

DBI3-V01	URRA
dbi3_v01_fw_updates_2021_06_02.odt	DBI3 V0.1 Firmware Updates

DBI3 V01 Firmware Updates

Document summarizes DBI3-V01 firmware updates from revision 1.2. Future updates will be added to later revisions of this document.

Firmware revision 1.4 Updates

Display timeouts

For **setup**, **info** and new **windlog** display, there is now a 60 sec timeout then return to **flight** display. Timeout is reset on button action.

Buttons sequence

Buttons sequence for **Fn** button selection e.g. **Info**, **Setup** and **OFF** is changed so that **Fn** button must be pressed prior to **I**, **S** or **OFF** button.

Cryptic "NAN" readout

On a hardware fault a "NAN" display for altitude, rate of climb and temperature has been read out. This is now changed to "Fault".

Log indicator

A log indicator "**log..**" now appears at top left part of display. Log indicator is shown when log running.

Command Line Interface

Command line interface is extended with commands for all setup items and flight data readout.

Variometer sound indicator

Sound indication for climb and descend is now implemented and can be enabled from setup display. Different sound signature and threshold for climb and descend.

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GPS altitude and GPS Datum in log file

GPS altitude and GPS set datum is now added to each log record.

Course over ground indicator

For very slow GPS speed over ground conditions, course over ground indicator now show "**slow**" instead of "---" which was cryptic.

Auto off display

During auto-off sequence and when auto-off is enabled, "**OFF**" is displayed after an audible sound warning prior to instrument turn off. Button activity will interrupt and reset auto-off timeout.

Wireless ambient temp support

Wireless ambient temp is now supported. When active, ambient temp display is prioritized with 1) wireless sensor, 2) cable sensor and 3) and with lowest priority, enclosure sensor. Ambient temp sensor source is indicated as: **AW** for wireless, **AC** for cable and **A** for enclosure.

Wind history display

Wind history display (windlog) is shown by press and hold **Fn** button for more then 2 secs.

Display show altitude, speed over ground and course over ground for the latest 36 minutes of flight with 6 minutes intervalls. Button action or timeout return to flight display.

Spurious premature stop

Spurious stop for flight timer and log session now cured.

Battery monitor

Battery monitor (battery fuel gage) is now improved to present an equitable readout.

This is most notable at extra low operating temperatures.

Wireless signal strength info page

A new info page is added showing received signal strength. Page show transmitters code and received signal strength. Signal strength unit is in dBm. Typical receiver sensitivity is -90 dBm.

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Command Line Interface FW rev 1.4

rst - restart system

? - show help

ri - rtc init

rs yyyy mm dd hh mm ss - rtc set

po - turn hard off

sm on|off - sim data

su alt {feet|meter} | roc {fpm|mps} | bar {ihg|hpa} | temp {fahr|cent} | sog {knot|mps|kmh|mph}
- set units

sa alth {off|value} | altl {off|value} | clmb {off|value} | desc {off|value} | topt {off|value} - set alarm

sf aut {off|static|timeout} | frs {off|pon|toff|toffc|lapc} | aof {off|on} | dat {222-0} - set funcs

sv resp {6.0-1.2} | audio {off|on} | clmbt {value} | desct {value} - set vario

st top {4-1} {off|9999-1} | amb {2-1} {off|9999-1} - set topt

gu alt|roc|bar|temp|sog - get units

ga alth|altl|clmb|desc|topt - get alarm

gf aut|frs|aof|dat - get funcs

gv resp|audio|clmbt|desct - get vario

gt top{4-1}|amb{2-1} - get topt

sd met|imp|urb - set defaults

fs vinit|vdel|start|stop|list|del [filename]|read[filename]|state|clear - file system

si mod|brd|date|loc{adr} str - set info

gi mod|brd|date|loc{adr} - get info

md mach|con - set CLI mode, machine or console

sn - print serialnumber

vr - print firmware version

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gl {360-1} - get wlog data

rd presm|presb|bar|alt|roc|top|amb|ambc|ambw|lap|long|lat|sog|cog|utc|msl|all - read DBI3 flight data

cc - battery fuel gage

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Firmware revision 1.6 Updates

DBI3 V01 Firmware version 1.6

Max Values Info Page

A **MAX** value **INFO** page is added. Max values for:

- Altitude
- Baro setting when max altitude was stored, displayed together with stored max altitude
- Climb
- Descend
- Top Temp
- Speed Over Ground

are stored and displayed with **MAX** page selected. Values are reset from instrument power on.

Loss of Top Temp function

A possible loss of top temp function has been corrected. Problem occurred when rate of foreign messages received was high.

Added UTC time Readout on Display

Double pressing **Fn** button replace Elap-time display with UTC-time for a 4 second fixed timeout.

