Series Description

The Connect Series offers a complete portfolio for IDC (Industrial Data Communication), providing fast Ethernet network connectivity. Designed as the ideal solution for industrial applications, the Connect Series enables the connection of Programmable Controllers (PLCs), Human Machine Interfaces (HMIs), Frequency Inverters and supervision stations running on industrial servers or computers.

The range includes some models with SFP support for fibre optic connections and PoE for powering compatible devices, guaranteeing flexibility and efficiency in the communication network infrastructure.

With an easy installation procedure, DIN rail or wall mounting, and a robust IP30 standard design for applications in hostile environments, the Connect Series is ideal for industrial sectors, withstanding high temperature variations and ensuring reliable operation at 10/100 Mbps, with support for SFP modules for fibre optic connections up to 1000 Mbps. Its high-performance switching mechanism meets all the requirements for industrial data communication.

Purchase Data

CET2-0500 Items

This product contains the following items:

- A CET2-0500 Switch
- DIN-rail mounting and wall mounting
- Quick installation guide

ET2-0800 Items

This product contains the following items:

- An ET2-0800 Switch
- DIN-rail mounting and wall mounting
- Quick installation guide

ET2-0602-M Items

This product contains the following items:

- An ET2-0602-M Switch
- DIN-rail mounting and wall mounting
- Quick installation guide

ET2-1600 Items

This product contains the following items:

- An ET2-1600 Switch
- DIN-rail mounting and wall mounting
- Quick installation guide

ET2-0702-SFP Items

This product contains the following items:

- An ET2-0702-SFP Switch
- DIN-rail mounting and wall mounting
- Quick installation guide

PT2-0500-24 Items

This product contains the following items:

- A PT2-0500-24 Switch
- DIN-rail mounting and wall mounting
- Quick installation guide

Product Codes

The following codes should be used when purchasing the product:

Code	Description
CET2-0500	Industrial Switch, 5 electric ports, unmanageable
ET2-0800	Industrial Switch, 8 electric ports, unmanageable
ET2-0602-M	Industrial Switch, 4 electric ports, 2 multimode optical interfaces, unmanageable
ET2-1600	Industrial Switch, 16 electric ports, unmanageable
ET2-0702-SFP	Industrial Switch, 5 electric ports, 2 fiber port SFP, unmanageable
PT2-0500-24	Industrial Switch, 4 electric ports PoE, 1 electric port, unmanageable

Table 1: Unmanaged Switch Models

Doc. Code: CE125001 Rev: C

CET2-0500 Description

CET2-0500 is a 5-port unmanaged fast ethernet switch designed to be compact, which makes it ideal for limited spaced panels, such as machine control boxes and duct assembly rooms. For setups in harsh or extreme environments, CET2-0500 can be easily mounted directly on a DIN-rail. IP30 level and rigid metal housing allow the CET2-0500 to resist a wide temperature range, severe electromagnetic interference and vibration.

Main Features:

Interface & Performance

- All copper ports support Automatic MDI/MDI-X function
- 5x 10/100Tx Fast Ethernet
- Store-and-Forward Switching Architecture
- 1K MAC Address Table
- 448KB Memory Buffer

Power Supply

- Dual 12-48VDC redundant input with 1 removable 4-pin terminal block
- Max. Current 0.09A

Certification

- CE/FCC
- UL 61010-1
- UL 61010-2-201

Operating Temperature

- STD: -10°C ~ 65°C (14°F ~ 149°F)

Housing/Installation

- IP30 Protection
- Installation in a Pollution Degree 2 industrial environment
- DIN-rail mounting and wall mounting.

	CET2-0500
Available Modes	Switch Mode
Connectors	
Ethernet Port	RJ45
Fiber Port	N/A
Power Connection	Removable 4-pin terminal block
Diagnostic LED	
PWR	Power input indication
LAN Port	Network connection indication, active network

Specification – CET2-0500

		CET2-0500
Technology	**Standards**	IEEE 802.3 10BaseT Ethernet IEEE 802.3u 100BaseTX Fast Ethernet
	Processing Type	Store and Forward
	Protocol	CSMA/CD
	Flow Control	IEEE 802.3x Standard for Data Flow Control, Back-Pressure Mode Available
Switch Properties	**Switching Fabric (Back-Plane)**	1Gbps
	Transfer rate	14.880pps for Ethernet port 148.800pps for Fast Ethernet port
	Memory Buffer	448k bits
	MAC Table Size	1k
Interface	**RJ45 Ports**	5x10/100 Base-T(X) Auto-Negotiation, Full/Half Duplex, Auto-MDI/MDI-X
	LED Indicators	System: Power Ethernet ports: On-Link/Flash-data transmitting
	Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m)
Power Requirements	**Input Voltage**	Dual 12-48VDC redundant power inputs
	Overload Current Protection	Present (Slow-Blow Fuse)
	Power Connection	1 x removable 4-pin terminal block
	Reverse Polarity Protection	Present
	System Power Consumption	Max. 1.2W full loading
Mechanical Characteristics	**Housing**	Metal, IP30 protection
	Dimensions (W x H x D)	26 x 95 x 75 mm (1.0 x 3.7 x 3.0 inch)
	Weight	Unit weight: 0.3kg (2.76 lb), Shipping weight: 0.45kg (3.31 lb)
	Mounting	DIN-Rail Mounting, Wall Mounting
Environmental Limits	**Operating Temperature**	STD: -10°C ~ 65°C (14°F ~ 149°F) EOT: -40°C ~ 75°C (-40°F ~ 167°F)
	Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
	Ambient Relative Humidity	5 to 95%, (non-condensing)
Regulatory Approvals	**EMI**	FCC Part 15 Subpart B Class A, CE EN55032/EN61000-6-4 Class A
	EMS	CE EN55035/EN61000-6-2 IEC61000-4-2 (ESD), IEC61000-4-3 (RS), IEC61000-4-4 (EFT), IEC61000-4-5 (Surge), IEC61000-4-6 (CS), IEC61000-4-8 (Magnetic Field)
	Free Fall	IEC60068-2-32
	Shock	IEC60068-2-27
	Vibration	IEC60068-2-6
	Green	RoHS Compliant
	Safety	UL61010-1, UL61010-2-201
	Compliance	NEMA TS2 (ITS) (apply by request)

Table 2: Specifications

Hardware Details – CET2-0500

Dimension

CET2-0500 physical dimensions (W x H x D):
26 x 95 x 75 mm (1.0 x 3.7 x 3.0 inch)

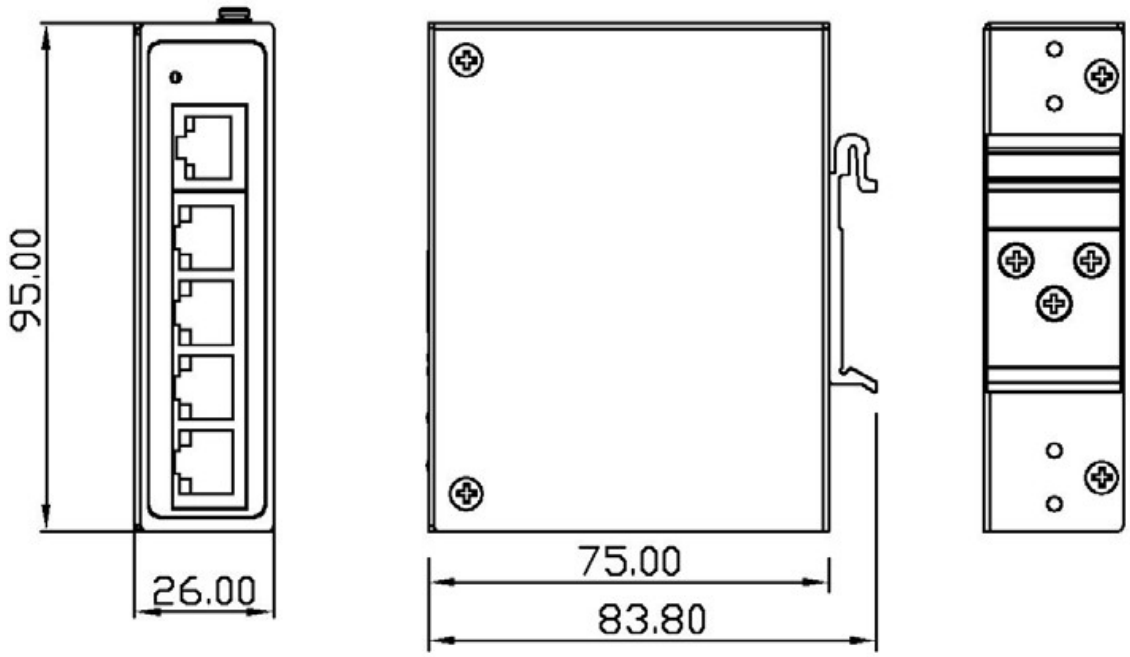


Figure 1: CET2-0500 Physical Dimensions

Unit: mm (inch)

Front Panel

The front panel of the CET2-0500 is shown in the image below:

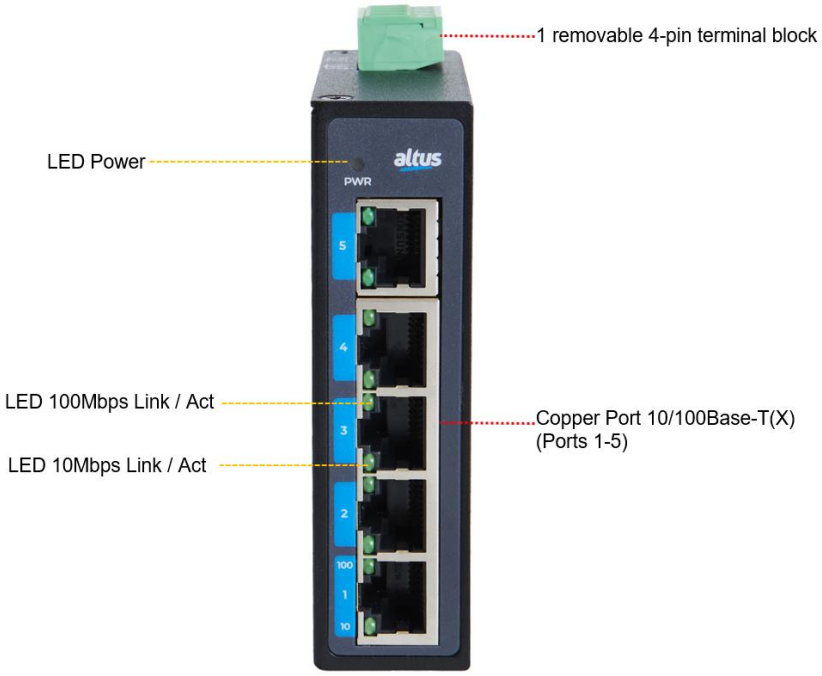


Figure 2: CET2-0500 Front Panel

Top View

The image below demonstrates the top panel of the CET2-0500, which is equipped with one 6-pin removable terminal block connector for dual DC power inputs (12-48VDC).

