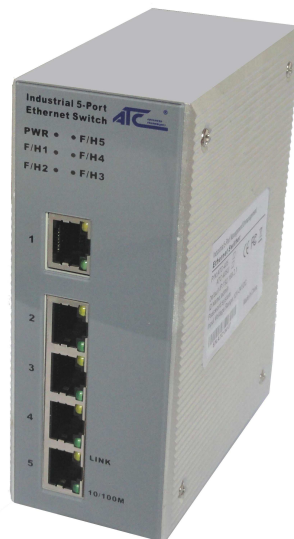


# **GC-ATC-405/GC-ATC-405U**

## **5-Port 10/100Mbps Fast Ethernet Switch**

### **Hardware Installation Guide**



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### **This manual applies to the following products:**

- **GC-ATC-405U**      5-port unmanaged Ethernet switch with 5 10/100 ports
- **GC-ATC-405**      5-port managed Ethernet switch with 5 10/100 ports

## Section 1 General Information

### Overview

This manual will help you install and maintain these industrial Ethernet switches. Installation of these switches is very easy and they will begin to operate as soon as they are powered up. For the unmanaged models there are no user settings so they are truly plug and play. The managed models will act as unmanaged switches until they are configured otherwise. Refer to the managed switch Web Management User Manual for configuration of advanced network functionality.

**Note:** This manual only covers the installation and wiring of these switches. For the managed models refer to the separate Web Management User Manual.

### Operation

Unlike an Ethernet hub that broadcasts all messages out all ports, these industrial Ethernet switches will intelligently route Ethernet messages only out the appropriate port. The major benefits of this are increased bandwidth and speed, reduction or elimination of message collisions, and deterministic performance when tied with real-time systems.

These industrial Ethernet switches can support 10BaseT (10 Mbps), 100BaseT (100 Mbps) and 1000BaseT (100 Mbps) on their RJ45 ports (depending on the model). Each of these ports will independently auto-sense the speed/duplex, mdi/mdix-crossover and polarity allowing you to use straight, crossed or even mis-wired cables. Some models also have one or more fiber optic ports for making noise immune connections up to 120 km.

### Performance Specifications

These general specifications apply to these industrial Ethernet switches. Refer to Section 7 for complete technical specifications.

<b>Number of ports</b>	2, 5, 6, 8, 9, 10, 16 or 18 Ethernet ports
<b>Ethernet Switch Type</b>	Unmanaged or managed
<b>Ethernet Switch Mode</b>	Store and forward, wire-speed, non-blocking
<b>Ethernet Protocols</b>	All standard IEEE 802.3 protocols supported
<b>RJ45 Ports Speed</b>	10/100 or 10/100/1000 Mbps
<b>RJ45 Ports Operation</b>	Auto-negotiation, auto-mdi/mdix-crossover and auto-polarity

## Section 2 LED Indicators

### Overview

All these industrial Ethernet switches have 1 or 2 communication LEDs for each port and a power LED. The managed models also have an “OK” output LED, a status LED and dual power LEDs. Refer to the sample pictures below for the location of these LEDs.



Power LED	ON(red)	Power input
	OFF	No power input
Act/Link LED	ON(green) (not flashing)	Indicates that there is a proper Ethernet connection (Link) between the port and another Ethernet device, but no communications activity is detected.
	ON(green) (flashing)	Indicates that there is a proper Ethernet connection (Link) between the port and another Ethernet device, and that there is communications activity.
	OFF	Indicates that there is not a proper Ethernet connection (Link) between the port and another Ethernet device. Make sure the cable has been

