Honeywell

Bulletin AEM
Rev. A
(4/87)

Absolute Encoder Module 621-0018

Specification and Technical Data

The Absolute Encoder Module offers IPC 620 high-speed control that is totally independent of the 620 programmable controller scan. It determines the rotational position, direction, and velocity of rotational devices equipped with an absolute encoder and supplies the information to the programmable controller.

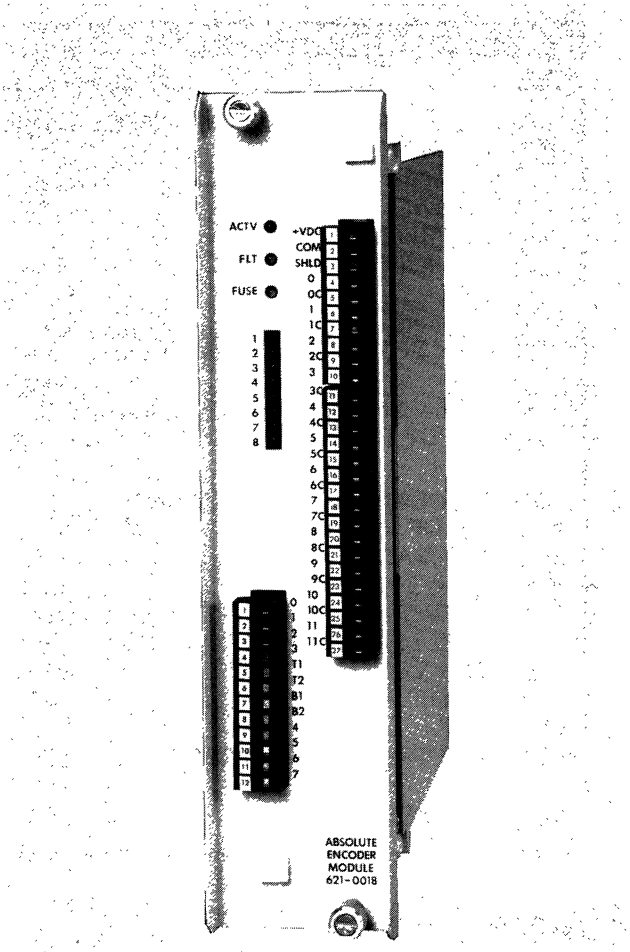
The module functions like a mechanical rotary cam switch in that it energizes and de-energizes outputs for a defined region of rotation between 0° to 360°. The encoder supplies the rotational input value. Based on this input value, up to eight outputs can be controlled by the Absolute Encoder Module. Each output has two preset registers which define the end boundaries for the region of rotation (within 360°), for which the output is either ON or OFF. These preset values are downloaded from the programmable controller logic program.

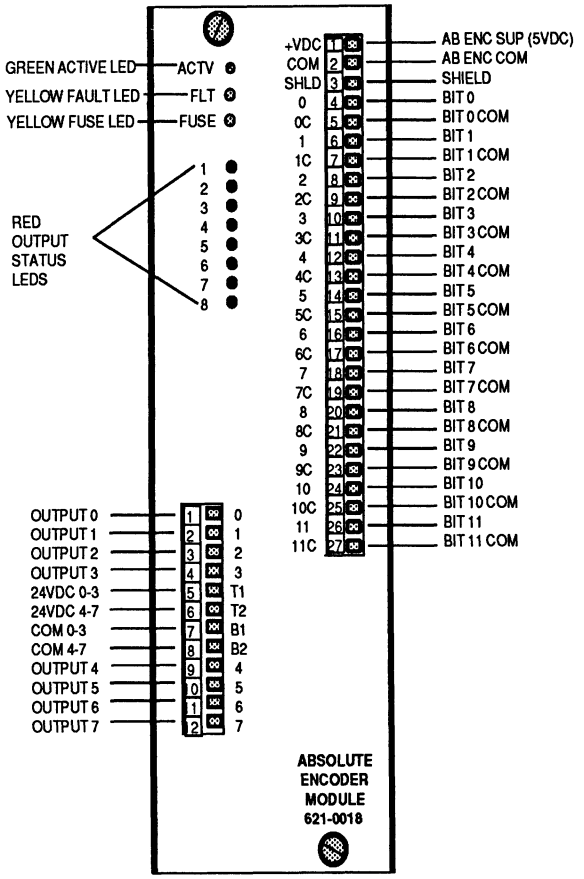
This module is double-wide, and can be installed in any two adjacent I/O slots (with the exception of the 4 I/O slots within the 620-20 and 620-25 processor racks).