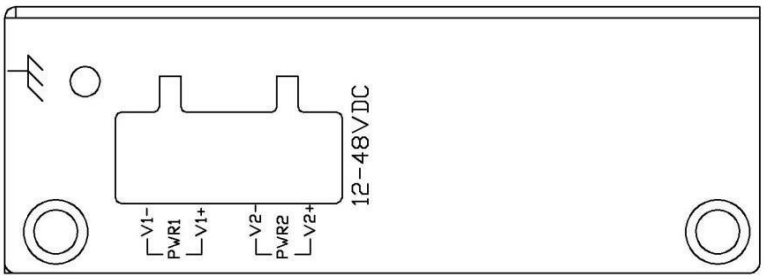


Figure 3: CET2-0500 Top Panel View

LED Indicators

LED indicators, situated on the switch's front panel, display both the power input and network status. Each indicator is distinguished by a unique color, and its corresponding meaning is outlined in the table below:

LED	Color	Description	
PWR	Green	On	Power input 1 or 2 is active
		Off	Power input 1 or 2 is inactive
LAN Port L/A	Green 	On	Connected to the network, 100Mbps
		Flashing	Network is active
		Off	Not connected to the network
LAN Port L/A	Green 	On	Connected to the network, 10Mbps
		Flashing	Network is active
		Off	Not connected to the network

Table 3: LED indicators for CET2-0500

Doc. Code: CE125001 Rev: C

ET2-0800 Description

ET2-0800 is an 8-port unmanaged fast Ethernet switch designed to be compact, which makes it ideal for limited spaced panels, such as machine control boxes and duct assembly rooms. For setups in harsh or extreme environments, ET2-0800 can be easily installedirectly on the DIN-rail. IP30 level and rigid metal housing allow the ET2-0800 to resist a wide temperature range, severe electromagnetic interference and vibration.

Main Features:

Interface & Performance

- All copper ports support Automatic MDI/MDI-X function
- 8x 10/100Tx Fast Ethernet
- Store-and-Forward Switching Architecture
- 2K MAC Address Table
- 448Kbits Memory Buffer

Power Supply

- Dual 12-48VDC redundant input with 1 removable 6-pin terminal block
- Max. Current 0,28A
- Relay Contact: 24VDC, 1A resistive

Certification

- CE/FCC
- UL 61010-1
- UL 61010-2-201

Operating Temperature

- STD: -10°C ~ 65°C (14°F ~ 149°F)

Housing/Installation

- IP30 Protection
- Installation in a Pollution Degree 2 industrial environment
- DIN-rail mounting and wall mounting.

	ET2-0800
Available Modes	Switch Mode
Connectors	
Ethernet Port	RJ45
Fiber Port	N/A
Power Connection	Removable 6-pin terminal block
Diagnostic LED	
P1	Power input indication
P2	
Fault	Lack of redundant power input indication
LAN Port L/A – F/H	Network connection indication, active network

Specification – ET2-0800

		ET2-0800
Technology	**Standards**	IEEE 802.3 10BaseT Ethernet IEEE 802.3u 100BaseTX Fast Ethernet
	Processing Type	Store and Forward
	Protocol	CSMA/CD
	Flow Control	IEEE 802.3x flow control, back pressure flow control
Switch Properties	**Switching (Back-Plane)**	Non-Blocking Switching Fabric
	Transfer rate	14.880pps for Ethernet port 148.800pps for Fast Ethernet port
	Memory Buffer	448k bits
	MAC Table Size	2k
Interface	**RJ45 Ports**	8x10/100 Base-T(X) Auto-Negotiation, Full/Half Duplex, Auto-MDI/MDI-X
	LED Indicators	Power 1, Power 2, Fault Ethernet Ports: On-Link/Flash-data transmitting
	Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m)
Power Requirements	**Input Voltage**	Dual 12-48VDC redundant power inputs
	Overload Current Protection	Present (Slow-Blow Fuse)
	Power Connection	1 x removable 6-pin terminal block
	Reverse Polarity Protection	Present
	System Power Consumption	Max. 3.5W full loading
	Relay Contact	24VDC, 1A resistive
Mechanical Characteristics	**Housing**	Metal, IP30 protection
	Dimensions (W x H x D)	30 x 140 x 95 mm
	Weight	Unit weight: 0.45kg, Shipping weight: 0.65kg
	Mounting	DIN-Rail Mounting, Wall Mounting
Environmental Limits	**Operating Temperature**	STD: -10°C ~ 65°C (14°F ~ 149°F) EOT: -40°C ~ 75°C (-40°F ~ 167°F)
	Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
	Ambient Relative Humidity	5 to 95%, (non-condensing)
Regulatory Approvals	**EMI**	FCC Part 15 Subpart B Class A, CE EN 55022 Class A
	EMS	CE EN55035/EN61000-6-2 IEC61000-4-2 (ESD), IEC61000-4-3 (RS), IEC61000-4-4 (EFT), IEC61000-4-5 (Surge), IEC61000-4-6 (CS), IEC61000-4-8 (Magnetic Field)
	Free Fall	IEC60068-2-32
	Shock	IEC60068-2-27
	Vibration	IEC60068-2-6
	Green	RoHS Compliant
	Safety	UL61010-1, UL61010-2-201, ISA 12.12.01
	Corrosion Protection	IEC 60068-2-11, IEC 60068-2-52, IEC 60068-2-60 IPC-CC-830B, MIL-I-46058C, IEC 61086-2 (Class 2), UL 94, UL 746E ISO 9223 (Class C5-Very High, Class CX-Extreme) ANSI/ISA 71.04 (Class GX-Severe)
	Compliance	NEMA TS2 (ITS) – EoT version

Table 4: Specifications

Hardware Details – ET2-0800

Dimension

ET2-0800 physical dimensions (W x H x D):
30 x 140 x 95 mm

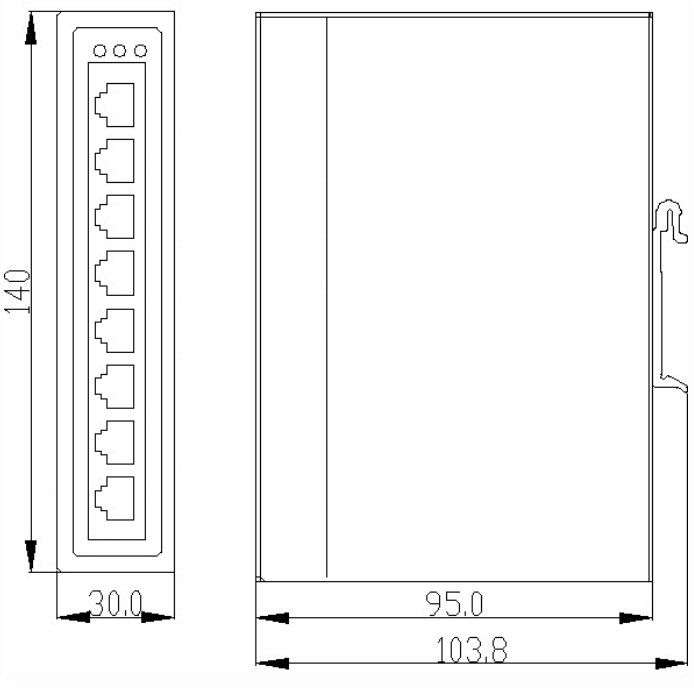


Figure 4: ET2-0800 Physical Dimensions

Front Panel

The front panel of the ET2-0800 is shown in the image below:

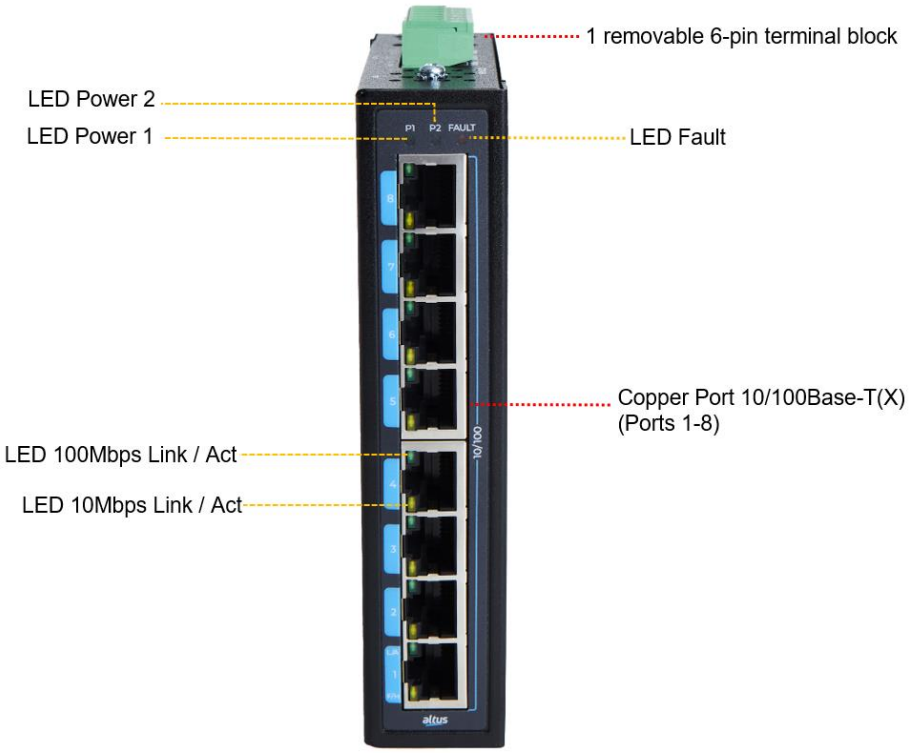


Figure 5: ET2-0800 Front Panel

Top View

The image below demonstrates the top panel of the ET2-0800, which is equipped with one 6-pin removable terminal block connector for dual DC power inputs (12-48VDC).

