



Rev1.6

OPERATIONS MANUAL for V1000 VARIOMETER

31/10/06



Software version 3.1

INTRODUCTION

This instrument is designed to satisfy a need for a product that utilises the most current technology to produce the best possible performance at the lowest possible cost. It accommodates and expands on all the most important functions of a standard Vario, ie. Audio, with internal speaker, current lift/sink rate, and includes the primary feature of an average display in the same small package.

Simple installation with only power and TE connections required.

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INTRODUCTION cont.

Considerable effort has gone into developing an audio tone and pattern to convey to the pilot the maximum information without being intrusive or annoying. The result maximizes the pilots lookout time without the need for visual confirmation of the current climb rate.

FEATURES * New in version 3.1

- 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 "PWR" switch for 1sec to select on/off. Audio volume is set by tapping + or -.
- Response time adjustable from 1 to 4.5 seconds from the front buttons.
- 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 in a standard aircraft pattern 2 1/4 inch circular face mount enclosure.
- Power is from an external 9-16V 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

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)

AUDIO

Internal speaker.

External speaker. Tasman Instruments SP190 available .

Volume selection via front panel switches.

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.

CONTROLS

Buttons

The two push button switches have multiple functions;- These are in two groups:

CONNECTIONS

power

9-16V DC polarity protected by internal fuse. 4P4C connector.

PK312 automatic battery backup available.

External display

Remote display connection via 6P6C connector.

TE probe

Push on for 6 mm tube to TE probe.

FIG 1



Operation

Power; the RED button.

To power instrument ON:- press and hold PWR 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 PWR 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: **v1-5** for about 2 seconds after a key tap.

* Note: v5 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.



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Setup

There are various MODES accessible via SETUP:
They are entered via. the FUNCT 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.

FUNCT; the Yellow button.

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 FUNCT key will cycle through the modes from 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 FUNCT

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 FUNCT

MODE3 - response time:

The screen will show **r1-7**.

1=1sec response time and it is incremented by 0.5 sec.

ie. **r3**=2 second response



TAP FUNCT

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.



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.
05/06 1.6 Include ver 2.1 software