | Main Bus (34 pins flat cable) |
| 8 | DIN rail mounting guide       |
| 9 | DIN rail clamping side        |



VIEW FROM BELOW

## Dimensions



## Safety Informations

The module has been conceived for use in an industrial environment and must be installed according to the instructions included in this guide.

In order to avoid dangerous situations and/or damage to objects and people, pay special attention and follow the instructions below.

Installation and maintenance of the module must only be carried out by authorized, qualified and competent personnel according to EN 50178 (and according to national regulations about accident prevention).



### **IMPORTANT!**

The unit is turned on during normal operation

Do not remove the component casing and/or touch the electrical/electronic components inside. Do not disassemble or modify the device as this may cause malfunctions or damage the module itself.

This device is designed to be used in a clean and dry environment.

During installation and use, protect the device from contact with metal powders, lubricants, water, chemicals or other substances.

Do not use the device in environmental conditions other than those specified in the technical specifications.

## Preventing electrostatic discharges



### **IMPORTANT!**

Electrostatic discharge can damage internal circuits, which may not occur during installation or first use. To avoid damaging the module, take the following precautions:

- Before handling the module, touch an object on the floor to discharge the electrostatic potential.
- Wear an earthing strap
- Avoid touching the bus connectors or connection terminals
- Avoid touching electrical/electronic components inside the module.
- When not in use, keep the module in its antistatic package.



## Preventing risks of explosion

### **WARNING!**

This device is not conceived for use in environments with an explosive atmosphere.

Do not disconnect the module or connectors without first disconnecting the power supply and be sure to operate in a safe environment

## Removing Power Supply



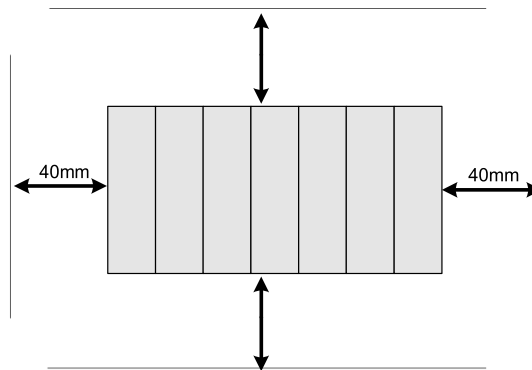
### **WARNING!**

**Before starting any installation or maintenance operations, disconnect the power supply. Otherwise, you may be electrocuted, causing damage to the device or to persons**

## Installation

### Installation Position

During normal operation, the module may heat up. To allow for normal heat dissipation, the device must be assembled taking into account the minimum distances to walls, guards, cable trays and other devices.