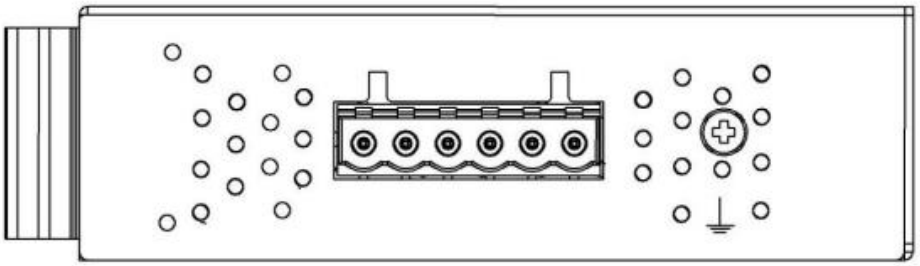


Figure 6: ET2-0800 Top Panel View

LED Indicators

The switch's front panel has LED indicators for power and network status. Each LED has a unique color and meaning, detailed in the table below:

LED	Colour	Description	
P1	Green	On	Power input 1 is active
		Off	Power input 1 is inactive
P2	Green	On	Power input 2 is active
		Off	Power input 2 is inactive
Fault	Green	On	Power input 1 or 2 is inactive
		Off	Power input 1 and 2 are both functional
LAN Port LINK/ACT/ SPEED	Green 	On	Connected to the network
		Flashing	Network is active
		Off	Not connected to the network
	Amber 	On	Ethernet port full duplex
		Flashing	Data packet collision
		Off	Not connected to the network

Table 5: LED indicators for ET2-0800

Doc. Code: CE125001 Rev: C

ET2-0602-M Description

ET2-0602-M is a 6-port unmanaged fast Ethernet switch (4-port RJ45 and 2-port Fiber) designed to be compact, which makes it ideal for limited spaced panels, such as machine control boxes and duct assembly rooms. For setups in harsh or extreme environments, ET2-0602-M can be easily mounted directly on the DIN-rail. IP30 level and rigid metal housing, allow the ET2-0602-M to resist a wide temperature range, severe electromagnetic interference and vibration.

Main Features:

Interface & Performance

- All copper ports support Automatic MDI/MDI-X function
- 4x 10/100Tx Fast Ethernet + 2x 100Fx
- Store and Forward Switching Architecture
- 2K MAC Address Table
- 448Kbits Memory Buffer

Power Supply

- Dual 12-48VDC redundant input with 1 removable 6-pin terminal block
- Max. Current 3.5A

Certification

- CE/FCC
- UL 508
- ISA 12.12.01

Operating Temperature

- STD: -10°C ~ 65°C (14°F ~ 149°F)

Housing/Installation

- IP30 Protection
- Installation in a Pollution Degree 2 industrial environment
- DIN-rail mounting and wall mounting.

	ET2-0602-M
Available Modes	Switch Mode
Connectors	
Ethernet Port	RJ45
Fiber Port	SC
Power Connection	Removable 6-pin terminal block
Diagnostic LED	
P1	Power input indication
P2	
Fault	Lack of redundant power input indication
Fiber port	Fiber port connection indication
LAN Port	Network connection indication, active network

Specification – ET2-0602-M

		ET2-0602-M
Technology	**Standards**	IEEE 802.3 10BaseT Ethernet IEEE 802.3u 100BaseTX Fast Ethernet
	Processing Type	Store and Forward
	Protocol	CSMA/CD
	Flow Control	IEEE 802.3x flow control, back pressure flow control
Switch Properties	**Switching Fabric (Back-Plane)**	Non-Blocking Switching
	Transfer rate	14.880pps for Ethernet port 148.800pps for Fast Ethernet port
	Memory Buffer	448k bits
	MAC Table Size	2k
Interface	**RJ45 Ports**	4x10/100Base T(X), auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection
	Fiber Port	2x100Fx SC connector
	LED Indicators	Power 1, Power 2, Fault Ethernet Ports: On-Link/Flash-data transmitting Fiber Ports: On-Link/Flash-data transmitting
	Wavelength	1310nm
	Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m)
Power Requirements	**Input Voltage**	12-48VDC, Redundant Input
	Overload Current Protection	Present (Slow-Blow Fuse)
	Power Connection	1 x removable 6-pin terminal block
	Reverse Polarity Protection	Present
	Power Consumption	6Watts
Mechanical Characteristics	**Housing**	Metal, IP30 protection
	Dimensions (W x H x D)	30 x 142 x 99 mm
	Weight	Unit Weight: 0.5kg, Shipping Weight: 0.7kg
	Mounting	DIN-Rail Mounting, Wall Mounting
Environmental Limits	**Operating Temperature**	STD: -10°C ~ 65°C (14°F ~ 149°F) EOT: -40°C ~ 75°C (-40°F ~ 167°F)
	Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
	Ambient Relative Humidity	5 to 95%, (non-condensing)
Regulatory Approvals	**EMI**	FCC Part 15 Subpart B Class A, CE EN 55022 Class A
	EMS	IEC61000-4-2 (ESD), IEC61000-4-3 (RS), IEC61000-4-4 (EFT), IEC61000-4-5 (Surge), IEC61000-4-6 (CS), IEC61000-4-8 (Magnetic Field)
	Free Fall	IEC60068-2-32
	Shock	IEC60068-2-27
	Vibration	IEC60068-2-6
	Green	RoHS Compliant
	Safety	UL 508, ISA 12.12.01
	Compliance	NEMA TS2 (ITS) –EoT version

Table 6: Specifications

Hardware Details – ET2-0602-M

Dimension

ET2-0602-M physical dimensions (W x H x D):
30 x 142 x 95 mm

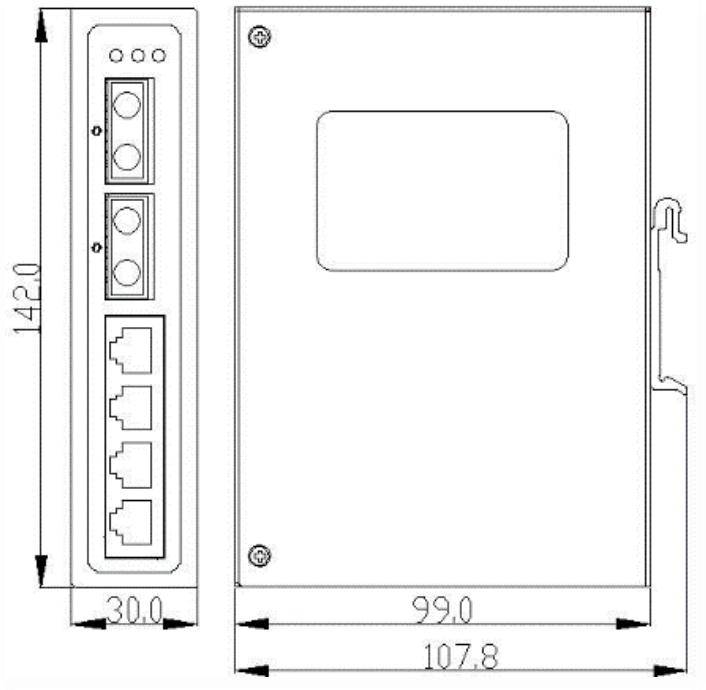


Figure 7: ET2-0602-M Physical Dimensions

Front Panel

The front panel of the ET2-0602-M is shown in the image below:

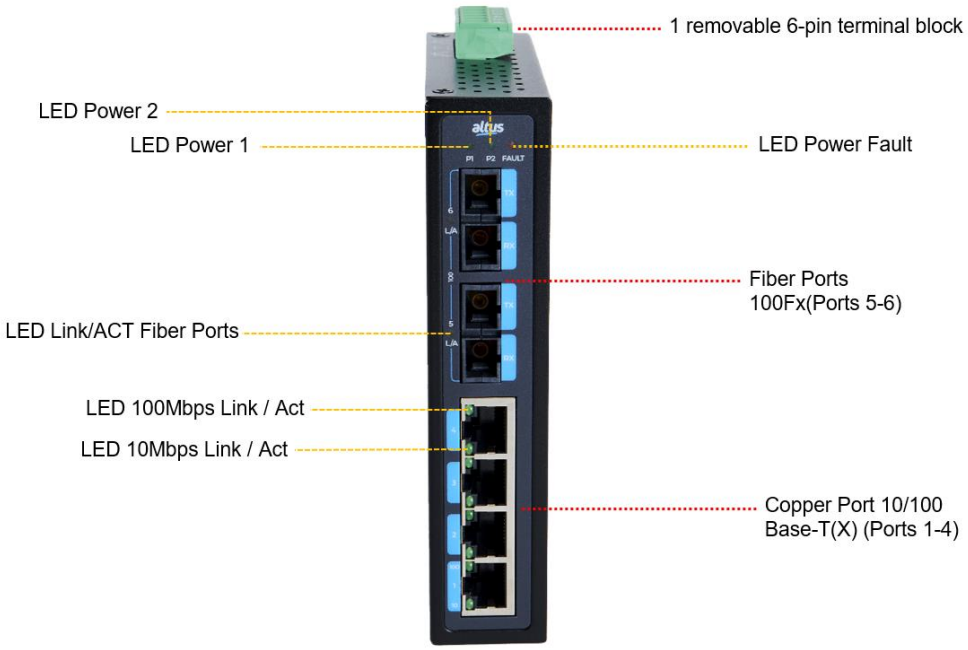


Figure 8: ET2-0602-M Front Panel

Top View

The image below demonstrates the top panel of the ET2-0602-M, which is with one 6-pin removal terminal block connector for dual DC power inputs (12-48VDC).

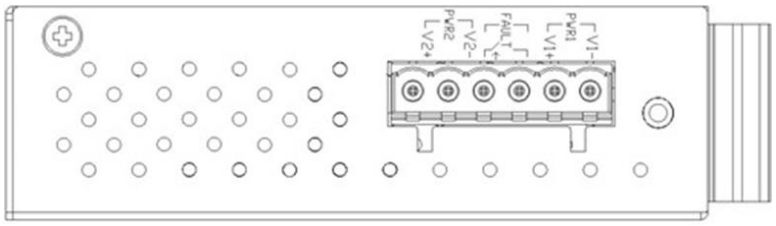


Figure 9: ET2-0602-M Top Panel View

LED Indicators

There are LED indicators located on the front panel of the switch that show the power input and network status. Each LED indicator has a different color and has its own meaning, as shown in the table below:

LED	Colour	Description	
P1	Green	On	Power input 1 is active
		Off	Power input 1 is inactive
P2	Green	On	Power input 2 is active
		Off	Power input 2 is inactive
Fault	Green	On	Power input 1 or 2 is inactive
		Off	Power input 1 and 2 are both functional
LAN Port LINK/ACT/SPEED	Green 	On	Connected to the network, 100Mbps
		Flashing	Network is active
		Off	Not connected to the network
	Green 	On	Connected to the network, 10Mbps
		Flashing	Network is active
		Off	Not connected to the network
Fiber Port F/H	Green	On	Connected to the network, 100Mbps
		Flashing	Network is active
		Off	Not connected to the network

Table 7: LED indicators for ET2-0602-M

Special Models

- **ET2-0602-S3:** 6 fast Ethernet ports - 4x10/100Tx + 2x100Fx (SC Connector, Single-mode, 30km/1310nm)

Please contact Altus for information on available models and specifications.

ET2-1600 Description

ET2-1600 is an 8-port unmanaged fast Ethernet switch designed to be compact, which makes it ideal for limited spaced panels, such as machine control boxes and duct assembly rooms. For setups in harsh or extreme environments, ET2-1600 can be easily mounted directly on the DIN-rail. IP30 level and rigid metal housing, allow the ET2-1600 to resist a wide temperature range, severe electromagnetic interference and vibration.

