

Introduction

The ECA DIN-style Alarm Trip features a solid metal housing that stands up to the continual rigors of process control and factory automation applications.

Rugged and reliable, the 4-wire (line-powered) ECA is the low-cost solution when dual alarm trip outputs are needed to indicate high or low process conditions.

Available models accept current and voltage input from field transmitters, transducers, and other process instruments. When the input falls outside of a pre-set limit (user configurable), the ECA provides contact closure outputs ideal for indicating a high and/or low condition via a bell, buzzer, light or other annunciating device.

Configurable Dual Alarms—The ECA is offered in a wide variety of dual alarm models. Choose any combination of high or low, failsafe or non-failsafe alarms, and the ECA will be factory-set for you. Internal jumpers allow for changes after it arrives at your plant.

Options

Adjustable Deadband potentiometers, 1 per installed relay, provide the capability to vary the reset deadband between 1 and 100% of full scale. (–AD100 option required)

Transmitter Excitation provides 24Vdc to power a secondary, 2-wire transmitter.

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

Alarm Terminology

Moore Industries uses a simple system to designate Dual, High, Low, Failsafe, and Non-failsafe within ECA model numbers. 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 trip when the input rises above the trip point setting; low alarms trip when the input drops to the trip point setting. Failsafe relays are de-energized in an alarm condition or during power loss to the unit; non-failsafe relays are energized in alarm.



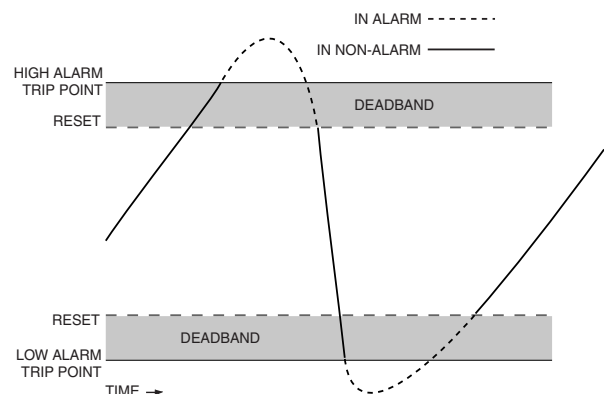
The ECA's compact, durable aluminum housing snaps quickly and securely on to both standard G-type and Top Hat mounting rails while protecting the unit from harmful radio interference.

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 the ECA resets.

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 in order to reset. Refer to Figure 1.

Figure 1. Alarm Deadband



ECA-DIN

Current and Voltage Alarms

Specifications

<p>Performance</p> <p>Repeatability: Trip point repeats within $\pm 0.1\%$ of full scale</p> <p>Stability: Trip point within $\pm 0.2\%$ of span per year</p> <p>Burden: 4-20mA is 1V, max; 0-5A is 0.01V, max</p> <p>Power Consumption: 1.5W, typical; 2.5W, typical with –TX option; 3.5W max, with –TX option</p> <p>Deadband: 1-20% of span standard (see –AD100 option for 1-100% deadband range)</p> <p>Alarm Response: 50 msec for a step change of 10-90% beyond trip point(s)</p> <p>Line Voltage Effect: 0.005% per 10% line change</p>	<p>Performance (Continued)</p> <p>Isolation: 1500Vrms between input, output and power</p> <p>Maximum Input Overrange: 200% of full scale for DC Current input; 150% of full scale for DC Voltage and AC Current inputs</p> <p>Ambient Conditions</p> <p>Operating Range: -20°C to $+70^{\circ}\text{C}$ (-4°F to $+158^{\circ}\text{F}$)</p> <p>Relative Humidity: 0-95%, non-condensing</p> <p>Ambient Effect: $\pm 0.007\%$ of span/$^{\circ}\text{C}$, typical; $\pm 0.015\%$ of span/$^{\circ}\text{C}$, max</p> <p>RFI/EMI Protection: Trip point not to be affected by more than 0.1% of span at 10V/m, 20-1000MHz</p>	<p>Adjustments</p> <p>Trip Points: Multiturn front panel potentiometers adjust trip point from 0-110% of input span</p> <p>Deadband: Multiturn front panel potentiometers adjust from 1-20% or 1-100% of full scale, depending on the option selected</p> <p>Indicators</p> <p>Front panel LED(s) is ON when relay is energized</p> <p>Weight</p> <p>454 grams (1lb.)</p>
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Ordering Information