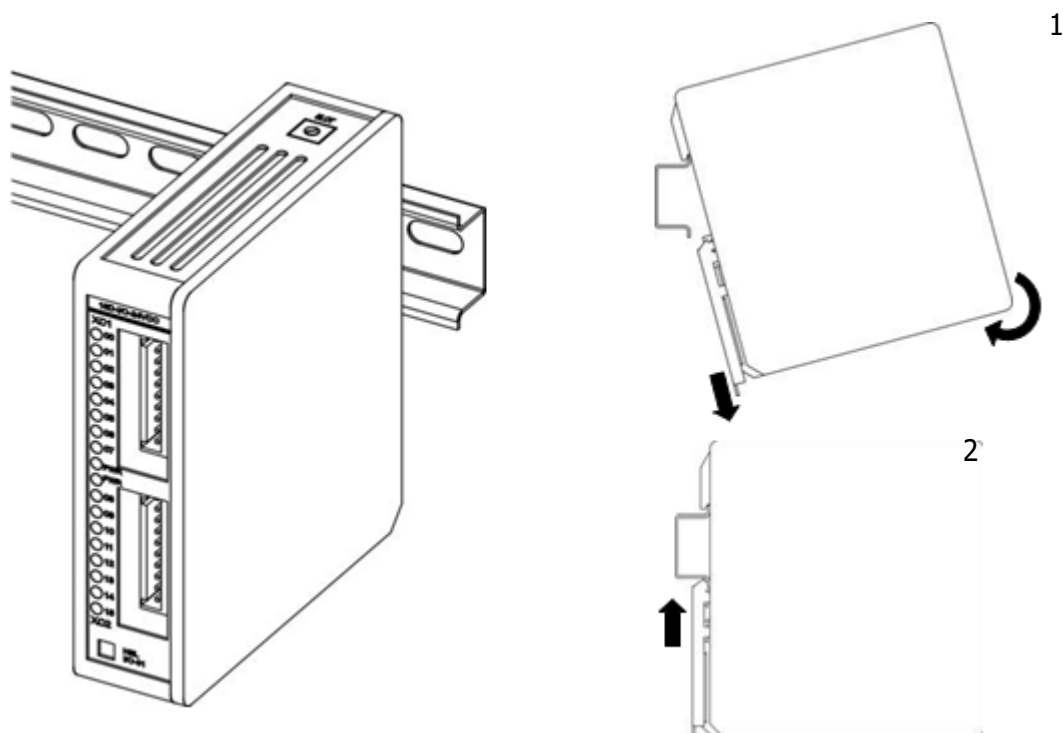


It is the responsibility of the installer to configure the electrical cabinet where the module is installed with forced ventilation systems or ventilation openings, so that the internal temperature does not exceed the maximum room temperature listed in the technical specifications.

### Mounting

The device must be installed on a DIN rail following the procedure below:

1. Place the module on the DIN rail, keeping it slightly tilted and making sure the top rail of the module is properly seated in the top edge of the DIN rail.
2. Rotate the module until it is parallel to the DIN bar, and then lightly press in to allow the clamping slide to snap into place.



## Power Connection

The module is designed to be powered by a nominal voltage of 24Vdc with a maximum short-circuit tension of 16A.

Before wiring, make sure the power supply of the system on which the unit has to be installed is disconnected.

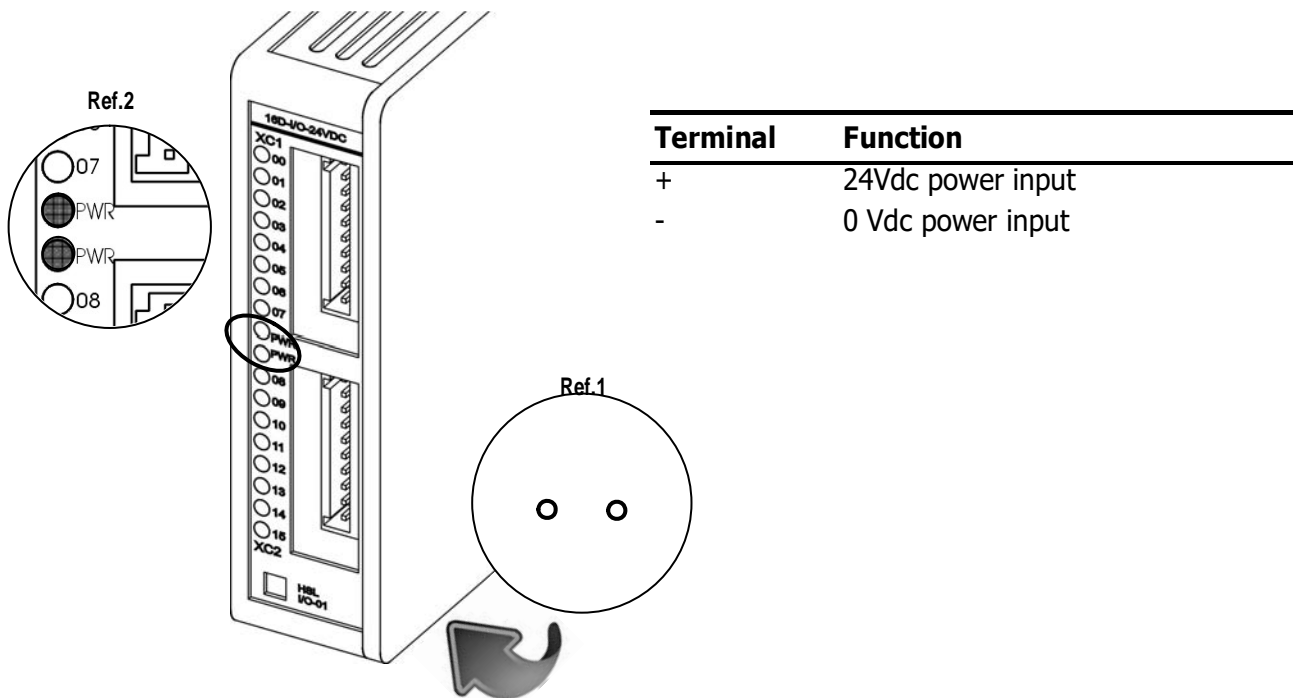
### WARNING!



