MOORE INDUSTRIES

ECA

Economy Current and Voltage Alarm *(page 1 of 4)*

Users' Instructions **November 1994**

Introduction

The line-powered ECA Economy Alarm Trip is the low-cost solution in applications where an alarm trip output is needed to indicate a high or low process condition.

A 4-wire unit that can be powered by either AC or DC voltages, the ECA is available in configurations that accept either current or voltage input from a host of different field devices. When input falls outside of a user-set limit, the ECA provides contact closure output—ideal for indicating a high and/or low condition via a bell, buzzer, light or other annunciating device.

Single and Dual Alarms
The ECA is offered in both single and dual alarm models. The single alarm provides one output when the trip point is exceeded. Each dual alarm unit accepts one input, and provides two, separate trip points and two, individually configurable contact closure outputs.

Universal Mounting Capability
The ECA housing can be snapped on to either 32mm G-type DIN rail (EN50035) or 35mm Top Hat rail (EN50022).

Options

Adjustable Deadband potentiometers, 1 per installed relay, provide the capability to vary the reset deadband between 1 and 20% of full scale.

Transmitter Excitation extra connections provide 20mA current output for power to a secondary, 2-wire transmitter.

Externally Mounted Transformer steps down 0-5A AC inputs.

The ECA's compact, thermoplastic housing *snaps quickly and securely on to both standard G-type and Top Hat mounting rails.*

Specifications

The next page lists the specifications for the various types of ECA. Included is the information needed when ordering additonal or replacement ECA's.

Additional or Replacement Units

To specify an ECA on a Moore Industries order, "construct" a model number from the bold faced selections listed in the Ordering Information section of the specifications listing. For each unit ordered, designate the Unit type / Input range / Output range / Power / any Options, and the [Housing].

Model number example:
ECA / 4-20MA / DH1L2 / 117AC / -AD -TX [ECD]

Specifications

Performance	**Repeatability:** Trip point repeats within ±0.1% of full scale **Deadband:** 1% of span standard (see -AD option for adjustable deadband) **Alarm Response:** 50 milliseconds for a step change of 10-90% beyond trip point(s)	**Performance (continued)**	**Line Voltage Effect:** 0.005% per 10% line change **Isolation:** 1500Vrms between input, output and power	**Adjustments**	**Trip Points:** Multiturn front panel potentiometers adjust trip point from 0-110% of input range
		Ambient Temperature	**Range:** –20°C to +70°C (–4°F to +70°F) **Effect:** ±0.015% of span/°C	**Indicators**	Front panel LED(s) is ON when relay is energized
				Weight	240 grams (8.4 ounces)

Ordering Information

Unit	Input	Output	Power	Options	Housing
ECA Economy Current and voltage Alarm	**4-20mA** into 50Ω **1-5V** into 1MΩ **0-10V** into 1MΩ **0-150AC** into 150KΩ **0-250AC** into 250KΩ **0-5AC** into 0.01Ω (Other ranges also available.)	Alarm Configuration (High or Low and Failsafe or Non-Failsafe are configurable via internal jumpers): **SH1** Single, High, Failsafe **SH2** Single, High, Non-Failsafe **SL1** Single, Low, Failsafe **SL2** Single, Low, Non-Failsafe **DH1L1** Dual, High/Low, Failsafe **DH2L2** Dual, High/Low,Non-Failsafe **DH1H1** Dual, High/High, Failsafe **DH2H2** Dual, High/High, Non-Failsafe **DL1L1** Dual, Low/Low, Failsafe **DL2L2** Dual, Low/Low, Non-Failsafe (SPDT relays rated 5A @ 117Vac non-inductive or 28Vdc) **NOTE:** Failsafe considerations are such that the relay is energized in the normal condition and de-energized either upon alarm or power loss to the unit. Combination of Failsafe and Non-Failsafe for dual alarms are also possible by following the same method of desigation	**24DC**, ±10% **117AC**, 50/60Hz, ±15% **230AC**, 50/60Hz, ±15% (117AC and 230AC are jumper-selectable) 1.5Watts, typical; 2.5Watts, typical, with TX option	**-AD** Adjustable deadband, 1-20% **-EM** Externally-mounted input transformer (available with 0-5AAC input type only) **-TX** 20mA excitation (4-20mA input type only)	**ECD** Thermoplastic, economy DIN-style housing mounts on both 32mm G-type (EN50035) and 35mm Top Hat (EN50022) rail

Specifications subject to change. P/N 206-717-00 A

Alarm Terminology

Moore Industries uses a simple system to designate Single, Dual, High, Low, Failsafe, and Non-failsafe alarm configuration in ECA model numbers. Single is "S"; Dual is "D"; High alarm is "H"; Low alarm is "L"; Failsafe relays are "1"; and Non-failsafe relays are "2".

High/Low and Failsafe/Non-failsafe

High alarms (H) trip when the monitored input rises above the trip point setting. Low alarms (L) trip when the input drops to the trip point setting. Failsafe relays (1) are de-energized in an alarm condition or during power loss to the unit. Non-failsafe relays (2) are energized in alarm.