Main Features:

Interface & Performance

- All copper ports support Automatic MDI/MDI-X function
- 16x 10/100Tx Fast Ethernet
- Store and Forward Switching Architecture
- 16K MAC Address Table
- 4Mbits Memory Buffer

Power Supply

- Dual 12-48VDC redundant input with 1 removable 6-pin terminal block
- Max. Current 0,36A
- Relay Contact: 24VDC, 1A resistive

Certification

- CE/FCC
- UL 61010-1
- UL 61010-2-201

Operating Temperature

- STD: -10°C ~ 65°C (14°F ~ 149°F)

Housing/Installation

- IP30 Protection
- Installation in a Pollution Degree 2 industrial environment
- DIN-rail mounting and wall mounting.

	ET2-1600
Available Modes	Switch Mode
Connectors	
Ethernet Port	RJ45
Fiber Port	N/A
Power Connection	Removable 6-pin terminal block
Diagnostic LED	
P1	
P2	Power input indication
Fault	Lack of redundant power input indication
LAN Port	
L/A – F/H	Network connection indication, active network

Specification – ET2-1600

		ET2-1600
Technology	**Standards**	IEEE 802.3 10BaseT Ethernet IEEE 802.3u 100BaseTX Fast Ethernet
	Processing Type	Store and Forward
	Protocol	CSMA/CD
	Flow Control	IEEE 802.3x flow control, back pressure flow control
Switch Properties	**Switching (Back-Plane)**	3.2Gbps
	Transfer rate	14.880pps for Ethernet port 148.800pps for Fast Ethernet port
	Memory Buffer	4Mbits
	Jumbo Frame	1664 bytes
	MAC Table Size	16k
Interface	**RJ45 Ports**	16x10/100 Base-T(X) Auto-Negotiation, Full/Half Duplex, Auto-MDI/MDI-X
	LED Indicators	Power 1, Power 2, Fault Ethernet Ports: On-Link/Flash-data transmitting
	Relay Contact	24 VDC, 1A resistive
	Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m)
Power Requirements	**Input Voltage**	Dual 12-48VDC redundant power inputs
	Overload Current Protection	Present (Slow-Blow Fuse)
	Power Connection	1 x removable 6-pin terminal block
	Overload Current Protection	Present (Slow-Blow Fuse)
	Reverse Polarity Protection	Present
	System Power Consumption	Max. 3.5W full loading
Mechanical Characteristics	**Housing**	Metal, IP30 protection
	Dimensions (W x H x D)	46 x 142 x 99 mm (1.8 x 5.6 x 3.9 inch)
	Weight	Unit weight: 0.628 kg, Shipping weight: 0.812 kg
	Mounting	DIN-Rail Mounting, Wall Mounting
Environmental Limits	**Operating Temperature**	STD: -10°C ~ 65°C (14°F ~ 149°F) EOT: -40°C ~ 75°C (-40°F ~ 167°F)
	Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
	Ambient Relative Humidity	5 to 95%, (non-condensing)
Regulatory Approvals	**EMI**	FCC Part 15 Subpart B Class A, CE EN55032/EN61000-6-4 Class A
	EMS	CE EN55035/EN61000-6-2 IEC61000-4-2 (ESD), IEC61000-4-3 (RS), IEC61000-4-4 (EFT), IEC61000-4-5 (Surge), IEC61000-4-6 (CS), IEC61000-4-8 (Magnetic Field)
	Free Fall	IEC60068-2-32
	Shock	IEC60068-2-27
	Vibration	IEC60068-2-6
	Green	RoHS Compliant
	Safety	UL61010-1, UL61010-2-201, E-Mark for ET2-1600-(T)E series only
	Compliance	NEMA TS2 (ITS) – EoT version

Table 8: Specifications

Hardware Details – ET2-1600

Dimension

ET2-1600 physical dimensions (W x H x D):

46 x 142 x 99 mm (1.8 x 5.6 x 3.9 inch)

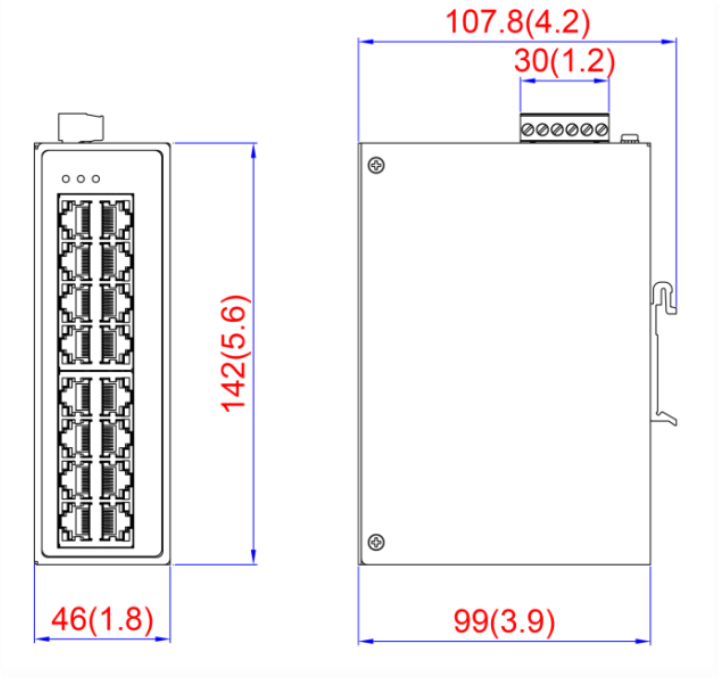


Figure 10: ET2-1600 Physical Dimensions

Unit: mm (inch)

Front Panel

The front panel of the ET2-1600 is shown in the image below:

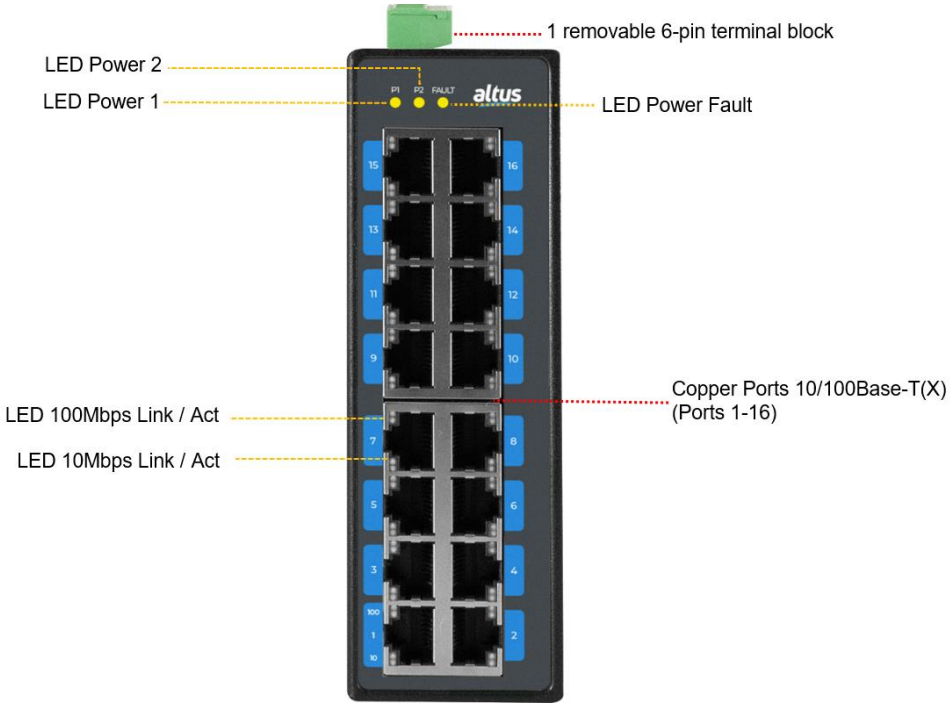


Figure 11: ET2-1600 Front Panel

Top View

The image below demonstrates the top panel of the ET2-1600, which is equipped with one 6-pin removable terminal block connector for dual DC power inputs (12-48VDC).

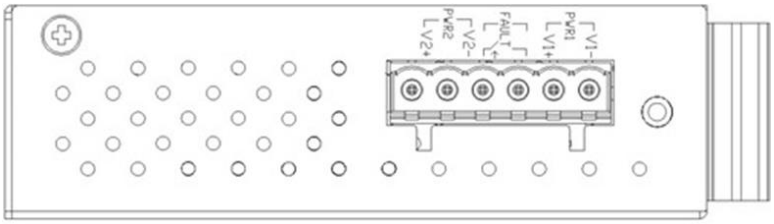


Figure 12: ET2-1600 Top Panel View

LED Indicators

There are LED indicators located on the front panel of the switch that show the power input and network status. Each LED indicator has a different color and has its own meaning, as shown in the table below:

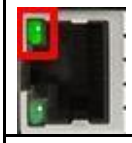
LED	Colour	Description	
P1	Green	On	Power input 1 is active
		Off	Power input 1 is inactive
P2	Green	On	Power input 2 is active
		Off	Power input 2 is inactive
Fault	Green	On	Power input 1 or 2 is inactive
		Off	Power inputs 1 and 2 are active
LAN Port L/A	Green 	On	Connected to the network, 100Mbps
		Flashing	Network is active
		Off	Not connected to the network
	Green 	On	Connected to the network, 10Mbps
		Flashing	Network is active
		Off	Not connected to the network
Fiber PortF/H	Green	On	Connected to the network, 100Mbps
		Flashing	Network is active
		Off	Not connected to the network

Table 9: LED indicators for ET2-1600

ET2-0702-SFP Description

ET2-0702-SFP is a 5-port fast ethernet (RJ45) and 2-Port Fiber (SFP) unmanaged switch designed to be compact, which makes it ideal for limited spaced panels, such as machine control boxes and duct assembly rooms. For setups in harsh or extreme environments, ET2-0702-SFP can be easily mounted directly on the DIN-rail. IP30 level and rigid metal housing, allow the ET2-0702-SFP to resist a wide temperature range, severe electromagnetic interference and vibration.

Main Features:

Interface & Performance

- All copper ports support Automatic MDI/MDI-X function
- 5 Fast Ethernet ports and 2 Fiber ports SFP
- Store and Forward Switching Architecture
- 8K MAC Address Table
- 4Mbits Memory Buffer

Power Supply

- Dual 12-48VDC redundant input with 1 removable 6-pin terminal block
- Max. Current 0.8A

Certification

- CE/FCC
- UL61010-1
- UL61010-2-201
- ISA 12.12.01

Operating Temperature

- STD: -10°C ~ 65°C (14°F ~ 149°F)

Housing/Installation

- IP30 Protection
- Installation in a Pollution industrial environment
- DIN-rail mounting and wall mounting.

