

AMAX-4817/4820

Industrial EtherCAT Slave Modules

Startup Manual

Packing List

Before installation, please check that the following items are included in the shipment:

1. AMAX-4817/4820 module
2. Terminal blocks (see Specifications for more details)
3. Startup manual

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

User Manual

For more detailed information about this product, download the latest user manual from the Advantech website.

EtherCAT Slave Information File

The AMAX-4817/4820 ESI file can be downloaded from the Advantech website at <http://r.advantech.com/q5>. Every EtherCAT slave information (ESI) file contains the configuration data of an EtherCAT slave module. Various EtherCAT communication settings can be defined from the ESI files of connected slave units as well the network connection information. ESI files are saved to the configuration tool to provide network configuration data. Subsequently, the network configuration data can be downloaded to the EtherCAT master unit for configuring an EtherCAT network.

For more information on this and other Advantech products, please visit our website at

<http://www.advantech.com>

<http://www.advantech.com/eplatform>

For technical support and service, please visit our support website at

<http://support.advantech.com>

This manual is for the AMAX-4817 and 4820 modules.

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Overview

The AMAX-4817/4820 series comprises industrial EtherCAT slave modules equipped with the EtherCAT protocol. The modules' compact size and integrated DIN rail mount kit ensure easy installation in cabinets. The modules also feature euro-type pluggable terminal blocks and LED indicators that facilitate system setup and maintenance. All modules are equipped with an isolation circuit that ensures current protection for demanding industrial applications.

Specifications

General

- **Connectors**
 - N x 10-pin terminal block (3.81 mm) (AMAX-4817 N = 2, AMAX-4820 N = 1)
 - 2 x 3-pin screw terminal block (3.81 mm)
 - 2 x RJ-45 (EtherCAT)
- **Dimensions:** 120 x 120 x 40 mm³
- **Operating Temperature:** -20 ~ 60 °C (32 ~ 140 °F)
- **Storage Temperature:** -40 ~ 70 °C (-40 ~ 158 °F)
- **Storage Humidity:** 5 ~ 95% RH (non-condensing)
- **Power Supply:** 10 ~ 30 V_{DC}

Communications

- **Interface:** EtherCAT
- **Data Transfer Medium:** Ethernet/EtherCAT cable (CAT5 min.), shielded
- **Distance Between Modules:** 100 m max.(100BASE-TX)
- **Communication Cycle Time** 100 us
- **Data Transfer Rates:** 100 Mbps
- **Configuration:** Not required

Analog Input (AMAX-4817)

- **Channels:** 8 channels
- **Resolution:** 16 bits
- **Input Voltage Range:** 0 ~ 10 V, ±10 V
- **Common-Mode Input Voltage Range:** ±275 V
- **Measuring Error:** < ±0.1%
- **Isolation Protection:** 2,500 V_{DC}

Specifications (Cont.)

Analog Output (AMAX-4820)

- **Channels:** 4 channels
- **Resolution:** 16 bits
- **Voltage Output Range:** 0 ~ 5 V, 0 ~ 10 V, ± 5 V, ± 10 V
- **Current Output Range:** 0 ~ 20 mA, 4 ~ 20 mA
- **Load:** > 1 k Ω (voltage output)
- < 625 Ω (current output)
- **Output Error:** < $\pm 0.1\%$
- **Load Voltage:** 5 ~ 40 V_{DC}
- **Isolation Protection:** 2,500 V_{DC}

Installation

1. Download the AMAX-4817/4820 user manual and ESI file from the Advantech website at <http://r.advantech.com/q5>.
2. Import the ESI file to create an EtherCAT network information (ENI) file using either
 - (1) Advantech Common Motion Utility (with a PCI-1203 EtherCAT master card)
 - (2) Other EtherCAT master software, such as TwinCAT or Acontis
3. Use the master utility to test AMAX-4817/4820 modules.

Declaration of Conformity

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in residential areas is likely to cause interference; in such cases, users are required to correct the interference at their own expense.

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. Advantech does provide shielded cables. Contact your local supplier for ordering information.

