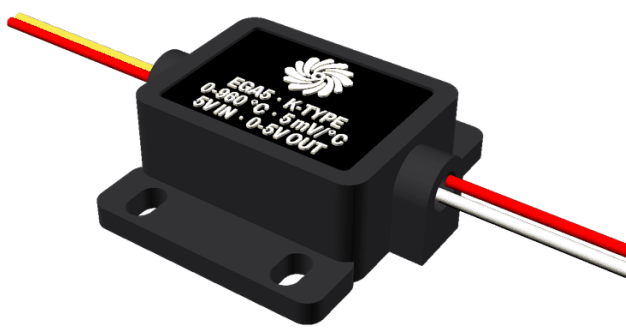
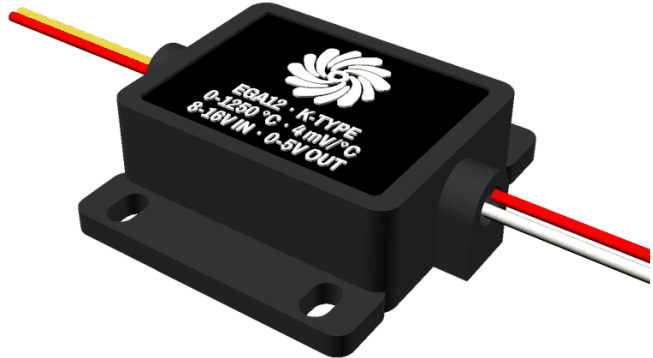


The output side is the **same three wires as any pressure sensor** — supply, ground, signal — so it wires into any analog input and calibrates with two points. Sold as a **kit** with a tested ungrounded probe, bung and fitting, or as the module on its own.



EGA5



EGA12

Specifications

EGA5 · EGA12

Parameter	EGA5	EGA12
MEASUREMENT		
Sensor	Type K thermocouple, ungrounded	Type K thermocouple, ungrounded
Range	0 – 960 °C	0 – 1250 °C
Scaling	5 mV/°C	4 mV/°C
Zero	0.000 V = 0 °C	0.000 V = 0 °C
Full scale	4.800 V at 960 °C	5.000 V at 1250 °C
At a 10-bit input	≈ 0.98 °C per count	≈ 1.22 °C per count
Kit probe	Stainless, 5 mm, 0 – 1200 °C	Stainless, 5 mm, 0 – 1200 °C — the kit's ceiling, not the module's
Pro probe	Inconel, 3/16" sealed, ungrounded tip, 1300 °C, ±1.1 °C SLE	Inconel, 1/8" sealed, ungrounded tip, 1300 °C, ±1.1 °C SLE, 550 ms — <i>reaches the full 1250 °C</i>
Pre-turbo option	+\$20 — Inconel, 1/4", sealed, ungrounded tip	+\$20 — Inconel, 1/4" swaged to 1/8", sealed, ungrounded tip, 500 ms
OUTPUT		
Type	0 – 5 V analog, single ended	0 – 5 V analog, single ended
Source impedance	Amplifier output, no series resistor	≤ 150 Ω
Drives	10 kΩ analog input	10 kΩ input, or a thermistor input with a 2.49 kΩ pull-up to 5 V
Maximum output	Supply rail	≈ 5.3 V — buffered off a regulated rail, cannot reach the supply
Open probe	Drives high	Drives to 5 V