	ET2-0702-SFP
Available Modes	Switch Mode
Connectors	
Ethernet Port	RJ45
Fiber Port	SFP
Power Connection	Removable 6-pin terminal block
Diagnostic LED	
P1 **P2**	Power input indication
Fault	Lack of redundant power input indication
10/100 **(LAN Port 1-5)**	Network connection indication, active network
L/A **(SFP Ports 6-7)**	Network connection indication, active network

Specification – ET2-0702-SFP

		ET2-0702-SFP
Technology	**Standards**	IEEE 802.3 10BaseT Ethernet IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet IEEE 802.3z 1000Base-X Gigabit Fiber
	Processing Type	Store and Forward
	Flow Control	IEEE 802.3x flow control, back pressure flow control
Switch Properties	**Switching (Back-Plane)**	5Gbps
	Transfer rate	14.880pps for Ethernet port 148.800pps for Fast Ethernet port
	Memory Buffer	4Mbits
	MAC Table Size	8k
Interface	**RJ45 Ports**	5x10/100 Base-T(X) with, Auto-Negotiation, Full/Half Duplex, Auto-MDI/MDI-X
	LED Indicators	Power 1, Power 2, Fault Ethernet Ports: On-Link/Flash-data transmitting SFP: Blinking/Active
	Relay Contact	24 VDC, 1A resistive
Power Requirements	**Input Voltage**	Dual 12-48VDC redundant power inputs
	Overload Current Protection	Present (Slow-Blow Fuse)
	Power Connection	1 x removable 6-pin terminal block
	Overload Current Protection	Present (Slow-Blow Fuse)
	Reverse Polarity Protection	Present
	System Power Consumption	8 W
Mechanical Characteristics	**Housing**	Metal, IP30 protection
	Dimensions (W x H x D)	30 x 142 x 99 mm (1.2 x 5.6 x 3.9 inch)
	Mounting	DIN-Rail Mounting, Wall Mounting
Environmental Limits	**Operating Temperature**	STD: -10°C ~ 65°C (14°F ~ 149°F)
	Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
	Ambient Relative Humidity	5 to 95%, (non-condensing)
Regulatory Approvals	**EMI**	FCC Part 15 Subpart B Class A, CE EN55032/EN61000-6-4 Class A
	EMS	CE EN55035/EN61000-6-2 IEC61000-4-2 (ESD), IEC61000-4-3 (RS), IEC61000-4-4 (EFT), IEC61000-4-5 (Surge), IEC61000-4-6 (CS), IEC61000-4-8 (Magnetic Field)
	Free Fall	IEC60068-2-32
	Shock	IEC60068-2-27
	Vibration	IEC60068-2-6
	Green	RoHS Compliant
	Safety	UL61010-1, UL61010-2-201, ISA 12.12.01 C1D2

Table 10: Specifications

Hardware Details – ET2-0702-SFP

Dimension

ET2-0702-SFP physical dimensions (W x H x D):

30 x 142 x 99 mm (1.2 x 5.6 x 3.9 inch)

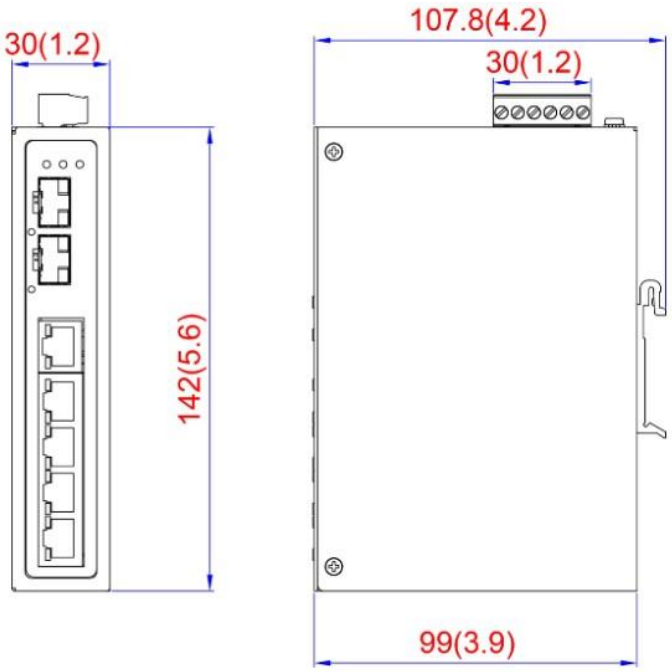


Figure 13: ET2-0702-SFP Physical Dimensions

Unit: mm (inch)

Front Panel

The front panel of the ET2-0702-SFP is shown in the image below:

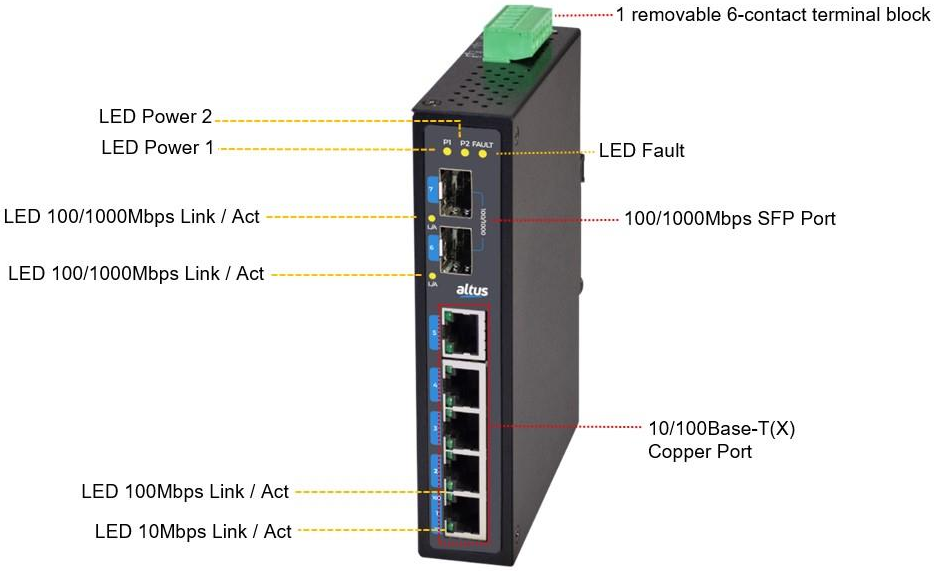


Figure 14: ET2-0702-SFP Front Panel

Top View

The image below demonstrates the top panel of the ET2-0702-SFP, which is equipped with one 6-pin removable terminal block connector for dual DC power inputs (12-48VDC).

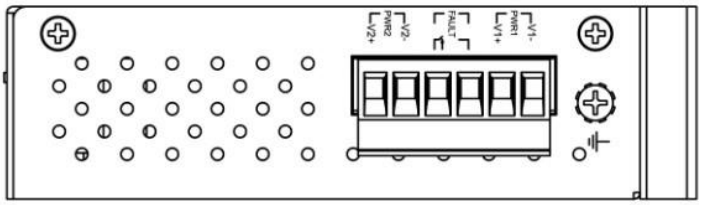


Figure 15: ET2-0702-SFP Top Panel View

LED Indicators

There are LED indicators located on the front panel of the switch that show the power input and network status. Each LED indicator has a different color and has its own meaning, as shown in the table below:

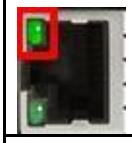
LED	Colour	Description	
P1	Green	On	Power input 1 is active
		Off	Power input 1 is inactive
P2	Green	On	Power input 2 is active
		Off	Power input 2 is inactive
Fault	Green	On	Power input 1 or 2 is inactive
		Off	Power inputs 1 and 2 are active
LAN Port Link/ Act	Green 	On	Connected to the network, 100Mbps
		Flashing	Network is active
		Off	Not connected to the network
	Green 	On	Connected to the network, 10Mbps
		Flashing	Network is active
		Off	Not connected to the network
SFP Port Link/ Act	Green	On	Connected to the network
			Network is active
		Off	Not connected to the network

Table 11: LED indicators for ET2-0702-SFP

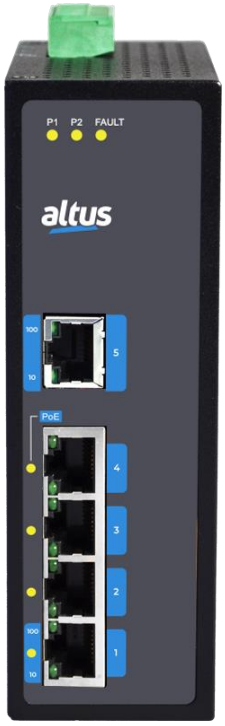
Special Models

- **ET2-0702-SFP-T**: 7 x Fast Ethernet ports - 5x10/100Tx + 2x100/1000 SFP (Extended operating temperature -40° to 75° C)

Please contact Altus for information on available models and specifications.

PT2-0500-24 Description

PT2-0500-24 is a 4-port PoE+ and 1-port Fast Ethernet (RJ45) unmanaged switch designed to be compact, which makes it ideal for limited spaced panels, such as machine control boxes and duct assembly rooms. For setups in harsh or extreme environments, PT2-0500-24 can be easily mounted directly on the DIN-rail. IP30 level and rigid metal housing, allow the PT2-0500-24 to resist a wide temperature range, severe electromagnetic interference and vibration.



Main Features:

Interface & Performance

- All copper ports support Automatic MDI/MDI-X function
- 4 Fast Ethernet PoE+ ports and 1 Fast Ethernet port
- Store and Forward Switching Architecture
- 2K MAC Address Table
- 448Kbits Memory Buffer

Power Supply

- Dual 12-36VDC redundant input with 1 removable 6-pin terminal block
- Max. Current 10A
- Relay Contact: 24VDC, 1A resistive

Certification

- CE/FCC
- UL 508
- ISA 12.12.01

Operating Temperature

- STD: -10°C ~ 65°C (14°F ~ 149°F)

Housing/Installation

- IP30 Protection
- Installation in a Pollution industrial environment
- DIN-rail mounting and wall mounting.

