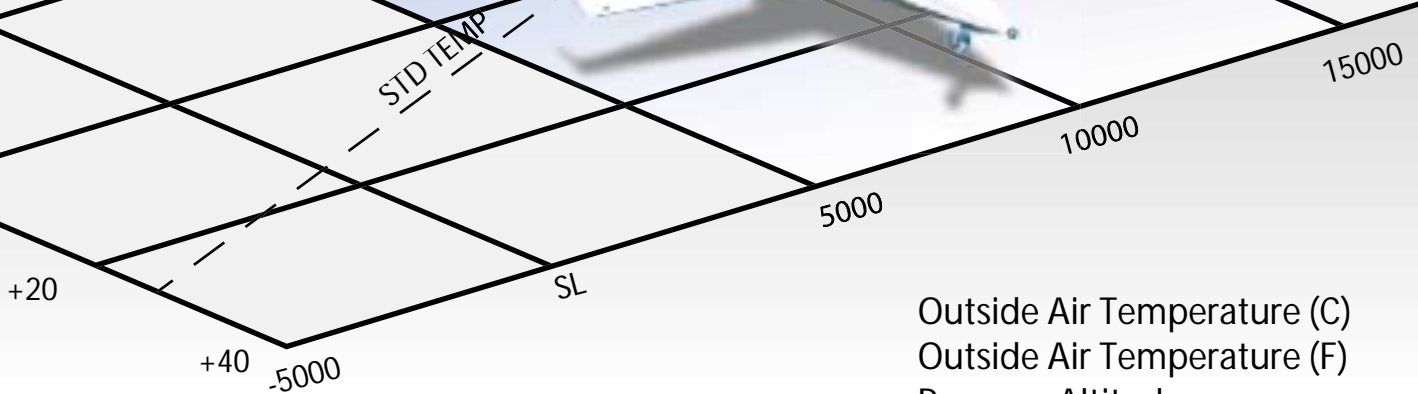


# 5 Function Indicator



**DENSITY ALTITUDE  
BROUGHT TO THE  
FRONT PANEL OF  
THE AIRCRAFT**



Outside Air Temperature (C)  
Outside Air Temperature (F)  
Pressure Altitude  
Density Altitude  
Aircraft Voltage



427 HILLCREST WAY  
REDWOOD CITY, CA 94062

Pilot workload is reduced with five functions of Davtron's Model 655.

Davtron's Model 655 is a computer-based product that computes density altitude automatically. No longer does the pilot need to retrieve outside air temperature and pressure altitude, then enter this into a flight computer. The Model 655 measures outside air temperature, and accepts pressure altitude information from the blind encoder or encoding altimeter, then converts this information to a direct read-out of density altitude. The density altitude is computed using U.S. standard atmosphere tabulation. Take-off roll, maximum rate of climb, and fuel consumption are determined easily from density altitude and the aircraft's flight manual.

## Operation

A single push-button on Model 655 causes the digital display in automatic rotation to show its five functions of: voltage, outside air temperature (Fahrenheit), outside air temperature (Centigrade), pressure altitude, and density altitude.

When the radio master switch of the aircraft is first turned on, the Model 655 always reads out the aircraft voltage to the nearest tenth of a volt. A code letter E indicates it is in the voltage function (EMF). To display outside air temperature in degrees Fahrenheit, the button is pressed, and the letter F appears to indicate this mode. The next press of the button displays C for outside air temperature in degrees Centigrade. The next function is indicated by the code letter P, and now displays pressure altitude. Another press and the letter d appears displaying density altitude.

The indicator remains in the mode selected as long as aircraft power is on. Any mode can be selected as fast as one can depress the switch. The mode selection will always sequence in the same manner (F C P d E) as indicated on the instrument's face.

The digital outside air temperature function replaces one of the most difficult-to-read instruments in the cockpit. The pilot may relate to outside air temp. in degrees Fahrenheit, then instantly change the display to degrees Centigrade for aircraft manual input, etc.