Rotate Switch

AMAX-4817/4820 modules use two hexadecimal rotary switches to represent the slave ID (range: 0 ~ 255).



For example, if a user arranges the rotary switches following the sequence "4, F", the slave ID will be set as "4 x 16 + F x 1 = 79".

Power

AMAX-4817/4820 modules feature two power input terminals, an input power range of +10 to +30 V_{DC}, and power redundancy support. For modules connected to two power input sources, if one source is inactive or interrupted, the other power source can take over immediately. The AMAX-4817/4820 modules can operate with only a single power source.

LEDs

Power Indicator

Indicator State	System State	Description
Off	Power off	The system is not on/ power is off.
On	Power on	The system is on/ power is on.

Run Indicator

Indicator State	Slave State	Condition
Off	Initialization	The device is in the Initialization state.
Blinking	Pre-Operational	The device is in the Pre-Operational state.
Single flash	Safe Operational	The device is in the Safe Operational state.
On	Operational	The device is in the Operational state.
Flickering	Bootstrap	The device is booting and has not yet entered the Initialization state/ the device is in the Bootstrap state/ a firmware download is in progress.

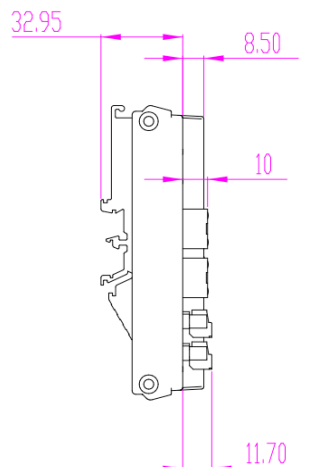
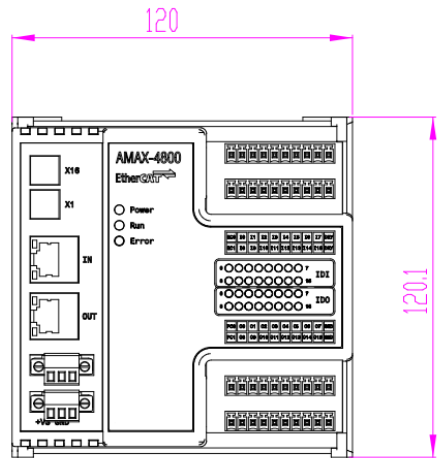
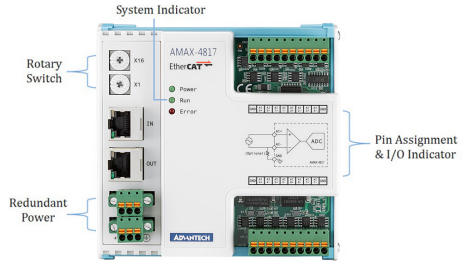
Error Indicator

Indicator State	Error Name	Description
Off	No error	The device is in working condition.
Blinking	Invalid configuration	General configuration error.
Single flash	Local error	A slave device application has changed the EtherCAT state autonomously due to local error/the error indicator bit is set to 1 in the AL Status register.
Double flash	Watchdog timeout	An application watchdog timeout has occurred.

Link Indicator (on RJ-45)

Indicator State	Link	Activity	Description
On	Yes	No	Port open/connected
Flickering	Yes	Yes	Port open/connected
Off	No	Not applicable	Port closed/disconnected

Dimensions

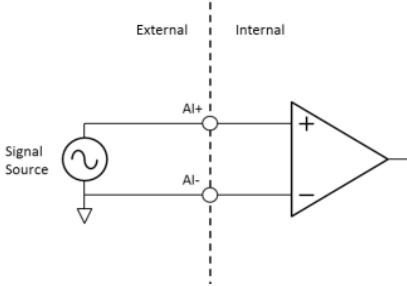


Connections

Analog Input Connection

Differential Inputs

The AMAX-4817 provides eight differential analog input channels.



Connections (Cont.)

Analog Output Connection

Single Outputs

The AMAX-4820 provides four single-ended analog output channels.