	PT2-0500-24
Available Modes	Switch Mode
Connectors	
Ethernet Port	RJ45
Fiber Port	N/A
Power Connection	Removable 6-pin terminal block
Diagnostic LED	
P1	
P2	Power input indication
Fault	Lack of redundant power input indication
10/100 (LAN Port)	Network connection indication, active network
PoE (Ports 1-4)	PoE power indication

Specification – PT2-0500-24

		PT2-0500-24
Technology	**Standards**	IEEE 802.3 10BaseT Ethernet IEEE 802.3u 100BaseTX Fast Ethernet IEEE 802.3af/at Power over Ethernet
	Processing Type	Store and Forward
	Flow Control	IEEE 802.3x flow control, back pressure flow control
Switch Properties	**Switching (Back-Plane)**	1Gbps
	Transfer rate	14.880pps for Ethernet port 148.800pps for Fast Ethernet port
	Memory Buffer	448Kbits
	MAC Table Size	2k
Interface	**RJ45 Ports**	5x10/100 Base-T(X) with PoE+, Auto-Negotiation, Full/Half Duplex, Auto-MDI/MDI-X
	LED Indicators	Power 1, Power 2, Fault Ethernet Ports: On-Link/Flash-data transmitting PoE: Dispositive Connected
	Relay Contact	24 VDC, 1A resistive
Power Requirements	**Input Voltage**	Dual 12-36VDC redundant power inputs
	Overload Current Protection	Present (Slow-Blow Fuse)
	Power Connection	1 x removable 6-pin terminal block
	Overload Current Protection	Present (Slow-Blow Fuse)
	Reverse Polarity Protection	Present
	System Power Consumption	Max. 5.5W full loading
	Power consumption	90-120Watts/12-36VDC
	Max. PoE consumption	30W max. (for port)
Mechanical Characteristics	**Housing**	Metal, IP30 protection
	Dimensions (W x H x D)	46 x 142 x 99 mm (1.8 x 5.6 x 3.9 inch)
	Mounting	DIN-Rail Mounting, Wall Mounting
Environmental Limits	**Operating Temperature**	STD: -10°C ~ 65°C (14°F ~ 149°F)
	Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
	Ambient Relative Humidity	5 to 95%, (non-condensing)
Regulatory Approvals	**EMI**	FCC Part 15 Subpart B Class A, CE EN55032/EN61000-6-4 Class A
	EMS	CE EN55035/EN61000-6-2 IEC61000-4-2 (ESD), IEC61000-4-3 (RS), IEC61000-4-4 (EFT), IEC61000-4-5 (Surge), IEC61000-4-6 (CS), IEC61000-4-8 (Magnetic Field)
	Free Fall	IEC60068-2-32
	Shock	IEC60068-2-27
	Vibration	IEC60068-2-6
	Green	RoHS Compliant
	Safety	UL61010-1, UL61010-2-201, ISA 12.12.01 C1D2

Table 12: Specifications

Hardware Details – PT2-0500-24

Dimension

PT2-0500-24 physical dimensions (W x H x D):

46 x 142 x 99 mm (1.8 x 5.6 x 3.9 inch)

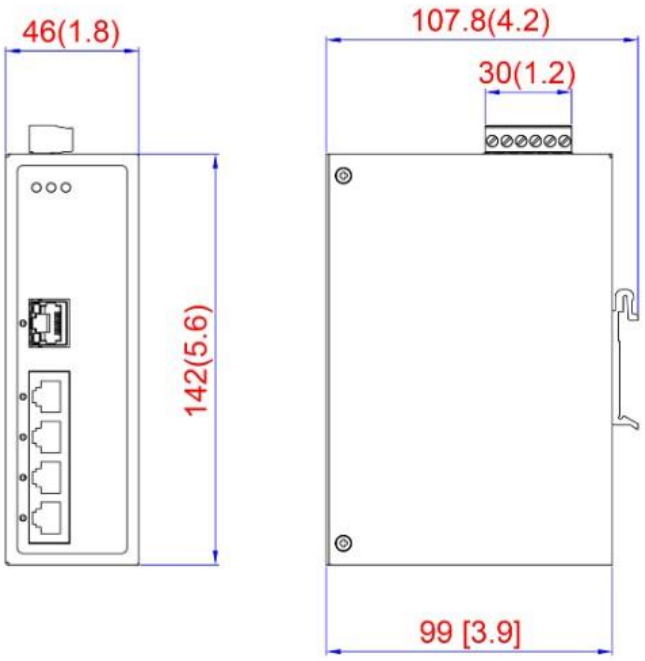


Figure 16: PT2-0500-24 Physical Dimensions

Unit: mm (inch)

Front Panel

The front panel of the PT2-0500-24 is shown in the image below:

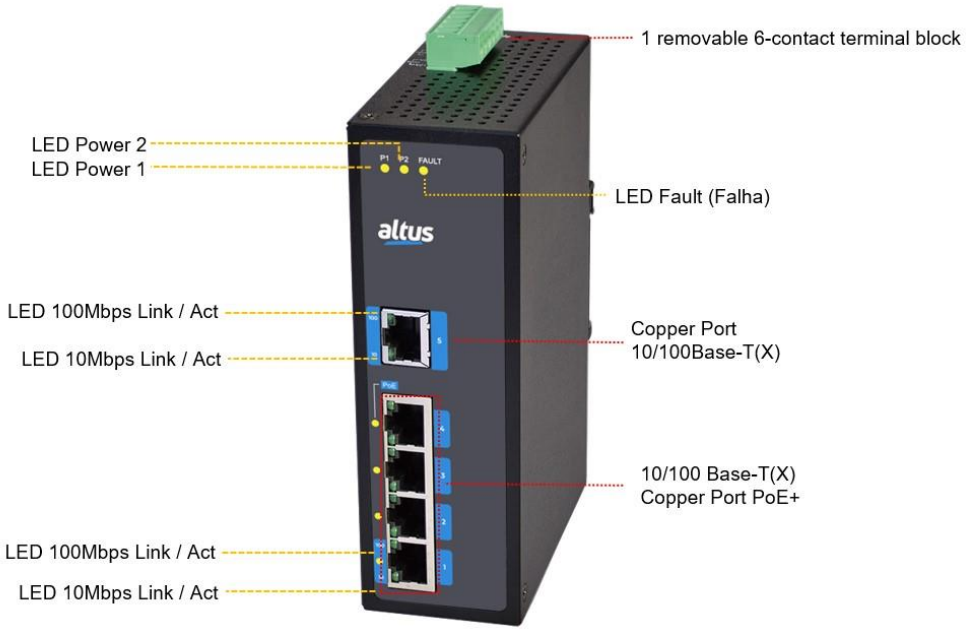


Figure 17: PT2-0500-24 Front Panel

Top View

The image below demonstrates the top panel of the PT2-0500-24, which is equipped with one 6-pin removable terminal block connector for dual DC power inputs (12-36VDC).

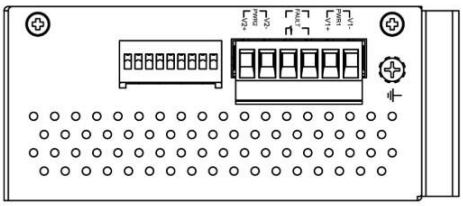


Figure 18: PT2-0500-24 Top Panel View

LED Indicators

There are LED indicators located on the front panel of the switch that show the power input and network status. Each LED indicator has a different color and has its own meaning, as shown in the table below:

LED	Colour	Description	
P1	Green	On	Power input 1 is active
		Off	Power input 1 is inactive
P2	Green	On	Power input 2 is active
		Off	Power input 2 is inactive
Fault	Green	On	Power input 1 or 2 is inactive
		Off	Power inputs 1 and 2 are active
10/100 (LAN Port)	Green 	On	Connected to the network, 100Mbps
		Flashing	Network is active
		Off	Not connected to the network
	Green 	On	Connected to the network, 10Mbps
		Flashing	Network is active
		Off	Not connected to the network
PoE (1-4 Port)	Green	On	The port is supplying power to the energised device
		Off	No energised device connected or power supply failure

Table 13: LED indicators for PT2-0500-24

Special Models

- **PT2-0500-24-T:** 5 x Fast Ethernet ports - 5x10/100Tx + 4x PoE (Extended operating temperature -40° to 75° C)
- **PT2-0500-24 Corrosion protection version:** 5 x Fast Ethernet ports - 5x10/100Tx + 4x PoE
- **PT2-0500-24 Corrosion protection version:** 5 x Fast Ethernet ports - 5x10/100Tx + 4x PoE (Extended operating temperature -40° to 75° C)

Please contact Altus for information on available models and specifications.

Ports

Ethernet ports

RJ45 ports automatically identify connections from 10Base-T and 100Base-TX devices. Automatic MDI/MDIX means that the switch can connect to another switch or workstation without changing direct or crossover cabling. See in the table below the squematic of crossover and direct cables:

Crossover Cable		**Direct Cable**	
Nº / Pin signal	Nº / Pin signal	Nº / Pin signal	Nº / Pin signal
1 / RX+	3 / TX+	1 / RX+	1 / TX+
2 / RX-	6 / TX-	2 / RX-	2 / TX-
3 / TX+	1 / RX+	3 / TX+	3 / RX+
6 / TX-	2 / RX-	6 / TX-	6 / RX-

Table 14: 10/100Base-T(X) Pinout

Crossover Cable		**Direct Cable**	
Nº / Pin signal	Nº / Pin signal	Nº / Pin signal	Nº / Pin signal
1 / TP0+	3 / TP1+	1 / TP0+	1 / TP1+
2 / TP0-	6 / TP1-	2 / TP0-	2 / TP1-
3 / TP1+	1 / TP0+	3 / TP1+	3 / TP0+
4 / TP2+	7 / TP3+	4 / TP2+	4 / TP3+
5 / TP2-	8 / TP3-	5 / TP2-	5 / TP3-
6 / TP1-	2 / TP0-	6 / TP1-	6 / TP0-
7 / TP3+	4 / TP2+	7 / TP3+	7 / TP2+
8 / TP3-	5 / TP2-	8 / TP3-	8 / TP2-

Table 15: 1000Base-T Pinout

NOTE:"+" and "-" signals represent the polarity of the wires that make up each pair.

Fiber ports

The Fiber Port of the SC connector can operate in Multimode. When connecting Fiber Ports to each other, follow the instructions as illustrated below to make the connection correctly. A wrong connection will cause abnormal operation.

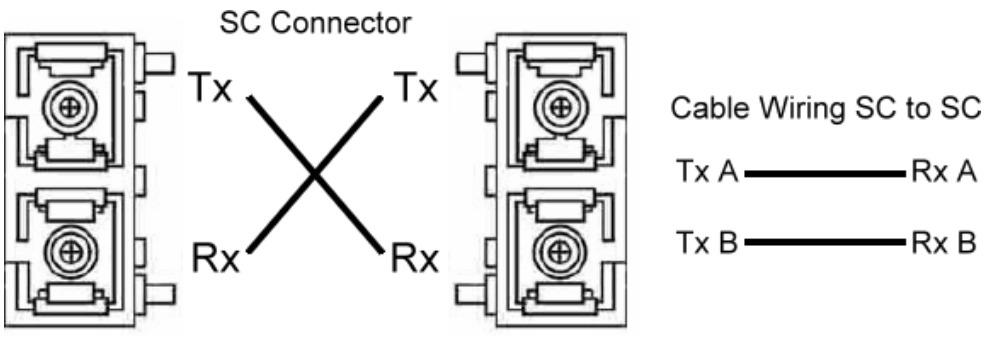


Figure 19: SC Multimode Connector Fiber Port

Caution: This is a Class 1 Laser/LED product. Do not look directly at the Laser/LED beam

Cabling

Use a 2 or 4-pair twisted-pair cable, category 5e or higher, for RJ-45 port connections. The cable between the switch and the connecting device (switch, hub, workstation, etc.) should be less than 100 meters in length.