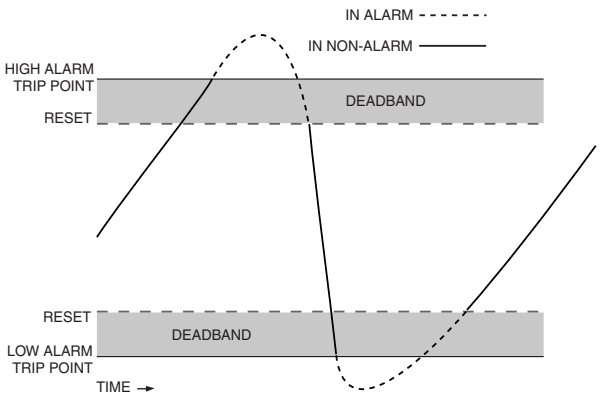
Deadband

An alarm deadband is used to compensate for process input fluctuation around a trip point setting. The deadband setting designates a point the process input must pass before ECA reset.

For High Alarms, the deadband setting is typically below the trip point. For low alarms, it is typically above the trip point. Thus, the process input returning from alarm to non-alarm must pass the trip point setting *and continue* to the deadband point before in order to reset. Refer to Figure 1.

The ECA with the AD option can be calibrated for a deadband of between 1 and 20% of the input span.

Figure 1. *Alarm Deadband*

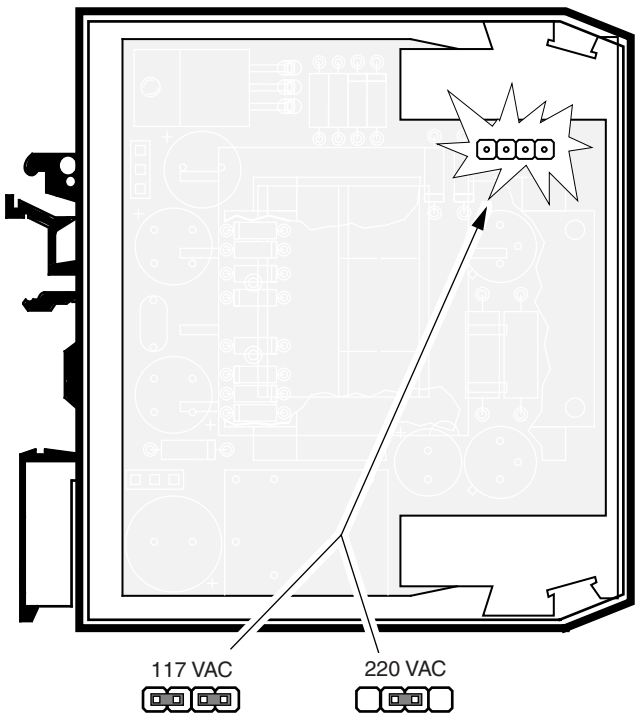


Setting Jumpers

Power

Use a flat-tipped screwdriver to unsnap the halves of the ECA housing. The PC board to the right (when facing the unit front panel) has the jumpers that determine the power supply voltage. There are no jumpers for DC-powered units.Figure 2 shows the location of the jumpers.