The voltage function of the indicator allows the pilot to monitor his electrical system precisely. By monitoring the voltage he can anticipate a low voltage condition, unlike a warning light which tells only that this condition has already occurred. Also, the pilot can know with more accuracy the amount of capacity remaining in the battery.

The voltage at which a battery is being charged is also of great importance, since over-charging can lead to excessive water loss and battery failure. In brief, the voltage function reveals valuable information which helps the pilot obtain more reliable and better service from the electrical system.

Davtron's Model 655 ground enables a pilot to read the altitude the transponder is sending to the ground for air traffic control. Altitude of the encoding altimeter is pressure altitude referenced to a barometric pressure of 29.92. By setting the standard altimeter to a setting of 29.92 it now reads pressure altitude and should then agree with the blind encoding altimeter. When the pressure altitude of your aircraft is received by A.T.C., a computer using current barometric pressure takes the pressure altitude of your aircraft and converts it to actual altitude. A pilot does the same operation as the computer on his standard altimeter when he sets the kollsman window to the proper barometric setting. Pressure altitude can be converted to corrected altitude by adding approximately 100 feet for every .1 inch the barometric pressure is above 29.92; approximately 100 feet must be subtracted from pressure altitude for every .1 inch the barometric setting is below 29.92.

## Note to Pilots

The pilot should always use good judgment for safe flight operations. Accuracy of the 655 and encoding altimeter should be checked periodically. Aircraft condition, runway type and condition, winds, runway slope, etc. will significantly affect take-off performance. Davtron's Model 655 retrieves density altitude as one important parameter in calculating aircraft performance.



Density Altitude x 1000



Pressure Altitude x 1000



Aircraft Voltage



Outside Air Temperature (F)



Outside Air Temperature (C)

## Installation

The 655 is available in two mounting styles: 655-1 as a small panel mount, and 655-2 as a standard 2-1/4" round mount.

The instrument will operate on 14 or 28 volts and requires a maximum of .35 amps. It must be connected to the output of an encoding altimeter or blind encoder.

The temperature sensor mounting should be a place that would be free of exhaust gasses or cowl flaps airflow. An ideal place is 2 feet out from wing root on the bottom of the wing. The stainless steel probe is supplied with 7-foot twisted pair leads and all mounting hardware. Leads may be shortened or extended without affecting calibration.

The model 655 accepts TTL, C MOS, P MOS, and N MOS inputs. It is not compatible with older type pulsed C mode inputs (e.g. Narco AT6).

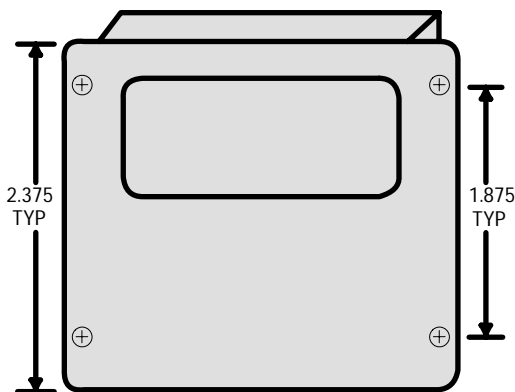
The model 655 may not function properly when connected to an encoder and a transponder, when the transponder is not turned on. The transponder loads the system, and must be turned on for proper operation.

## Calibration

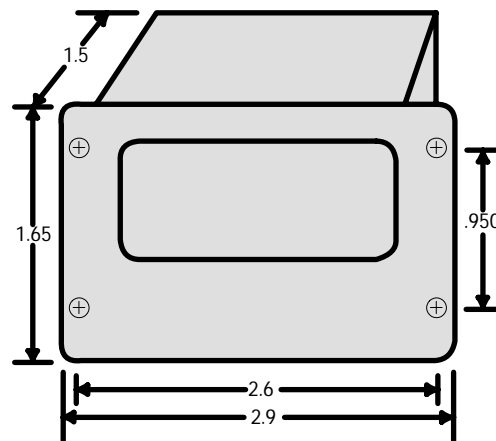
The model 655 has a laser-trimmed voltage reference that is very stable over temperature changes and time. However, if calibration is needed because of temperature probe change, etc., this is easily performed.