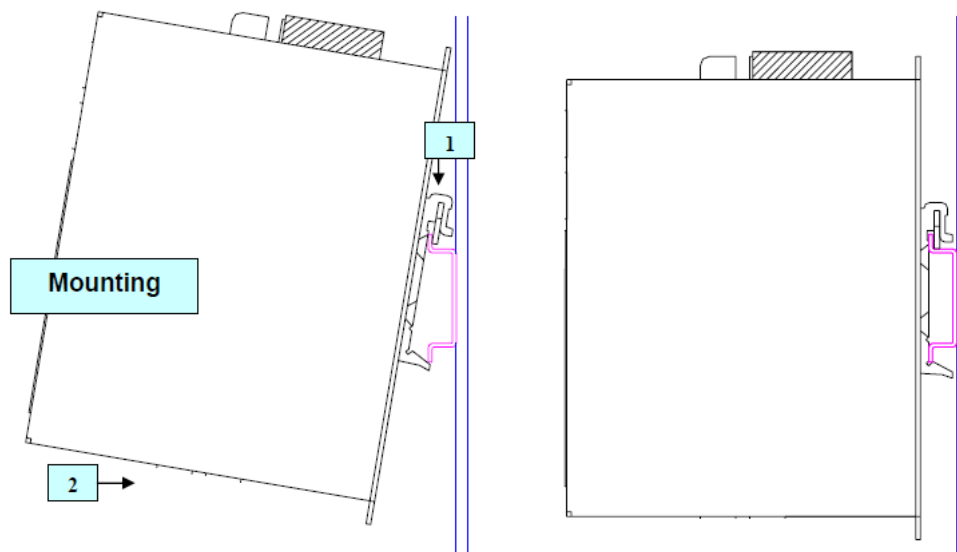
		plugged securely into the ports at both ends.
Speed 10/100 LED	ON(yellow)	A 100 Mbps (100BaseT) connection is detected.
	OFF	A 10 Mbps (10BaseT) connection is detected
Half/Full Duplex	ON(green)	Indicates that there is a proper Ethernet connection work in full duplex
	OFF	Indicates that there is a proper Ethernet connection work in half duplex
System LED (Only in managed models)	ON(yellow)	There customers visit a Web page
	OFF	No operation
TXD LED (Only in managed models)	ON(green)	Set in the edit page
	OFF	No operation

## Section 3 Installation

### Overview

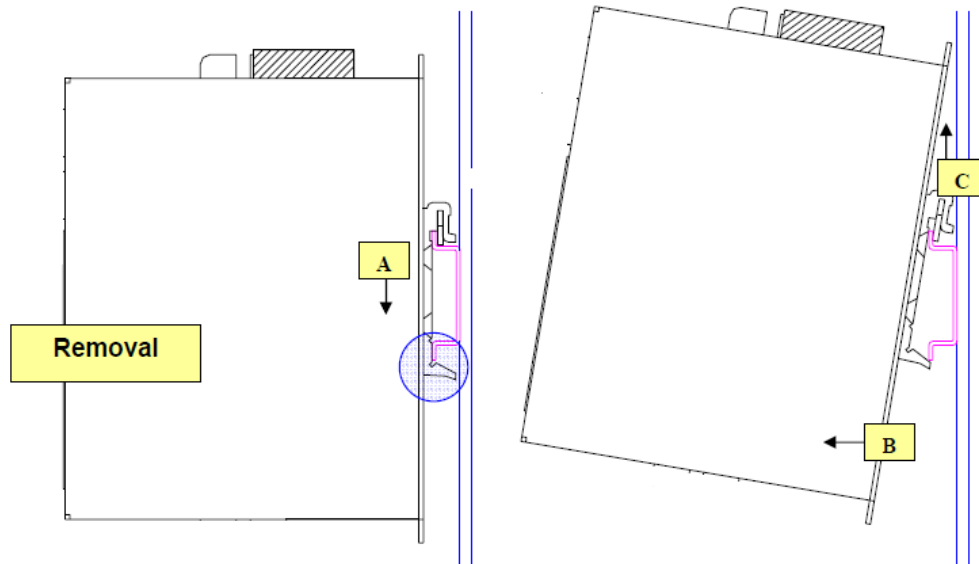
These industrial Ethernet switches can be snapped onto a standard DIN rail or screwed directly to a flat panel. Refer to the mechanical drawings below to properly mount your switch.