Figure 2. *ECA Power Setting Jumpers*

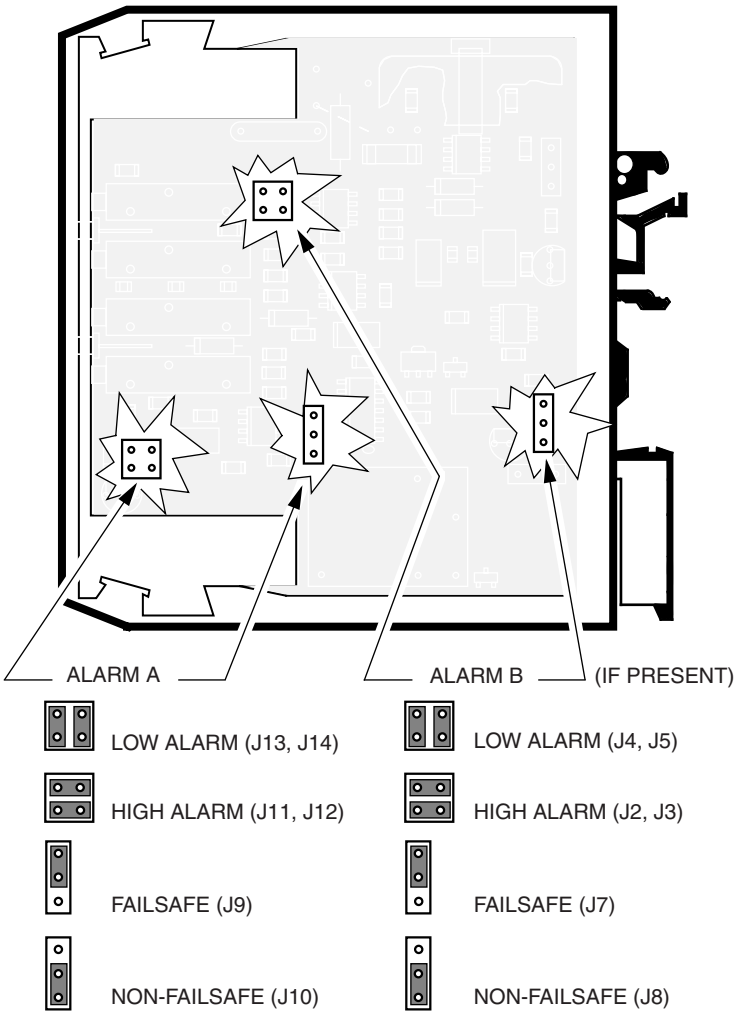


High/Low Alarm and Failsafe/Non-failsafe

With the ECA apart, the PC board with the High/Low and Failsafe/Non-failsafe jumpers is to the left (when facing the unit front panel).

Figure 3 shows the location of both the High and Low alarm setting and the failsafe/non-failsafe jumpers.

Figure 3. *ECA Alarm Configuration Jumpers*



Installation

Figure 4 shows the outline dimensions of the ECA. Table 1 lists the terminal designations.

Figure 1. *ECA Dimensions*

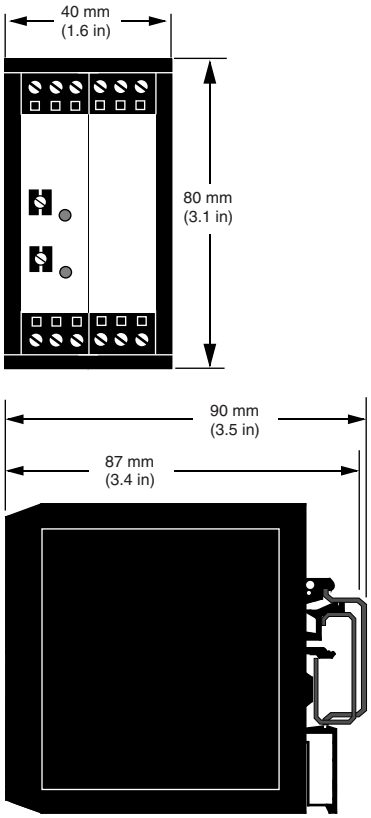
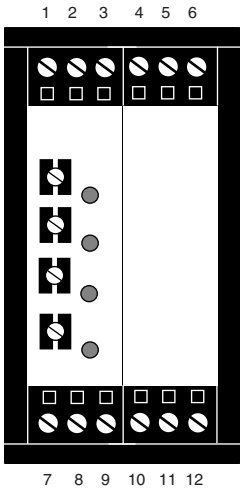


Table 1. *ECA Terminal Designations*

#	Label	Designation
1	TX	**Transmitter Excitation:** Present only when unit is equipped with TX option. Connect this terminal to the "+" power terminal of the two-wire transmitter.
2	+IN	**Positive Input:** Connect the "+OUT" of the monitored process variable to this terminal. (Also connect this terminal to the "-" power terminal of the two-wire transmitter if the ECA is equipped with the TX option)
3	-IN	**Negative Input:** Connect the "-OUT" of the monitored process variable to this terminal.
4	NU	**Not Used**
5	AC/DC	**Power Connection:** + for DC
6	ACC/DCC	**Power Connection:** - for DC
7	NO1	**Normally Open Contacts:** Trip A
8	CM1	**Common:** Trip A
9	NC1	**Normally Closed Contacts:** Trip A
10	NO2	**Normally Open Contacts:** Trip B
11	CM2	**Common:** Trip B
12	NC2	**Normally Closed Contacts:** Trip B



Operation

The ECA sports a front panel LED for each installed alarm. The LED lights whenever the associated relay is energized. It lights whenever the process input is "in alarm" if the relay is non-failsafe. If the relay is fail-safe, the LED will light and remain lit as long as the unit has power and the process input is in a non-alarm state.

Declaration of Conformity

EMC Directive 89/336/EEC

Manufacturer's Name: Moore Industries-International, Inc.
Manufacturer's Address: 16650 Schoenborn Street
North Hills, CA 91343-6196
USA

Declares that the product(s):

Product Name: **ECA**

	MODEL	/ INPUT	/ OUTPUT	/ POWER	/ OPTIONS	/ HOUSING
Model Number(s):	**ECA**	*	*	*	*	*

*Indicates any input, output, option and housing as stated in the product data sheet.

Conforms to the following EMC specifications:

EN50081-2, 1993, Generic Emissions Standard, Industrial Environment.
EN50082-2, 1995, Generic Immunity Standard, Industrial Environment.
EN61010-1, 1995, Safety requirements for electrical equipment for measurement and control use.

Supplemental Information:

None.

November 20, 1998
Date

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