



Rev2.0

# OPERATIONS MANUAL for V2000 VARIOMETER

17/06/10



Software version 3.2


17/06/10

## FEATURES \* New in version 3.1

### INTRODUCTION

The V2000 is a development of the V1000 variometer with revised display and graphics.

The V2000 retains all the operating features of the V1000 variometer.

- Simple installation with only power and TE connections required.
- The instrument is centered on a custom LCD display. It incorporates two sections: a 270 deg. bar graph sweep display for visual representation of current climb rate, plus a 2.5 digit seven segment screen for current/average display (0-19.9). See fig 1.
- All functions are simply implemented by two front panel buttons. Normal operation consists of depressing the  switch for 1sec to select on/off. Audio volume is set by tapping + or -.
- As all control functions are implemented with a microcomputer. A simple mode selection procedure can change a number of operating functions such as response speed and displayed values to suit the user.
- A communications port is provided for connection to a “slave” display for two seat aircraft including data output for external logging or navigational devices. Contact Tasman Instruments for details. \*
- The sensing is via a temperature compensated pressure transducer which, for glider applications, would normally be connected to a TE. probe.  
NOTE: no flask is required.  
The instrument is housed in a aircraft pattern 2 1/4 inch circular face mount enclosure.
- Power is from an external 7.5-16V DC source and consumption is minimal (approx. 20mA depending on audio volume). Connections are made through rear panel modular or telephone type sockets via the cables supplied.
- \* The instrument is fully functional on a 9 volt external battery supply. To maximise battery life and for optimal performance the maximum volume is restricted at lower voltages. There is still ample sound output for most installations at 9 volts supply. The “low battery” flag will be shown on the screen.
- \* Automatic powerdown if the instrument is not flying. Tests of altitude change are recorded and tested after 2 hours\*\* to decide if the instrument is flying. The PK312 power pack will not be depleted if the main power is removed without switching off the instrument.  
\*\* 1hour after ser 061031.

17/06/10

- **Controls and display**

**DISPLAY**

**Current value display.**

21 segments: selectable via front panel FUNCT/SELECT switches as +/-10 FSD or +/-20.FSD. (see settings below).

**Digit display.**

As either average or current value. Note: this display section also used to indicate current "MODE". (see "operation" below) and battery voltage.

**LOW BAT**

Illuminates if the voltage drops below 10.5 Volts, see below.

**units**

Knots or meters/second (V1000M)

**average**

20 sec fixed.

**memory**

All settings are retained in memory and are restored on power up.

**battery volts**

Read battery volts directly by pressing both buttons simultaneously.

**AUDIO**

Internal speaker.

External speaker. Tasman Instruments SP190 available .

Volume selection via front panel switches.

**CONTROLS**

**Buttons**

Two push button switches have multiple functions.

**CONNECTIONS**

**power**

7.5-16V DC polarity protected by internal fuse. 4P4C connector.

PK312 automatic battery backup available.

**External data**

Remote display and Tasman Flight Pack connection via 6P6C connector.

**TE probe**

Push on for 6 mm tube to TE probe.



FIG 1

17/06/10

## Operation

**Power:** 

To power instrument ON:- press and hold for one second. The display shows all segments for a few seconds and a single BELL will be heard. Two BELL sounds would indicate a memory fault has occurred and default values will be used.

To power instrument OFF:-press and hold for approx **two** seconds. (the digit display counts from 2 down).

## Volume

The volume has five settings; TAP + or - to increase or decrease. ("TAP" is push and release) The display shows the current setting as: **v 0-5** for about 2 seconds after a key tap.

\* Note: v 5 only available at 12 volts supply or above



## Battery Voltage

Pressing both buttons simultaneously will display the battery volts. Note: the current value display and audio are suppressed.



17/06/10

## Setup

There are various MODES accessible via SETUP:

They are entered via. the FCN or “function” button and modified by the SEL or “select” button.

NOTE: No key press for 2 seconds will accept the value displayed and return to the normal display.

### FCN +/-

If this button is held down the audio is silent. If held down for more than one second a BELL will be heard and the current value display will be blank. The Digit display will now be a “SETUP” screen. Now release the key.

Each “TAP” of the FCN key will cycle through modes 1-4.

#### MODE 1 - average display:

The screen will show **F** or **SL**. **F**-(fast)  
The digit display will show the current value  
(see mode 3).

**SL**-(slow) The digit display will show a 20 second  
average value  
TAP “SEL” to toggle.



TAP FCN

#### MODE 2 - full scale set:

The screen will show **5** or **10**  
10- The current value display is +/-0-10 FSD.  
5- The current value display is +/-0-5 FSD.  
Note: m/s units display 2.5 or 5.0 FSD  
TAP “SEL” to toggle  
Note: The average display will not change.



TAP FCN

#### MODE3 - response time:

The screen will show **r1-7**.  
**1**=1sec response time and increments 0.5 sec.  
ie. **r 3**=2 second response.



TAP FCN

#### MODE 4 - tone on sink on/off:

The screen will show **t1 t2** or **t3**  
**t1** tone on climb only.  
**t2** tone on climb/ sink 2 knot deadband.  
**t3** tone on climb/ sink no deadband.  
TAP “SELECT” to toggle.



17/06/10

This instrument is designed for sports aviation uses only.

SPECIFICATIONS.

SIZE: H.62mm, W.62mm, D.85mm.  
MOUNT: STANDARD 2,1/4 INCH CUTOUT.  
WEIGHT: 236 grams.  
POWER: 7.5-16VDC 20mA nom.(zero volume)  
ACCURACY: 3%.FSD  
RESOLUTION: 0.1  
DISPLAY UNITS: KNOTS, meters/second  
ALTITUDE: -1000ft TO 33000ft.  
OPERATING TEMP: -10 TO 70 DEG. CENTIGRADE NON CONDENSING.

OPTIONS.

REPEATER DISPLAY.  
EXTERNAL SPEAKER.  
OTHER UNITS SUCH AS FT/SEC or ON REQUEST.

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Revision History

10/03 1.4 Remove reference to flight computer> Include M/sec in specifications.  
09/05 1.5 Include sink tone selection.  
0506 1.6 Include ver 3.1 software  
0610 2.0 New graphics