Technical Specifications / Operation: Radiant Gen2 Instruments

Multi Function Instruments with Enlarged Screen and Digital Features
Last updated by James Wiebe, August 10, 2022

Radiant's Gen2 instruments implement many different functions using traditional, easy to understand screen representations, along with a larger screen display and digital enhancements, such as calculation and display of Density Altitude and True Air Speed.

The purpose of this document is to describe common specifications, also operational details along with installation procedures.

The general technical specifications are:

Gen2 Altimeter showing traditional 2 needle face along with digital VSI, temperature and Density Altitude

- Screen Resolution: QVGA (320 x 240), color
- Sunlight readable
- Dimmable (uses external dimming switch, not included)
- Designed to fit standard 2 ¼" instrument cutout with 2 bolts (included)
- Power Source: +7 to +14 volts, approximately 0.1 ampere.
- Case is black nylon with chopped carbon fiber, 3D printed
- ASI range: 100 or 200 maximum, selectable by user.
- ASI units: knots or MPH, selectable by user.
- ASI green, yellow, red speed range: selectable by user
- Altimeter range: 0 to 20K feet (will not show below zero altitudes)
- Operational temperature range: -20 to +50 Celsius
- Temperature display: Either Fahrenheit or Celsius, selectable by user
- VSI range: +/- 9999 feet per minute, maximum
- VSI display type: digital only
- Altimeter display type: analog dual needle representation supplemented by digital value
- Airspeed display type: analog single needle supplemented by digital value, color coded to speed ranges
- True Air Speed: presented as digital value. Requires external OAT probe. (Note: TAS assumes that indicated, calibrated and equivalent airspeeds are the same. In reality, this is not possible and TAS values represent our best digital proximation of the available data.)
- Density Altitude: represented as a digital value, in 100' increments, from zero to 9900 feet. Requires external OAT probe. DA is not calculated as DA increases beyond 10000 feet.
- Fuel Gauge: presented as one, two or four traditional half-circle analog representations, along with a digital indication of percentage of fuel remaining for each tank. Circles are color coded along the arcs, with green at 50 to 100%; yellow is 25 to 50% and red is the remainder.
- Fuel Gauge input is 0 to 5 volts. There is no calibration possible.
- For resistive tanks, Fuel Gauge is programmed by special order from the factory. Specify ohms of your sender at empty and at full. Our technology is compatible with any resistive (float) sender.

Installation:

- Install instrument in any 2 ¼" panel cutout using two supplied nuts / bolts. Use optional expander ring to support installation in larger 3 1/8" hole.
- Attach black wire (ground) to ship ground.
- Attach red wire (power) to ship power, +7 to +14 volts. Do not exceed 14 volts. Use appropriate fuse (1 amp) and avionics master switch for operation.
- For control of dimming, optionally wire the yellow wire through a grounding switch.
- For installations which include Airspeed, the Airspeed sensor dongle will need to be installed close to the instrument, along with connection of pitot and static sources. The ID of the supplied supple tubing is 1/16", use appropriate barb fitting adapters. www.mcmaster.com supplies various barb adapters. The dongle plugs into the instrument.
- For installations which include OAT, the Temperature probe will need to be affixed to a shaded spot on the aircraft exterior; for instance, under the wing. The probe plugs into the instrument.

Operation:

- Turn the unit on.
- The brightness may be dimmed to night mode by grounding utilizing the external dimming switch (not supplied).
- For units with "INCH HG" (altimeter setting), the value may be adjusted briefly touching the Up or Down buttons.
- For units that have more than one display mode, the display mode may be advanced by touching either button for more than one second.
- If the unit has adjustable parameters, each parameter will be displayed at the startup screen. Selecting the appropriate button will lock that paremeter in, for instance "Fahrenheit or Celsius". The startup screens will be displayed for approximately 15 power cycles of the unit. After that, they will never be shown again.
- Read the values off the screen – just like a conventional instrument. Some values are only available digitally. These include: Density Altitude; Temperature; True Airspeed; VSI.
- Each value has a description immediately below it.

About RADIANT Technology Instruments

RADIANT Technology is starting anew, after a fire ended most business activities in 2019 and after the Covid pandemic. RADIANT Technology is focused on providing products which "Enable Adventure" for all who enjoy and use aviation: pilots, passengers, radio listeners and every adventurer at heart.

About James Wiebe

James Wiebe is a serial entrepreneur, with RADIANT Technology being his latest startup (or startover). In the 80's and 90's, James grew Newer Technology to be the largest Macintosh CPU upgrade company on the planet (over 250k accelerators sold; Steve Jobs was not a fan). In 2000, James started and eventually sold WiebeTech, a forensic technology company. James holds four patents and is an instrument rated pilot with about 2000 flight hours in many different aircraft. James' proudest achievement is being the father of two twin grandbabies, with a third coming later in 2022. James is supported by Kathy, who provides support, guidance and love. James is also supported by a little dog named Cocoa, who wandered into his and Kathy's lives after a tough start to life in the wild fields near Wichita, KS.

# # #