**Note:** Make sure to allow enough room to route your Ethernet copper or fiber optic cables.



**Recommended DIN rail mounting steps:**

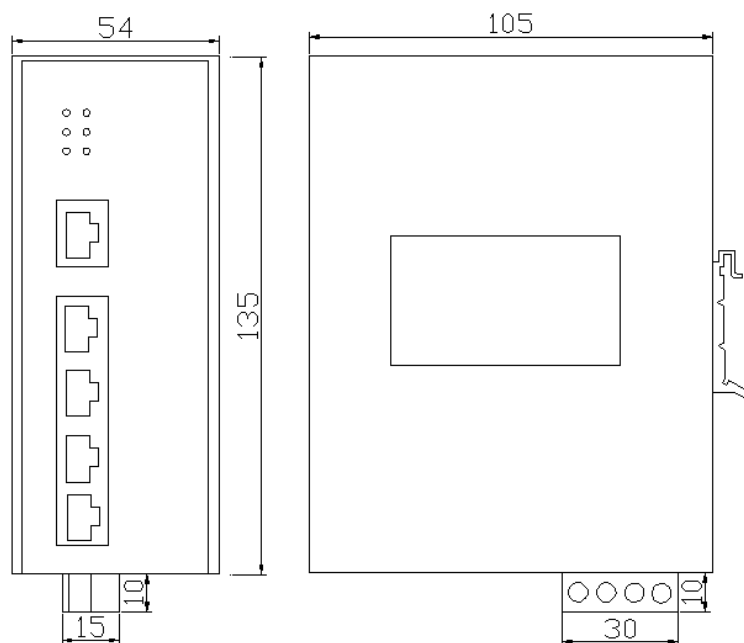
1. Hook the top back of the DIN rail clip on the unit over the din rail.
2. Push the bottom of the unit towards the DIN rail until it snaps into place.



**Recommended DIN rail removal steps:**

- A. Push the whole unit down to free the bottom of the DIN rail clip. See blue circle area.
- B. Pull the bottom of the unit away from the DIN rail.
- C. Unhook the top of unit and remove it from the DIN rail.

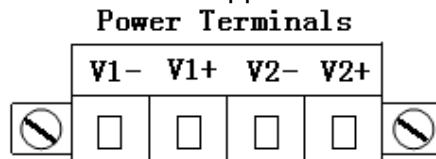
**Mechanical Dimensions for GC-ATC-405**



## Section 4 Power Wiring

### Overview

These industrial Ethernet switches can be powered from the same DC source that is used to power your other devices. A voltage in the range of 9 to 24 VDC needs to be applied between the terminals.



Step 1: Insert the negative/positive DC wires into the V1-/V1+(v2-/v2+) terminals.

Step 2: To keep the DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

Step 3: Insert the plastic terminal block connector prongs into the terminal block receptor, which is located on the EDS's bottom panel.

Step 4: Turn on your source power and verify that the power LED(s) are on.

## Section 5 Communication Wiring

### Overview

These industrial Ethernet switches provide connections to standard Ethernet devices such as PLCs, Ethernet I/O, industrial computers and much more. Three types of communication ports may be found on these switches: RJ45 (copper) Ethernet ports, fiber optic Ethernet ports and a serial or USB console port for management (managed models).

RJ45 Ethernet Wiring-Use data-quality (not voice-quality) twisted pair cable rated category 5 (or better) with standard RJ45 connectors. For best performance use shielded cable. Straight through or crossover RJ45 cable can be used regardless of the device the switch is to be connected to as all the ports are capable of auto-mdi/mdix-crossover detection.

The RJ45 Ethernet port connector bodies on these products are metallic and are connected to the Chassis GND terminal. Therefore, shielded cables may be used to provide further protection. To prevent ground loops, the cable shield should be tied to the metal connector body at one end of the cable only. Electrical isolation is also provided on the Ethernet ports for increased reliability.