Unit	Input	Output	Power	Options	Housing
<p>ECA 4-Wire Current and Voltage Alarm</p>	<p>4-20mA into 50Ω 1-5V into 1MΩ 0-5AAC into 0.002Ω</p>	<p>Alarm Configuration (High or Low and Failsafe or Non-Failsafe are configurable via internal jumpers):</p> <p>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 DL1H1 Dual, Low/High, Failsafe DL2H2 Dual, Low/High, Non-Failsafe</p> <p>(SPDT relays rated 5A @ 250Vac non-inductive or 30Vdc)</p>	<p>24DC, $\pm 10\%$ 117AC, 50/60Hz, $\pm 10\%$ 230AC, 50/60Hz, $\pm 10\%$ (117AC and 230AC are jumper selectable)</p>	<p>–AD100 Adjustable deadband 1-100% of full scale –EM Externally-mounted input transformer, with 36" leads, for current input (available with 0-5AAC input type only)</p> <p>–TX 24V transmitter excitation for powering a 2-wire transmitter –FMEDA option is also available</p>	<p>DIN Aluminum, DIN-style housing mounts on both 32mm G-type (EN50035) and 35mm Top Hat (EN50022) rail</p>

When ordering, specify: Unit / Input / Output / Power / Options [Housing]
Model number example: ECA / 4-20MA / DH1L1 / 117AC / –AD100 [DIN]

Certifications



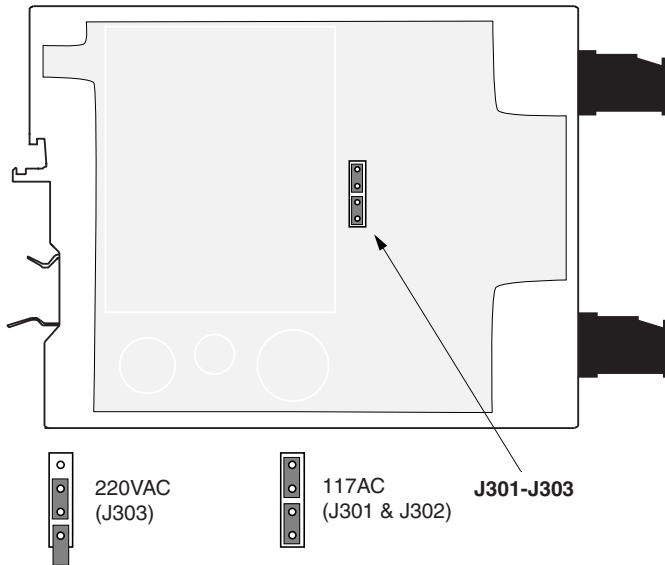
CE Conformant – EMC Directive 2014/30/EU
EN 61326; Low Voltage Directive 2014/35/EU
EN 61010

Setting Jumpers

Power

Unscrew the sides of the ECA housing. The PC board to the left (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

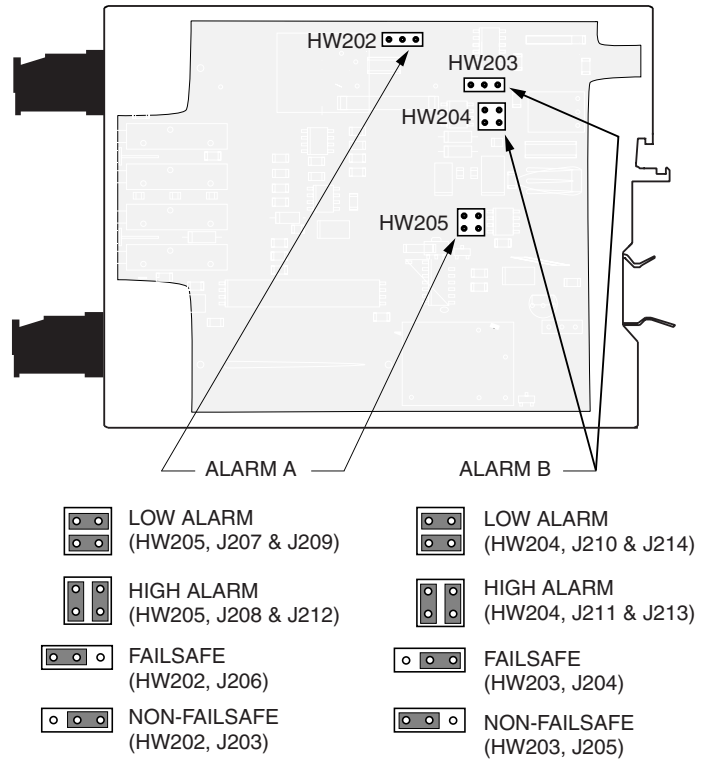


High/Low Alarm and Failsafe/Non-failsafe

With the ECA apart, the PC board with the High/Low and Failsafe/Non-failsafe jumpers is to the right (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