Any voltage supply higher or, in any case, with characteristics other than those listed in the technical specifications, may result in personal injury and property damage or malfunction of the device itself.

Incorrect connection of the module to the power supply can damage the module itself.

The power connection must be made using the appropriate connector at the bottom of the module (ref. 1).



The lighting of the two PWR LEDs located on the front of the module (Ref.2) indicates that the input/output connectors XC1 (upper LED) and XC2 (lower LED) are powered correctly.



I/O connectors XC1 and XC2 are protected against overcurrent by two self-regenerating fuses. In the event of a short circuit, the LED relating to the connector on which the error occurred turns off. Once the correct module power is restored and the fuse is restored, the LED will light up again to indicate that the module is working properly.

## Field device connections

The module design features allow you to connect input or output devices indiscriminately. All inputs are equipped with galvanic isolation by opto-couplers.



### WARNING!

Pay attention during the wiring phases.

Wire fragments or small metal parts could fall into the module and cause short circuits.

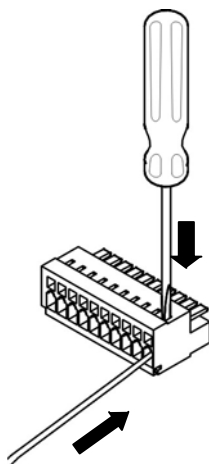
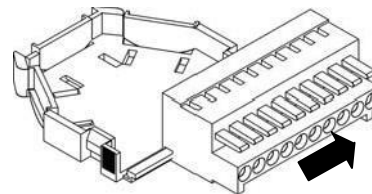
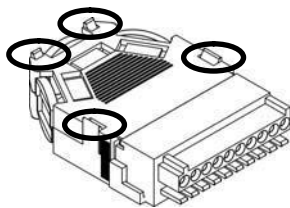


### IMPORTANT!

- Do not couple input wiring with high voltage cables. Otherwise, the device may malfunction due to noise interference, supply voltages, and high voltages.
- Check the correct insulation of the cable. Insufficient insulation (interference from another circuit, poor insulation between terminals, etc.) can result in excessive power surge or current and damage the device.
- Do not apply voltages higher than the nominal input voltage to the inputs.
- Too high voltages could damage the module.
- Keep cables as short as possible to avoid electromagnetic interference.

To wire field devices, proceed as follows:

1. Disconnect the female I/O connector on which you want to wire from the module.
2. Remove the connector by acting on the special tabs, then, remove the covers.
3. Insert a screwdriver into the slot at the connection point, then, apply pressure to open the clamp spring. Once you have inserted the cable, release the screwdriver