For fiber optic connections, use 50 or 62.5/125µm multimode fiber cables with multimode connectors. If using single-mode connectors, the cable should be 9/125µm single-mode fiber.

Additionally, some models support SFP (Small Form-factor Pluggable), a compact optical transceiver used in optical communications for telecommunications and data communication applications.

To connect the transceiver and LC cable, follow the steps below:

Step 1: Insert the SFP transceiver module into the SFP slot as shown in the figure below. Note that the triangle mark is on the bottom of the SFP slot:

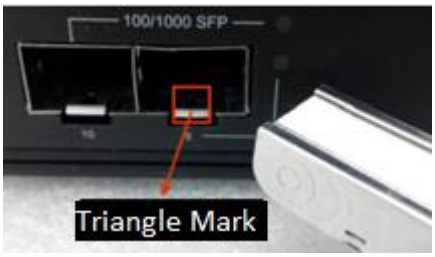


Figure 20: Transceiver for the SFP module

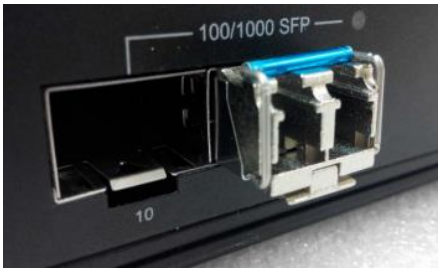


Figure 21: Transceiver inserted

Step 2: Insert the fiber cable from the LC connector into the transceiver, as shown in the figure below:

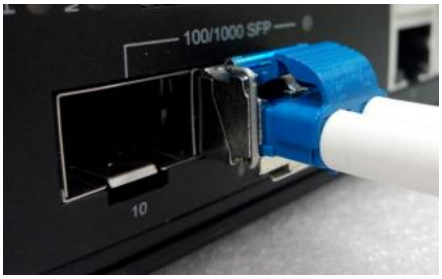


Figure 22: LC connector for the transceiver

To remove the LC connector from the transceiver, follow the steps shown below:

Step 1: Press the top side of the transceiver's LC connector and pull it out to release as shown below in the figure:

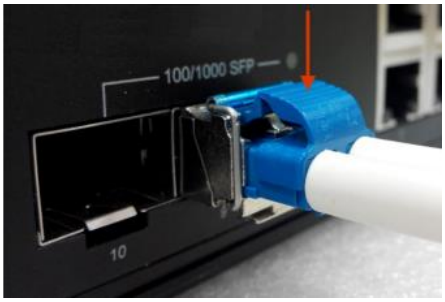


Figure 23: Removing the LC Connector

Step 2: Push down on the metal clasp and pull the transceiver out through the plastic part, as shown below in the figure:

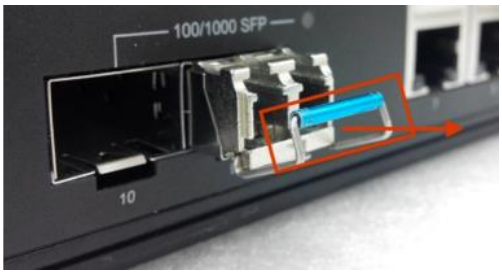


Figure 34: Removing the SFP module

Connecting Power Inputs

The steps below demonstrate the electrical installation process of the equipment with DC power supply:

For One 6-pin removable block**:**

Step 1: Insert the positive and negative wires into the PWR1 (V1+, V1-) and PWR2 (V2+, V2-) contacts on the terminal block connector as shown below:

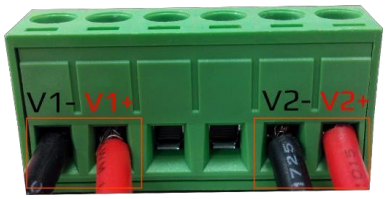


Figure 25: Power Terminal Block

Step 2: Tighten the wire-clamp screws to prevent the wires from loosening, as shown below:

Figure 26: Power Terminal Block

For one 4-pin removable block**:**

Step 1: Insert the positive and negative wires into the PWR1 (V1-, V1+) and PWR2 (V2-, V2+) contacts on the terminal block connector as shown below:

Figure 27: Power Terminal Block

Step 2: Tighten the wire-clamp screws to prevent the wires from loosening, as shown below:

Figure 28: Power Terminal Block

Attention: Use only copper conductors with appropriate insulation. Tighten the screws. The wire gauge for the terminal block should be **18-20 AWG (0.81 mm to 1.02 mm).** Refer to the table below to check the temperature specifications of copper conductors and the recommended torque for the screws of each model:

Switch Model	Copper Conductor Temperature (°C)	Recommended Torque for Screws (N·m)
CET2-0500	125	0,79
ET2-0800	125	0,79
ET2-0602-M	60/75	0,56

ET2-1600	125	0,79
ET2-0702-SFP	125	0,79
PT2-0500-24	60/75	0,56

Table 18: Conductor Temperature Specifications and Screw Tightening Torque

Note on grounding:

Grounding and routing of wires helps to reduce noise effects due to electromagnetic interference (EMI). Make the grounding screw connection to the grounding surface before connecting devices. The symbol for the grounding screw is shown below:

Figure 29: Grounding screw

Please note: using shielded wires allows for better electromagnetic compatibility.

Connecting the Fault Alarm Contact

The fault alarm contact is in the middle of the terminal block connector as shown below. By inserting the wires, it will detect the fault status including power failure or port link failure (managed industrial switch only) and form a normally open circuit. The following image shows an application example for the fault alarm contact.

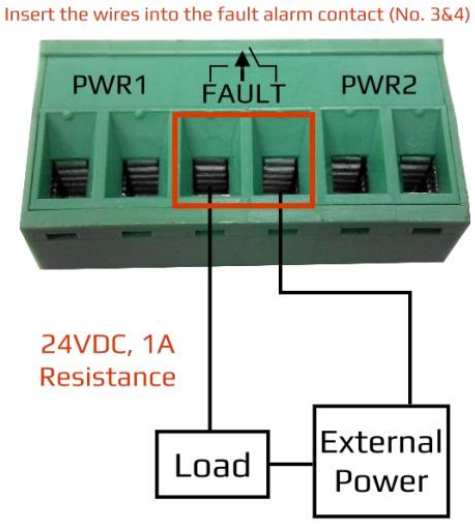


Figure 29: Connecting the Fault Alarm Contact for ET2-0602-M, ET2-1600, ET2-0702-SFP and PT2-0500-24 switches.

Note: The wire gauge for the terminal block should be between **12-24 AWG (0.51mm to 2.05mm).** If using only one power source, jumper Pin 1 to Pin 5 and Pin 2 to Pin 6 to eliminate power fault alarm.

Mechanical Assembly

DIN Rail Mounting

The DIN rail is pre-installed on the industrial Ethernet switch at the factory. If it is not attached, follow the images below to install it.

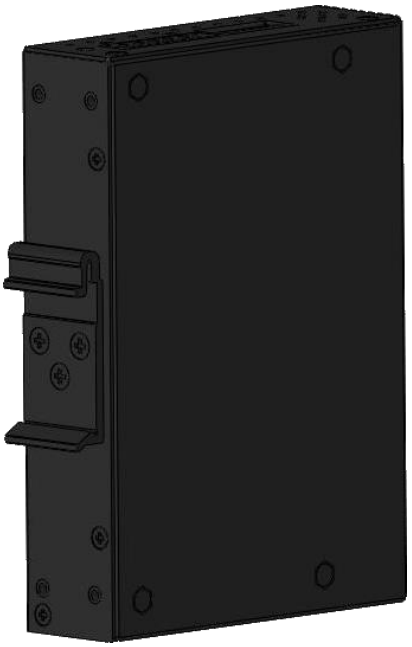


Figure 30: Switch back and DIN rail holder

Follow the steps below to learn how to fix the switch.

Step 1: Use the screws to install the DIN rail holder on the back of the switch.

Caution: The tightening torque of the screws is 0.4 N.m

Step 2: To remove the DIN rail holder, do the opposite of Step 1.

Step 3: After the DIN rail holder installed on the back of the switch, insert the top of the bracket into the rail, asshown in the image below:

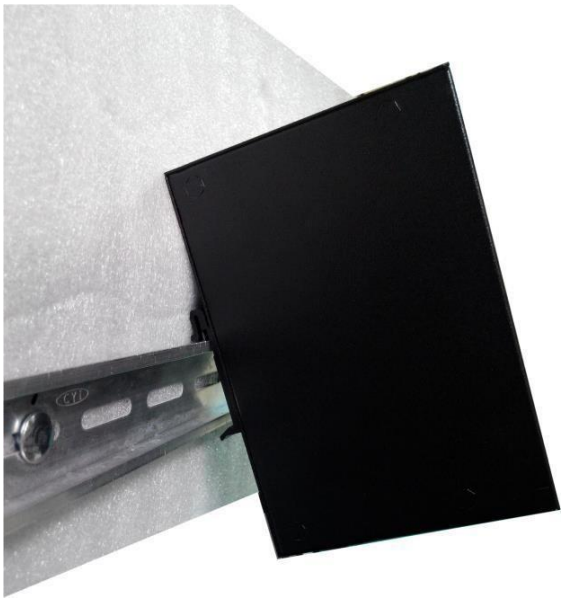


Figure 31: Insert the switch into the DIN rail

Step 4: Pull the bracket slightly down the rail, as shown in the image below:

Figure 32: Stabilize the switch on the DIN rail

Step 5: Check if the bracket is mounted tightly on the rail.

Step 6: To remove the rail switch, do the opposite of the steps above.

Wall Mounting

Follow the steps below to mount the switch using the wall mount bracket, as shown in the image below.

Step 1: Remove the DIN rail holder from the switch loosening the screws.

Step 2: Position the wall mount brackets on the top and bottom of the switch.

Step 3: Use the screws to secure the wall mount bracket to the switch.

Caution: The tightening torque of the screws is 0.4 N.m

Step 4: Use the hook holes at the corners of the wall mount bracket to secure the switch to the wall.

Step 5: To remove the wall mount bracket, do the opposite of the steps above.