The normal **Fn** button double press Altimeter Unit Toggle (AUT) function is still there.

Faster TOPT Code setup function

While setting TOPT Code, press and hold up/down button will automatically switch over from x1 to x10 to x100 then x1000 increment/decrement. Saves time and lowers Pilots In Command blood-pressures.

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Command Line Interface FW rev 1.6

Perform warm reboot

rst - restart system

Show help contents

? - show help

Initialize Real Time Clock

ri - rtc init

Set Real Time Clock

rs yyyy mm dd hh mm ss - rtc set

Power off instrument

po - turn hard off

Simulation mode on or off

sm on|off - sim data

Set instruments units

su alt {feet|meter} | roc {fpm|mps} | bar {ihg|hpa} | temp {fahr|cent} | sog {knot|mps|kmh|mph}
- set units

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Set instrument alarms

sa alth {off|value} | altl {off|value} | clmb {off|value} | desc {off|value} | topt {off|value} - set alarm

Set instrument functions

sf aut {off|static|timeout} | frs {off|pon|toff|toffc|lapc} | aof {off|on} | dat {222-0} - set funcs

Set instrument variometer

sv resp {6.0-1.2} | audio {off|on} | clmbt {value} | desct {value} - set vario

Set instrument top and ambient temp code

st top {4-1} {off|9999-1} | amb {2-1} {off|9999-1} - set topt

Get instrument unit settings

gu alt|roc|bar|temp|sog - get units

Get instrument alarm settings

ga alth|altl|clmb|desc|topt - get alarm

Get instrument function settings

gf aut|frs|aof|dat - get funcs

Get variometer settings

gv resp|audio|clmbt|desct - get vario

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Get top and ambient temp code settings

gt top{4-1}|amb{2-1} - get topt

Set defaults (settings), metric, imperial or urb

sd met|imp|urb - set defaults

File system commands

fs vinit|vdel|start|stop|list|del [filename]|read[filename]|state|clear - file system

Set nonvolatile info parameters

si mod|brd|date|loc{adr} str - set info

Get nonvolatile info parameters

gi mod|brd|date|loc{adr} - get info

Set console mode

md mach|con - set CLI mode, machine or console

Print instrument serialnumber

sn - print serialnumber

Print firmware version

vr - print firmware version

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Get windlog data

gl {360-1} - get wlog data

Read instrument flight data

rd presm|presb|bar|alt|roc|top|amb|ambc|ambw|lap|long|lat|sog|cog|utc|msl|all - read DBI3 flight data

Read instrument battery status

cc - battery fuel gage

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Firmware revision 1.8 Updates

DBI3 V01 Firmware version 1.8

Dewpoint Info Page

A **Dewpoint INFO** page is added. Page show:

- Barometric Pressure
- Ambient Temperature
- Relative Humidity
- Dewpoint with Temperature Dewpoint Spread on same line
- Cloud Base

Temperature and Humidity data source is DBA3-V02 Temp/Dewpoint meter. When a DBA3-V02 is active it takes precedence over DBA3-V01. DBA3-V01 (similar to DBT3-V01) measures only temperature.

Dewpoint is calculated from temperature and humidity readings applying the Magnus formula.

Cloud base is calculated from dewpoint, temperature reading and barometric set pressure e.g. barometric pressure set to QNH, cloud base reads cloud base over sea-level.

Adjusted TOPT Code setup function

The x1000 increment/decrement is removed leaving x1, x10 and x100 modes.

Setup from Command Line

When performing setup units from command line using **su** command, values was not converted when changing unit. That is now corrected.

Dewpoint info added to read command and logfile records

Temperature, humidity, calculated dewpoint and cloudbase is added to output for read command as well as for log file record.

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Distance Made Good and Elapsed time added to MAX page

Info/Max page has been extended with distance made good (DMG) and elapsed time (LAP).

DMG and LAP are reset at instrument power on. Values displayed for DMG is big circle distance from first GPS fix from instrument power and for LAP, elapsed time from instrument power on.

MAX page LAP time is separated from DBI3 ELAP display.

GPS data output, NMEA mode

From setup menu, a selection between NMEA and CLI mode is now implemented.

When NMEA mode is selected, instrument output NMEA GPGGA and GPRMC messages at a one herz rate. This is compatible with TwoNav ® PC application software. TwoNav ® PC application shall be setup as: protocol NMEA, baudrate 115200, communications port COMn (USB Serial port). NMEA MSL altitude is substituted with DBI3 pressure altitude. Uncheck 'GPS uses ellipsoidal altitudes'. Also make sure application program datum match DBI3 setup datum.

CLI mode works as before. Note CLI mode need to be selected for firmware update and log file download.

Added text line to setup display

One text line is added to setup display. Text line explain abbreviation for setup options.

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