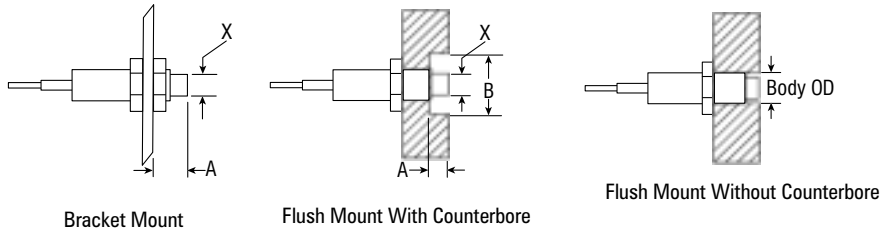


Description

The ECA100 produces a 0-10VDC output which is proportional to the distance between the probe and the target. The further the probe is from the target, the more positive the output voltage. The ECA100 also includes an adjustable setpoint switched output.

Probe Installation

Any conductive material that engages the coil field will influence the output of the sensor. Follow the guidelines shown below for shielded and unshielded probes. If it is not possible to meet these minimum guidelines, contact Lion Precision for assistance.

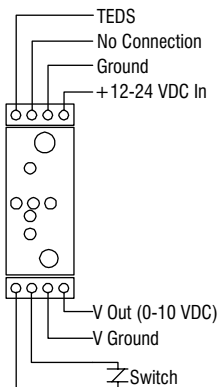


Dimensions Relative to X		
	A	B
Unshielded	1.5X	3X
Shielded	1X	2X

Flush Mount Without Counterbore

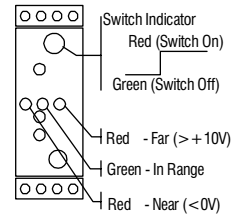
Flush mount without counterbore recommended for shielded probes only. Requires special calibration. Contact Lion Precision for more information.

Driver Connections



TEDS	Conforms to TEDS standard (IEEE1451.4) for serial communication of instrument data.
No Connection	No input or output connections to this terminal.
Ground	Input voltage ground reference (return)
VDC In	+ 12 to +24VDC @ 130mA power input. Input voltage ripple must be <40mV p-p to maintain specifications (use linear supply).
V Out	0-10VDC calibrated output. When the probe is out of its calibrated range, the output voltage can range from -5 to +Vin
V Out Ground	Internally connected to power input ground.
Switch	Switch closes when output voltage exceeds the adjustable setpoint. See Setpoint Switch Output Details on next page.

Switch LED Operation



The Switch LED indicates the status of the setpoint switch output. Red indicates a voltage above the setpoint and the switch is closed. Green indicates a voltage below the setpoint and the switch is open.

Range LED Operation

LEDs indicate the relative position of the target as shown. The center, green LED indicates that the probe is in the active range (0-10V). Red LEDs indicate if the probe is too near (<0V) or too far from (> +10V) the target.

Calibration

The quality of the calibration is dependent on the ability to accurately set the probe/target gap to the minimum (offset), and maximum points for the calibration.

1. Set the probe/target gap at the minimum distance (offset)
2. Adjust Zero for OVDC output
3. Set the probe/target gap to the maximum distance of the desired range
4. Adjust Gain for desired output voltage (typically 10VDC)
5. If the output cannot be adjusted to 10V, then the system is not capable of the desired range. A smaller range must be chosen.

Adjusting the Setpoint Switch Output

1. Install the probe in the application.
2. Set the probe/target gap to the desired setpoint condition.
3. Turn the Switch adjustment to the point where the switch LED changes from green to red.

Setpoint Switch Output Details

The switched output is an optically isolated, solid-state version of a mechanical relay. It operates like a mechanical switch.

Maximum Switched Current	0.1A (100mA)
Maximum Voltage	400VDC, 400V peak (250Vrms)
Output Polarity	Either negative or positive, sinking or sourcing
On Resistance	30Ω typical - 50 Ω maximum
Off Leakage	1μA maximum
Turn-on Time	0.25mS typical, 0.50mS maximum
Turn-off Time	0.05mS typical, 0.2mS maximum
Setpoint Voltage Hysteresis	0.1V (see below)

Hysteresis:

To prevent switch oscillation, the setpoint voltage is changed by 0.1V when the switch activates. For example, if the setpoint is set to 5V, the setpoint voltage will change to 4.9V when the switch is ON. The setpoint will return to 5V when the switch is OFF.

Presented By: **A-Tech Instruments Ltd.**

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Troubleshooting

If the sensor is not working, these troubleshooting hints may help quickly resolve the problem. If not, call Lion Precision for help at 651-484-6544.

- **Electrical noise in the output**

Use clean input power from a linear supply, not a switching power supply. Also, high frequency noise can be picked up by output connection cables. Use shielded and/or twisted pair connections to the driver output. Ungrounded targets will produce more output noise than grounded targets. If the target is ungrounded, connecting a ground wire will reduce the output noise.

- **None of the range LEDs are lit.**

There is no power to the unit. The range LEDs are designed so that at least one of the LEDs will be always be on.

- **Sudden output change and/or no response to gap change.**

Check that the probe is properly connected and that the cable is not damaged. When the probe is disconnected from the driver during operation the output will go to its most negative or most positive output.

- **Zero shifted output.**

Probe may be damaged. Excessive target/probe contact can result in damage to the coil in the tip of the probe. Check the probe resistance at the cable connector and compare it with other probes you may have of that same model. The resistance values should be within a few tenths of an ohm. If you do not have other probes to compare, call Lion Precision for the resistance value of that probe model.

- **Power is connected but nothing happens.**

The ECA100 driver is protected from reverse polarity of input power. Check that input voltage polarity is correct.

More Information

For more detailed information on the theory of operation and application of eddy-current displacement sensors see our web site at www.lionprecision.com. or www.eddycurrentsensing.com

Note the probe/driver model numbers and serial number(s) when contacting Lion Precision for assistance.

For applications assistance or customer service:

Call 651-484-6544

E-mail info@lionprecision.com

Presented By: **A-Tech Instruments Ltd.**

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ECA100 Users Guide M015-4550.04

USER'S GUIDE

for

ECA100 Series

Displacement Sensors

from

Lion Precision



Thank you for purchasing your measuring system(s) from Lion Precision! We appreciate your business and look forward to satisfying any measurement requirements you may have in the future.

To get started making precision non-contact displacement measurements follow these quick start instructions:

Quick Start Instructions

1. Verify that the probe serial number (heat shrink label on probe cable) matches the probe serial number on the driver side panel label.
2. Install the driver on a standard EN 50 022 symmetrical DIN mounting rail in an area consistent with IP-40 requirements.
3. Connect power and output according to side panel label (or this guide).
4. Install the probe and route the probe cable to the driver. Fasten probe cable in place every 18"-24". Use care not to cut or crimp the probe cable.
5. Plug probe connector into the front panel driver connector.
Do not twist probe connector.
6. Apply power, adjust Gain and Zero if necessary to suit the application and begin making measurements. Front panel LEDs will indicate relative target-to-probe position, see driver side panel for explanation.

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