Parameter	EGA5	EGA12
SUPPLY		
Voltage	5 V — the ECU's sensor rail	8 – 16 V switched, 12 V nominal
Current	≤ 2 mA	≤ 5 mA
Reverse polarity	<i>Not protected</i>	Protected indefinitely
Jump start	<i>Not applicable at 5 V</i>	24 V for 5 minutes
Load dump	<i>Not applicable at 5 V</i>	Transient to 40 V
Input protection	Direct input	Series limits, RC filter and clamp diodes on both legs
AMPLIFIER		
Part	AD8495, MSOP-8	AD8497ARMZ, MSOP-8
Initial accuracy	± 3 °C at 25 °C	± 3 °C at 60 °C
Ambient rejection	0.05 °C per °C	0.05 °C per °C
Gain error	0.3 %	0.3 %
Scaling network	—	0.1 % thin film, ratio-matched — +0.5 °C at full scale
Cold-junction window	0 – 50 °C trimmed	25 – 100 °C trimmed
ENVIRONMENT		
Component rating	Amplifier –40 to +125 °C; other parts not specified	–40 to +105 °C
Recommended ambient	Under 50 °C — see rule 2	Under 100 °C — see rule 2
Ingress	No lid, no gasket, no gland	No lid, no gasket, no gland
MECHANICAL		
Enclosure	36.3 × 27.5 × 15.6 mm, ASA-CF	44 × 34 × 16.1 mm, ASA-CF
Board	20.3 × 16.5 mm	28 × 23 mm, 2-layer, own design
Module mounting	Two zip-tie flanges	Two zip-tie flanges
Probe mount	Weld-in bung included — 1/8"-27 NPT, 304 stainless	Weld-in bung included — 1/8"-27 NPT, 304 stainless
No-weld option	+\$24.95 — M18 × 1.5 male to 1/8" NPT female adapter, not stocked, so it adds a few days to dispatch. Fits an unused O2 port, and raises the probe: check stack height and insertion depth first.	+\$24.95 — M18 × 1.5 male to 1/8" NPT female adapter, not stocked, so it adds a few days to dispatch. Fits an unused O2 port, and raises the probe: check stack height and insertion depth first.
Thermocouple leads	150 mm, 22 AWG TXL, yellow / red, tinned	150 mm, 22 AWG TXL, yellow / red, tinned
Output leads	300 mm, 22 AWG TXL, red / black / white, tinned	300 mm, 22 AWG TXL, red / black / white, tinned

Wiring

THERMOCOUPLE IN, 0–5 V OUT

Thermocouple in on one side, sensor pigtail out on the other. **On a kit** the thermocouple pigtail ends in a mini-K socket and the supplied probe plugs straight in. **On the module alone** it is bare yellow and red leads — splice them right at the module, not down the run.

Output pigtail — 30 cm, 22 AWG TXL, tinned

Wire	Goes to
● Red	EGA5 — 5 V sensor supply EGA12 — switched 12 V
● Black	Sensor ground. Use the ECU's sensor ground, not chassis.
○ White	Any 0–5 V analog input.

Thermocouple pigtail — 15 cm

Wire	Goes to
● Yellow	Probe + — yellow on a Type K lead
● Red	Probe – — red on a Type K lead

Calibration

TWO-POINT CALIBRATION

Calibration points

Model	Low	High
EGA5	0.000 V = 0 °C	4.800 V = 960 °C
EGA12	0.000 V = 0 °C	5.000 V = 1250 °C

Three fitting rules

READ BEFORE FITTING

1. Use an ungrounded probe

A grounded or exposed-junction probe ties the manifold's ground to the amplifier input. Every bump in the manifold-to-module ground offset then lands on the reading. **The kit's probe is ungrounded and tested before it ships** — this rule is for anyone fitting their own. Check the listing says **ungrounded** or **isolated junction**, then verify it: ohmmeter from either thermocouple lead to the metal sheath should read **open**. A few ohms means grounded — send it back.

2. Mount it cool, not on the exhaust side

Cabin side of the firewall, or an inner fender. The probe lead is the hot part — an EGA5 wants to stay under 50 °C and an EGA12 under 100 °C. Cold-junction compensation is referenced to the module's own temperature, so a hot module reads high, and the enclosure is ASA-CF.

3. Extend with K-type wire only, never copper

A copper run between the probe and the module spans a temperature gradient and reads wrong with no other symptom. The module's own 15 cm pigtail is copper and that is fine — **because the splice sits at the module**. If you need more reach, use Type K extension wire from the probe end.

In the box

KIT

The module, the probe, and the bung it threads into. Splices and ties are whatever you already run.

- **The module** — potted, mini-K socket on the thermocouple pigtail
- **Ungrounded Type K probe**, 1/8 NPT, **mini-K plug fitted** — tested before it ships, and replaceable without touching the module.
Kit: stainless, 5 mm. Pro: Inconel, $\pm 1.1^{\circ}\text{C}$ special limits of error, sealed ungrounded tip, made in USA
- **Weld-in bung** — 1/8"–27 NPT, 304 stainless. The probe's own compression fitting threads into it.

Warranty

12 MONTHS

12 months, replace, no questions asked.

The module is sealed against vibration, moisture and heat cycling.

Support: sales@rosinalabs.com. Include the model and what it is fitted to.

Full terms: rosinalabs.com/policies