The trim pot is located on the back P.C. Board. Temperature may be calibrated at any point °F or °C. Ice stirred in water provides a very stable 0 °C or 32 °F calibration temperature, and does not require a precision thermometer. A single adjustment is all that is required.

## Mechanical



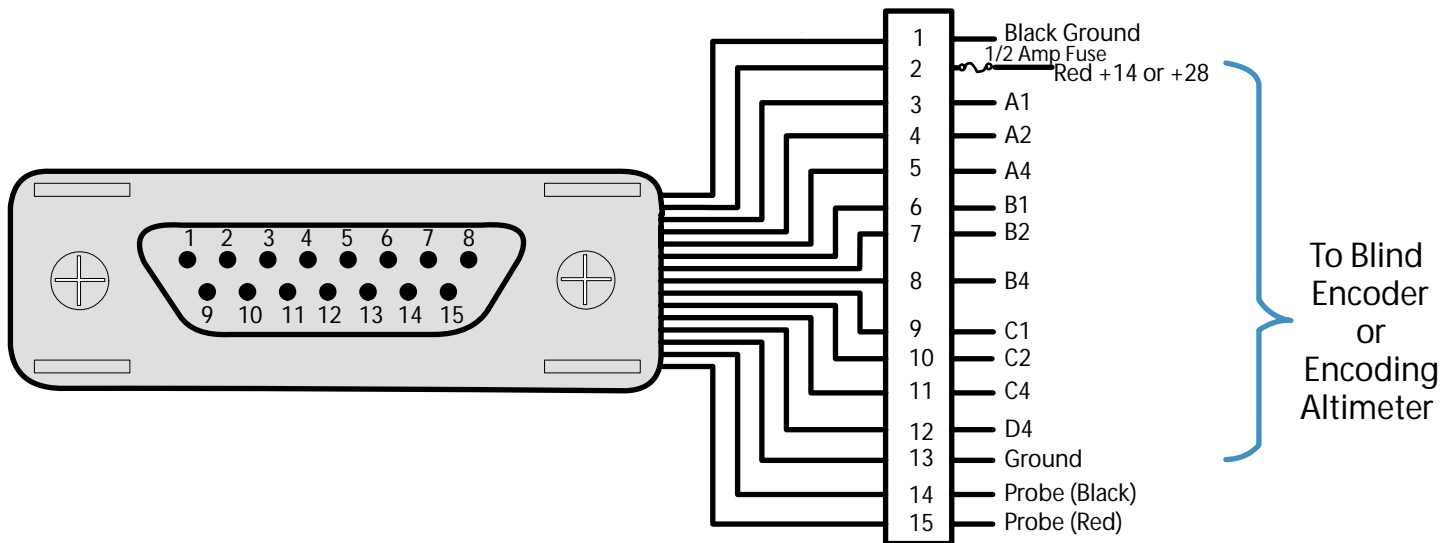
M-655-2 Clock Mount



M-655-1 Panel Mount

NOTE: Connector assembly extends beyond case – 3.4" overall depth required.

# Electrical



## Specifications

Density altitude: -10,000 to 70,000 ft.

Pressure altitude: -1000 to 62,700 ft. (Depends on encoder range.)  
Flashing annunciator character on incorrect encoder inputs.

Temperature range: -55 °C to +100 °C ±2 °C Typ. -67 °F to +212 °F

Voltage range 10V to 32V

Input voltage: 14 or 28 volts.

Input current: .35 amps max.

Weight: 5 oz.

Warranty: 1 year

## PRICES

M-655	Density altitude All Five functions	\$370.00
M-303	Temperature °F and °C Plus voltage (three functions)	\$300.00
M-650	Pressure Altitude (-1,000 to 62,700 ft.)	\$250.00



427 HILLCREST WAY  
REDWOOD CITY, CA 94062