## 10/100BaseT(X) Ethernet Port Connection

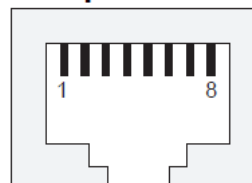
### MDI Port Pinouts

Pin	Signal
1	Tx+
2	Tx-
3	Rx+
6	Rx-

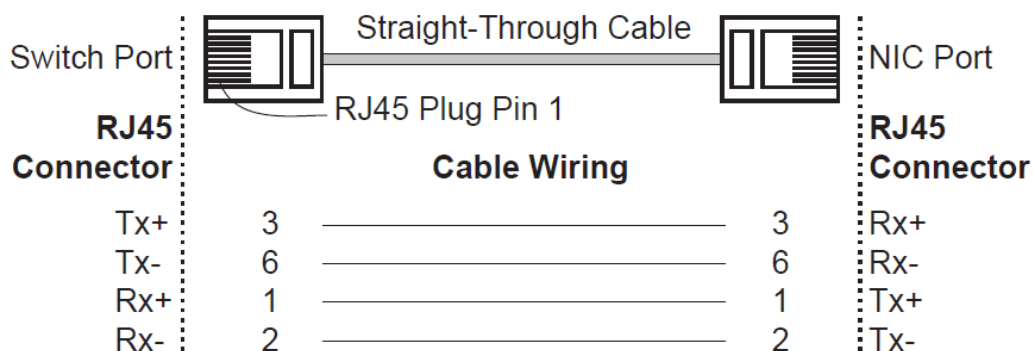
### MDI-X Port Pinouts

Pin	Signal
1	Rx+
2	Rx-
3	Tx+
6	Tx-

### 8-pin RJ45



### RJ45 (8-pin) to RJ45 (8-pin) Straight-Through Cable Wiring



After all Ethernet connections are made, check the LED's corresponding to the ports that each of the devices are connected to. Ensure that for each port that is in use, the LED is on or blinking. If a port LED is off, go back and check for connectivity problems between that port and the network device connected to that particular port. In addition, the color of the LED should indicate the speed for which your device is connected at (see prior section on LEDs).

## Section 6 Technical Specifications

### Technical Specs

Here are the hardware technical specifications for the industrial Ethernet switches covered by this manual. For the managed models, refer to the Web Management User Manual or datasheet for complete software specifications. Note: These specifications are subject to change. Contact ATC for the latest details.

Major Block		MAC/6ports+PHY/5ports
AUTO-MDI-MDIX		Yes
MAC Address	Table Size	2K
	Hashing Algorithm	4-way Hashing Scheme
	Address Type	Individual/Multicast MAC Address
	Accessible	Yes
IEEE802.1Q	SVL/IVL	Yes
	Port-based VLAN	6 VLAN Group
	IEEE 802.1Q VLAN Group	16 VLAN Group
	Insert/Remove Tag	Yes
	Ingress Filter	Yes
	STP	Yes (CPU Assistance)
	RSTP (802.1w)	Yes (CPU Assistance)
	MSTP (802.1s)	4 MSTP (CPU Assistance)
Priority Classification	Port Based	Yes
	VLAN Priority	Yes
	ToS	Yes
	DSCP	Yes
	MAC Address	Yes
	VID	Yes
	TCP/UDP port number	Yes
	Special Tag	Yes
QoS	Multi-Field	Yes
	Queue Level	4-level Queue
	Policy-based QoS	Yes
	VLAN Priority Remarking	Yes
	Scheduling	WRR/WFQ/SP/BE
Firewall	Multi-Field Filter	Yes
	SMAC/DMAC Filter	Yes

	Unknown SMAC Filter	Yes
	TCP/UDP port Filter	Yes
Multi-Field Classifier	Classification	Yes(L2-L4 Multi-field Flow Classification)
	Filter	Yes
	Policy	Yes
	Priority Assignment	Yes
	Traffic Mirror	Yes
IGMP Snooping	IGMP Version	V1, V2
	Software	Yes (CPU Assistance)
	Hardware	Yes
	IGMP Membership Table	Up to 1K
Rate Control	Ingress/Egress port Rate Control	Yes
	Traffic Rate Control (Policy)	Yes
	WFQ	Yes
	Range	0-100Mbps
IEEE 802.1x		Yes (CPU Assistance)
Port Mirroring		Yes
Aging Time		Yes (Programmable)
Broadcast Storm		Yes
Smart MAC		Yes
External MII		3MII
Interrupt		Yes
Power Saving		Yes
Loop Back Test		Each port
Link Quantity LED		Yes
Power down		Yes
Dual color mode LED		Yes

## Section 7 Service Information

We sincerely hope that you never experience a problem with any **ATC** product. If you do need service, call Grid Connect at +1 630 245 1445 and ask for technical support. A trained specialist will help you to quickly determine the source of the problem.

Our rapid service meets your needs. If you have any suggestions to help us improve our service, please give us a call. We appreciate your ideas and will respond to them.

**Product Support-**To obtain support for ATC products:



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