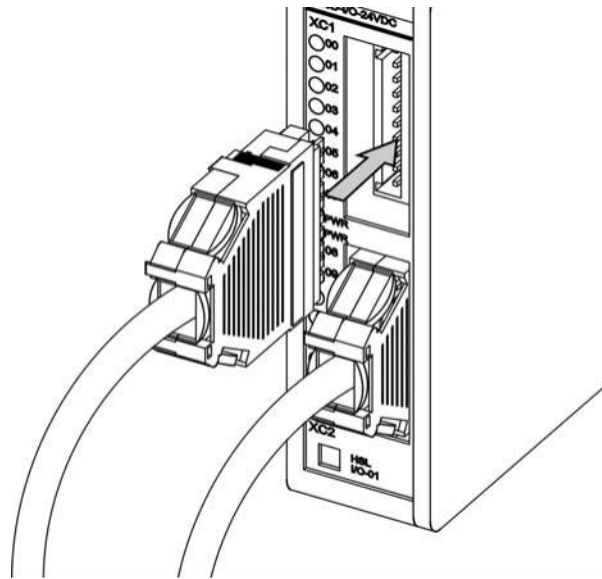


### IMPORTANT!

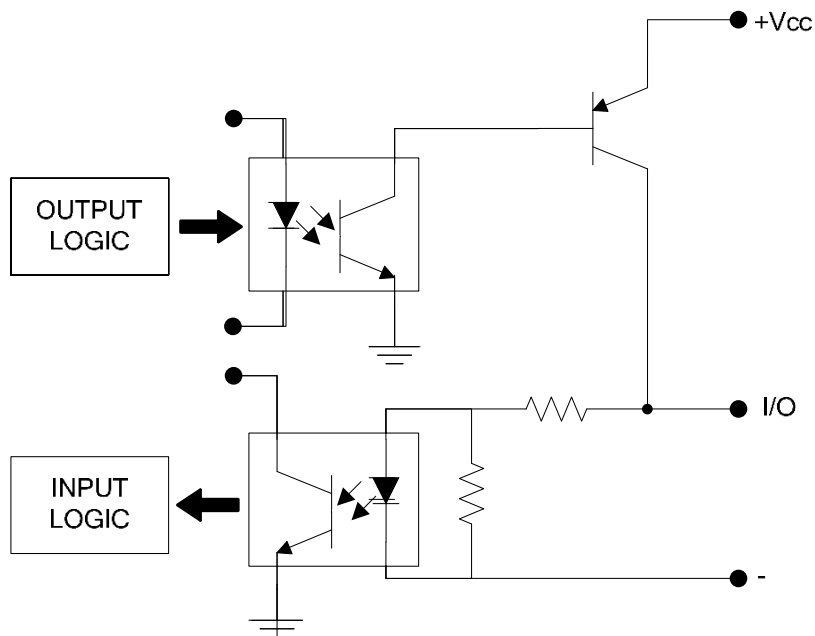
To achieve best contact, it is necessary that the wire to be inserted into the terminal has the exposed conductor.

Do not use wires with a crimp terminal because the spring clip does not guarantee optimal contact with this type of terminal