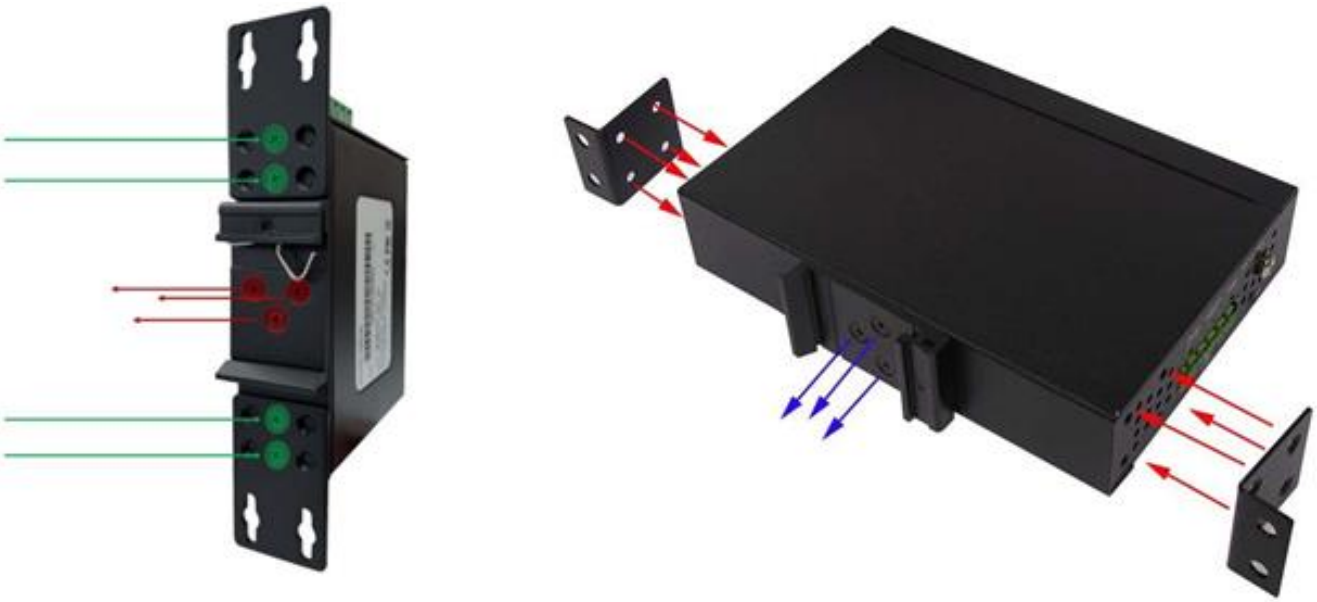


Figure 33: Wall mount support

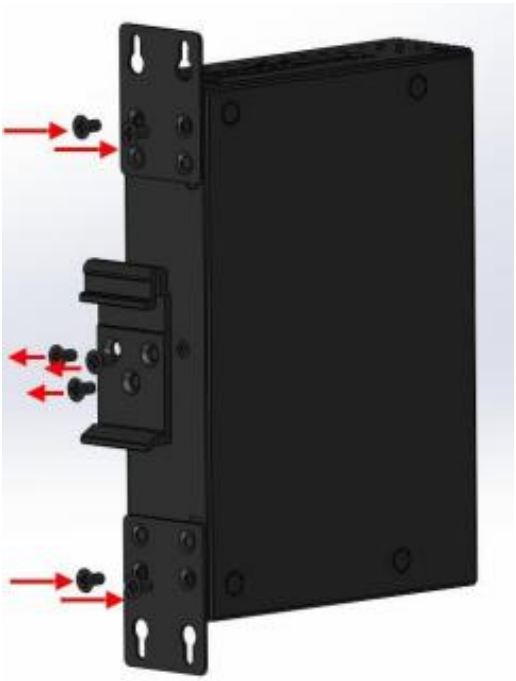


Figure 34: Wall mount support

The image below shows the dimensions of the wall mounting holder for CET2-0500 e ET2-0800 switches:

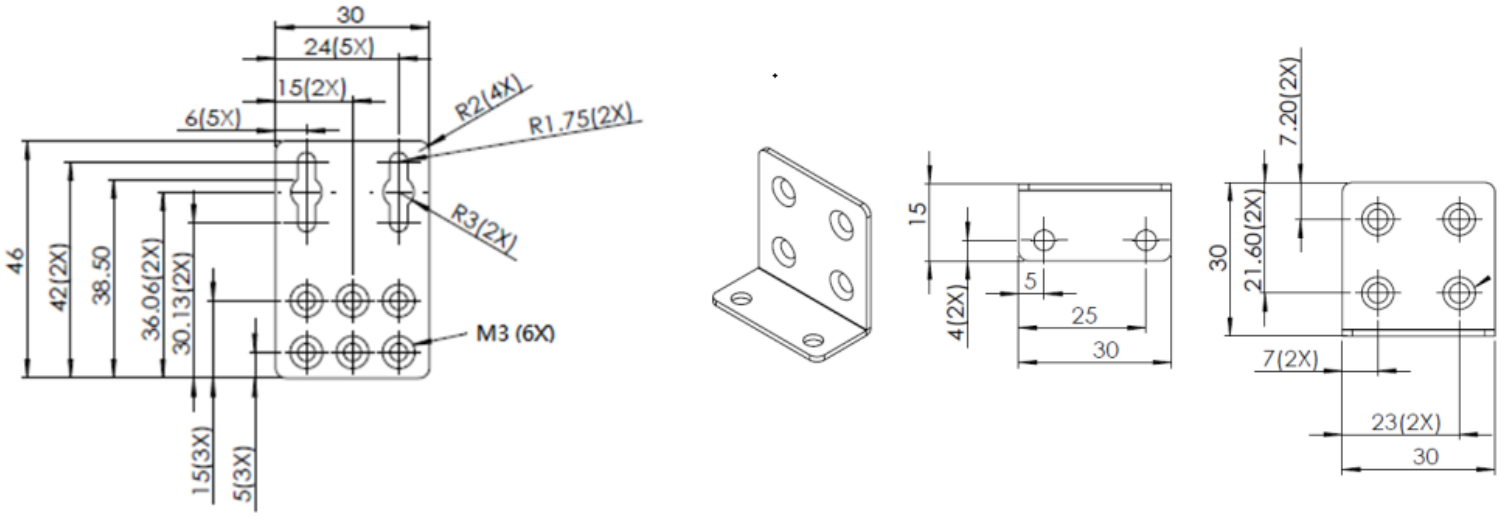


Figure 35: Wall Mounting Holder Dimensions

The image bellow shows the dimensions of the wall mounting holder for ET2-0602-M e ET2-1600 switches:

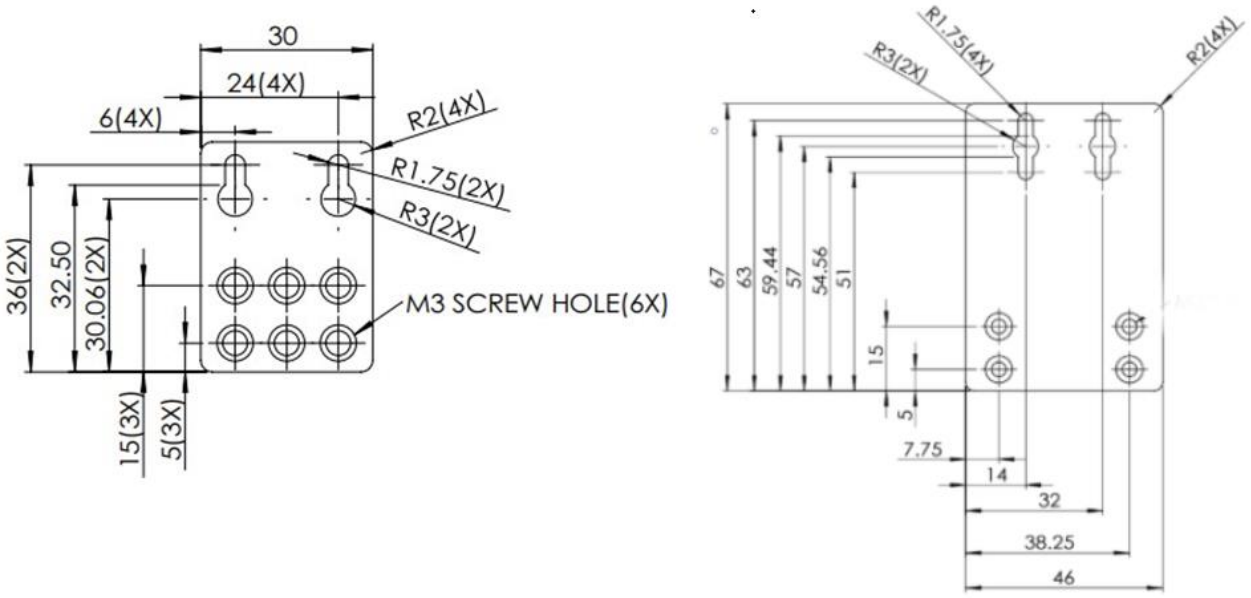


Figure 36: Wall Mounting Holder Dimensions

Hardware Installation

Installation Steps

This section explains how to install the switch:

Installation Steps:

Step 1: Unpack the switch from the original box

Step 2: Make sure the bracket Is screwed onto the switch.

- If the DIN rail bracket Is not screwed into the switch, refer to the DIN Rail Mounting section for DIN Rail Installation.
- If you want to wall mount the switch, refer to the Wall Mounting section.

Step 3: To attach the switch to a DIN rail or wall, see the Mechanical Mounting section.

Step 4: Power up the switch and then the Power LED will turn on.

- If you need help connecting the power cords, refer to the Connecting Power Inputs section.
- See the LED Indicators section for LED light indication.

Step 5: Prepare the straight-through CAT5 twisted-pair cable for the Ethernet connection.

Step 6: Insert one end of the RJ45 cable into the switch's Ethernet port, and the other end into the Ethernet network device (PC, server, etc.). The Ethernet port LED on the switch will light when the cable is plugged into the network device.

- See the LED Indicators section for indication of LED lights.

Step 7: When all connections made and the LED lights indicate normal operation, installation is complete.

Troubleshooting

- Make sure you have the correct power cord and/or adapter. Never use a power supply or adapter with a non-compliant DC output voltage, or the equipment might burn.
- Select the appropriate UTP/STP cable to establish the network. Use an unshielded twisted-pair cable (UTP, or Unshielded twisted-pair) or a shielded twisted-pair cable (STP, or Shielded Twisted Pair) for RJ45 100Ω CAT5e connections for 10M/100Mbps. Also, ensure that the length of any twisted-pair cable connection does not exceed 100 meters.
- Diagnosing LED indicators: To aid in problem identification, the switch can be easily monitored with LED indicators, which help identify if any problems exist.
  - See the LED Indicators section for LED light indication
- If the power indicator LED does not turn on when the power cord is plugged in, the user may be experiencing na issue with the cord. Check for loose power connections, power outages, or power outlet surges.
  - Contact Altus for technical support service if the problem still cannot be resolved.
- If the switch LED indicators are normal and the cables are properly connected, but packets are still not being transmitted, check the configuration or status of the Ethernet devices in the system.