ECA-DIN

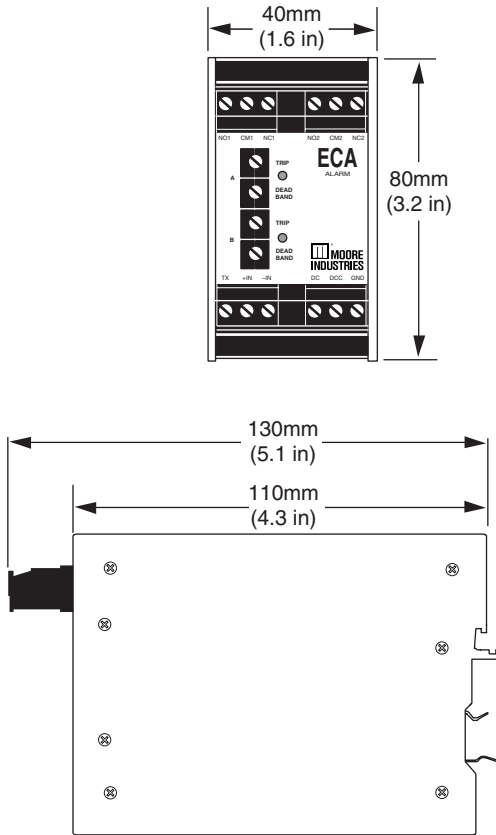
Current and Voltage Alarms

Users' Manual

Installation

Installing the ECA is as simple as connecting the input, power, and annunciators or other output devices to the ECA and mounting the ECA on a rail. Use the terminal designations in Table 1 and Figure 5 to make the appropriate connections.

Figure 4. ECA-DIN Dimensions



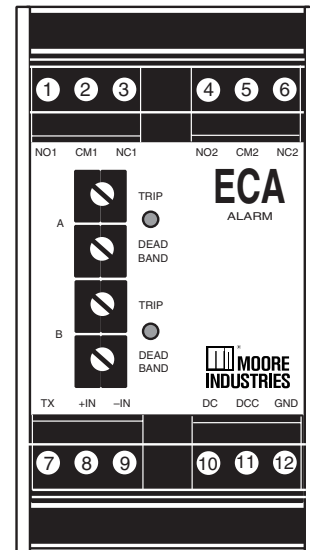
Operation

The ECA has a front panel LED for each alarm. The LEDs light whenever the associated relay is energized. If the relay is non-failsafe, they light whenever the process input is “in alarm”; 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.

Table 1. ECA Terminal Designations

#	Label	Designation
1	NO1	Normally Open Contacts: Trip A
2	CM1	Common: Trip A
3	NC1	Normally Closed Contacts: Trip A
4	NO2	Normally Open Contacts: Trip B
5	CM2	Common: Trip B
6	NC2	Normally Closed Contacts: Trip B
7	TX	Transmitter Excitation: Present only when unit is equipped with –TX option. Connect this terminal to the “+” power terminal of the 2-wire transmitter.
8	+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)
9	-IN	Negative Input: Connect the “-OUT” of the monitored process variable to this terminal.
10	AC/DC	Power Connection: + for DC
11	ACC/DCC	Power Connection: - for DC
12	GND	Ground Connection

Figure 5. ECA Terminal Designations



RETURN PROCEDURES

To return equipment to Moore Industries for repair, follow these four steps:

1. Call Moore Industries and request a Returned Material Authorization (RMA) number.

Warranty Repair –

If you are unsure if your unit is still under warranty, we can use the unit's serial number to verify the warranty status for you over the phone. Be sure to include the RMA number on all documentation.

Non-Warranty Repair –

If your unit is out of warranty, be prepared to give us a Purchase Order number when you call. In most cases, we will be able to quote you the repair costs at that time. The repair price you are quoted will be a "Not To Exceed" price, which means that the actual repair costs may be less than the quote. Be sure to include the RMA number on all documentation.