4. Once all cables are wired, assemble the connector
5. Connect the connector to the I/O Module

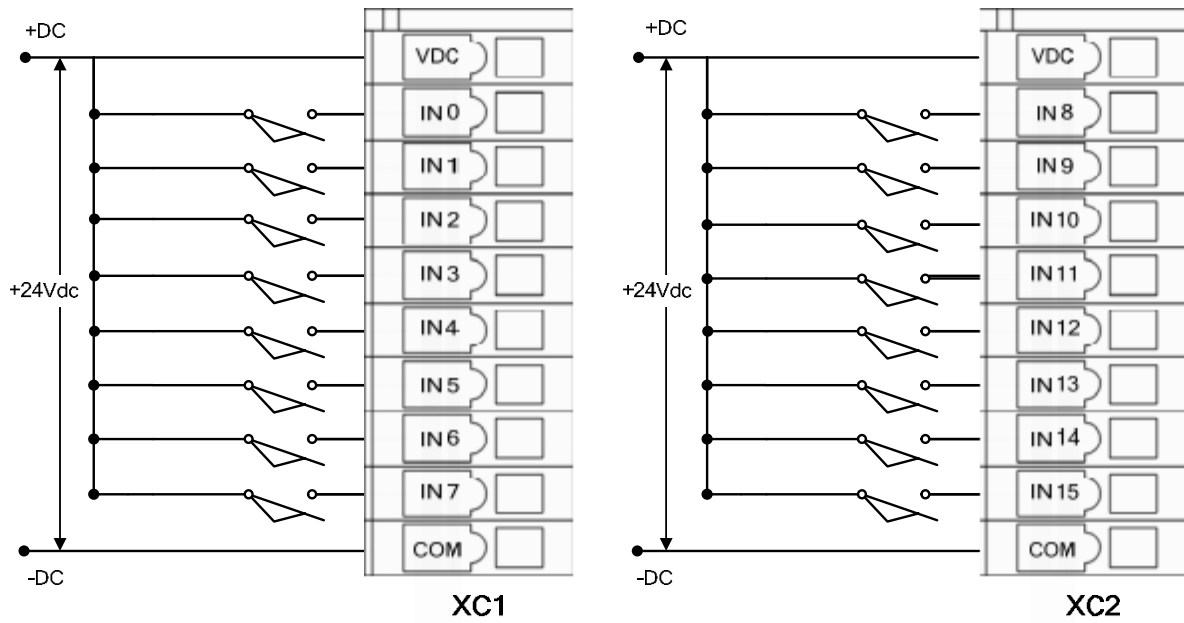


## Diagram of simplified I/O circuit



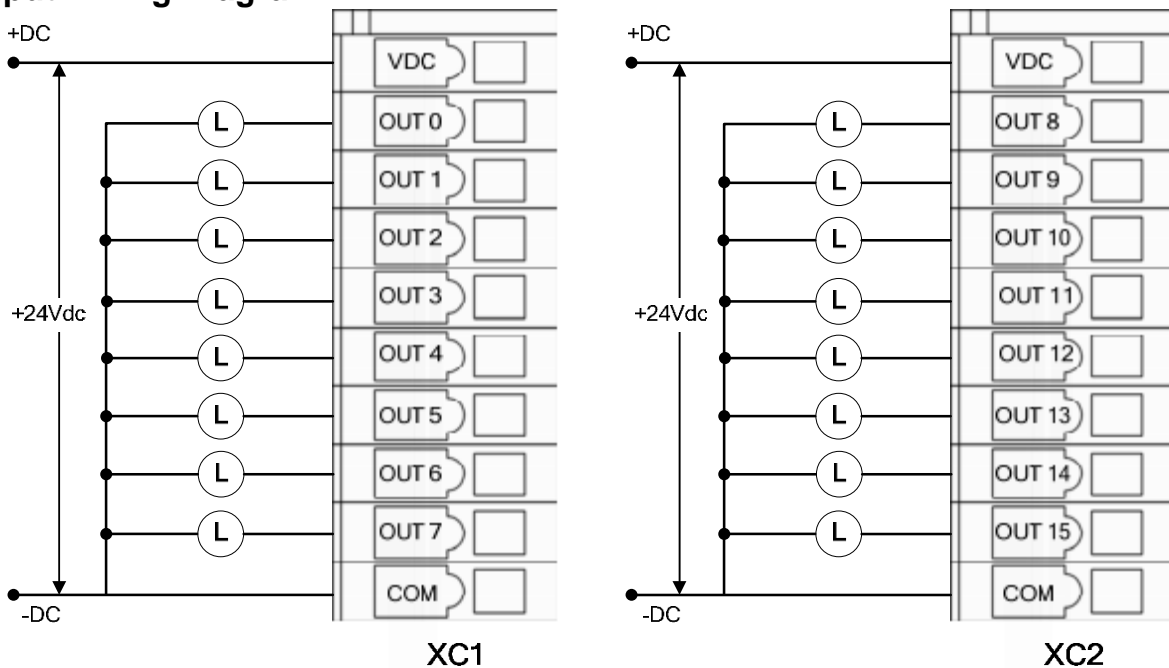


### Input Wiring Diagram



The LED for the connection point to which an input device is connected light with GREEN color when the input is active.

### Output Wiring Diagram



The LED for the connection point to which an output device is connected light with RED color when the output is active.