MODULE FEATURES

The following features are highlights of the Absolute Encoder Module:

- The absolute encoder input is compatible with:
  * 8, 9, 10, 11 or 12 bit resolution encoders.
  * choice of BCD, natural binary, or standard Gray code input format.
  * single-ended or differential input.
- Up to eight 24VDC outputs offer:
  * two presets per output (16 total per module) to define the ON and OFF point. Download presets from the user program by executing the PUSH instruction, and enable the module with an output coil.
  * outputs controlled directly from module independent of programmable controller scan.
  * the FORCE function is user-selectable; it can be enabled, or disabled to lock out any unintentional forces. Outputs can be forced ON or OFF by the preset value.
  * outputs can be frozen or cleared in their last state due to module fault.
- Absolute Encoder Module supplies the programmable controller with the following data:
  * absolute encoder input value
  * direction of rotation
  * velocity
  * output status (ON or OFF)
- The following situations are well-suited to the Absolute Encoder Module:
  * automatic cycle control (finding shaft position)
  * determining position after power loss
  * independent high-speed response to rotational shaft position
  * absolute position, velocity, and direction of rotation feedback.





The Absolute Encoder Module accurately tracks each input data bit from the encoder based on the following maximum shaft velocity for the encoder.

ENCODER RESOLUTION	MAXIMUM VELOCITY	VELOCITY RESOLUTION
12 bits	830 rpm	3.75 rpm
11 bits	1160 rpm	7.5 rpm
10 bits	3320 rpm	15 rpm
9 bits	6640 rpm	30 rpm
8 bits	13280 rpm	60 rpm

Maximum shaft velocity is dependent on the least significant input bit changing at less than 56.7KHz.

NOTE: Two jumpers are supplied across output terminals T1/T2 and B1/B2. They allow the user to power all 8 outputs from one power supply, or to power the outputs from two power sources, one for the top 4 outputs, and one for the bottom 4 outputs.

SPECIFICATIONS

ABSOLUTE ENCODER INPUT SPECIFICATIONS:

INPUT VOLTAGE RANGE
- Single-ended ..... Logic 1: 2.3VDC to 5.0VDC / Logic 0: 0.0VDC to 1.5VDC
- Differential ..... 0.2VDC to 6VDC

INPUT CURRENT RANGE
- Single-ended ..... -50μa (low-0), 300μa max. (high-1) Each input channel represents 8 standard TTL loads
- Differential ..... 1.3 to 82mA (typically 13mA at 2V differential)

ENCODER POWER REQUIREMENTS..... 5VDC +/-5%, 500mA (an encoder that draws more than 500mA must be powered externally)

ENCODER CABLING DISTANCE ..... TTL: 5 ft., Open Collector: 50 ft., Differential: 500 ft.

MAX. INPUT FREQUENCY .....56.7 KHz (cycle time 17.625μs)

MODULE OUTPUT SPECIFICATIONS

NUMBER OF OUTPUTS 8

VOLTAGE RANGE ..... 18 to 28VDC

MAX. CURRENT RATING ..... 2A individual; 6A per common; 12A per module

FIELD POWER REQUIREMENTS ..... <25mA per energized output (200mA max.)

OFF-STATE LEAKAGE CURRENT ..... <5mA typically

ON-STATE VOLTAGE DROP ..... <2V at 2A

OUTPUT DELAY ..... OFF to ON: <30μs / ON to OFF: <500μs

FUSING ..... 1 per group of 4, 7A Fast-Blo

MODULE OPERATING CURRENT ..... 1.75A with all 8 outputs energized (includes both module and encoder requirements)

SURGE CURRENT ..... 8A for 10ms (non-repetitive)

Honeywell INDUSTRIAL CONTROLS DIVISION
435 West Philadelphia Street, P.O. Box 934, York, PA 17405-0934 U.S.A. (717) 848-1151 / TELEX 173194