2. Provide us with the following documentation:
 - a) A note listing the symptoms that indicate the unit needs repair
 - b) Complete shipping information for return of the equipment after repair
 - c) The name and phone number of the person to contact if questions arise at the factory
3. Use sufficient packing material and carefully pack the equipment in a sturdy shipping container.
4. Ship the equipment to the Moore Industries location nearest you.

The returned equipment will be inspected and tested at the factory. A Moore Industries representative will contact the person designated on your documentation if more information is needed. The repaired equipment, or its replacement, will be returned to you in accordance with the shipping instructions furnished in your documentation.

WARRANTY DISCLAIMER

THE COMPANY MAKES NO EXPRESS, IMPLIED OR STATUTORY WARRANTIES (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY GOODS OR SERVICES SOLD BY THE COMPANY. THE COMPANY DISCLAIMS ALL WARRANTIES ARISING FROM ANY COURSE OF DEALING OR TRADE USAGE, AND ANY BUYER OF GOODS OR SERVICES FROM THE COMPANY ACKNOWLEDGES THAT THERE ARE NO WARRANTIES IMPLIED BY CUSTOM OR USAGE IN THE TRADE OF THE BUYER AND OF THE COMPANY, AND THAT ANY PRIOR DEALINGS OF THE BUYER WITH THE COMPANY DO NOT IMPLY THAT THE COMPANY WARRANTS THE GOODS OR SERVICES IN ANY WAY.

ANY BUYER OF GOODS OR SERVICES FROM THE COMPANY AGREES WITH THE COMPANY THAT THE SOLE AND EXCLUSIVE REMEDIES FOR BREACH OF ANY WARRANTY CONCERNING THE GOODS OR SERVICES SHALL BE FOR THE COMPANY, AT ITS OPTION, TO REPAIR OR REPLACE THE GOODS OR SERVICES OR REFUND THE PURCHASE PRICE. THE COMPANY SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES EVEN IF THE COMPANY FAILS IN ANY ATTEMPT TO REMEDY DEFECTS IN THE GOODS OR SERVICES, BUT IN SUCH CASE THE BUYER SHALL BE ENTITLED TO NO MORE THAN A REFUND OF ALL MONIES PAID TO THE COMPANY BY THE BUYER FOR PURCHASE OF THE GOODS OR SERVICES.

ANY CAUSE OF ACTION FOR BREACH OF ANY WARRANTY BY THE COMPANY SHALL BE BARRED UNLESS THE COMPANY RECEIVES FROM THE BUYER A WRITTEN NOTICE OF THE ALLEGED DEFECT OR BREACH WITHIN TEN DAYS FROM THE EARLIEST DATE ON WHICH THE BUYER COULD REASONABLY HAVE DISCOVERED THE ALLEGED DEFECT OR BREACH, AND NO ACTION FOR THE BREACH OF ANY WARRANTY SHALL BE COMMENCED BY THE BUYER ANY LATER THAN TWELVE MONTHS FROM THE EARLIEST DATE ON WHICH THE BUYER COULD REASONABLY HAVE DISCOVERED THE ALLEGED DEFECT OR BREACH.

RETURN POLICY

For a period of thirty-six (36) months from the date of shipment, and under normal conditions of use and service, Moore Industries ("The Company") will at its option replace, repair or refund the purchase price for any of its manufactured products found, upon return to the Company (transportation charges prepaid and otherwise in accordance with the return procedures established by The Company), to be defective in material or workmanship. This policy extends to the original Buyer only and not to Buyer's customers or the users of Buyer's products, unless Buyer is an engineering contractor in which case the policy shall extend to Buyer's immediate customer only. This policy shall not apply if the product has been subject to alteration, misuse, accident, neglect or improper application, installation, or operation. THE COMPANY SHALL IN NO EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.



WORLDWIDE • www.miinet.com

United States • info@miinet.com
Tel: (818) 894-7111 • FAX: (818) 891-2816
Australia • sales@mooreind.com.au
Tel: (02) 8536-7200 • FAX: (02) 9525-7296

Belgium • info@mooreind.be
Tel: 03/448.10.18 • FAX: 03/440.17.97
The Netherlands • sales@mooreind.nl
Tel: (0)344-617971 • FAX: (0)344-615920

China • sales@mooreind.sh.cn
Tel: 86-21-62491499 • FAX: 86-21-62490635
United Kingdom • sales@mooreind.com
Tel: 01293 514488 • FAX: 01293 387752