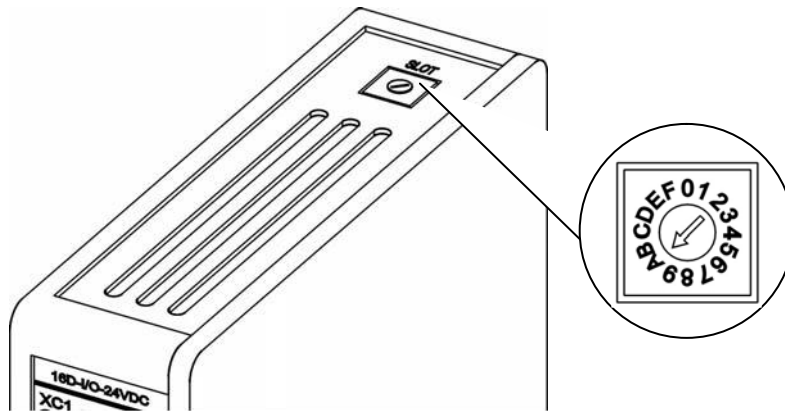
**WARNING!**  
Do not apply voltages or connect output loads higher than the maximum load current. Excessively high voltages or loads can cause burns.

## Module Addressing

The I/O module is addressed using the appropriate 16-position switch (0 to F) located on the top of the unit.

Using a screwdriver, turn the position switch to bring the arrow on the position you want to assign to the module.

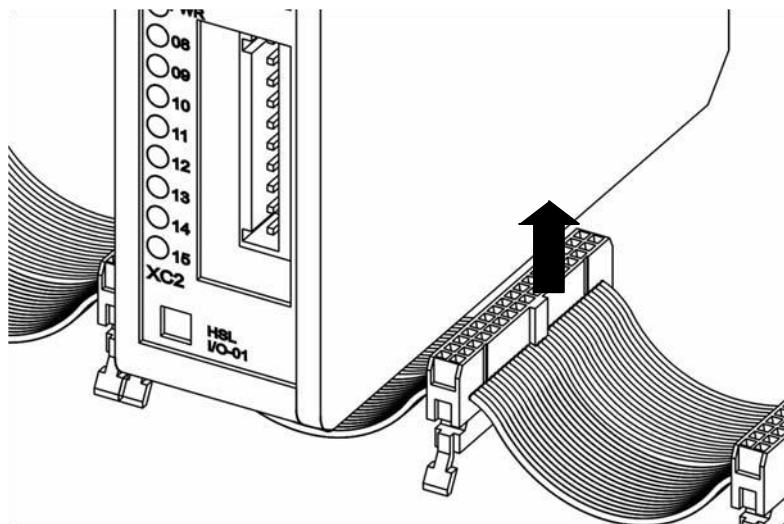
This reference will be used during the programming phases for the addressing of the input and output signals to the module.



### IMPORTANT!

The address assigned to each module must be exclusive, therefore two modules cannot have the same address.

Plug the communication BUS between the I/O modules and the CPU into the appropriate connector.



## Technical Data

Specification	Value
<b>Physical Features</b>	
Dimensions	Height: 129mm Width: 37mm Length: 118mm
Weight	350g
<b>Environmental conditions for Use</b>	
Working Temperature	from 0°C to +60°C
Shipping and Storage Temperature	from -40°C to +85°C
Relative Moisture	From 5% to 95% without dew
Altitude	
Insulating Resistance	
Vibration Proofness	
Protection Degree	IP20
EMC Immunity	
EMC Emissions	
<b>I/O Data</b>	
Input/Output Number	16 digital input/outputs, opto insulated
Input Signal Filter	Programmable. Range min: 1ms Range max: 10ms (digital)
Output Voltage Range	0-24Vdc nominal (PnP Logic) - Max 2A
Input Voltage Range	0-24Vdc nominal (PnP Logic)
BUS	Parallel, 8 bits
<b>Compliances</b>	
CE	CE Compliance

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